

General Notes:

1. Provide 5' Minimum Clear Between Street Light Poles & Sewer Laterals.
2. Provide 3' Minimum Clear Between Pullboxes & Sewer Laterals.
3. Provide 6' Minimum Clear Between Transformer Pads & Sewer Laterals (Do Not Straddle).
4. Provide 3' Minimum Clear Between Ductlines & Sewer Lines.
5. Contractor Shall Verify Sewer Lateral Locations with Civil Sheets.
6. Provide 3' Minimum Horizontal Clear & 6" Vertical Clear Between Water Lines & All Electrical Systems.
7. The Electrical Contractor and any other subcontractor 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.

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 Each 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.

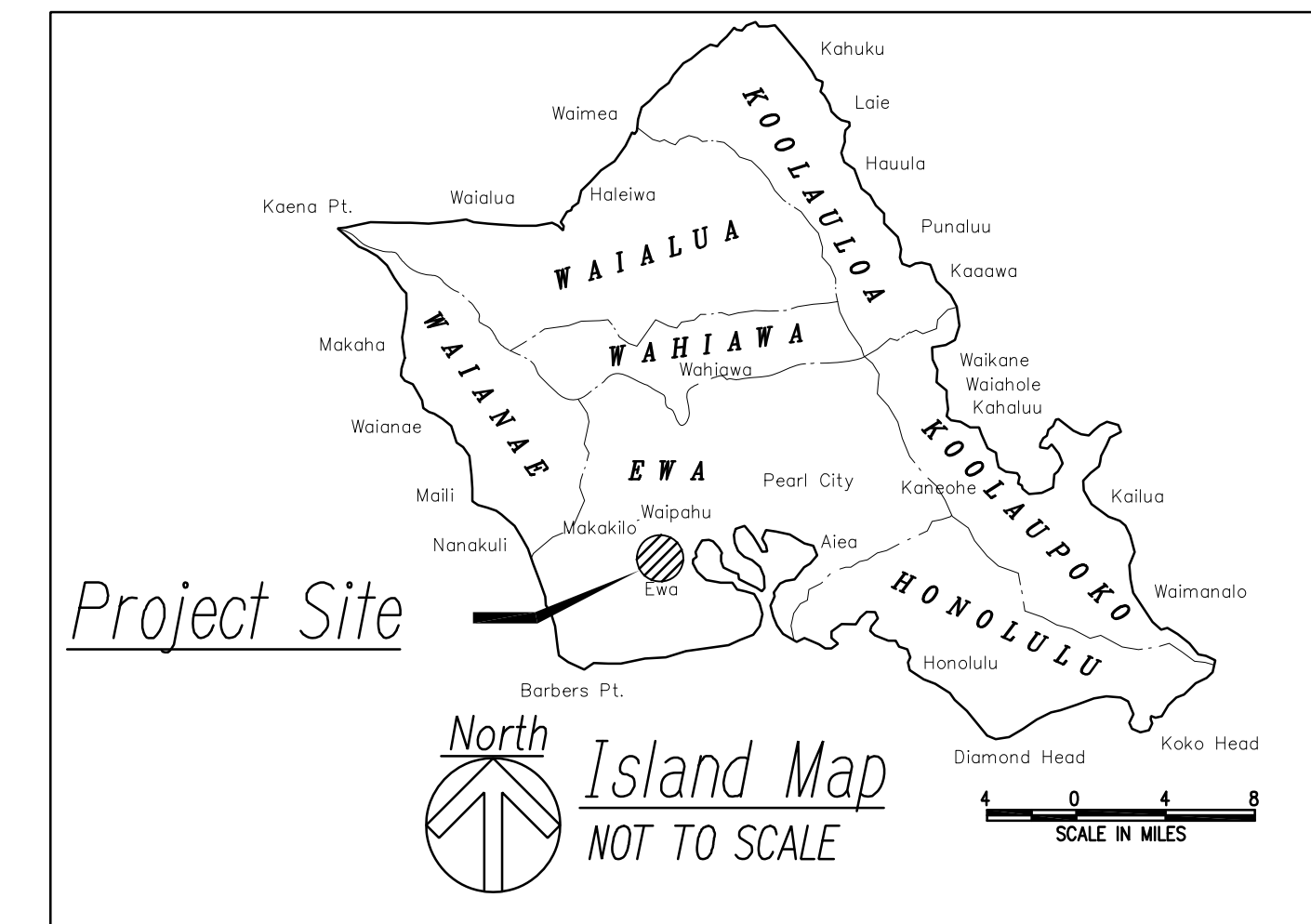
City & County of Honolulu - Department of Transportation Services Traffic Signals And Technology Notes:

1. The Contractor Shall Notify The Traffic Signals And Technology Division, Department Of Transportation Services, Three (3) Working Days Prior To Commencing Work On The Traffic Signal System (Phone: 768-8388).
2. The Traffic Signal System Shall Be Kept Operational During Construction. Any Relocation Required Shall Be Approved By The Traffic Signals And Technology Division, Department Of Transportation Services, And Paid For By The Contractor.
3. The Contractor Shall Be Responsible For Any Damages To The Existing Traffic Signal Facilities, Including But Not Limited To The Traffic Signal Fiber Optic Cable System, And Interconnect System. Any And All Damages To The Facilities Shall Be Repaired By The Contractor At Their Cost In Accordance With The Requirements Of The Traffic Signal And Technology Division, Department Of Transportation Services.
4. Coordinate All Speciality Work to be Performed by Traffic Signal System (TS) Contractor and Closed Circuit Television (ITS) Contractor. Work Included are New and Relocation of HECO Services, Including HECO Metering and Underground Feeders to Equipment.

City & County of Honolulu - Department of Design & Construction Mechanical/Electrical Division Notes:

1. The Contractor Shall Notify the Mechanical/Electrical Division, Department of Design and Construction Two (2) Weeks in Advance of Any Relocation of Utility Pole(s) that May Be Necessary. (1-808-768-8431).
2. The Contractor Shall Notify the Mechanical/Electrical Division, Department of Design and Construction, Three (3) Working Days Prior to Commencing Work on the Street Light System. (1-808-768-8431).
3. The Street Lighting System Shall Be Kept Operational During Construction. Any Relocation Required Shall Be Approved by the Mechanical/Electrical Division and Paid for by the Contractor.
4. The Locations of the Existing Underground Street Light Facilities Shown On the Plans are from Existing Plans and are Approximate Only. The Contractor Shall Exercise Caution when Construction Crosses or Is In Close Proximity to the Existing Street Light Facilities. The Contractor Shall Be Responsible for Any Damages to the Existing Street Light Facilities. Any and All Damages to these Facilities Shall Be Repaired by the Contractor at His Cost in Accordance with the Requirements of the City and County of Honolulu.
5. The Contractor Shall Be Responsible for Any Damages to the City's Existing Communications Fiber Optic Cable System. Any and All Damages to these Facilities Shall be Repaired by the Contractor at His Cost in Accordance with the Requirements of the City and County of Honolulu.
6. Salvage and Deliver Existing Street Light Standard to the Department of Facility Maintenance Baseyard at Manana (1001 Makolu Street) as Directed by the Street Light Inspector. Contact 1-808-768-5310 a Minimum of Two Days Prior to Delivery.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-1	790



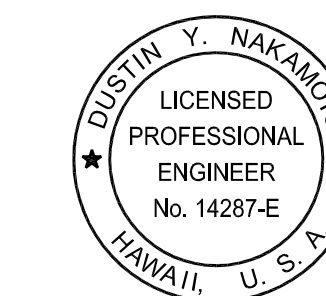
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APPROVED BY

PROGRAM ADMINISTRATOR, MECHANICAL/ELECTRICAL DIVISION DATE
DEPT. OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

CHIEF, TRANSPORTATION TECHNOLOGY DIVISION DATE
DEPT. OF TRANSPORTATION SERVICES
CITY & COUNTY OF HONOLULU



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

Signature: *[Handwritten Signature]*
Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-1 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-2	790

Electrical Symbols

Symbol	Description	Symbol	Description	Symbol	Description
	Exst. Street Light		Exst. HECO 3-PHASE PADMOUNT TRANSFORMER (1000-1500 KVA)		Traffic Signal Controller, See Detail A/EH07
	Note Symbol, See Plan For Notes		Exst. HECO 3-PHASE PADMOUNT TRANSFORMER (500-750 KVA)		CCTV Controller, See Detail A/EH07
	Breakline To Begin & End Duct Section Type		Exst. HECO 3-PHASE PADMOUNT TRANSFORMER (75-300 KVA)		Type 1 Traffic Signal Standard With Traffic Signal Heads Mounted On Mast Arm Standard; Pole "B" with 25' Mast Arm Indicated, Standard; Pole "B" With 25' Mast Arm Indicated, See Detail A/EH03
	Electric/Signal Ductline With Designators; Indicates Type "A" Duct Section With "2-2E" Ducts. See Sheet EF-01 For Duct Sections And This Sheet For The Conduit Schedule		HECO 1-PHASE PADMOUNT TRANSFORMER		Pedestrian Push Button, See Detail B/EH04
	Saw Cut Exst. A.C. Pavement, Conc. Sidewalk, Curb & Gutter Prior To Trench Excavation. Restore Subbase, Basecourse, Pavement, Conc. Sidewalk, Curb & Gutter Per Hdot Requirements, Thickness Shall Match Exst Road Design See Civil Sheets For Restoration Details.		Exst. HECO SWITCHGEAR PAD		Vehicle Loop Detector, See Sht EH06
	Traffic Signal Ducts & Wiring		HECO 1-PHASE OVERHEAD TRANSFORMER		Signal Standard, 10' Height, Unless Indicated Otherwise With Designator; Pole "A" Indicated, See Detail C/EH04
	Exst. Street Light Ducts & Wiring		HECO 3-PHASE OVERHEAD TRANSFORMER BANK		12" RYG Traffic Signal Head, See Mounting Details A/EH04
	Exst. Traffic Signal Ducts & Wiring		Exst. OVERHEAD HECO LINE		12" RYGA Traffic Signal Head (Straight Arrow), See Mounting Details A/EH04
	HECO 2' X 4' Handhole		Exst. OVERHEAD HTCO LINE		12" RYGA Traffic Signal Head (Left Turn Arrow Indicated), See Mounting Details A/EH04
	HECO 3' X 5' Handhole		Exst. OVERHEAD CATV LINE		12" RYGA Programmed Visibility Traffic Signal Head (Left Turn Arrow Indicated), See Mounting Details A/EH04
	Exst. HECO 4' X 6' Manhole		Exst. OVERHEAD SPAN GUY		Pedestrian Signal Head, See Mounting Detail C/EH05
	Exst. HECO 5' X 8' Manhole		Exst. OVERHEAD STREET LIGHT LINE		Optical Pre-emption Detector, See Mounting Details A & B/EH05
	Exst. HECO 6' X 11' Manhole		OVERHEAD HECO LINE		CCTV Camera, See Mounting Detail B/EH08
	Exst. HECO 6' X 14' Manhole		OVERHEAD HTCO LINE		HECO Meter Pedestal, See Detail A/EH01
	Exst. HECO 7' X 16' Manhole		OVERHEAD CATV LINE		Type "A" Metric State Highway Traffic Signal Pullbox
	HECO 6' X 18' Manhole		OVERHEAD SPAN GUY		Type "B" Metric State Highway Traffic Signal Pullbox
	HTCO 2' X 4' Handhole		OVERHEAD STREET LIGHT LINE		Type "C" Metric State Highway Traffic Signal Pullbox
	Exst. HTCO 3' X 5' Handhole		OVERHEAD STREET LIGHT LINE		Type "B" Metric State Highway Street Light Pullbox
	Exst. HTCO 5' X 10' Manhole		Exst. UNDERGROUND HECO LINE		98W State Standard LED Street Light, Bracket Arm Length As Noted On Plan
	Exst. CATV 2' X 6' Handhole		Exst. UNDERGROUND HTCO LINE		98W Reduced Height LED Street Light, Bracket Arm Length And Mounting Height As Noted On Plan
	Exst. CATV 3' X 5' Handhole		Exst. UNDERGROUND CATV LINE		120W State Standard LED Street Light, Bracket Arm Length As Noted On Plan
	CATV 4' X 6' Manhole		Exst. UNDERGROUND AT&T LINE		120W Reduced Height LED Street Light, Bracket Arm Length And Mounting Height As Noted On Plan
	Exst. SIC 4' X 6' Manhole		UTILITY POLE BY UTILITY COMPANY UNLESS OTHERWISE STATED		
	Exst. AT&T 6' X 6' Manhole		ANCHOR & GUY WIRE BY UTILITY COMPANY UNLESS OTHERWISE STATED		
	AT&T 4' X 4' Manhole				

Notes:

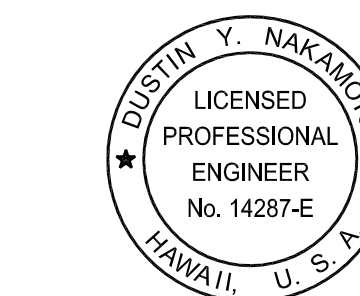
- "X" Thru System Denotes Item to be Removed, Unless Otherwise Noted.
- Dashed Symbol Indicates Existing Item, Unless Otherwise Noted.
- Dashed and Screened Symbol Indicates Future Item, Unless Otherwise Noted.
- "Top Of Wall" Indicates Pole Base Mounted On Top Of Retaining Wall.
 "In Cut Slope" Indicates Pole Base Located In Cut Slope Area.
 "In Fill Slope" Indicates Pole Base Located In Fill Slope Area.
 "Behind Guardrail" Indicates Pole Base Located Behind Guardrail.
 "Breakaway" Indicates Breakaway Transformer Base.

HIGHWAY LIGHT LEGEND:

1	6, 9AB	← Light No., Circuit No. (Ckt 9, Phases A & B Indicated)
2	125+36, O/S 16' Rt	← Sta. No., Offset From Baseline
3	15', III	← Bracket Arm Length, Light Distribution
4	35'	← Luminaire Mounting Height Above Pavement
5	Top of Wall	← Pole Base Location, See Note #4
6	Breakaway	← Additional Base Information, See Note #4

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 Date: April 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

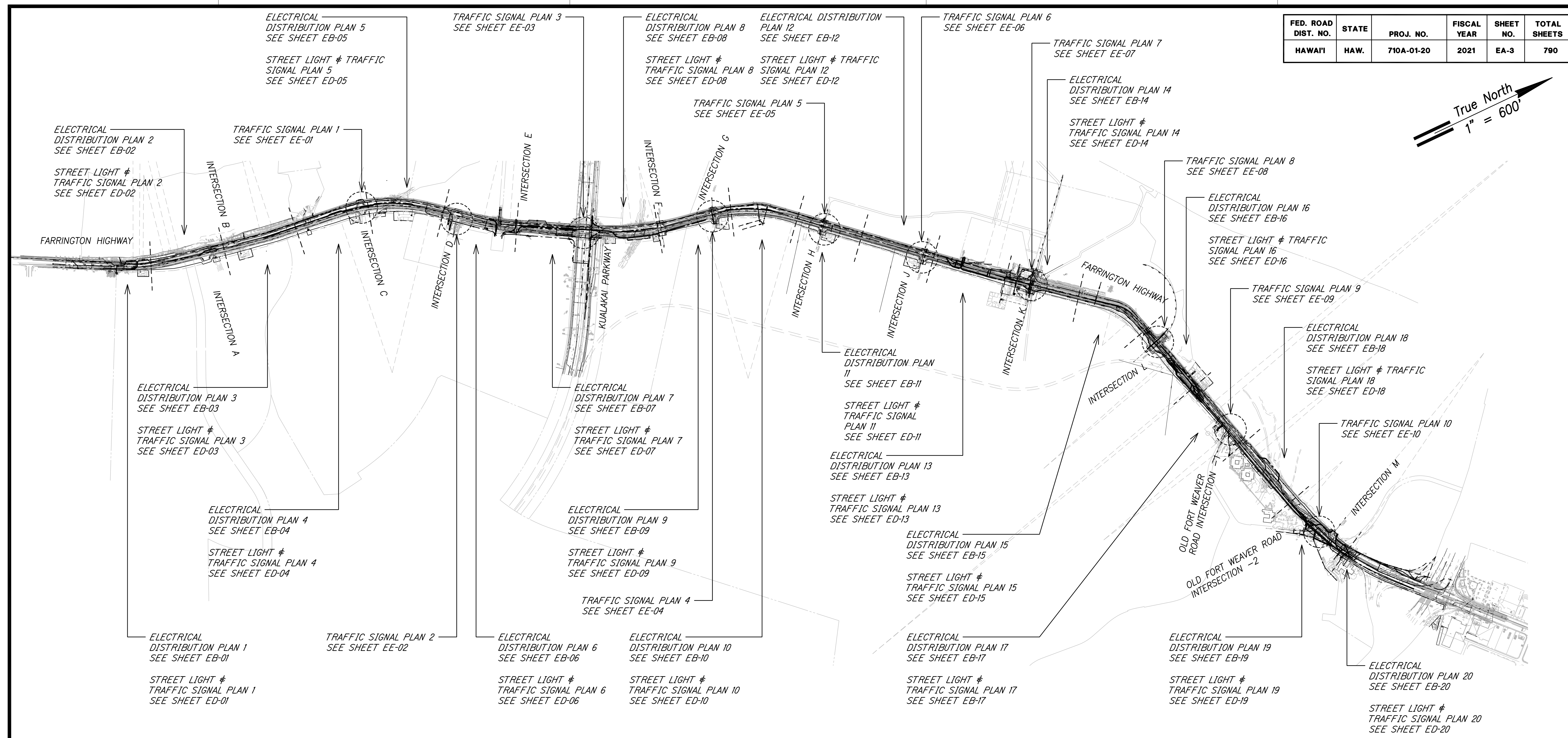
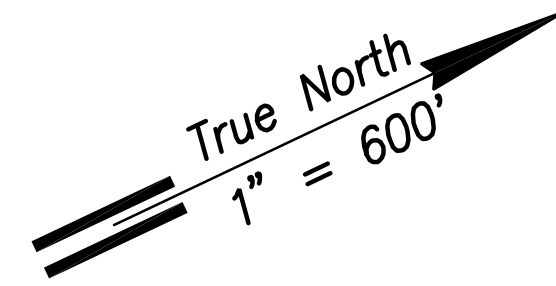
ELECTRICAL SYMBOLS

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-2 OF 12 SHEETS

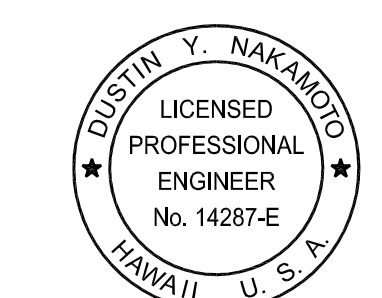
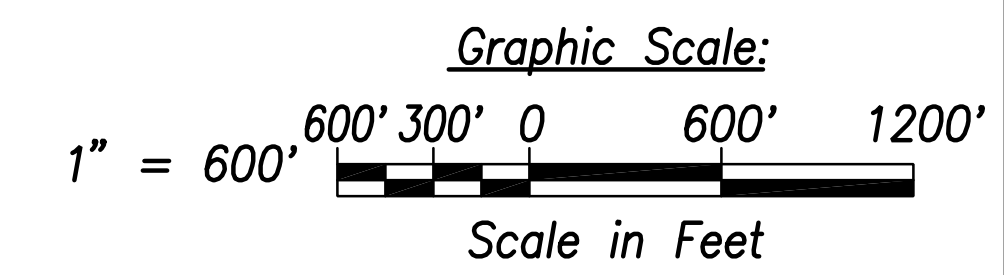
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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Overall Electrical Site
Scale: 1" = 600'



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[Signature]
SIGNATURE
April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Overall Electrical Site

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-3 OF 12 SHEETS

Hawaiian Electric Company (HECO) Notes:
Rev. 8/4/21

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 Electrocutation.

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 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 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.

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HAWAII	HAW.	710A-01-20	2021	EA-4	790

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 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.

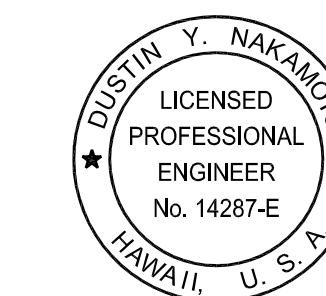
DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only

Req# _____ By _____ Date _____

Transmission & Distribution Engineering
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 date.



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

HAWAIIAN ELECTRIC (HECO) NOTES

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-4 OF 12 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY _____	_____
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Hawaiian Electric Company (HECO) Notes: (Continued)
Rev. 8/4/21

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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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.

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.

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.

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 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.

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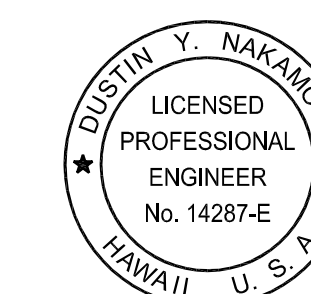
DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only

Req# _____ By _____ Date _____

Transmission & Distribution Engineering
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 date.



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Signature: Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAIIAN ELECTRIC (HECO) NOTES

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-5 OF 12 SHEETS

HECO Underground Fuel Oil Pipeline Notes:
Rev. 3/26/18

Equipment Schedule

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-6	790

1. Excavation Near HECO Fuel Oil Pipelines

The Contractor Shall Exercise Extreme Caution Whenever Construction Crosses or is in Close Proximity to HECO's Underground Fuel Oil Pipelines. If Any Excavation Work Will Be Performed Within 10-Feet of the Fuel Pipelines, the Contractor Shall Notify HECO's Fuels Department at least Two Weeks Prior to the Start of the Excavation Work. If the Excavation is Adjacent to or Beneath the Fuel Pipeline, HECO May Require a Stand-By Person to Monitor the Work of the Contractor. The Cost of the Stand-By Person Shall Be Borne by the Contractor.

Whenever the Integrity of the Pipeline, its Coating, Test Stations, or Cathodic Protection System is Affected by the Excavation Work, the Pipeline and/or its Appurtenances Shall Be Repaired by HECO Personnel Or A Contractor With HECO Operator Qualification Certification, According to US DOT Regulations. The Cost of Any Repairs Shall Be Borne by the Contractor.

The Contractor Shall Notify the Hawaii One Call Center (HOCC) At Least Five Working Days Prior to the Start of Excavation Work, as Required By Hawaii Revised Statute 269E-7.

The US DOT Requires that the Pipeline be Inspected Any Time that it is Exposed. The Contractor Shall Make the Area with the Exposed Pipeline Available to HECO, and Provide Safe Access to the Excavated Area, for this Inspection.

2. Clearance Requirements

Any New Installation Near HECO's Fuel Oil Pipelines Shall Adhere to The Following Clearance Requirements:

- Parallel to HECO Fuel Pipeline: 24-Inches
- Crossing Below HECO Fuel Pipeline: 24-Inches Below
- Crossing Above HECO Fuel Pipeline: Crossing Above Not Permitted

3. Notification

Prior to Beginning Any Excavation Work, the Contractor Shall Notify the HECO Fuels Department at 543-4108.

In the Event of an Emergency, or Damage to Any Pipeline Facilities, Notify HECO Security Command Center at 543-7685, so HECO 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. This Phone is Manned 24-Hours a Day.

The Hawaiian Electric Co (HECO), Hawaiian Telcom (HTCo), Spectrum Oceanic Cable (CATV), ϕ AT ϕ T pullboxes, handholes and transformer pad lots shall be constructed by the contract as shown in these drawings ϕ in accordance with the the following standard drawings:

Type	Description	Type	Description
3' X 5' HECO Handhole	3' X 5' precast concrete handhole with precast concrete cover, provided in accordance with HECO standard drawing No. 103783.	2' X 4' HTCo Pullbox	2' X 4' type 435TB precast concrete pullbox with 2-piece steel "slip-not" grip or polymer "non-skid" covers and ground rod, per HTCo standard drawing no. 34056. A minimum of 2 precast concrete pullbox sections shall be required at each pullbox.
6' X 11' HECO Manhole	6' X 11' reinforced concrete manhole with traffic rated cover, provided in accordance with HECO standard drawing No. 103776.	5' X 10'-6" HTCo Manhole	5' X 10'-6" X 6'-6" D precast reinforced concrete manhole with traffic rated frame and cover, and ground rod, provided in accordance with HTCo standard drawing No. 180016.
6' X 14' HECO Manhole	6' X 14' reinforced concrete manhole with traffic rated cover, provided in accordance with HECO standard drawing No. 103777.	2' X 6' CATV Handhole	2' X 6' reinforced concrete handhole with "slip-not" grip covers, similar to HTCo type 435TB6 (standard drawing no. 34078), except with "CATV" inscribed on cover. 3 pre-cast concrete pullbox sections shall be required at each pullbox.
6' X 18' HECO Manhole	6' X 18' reinforced concrete manhole with traffic rated cover, provided in accordance with HECO standard drawing No. 105260.	4' X 6' CATV Manhole	4' X 6' reinforced concrete manhole with traffic rated frame ϕ cover, similar to HTCo standard drawing no. 180014, except with "CATV" inscribed on cover.
8'-4" X 7'-8" HECO Transformer Pad Lot	8'-4" X 7'-8" transformer pad lot with reinforced concrete transformer pad ϕ ground rod per HECO standard drawing Nos. 30-5001 ϕ 011249.		
4' X 4' AT ϕ T Manhole	4' X 4' reinforced concrete manhole with traffic rated frame ϕ cover, provided in accordance with drawing EF-16.		

Note:

If ducts enter handhole/manhole outside of the approved handhole/manhole window, submit the handhole/manhole shop drawing to the respective utility company for approval.

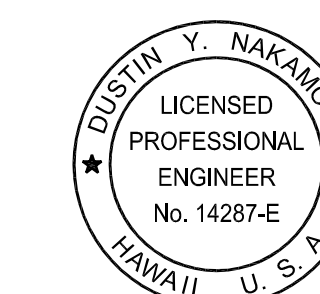
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DRAWING REVIEW

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Req# _____ By _____ Date _____
Transmission & Distribution Engineering
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 date.



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

Signature: *[Signature]*
Date: April 30, 2024
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAIIAN ELECTRIC (HECO) NOTES & EQUIPMENT SCHEDULE

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-6 OF 12 SHEETS

Hawaiian Telcom (HTCO) Notes:

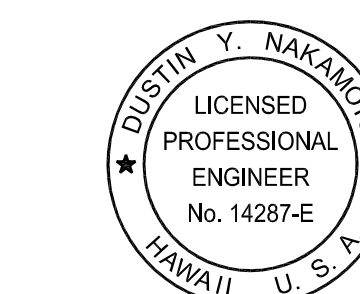
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-7	790

1. The Contractor Shall Procure and Pay for All Licenses and Permits and Shall Give All Notices Necessary and Incident to the Due and Lawful Prosecution of the Work.
2. The Contractor Shall Obtain an Excavation Permit and Toning Request from Hawaiian Telcom's Excavation Permit Section, Located at 1177 Bishop Street, Two Weeks Prior to the Start of Construction. Hours of Business are 8:00 A.M. to 11:00 A.M. and 12:00 P.M. to 3:00 P.M. Monday Through Friday, Except Holidays.
3. Prior to the Excavation of the Ductline, the Contractor Shall Request Hawaiian Telcom to Locate Existing Ductline Wherever Required. For Underground Cable Locating and Marking, Five (5) Working Days Advance Notice is Required. Three (3) Working Days Advance Notice is Required for Any Inspection by a Designated Representative.
4. The Locations of Existing Utilities are Approximate Only. The Contractor Shall Exercise Extreme Caution and Shall Maintain Proper Clearances Whenever Construction Crosses or is in Close Proximity of Hawaiian Telcom Facilities. The Contractor Shall Verify Their Locations and Shall Be Liable for Any Damages to Hawaiian Telcom Facilities. Any Damages Shall Be Reported Immediately to Hawaiian Telcom's Repair Section at #611 (24 Hours) or to the Excavation Permit Section at 546-7746 (Normal Working Hours, Monday through Friday, Except Holidays). As a Result of His Operations, Adjustments to the New Ductline Alignment, if Required, Shall Be Made to Provide the Required Clearances.
5. The Contractor Shall Take Necessary Precaution Not to Damage Existing Cables or Ducts. A Hawaiian Telcom Inspector or Designated Representative is Required to Be at Any Job Site Whenever There Will Be a Breakage into or Entry into Any Structure that Contain Hawaiian Telcom Facilities. Temporary Cable and Duct Supports Shall Be Provided Wherever Necessary.
6. The Contractor Shall Notify Hawaiian Telcom's Inspector or Designated Representative a Minimum of 72 Hours Prior to Excavation, Bracing, or Backfilling of Hawaiian Telcom's Structures or Facilities.
7. All Applicable Construction Work Shall Be Done in Accordance with the "Hawaiian Telcom Standard Specifications for Placing Telephone Systems" Dated January 2007, All Subsequent Amendments and Additions, and All Other Pertinent Standards for Telephone Construction. Contractor Shall Familiarize His Personnel by Obtaining Applicable Specifications.
8. When Excavation is Adjacent to or Beneath Hawaiian Telcom's Existing Structures or Facilities, The Contractor Shall:
 - A. Sheet and/or Brace the Excavation to Prevent Slides, Cave-Ins, or Settlements to Ensure No Movement to Hawaiian Telcom's Structures or Facilities.
 - B. Protect Existing Structures and/or Facilities with Beams, Struts, or Underpinning While Excavating Beneath them to Ensure No Movement to Hawaiian Telcom's Structures or Facilities.
9. The Contractor Shall Brace All Poles or Light Standards Near the New Ductline, Manhole, or Handhole During His Operations.
10. The Contractor Shall Saw-Cut AC. Pavement and Concrete Gutter Wherever New Manholes, Handholes, or Ductlines are to be Placed and Shall Restore to Existing Condition or Better.
11. The Contractor Shall Comply with the Policy Adopted by the Department of Planning and Permitting, City and County of Honolulu, Concerning the Replacement of Concrete Sidewalks After Excavation Work.
12. The Underground Pipes, Cables, or Ductlines Known to Exist by the Engineer from His Search of Records are Indicated on the Plans. The Contractor Shall Verify the Locations and Depths of the Facilities and Exercise Proper Care in Excavating in 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.
13. Wherever Connections to Existing Utilities are Shown on the Plans, the Contractor Shall Expose the Existing Lines Prior to Excavation of the Main Trenches to Verify Their Locations and Depths.
14. the Contractor, at His Own Expense, Shall Keep the Project and Surrounding Area Free from Dust Nuisance. The Cost for Supplementary Measures, Which Will be Required by the City and County, Shall Be Borne By the Contractor.
15. The Contractor Shall Pump All Manholes Dry During Final Inspection.
16. The Contractor Shall Notify Hawaiian Telcom Inspector 24 Hours Prior to the Pouring of Concrete or Backfilling.
17. when Connecting to Manhole Walls, All Existing Reinforcing Bars Shall Be Left Intact. Ducts Shall Be Adjusted in the Field in Order to Clear Reinforcing
18. The Contractor Shall Be Responsible for Laying Out All Required Lines and Grades and Shall Preserve All Bench Marks and Working Points Necessary to Lay Out the Work Correctly. The New Ductline Shall Be Adjusted by the Contractor to Suit the Existing Conditions and the Details as Described in the Plans.
19. Minimum Concrete Strength Shall Be:
 - for Ductline 2500 PSI at 28 Days
 - for Manhole 3000 PSI at 28 Days or as Specified in Design Notes
20. Bends in the Duct Alignment, Due to Changes in Grade Shall Have a Minimum Radius of 25 Feet. All 90 Degree C-Bends at a Pole or at the Building Floor Slab Penetration, Shall Have a Bend Radius of Ten Times the Diameter of the Duct or Greater.
21. After Ductline has been Completed, a Mandrel with a Square Front Not Less Than 12" Long and Having a Diameter of 1/4" Less Than the Inside Diameter of the Duct, Shall Be Pulled Through Each Duct After Which a Brush with Stiff Bristles Shall Be Pulled Through to Make Certain that No Particles of Earth, Sand, or Gravel Have Been Left Inside. Ducts Shall Be Completely Dry and Clean.
22. All Ducts and Conduits Shall Have an 1800# Polyester Mule-Tape (Neptco, WP1800P, Hawaiian Telcom Material Code No. 571154) Installed Throughout its Entire Length. All Ducts Shall Be Capped to Prevent Entry of Foreign Material During Construction and at the Completion of Installation.

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APPROVED BY _____
HAWAIIAN TELCOM DATE _____



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SIGNATURE DATE: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
HAWAIIAN TELCOM (HTCO) NOTES	
FARRINGTON HIGHWAY WIDENING Kapolei Golf Course Road to Fort Weaver Road Project No. 7101A-01-20	
Scale: As Shown	Date: April 2022
SHEET No. EA-7 OF 12 SHEETS	

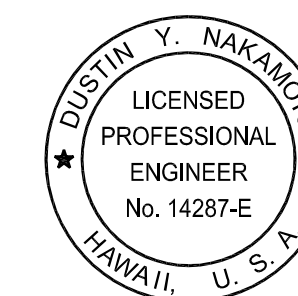
Spectrum Oceanic (CATV) Notes:

1. The Contractor Shall Procure and Pay for All Licenses and Permits and Shall Give All Notices Necessary and Incident to the Due and Lawful Prosecution of the Work.
2. The Locations of Existing Utilities are Approximate Only. The Contractor Shall Verify their Locations and Shall Be Responsible for Any Damages to these Utilities as a Result of His Operations. Adjustments to the New Ductline Alignment, If Required, Shall Be Made to Provide the Required Clearances.
3. The Contractor Shall Brace All Poles or Light Standards Near the New Ductline, Manhole or Handhole During its Operations.
4. the Contractor Shall Saw-Cut A.C. Pavement, Concrete Gutter, and Concrete Sidewalk Wherever New Manholes, Handholes, Pullboxes or Ductlines are to Be Placed and Shall Restore to Existing Condition or Better.
5. The Underground Pipes, Cables, or Ductlines Known to Exist by the Engineer from His Search of Records are Indicated on the Plans. The Contractor Shall Verify the Locations and Depths of the Facilities and Exercise Proper Care in Excavating in the Areas. 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.
6. The Contractor, at His Own Expense, Shall Keep the Project and Surrounding Area Free from Dust Nuisance. The Cost for Supplementary Measures, Which Will Be Required by the City And County, Shall Be Borne by the Contractor.
7. Prior to the Excavation of the Ductline, the Contractor Shall Request Spectrum Oceanic to Locate Existing Ductline Wherever Required.
8. The Contractor Shall Take Necessary Precaution Not to Damage Existing Cables or Ducts. Any Work Involving Existing Cables or Ducts Shall Be Done in the Presence of the Spectrum Oceanic's Inspector or His Representative. Temporary Cable and Duct Support Shall Be Provided Wherever Necessary.
9. The Contractor Shall Notify the Spectrum Oceanic Inspector 72 Hours Prior to the Start of Work on CATV Infrastructure, Pouring Concrete, or Backfilling. Spectrum Oceanic's Inspector(s): Perry Samuolu at 387-2496 or Paul Caspillo at 479-1637.
10. Wherever Connections to Existing Utilities are Shown On the Plans, the Contractor Shall Expose the Existing Lines Prior to Excavation of the Main Trenches to Verify Their Locations and Depths.
11. Contractor Shall Provide All Materials and Furnish All Labor and Equipment Necessary to Install the Ductline In Place Complete.
12. The Contractor Shall Be Responsible for Laying Out All Required Lines and Grades and Shall Preserve All Bench Marks and Working Points Necessary to Lay Out the Work Correctly. The New Ductline Shall Be Adjusted By the Contractor to Suit the Existing Conditions and the Details as Described in the Plans.
13. The Contractor, At His Own Expenses, Shall Keep the Project Area Free from Dust Nuisance. The Work Shall Be in Conformance with the Air Pollution Control Standards and Regulations of the State Of Hawaii, Department of Health.
14. The Location f CATV Facilities Shown On Plans are from Existing Records with Varying Degrees of Accuracy as to its Actual Fixed Location. The Contractor Shall Use Extreme Caution When Working in Close Proximity of CATV Facilities.
15. The Contractor Shall Obtain Excavation Permit Clearance from Spectrum Oceanic's Engineering Section Located at 200 Akamainui St., Mililani Tech Park.
16. For Any Field Assistance or Verification of CATV Facilities, the Contractor Shall Call Spectrum Oceanic at 625-2100 and Ask for the OSP Engineering Department.
17. Any Work Required to Relocate CATV Facilities Shall Be Done by Spectrum Oceanic and the Contractor Shall Be Responsible for All Coordination Requirements and Associated Costs.
18. Any Damage To Spectrum Oceanic's Facilities Shall Be Reported to Spectrum Oceanic's TOC Department at 625-8169.
19. The Contractor Shall Tunnel Under Existing Concrete Curb and Gutter as Necessary to Extend Conduit into Existing CATV Pullbox and into the Proposed Power Supply Pullbox.
20. All Existing Improvements that are Disturbed During the Construction Phase Shall Be Restored to its Original or Better Condition at No Cost to the City And County In Accordance with City's Standards.
21. At Locations Where Existing Catv Pullbox Replacement is Proposed, the Contractor Shall Take All Necessary Precaution Not to Damage the Existing Cables in the Pullbox. All Damages to Existing Cables Shall Be Repaired by Spectrum Oceanic and Paid for by the Contractor.
22. Coordinate All Penetration of Telephone Pullboxes with Hawaiian Telcom Inspector.
23. Smooth Finish Inside Wall of Existing Pullboxes and Handholes to its Original Condition or Better.
24. All New Concrete Encased Conduit Shall Be PVC Pipe-Schedule 40. All New Direct-Buried Conduit Shall Be PVC Pipe-Schedule 80. Use of Any Other Material Type (GTS, Etc) Shall Be Limited to Matching Existing Facilities. Connection of Dissimilar Materials to Require Approval from Spectrum Oceanic's Inspector and Engineering Dept.
25. The Contractor Shall Place Poly Cord Throughout Project, and Secure in Manholes, Handholes and Pullboxes.
26. For 3" Conduits or Larger, the Contractor Shall Install Neptco WP1800 Muletape or Approved Equal in All Ductlines, Leave Muletape in Place for Future Use as a Pull or Fish Line, Unless Otherwise Noted. Reference GTE Material Code No. 571154. All Ducts Shall Be Capped to Prevent Entry of Foreign Material During Construction and at Completion of Installation. Endbells are Required for Conduits 2" and Larger.
27. Penetration into Pullboxes if Necessary to be from Factory Installed Opening or from Bricks Position. Penetration from Pullbox Walls is Not Acceptable.
28. Bends in the Duct Alignment, Due to Changes in Grade Shall Have a Minimum Radius ff 20-feet. All 90-Degree C-Bends at a Pole or at the Building Floor Slab Penetration, Shall Have A Bend Radius Of 10 Times the Diameter of the Duct or Greater.
29. Minimum Length of Conduit Used Shall Not Be Less than 5-feet in Length. Use of Partial Conduit Sections Allowable is at Spectrum Oceanic's Inspector(s) Discretion.
30. All Conduits Shall Enter Through the End "Short Wall" of The Pullbox. Entry Shall Be at 90 Degrees (Perpendicular) to Wall Face with Bends No Less than 12" from Exterior Wall.
31. A Minimum of (2) Precast Riser Sections Must Be Used on All 2x4 or 2x6 Pullboxes.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-8	790

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APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

APPROVED BY
SPECTRUM OCEANIC DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPECTRUM OCEANIC (CATV) NOTES

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-8 OF 12 SHEETS

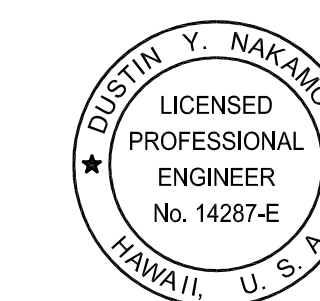
Spectrum Oceanic (CATV) Notes: (continued)

- 32. All New Construction Shall Utilize Concrete Precast Base Unless Otherwise Approved or Specified by Spectrum Oceanic's Inspector(s).
- 33. When Three (3) Or More 4" Conduits Enter One End Wall of Any Pullbox, Only Brick Bases will be Allowed Unless Otherwise Instructed/Approved by Spectrum Oceanic's Inspector(s).
- 34. Two Minimum Layers of Bricks to be Used Lower than the Lowest Duct Entering the Pullbox. Top Layer of Brick to be Flush with Top of Conduit or Higher.
- 35. For Upgrade/Repairs to Existing Pullboxes, Bricks May Be Used and Shall Always be at Least Two Layers Lower than the Lowest Duct Entering the Pullbox.
- 36. At No Time Shall Cement Mortar, Wood or Any Other Material be Used Between Precast Sections.
- 37. Leveling or Raising of Boxes to Grade Must Be Done:
 - A. Pre-Cast Base(s) - Using Gravel Layer Under Base (Type 3B or Equivalent Approved by Spectrum Oceanic's Inspector
 - B. Brick Base(s) - Adjustments to Brickwork Section. the Permanent Installation of Wooden Wedges to Accomplish this Purpose Will Not Be Accepted.
- 38. 5/8" Copper Ground Rods Shall Be Placed in All Pullboxes Unless Otherwise Directed by Spectrum Oceanic. Ground Rods Will Be Placed in the Corner 3" to 4" from the Wall and Away from Any Conduit with No More than 8" Sticking Up Above Ground.
- 39. Trenching to be by Hand Digging Near and Across Existing Utility Lines.
- 40. Minimum Clearance Between Street Light Stand and Fire Hydrants Shall Be Three Feet.
- 41. Underground Utilities Shown Hereon is for Information Only. No Guarantee is made on the Accuracy or Completeness of said Installation.
- 42. For Underground Cable Locating and Marking, Five Working Days Advance Notice is Required. Three Working Days Advance Notice is Required for Any Inspection by a Designated Representative. Contractor Shall Take Necessary Precaution Not to Damage Any Existing Cables or Ducts. Spectrum Oceanic's Inspector or Designated Representative is Required to be at Any Job Site Wherever there Will Be a Breakage into or Entry into Any Structure that Contain Spectrum Oceanic's Facilities.
- 43. Concrete Strength Shall Be 3000 PSI in 28 Days.
- 44. Curing and Backfilling. Maintain Concrete in a Moist Condition for 24 Hours Minimum for 3,000 PSI and 48 Hours Minimum for 2,500 PSI Before Compacted Backfilling; 72 Hours Minimum Before Permitting Motor Traffic Load on Ductline Curing Method Shall Meet Spectrum Oceanic's Inspector's Approval.
- 45. Install 4-mil. Thick Orange Color Warning Tape 3-Inch Wide, Entire Length of Trench when Placing CATV Conduits. Tape Should Read "Caution Buried Cable Line Below". Manufactured by Harris Industries, Inc., Catalog Number UT-43 or Equivalent Tape. Tape to be Installed 12-Inches Below Grade.
- 46. After Ductline has been Completed, a Mandrel with a Square Front Not Less Than 12-Inch Long and Having a Diameter or 1/4-Inch Less Than the Inside Diameter of Duct, Shall Be Pulled Through Each Duct after which a Brush with Stiff Bristles Shall Be Pulled Through to Make Certain that No Particles of Earth, Sand, or Gravel Have Been Left Inside. Ducts Shall Be Completely Dry and Clean.
- 47. Metallic Entrance Conduits Shall Be Grounded.
- 48. All Conduits Within a Building Shall:
 - A. Be Installed in the Shortest And Straightest Possible Run.
 - B. Have No Section Longer Than 100-feet Nor Contain More Than Two 90-Degree Bends. An Approved Sized Junction Box or Gutter Box Shall Be Placed if this is Exceeded.
 - C. All Bends Shall Be Long Sweep-Radius Bends But the Inside Radius of the Bend Must Never Be Less Than Ten Times the Diameter of the Conduit.
- 49. All Construction Must Be Inspected and Approved by Spectrum Oceanic Prior to the Installation of Any of its Facilities and the Energizing of its System.
- 50. Contractor and/or Customer Shall Provide Spectrum Oceanic with Sufficient Installation Time in Their Occupancy Time Table.
- 51. For pullbox locations where vehicular intrusion possible, concrete collar required per spectrum standard and specifications manual. examples include but not limited to, rolled curbs, curb/headers less than 5" in height, vehicular travelways with no defined curb/header, etc.
 - A. Non sidewalk area, see figure 18.1c, 19.1c and 20.1b in the Spectrum specifications manual.


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-9	790

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

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APPROVED BY: 
 SIGNATURE DATE: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

APPROVED BY: _____
 SPECTRUM OCEANIC DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

SPECTRUM OCEANIC (CATV) NOTES

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-9 OF 12 SHEETS

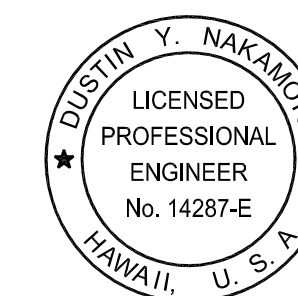
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-10	790

AT&T Corp. Construction Notes:

1. All Cover Depths Indicated on Drawings are Measured from Grade to Top of Concrete Encasement.
2. Minimum Cover for Structure Shall Be 36" Minimum Below Proposed Finished Grade.
3. Place Marking Tape Continuously Along the Trench Line at 18" Below Finished Surface. Marking Tape Shall Be Non-Detectable. AT&T Corp. to Provide Marking Tape. Contact AT&T Corp. Communications Technician at 1-808-455-1010.
4. Shore Trench as Required by OSHA Standards.
5. Contractor Shall Pothole Existing Cable for Location Prior to Construction. AT&T Corp. Operations Shall Be Notified Before Commencing this Operation.
6. The Contractor Shall Furnish a Professional Licensed and Bonded Guard at the Work Site Whenever the Fiber Optic Cable is Left Exposed During Non-Working Hours (Overnight, Weekends and Holidays). No Additional Compensation Will Be Allowed for this Work.
7. The Contractor Shall Give AT&T Corp. at Least 3 Weeks Notice Prior to Begin of Construction.
8. The Contractor Shall Give AT&T Corp. at Least 48 Hours Notice of Inspection of Ductline Installation and/or Tie into Manhole.
9. Coordinate All Speciality Work to be Performed by AT&T Corp. which does not Require Contractor's Participation.
10. Contact AT&T Corp. Communications Technician at 1-808-455-1010 a Minimum of 2 Working Days Prior to Start of Construction.
11. Maintain a Minimum of 6' Separation Between Drilled Shafts (Guideway Columns) Outer Edge of Excavation and the AT&T Corp. Conduit/Cable Facilities.
12. The Contractor Shall Provide AT&T Corp. with Two Sets of As-Builts Drawings Showing the Offsets, Stationing and Vertical Elevation of the Ductline Constructed, Manhole and Intercept Manhole Placement and Existing AT&T Corp. Manhole Tie-In Locations.
13. If within 2' of Any Existing AT&T Corp. Ductlines or Cables, Hand Excavation Shall Be Used.
14. Maintain 2' Minimum Horizontal Separation Between AT&T Corp. Conduit/Cable Facilities and All New Construction (Utility Facilities, Ductlines and Poles; Street Light Poles and Associated Lines; and Traffic Signal Facilities and Associated Lines).
14. Maintain 4' Minimum Horizontal Separation Between AT&T Corp. Conduit/Cable Facilities and any HECO 46kV lines.
15. Maintain 1' Minimum Vertical Separation Between AT&T Corp. Conduit/Cable Facilities and All New Construction Crossings (Utility Facilities and Ductlines; Street Light Facilities and Lines; and Traffic Signal Facilities and Lines).
16. Salvage AT&T Manhole Covers and Frames and Return to AT&T Corp. for Future Re-Use, if possible. Contractor to Contact AT&T Corp. Communications Technician at 1-808-455-1010 to Coordinate Delivery of Salvaged Frame and Covers to AT&T Yard Location in Pearl City.

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[Signature]
 SIGNATURE April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
AT&T NOTES	
<i>FARRINGTON HIGHWAY WIDENING</i> <i>Kapolei Golf Course Road to Fort Weaver Road</i> <i>Project No. 7101A-01-20</i>	
Scale: As Shown	Date: April 2022
SHEET No. EA-10 OF 12 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-11	790

Sandwich Isles Communications, Inc. (SIC) Notes:

General:

- All Work Shall Be in Strict Accordance with Specifications and Requirements of the Rural Utilities Services (RUS) and Sandwich Isles Communications (SIC), Which Complies with All Applicable City, County, State and Federal Requirements.
- All Materials Used Must Be Approved and (or) Accepted by Sandwich Isles Communications, Inc..
- Contractor May Refer to the RUS Website <http://www.rurdev.usda.gov/RUSTelecomPrograms.html> for Regulations, Bulletins, Forms, etc.
- Contact the Hawaii One Call Center at (866) 423-7287 for Locating Existing Underground Facilities Prior to Beginning Any Excavation.
- All Work Shall be Coordinated and Scheduled with SIC and/or its Representative and Any Other Agency Involved with the Project.
- The Contractor Shall Procure and Pay for All Licenses and Permits and Shall Give All Notices Necessary for Prosecution of the Work.

Conduits:

- All PVC Conduits, Sweeps, Couplings, Adapters and Bell Ends Shall Be Schedule 40, Unless Otherwise Specified.
- All High Density Polyethylene Conduits Shall Be SDR 11. Typical 4-Pack Unit Includes Four 1 1/2" SDR 11 Rated Conduits in the Colors of Black, Red, Orange, and White, Unless Otherwise Specified. All Conduits to be Pressure Tested at 120 PSI. Fusion Splicing of the Conduit Shall Be Acceptable Only when Pulling Joints through Bores. All Couplings Shall Be Double "E-LOC" Manufactured by ETOC Specialty Products, Inc.
- Main Conduit Runs, Except Riser Conduits, Shall Be Constructed with Minimum 6-Foot Radius Curves, Unless Otherwise Approved by the Engineer.
- After the Conduits are Installed, a Round Solid Mandrel Not Less than 12" in Length and having a Diameter of 1/4" Less than the Inside Diameter of the Conduit Shall Be Pulled through Each Conduit. Suffixes Listed in RUS 515B for Conduits are Applicable.
- Install Muletape in All PVC Conduits and Cap All Conduits After Testing. The NEPTCO (or Approved Equal) Muletape is Available in 3,000ft., 6,500ft., and 10,000ft. Reels from Westinghouse Electric Supply Company (WESCO), the NEPTCO Muletape is Pre-Lubricated and Printed with Sequential Footage Markings. Muletape Will NOT be Installed in Conduits Designated for Fiber.
- All 4" Ducts Shall Have Watertight Plugs to Keep them Free of Moisture & Debris and to Accommodate Cabling Placed on Future Projects.
4" Plugs Shall Consist of:
Tyco, Quadplex Jackmoon Plugs, Series 136
Tyco, Jackmoon Hole Plugs & Bushings, Series 136
All Other Ducts Shall Have Tyco, Blank Jackmoon Plugs to Keep them Free of Water and Debris.
- Conduit Stubs from Handholes to Individual Residential Lots Shall Be Schedule 40 PVC, 1" Diameter and Extended 5' Beyond Property Line. Cap and Seal End and Mark Locations with Above Ground Marker.

- All Conduits Shall Enter Manholes at a 90 Degree Angle and Shall Extend Into the Manhole as Follows: Conduits Designated for Fiber Shall Extend 12" Into the Manhole. All Other Conduits Shall Be Flush with the Inside Wall and Include Bell Ends. Any Exceptions Shall Only be Permitted when Specified by the Engineer.
- All Conduits Entering Manholes or Handholes Shall Be Grouted Between the Conduits and Sidewall, Inside and Out. All Conduits Will Enter the Manholes and Handholes on the Property Side at All Times Unless Otherwise Specified by the Engineer.
- Backfill and Compaction for Ductline Trenches, Manholes and Handholes, Shall Be in Accordance with:
 - State Highway Department's Standard Specifications for Road and Bridge Construction with Latest Amendments, if Construction is Located Under a State Street or Road, or Located in Private Property.
 - The Standard Specifications for Road, Bridge and Public Works Construction, Dated 1986, of the Department of Public Works, City and County of Honolulu, with Latest Amendments; County of Kauai, Maui, or Hawaii, as the Case May Be, if Construction is Located Under County Streets and Roads.
- Backfilling Shall Be Subject to the Approval of the SIC Inspector, the Authorized Representative of the Department of Transportation, State of Hawaii and/or Department of Public Works, City and County of Honolulu, County of Kauai, Maui or Hawaii, as the Case May Be.
- A Third Party Geotechnical Engineer, Licensed and Insured in the State of Hawaii, Must Certify that the Excavated Area Meets the Governing Agencies and/or Owners Standards for Backfill and Compaction.
- Excavated Material May Be Reused as Backfill, Providing that it Conforms to Requirements of Type "A" and Type "B" Backfill, as Required within the Standard Specifications. A Written Soils Report of Conformance by a Licensed Third Party Geotechnical Engineer is Needed Prior to Backfill Using the Excavated Material.
 - Type A Backfill is Defined as Beach Sand, Earth or Earth and Gravel. Maximum Particle Size Shall Be 1" and Mixture Shall Not Contain More than 20% by Volume of Rock Particles.
 - Type B Backfill is Defined as Beach Sand, Earth or Earth and Gravel. Maximum Particle Size Shall Be 1/2" and Mixture Shall Not Contain More than 20% by Volume of Rock Particles.
- All Conduit Runs Shall Have a 3" Non-Metallic Warning Tape Placed 12 Inches Above the Conduit Run. The Tape Shall Read "CAUTION Buried Fiber Optic Cable Below".
- Add Concrete Jacket to SIC Conduit when Crossing Water Lines.

Manholes and Handholes:

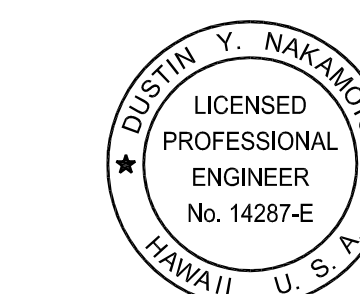
- All Manholes Shall Have HS20-44 Traffic Loading Covers (Unless Otherwise Noted). Handholes Shall Have 20k Traffic Load Rated Covers.
- All Manhole and Handhole Covers Shall Have Cover Logo to Read "SIC".
- All Manhole and Handhole Cover Bolts Shall Be Stainless Steel, 3/4" Pentahead, Unless Otherwise Noted.

- All Manholes and Handholes are Specified as follows:
 - UM35 and UM4x6 Manhole Assembly Units - Hawaii Precast, Inc. as per Master Purchase Agreement.
 - UHC30x48x33 Handhole (pullbox) Assembly Unit. This Unit Shall Consist of One Two Tier Armorcast Polymer Concrete Box & Cover Assembly. Part Number (A6001430TA-SIC4) or Equivalent.
 - UHC13x24x36 Handhole (pullbox) Assembly Unit. This Unit Shall Consist of One Armorcast Polymer Concrete Box & Cover Assembly. Part number (A6001946TA-SIC2) or Equivalent.
 - UH35 and UH4x6 Handhole Assembly Units - Hawaii Precast, Inc. as per Master Purchase Agreement.
- All Manholes and Handholes to be Ordered with All Hardware, Including Cable Racks, Steps and Locks.
- Set Manhole or Handhole on a Level Area, in the Bottom of the Excavation, on a 4" Layer of Crushed Rock, for Drainage Purposes.
- The Base of All Manholes and Handholes will be Blaced Level. Some Manholes have Adjustable Frames. All Voids Created During Installation Must Be Filled with Mortar Mix or Concrete. This is Especially True for Manholes and Handholes Set in Roadways.
- Before Backfilling and Compacting, Make Sure Covers are in Place and Secure. Layer 6" to 8" of Backfill Material Around the Manhole or Handhole. Tamp Each Individual Layer of Backfill Material. Continue the Layering and "Tamping" Until Final Grade is Achieved.
- The Tops of All Manholes and Handholes Shall Be Flush to Grade in Paved Areas or 1" Above Finish Grade in Non-Paved Areas, Unless Otherwise Specified by Engineer.
- Provide a 5/8-inch Diameter x 8 ft. Copper Clad Ground Rod at Handholes and Manholes as Specified on the Drawings or as Directed by the Project Manager.

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APPROVED BY
SANDWICH ISLES COMMUNICATIONS, INC. DATE



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SIGNATURE: [Signature] DATE: April 30, 2024 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SANDWICH ISLES COMMUNICATIONS (SIC) NOTES

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EA-11 OF 12 SHEETS

US Army Signal Corps - Network Enterprise Center-Hawaii Joint Trunking System/Outside Cable Plant General Construction Notes:

1. All Work Impacting US Army Signal Corps (SC) Telecommunications Facilities and Infrastructure Shall Be Completed in Accordance with:
 - a. Military Standards and US Army Regulations (Current Version)
 - b. US Army Technical Criteria for the Installation Information Infrastructure Architecture (I3A) Dated February 2010 (or Most Current). Copy of the I3A Technical Criteria Can Be Found at:

<http://www.lrl.usace.army.mil/ed2/article.asp?id=1416#MyCategory=212>

- c. National Electric Code (NEC) and National Electric Safety Code (NESC) (Most Current Version)
 - d. ANSI/TIA/EIA Telecommunication Standards
 - e. National Electrical Manufacturers Association (NEMA) Bulletin No. TCB 2-2000
2. The Contractor Shall Be Responsible for Acquisition of All Applicable Guidance and Directives.

Excavation Permit.

- a. US Army Excavation Permit. The Contractor Shall Obtain, Process and have an Approved Excavation Permit from the US Army, Directorate of Public Works Located in Building 682, Located at 451 Brannon Road, Wheeler Army Air Field, Hawaii. The Excavation Permit Form Shall Be Completed and Approved a Minimum of Two Weeks Prior to Beginning Construction; or
 - b. One Call Center Form. The One Call Center Form May Be Utilized in Lieu of the U.S. Army Excavation Permit Form. The Submission Shall Include a Map of the Areas Affected by Excavations. The One Call Center Form Shall Be Completed and Approved a Minimum of Two Weeks Prior to Beginning Any Construction. Submission of this Form Shall Be Submitted to:

Network Enterprise Center - Hawaii, Infrastructure Management Group
148 Curtis Loop, Wheeler Army Airfield
Building 600, Room 157
Schofield Barracks, Hawaii 96857-5020

3. The Contractor Shall Ensure the Following for OSP Placements:
 - a. All Duct Joints Shall Be Reamed to Avoid Burrs, Obstructions or Areas where the Mandrel Will Not Flow Freely or Smoothly. Contractors Shall Utilize the NEMA Bulletin No. TCB 2-2000 for the General Guidelines on the Selection and Installation of Underground Non-Metallic Duct. An Electronic Copy of this File is Available at:

<http://www.nema.org/stds/tcb2.cfm>

- b. All Protruding Surfaces in the Communication Ducts at the Joints or Connections Points Shall Be Repaired or Replaced by the Contractor Until Accepted by the Government and the Government Service Provider.
 - c. All New Communication Ducts Shall Be Swabbed (Cleaned), Bi-Directional Mandrel Tested by the Contractor. Bi-Directional Testing Shall Be Witnessed by a Government Representative for Acceptance by the Government and Government Service Provider. Ducts Shall Be Completely Dry and Clean (Free of Dirt, Rocks and Debris).
 - d. Mandrels Shall Flow Through Freely and Smoothly with No Noticeable Obstructions or Hang-Ups.

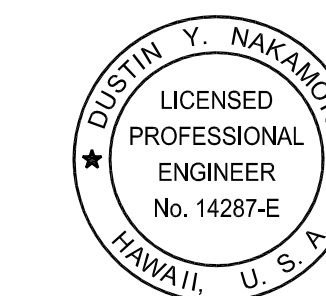
- e. All Equipment and Personnel for Mandrel Testing Shall Be Provided by the Contractor.
 - f. Mandrels Used for Communication Duct Testing Shall Be 12 Inches in Length, Solid, Non-Tapered, a Diameter of .25 Inch Less than the Inner Diameter of the Ducts being Tested.
 - g. Contractor Shall Provide Details of the Mandrel Test Equipment to be Used for Government Approval 30 Days Prior to Testing.
 - h. Contractor Shall Provide Schedule of Mandrel Testing for Government Approval 15 Days Prior to Any Testing.
4. The Contractor Shall Ensure the Casting of the All "New" Maintenance Holes Covers Shall Bear the Imprinting of the Words "USA Signal Corps." Inside the Neck of the Maintenance Hole Shall Be Permanently Labeled with the Maintenance Hole Identifier Provided by the Government.
5. The Contractor Shall Obtain and Fund for All Required Permits, Notices, Licenses and Authorizations for the Intended Work for Federal and US Military Facilities and Infrastructure.
6. The Contractor Shall Be Responsible to Validate Military and Defense Cables Identified and Shall Ensure Other Utilities/Facilities Both Aerial and Underground are Secured and Not Impacted During Operation. Outages and Damages to Other Utilities Shall Be the Responsibility of the Contractor.
7. The Contractor Shall Contact the Network Enterprise Center, Hawaii's Point of Contact, 72-Hours Prior to Any Physical Work to be Performed on US Army Infrastructure and Facilities.
8. The Network Enterprise Center, Hawaii's Points of Contact: Mr. James "JB" Benton (808) 787-3514, Mr. Walter Selders (808) 787-5357, Mr. Bart Wynn (808) 787-1799.
9. The following contractors are vendors who may perform work on the NETCOM cables: Choy Enterprises Incorporated (808) 479-4607, Henkels and McCoy (808) 455-1310, Verizon Federal (808) 484-7990.
10. Prior to the start of work, contractor is to forward the One Call Center form to:

Department of the Army
30th Signal Battalion/Network Enterprise Technology Command
148 Curtis Loop, Wheeler Army Airfield
Building 600, Room 157
Schofield Barracks, Hawaii 96857-5020

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EA-12	790

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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[Signature]
SIGNATURE
April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ARMY CORP NOTES

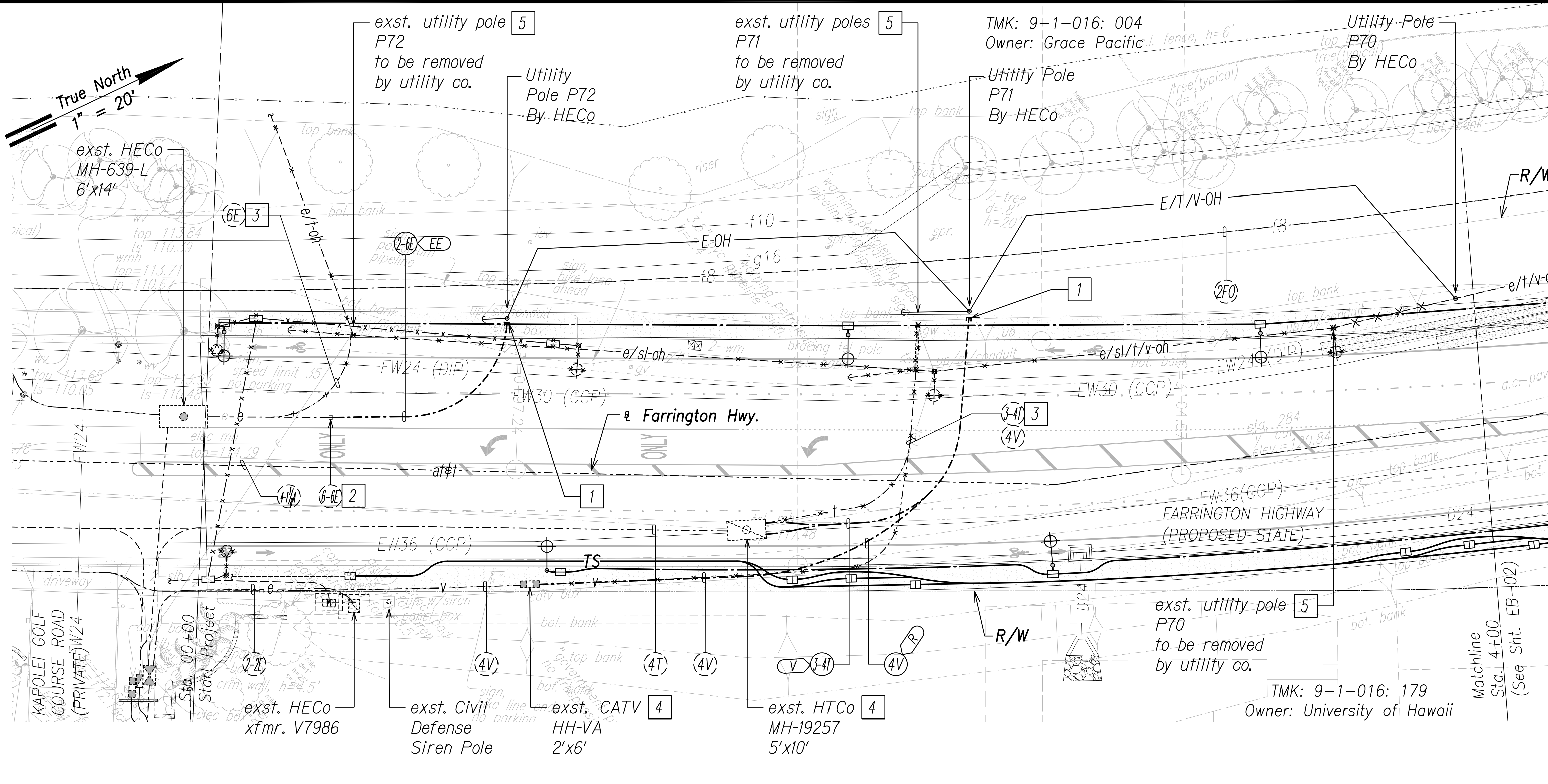
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-01	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

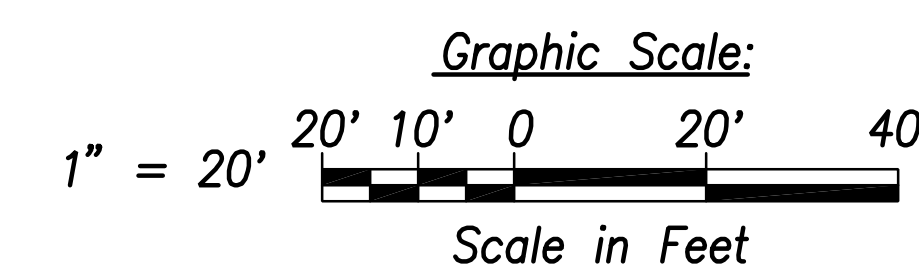


Notes:

- 1 Provide conduit riser(s) up pole per utility company requirements.
- 2 Excavate & expose exst. duct(s). Coordinate & schedule work with HECO prior to commencing with excavation. **Caution!!! Electrical Hazard!!!** Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECO. Provide couplings as required, & extend exst. duct(s) from HECO manhole. The cost of HECO's assistance in providing proper support & protection will be charged to the contractor.
- 3 Cut back conduit(s) to a horizontally straight section. Stub and cap conduit. Coordinate and schedule work with respective utility company prior to excavation.
- 4 Excavate & expose exst. handhole/manhole wall(s). Coordinate and schedule work with respective utility company prior to excavation. Provide duct entry, per utility co. requirements. Provide couplings as required & extend duct(s). Repair to match existing.
- 5 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.

Electrical Plan 1 - (Sta. -5+00 to Sta. 4+00)

Scale: 1" = 20'



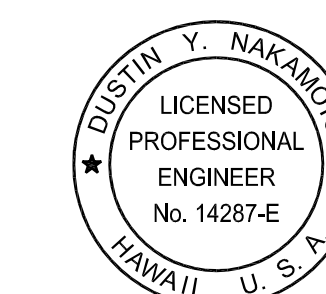
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DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only
 Req# _____ By _____ Date _____
 Transmission & Distribution Engineering
 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 date.



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SIGNATURE: *[Signature]*
 April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ELECTRICAL PLAN 1

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

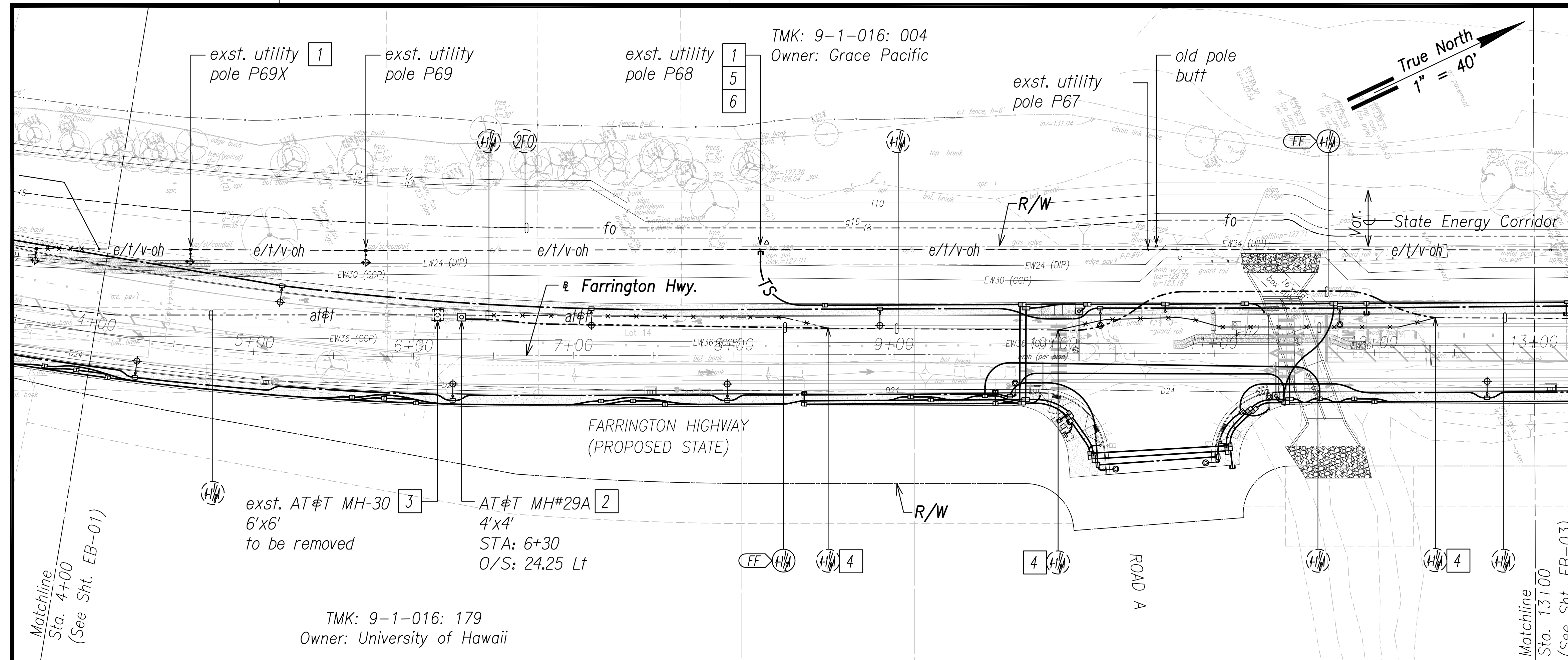
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SHEET No. EB-01 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-02	790

General Electrical Notes:

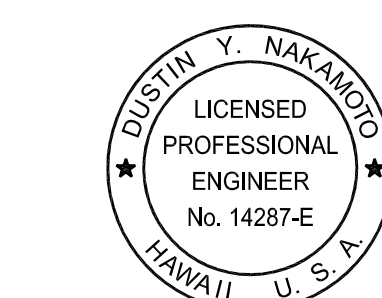
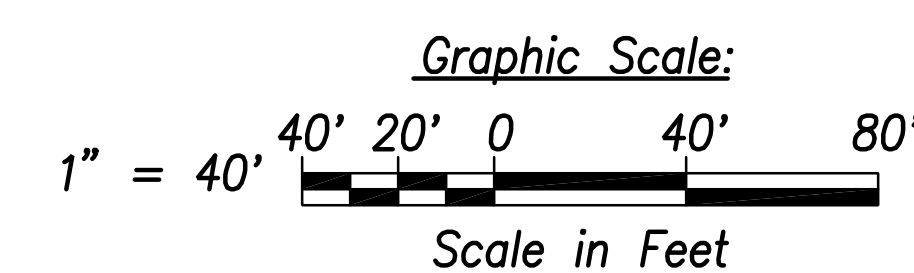
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



Notes:

1. Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
2. Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.
3. Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.
4. Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.
5. HECO to install overhead transformer for new traffic signal service.
6. Weatherhead for traffic signal service to be installed on pole.

Electrical Plan 2 - (Sta. 4+00 to Sta. 13+00)
Scale: 1" = 40'



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

SIGNATURE: *[Signature]*
April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 2

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-02 OF 25 SHEETS

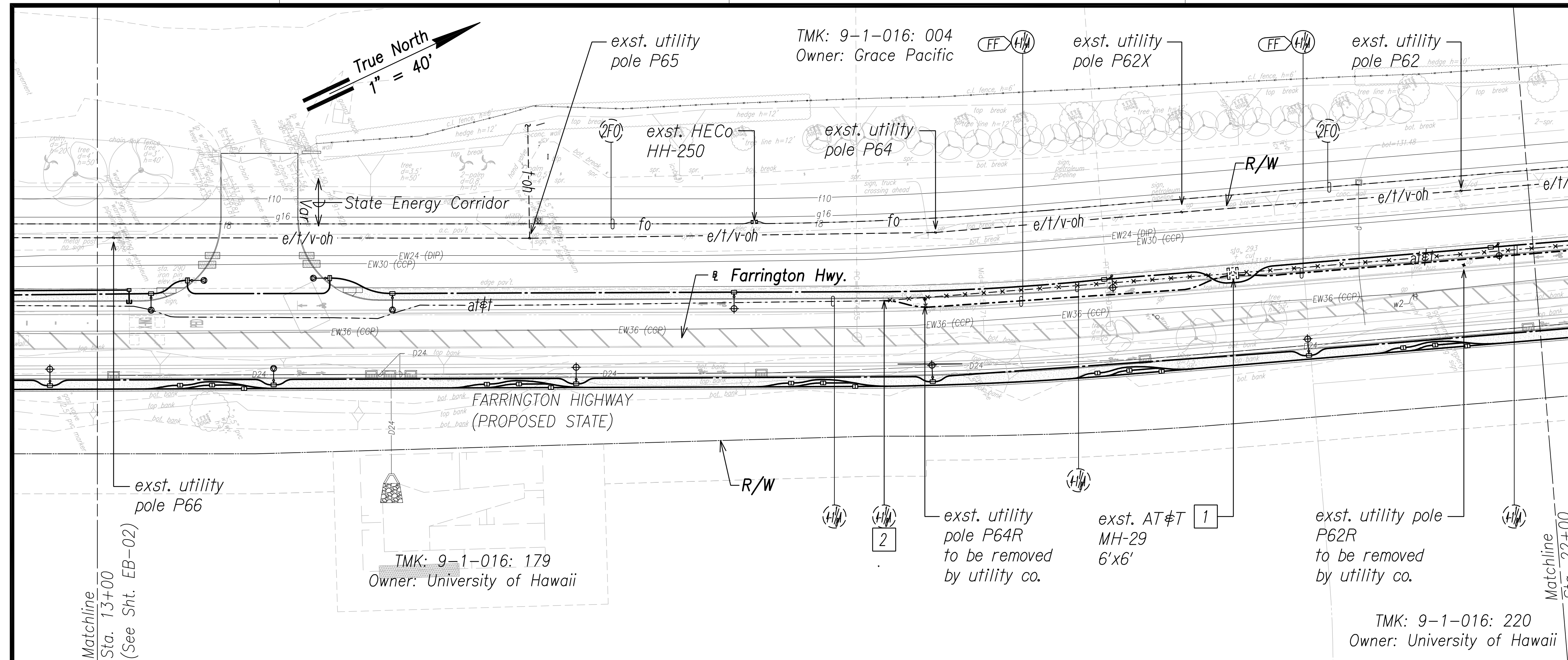
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ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\ACAD\PROJECTS\220671A\EB02_220671A_ELEC_Roadway Plan 2 - Sta. 4+00 to 13+00.dwg saved April 6, 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-03	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



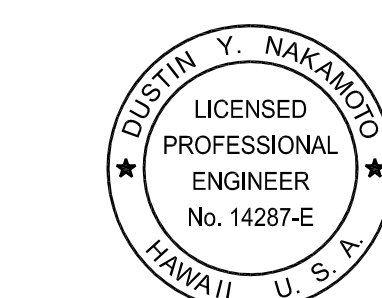
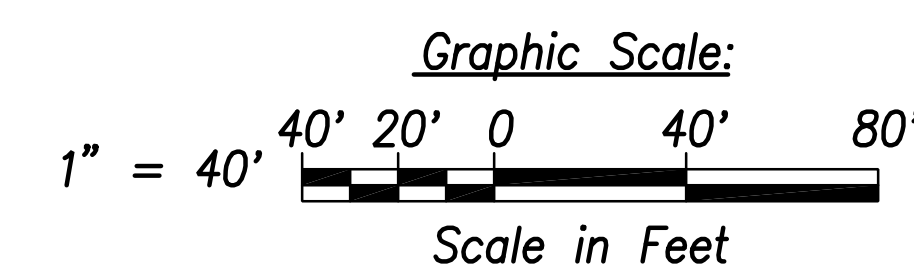
Notes:

1. Excavate & expose exst. handhole/manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Provide duct entry, per AT&T requirements. Provide couplings as required & extend duct(s). Repair to match existing.
2. Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.

SURVEY PLOTTED BY	DATE
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ORIGINAL PLAN	
NOTE BOOK	
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FILE: Z:\ACAD\PROJECTS\220671A\EB03_220671A_ELEC_Roadway Plan 3 - Sta. 13+00 to 22+00.dwg saved April 6, 2022

Electrical Plan 3 - (Sta. 13+00 to Sta. 22+00)
Scale: 1" = 40'



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SIGNATURE: *[Signature]* Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

DRAWING REVIEW
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Req# _____ By _____ Date _____
Transmission & Distribution Engineering
Hawaiian Electric
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 3

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

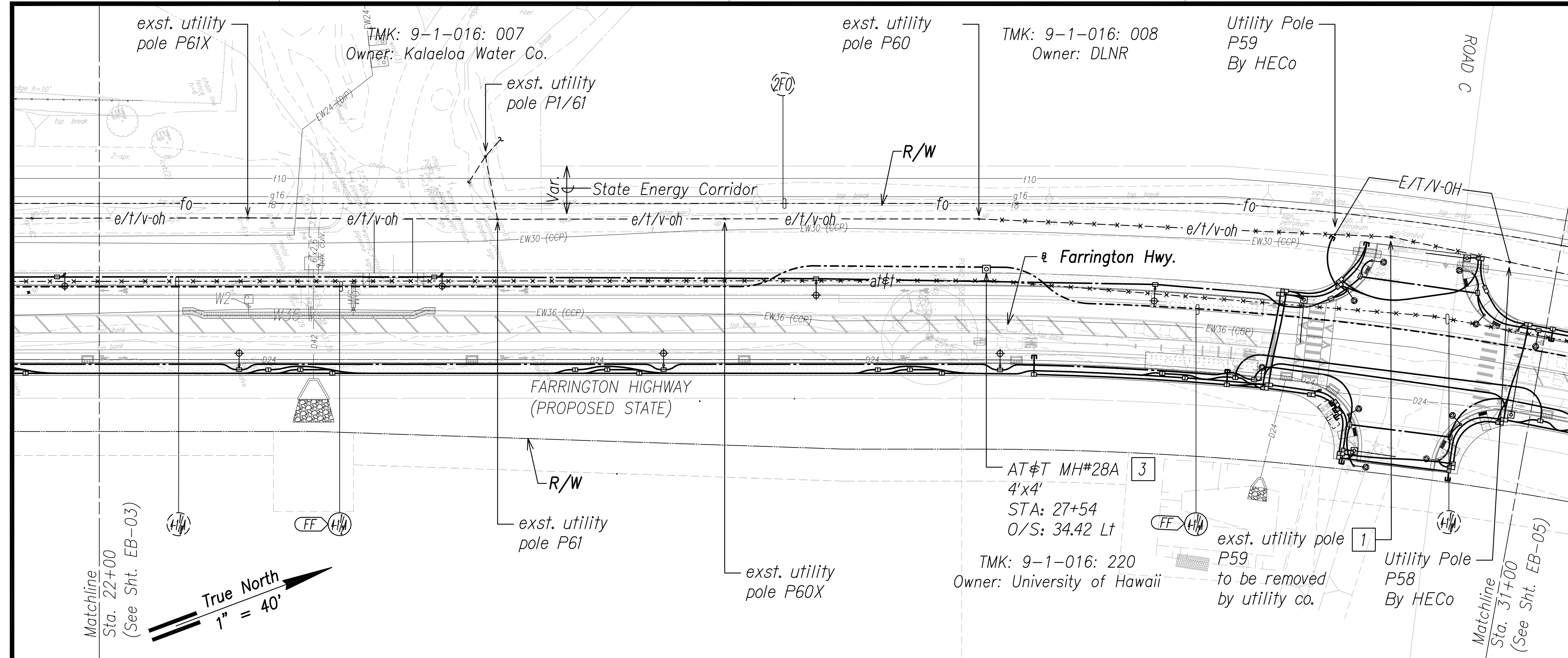
Scale: As Shown Date: April 2022

SHEET No. EB-03 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-04	790

General Electrical Notes:

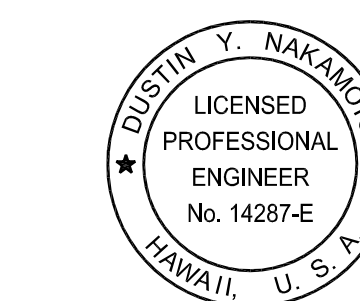
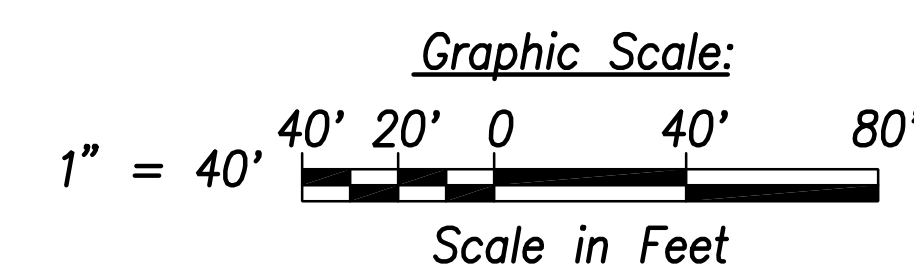
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.



Notes:

- 1 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 2 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.
- 3 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.

Electrical Plan 4 - (Sta. 22+00 to Sta. 31+00)
Scale: 1" = 40'



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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 4

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

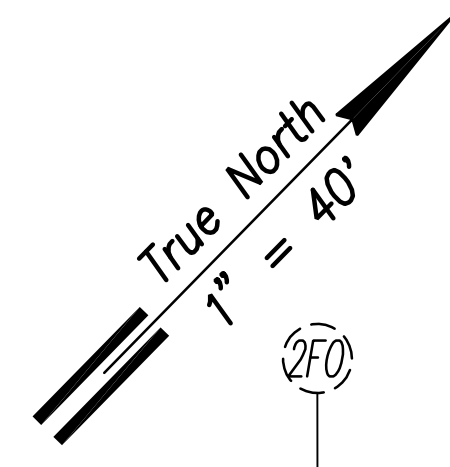
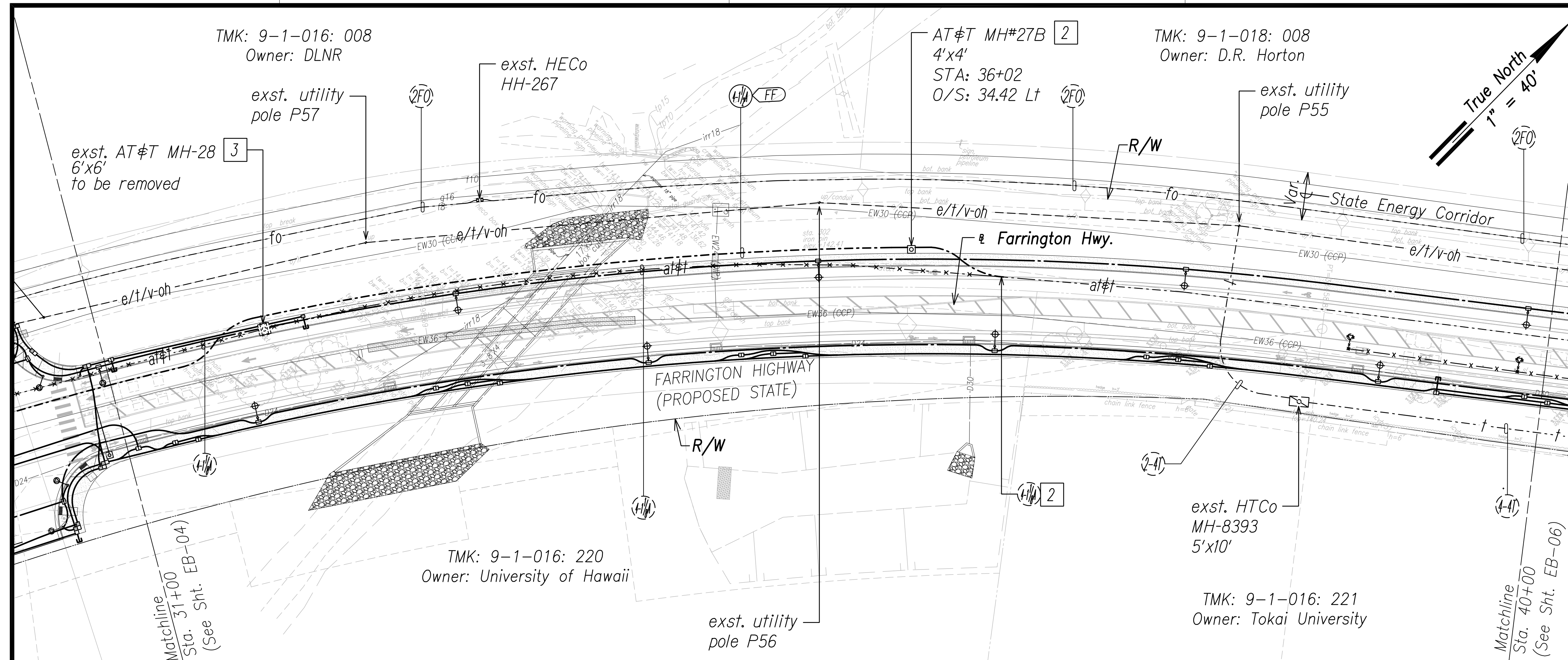
Scale: As Shown Date: April 2022

SHEET No. EB-04 OF 25 SHEETS

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-05	790



General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECo overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECo. Only HECo 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 HECo facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECo, HTCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

Notes:

- 1 Not Used.
- 2 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.
- 3 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.

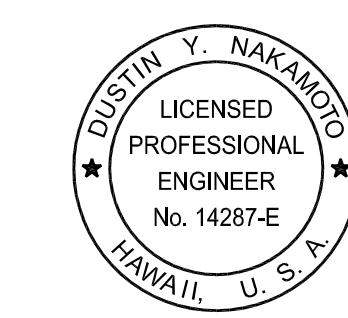
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DESIGNED BY	_____
CHECKED BY	_____
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FILE: Z:\ACAD\PROJECTS\220671A\EB05_220671A_ELEC_Roadway Plan 5 - Sta. 31+00 to 40+00.dwg saved April 6, 2022

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 Hawaiian Electric

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 Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

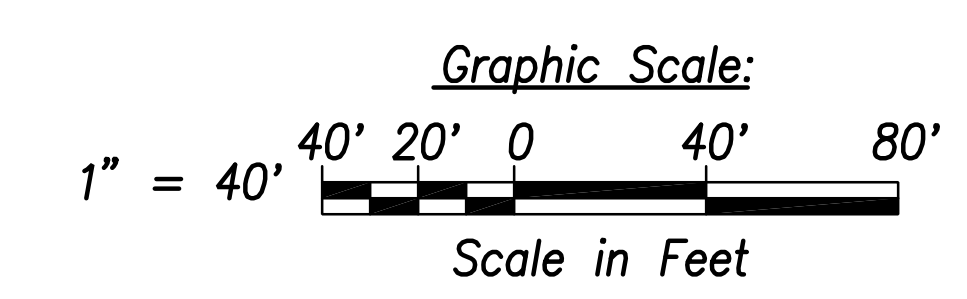
ELECTRICAL PLAN 5

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

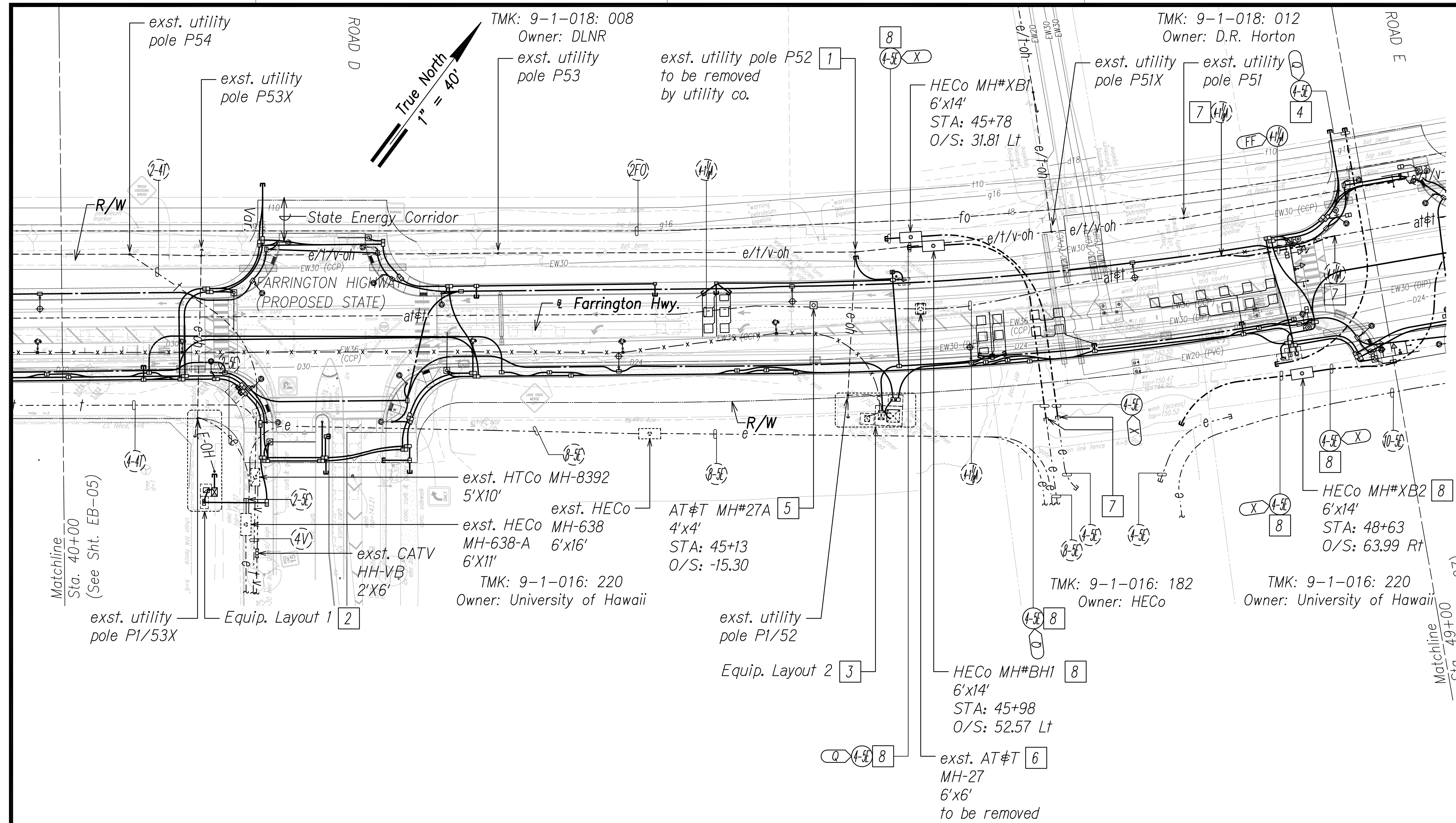
Scale: As Shown Date: April 2022

SHEET No. EB-05 OF 25 SHEETS

Electrical Plan 5 - (Sta. 31+00 to Sta. 40+00)
 Scale: 1" = 40'



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-06	790



- General Electrical Notes:
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
 2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
 3. See street lighting & traffic signal plans for street lighting & traffic signal work.
 4. HECO, HCo & CATV to remove their respective overhead facilities.
 5. Coordinate manhole/handhole adjustments with respective utility(s).

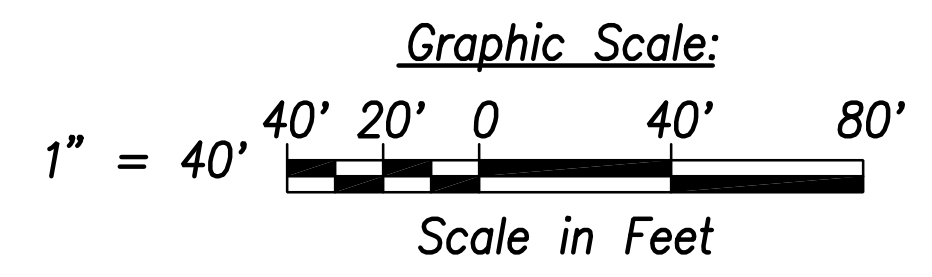
- Notes:
- 1 Not Used.
 - 2 See Sht. EF-12 for Enlarged Equipment Layout 1.
 - 3 See Sht. EF-13 for Enlarged Equipment Layout 2.
 - 4 For future development.
 - 5 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.

- 6 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.
- 7 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with respective utility company prior to excavation. Repair to match existing.
- 8 HECO Betterment.

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ORIGINAL PLAN	No.

FILE: Z:\ACAD\PROJECTS\220671A\EB06_220671A_ELEC_Roadway_Plan_6 - Sta. 40+00 to 49+00.dwg saved April 8, 2022

Electrical Plan 6 - (Sta. 40+00 to Sta. 49+00)
Scale: 1" = 40'



DUSTIN Y. NAKAMOTO
LICENSED PROFESSIONAL ENGINEER
No. 14287-E
HAWAII, U.S.A.

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Signature: *[Signature]*
Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

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Transmission & Distribution Engineering
Hawaiian Electric
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 6

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

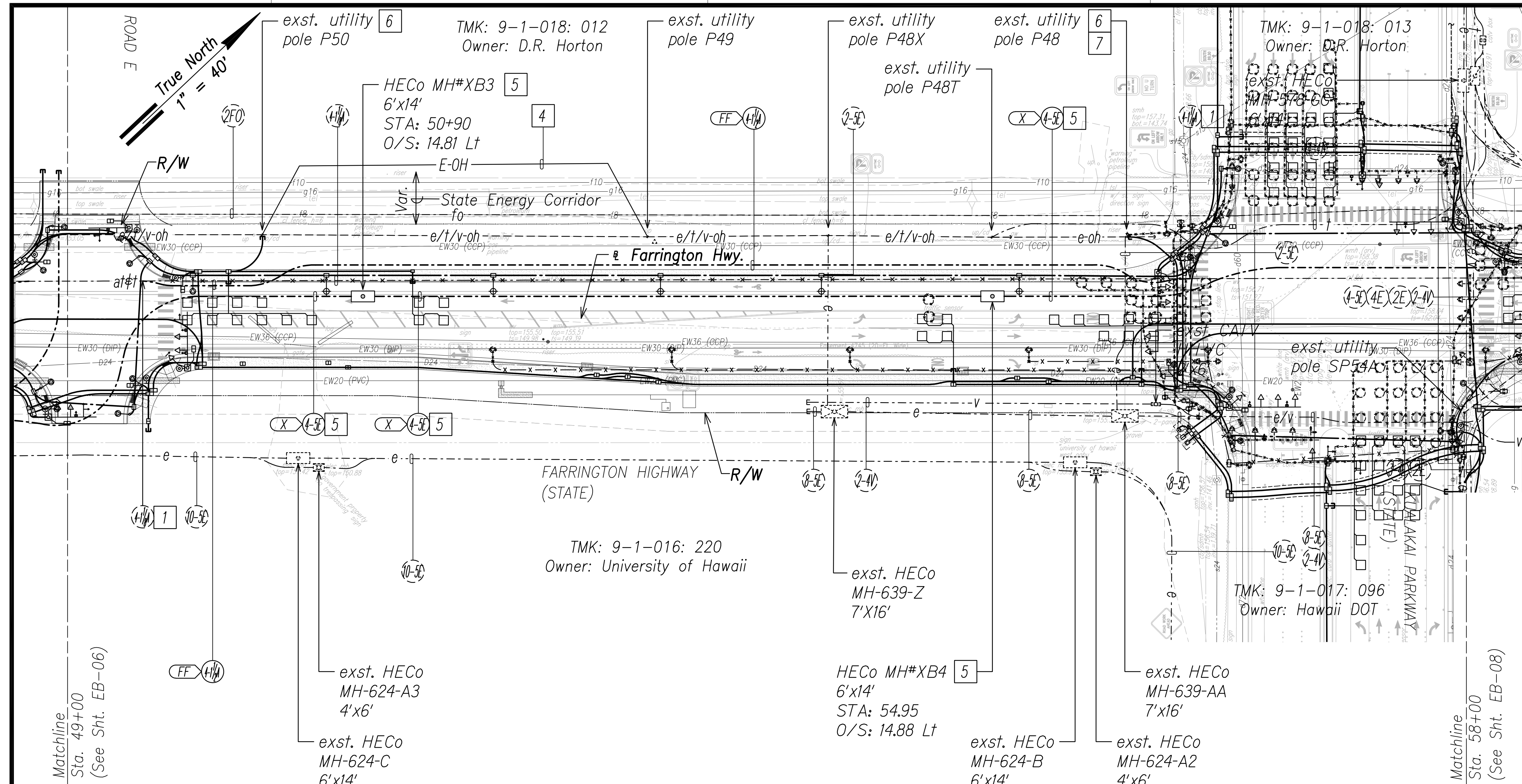
Scale: As Shown Date: April 2022

SHEET No. EB-06 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-07	790

General Electrical Notes:

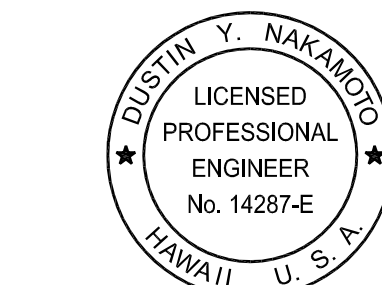
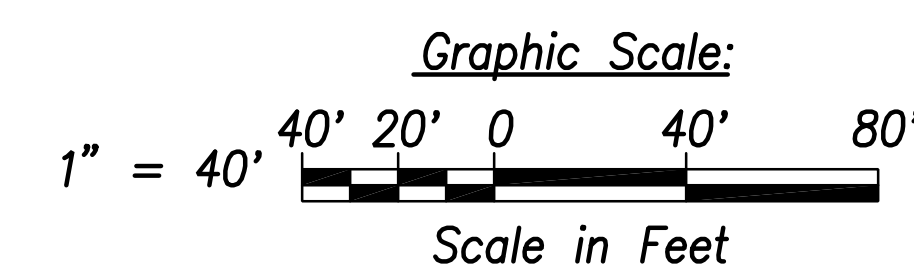
1. **Caution!!! Electrical Hazard!!!** Existing HECo overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECo. Only HECo personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECo facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECo, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



Notes:

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.</p> <p>2 Provide conduit riser(s) up pole per utility company requirements.</p> <p>3 Excavate & expose exst. duct(s). Coordinate & schedule work with HECo prior to commencing with excavation. Caution!!! Electrical Hazard!!! Only HECo personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECo. Provide couplings as required, & extend exst. duct(s) from HECo manhole. The cost of HECo's assistance in providing proper support & protection will be charged to the contractor.</p> | <p>4 HECo to replace neutral with A/C for new traffic signal service.</p> <p>5 HECo betterment.</p> <p>6 Weatherhead for traffic signal service to be installed on pole.</p> <p>7 Meter to be relocated off pole.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Electrical Plan 7 - (Sta. 49+00 to Sta. 58+00)
Scale: 1" = 40'



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Signature: *[Signature]*
Date: April 30, 2024
Expiration Date of the License:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 7

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-07 OF 25 SHEETS

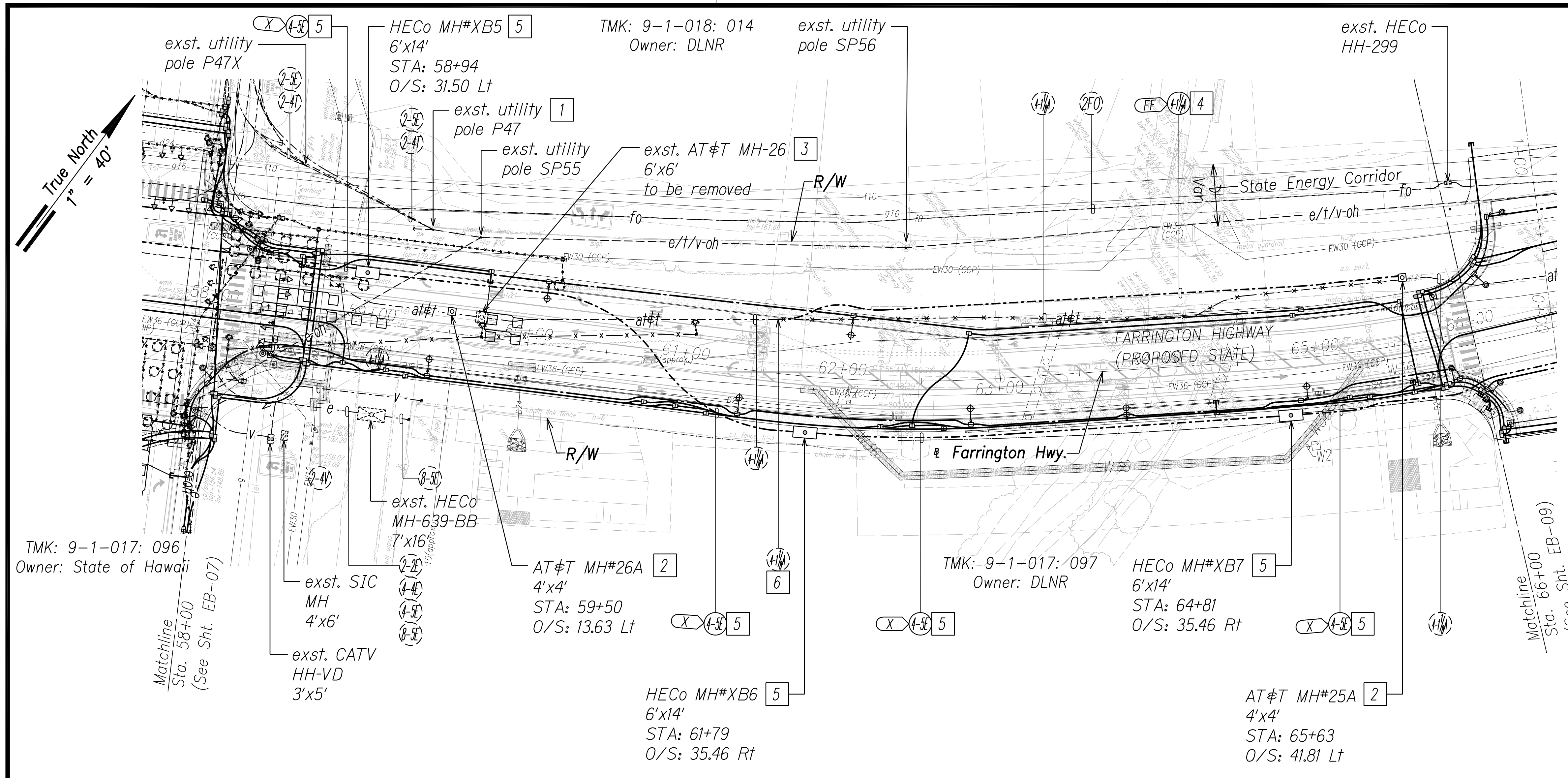
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ORIGINAL PLAN	No. _____
NOTE BOOK	

FILE: Z:\ACAD\PROJECTS\220671A\EB07_220671A_ELEC_Roadway_Plan_7 - Sta. 49+00 to 58+00.dwg saved April 6, 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-08	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. The location of Sandwich Isles Communications (SIC) underground facilities as shown on the plans are from record of varying degrees of accuracy and are not guaranteed as shown. The Contractor shall exercise extreme caution when the excavation crosses or is in proximity to underground fiber optic facilities. Any damage to the existing underground facilities shall be repaired and paid for by the Contractor.
5. Coordinate manhole/handhole adjustments with respective utility(s).



TMK: 9-1-017: 096
Owner: State of Hawaii

TMK: 9-1-018: 014
Owner: DLNR

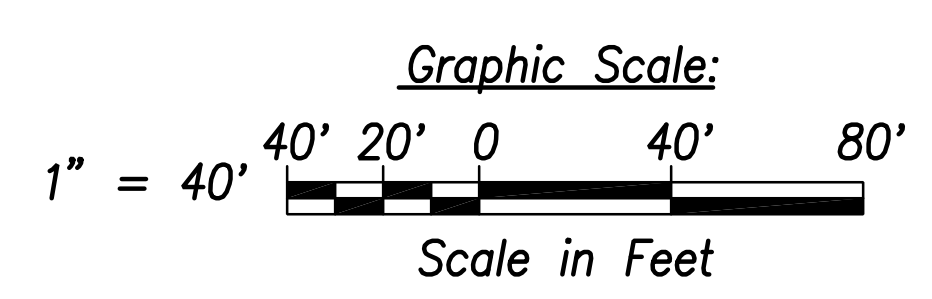
TMK: 9-1-017: 097
Owner: DLNR

exst. HECO
HH-299

Notes:

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| <p>1 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.</p> <p>2 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.</p> <p>3 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.</p> | <p>4 Maintain minimum 6'-0" separation between drilled shafts (Bridge Columns) outer edge of excavation and the AT&T Corp. conduit/cable facilities.</p> <p>5 HECO betterment.</p> <p>6 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Electrical Plan 8 - (Sta. 58+00 to Sta. 66+00)
Scale: 1" = 40'



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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 8

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

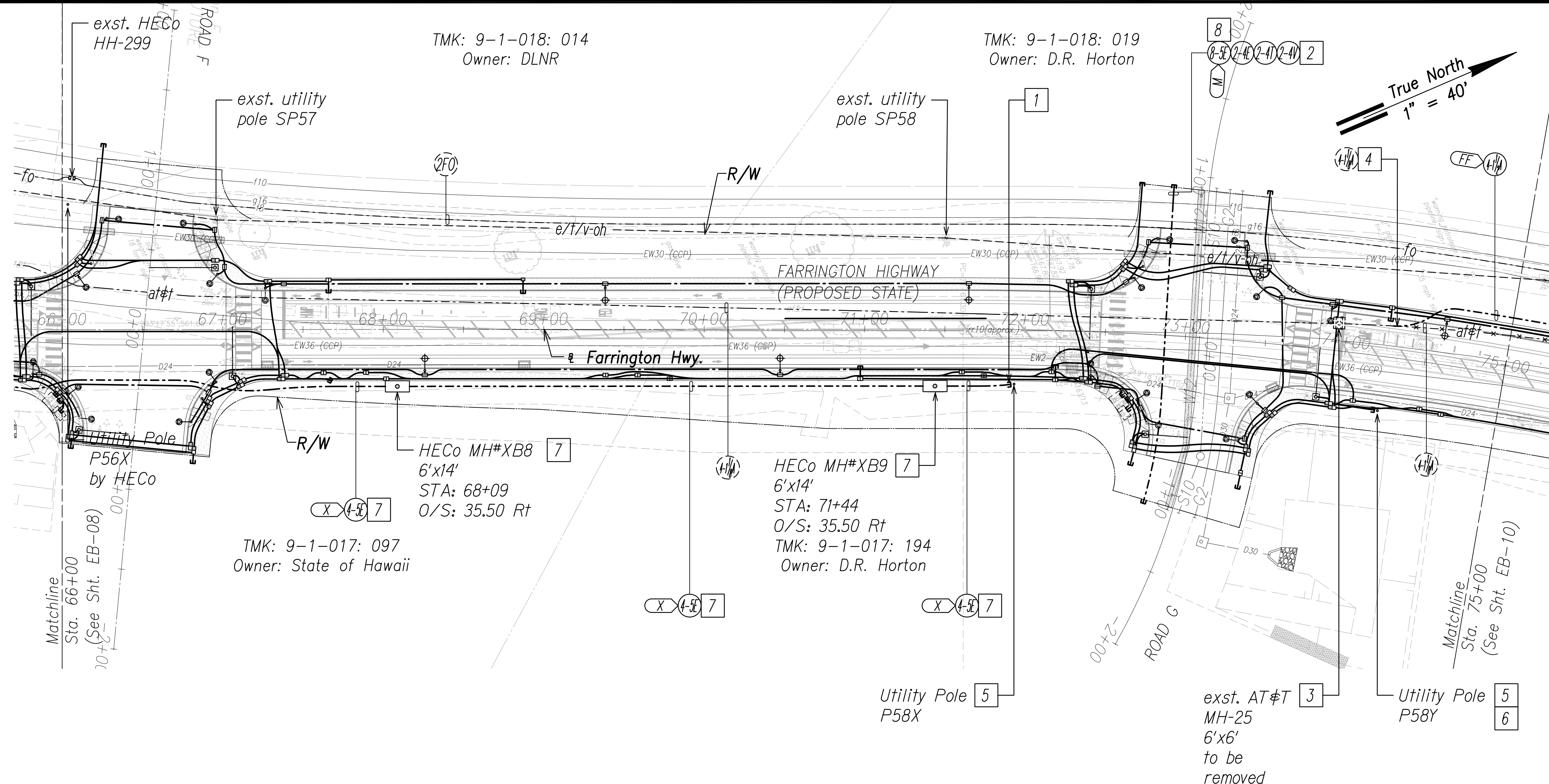
Scale: As Shown Date: April 2022

SHEET No. EB-08 OF 25 SHEETS

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NOTE BOOK	
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FILE: Z:\ACAD\PROJECTS\220671A\EB08_220671A_ELEC_Roadway_Plan_8 - Sta. 58+00 to 66+00.dwg saved April 6, 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-09	790



General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.

Notes:

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Provide conduit riser(s) up pole per utility company requirements.</p> <p>2 For future development.</p> <p>3 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.</p> <p>4 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.</p> | <p>5 46KV utility pole & overhead lines by separate HECO project.</p> <p>6 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.</p> <p>7 HECO betterment.</p> <p>8 4-5E HECO betterment.</p> |
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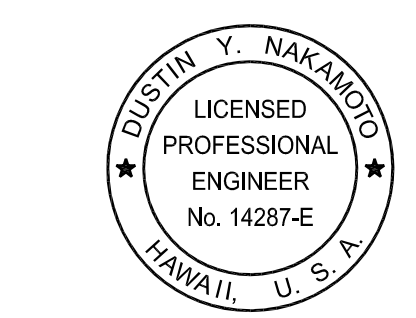
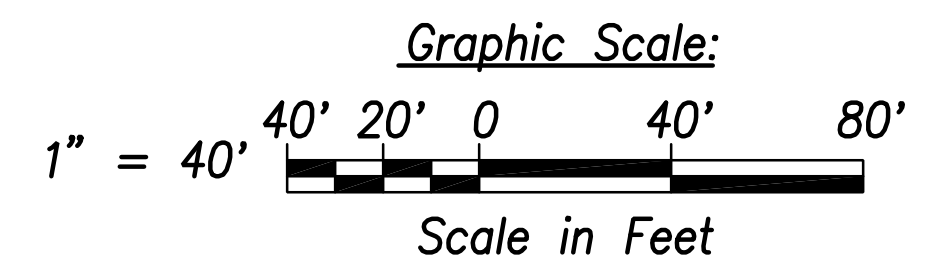
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 Transmission & Distribution Engineering
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DRAWN BY _____	_____
TRACED BY _____	_____
DESIGNED BY _____	_____
CHECKED BY _____	_____
ORIGINAL PLAN	No. _____

FILE: Z:\ACAD\PROJECTS\220671A\EB09_220671A_ELEC_Roadway Plan 9 - Sta. 66+00 to 75+00.dwg saved April 8, 2022

Electrical Plan 9 - (Sta. 66+00 to Sta. 75+00)
 Scale: 1" = 40'



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 SIGNATURE _____
 April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ELECTRICAL PLAN 9

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

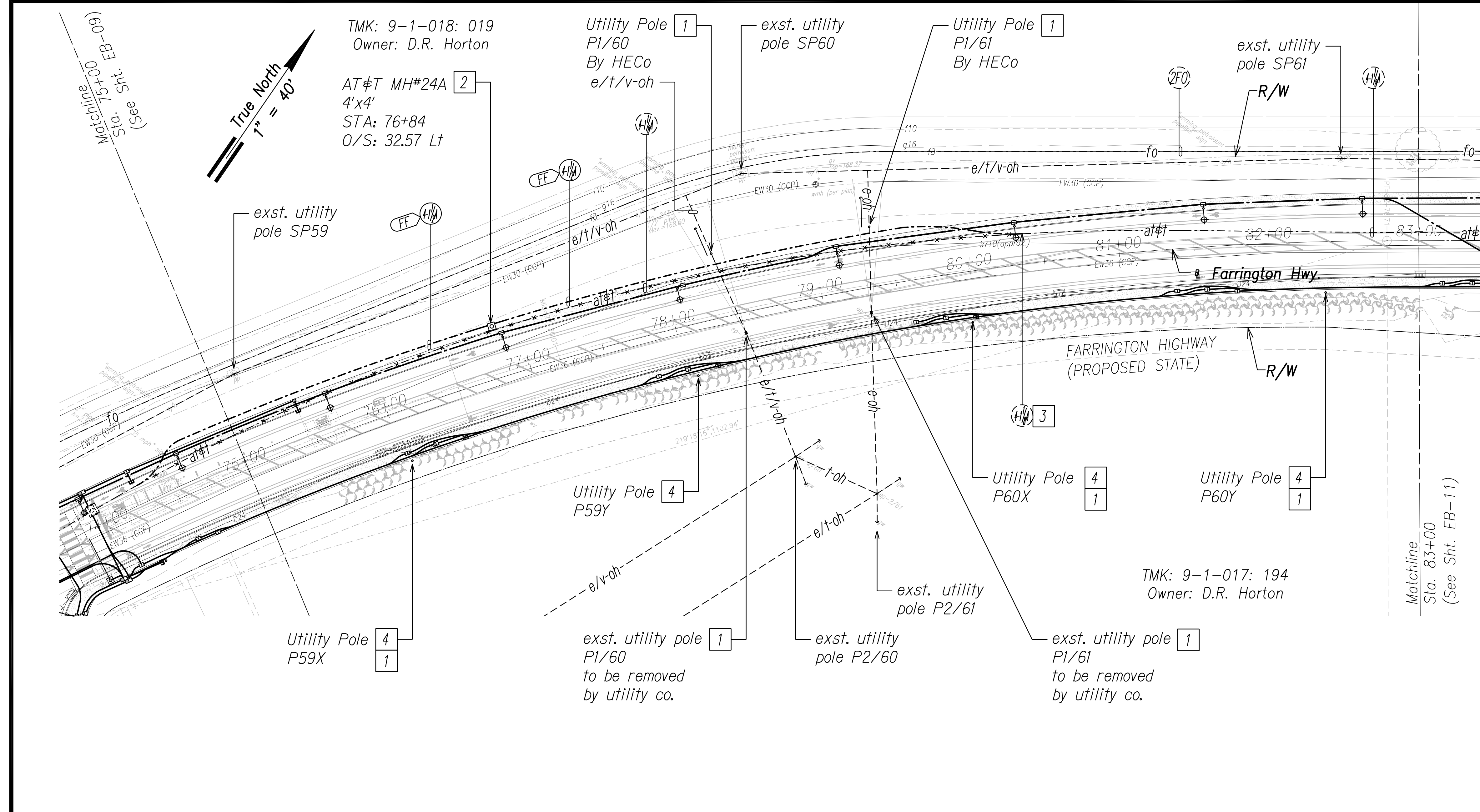
Scale: As Shown Date: April 2022

SHEET No. EB-09 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-10	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.



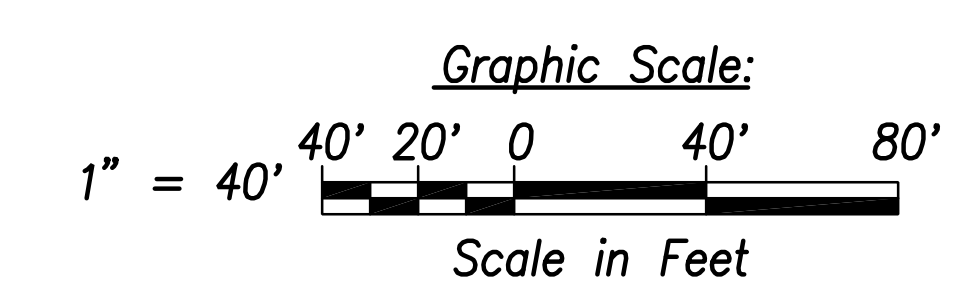
Notes:

- 1 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 2 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.
- 3 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.
- 4 46kV utility pole & overhead lines by separate HECO project.

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CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\ACAD\PROJECTS\220674\EB10_220674_ELEC_Roadway Plan 10 - Sta. 75+00 to 83+00.dwg saved April 6, 2022

Electrical Plan 10 - (Sta. 75+00 to Sta. 83+00)
Scale: 1" = 40'



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[Signature]
SIGNATURE

April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 10

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

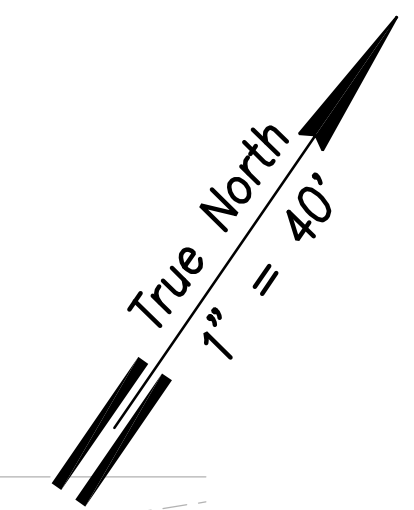
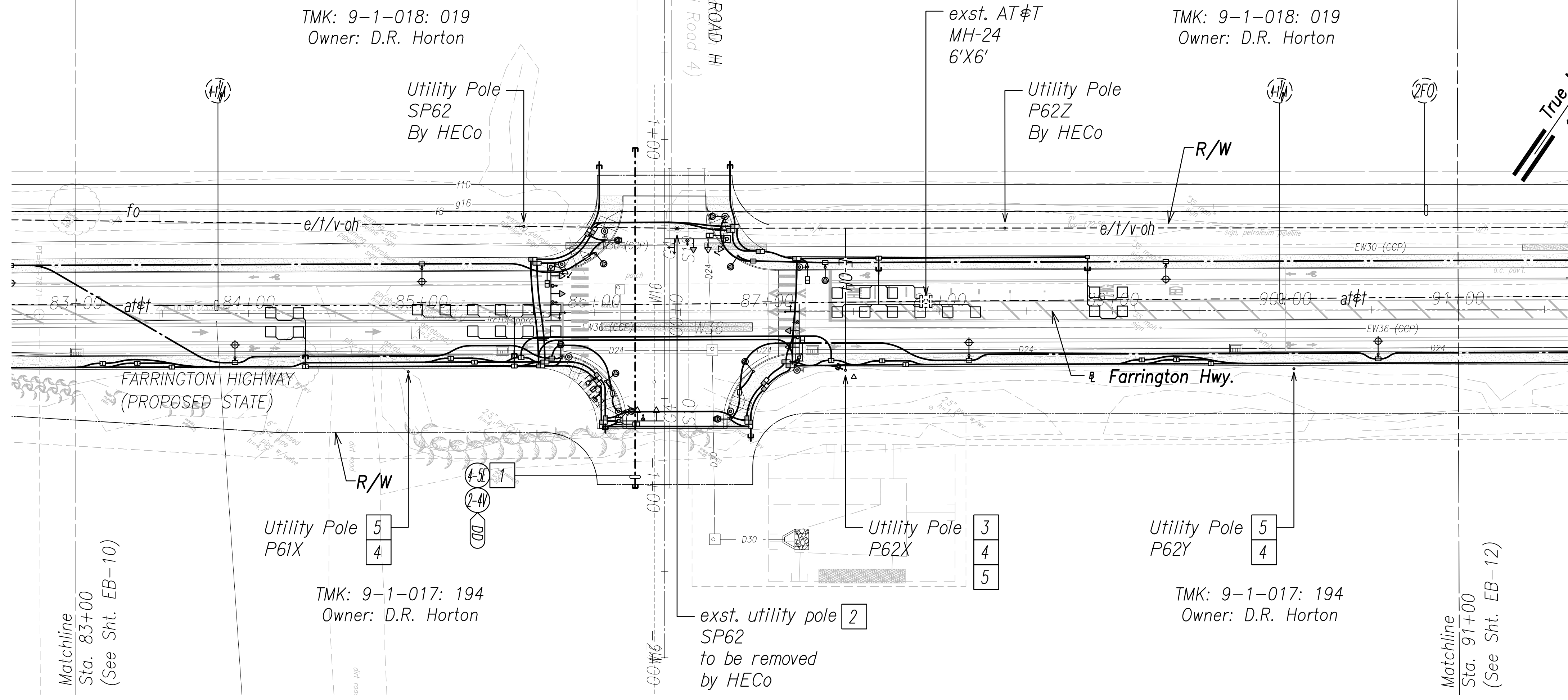
SHEET No. EB-10 OF 25 SHEETS

DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only
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Transmission & Distribution Engineering
Hawaiian Electric

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-11	790



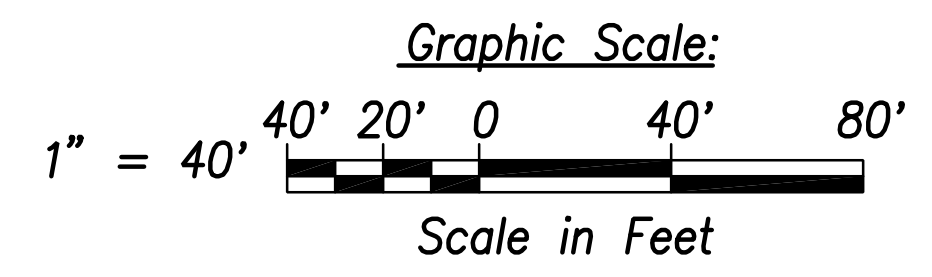
General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

Notes:

- 1 For future development.
- 2 Coordinate removal of HECO 138kV foundation with General Contractor.
- 3 Weatherhead for traffic signal service to be installed on pole.
- 4 46kV utility pole & overhead lines by separate HECO project.
- 5 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 6 Intermediate utility pole by HECO for communication line clearance to road, street lights & traffic signals.

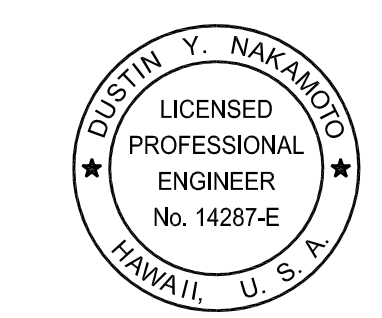
Electrical Plan 11 - (Sta. 83+00 to Sta. 91+00)
Scale: 1" = 40'



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FILE: Z:\ACAD\PROJECTS\22067A\EB11_22067A\ELC-Roadway_Plan_11 - Sta. 83+00 to 91+00.dwg saved April 6, 2022

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Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

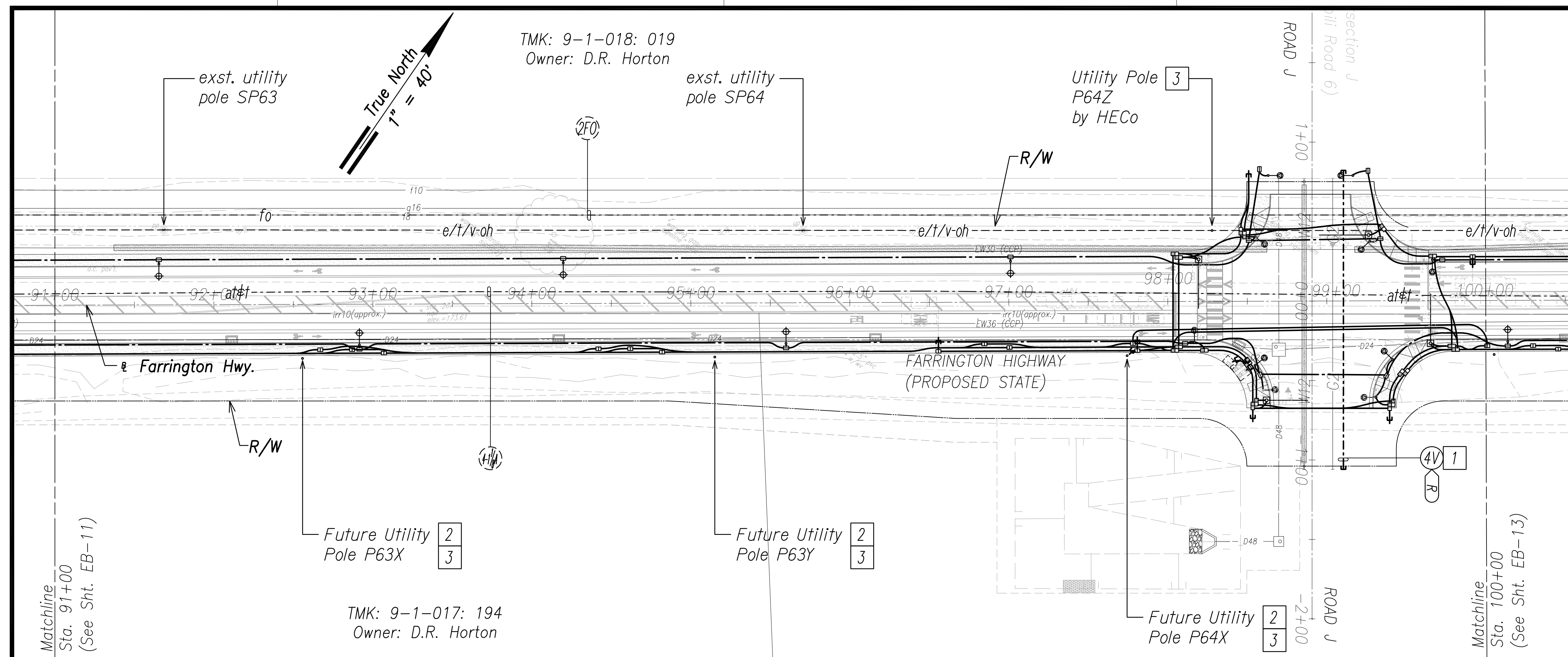
ELECTRICAL PLAN 11

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-11 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-12	790



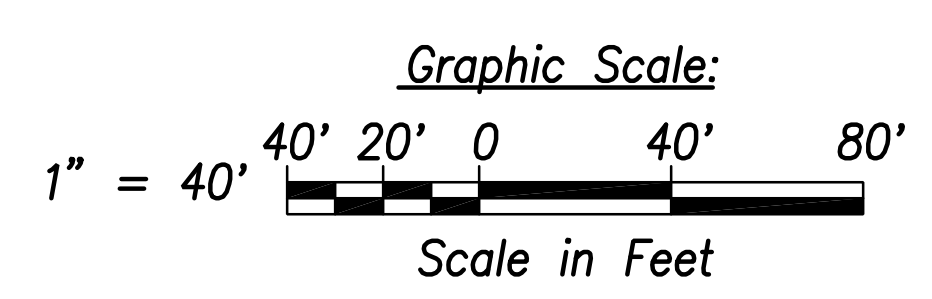
- General Electrical Notes:
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities which can result in electrocution.
 2. See street lighting & traffic signal plans for street lighting & traffic signal work.

- Notes:
- 1 For future development.
 - 2 Future utility pole by HECO.
 - 3 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.

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DESIGNED BY _____	_____
CHECKED BY _____	_____
ORIGINAL PLAN NO. _____	_____

Electrical Plan 12 - (Sta. 91+00 to Sta. 100+00)
Scale: 1" = 40'



DUSTIN Y. NAKAMOTO
LICENSED PROFESSIONAL ENGINEER
No. 14287-E
HAWAII, U. S. A.
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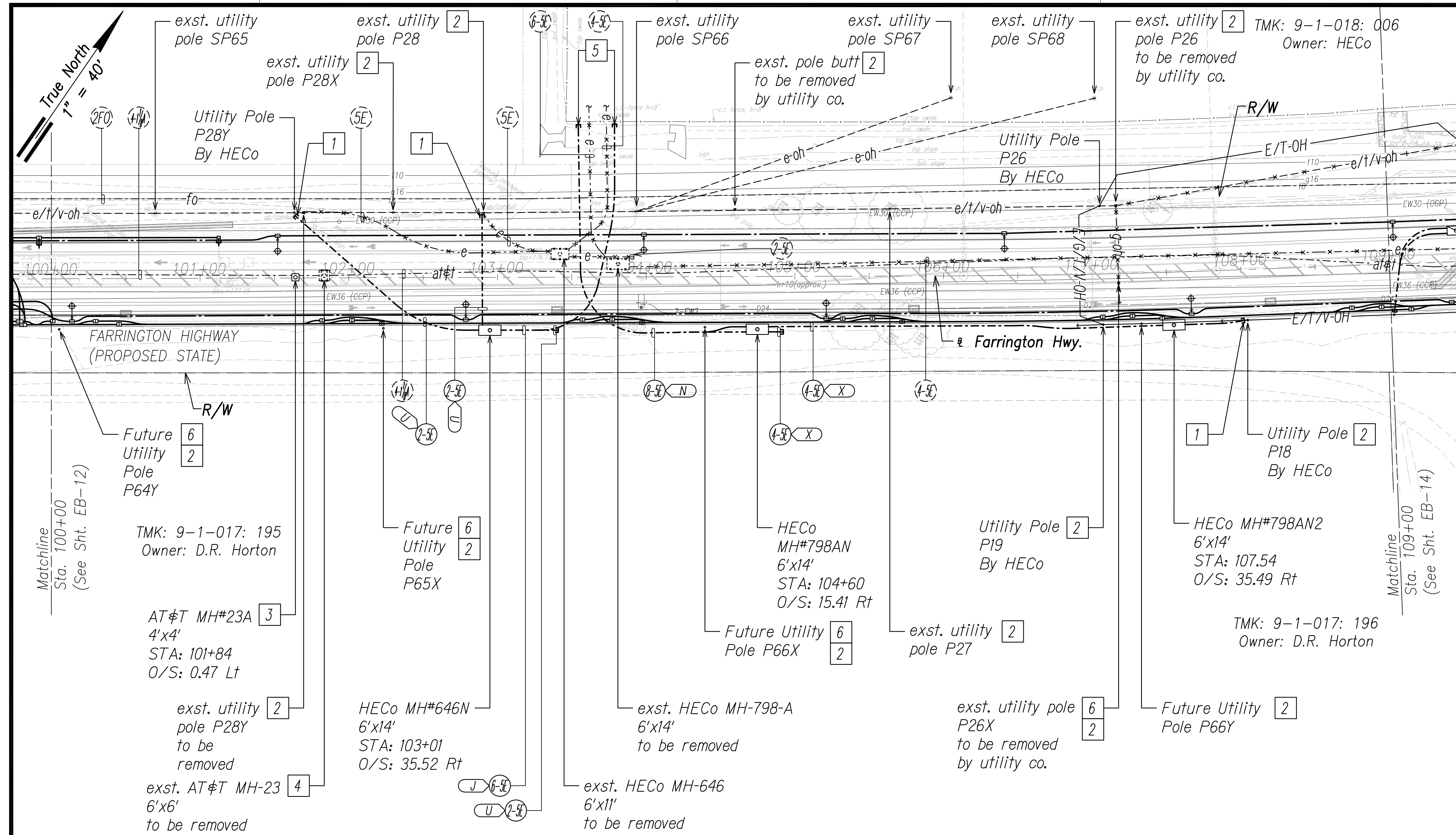
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL PLAN 12
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. EB-12 OF 25 SHEETS

FILE: Z:\ACAD\PROJECTS\220671\EB12_220671_ELEC_Roadway_Plan_12 - Sta. 91+00 to 100+00.dwg saved April 6, 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-13	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

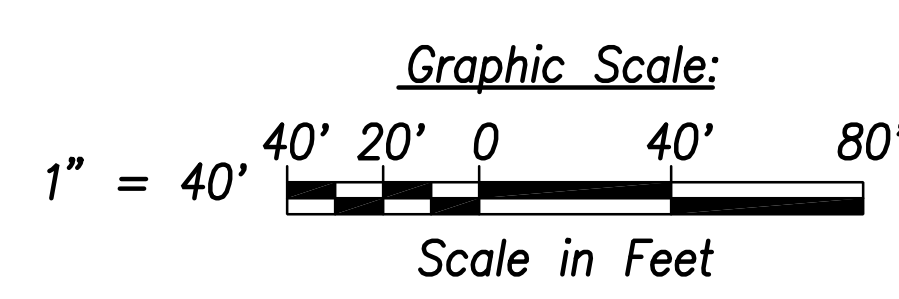


Notes:

- 1 Provide conduit riser(s) up pole per utility company requirements.
- 2 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 3 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.
- 4 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.

- 5 Stub(s) to HECO Substation Property. Coordinate & schedule work with HECO prior to commencing with excavation to avoid damaging 138KV substation grounding grid. **Caution!!! Electrical Hazard!!!** Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECO. Provide couplings as required, & extend exst. duct(s) from HECO manhole. The cost of HECO's assistance in providing proper support & protection will be charged to the contractor.
- 6 Future utility pole by HECO.

Electrical Plan 13 - (Sta. 100+00 to Sta. 109+00)
Scale: 1" = 40'



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EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 13

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

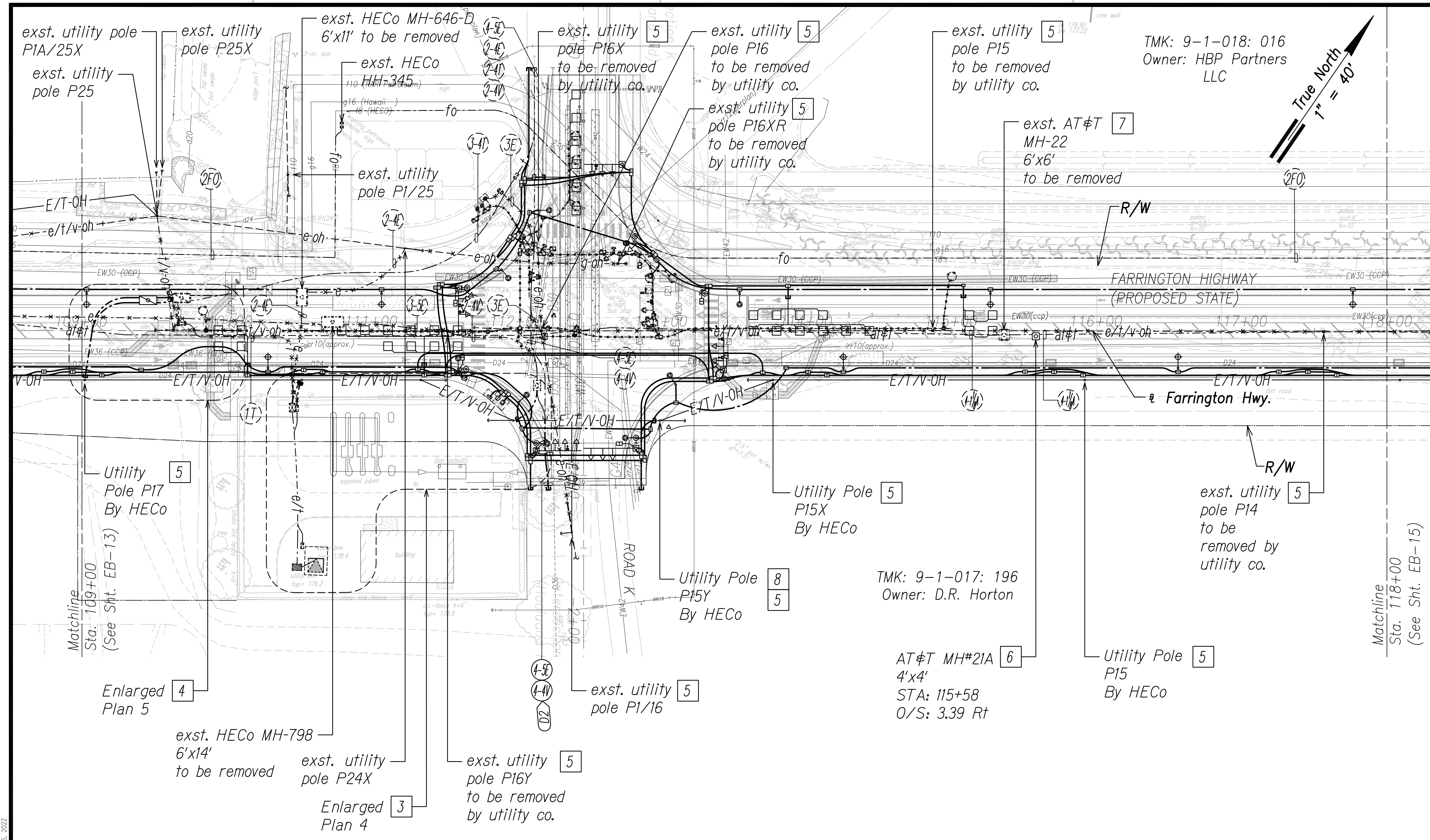
Scale: As Shown Date: April 2022

SHEET No. EB-13 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-14	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).
6. Remove old non-utility pole(s) as required.

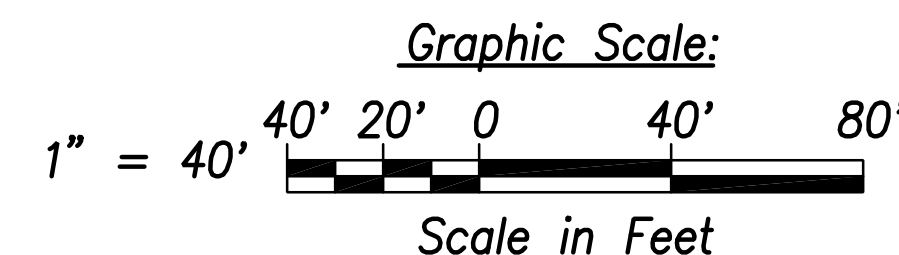


Notes:

- 1 Provide conduit riser(s) up pole per utility company requirements.
- 2 Expose existing duct(s), provide coupling(s) & extend. Coordinate and schedule work with respective utility company prior to excavation.
- 3 See Sht. EB-24 for Enlarged Plan 4.
- 4 See Sht. EB-25 for Enlarged Plan 5.
- 5 Excavate & expose existing manhole wall(s). Coordinate and schedule work with respective utility company prior to excavation. Provide duct entry per utility co. requirements. Provide couplings & extend duct(s). Repair to match existing.

- 5 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 6 Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.
- 7 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.
- 8 Weatherhead for traffic signal service to be installed on pole.

Electrical Plan 14 - (Sta. 109+00 to Sta. 118+00)
Scale: 1" = 40'



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FILE: Z:\ACAD\PROJECTS\220674\EB14_220674_ELEC_Roadway_Plan_14 - Sta. 109+00 to 118+00.dwg saved April 6, 2022

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 14

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

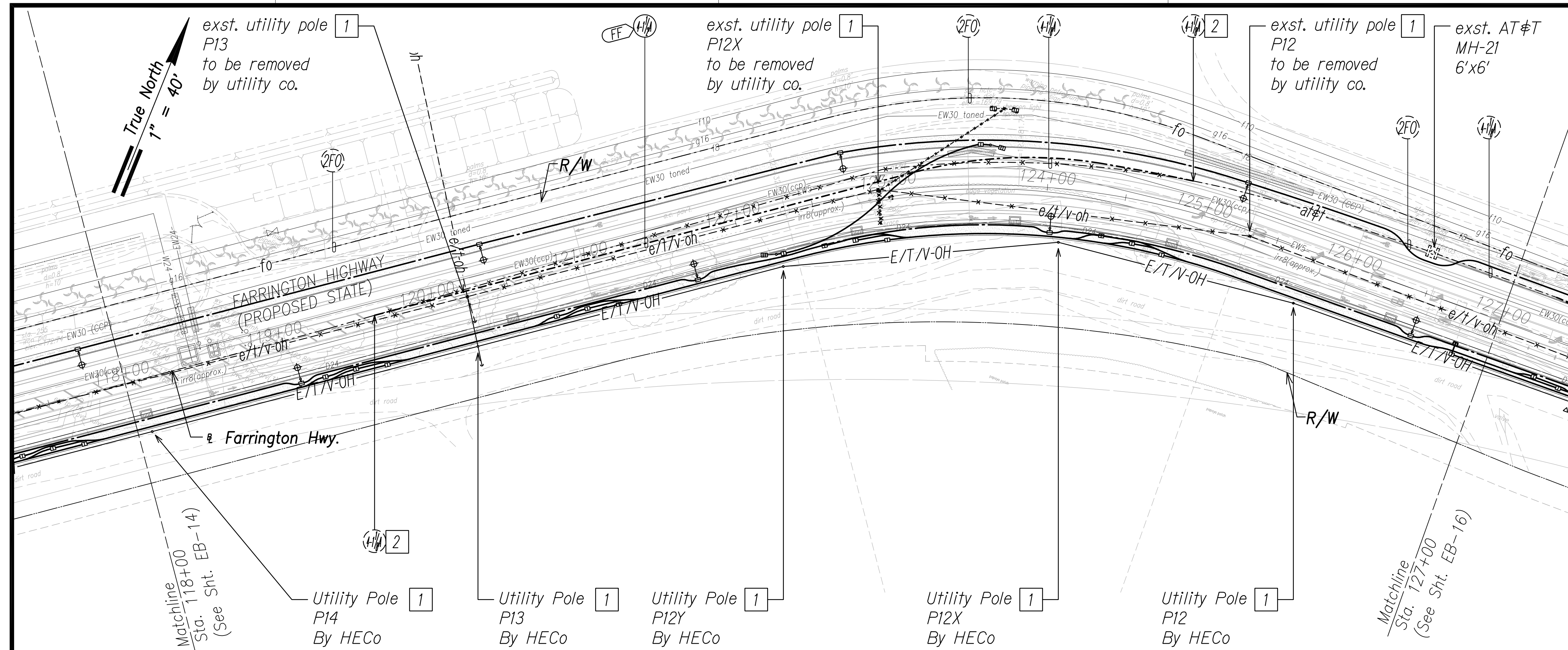
Scale: As Shown Date: April 2022

SHEET No. EB-14 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-15	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



Notes:

1. Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
2. Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.

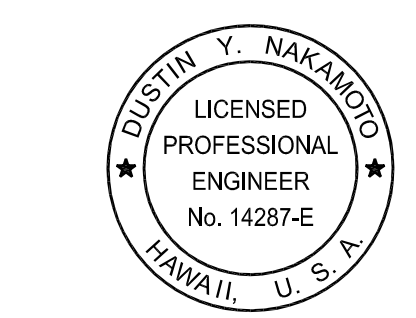
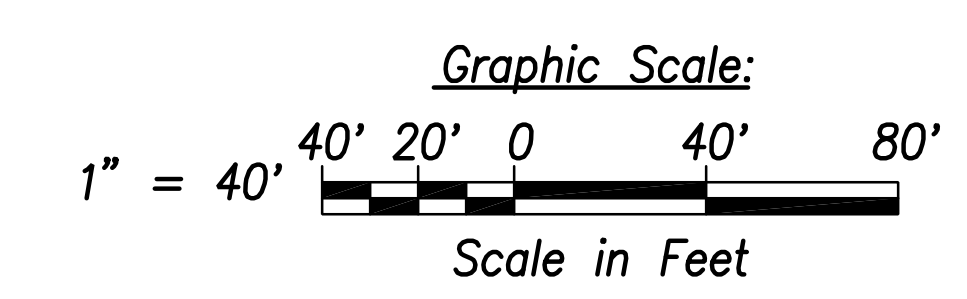
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 Hawaiian Electric
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CHECKED BY _____	_____
ORIGINAL PLAN NO. _____	_____

FILE: Z:\ACAD\PROJECTS\220674\EB15_220674_ELEC_Roadway_Plan_15 - Sta. 118+00 to 127+00.dwg saved April 6, 2022

Electrical Plan 15 - (Sta. 118+00 to Sta. 127+00)
 Scale: 1" = 40'



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STATE OF HAWAII
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 HIGHWAYS DIVISION

ELECTRICAL PLAN 15

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

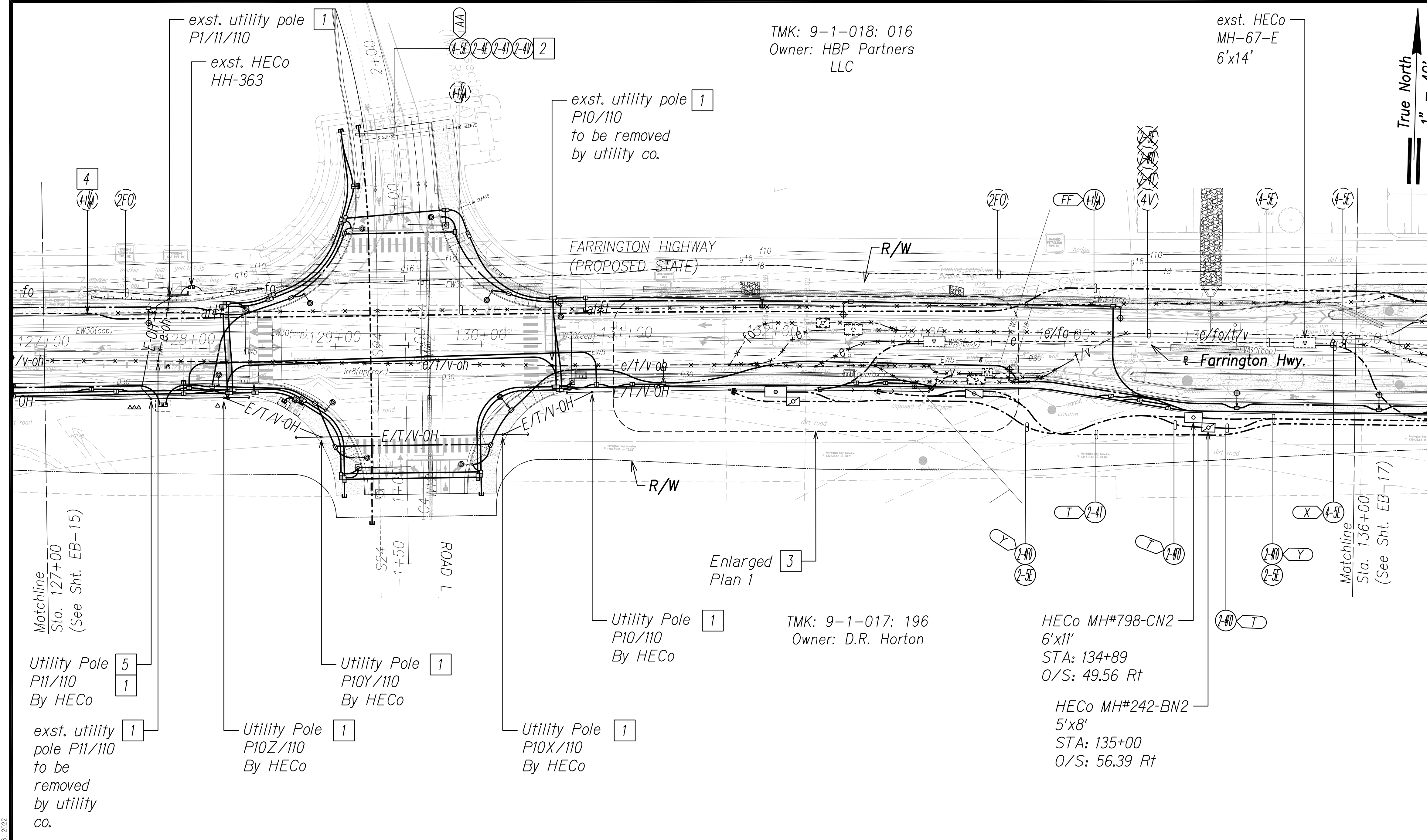
Scale: As Shown Date: April 2022

SHEET No. EB-15 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-16	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECo overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECo. Only HECo 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 HECo facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECo, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



TMK: 9-1-018: 016
Owner: HBP Partners LLC

exst. HECo
MH-67-E
6'x14'

True North
1" = 40'

TMK: 9-1-017: 196
Owner: D.R. Horton

HECo MH#798-CN2
6'x11'
STA: 134+89
O/S: 49.56 Rt

HECo MH#242-BN2
5'x8'
STA: 135+00
O/S: 56.39 Rt

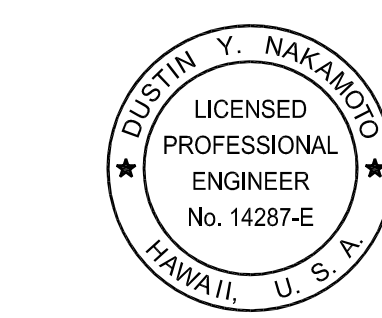
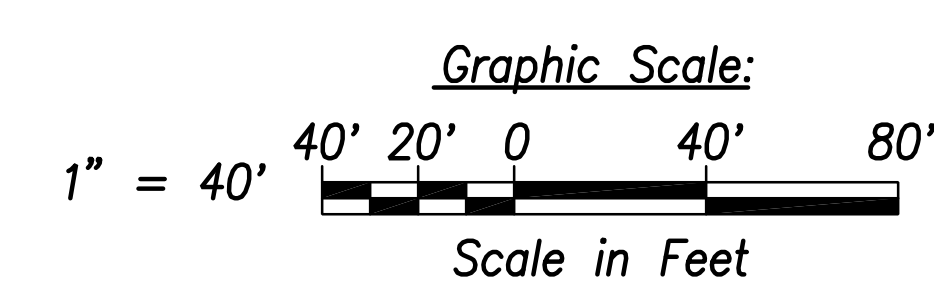
FILE: Z:\ACAD\PROJECTS\220674\EB16 - Sta. 127+00 to 136+00.dwg saved April 6, 2022

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Notes:

- 1 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 2 For future development.
- 3 See Sht. EB-21 for Enlarged Plan 1.
- 4 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.
- 5 Weatherhead for street light service to be installed on pole.

Electrical Plan 16 - (Sta. 127+00 to Sta. 136+00)
Scale: 1" = 40'



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 16

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

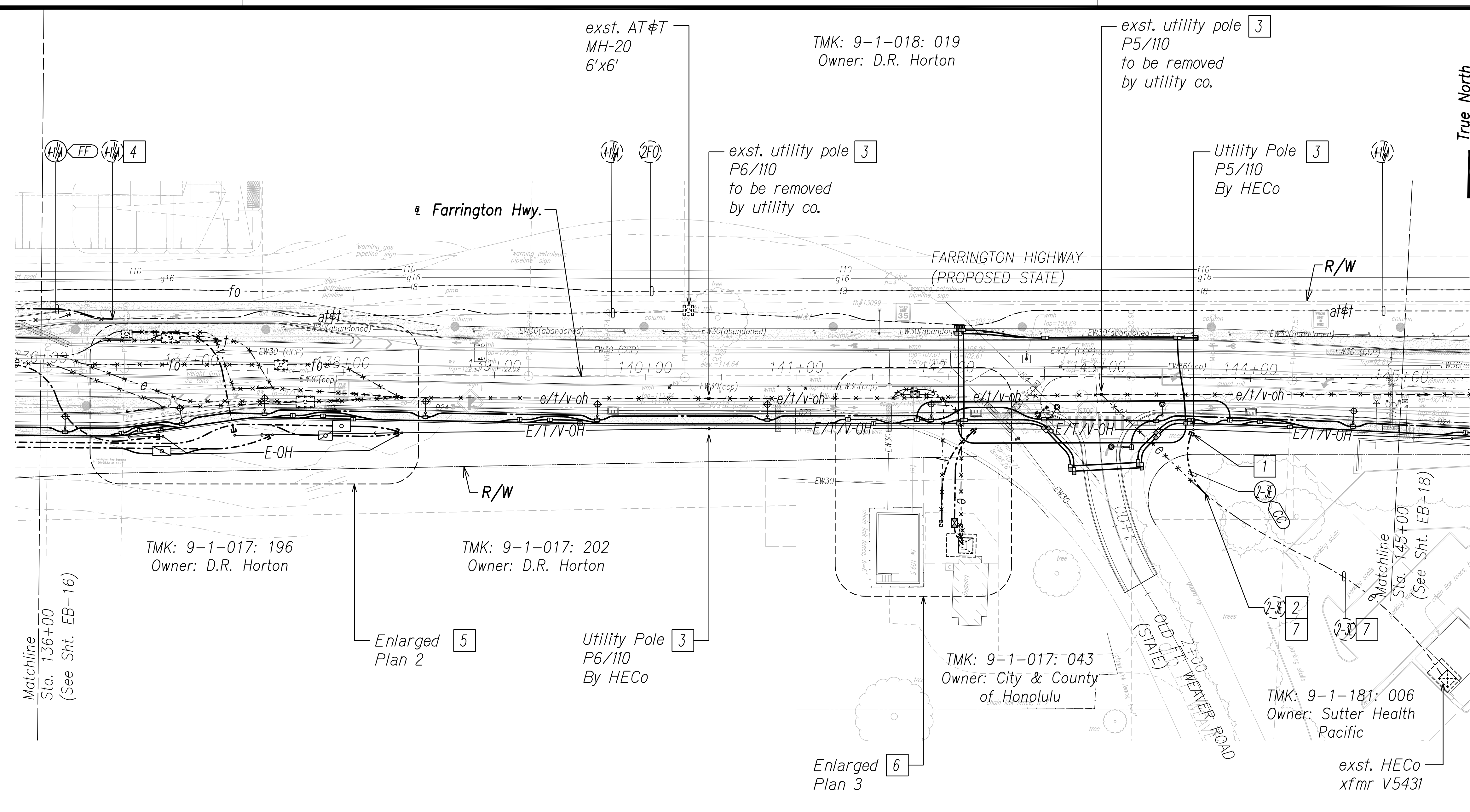
SHEET No. EB-16 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-17	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

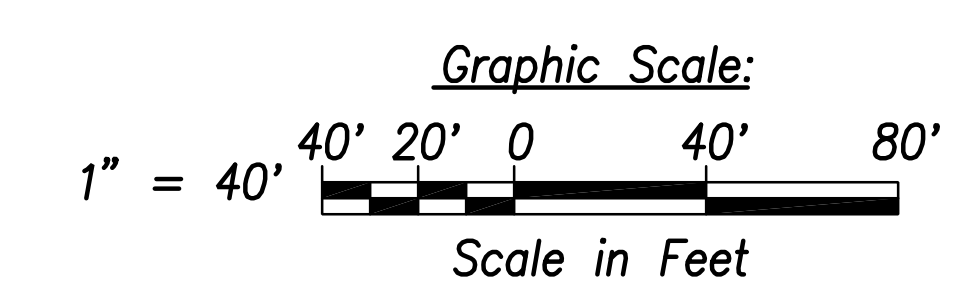
True North
1" = 40'



Notes:

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Provide conduit riser(s) up pole per utility company requirements.</p> <p>2 Excavate & expose exst. duct(s). Coordinate & schedule work with HECO prior to commencing with excavation. Caution!!! Electrical Hazard!!! Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECO. Provide couplings as required, & extend exst. duct(s) from HECO manhole/handhole. The cost of HECO's assistance in providing proper support & protection will be charged to the contractor. Repair to match existing.</p> <p>3 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.</p> | <p>4 Excavate & expose exst. duct(s) to intercept with new duct(s). Coordinate and schedule work with AT&T prior to excavation. Repair to match existing.</p> <p>5 See Sht. EB-22 for Enlarged Plan 2.</p> <p>6 See Sht. EB-23 for Enlarged Plan 3.</p> <p>7 Transite duct(s).</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Electrical Plan 17 - (Sta. 136+00 to Sta. 145+00)
Scale: 1" = 40'

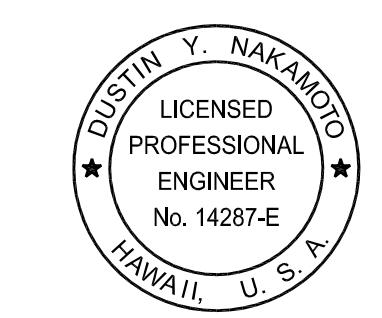


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Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 17

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

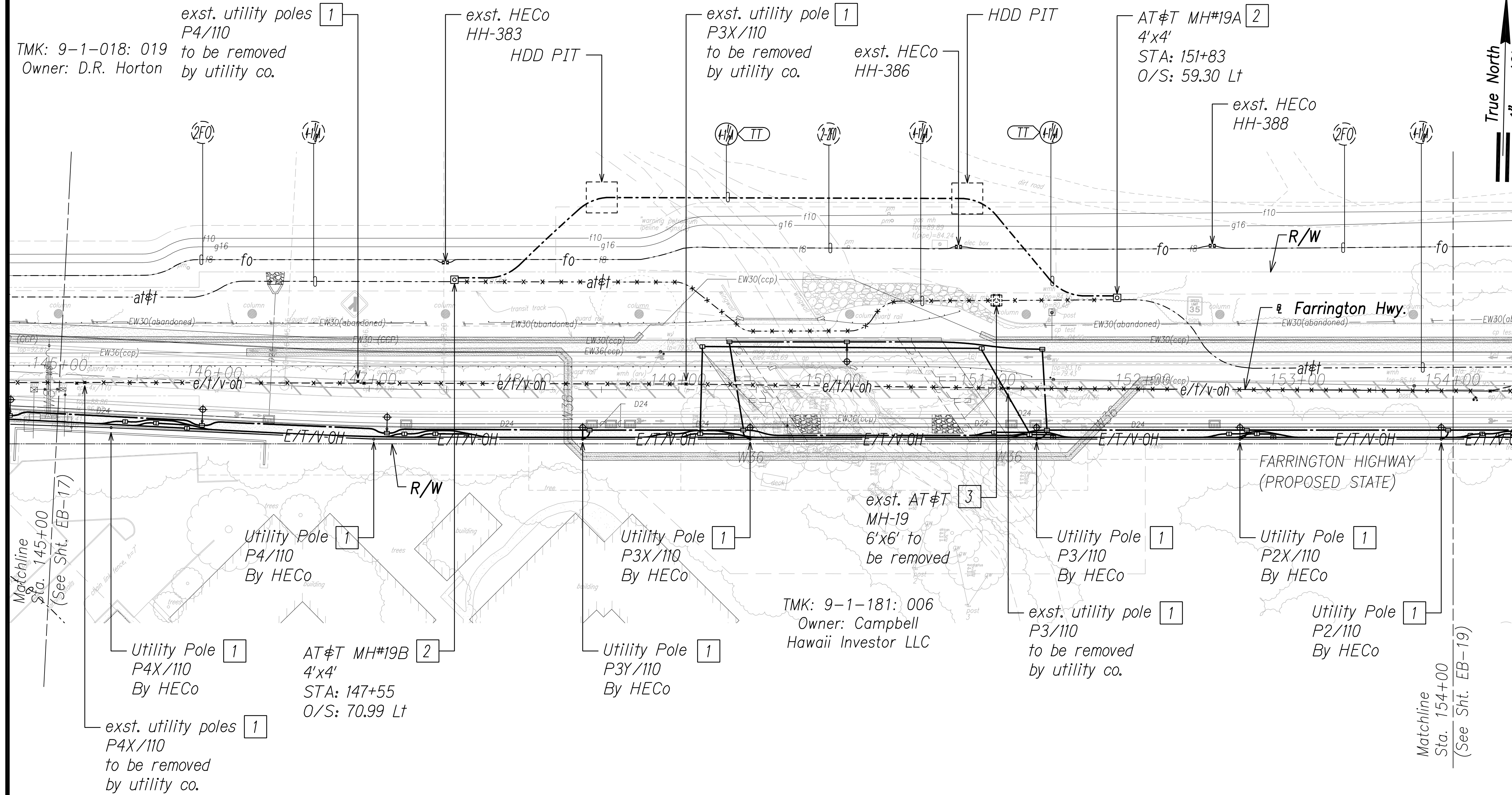
Scale: As Shown Date: April 2022

SHEET No. EB-17 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-18	790

General Electrical Notes:

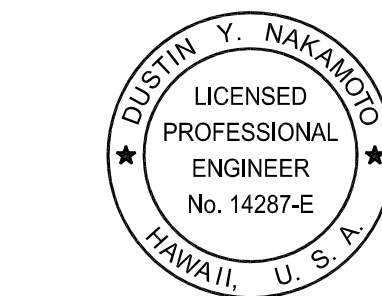
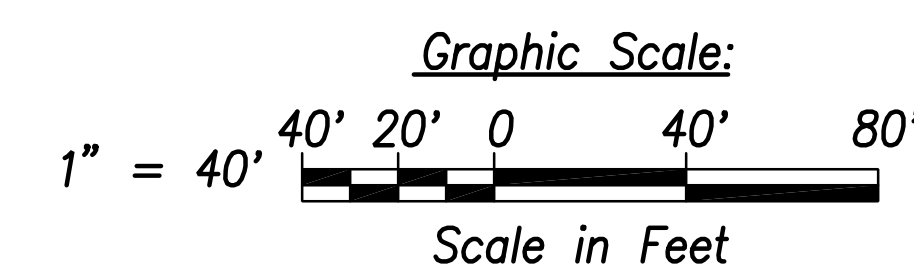
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



Notes:

1. Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
2. Excavate & expose exst. duct(s) to intercept with new manhole. Coordinate and schedule work with AT&T prior to excavation. Provide duct entry for AT&T, per utility co. requirements. Repair to match existing.
3. Excavate & expose exst. manhole wall(s). Coordinate and schedule work with AT&T prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.

Electrical Plan 18 - (Sta. 145+00 to Sta. 154+00)
Scale: 1" = 40'



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Date: April 30, 2022
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Req# _____ By _____ Date _____
Transmission & Distribution Engineering
Hawaiian Electric
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN 18

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-18 OF 25 SHEETS

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

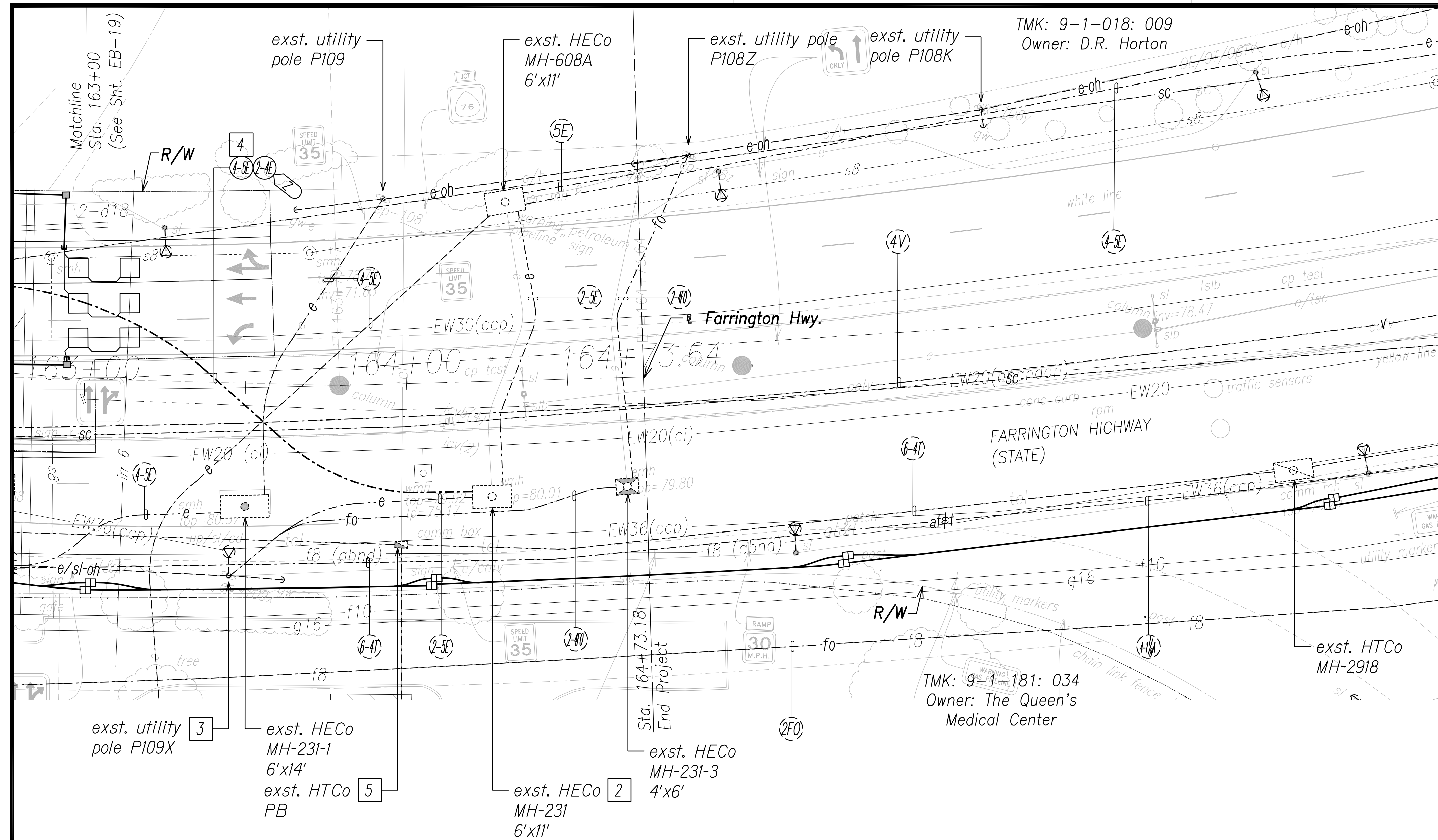
FILE: Z:\ACAD\PROJECTS\220671\EB18_220671_ELEC_Roadway Plan 18 - Sta. 145+00 to 154+00.dwg saved April 6, 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-20	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HECO & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

True North
1" = 20'

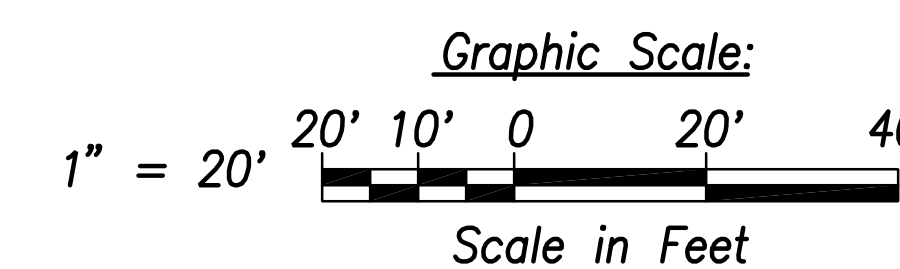


Notes:

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Provide conduit riser(s) up pole per utility company requirements.</p> <p>2 Excavate & expose manhole wall(s). Coordinate & schedule work with HECO prior to commencing with excavation. Caution!!! Electrical Hazard!!! Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Provide couplings as required & extend duct(s). Repair to match existing. The cost of HECO's assistance in providing proper support & protection will be changed to the contractor. Repair to match existing.</p> | <p>3 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.</p> <p>4 For Future Development.</p> <p>5 Not found.</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Electrical Plan 20 - (Sta. 163+00 to End)

Scale: 1" = 20'

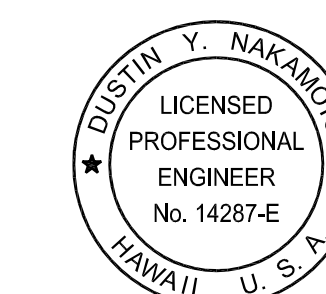


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QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\ACAD\PROJECTS\220674\EB20_220674_ELEC_Roadway Plan 20 - Sta. 163+00 to End.dwg saved April 6, 2022

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 Req# _____ By _____ Date _____
 Customer Installations Department
 Hawaiian Electric
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Signature: *[Signature]*
 Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ELECTRICAL PLAN 20

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

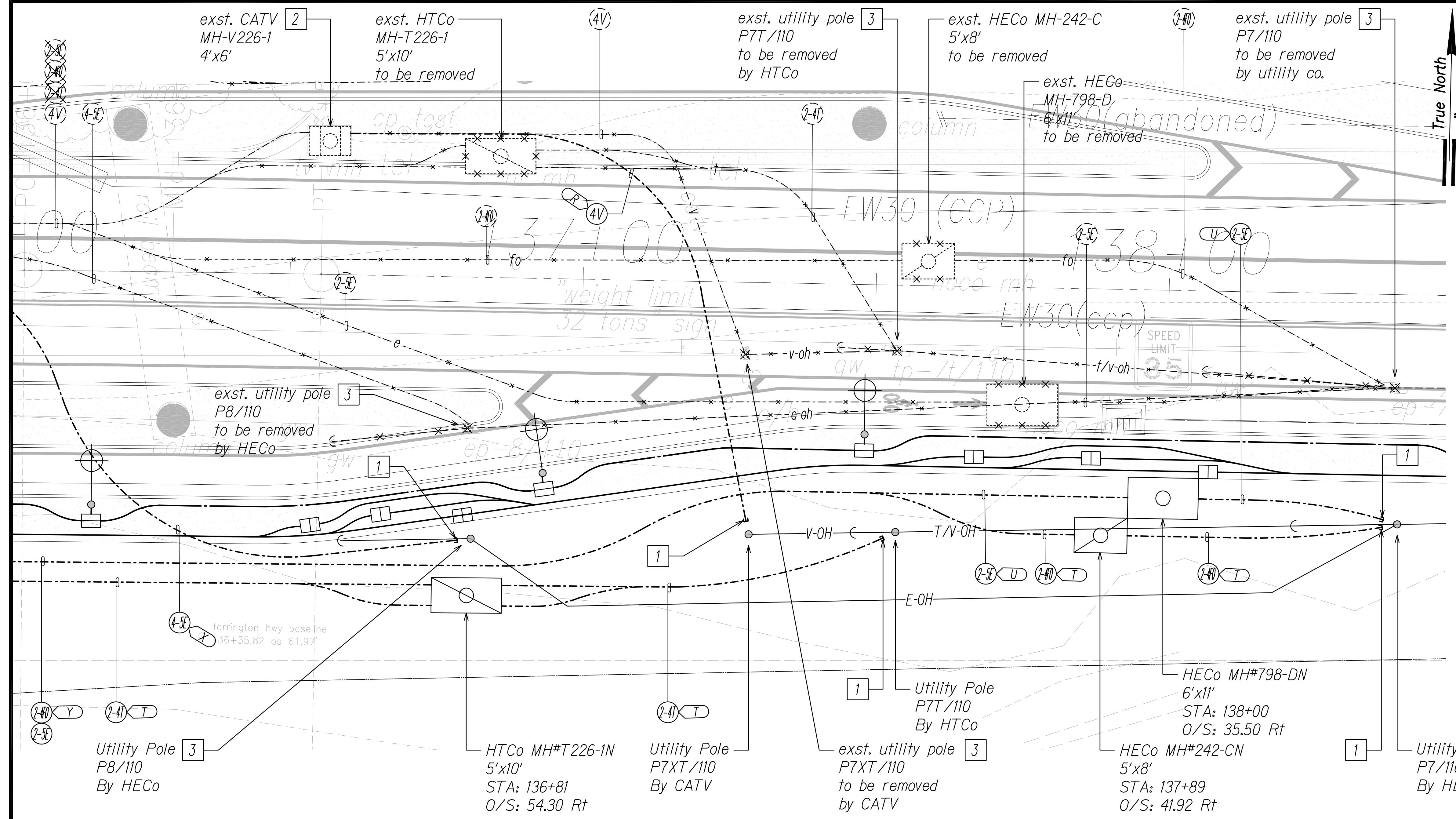
Scale: As Shown Date: April 2022

SHEET No. EB-20 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-22	790

General Electrical Notes:

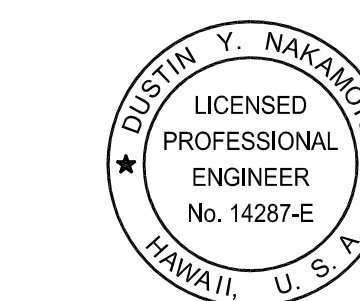
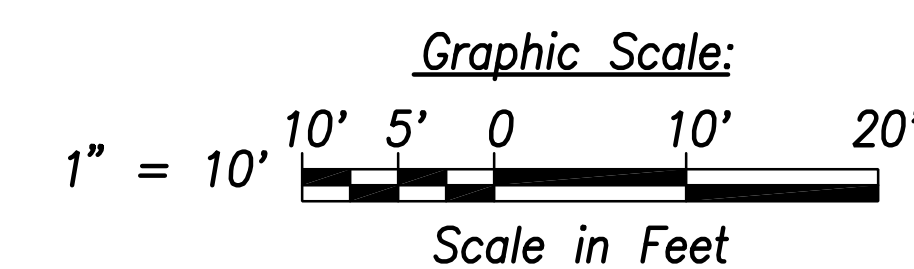
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HTC Co & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).



Notes:

- 1 Provide conduit riser(s) up pole per utility company requirements.
- 2 Excavate & expose exst. manhole/handhole wall(s). Coordinate and schedule work with respective utility company prior to excavation. Provide duct entry per utility co. requirements. Provide couplings as required & extend duct(s). Repair to match existing.
- 3 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.

Enlarged Electrical Plan 2
Scale: 1" = 10'



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Signature: *[Signature]*
Date: April 30, 2024
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENLARGED ELECTRICAL PLAN 2

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-22 OF 25 SHEETS

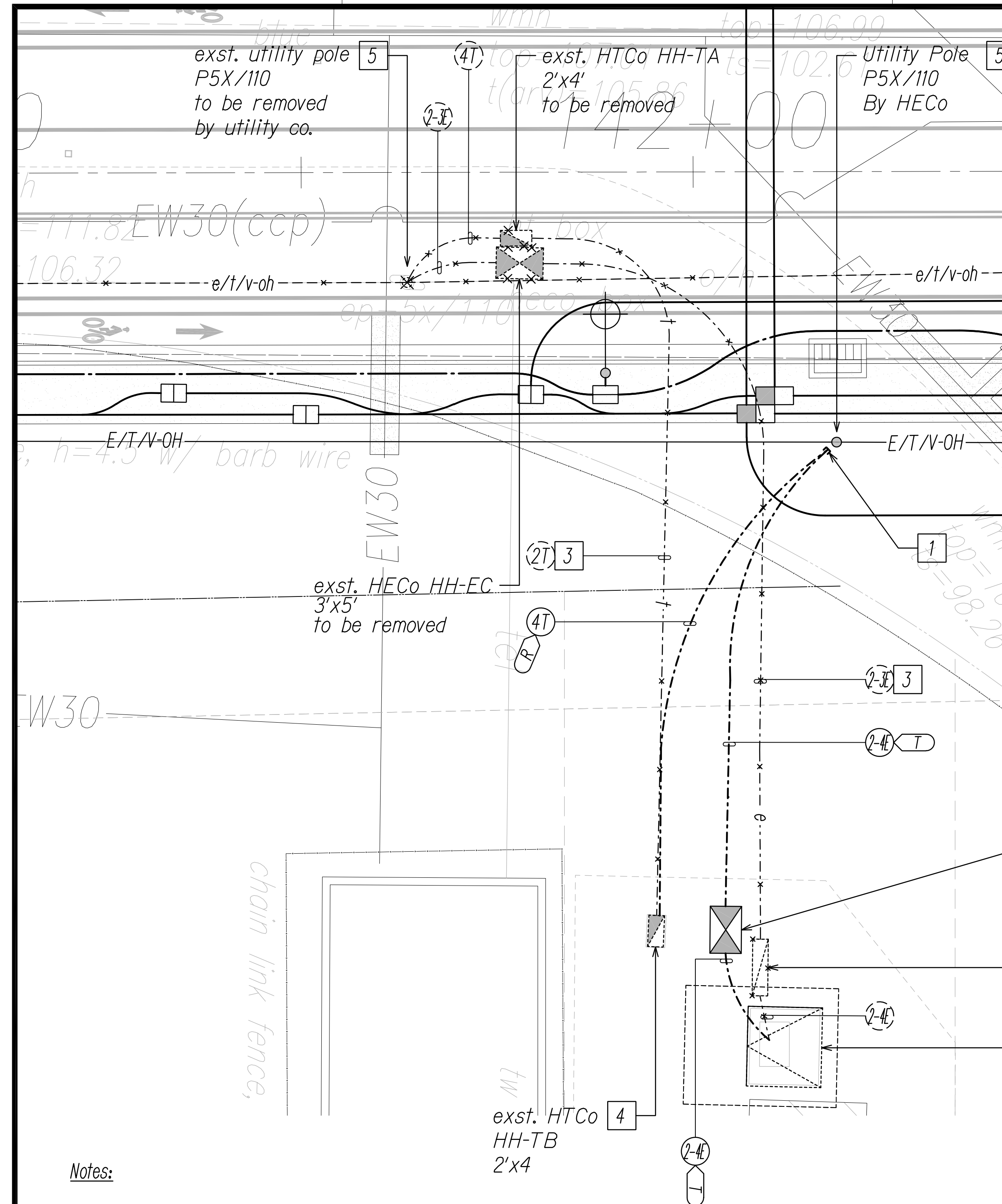
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TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No. _____
NOTE BOOK	

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-23	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECo overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECo. Only HECo 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 HECo facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECo, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

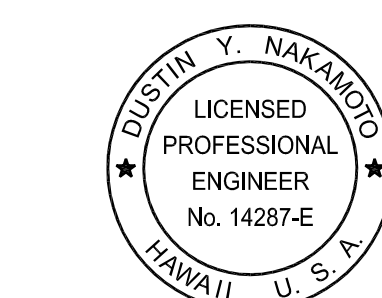
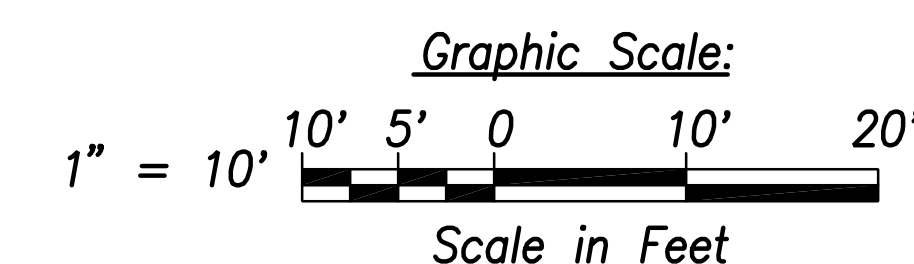


Notes:

- 1 Provide conduit riser(s) up pole per utility company requirements.
- 2 Excavate to add duct(s) to exst. transformer primary compartment. Coordinate & schedule work with HECo prior to commencing with excavation. **Caution!!! Electrical Hazard!!!** Only HECo personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECo. Provide couplings as required, & extend duct(s) from transformer pad. Repair to match existing. The cost of HECo's assistance in providing proper support & protection will be charged to the contractor. Repair to match existing.
- 3 Transite duct(s).
- 4 Excavate & expose exst. handhole wall(s), provide coupling(s) as required & extend duct(s). Coordinate and schedule work with respective utility company prior to excavation. Provide duct entry per utility co. requirements. Provide couplings as required & extend duct(s). Repair to match existing.
- 5 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.

Enlarged Electrical Plan 3

Scale: 1" = 10'



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Signature: *[Signature]*
 Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

DRAWING REVIEW
 Reviewed for Hawaiian Electric Company Facilities Only
 Req# _____ By _____ Date _____
 Transmission & Distribution Engineering
 Hawaiian Electric
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**ENLARGED ELECTRICAL
 PLAN 3**

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-23 OF 25 SHEETS

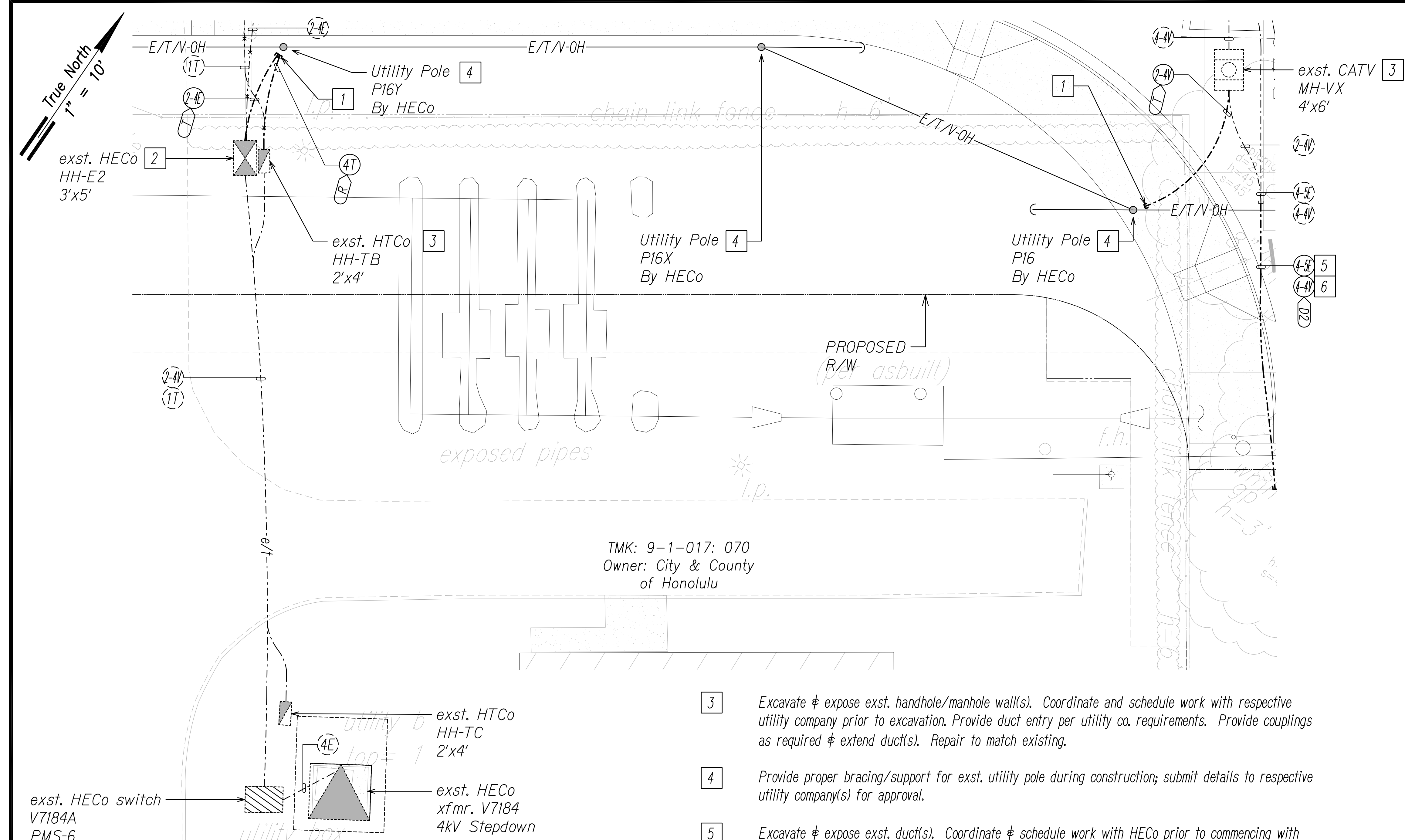
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TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No. _____
NOTE BOOK	

FILE: Z:\ACAD\PROJECTS\220671A\EB23_220671A_ELEC_ENLARGED_PLAN_03.dwg saved April 16, 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-24	790

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).
6. Remove old non-utility pole(s) as required.



TMK: 9-1-017: 070
Owner: City & County of Honolulu

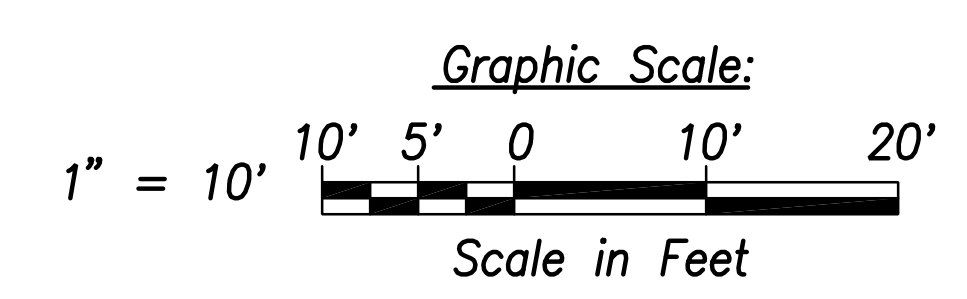
- Notes:**
- 1 Provide conduit riser(s) up pole per utility company requirements.
 - 2 Excavate & expose exst. handhole/manhole wall(s). Coordinate & schedule work with HECO prior to commencing with excavation. **Caution!!! Electrical Hazard!!!** Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECO. Provide couplings as required, & extend duct(s). The cost of HECO's assistance in providing proper support & protection will be charged to the contractor. Repair to match existing.

- 3 Excavate & expose exst. handhole/manhole wall(s). Coordinate and schedule work with respective utility company prior to excavation. Provide duct entry per utility co. requirements. Provide couplings as required & extend duct(s). Repair to match existing.
- 4 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
- 5 Excavate & expose exst. duct(s). Coordinate & schedule work with HECO prior to commencing with excavation. **Caution!!! Electrical Hazard!!!** Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECO. Provide couplings as required, & extend exst. duct(s). Repair to match existing. The cost of HECO's assistance in providing proper support & protection will be charged to the contractor. Repair to match existing.
- 6 Excavate & expose exst. duct(s) to extend. Provide couplings as required. Coordinate and schedule work with respective utility co. prior to excavation. Repair to match existing.

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

FILE: Z:\ACAD\PROJECTS\220671A\EB24_220671A_ELEC_ENLARGED_PLAN_04.dwg saved April 16, 2022

Enlarged Electrical Plan 4
Scale: 1" = 10'



DUSTIN Y. NAMAMOTO
LICENSED PROFESSIONAL ENGINEER
No. 14287-E
HAWAII, U.S.A.

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Req# _____ By _____ Date _____
Transmission & Distribution Engineering
Hawaiian Electric
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

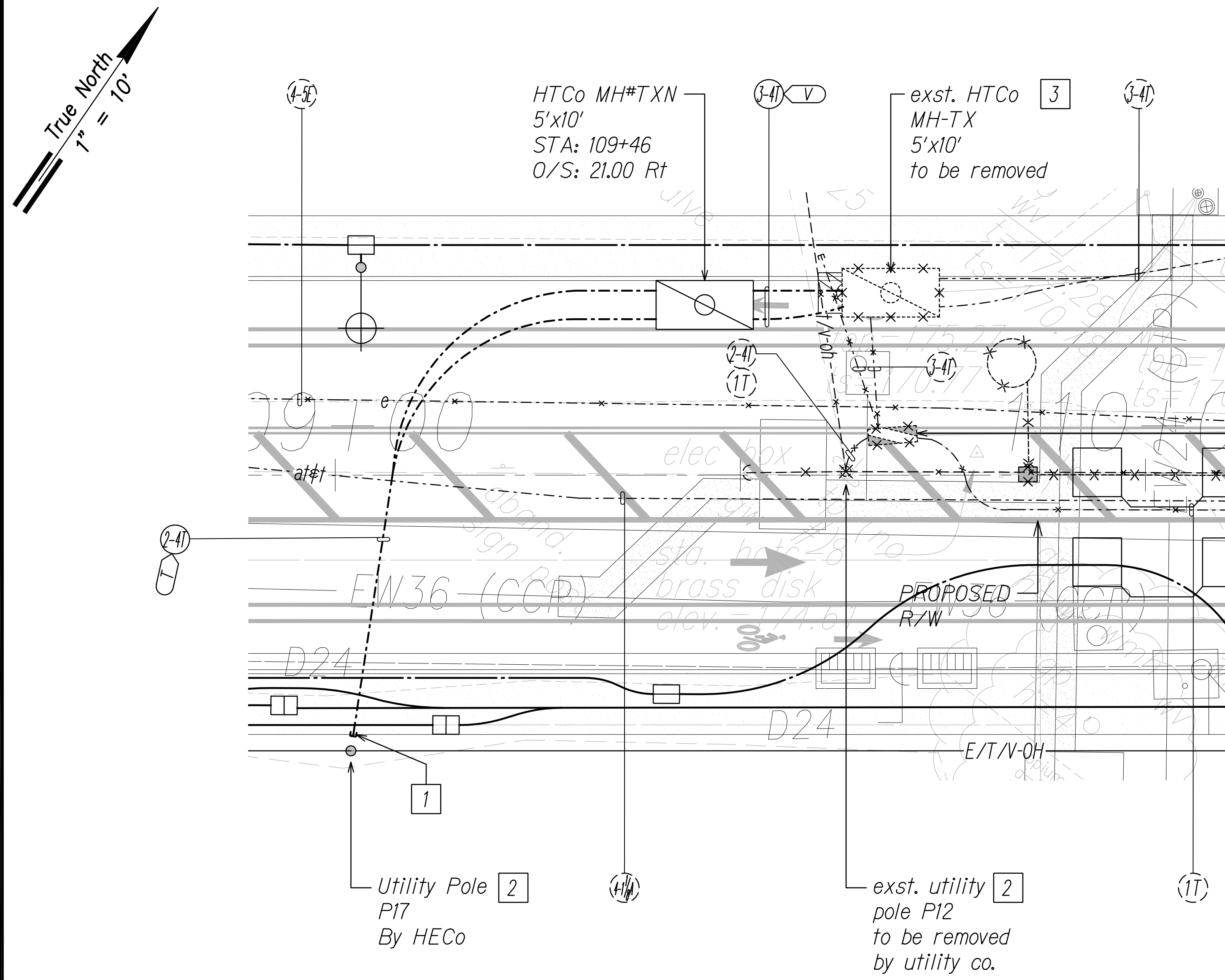
ENLARGED ELECTRICAL PLAN 4

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EB-24 OF 25 SHEETS

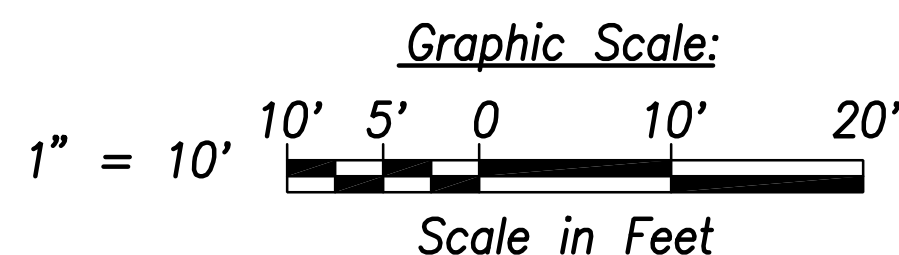
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EB-25	790



- General Electrical Notes:**
1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
 2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
 3. See street lighting & traffic signal plans for street lighting & traffic signal work.
 4. HECO, HCo & CATV to remove their respective overhead facilities.

- Notes:**
- 1 Provide conduit riser(s) up pole per utility company requirements.
 - 2 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
 - 3 Excavate & expose exst. manhole wall(s). Coordinate and schedule work with HCo prior to excavation. Demolish exst. manhole, provide couplings as required & extend duct(s) to exst. Repair to match existing.

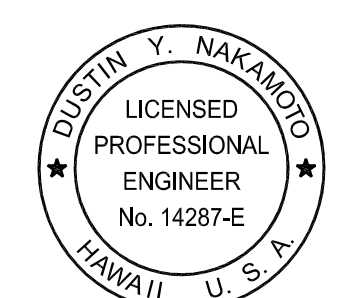
Enlarged Electrical Plan 5
Scale: 1" = 10'



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[Signature]
SIGNATURE

April 30, 2024
EXPIRATION DATE OF THE LICENSE



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Req# _____ By _____ Date _____
Transmission & Distribution Engineering
Hawaiian Electric

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENLARGED ELECTRICAL PLAN 5

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

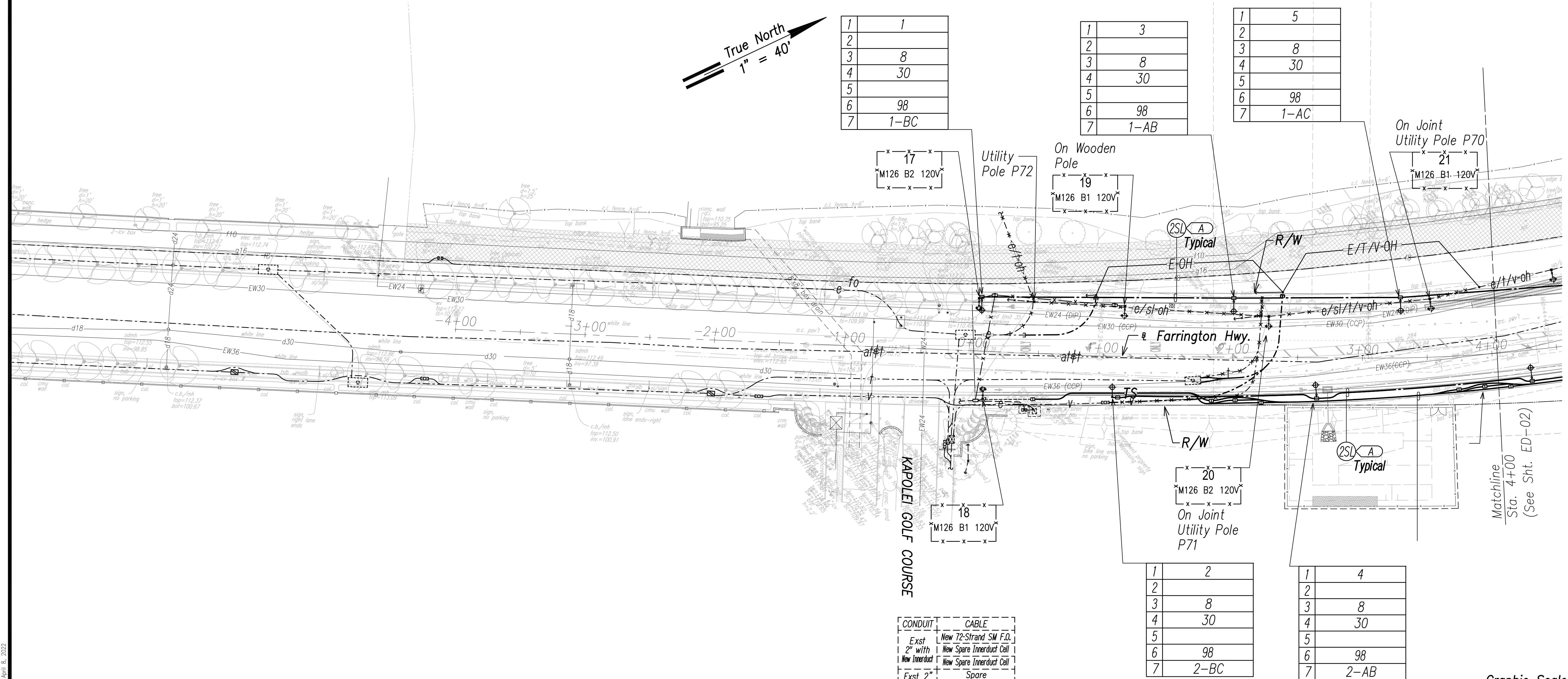
Scale: As Shown Date: April 2022

SHEET No. EB-25 OF 25 SHEETS

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ORIGINAL PLAN	
NOTE BOOK	
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-01	790



True North
1" = 40'

1	1
2	
3	8
4	30
5	
6	98
7	1-BC

1	3
2	
3	8
4	30
5	
6	98
7	1-AB

1	5
2	
3	8
4	30
5	
6	98
7	1-AC

17
M126 B2 120V

19
M126 B1 120V

21
M126 B1 120V

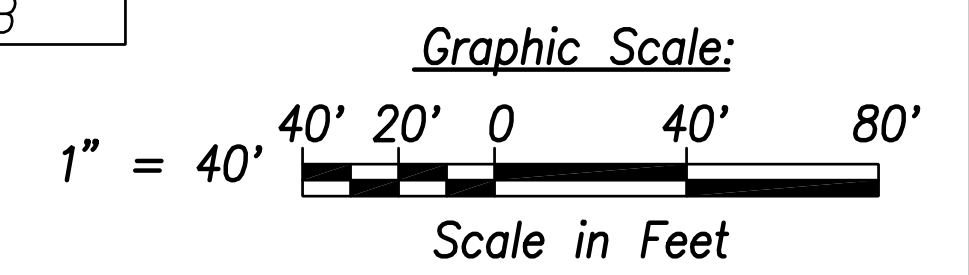
18
M126 B1 120V

20
M126 B2 120V

CONDUIT	CABLE
Exst 2"	New 72-Strand SM F.O.
New Innerduct	New Spare Innerduct Cell
Exst 2"	Spare

1	2
2	
3	8
4	30
5	
6	98
7	2-BC

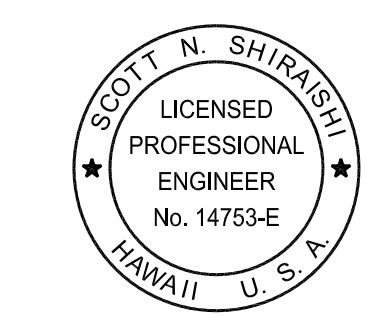
1	4
2	
3	8
4	30
5	
6	98
7	2-AB



DATE	
SURVEY PLOTTED BY	
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TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FILE: Z:\Mcd\Projects\2200679A\ED01_2200679A_SITS_Roadway_Plan_1 - Sta. -5+00 to 4+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 1 - (Sta. -5+00 to Sta. 4+00)
Scale: 1" = 40'



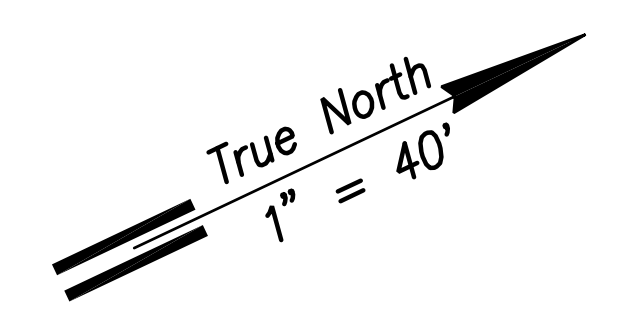
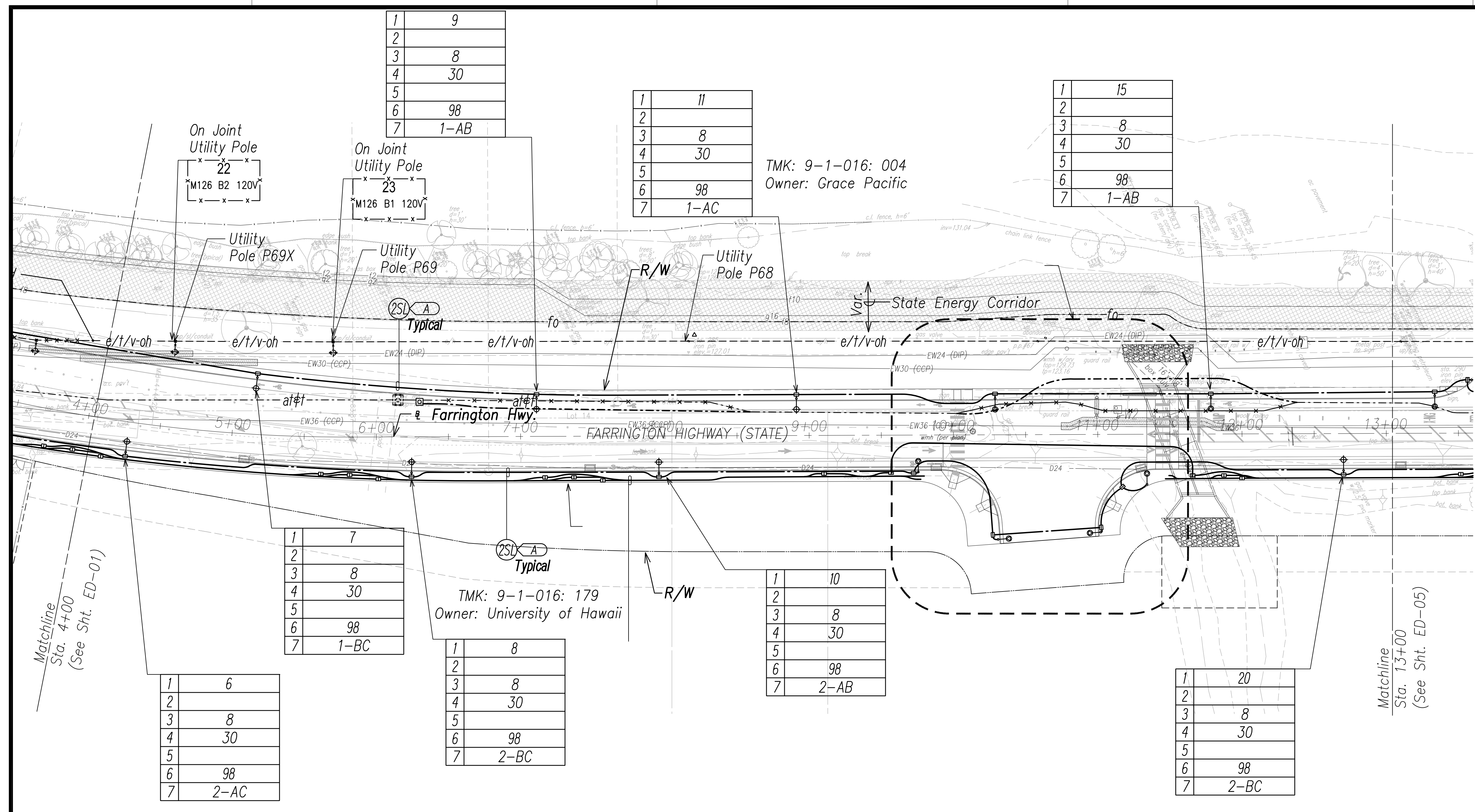
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

APR 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL PLAN 1
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-01 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-02	790



Matchline
Sta. 4+00
(See Sht. ED-01)

Matchline
Sta. 13+00
(See Sht. ED-05)

1	6
2	
3	8
4	30
5	
6	98
7	2-AC

1	7
2	
3	8
4	30
5	
6	98
7	1-BC

1	8
2	
3	8
4	30
5	
6	98
7	2-BC

TMK: 9-1-016: 179
Owner: University of Hawaii

1	10
2	
3	8
4	30
5	
6	98
7	2-AB

1	11
2	
3	8
4	30
5	
6	98
7	1-AC

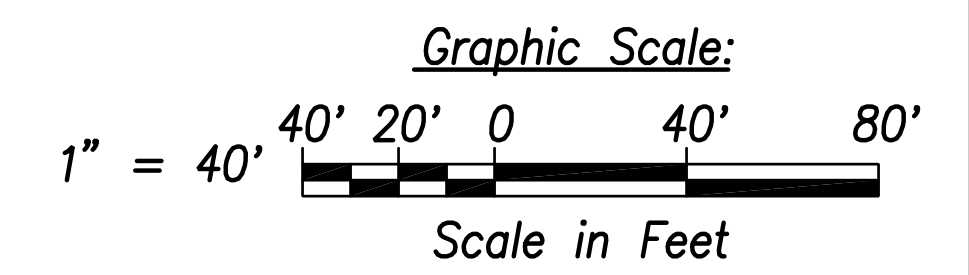
TMK: 9-1-016: 004
Owner: Grace Pacific

1	15
2	
3	8
4	30
5	
6	98
7	1-AB

SURVEY PLOTTED BY	DATE
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TRACED BY	
NOTED BY	
QUANTIFIED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220677A\ED02_220677A_SITS_Roadway_Plan 2 - Sta. 4+00 to 13+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 2 - (Sta. 4+00 to Sta. 13+00)
Scale: 1" = 40'



SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-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.

April 30, 2024
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
PLAN 2**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

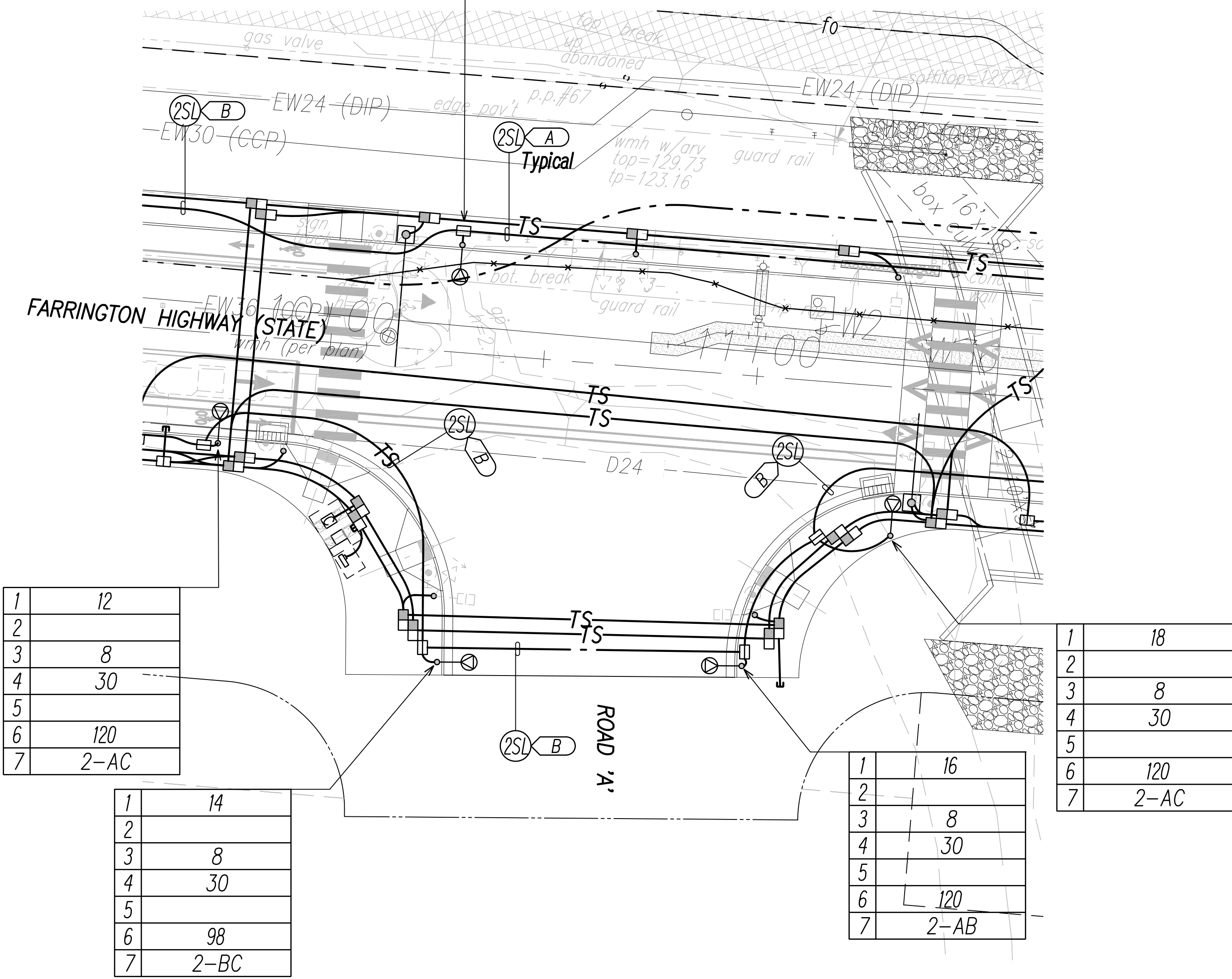
Scale: As Shown Date: April 2022

SHEET No. ED-02 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-03	790

1	13
2	
3	8
4	30
5	
6	120
7	1-BC
1	Typ.

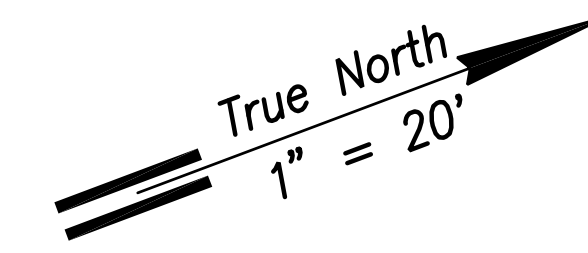


1	12
2	
3	8
4	30
5	
6	120
7	2-AC

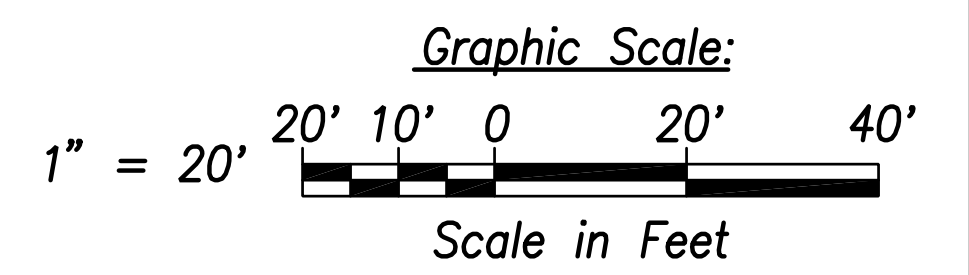
1	14
2	
3	8
4	30
5	
6	98
7	2-BC

1	18
2	
3	8
4	30
5	
6	120
7	2-AC

1	16
2	
3	8
4	30
5	
6	120
7	2-AB



- NOTE:**
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - See Sheet EE-01 for Traffic Signal Work.



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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN NOTE BOOK No.	

FILE: Z:\Mcd\Projects\220677A\ED03_220677A_SITS_Roadway_Plan_3 - Intersection A.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 3 - Intersection A
Scale: 1" = 20'



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Signature: *Scott Shirashi*
Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 3

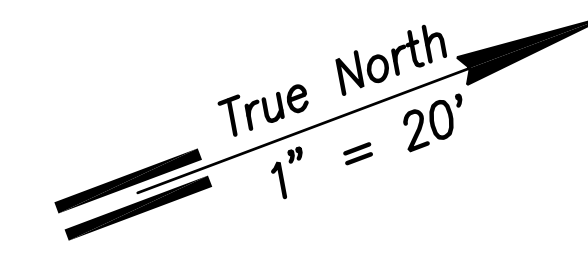
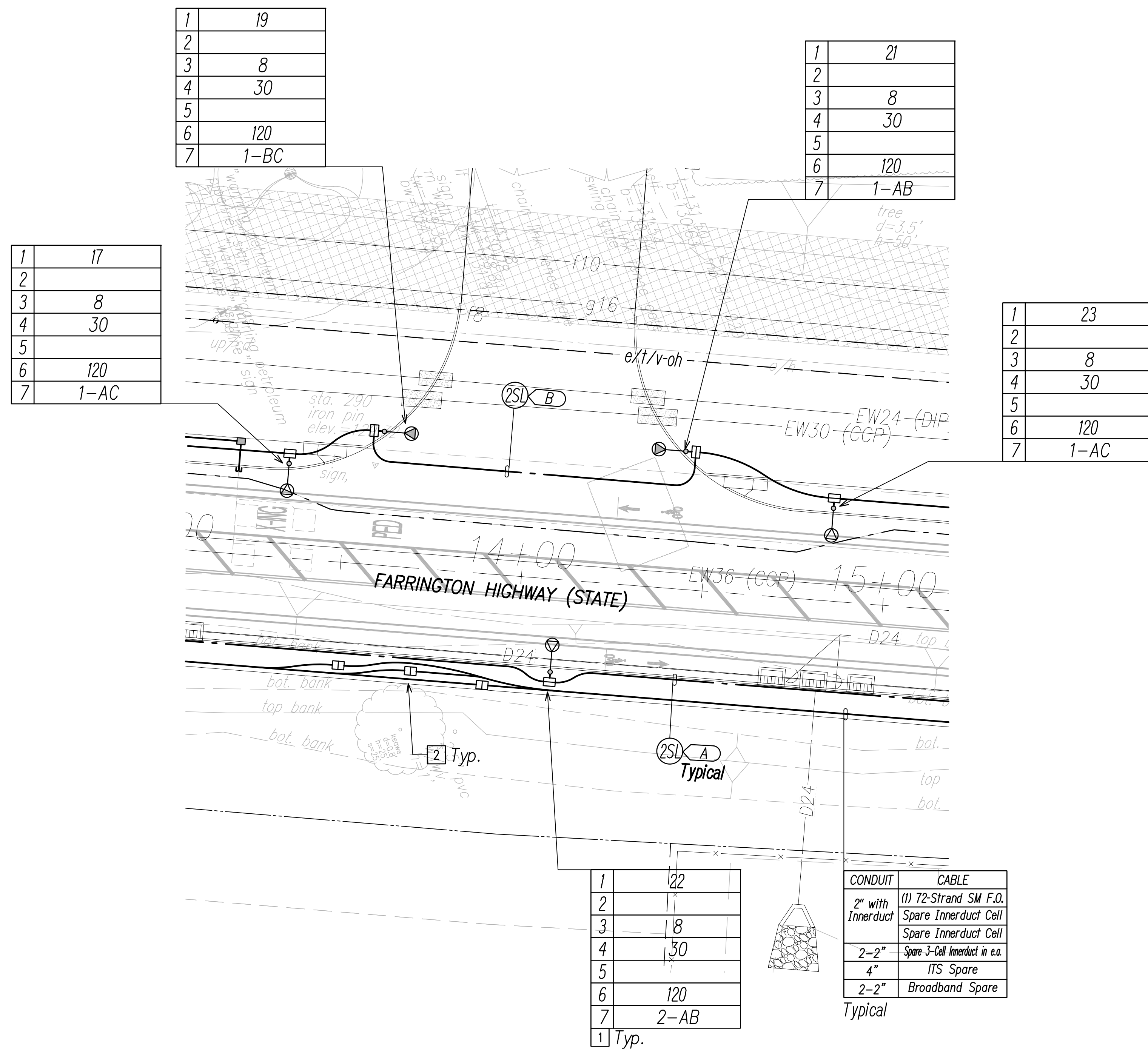
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-03 OF 35 SHEETS

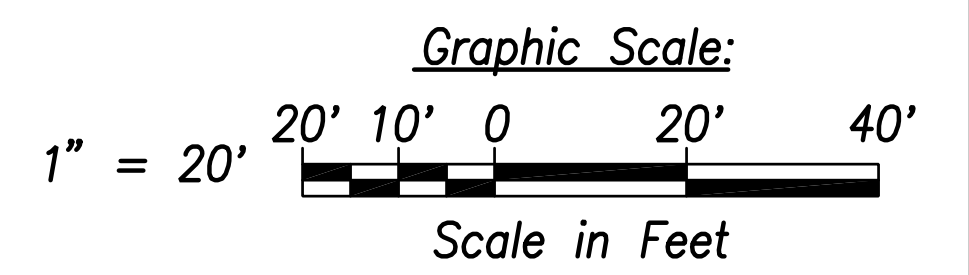
XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-04	790



NOTE:

- 1 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 2 Typical Handhole Grouping. See Sheet EG-15 for Details.
- 3 See Sheet EE-02 for Traffic Signal Work.



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.D. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	Spare 3-Cell Innerduct in e.a. ITS Spare
2-2"	Broadband Spare

Typical

1	22
2	17
3	8
4	30
5	120
6	2-AB
7	1 Typ.

1	19
2	
3	8
4	30
5	
6	120
7	1-BC

1	21
2	
3	8
4	30
5	
6	120
7	1-AB

1	17
2	
3	8
4	30
5	
6	120
7	1-AC

1	23
2	
3	8
4	30
5	
6	120
7	1-AC

DATE	
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FILE: Z:\Acad\Projects\220677H\ED04_220677H_SITS_Roadway_Plan_4 - Intersection B.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 4 - Intersection B
Scale: 1" = 20'

SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-E
HAWAII U.S.A.

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Scott Shiraiki
April 30, 2024
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 4

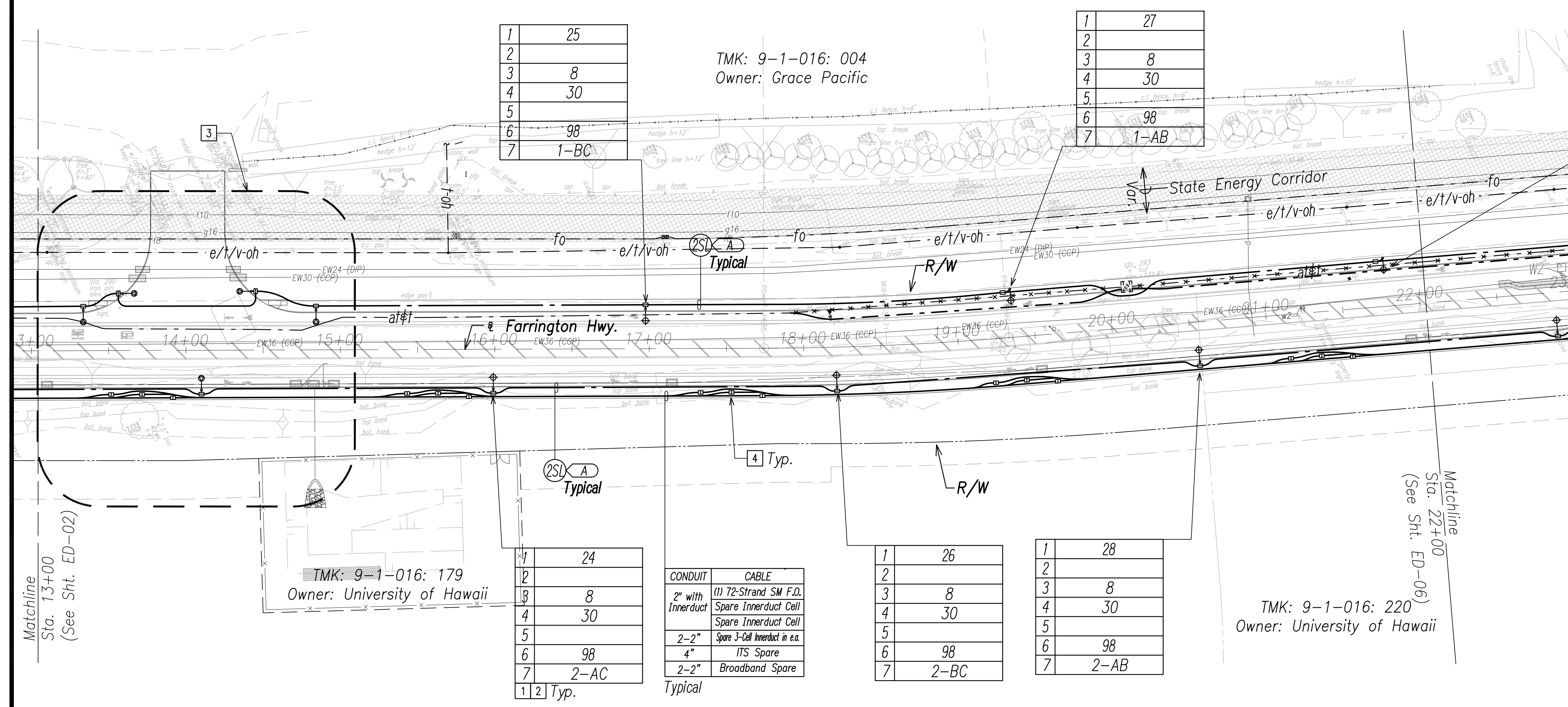
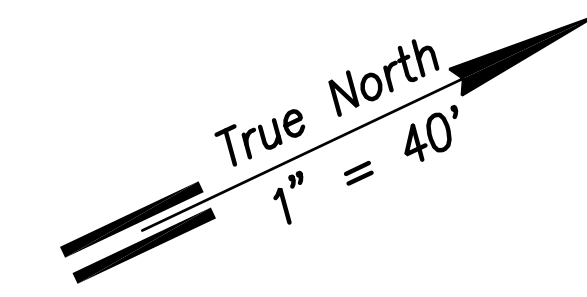
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-04 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-05	790



1	25
2	
3	8
4	30
5	
6	98
7	1-BC

1	27
2	
3	8
4	30
5	
6	98
7	1-AB

1	29
2	
3	8
4	30
5	
6	98
7	1-AC

1	24
2	
3	8
4	30
5	
6	98
7	2-AC
1 2	Typ.

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

1	26
2	
3	8
4	30
5	
6	98
7	2-BC

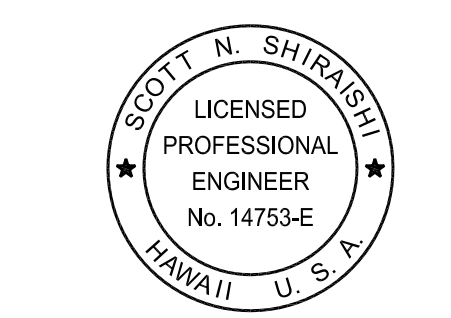
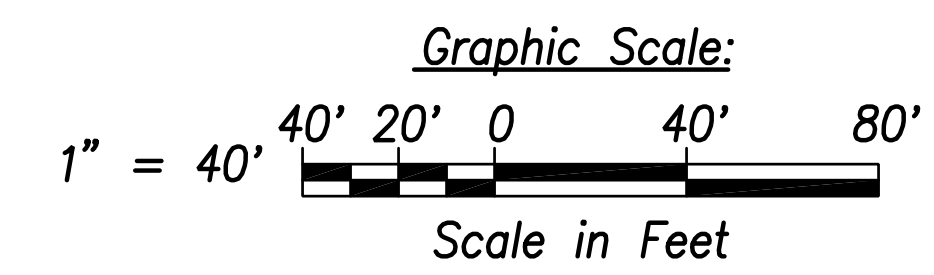
1	28
2	
3	8
4	30
5	
6	98
7	2-AB

- NOTE:**
- See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
 - See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - See Enlarged Plan Sheet ED-04
 - Typical Handhole Grouping. See Sheet EG-15 for Details.
 - All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

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NOTE BOOK	
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FILE: Z:\Mcd\Projects\2200679A_ED05_2200679A_SITS_Roadway_Plan 5 - Sta. 13+00 to 22+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 5 - (Sta. 13+00 to Sta. 22+00)
Scale: 1" = 40'



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Signature: Scott Shirasaki
Date: April 30, 2024
Expiration Date of the License:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL
PLAN 5

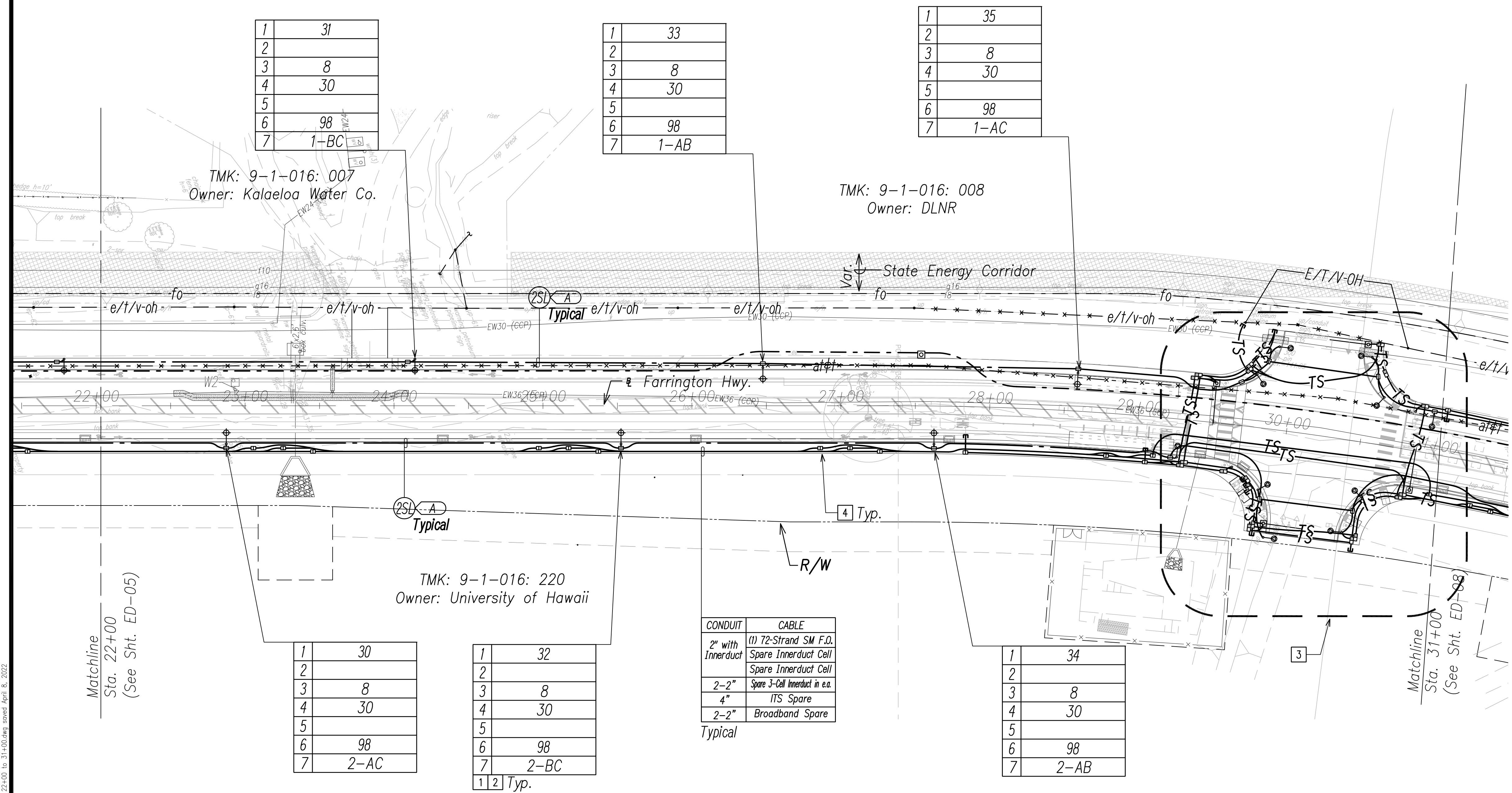
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-05 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-06	790



1	31
2	
3	8
4	30
5	
6	98
7	1-BC

1	33
2	
3	8
4	30
5	
6	98
7	1-AB

1	35
2	
3	8
4	30
5	
6	98
7	1-AC

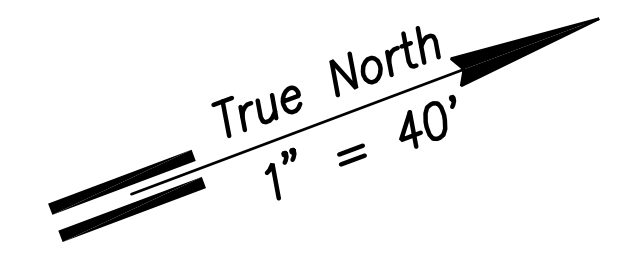
1	30
2	
3	8
4	30
5	
6	98
7	2-AC

1	32
2	
3	8
4	30
5	
6	98
7	2-BC
1 2	Typ.

1	34
2	
3	8
4	30
5	
6	98
7	2-AB

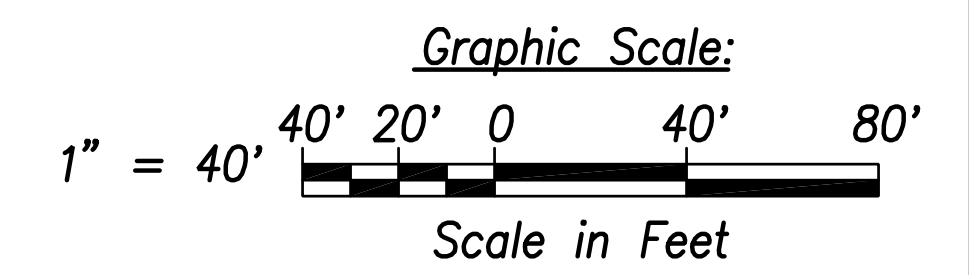
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Typical



NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-07
- 4 Typical Handhole Grouping. See Sheet EG-15 for Details.
5. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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CHECKED BY	
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NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220677A\ED06_220677A_SITS_Roadway_Plan 6 - Sta. 22+00 to 31+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 6 - (Sta. 22+00 to Sta. 31+00)
Scale: 1" = 40'

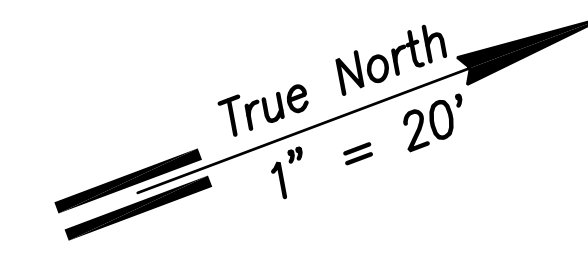
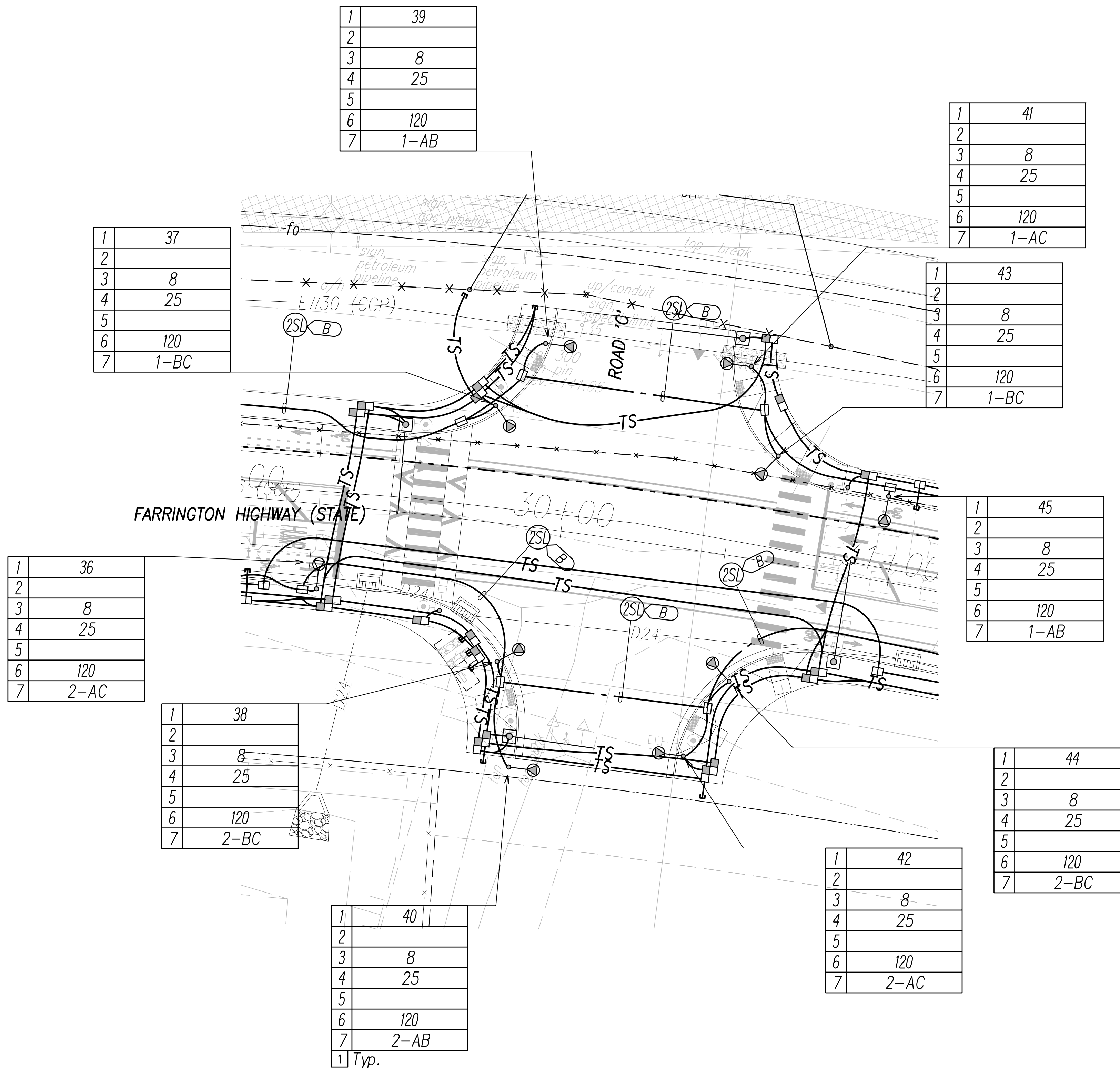


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Scott Shirahishi
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

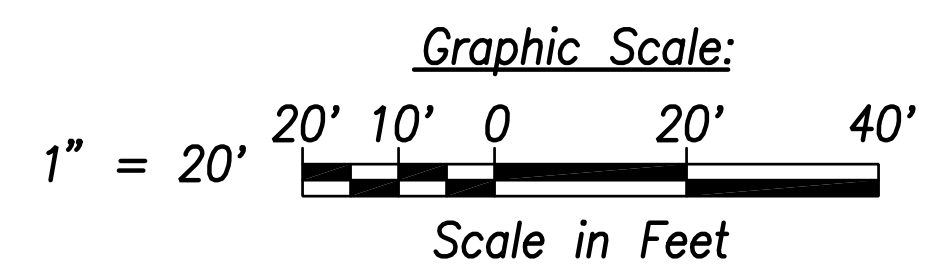
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL PLAN 6
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-06 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-07	790



- NOTE:**
- See Sheet EG-16 for State Highway Light ID Tag Indicator Legend
 - See Sheet EE-02 for Traffic Signal Work.



SURVEY PLOTTED BY	DATE
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ORIGINAL PLAN	
NOTE BOOK	
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FILE: Z:\Acad\Projects\220679A_ED07_220679A_SITS_Roadway_Plan 7 - Intersection C.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 7 - Intersection C
 Scale: 1" = 20'

SCOTT N. SHIRAIHI
 LICENSED PROFESSIONAL ENGINEER
 No. 14753-E
 HAWAII U.S.A.

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Scott Shiraihi
 SIGNATURE April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 7

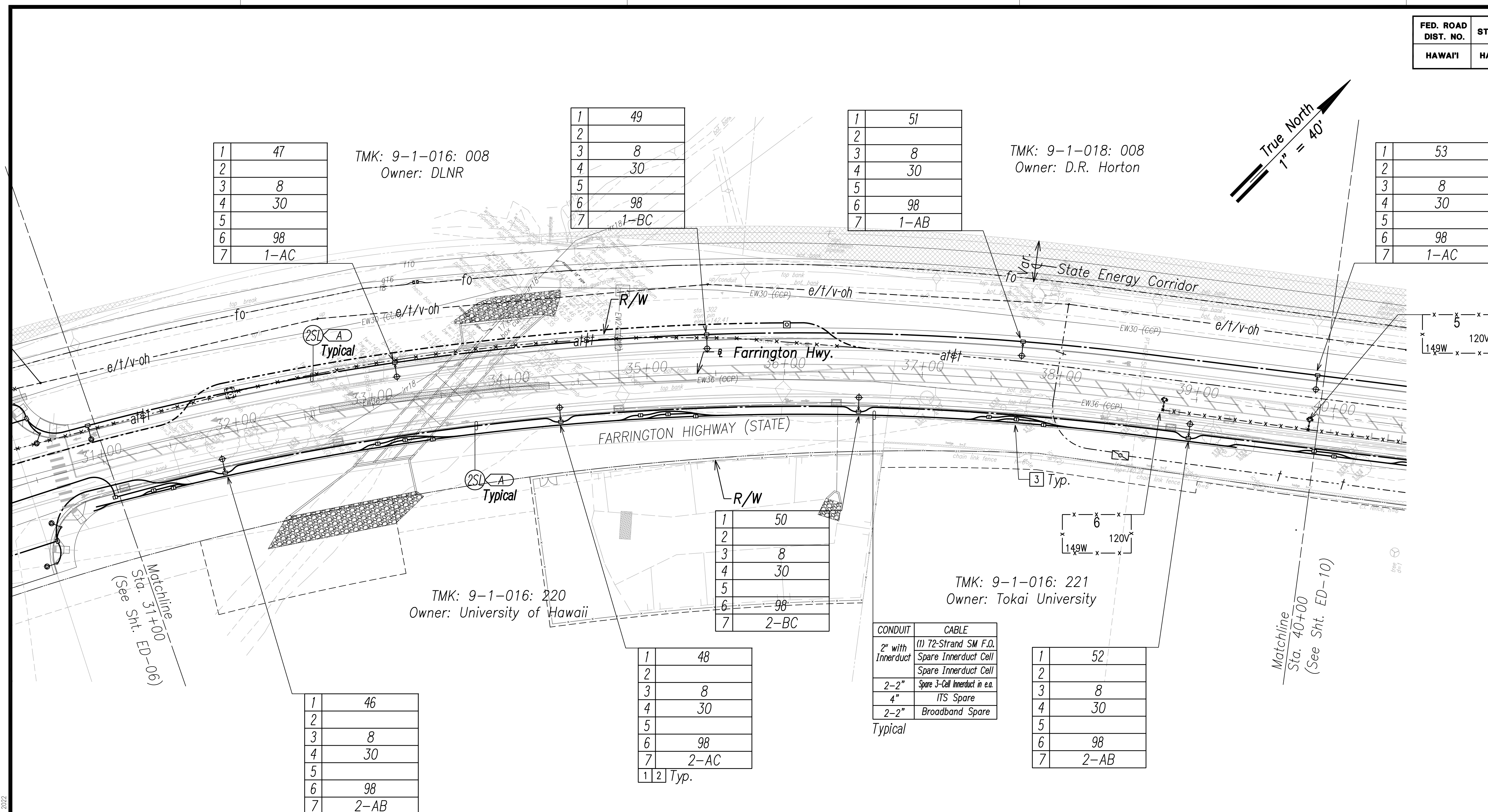
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-07 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-08	790



1	47
2	
3	8
4	30
5	
6	98
7	1-AC

TMK: 9-1-016: 008
Owner: DLNR

1	49
2	
3	8
4	30
5	
6	98
7	1-BC

1	51
2	
3	8
4	30
5	
6	98
7	1-AB

TMK: 9-1-018: 008
Owner: D.R. Horton

1	53
2	
3	8
4	30
5	
6	98
7	1-AC

1	50
2	
3	8
4	30
5	
6	98
7	2-BC

TMK: 9-1-016: 221
Owner: Tokai University

1	46
2	
3	8
4	30
5	
6	98
7	2-AB

1	48
2	
3	8
4	30
5	
6	98
7	2-AC

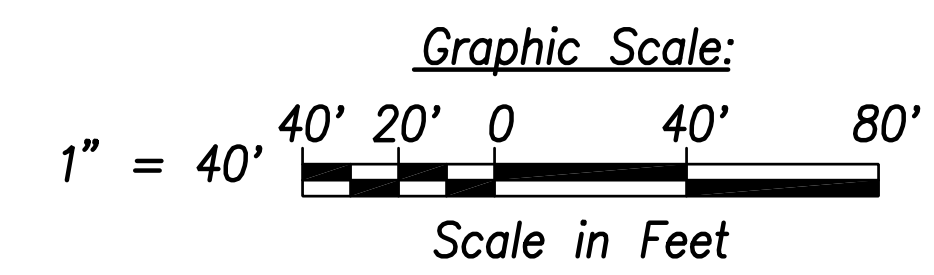
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	Spare 3-Cell Innerduct in e.a.
2-2"	ITS Spare
	Broadband Spare

Typical

1	52
2	
3	8
4	30
5	
6	98
7	2-AB

NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 Typical Handhole Grouping. See Sheet EG-15 for Details.
- 4 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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NO.	

FILE: Z:\Mcd\Projects\220679A\ED08_220679A_SITS_Roadway_Plan 8 - Sta. 31+00 to 40+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 8 - (Sta. 31+00 to Sta. 40+00)
Scale: 1" = 40'

SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-E
HAWAII U.S.A.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 8

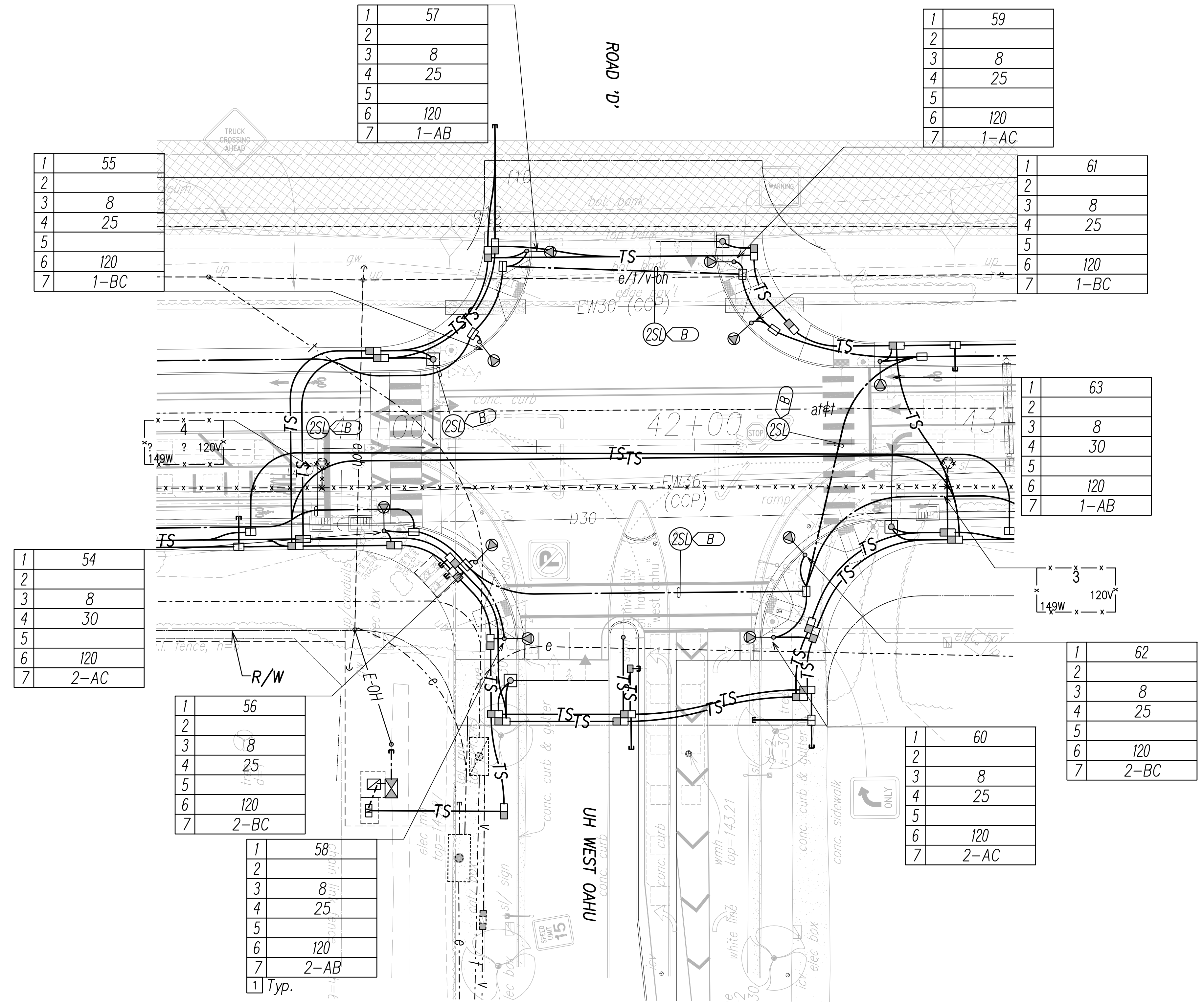
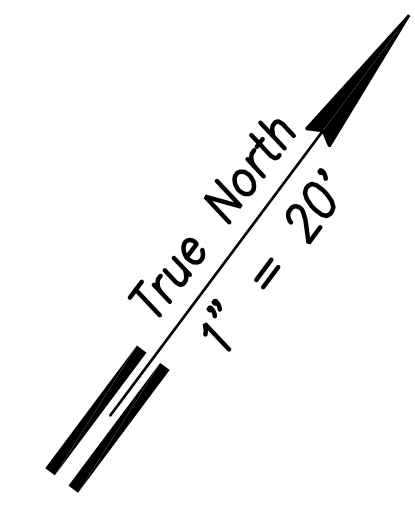
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-08 OF 35 SHEETS

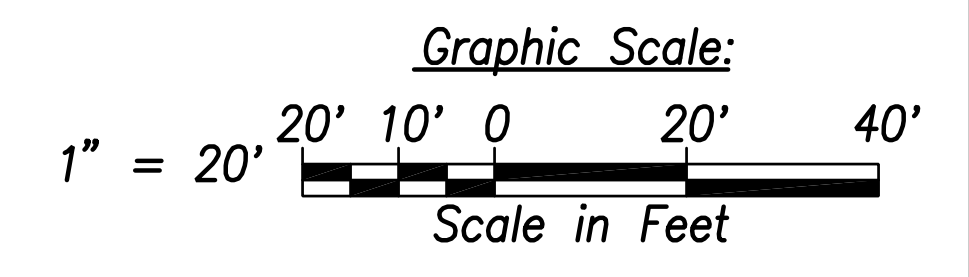
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-09	790



NOTE:

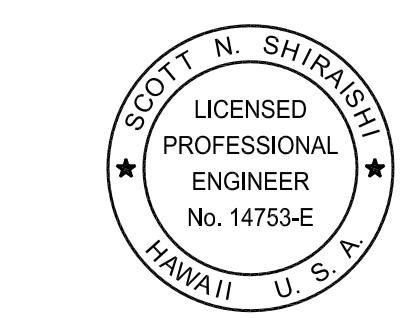
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- See Sheet EE-03 for Traffic Signal Work.



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No.	

FILE: Z:\Mcd\Projects\220679A\ED09_220679A_SITS_Roadway_Plan_9 - Intersection D.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 9 - Intersection D
Scale: 1" = 20'



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Signature: Scott Shirasiki
Date: April 30, 2024
Expiration Date of License: April 30, 2024

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

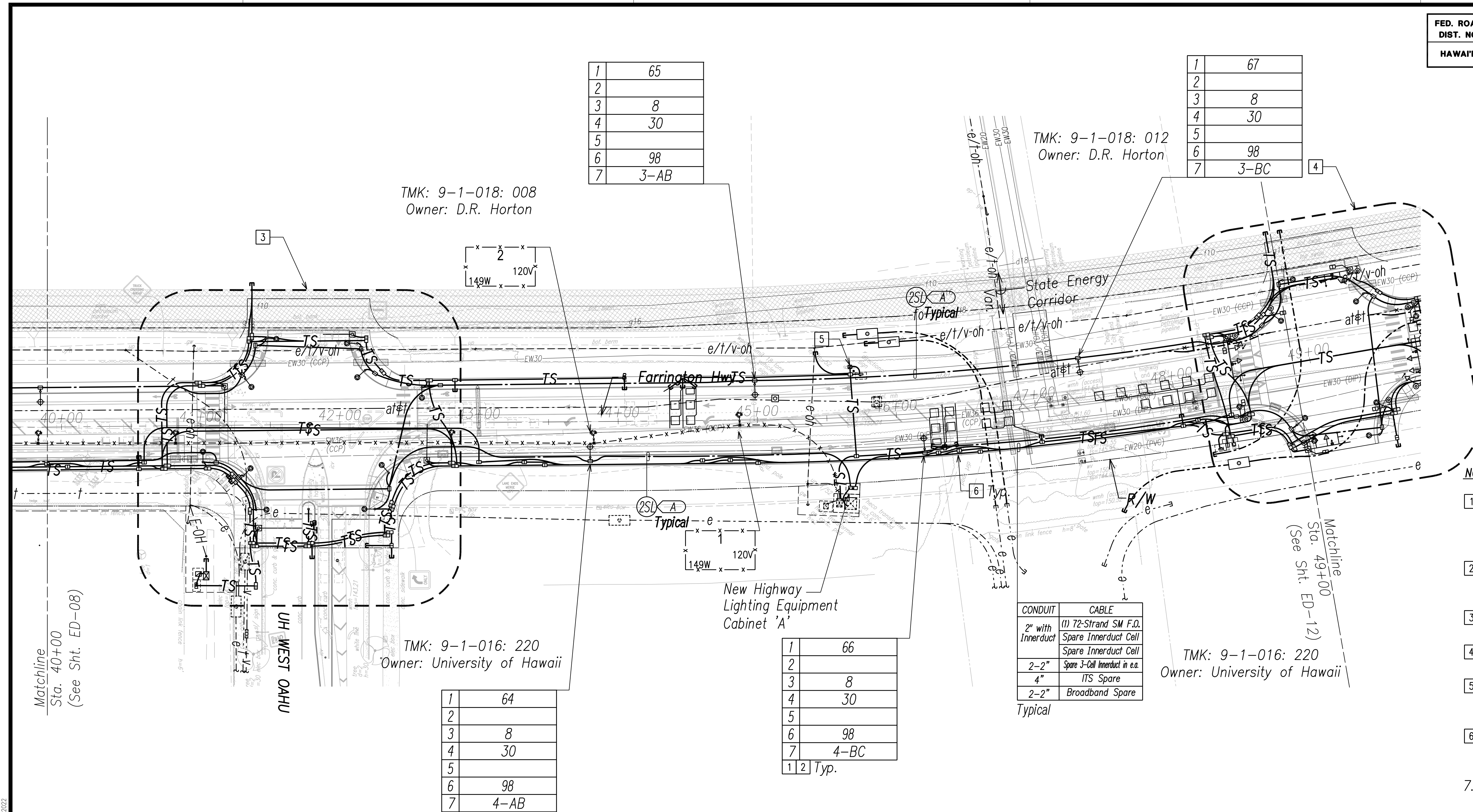
STREET LIGHT & TRAFFIC SIGNAL PLAN 9

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-09 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-10	790



1	65
2	
3	8
4	30
5	
6	98
7	3-AB

1	67
2	
3	8
4	30
5	
6	98
7	3-BC

TMK: 9-1-018: 008
Owner: D.R. Horton

TMK: 9-1-018: 012
Owner: D.R. Horton

TMK: 9-1-016: 220
Owner: University of Hawaii

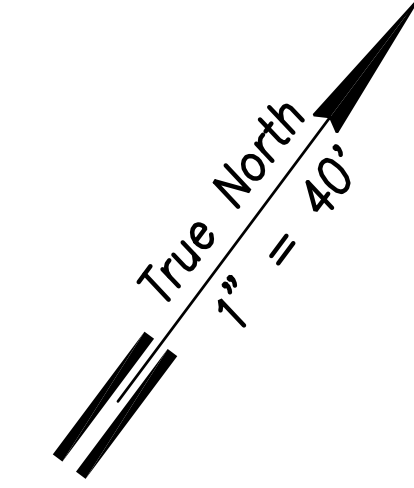
TMK: 9-1-016: 220
Owner: University of Hawaii

1	64
2	
3	8
4	30
5	
6	98
7	4-AB

1	66
2	
3	8
4	30
5	
6	98
7	4-BC
1 2	Typ.

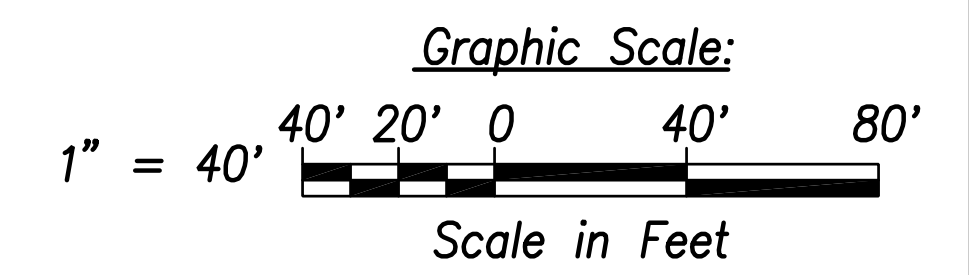
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Typical



NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-09
- 4 See Enlarged Plan Sheet ED-11
- 5 Traffic Counting Cabinet. See Sheet EI-02 for Details
- 6 Typical Handhole Grouping. See Sheet EG-15 for Details.
7. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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FILE: Z:\Mcd\Projects\220679A\ED10_220679A_SITS_Roadway_Plan_10 - Sta. 49+00 to 49+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 10 - (Sta. 40+00 to Sta. 49+00)
Scale: 1" = 40'

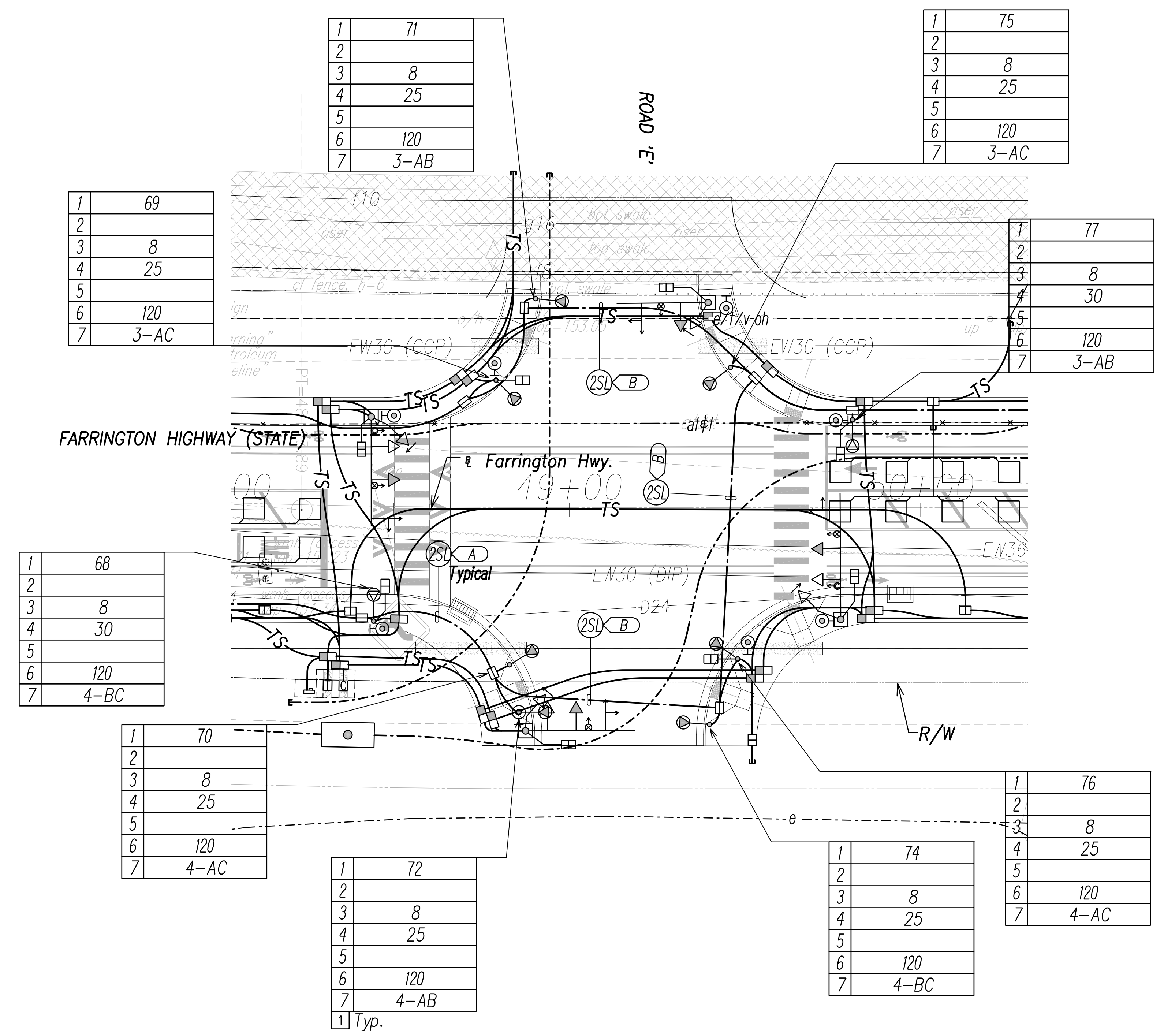
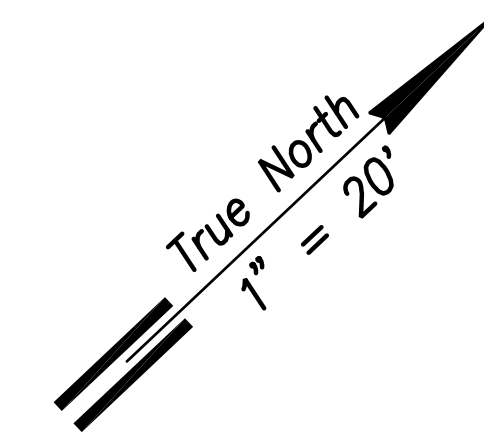


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Scott Shirasaki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**STREET LIGHT & TRAFFIC SIGNAL
PLAN 10**
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-10 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-11	790



1	69
2	
3	8
4	25
5	
6	120
7	3-AC

1	71
2	
3	8
4	25
5	
6	120
7	3-AB

1	75
2	
3	8
4	25
5	
6	120
7	3-AC

1	77
2	
3	8
4	30
5	
6	120
7	3-AB

1	68
2	
3	8
4	30
5	
6	120
7	4-BC

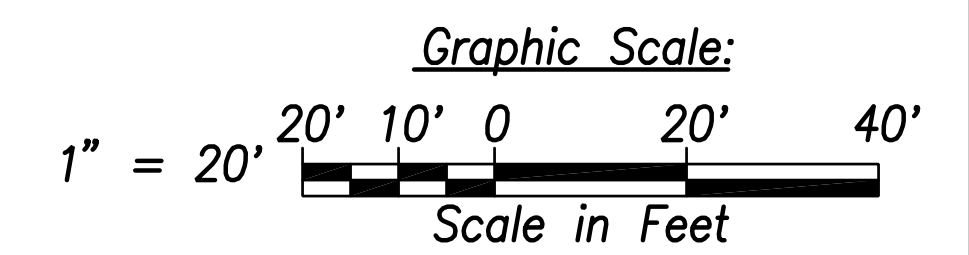
1	70
2	
3	8
4	25
5	
6	120
7	4-AC

1	72
2	
3	8
4	25
5	
6	120
7	4-AB
1	Typ.

1	74
2	
3	8
4	25
5	
6	120
7	4-BC

1	76
2	
3	8
4	25
5	
6	120
7	4-AC

- NOTE:**
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - See Sheet EE-04 for Traffic Signal Ducts.



SURVEY PLOTTED BY	DATE
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ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220679A\ED-11 - Intersection E.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 11 - Intersection E
Scale: 1" = 20'



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 11

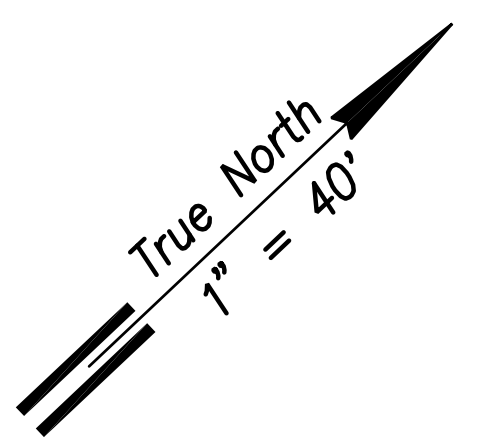
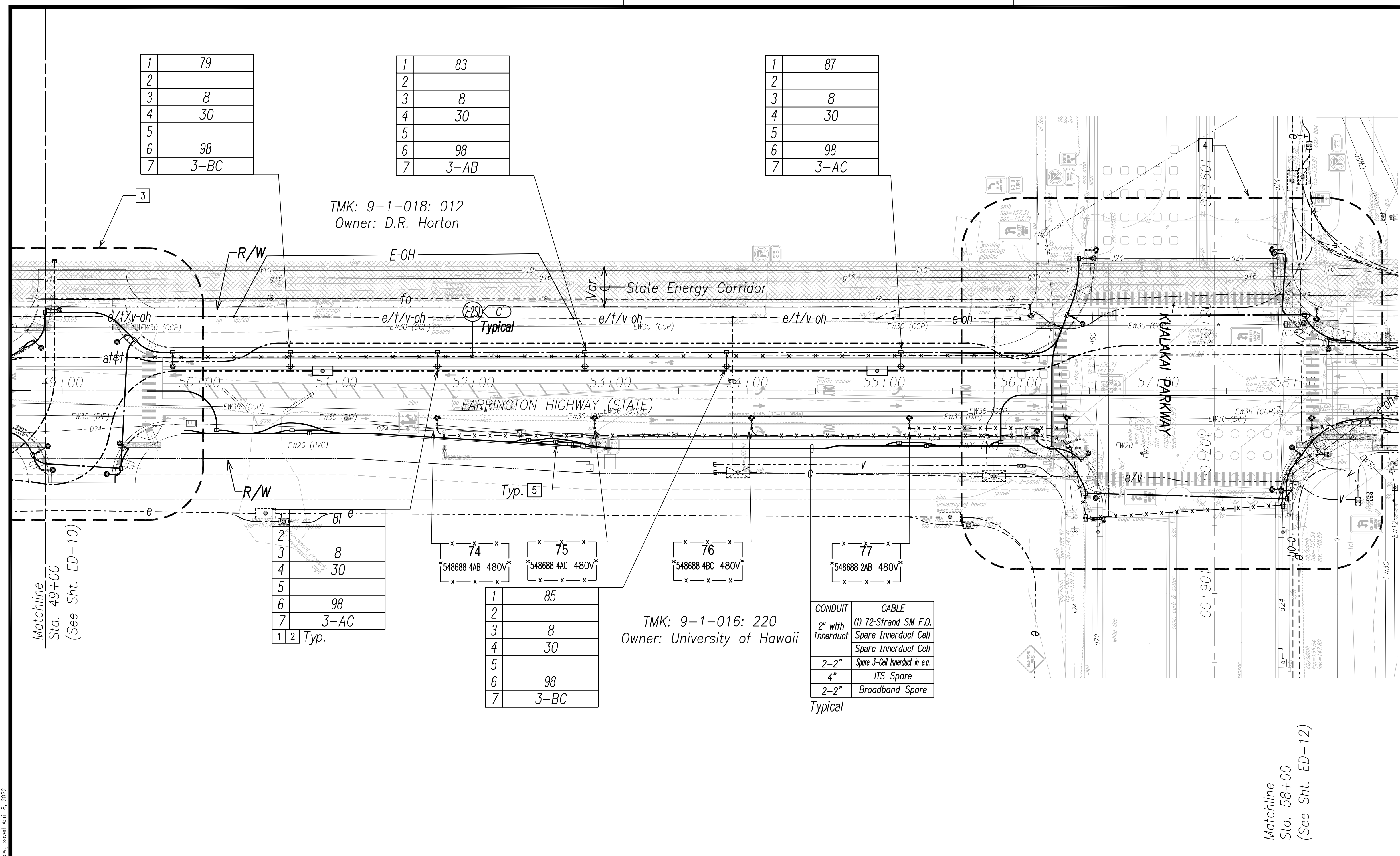
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-11 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-12	790



NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-12 for Street Light Wiring.
- 2 See Sheet EG-16 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-11
- 4 See Enlarged Plan Sheet ED-13
- 5 Typical Handhole Grouping. See Sheet EG-15 for Details.
6. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

1	79
2	
3	8
4	30
5	
6	98
7	3-BC

1	83
2	
3	8
4	30
5	
6	98
7	3-AB

1	87
2	
3	8
4	30
5	
6	98
7	3-AC

2	
3	8
4	30
5	
6	98
7	3-AC
1 2	Typ.

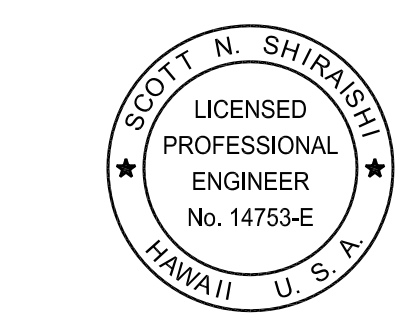
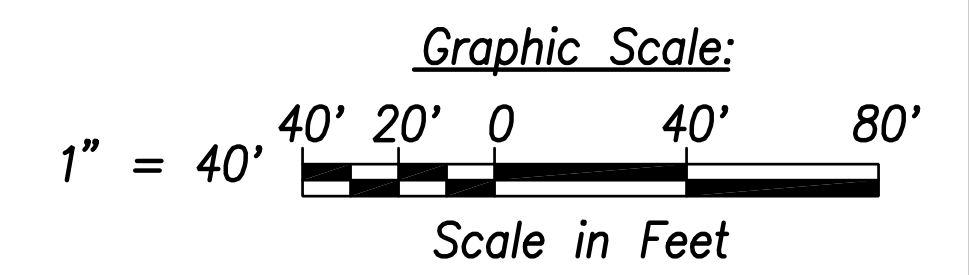
1	85
2	
3	8
4	30
5	
6	98
7	3-BC

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O.
	Spare Innerduct Cell
	Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

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ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220679A\ED12_220679A_SITS_Roadway_Plan 12 - Sta. 49+00 to 58+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 12 - (Sta. 49+00 to Sta. 58+00)
Scale: 1" = 40'



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Scott Shirasaki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL
PLAN 12

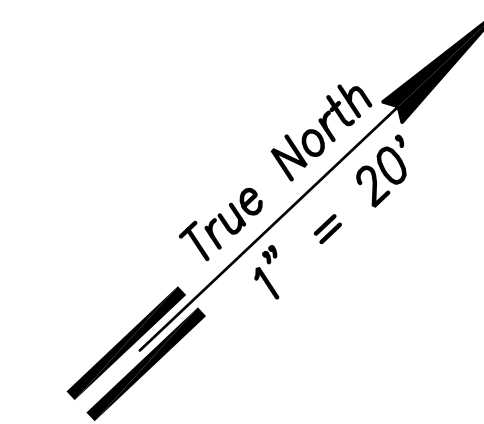
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-12 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-13	790



1	93
2	
3	8
4	25
5	
6	120
7	3-AC

1	91
2	
3	8
4	25
5	
6	120
7	3-BC

1	95
2	
3	8
4	25
5	
6	120
7	3-AB

1	91
2	
3	8
4	25
5	
6	120
7	3-AB

1	97
2	
3	8
4	25
5	
6	120
7	3-BC

1	78
2	
3	8
4	25
5	
6	120
7	4-AB

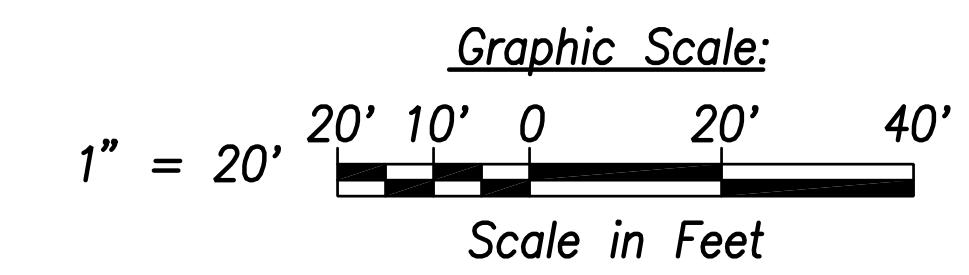
1	86
2	
3	8
4	30
5	
6	120
7	4-BC

1	80
2	
3	8
4	25
5	
6	120
7	4-BC

1	82
2	
3	8
4	25
5	
6	120
7	4-AC

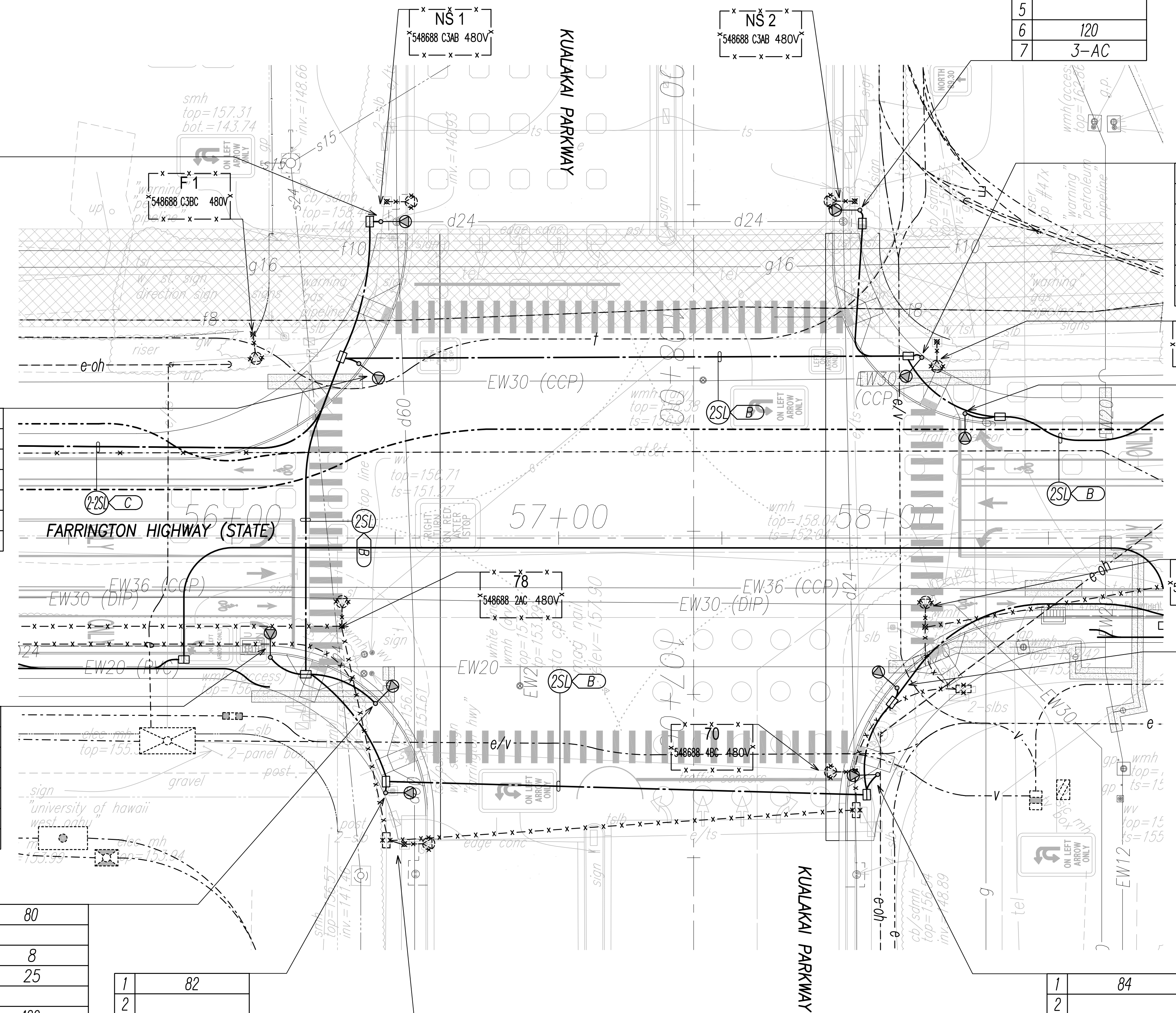
1	84
2	
3	8
4	25
5	
6	120
7	4-AB

- NOTE:**
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - See Sheets EE-05 and EE-07 for Traffic Signal Work.

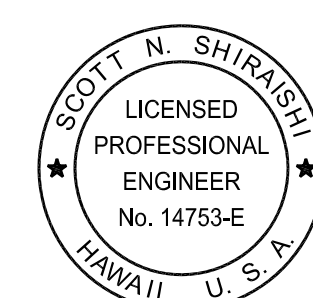


DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
CHECKED BY	_____
NO.	_____

FILE: Z:\Mcd\Projects\220679\ED-13-220679\13-220679\13-220679.dwg saved April 8, 2022



Street Light & Traffic Signal Plan 13 - Kualakai Parkway
Scale: 1" = 20'



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

Scott Shirasiki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 13

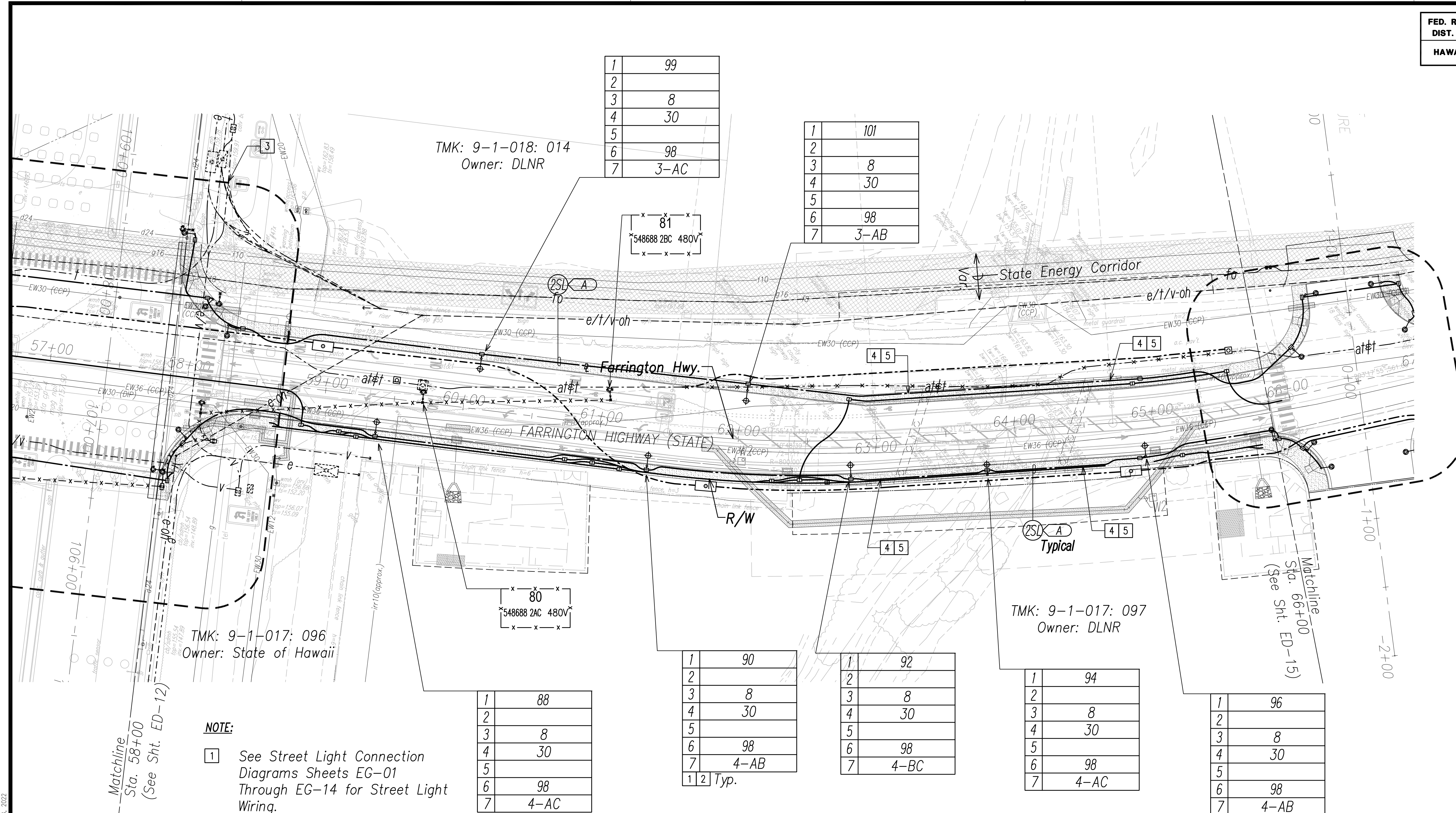
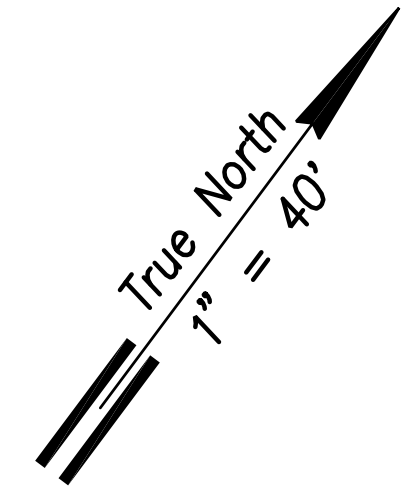
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-13 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-14	790



1	99
2	
3	8
4	30
5	
6	98
7	3-AC

1	101
2	8
3	30
4	98
5	
6	3-AB
7	

1	88
2	
3	8
4	30
5	
6	98
7	4-AC

1	90
2	
3	8
4	30
5	
6	98
7	4-AB
1 2	Typ.

1	92
2	
3	8
4	30
5	
6	98
7	4-BC

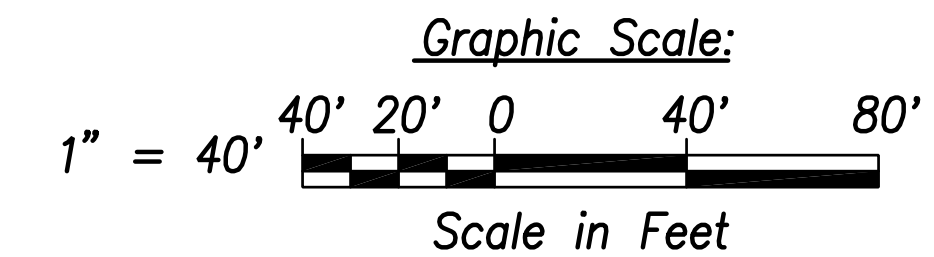
1	94
2	
3	8
4	30
5	
6	98
7	4-AC

1	96
2	
3	8
4	30
5	
6	98
7	4-AB

NOTE:

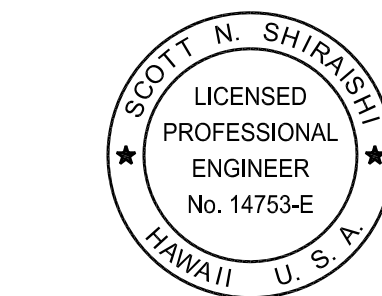
- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-13
- 4 Provide Expansion/Deflection Coupling. See Sheet EG-19 for Details.
- 5 See Structural Drawings for Conduit Routing Through Bridge Railing.
- 6 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

Street Light & Traffic Signal Plan 14 - (Sta. 58+00 to Sta. 66+00)
Scale: 1" = 40'



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FILE: Z:\Work\Projects\220679A\ED14_220679A_S1TS_Roadway_Plan_14 - Sta. 58+00 to 66+00.dwg saved April 8, 2022



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Signature: Scott Shirasishi
Date: April 30, 2024
Expiration Date of License: April 30, 2024

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
PLAN 14**

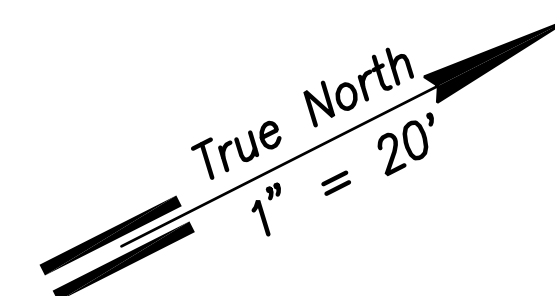
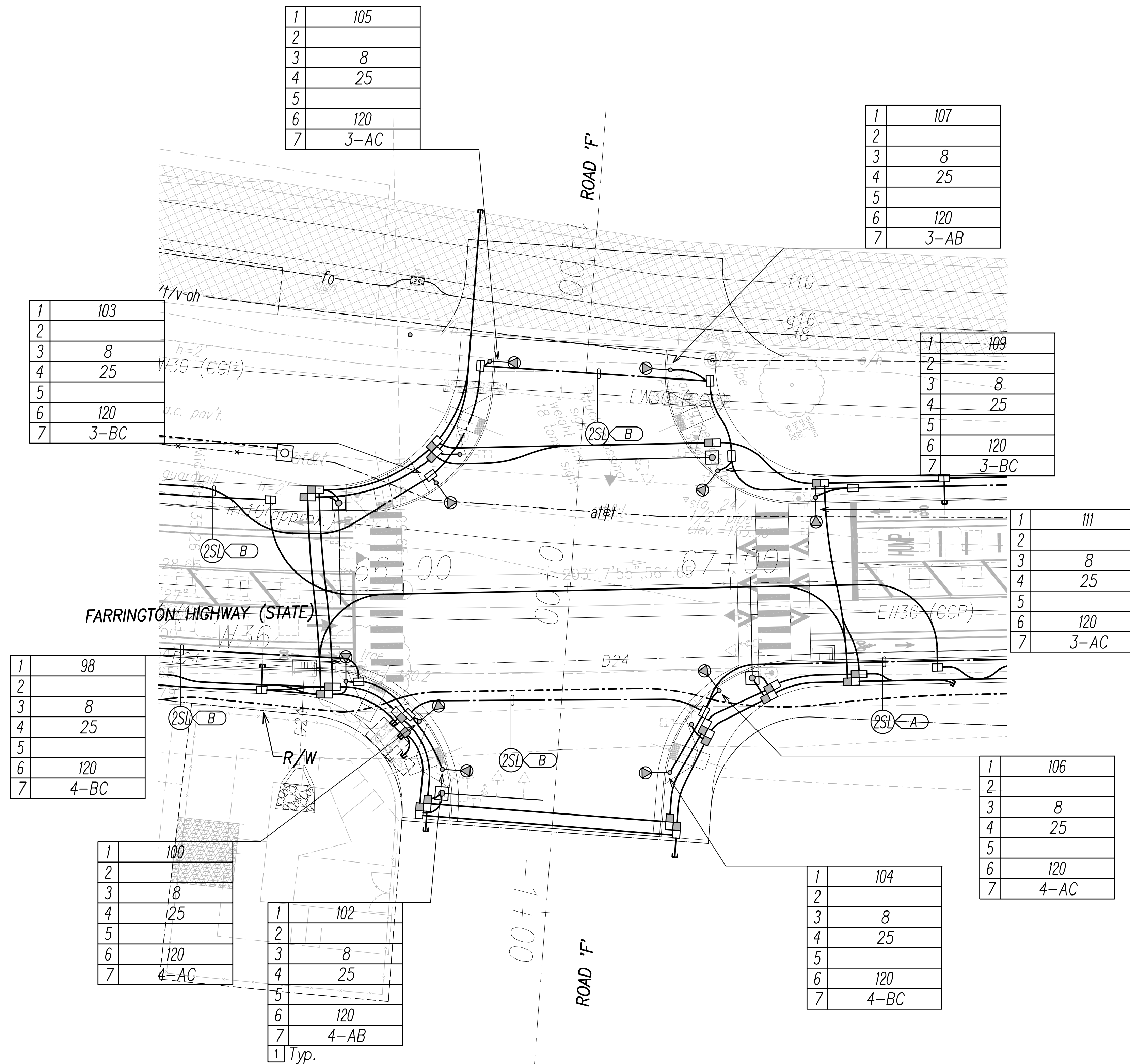
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-14 OF 35 SHEETS

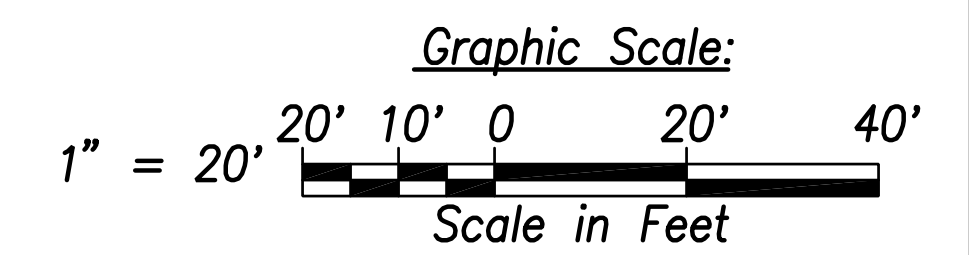
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-15	790



NOTE:

- 1 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 2 See Sheet EE-09 for Traffic Signal Work.



DATE	_____
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NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN NO.	_____

FILE: Z:\Mcd\Projects\220679A\ED-15 - Intersection F.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 15 - Intersection F
 Scale: 1" = 20'



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Signature: *Scott Shirasiki*
 Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
 PLAN 15**

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-15 OF 35 SHEETS

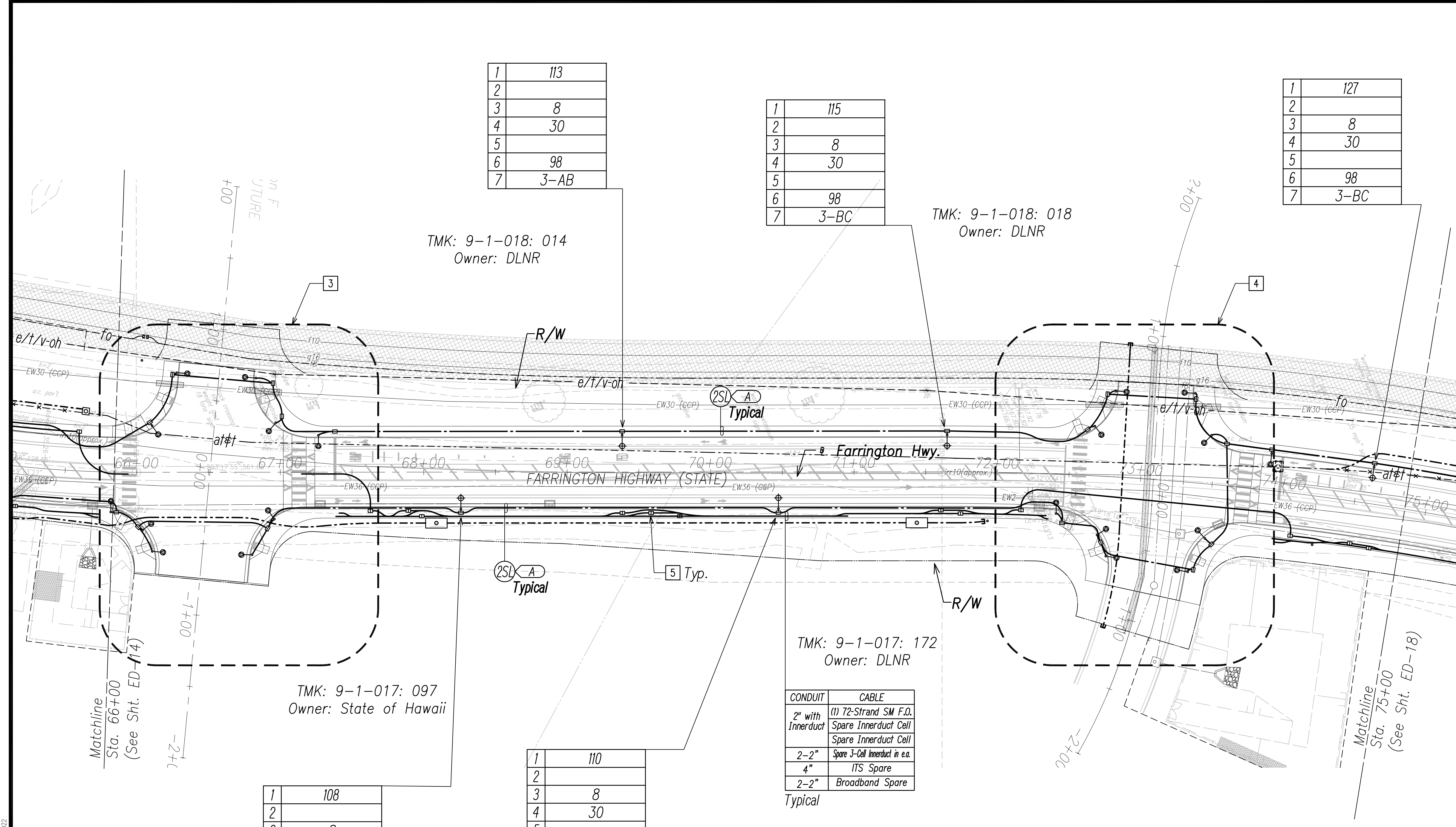
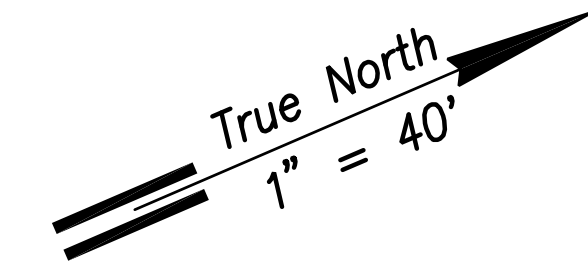
XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-16	790

1	113
2	
3	8
4	30
5	
6	98
7	3-AB

1	115
2	
3	8
4	30
5	
6	98
7	3-BC

1	127
2	
3	8
4	30
5	
6	98
7	3-BC



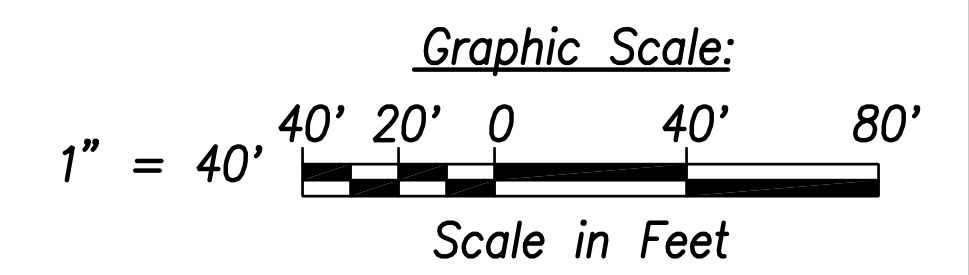
NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-15
- 4 See Enlarged Plan Sheet ED-17
- 5 Typical Handhole Grouping. See Sheet EG-15 for Details.
6. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

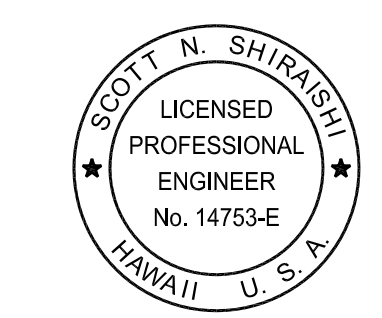
1	108
2	
3	8
4	30
5	
6	98
7	4-AB

1	110
2	
3	8
4	30
5	
6	98
7	4-BC
1 2	Typ.



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

FILE: Z:\Mcd\Projects\220677A\ED16 - Sta. 66+00 to 75+00.dwg, saved April 8, 2022



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Scott Shirasishi
April 30, 2024
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
PLAN 16**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-16 OF 35 SHEETS

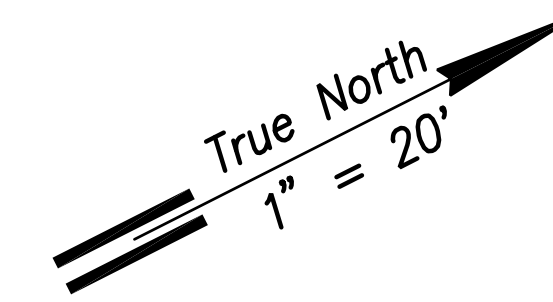
Street Light & Traffic Signal Plan 16 - (Sta. 66+00 to Sta. 75+00)
Scale: 1" = 40'

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-17	790

1	119
2	
3	8
4	25
5	
6	120
7	3-AB

1	121
2	
3	8
4	25
5	
6	120
7	3-BC



1	117
2	
3	8
4	25
5	
6	120
7	3-AC

1	123
2	
3	8
4	25
5	
6	120
7	3-AC

1	112
2	
3	8
4	25
5	
6	120
7	4-AC

1	125
2	
3	8
4	25
5	
6	120
7	3-AB

1	114
2	
3	8
4	25
5	
6	120
7	4-AB

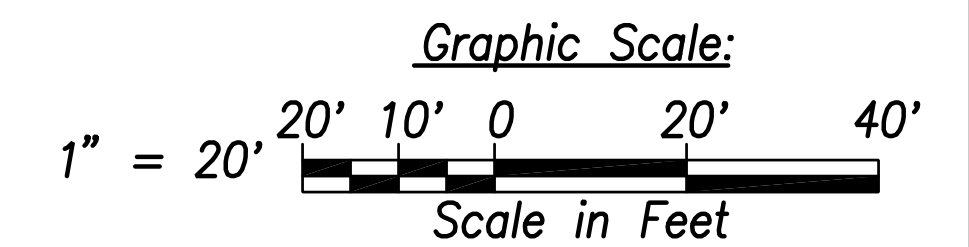
1	116
2	
3	8
4	25
5	
6	120
7	4-BC
1	Typ.

1	120
2	
3	8
4	25
5	
6	120
7	4-AB

1	118
2	
3	8
4	25
5	
6	120
7	4-AC

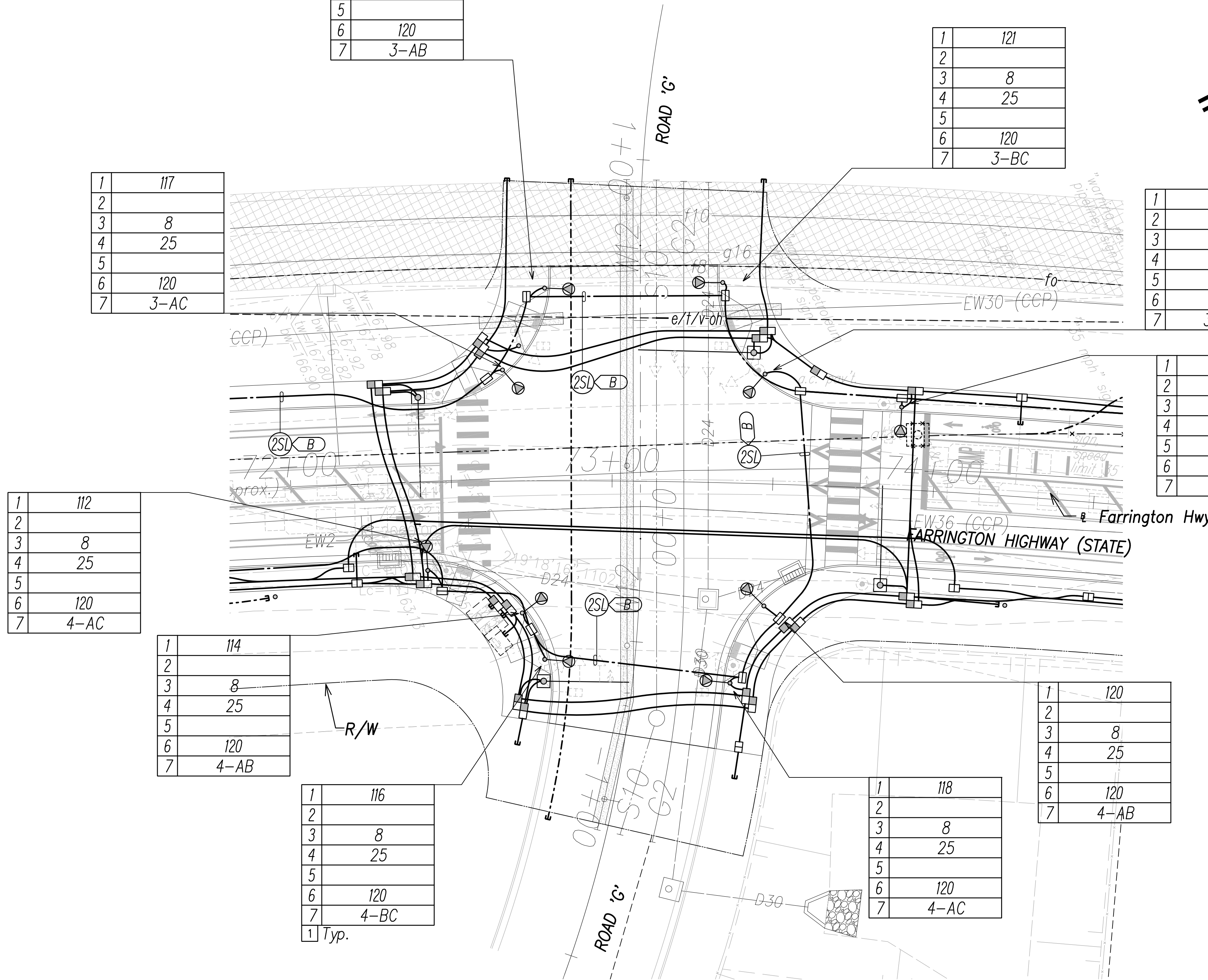
NOTE:

- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- See Sheet EE-10 for Traffic Signal Work.

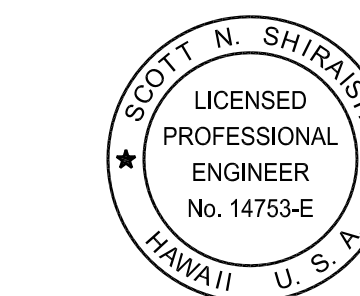


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TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220067H\ED17_220067H_SITS_Roadway_Plan 17 - Intersection Callout saved April 8, 2022



Street Light & Traffic Signal Plan 17 - Intersection G
Scale: 1" = 20'



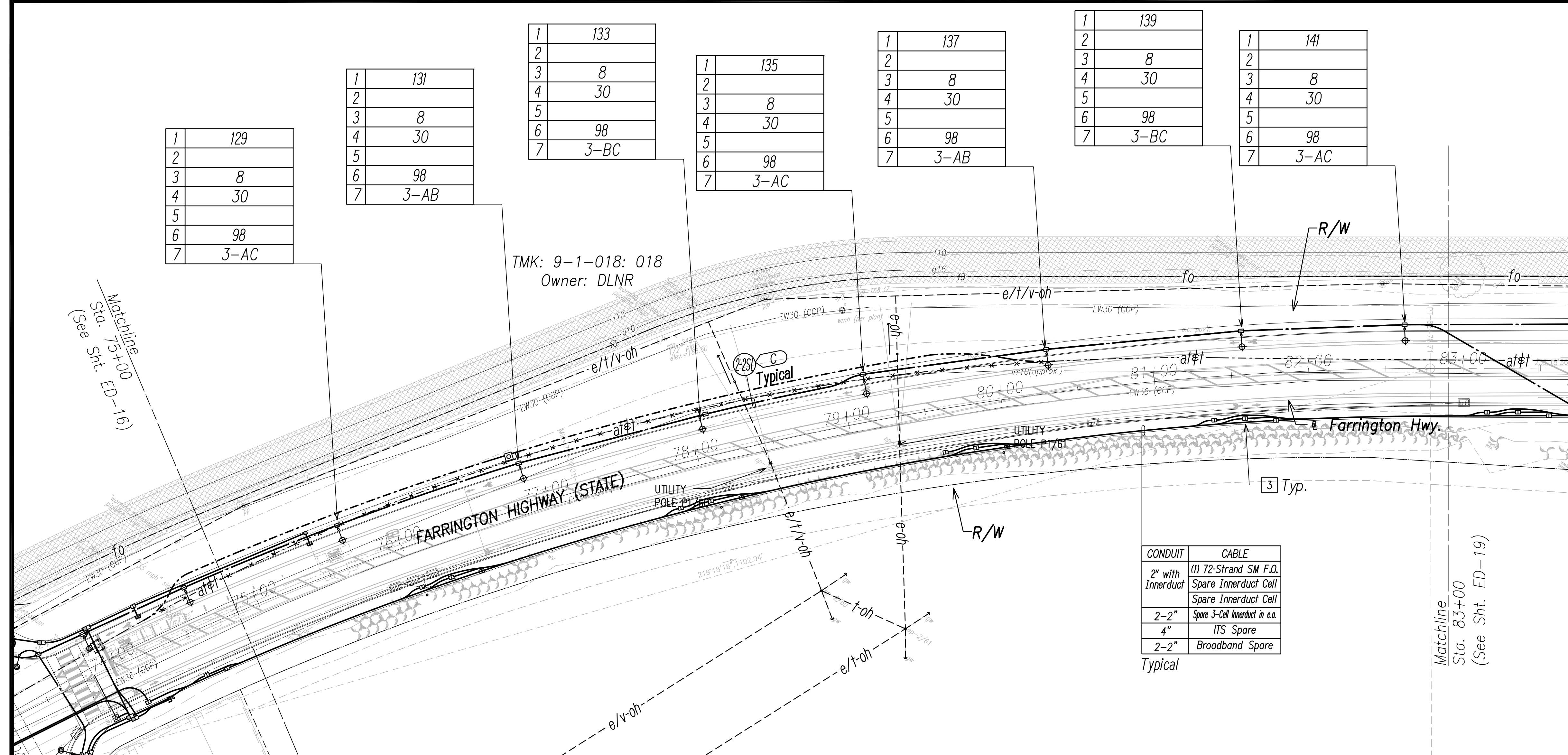
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Signature: Scott Shirahishi
Date: April 30, 2024
Expiration Date of License: April 30, 2024

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL PLAN 17
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-17 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-18	790



1	129
2	
3	8
4	30
5	
6	98
7	3-AC

1	131
2	
3	8
4	30
5	
6	98
7	3-AB

1	133
2	
3	8
4	30
5	
6	98
7	3-BC

1	135
2	
3	8
4	30
5	
6	98
7	3-AC

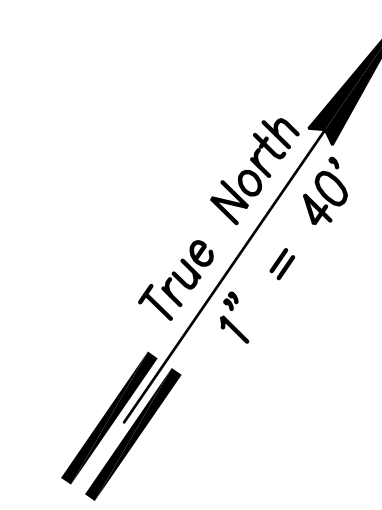
1	137
2	
3	8
4	30
5	
6	98
7	3-AB

1	139
2	
3	8
4	30
5	
6	98
7	3-BC

1	141
2	
3	8
4	30
5	
6	98
7	3-AC

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	Spare 3-Cell Innerduct in e.a.
2-2"	ITS Spare
	Broadband Spare

Typical



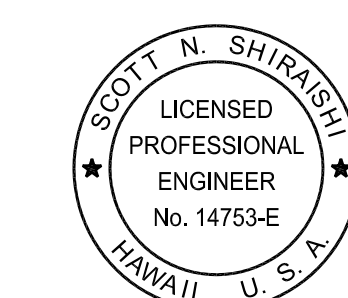
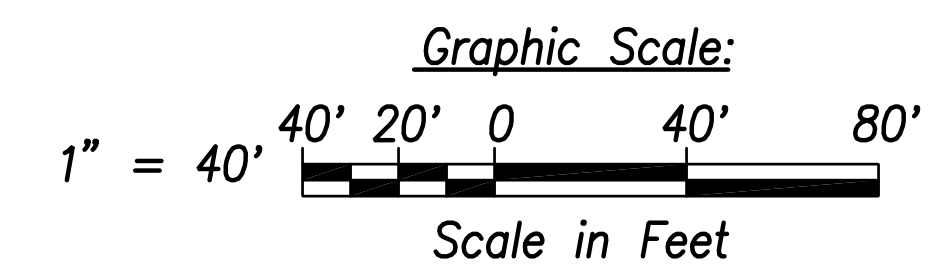
NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 Typical Handhole Grouping. See Sheet EG-15 for Details.
4. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

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

FILE: Z:\Mcd\Projects\220679A\ED-18 - Sta. 75+00 to 83+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 18 - (Sta. 75+00 to Sta. 83+00)
Scale: 1" = 40'



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Scott Shirasaka
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL
PLAN 18

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

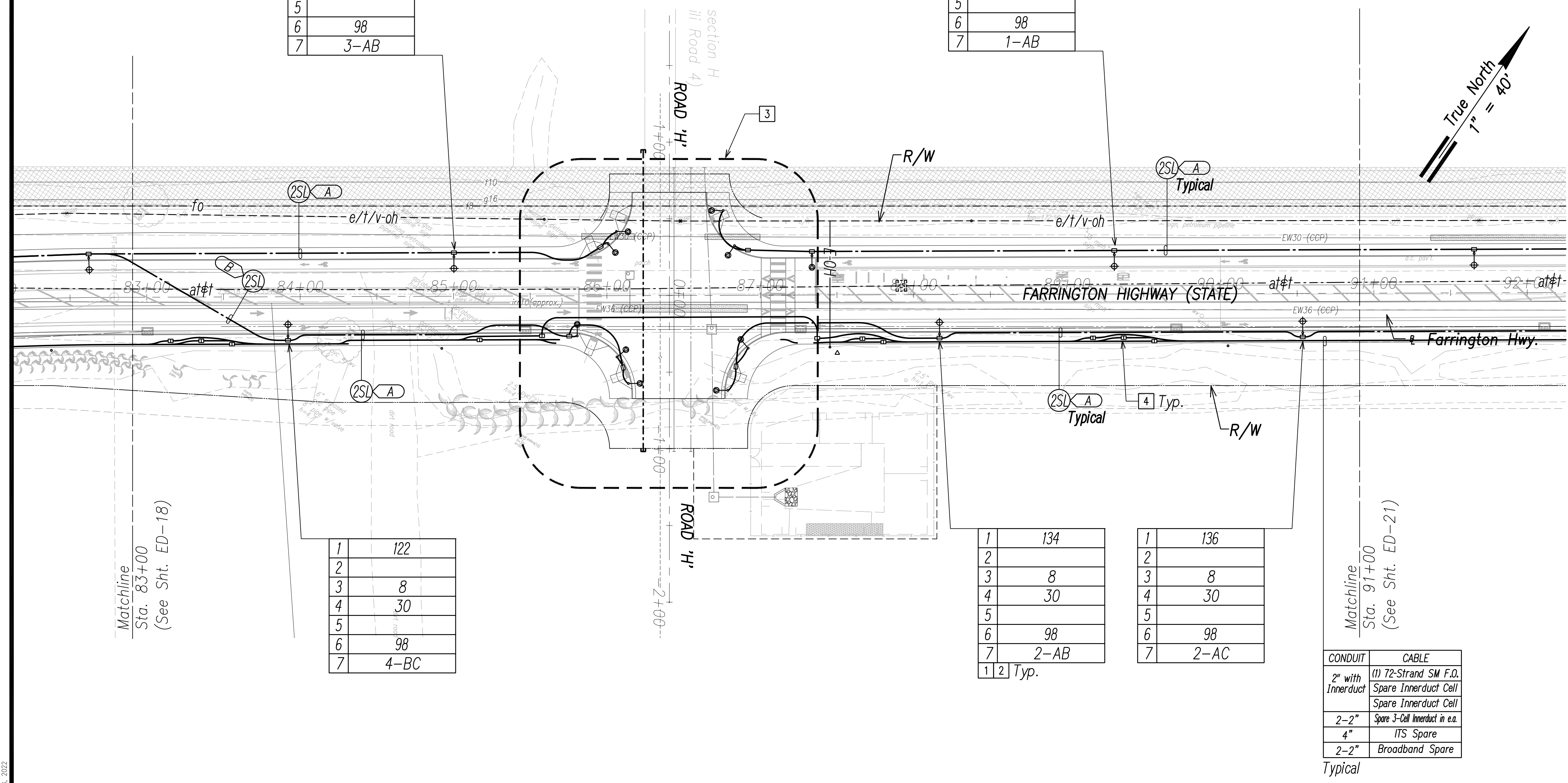
SHEET No. ED-18 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-19	790

1	143
2	
3	8
4	30
5	
6	98
7	3-AB

1	155
2	
3	8
4	30
5	
6	98
7	1-AB



1	122
2	
3	8
4	30
5	
6	98
7	4-BC

1	134
2	
3	8
4	30
5	
6	98
7	2-AB
1 2 Typ.	

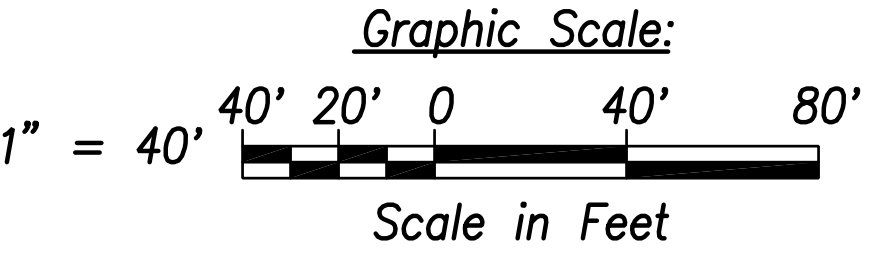
1	136
2	
3	8
4	30
5	
6	98
7	2-AC

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Typical

NOTE:

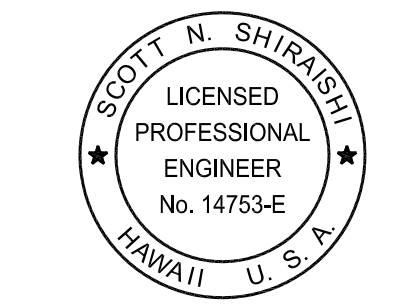
- See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- See Enlarged Plan Sheet ED-20
- Typical Handhole Grouping. See Sheet EG-15 for Details.
- All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
QUANTIFIED BY	_____
CHECKED BY	_____
No.	_____

FILE: Z:\Acad\Projects\220679\ED19_220679\STS_Roadway_Plan_19 - Sta. 83+00 to 91+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 19 - (Sta. 83+00 to Sta. 91+00)
Scale: 1" = 40'

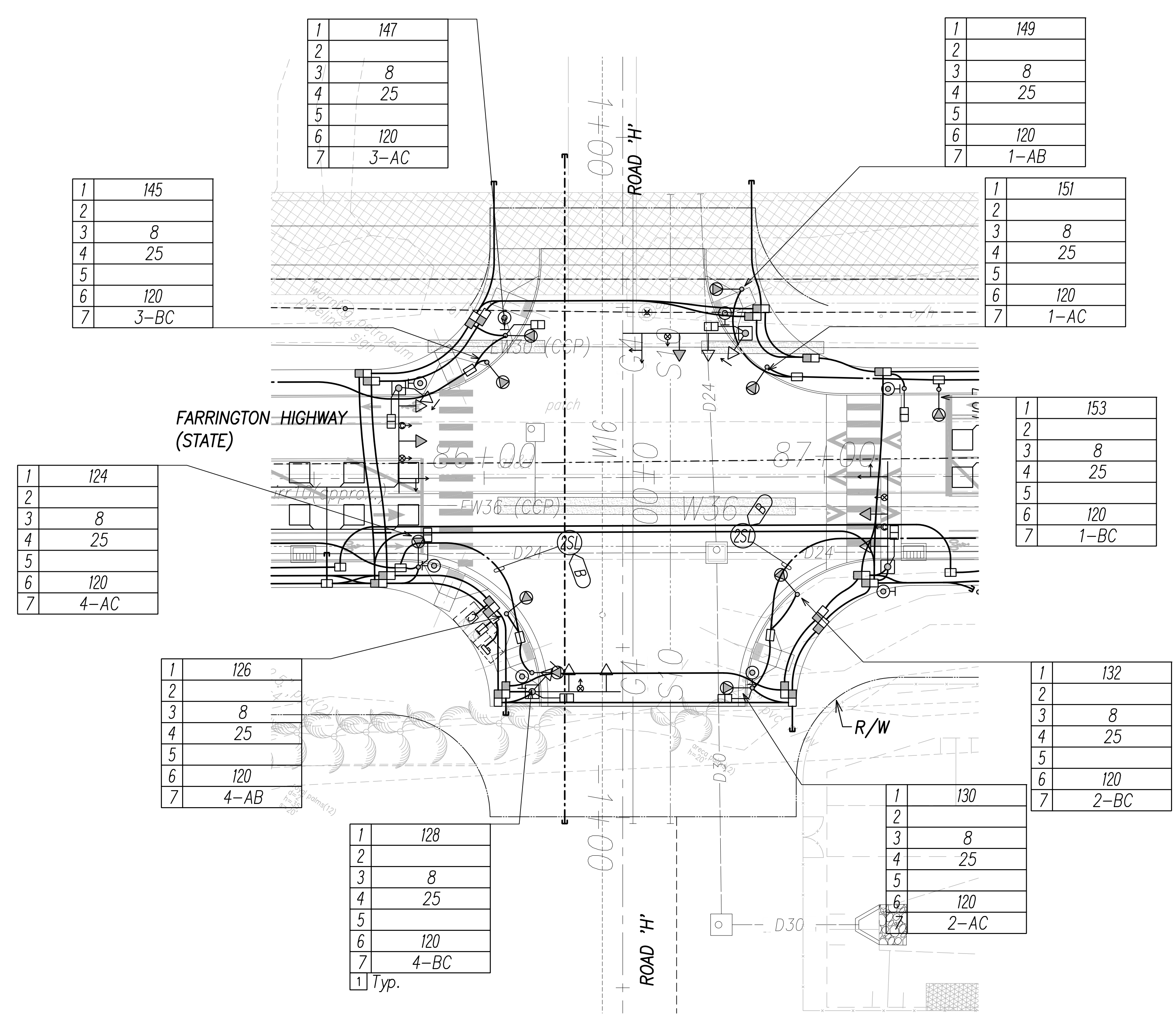
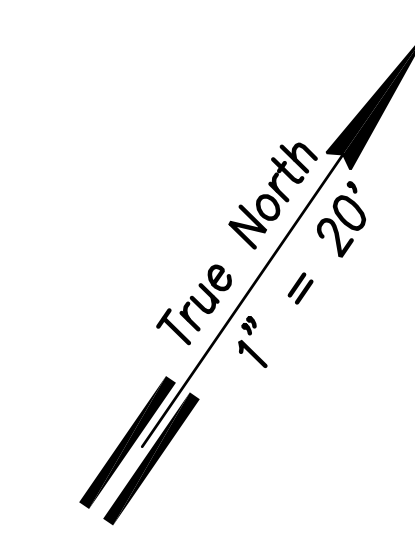


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Signature: *Scott Shirahishi*
Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL PLAN 19
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-19 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-20	790



1	145
2	
3	8
4	25
5	
6	120
7	3-BC

1	147
2	
3	8
4	25
5	
6	120
7	3-AC

1	149
2	
3	8
4	25
5	
6	120
7	1-AB

1	151
2	
3	8
4	25
5	
6	120
7	1-AC

1	124
2	
3	8
4	25
5	
6	120
7	4-AC

1	153
2	
3	8
4	25
5	
6	120
7	1-BC

1	126
2	
3	8
4	25
5	
6	120
7	4-AB

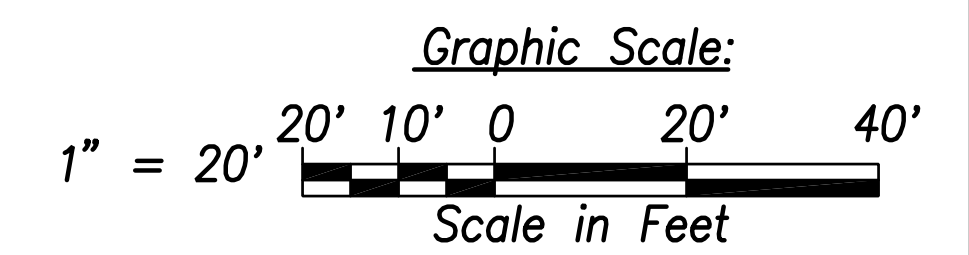
1	132
2	
3	8
4	25
5	
6	120
7	2-BC

1	128
2	
3	8
4	25
5	
6	120
7	4-BC
1	Typ.

1	130
2	
3	8
4	25
5	
6	120
7	2-AC

NOTE:

- 1 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 2 See Sheet EE-11 for Traffic Signal Work.



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

FILE: Z:\Mcd\Projects\220067H_ED20_220067H_SITS_Roadway_Plan 20 - Intersection H.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 20 - Intersection H
Scale: 1" = 20'



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Scott Shirahishi
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL
PLAN 20

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-20 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-21	790

1	157
2	
3	8
4	30
5	
6	98
7	1-AC

1	159
2	
3	8
4	30
5	
6	98
7	1-BC

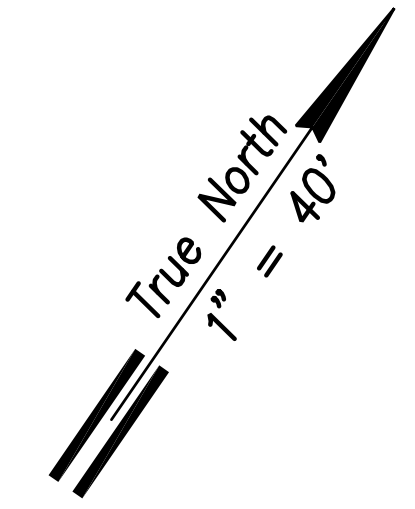
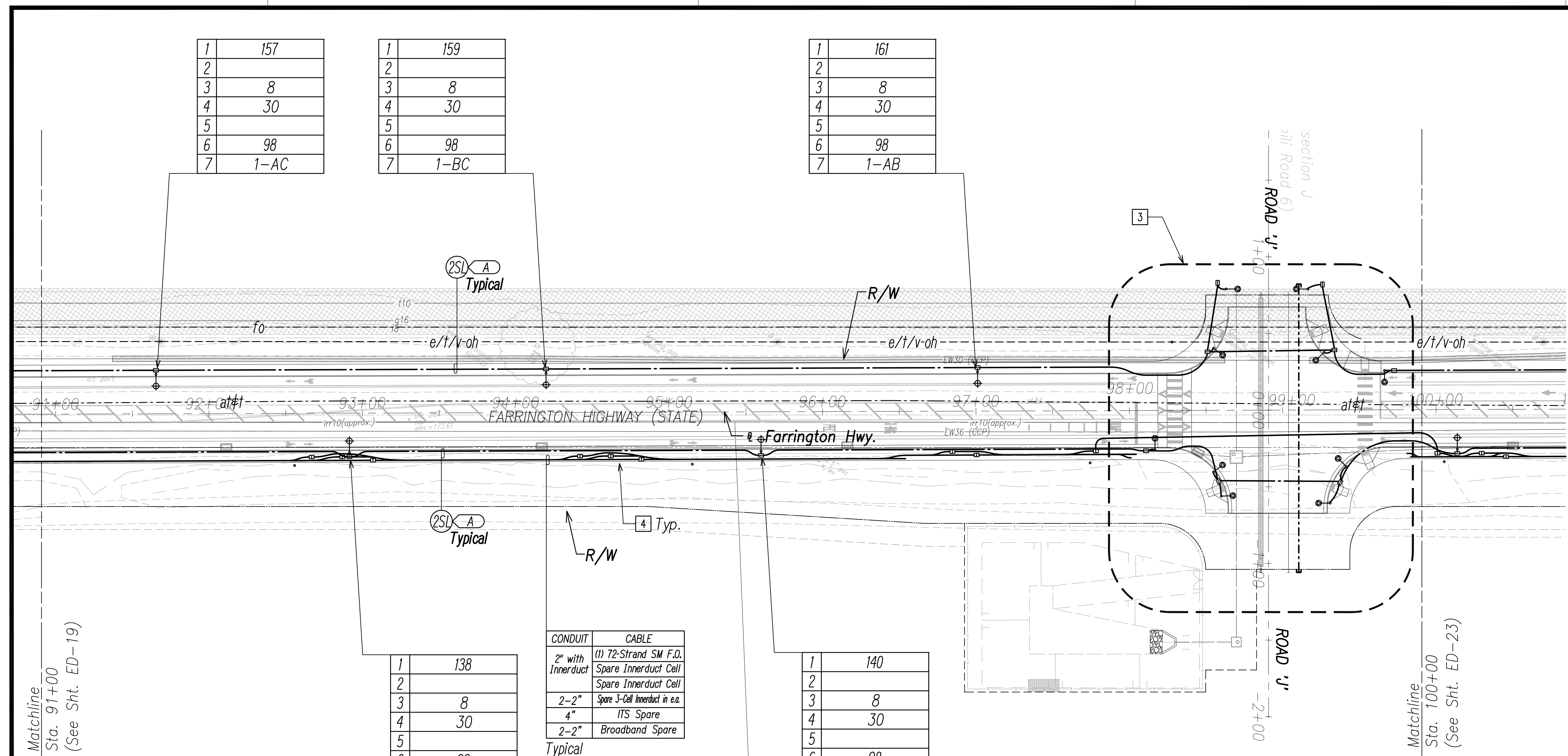
1	161
2	
3	8
4	30
5	
6	98
7	1-AB

1	138
2	
3	8
4	30
5	
6	98
7	2-BC

1	140
2	
3	8
4	30
5	
6	98
7	2-AB
1	2 Typ.

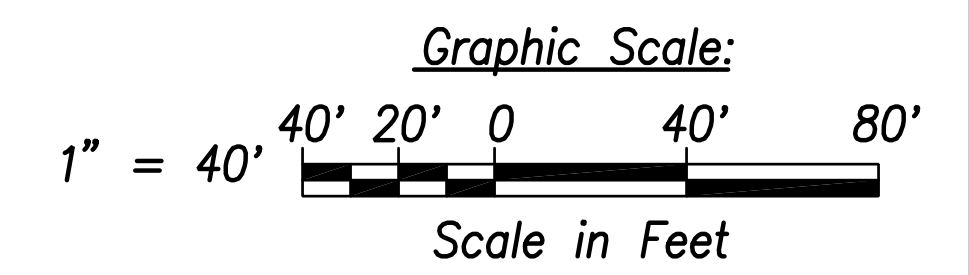
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare J-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Typical



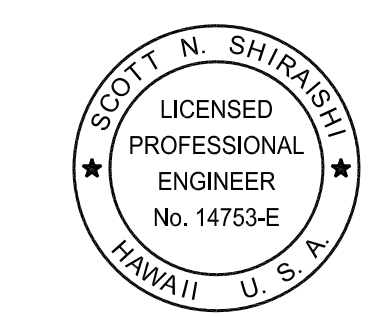
NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-22
- 4 Typical Handhole Grouping. See Sheet EG-15 for Details.
5. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



SURVEY PLOTTED BY	DATE
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NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FILE: Z:\Mcd\Projects\220679A\ED21_220679A_SITS_Roadway_Plan 21 - Sta. 91+00 to 100+00.dwg saved April 8, 2022



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

Scott Shirasiki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
PLAN 21**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

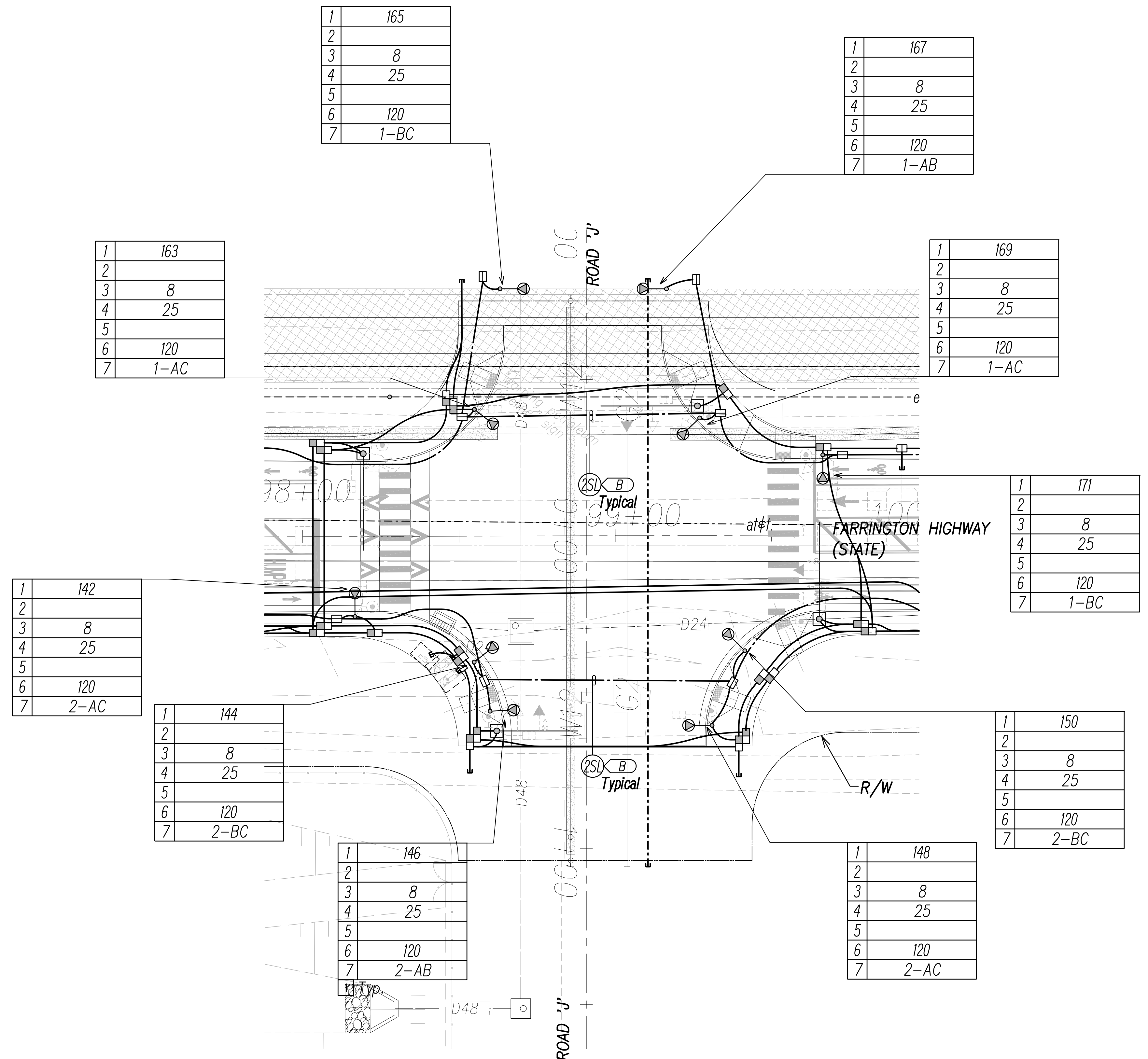
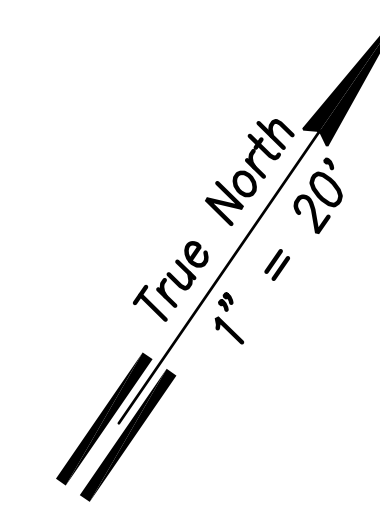
Scale: As Shown Date: April 2022

SHEET No. ED-21 OF 35 SHEETS

Street Light & Traffic Signal Plan 21 - (Sta. 91+00 to Sta. 100+00)
Scale: 1" = 40'

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-22	790



1	165
2	
3	8
4	25
5	
6	120
7	1-BC

1	167
2	
3	8
4	25
5	
6	120
7	1-AB

1	163
2	
3	8
4	25
5	
6	120
7	1-AC

1	169
2	
3	8
4	25
5	
6	120
7	1-AC

1	142
2	
3	8
4	25
5	
6	120
7	2-AC

1	171
2	
3	8
4	25
5	
6	120
7	1-BC

1	144
2	
3	8
4	25
5	
6	120
7	2-BC

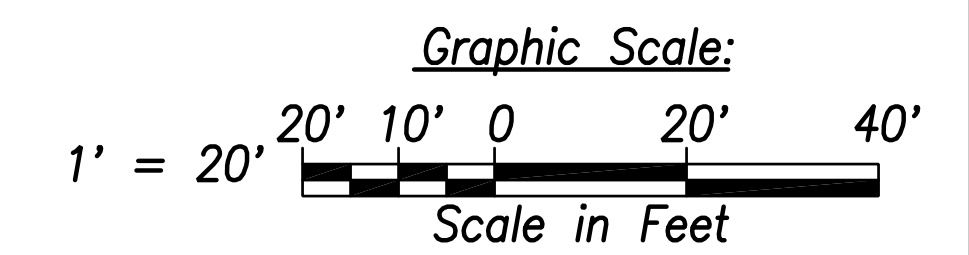
1	150
2	
3	8
4	25
5	
6	120
7	2-BC

1	146
2	
3	8
4	25
5	
6	120
7	2-AB

1	148
2	
3	8
4	25
5	
6	120
7	2-AC

NOTE:

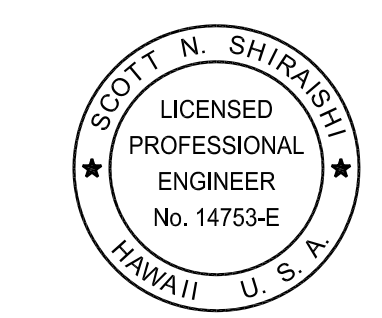
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- See Sheet EE-12 for Traffic Signal Work.



DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
CHECKED BY	_____
NO.	_____

FILE: Z:\Acad\Projects\220679A\ED22_220679A_SITS_Roadway_Plan 22 - Intersection L.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 22 - Intersection J
Scale: 1" = 20'



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Signature: *Scott Shirasishi*
Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL
PLAN 22

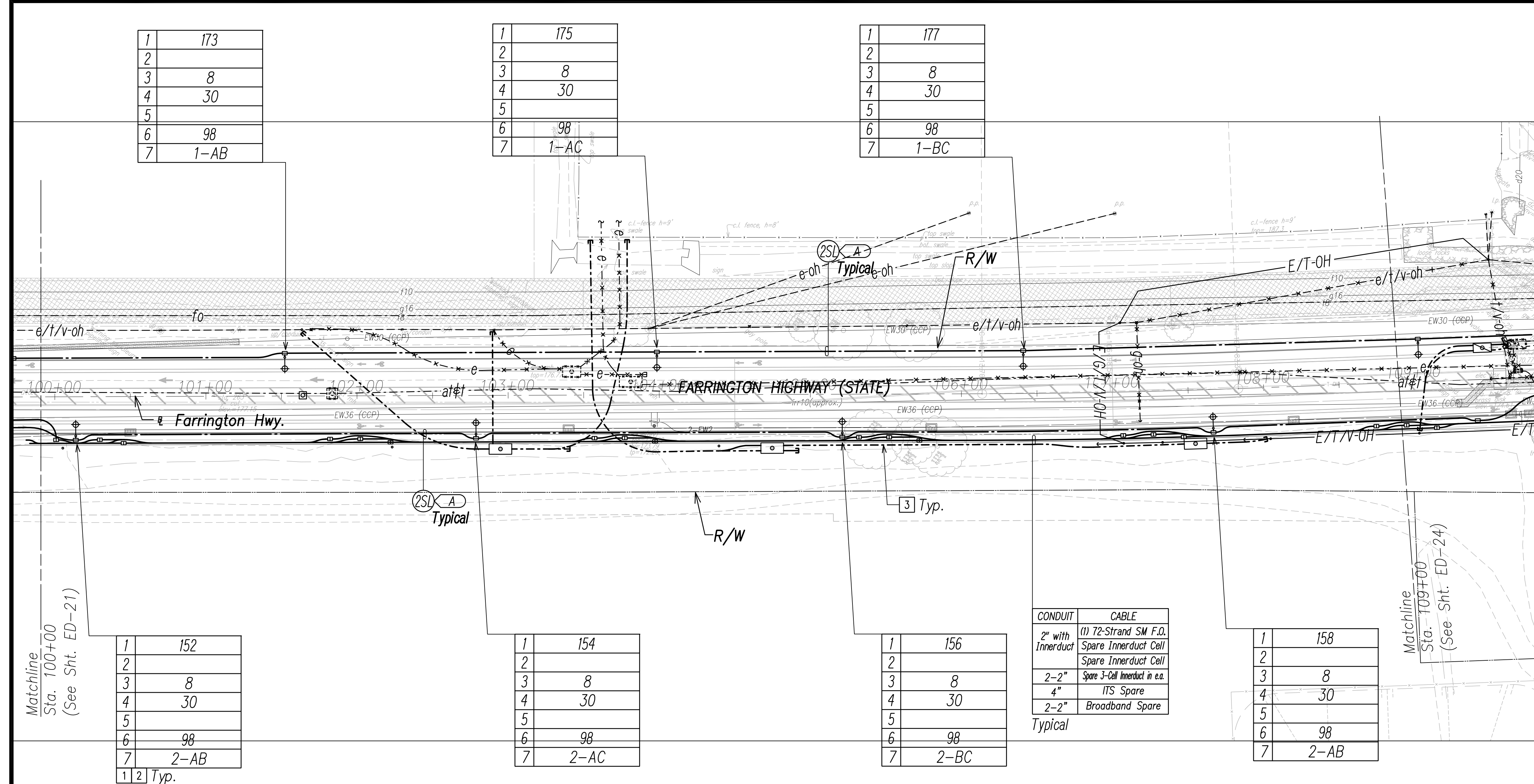
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-22 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-23	790



1	173
2	
3	8
4	30
5	
6	98
7	1-AB

1	175
2	
3	8
4	30
5	
6	98
7	1-AC

1	177
2	
3	8
4	30
5	
6	98
7	1-BC

1	152
2	
3	8
4	30
5	
6	98
7	2-AB
1	2 Typ.

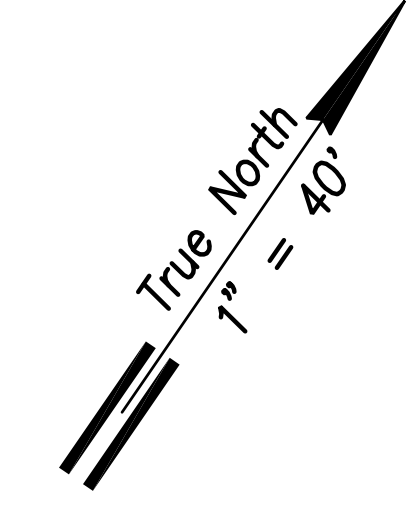
1	154
2	
3	8
4	30
5	
6	98
7	2-AC

1	156
2	
3	8
4	30
5	
6	98
7	2-BC

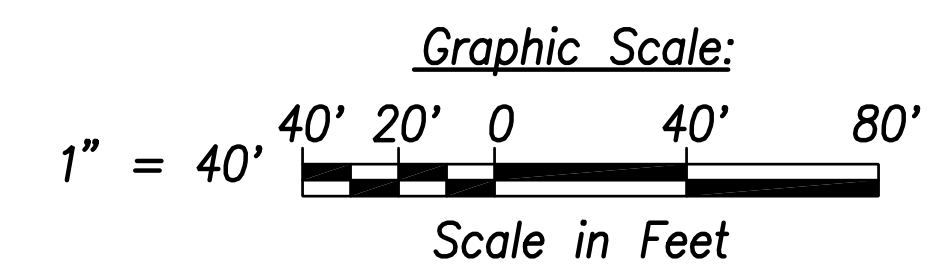
1	158
2	
3	8
4	30
5	
6	98
7	2-AB

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	Spare 3-Cell Innerduct in e.a.
2-2"	ITS Spare
2-2"	Broadband Spare

Typical



- NOTE:**
- See Street Light Connection Diagrams Sheets EG-01 Through EG-12 for Street Light Wiring.
 - See Sheet EG-16 for State Highway Light ID Tag Indicator Legend
 - Typical Handhole Grouping. See Sheet EG-15 for Details.
 - All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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

FILE: Z:\Acad\Projects\220679A\ED23_220679A_SITS_Roadway_Plan_23 - Sta. 100+00 to 109+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 23 - (Sta. 100+00 to Sta. 109+00)
Scale: 1" = 40'

SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-E
HAWAII U.S.A.

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Scott Shiraiki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 23

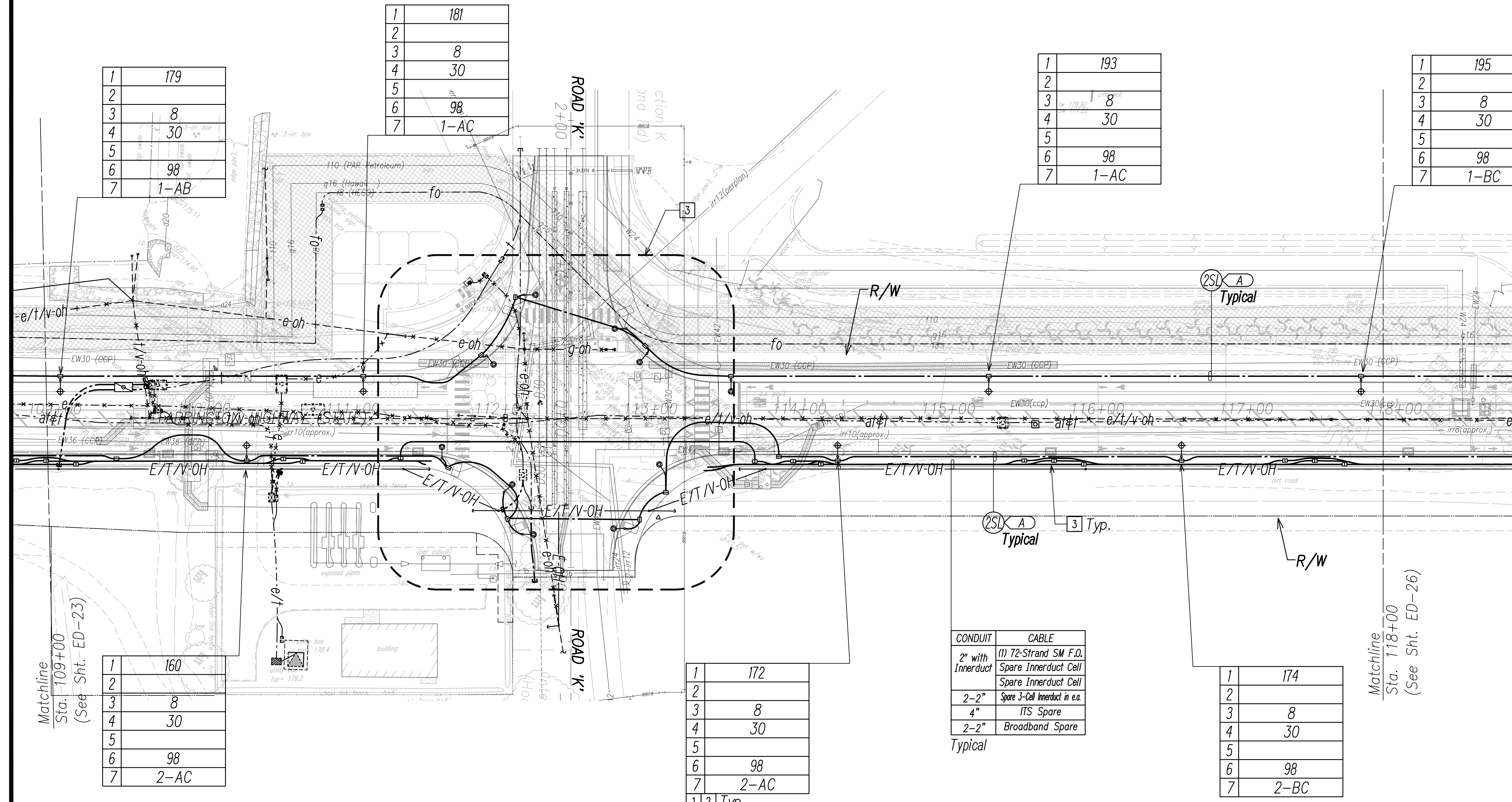
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-23 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-24	790



1	179
2	
3	8
4	30
5	
6	98
7	1-AB

1	181
2	
3	8
4	30
5	
6	98
7	1-AC

1	193
2	
3	8
4	30
5	
6	98
7	1-AC

1	195
2	
3	8
4	30
5	
6	98
7	1-BC

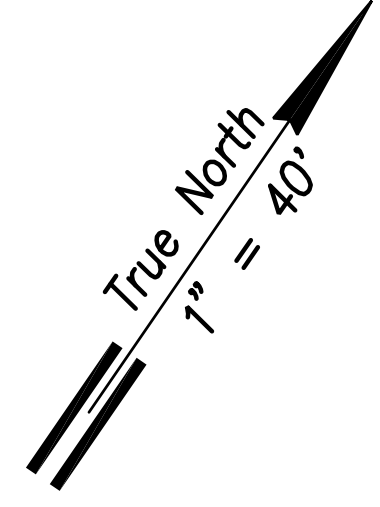
1	160
2	
3	8
4	30
5	
6	98
7	2-AC

1	172
2	
3	8
4	30
5	
6	98
7	2-AC
1 | 2	Typ.

1	174
2	
3	8
4	30
5	
6	98
7	2-BC

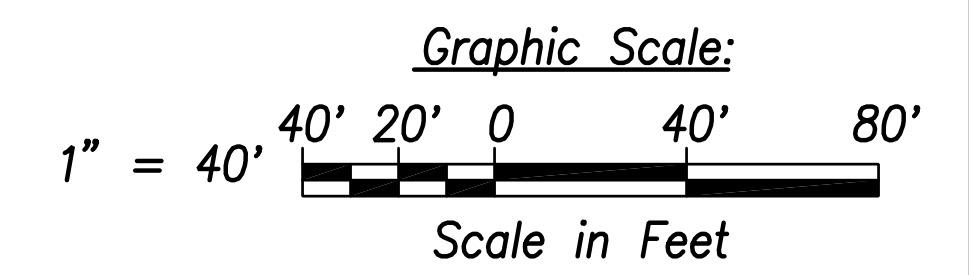
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Typical



NOTE:

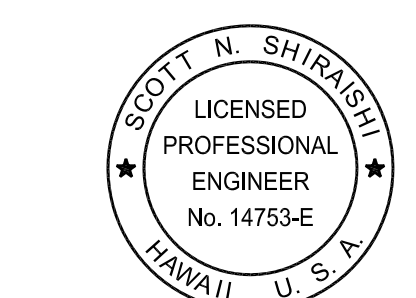
- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-25
- 4 Typical Handhole Grouping. See Sheet EG-15 for Details.
5. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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

FILE: Z:\Mcd\Projects\220067HA\ED24_220067HA_SITS_Roadway_Plan_24 - Sta. 109+00 to 118+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 24 - (Sta. 109+00 to Sta. 118+00)
Scale: 1" = 40'

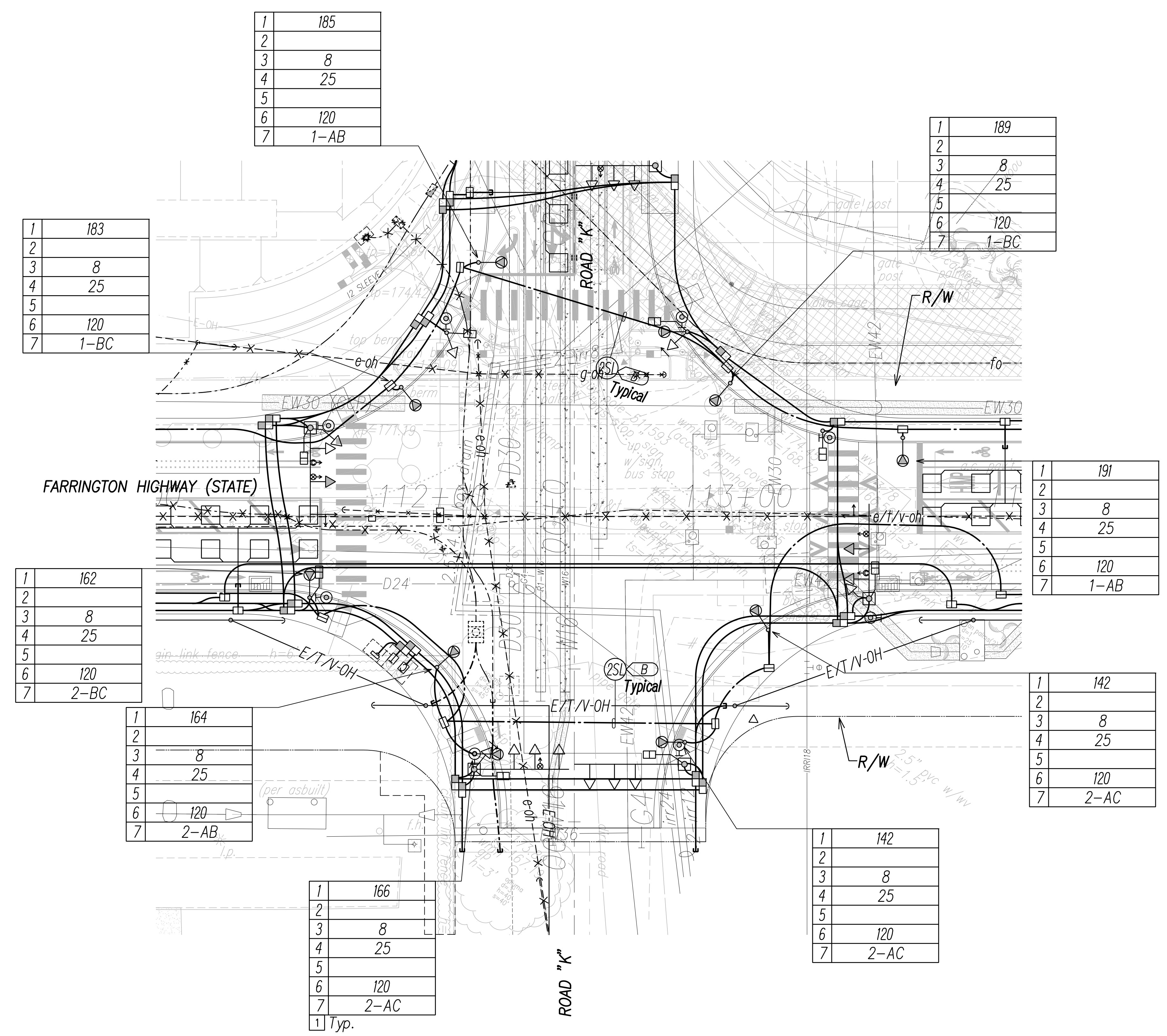
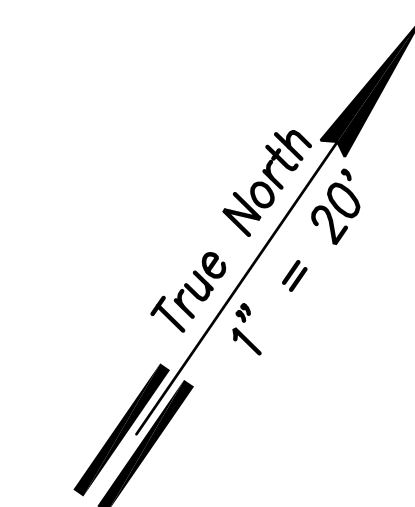


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Scott Shirasiki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

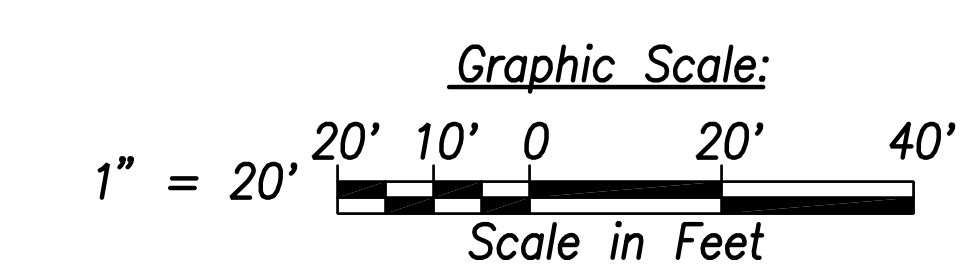
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**STREET LIGHT & TRAFFIC SIGNAL
PLAN 24**
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-24 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-25	790



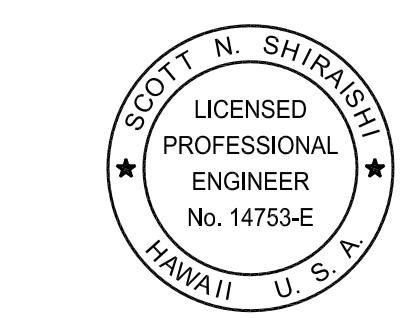
- NOTE:**
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - See Sheet EE-14 for Traffic Signal Work.



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

FILE: Z:\Mcd\Projects\220677A_ED25_220677A_SITS_Roadway_Plan_25 - Intersection K.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 25 - Intersection K
 Scale: 1" = 20'



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Scott Shirasishi
 SIGNATURE April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
 PLAN 25**

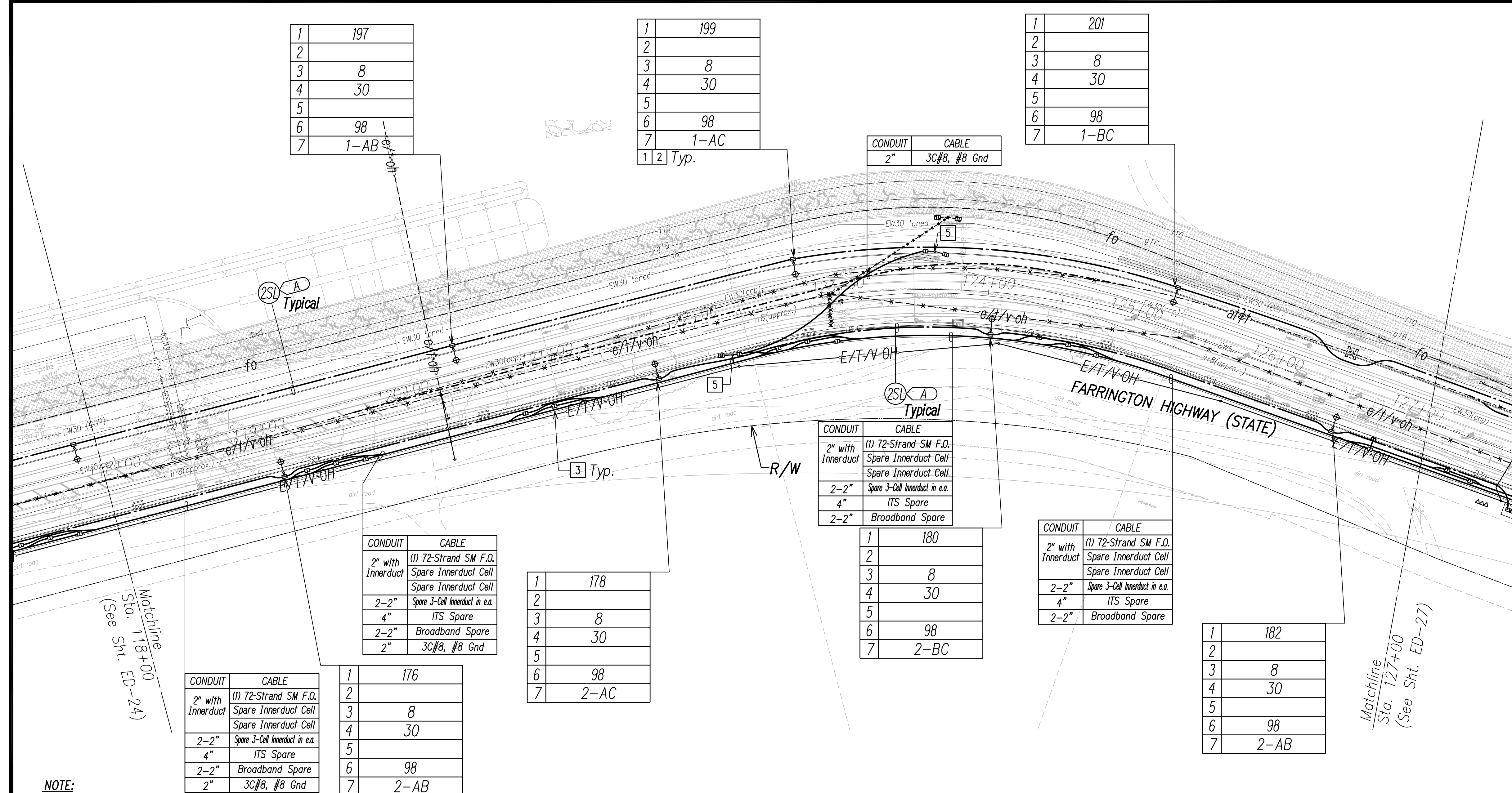
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-25 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-26	790



1	197
2	
3	8
4	30
5	
6	98
7	1-AB

1	199
2	
3	8
4	30
5	
6	98
7	1-AC
1 | 2 | Typ.	

1	201
2	
3	8
4	30
5	
6	98
7	1-BC

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare
2"	3C#8, #8 Gnd

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare
2"	3C#8, #8 Gnd

1	178
2	
3	8
4	30
5	
6	98
7	2-AC

1	180
2	
3	8
4	30
5	
6	98
7	2-BC

1	182
2	
3	8
4	30
5	
6	98
7	2-AB

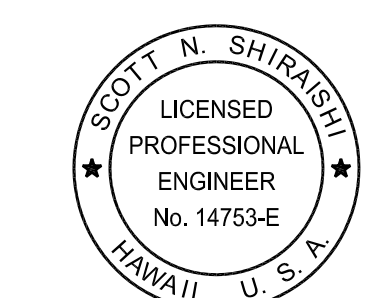
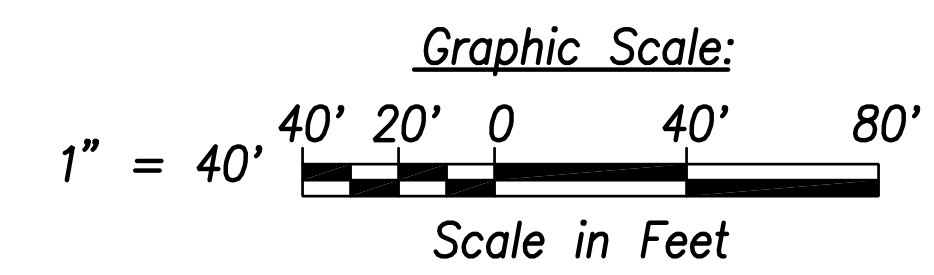
NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 Typical Handhole Grouping. See Sheet EG-15 for Details.
- 4 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- 5 Type 1-10' Traffic Signal Standard with Constant Yellow Flashing Light.

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

FILE: Z:\Mcd\Projects\2200679A\ED26_2200679A_SITS_Roadway_Plan_26 - Sta. 118+00 to 127+00.dwg, saved April 8, 2022

Street Light & Traffic Signal Plan 26 - (Sta. 118+00 to Sta. 127+00)
Scale: 1" = 40'



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Scott Shirahishi
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

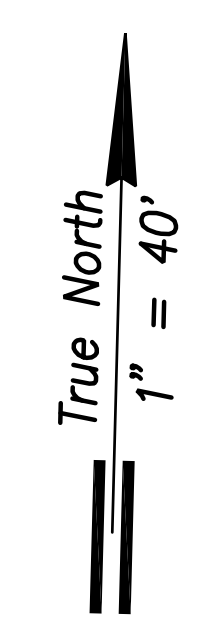
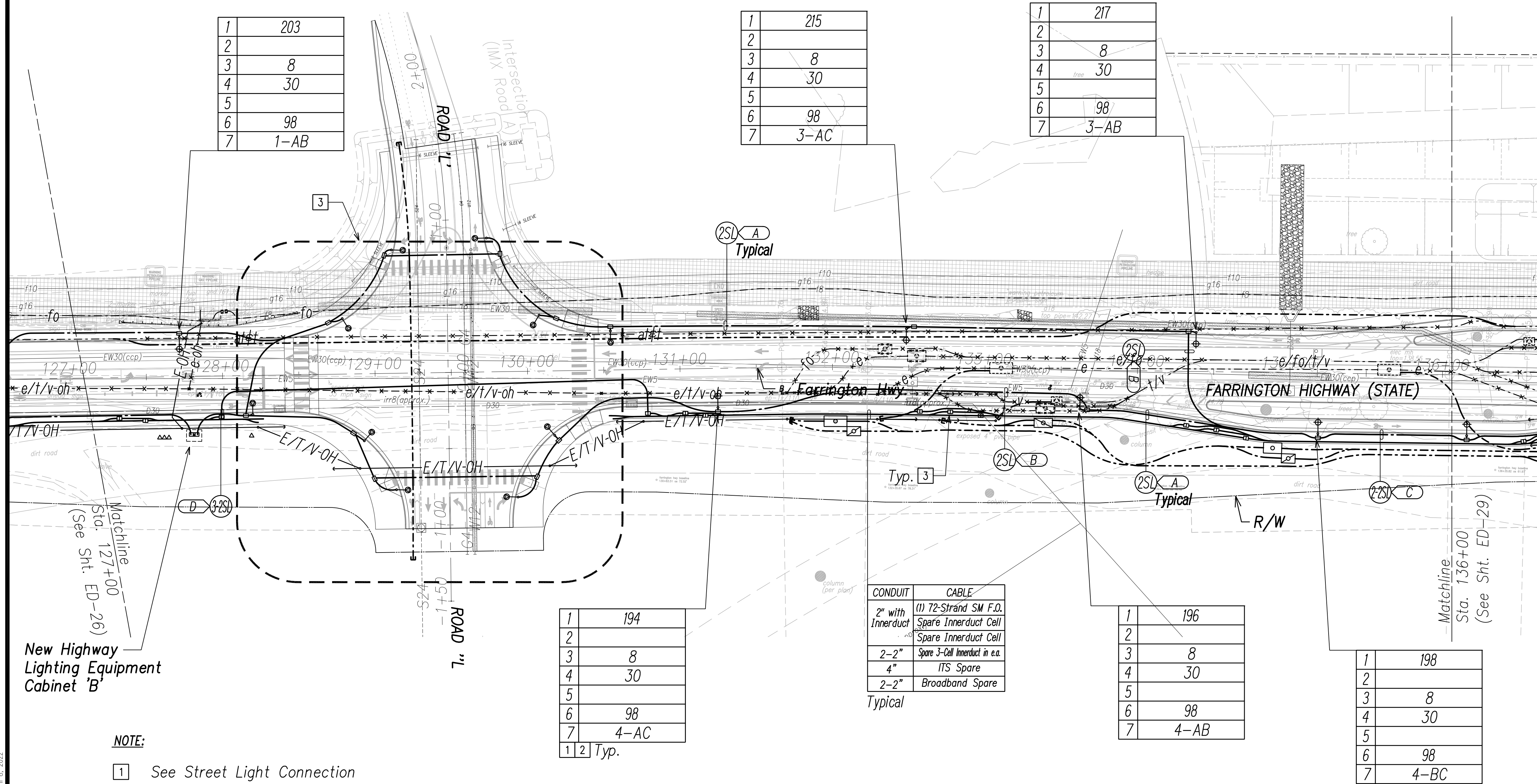
STREET LIGHT & TRAFFIC SIGNAL
PLAN 26

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-26 OF 35 SHEETS

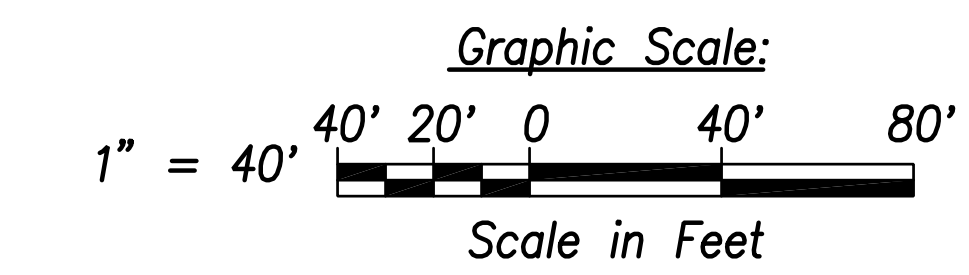
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-27	790



New Highway Lighting Equipment Cabinet 'B'

NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- 3 See Enlarged Plan Sheet ED-28
- 4 Typical Handhole Grouping. See Sheet EG-15 for Details.
- 5 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Work\Projects\220067HA_ED27_220067HA_SITS_Roadway_Plan_27 - Sta. 127+00 to 136+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 27 - (Sta. 127+00 to Sta. 136+00)
Scale: 1" = 40'

SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-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.

Scott Shiraiki
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 27

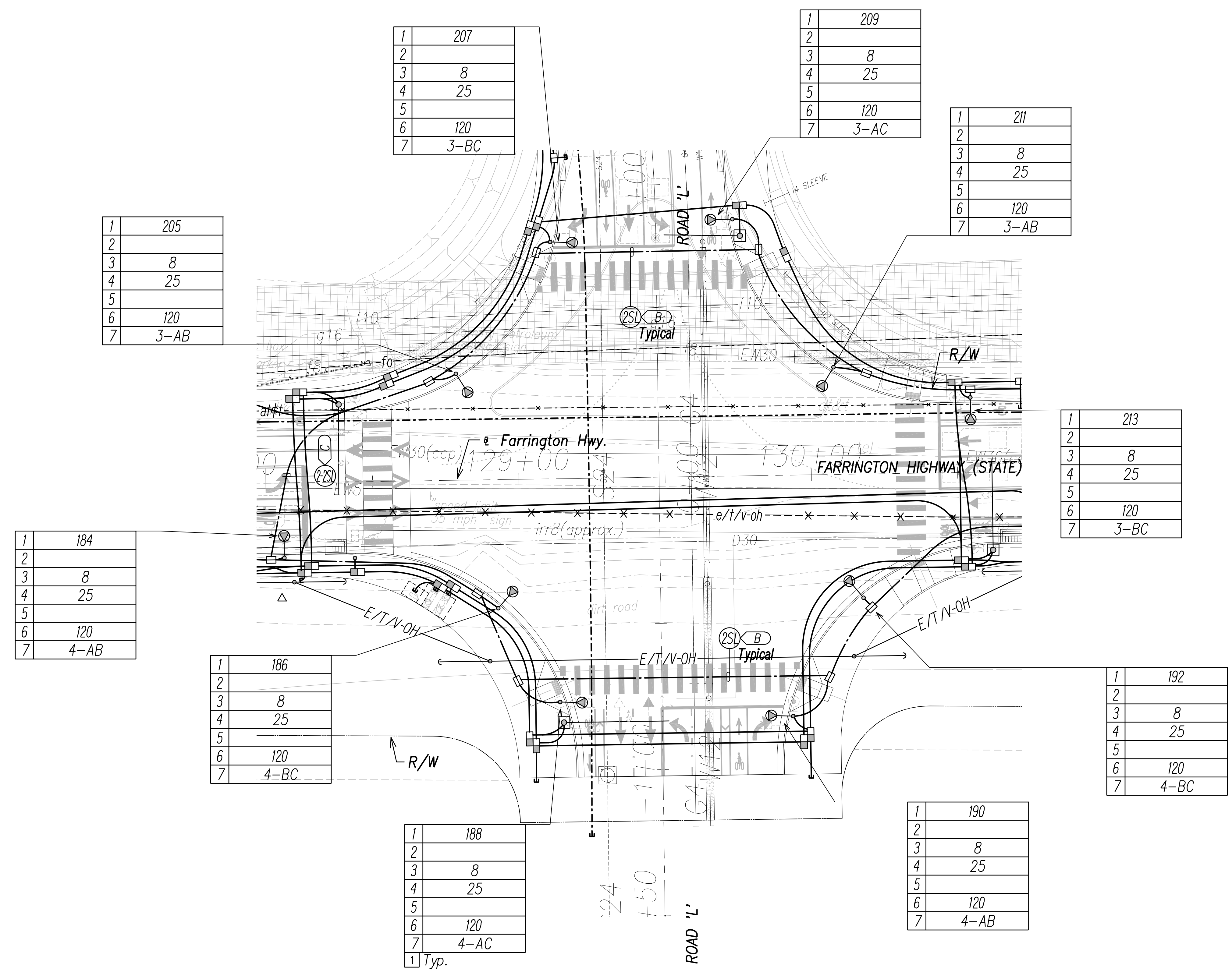
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-27 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-28	790

True North
1" = 20'



1	205
2	
3	8
4	25
5	
6	120
7	3-AB

1	209
2	
3	8
4	25
5	
6	120
7	3-AC

1	211
2	
3	8
4	25
5	
6	120
7	3-AB

1	213
2	
3	8
4	25
5	
6	120
7	3-BC

1	184
2	
3	8
4	25
5	
6	120
7	4-AB

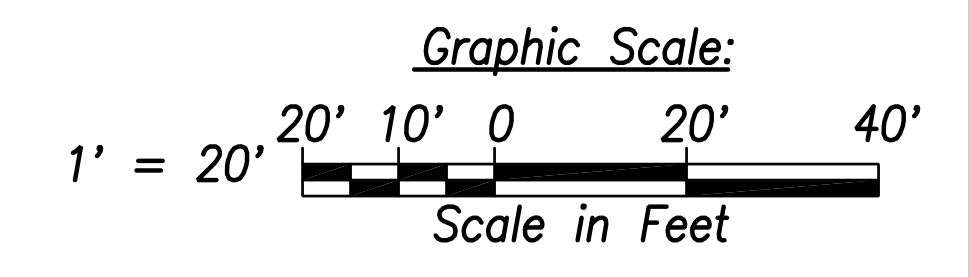
1	186
2	
3	8
4	25
5	
6	120
7	4-BC

1	192
2	
3	8
4	25
5	
6	120
7	4-BC

1	188
2	
3	8
4	25
5	
6	120
7	4-AC
1	Typ.

1	190
2	
3	8
4	25
5	
6	120
7	4-AB

NOTE:
 1 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 2 See Sheet EE-15 for Traffic Signal Work.



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QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220679A\ED28 - 220679A\STS - Roadway - Plan 28 - Intersection, Layout saved April 8, 2022

Street Light & Traffic Signal Plan 28 - Intersection L
 Scale: 1" = 20'

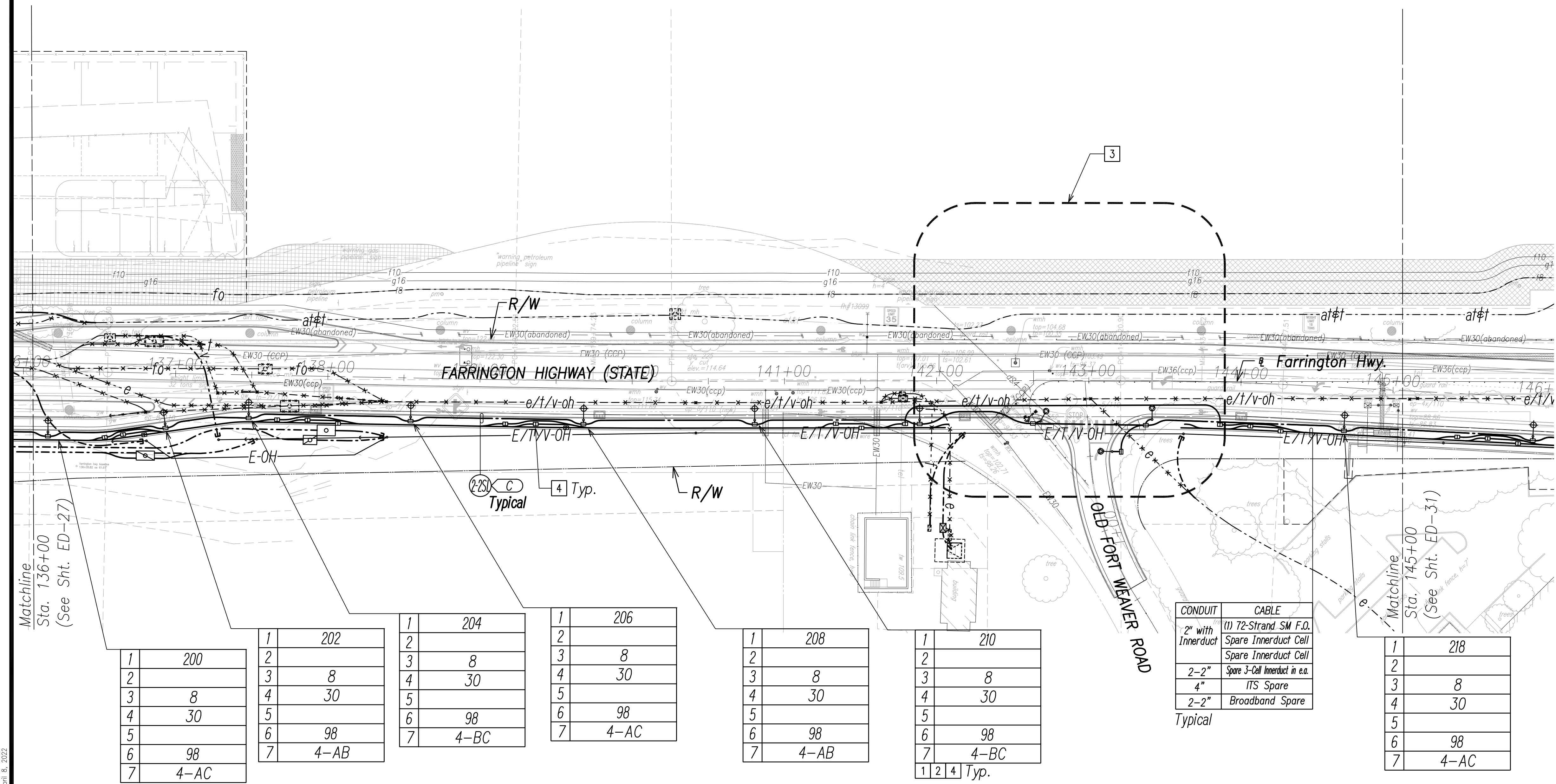
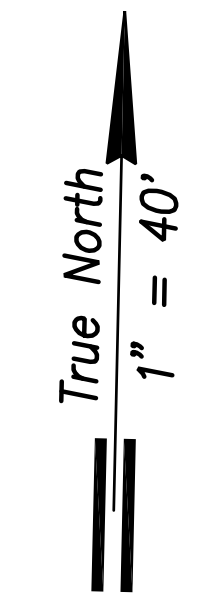


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 Scott Shirasishi
 SIGNATURE April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**STREET LIGHT & TRAFFIC SIGNAL
 PLAN 28**
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. ED-28 OF 35 SHEETS

XXX

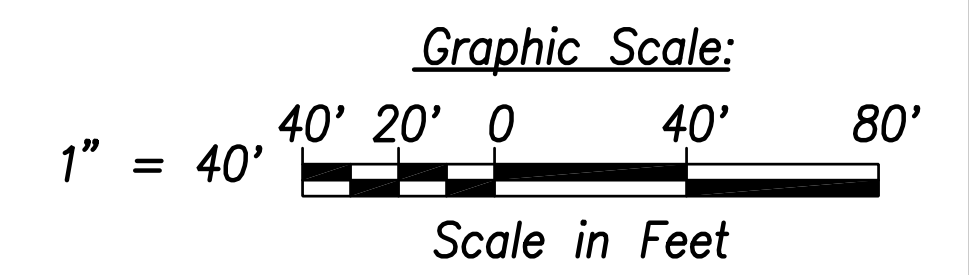
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-29	790



- NOTE:**
- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
 - 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - 3 See Enlarged Plan Sheet ED-30
 - 4 Typical Handhole Grouping. See Sheet EG-15 for Details.
 - 5 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Typical



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

FILE: Z:\Acad\Projects\220679A\ED29_220679A_SITS_Roadway_Plan_29 - Sta. 136+00 to 145+00.dwg saved April 8, 2022

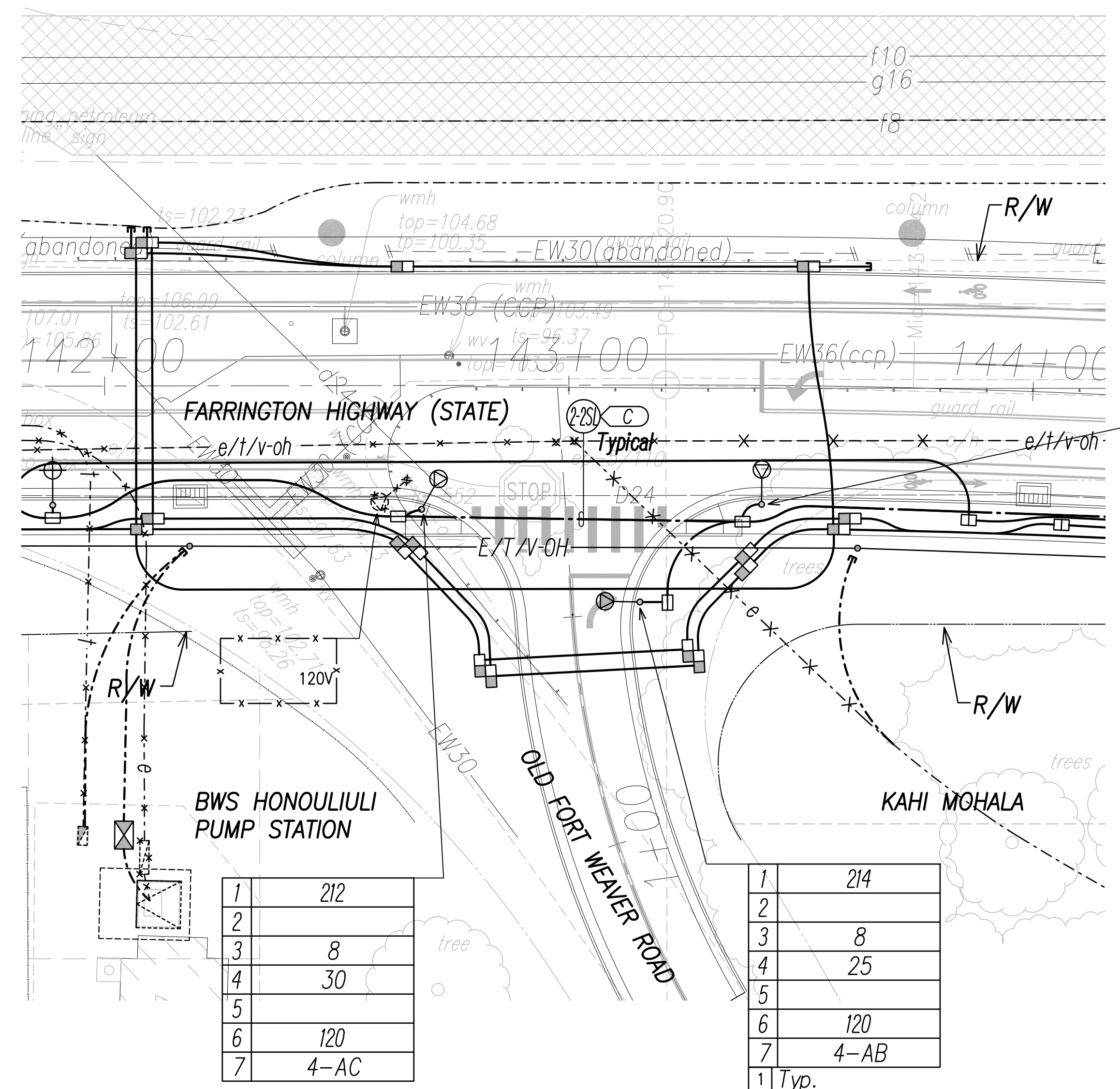
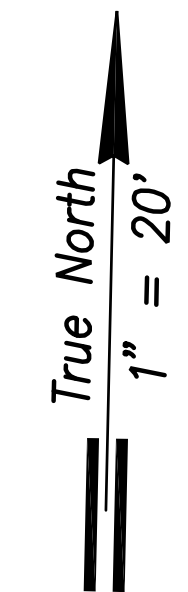
Street Light & Traffic Signal Plan 29 - (Sta. 136+00 to Sta. 145+00)
Scale: 1" = 40'

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 Scott Shirasishi
 SIGNATURE April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL
PLAN 29
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. ED-29 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-30	790



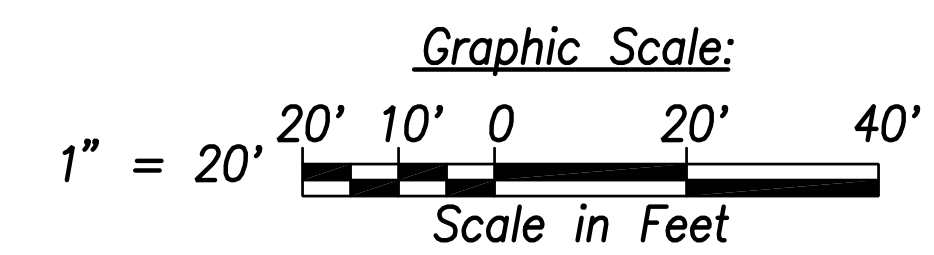
NOTE:

- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- See Sheet EE-16 for Traffic Signal Work.

1	216
2	
3	8
4	30
5	
6	120
7	4-BC

1	212
2	
3	8
4	30
5	
6	120
7	4-AC

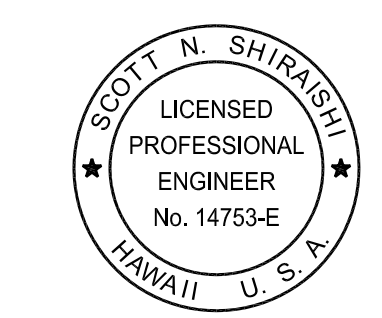
1	214
2	
3	8
4	25
5	
6	120
7	4-AB
1	Typ.



ORIGINAL PLAN	DATE

FILE: Z:\Acad\Projects\2200677A\ED30_2200677A_SITS_Roadway_Plan_30 - Old Fort Weaver Intersection 1.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 30 - Old Fort Weaver Intersection 1
Scale: 1" = 20'



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Signature: Scott Shirasiki
Date: April 30, 2024
Expiration Date of License:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL
PLAN 30

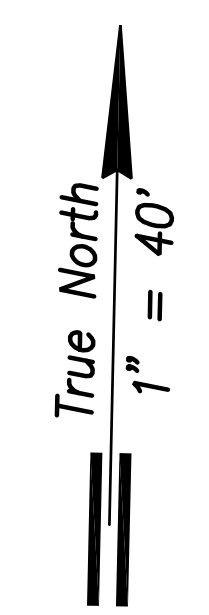
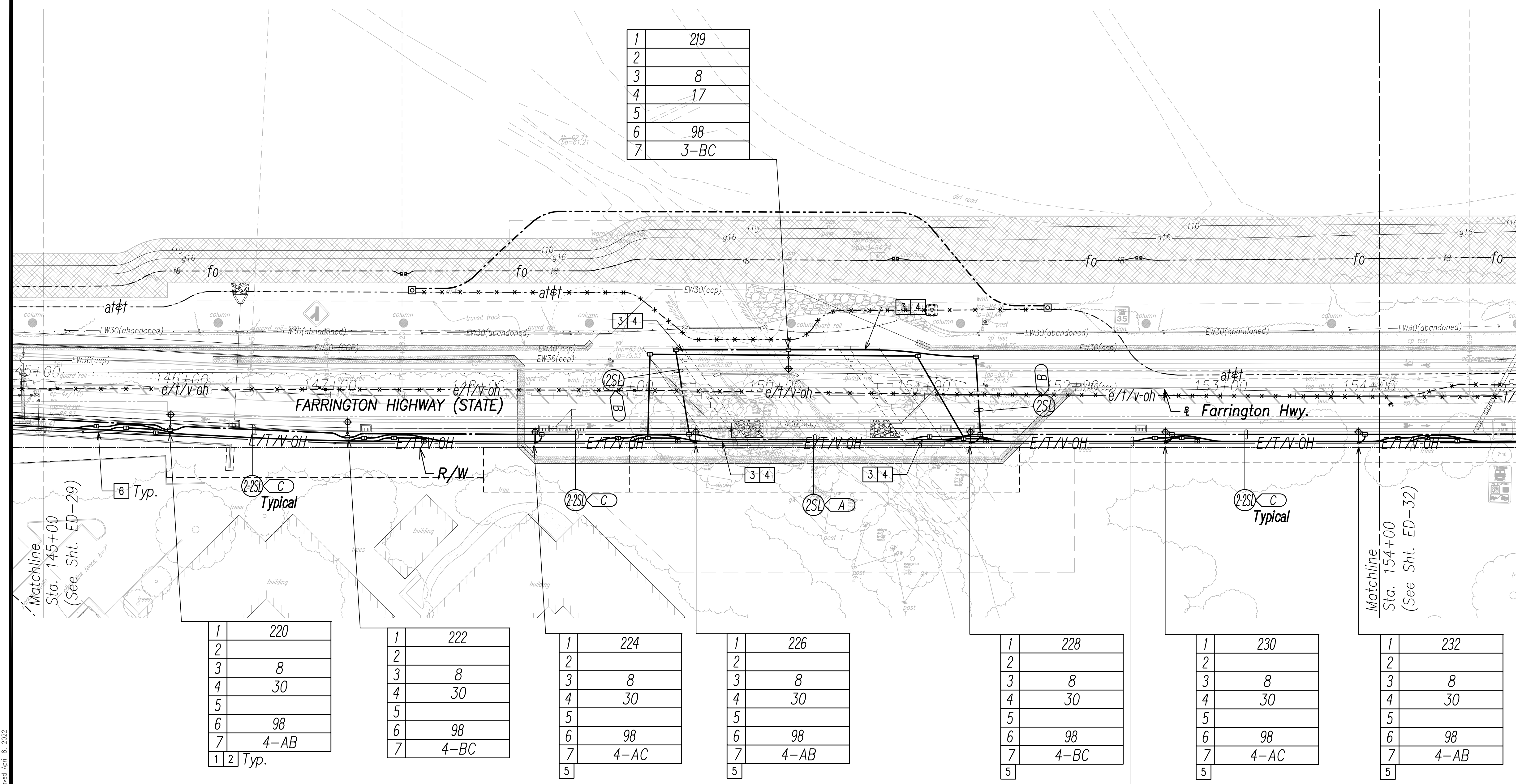
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-30 OF 35 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-31	790



NOTE:

- 1 See Street Light Connection Diagrams Sheets EG-01 Through EG-14 for Street Light Wiring.
- 2 See Sheet EG-18 for State Highway Light ID Tag Indicator Legend.
- 3 Provide Expansion/Deflection Coupling. See Sheet EG-19 for Details.
- 4 See Structural Drawings for Conduit Routing Through Bridge Railing.
- 5 Street Light Mounted on HECO Pole
- 6 Typical Handhole Grouping. See Sheet EG-15 for Details.
- 7 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

1	220
2	
3	8
4	30
5	
6	98
7	4-AB
1 2	Typ.

1	222
2	
3	8
4	30
5	
6	98
7	4-BC

1	224
2	
3	8
4	30
5	
6	98
7	4-AC
5	

1	226
2	
3	8
4	30
5	
6	98
7	4-AB
5	

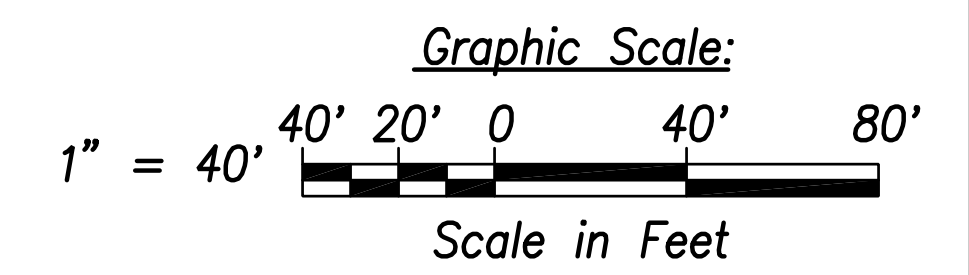
1	228
2	
3	8
4	30
5	
6	98
7	4-BC
5	

1	230
2	
3	8
4	30
5	
6	98
7	4-AC
5	

1	232
2	
3	8
4	30
5	
6	98
7	4-AB
5	

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	Spare 3-Cell Innerduct in e.a.
2-2"	ITS Spare
	Broadband Spare

Typical



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QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220067H\ED31_220067H_SITS_Roadway_Plan_31 - Sta. 145+00 to 154+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 31 - (Sta. 145+00 to Sta. 154+00)
Scale: 1" = 40'

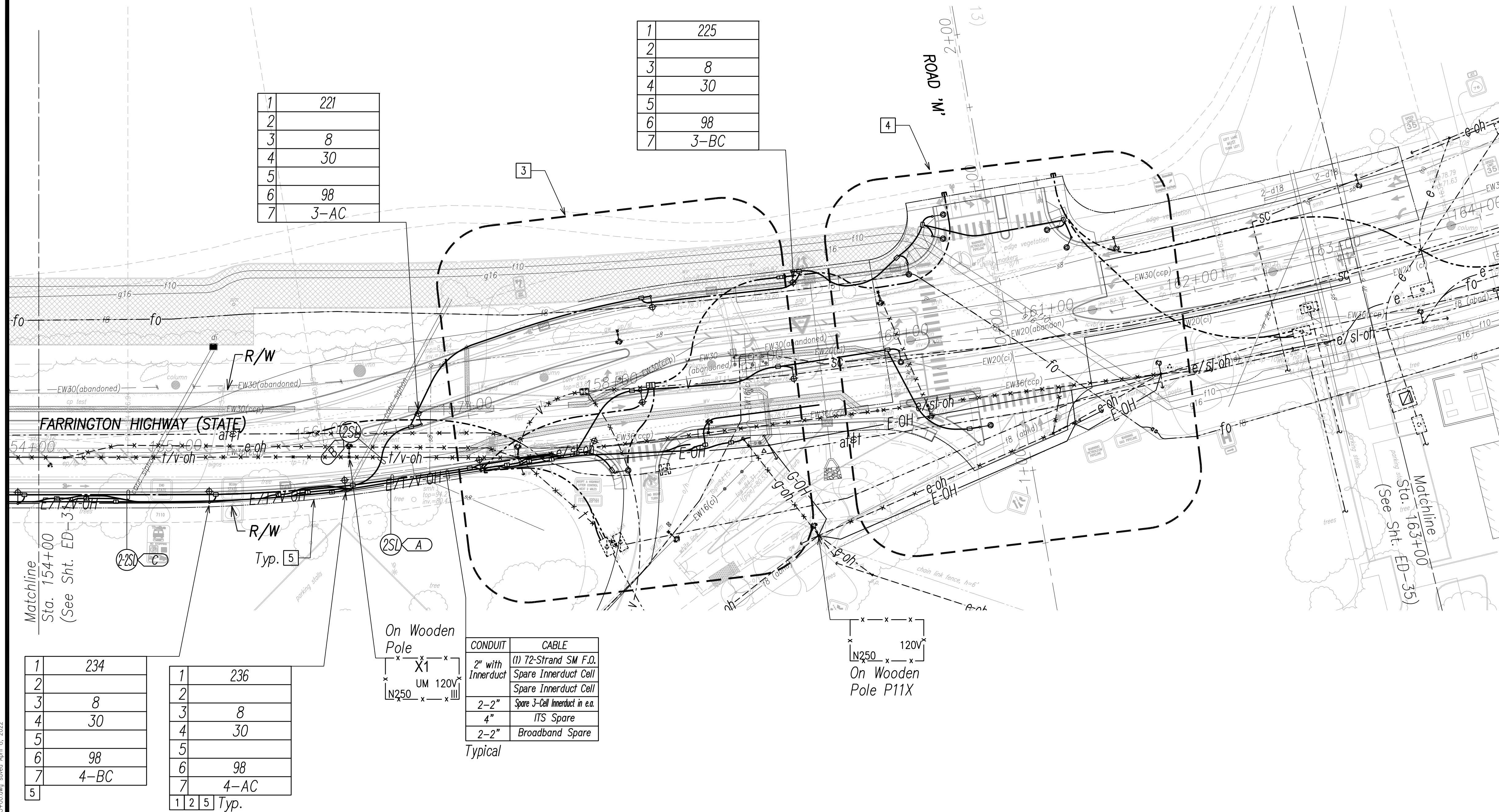


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Scott Shirasishi
SIGNATURE April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL PLAN 31
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-31 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-32	790



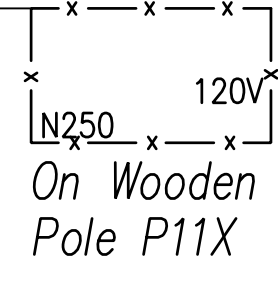
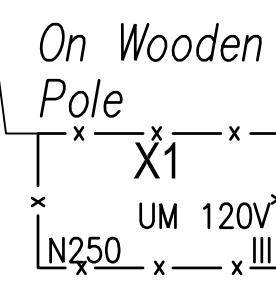
1	221
2	
3	8
4	30
5	
6	98
7	3-AC

1	225
2	
3	8
4	30
5	
6	98
7	3-BC

1	234
2	
3	8
4	30
5	
6	98
7	4-BC

1	236
2	
3	8
4	30
5	
6	98
7	4-AC
1 2 5	Typ.

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

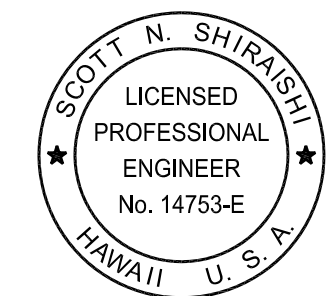


- NOTE:**
- See Street Light Connection Diagrams Sheets EG-01 Through EG-12 for Street Light Wiring.
 - See Sheet EG-16 for State Highway Light ID Tag Indicator Legend
 - See Enlarged Plan Sheet ED-33
 - See Enlarged Plan Sheet ED-34
 - Street Light Mounted on HECO Pole
 - Typical Handhole Grouping. See Sheet EG-15 for Details.
 - All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.

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

FILE: Z:\Mcd\Projects\220677A\ED32_220677A\STS_Roadway_Plan_32 - Sta. 154+00 to 163+00.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 32 - (Sta. 154+00 to Sta. 163+00)
 Scale: 1" = 40'

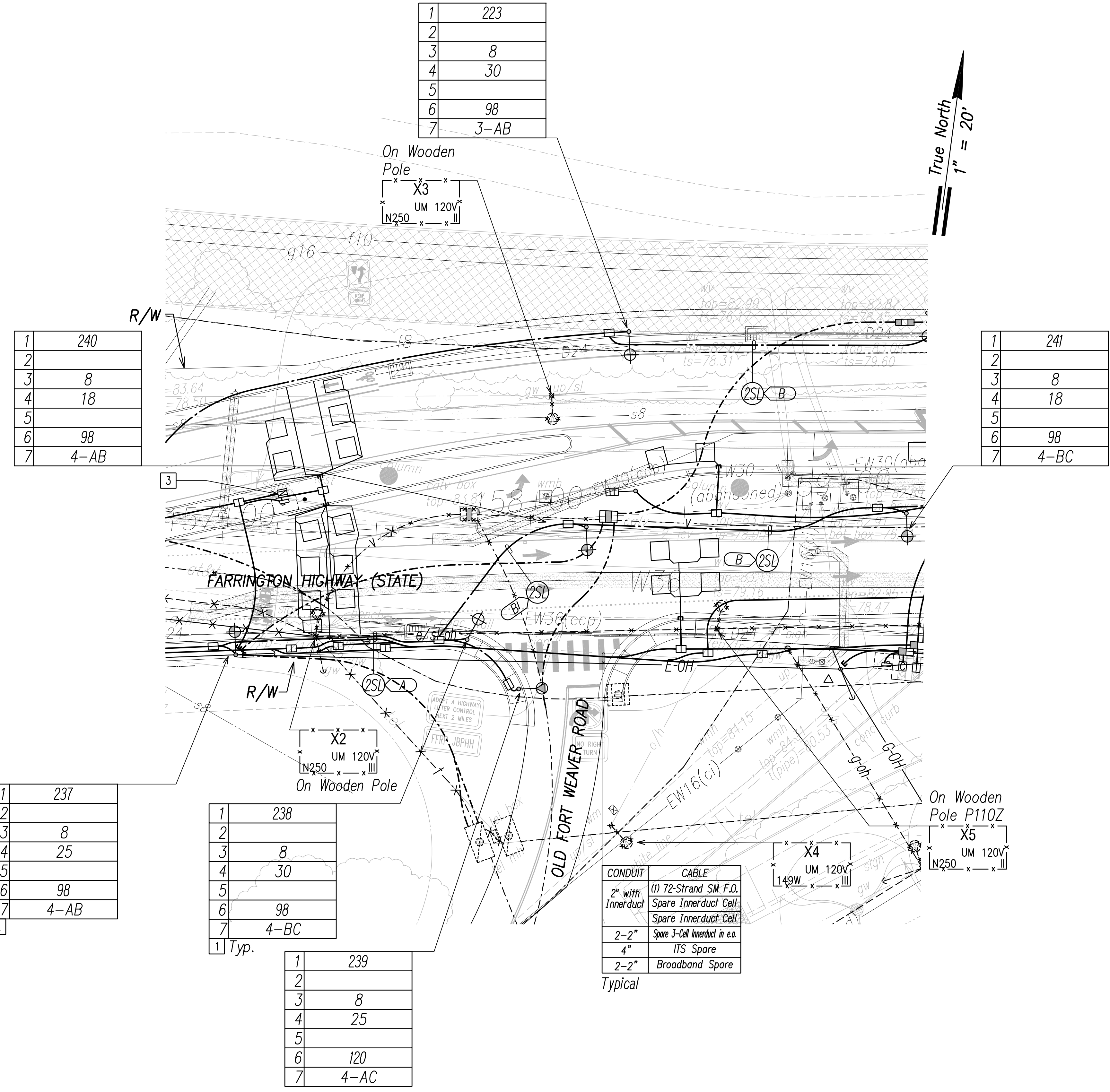


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 Scott Shirahishi
 SIGNATURE
 April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL
PLAN 32
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. ED-32 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-33	790



1	223
2	
3	8
4	30
5	
6	98
7	3-AB

1	240
2	
3	8
4	18
5	
6	98
7	4-AB

1	241
2	
3	8
4	18
5	
6	98
7	4-BC

1	237
2	
3	8
4	25
5	
6	98
7	4-AB

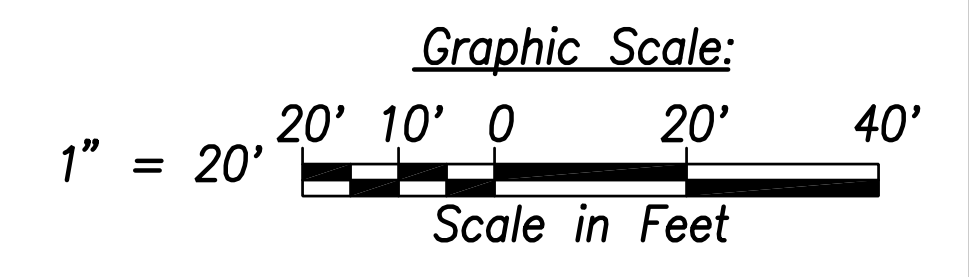
1	238
2	
3	8
4	30
5	
6	98
7	4-BC

1	239
2	
3	8
4	25
5	
6	120
7	4-AC

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare J-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

True North
1" = 20'

- NOTE:**
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
 - Street Light Mounted on HECO Pole
 - Traffic Counting Cabinet. See Sheet EI-03 for Details
 - See Sheet EE-17 for Traffic Signal Work.



DATE	DESCRIPTION

FILE: Z:\Mcd\Projects\220679H\EDS\220679H_SITS_Roadway_Plan_33 - Old Fort Weaver Intersection 2.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 33 - Old Fort Weaver Intersection 2

Scale: 1" = 20'

SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-E
HAWAII U.S.A.

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Scott Shiraiki
SIGNATURE
April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT & TRAFFIC SIGNAL PLAN 33

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. ED-33 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-34	790

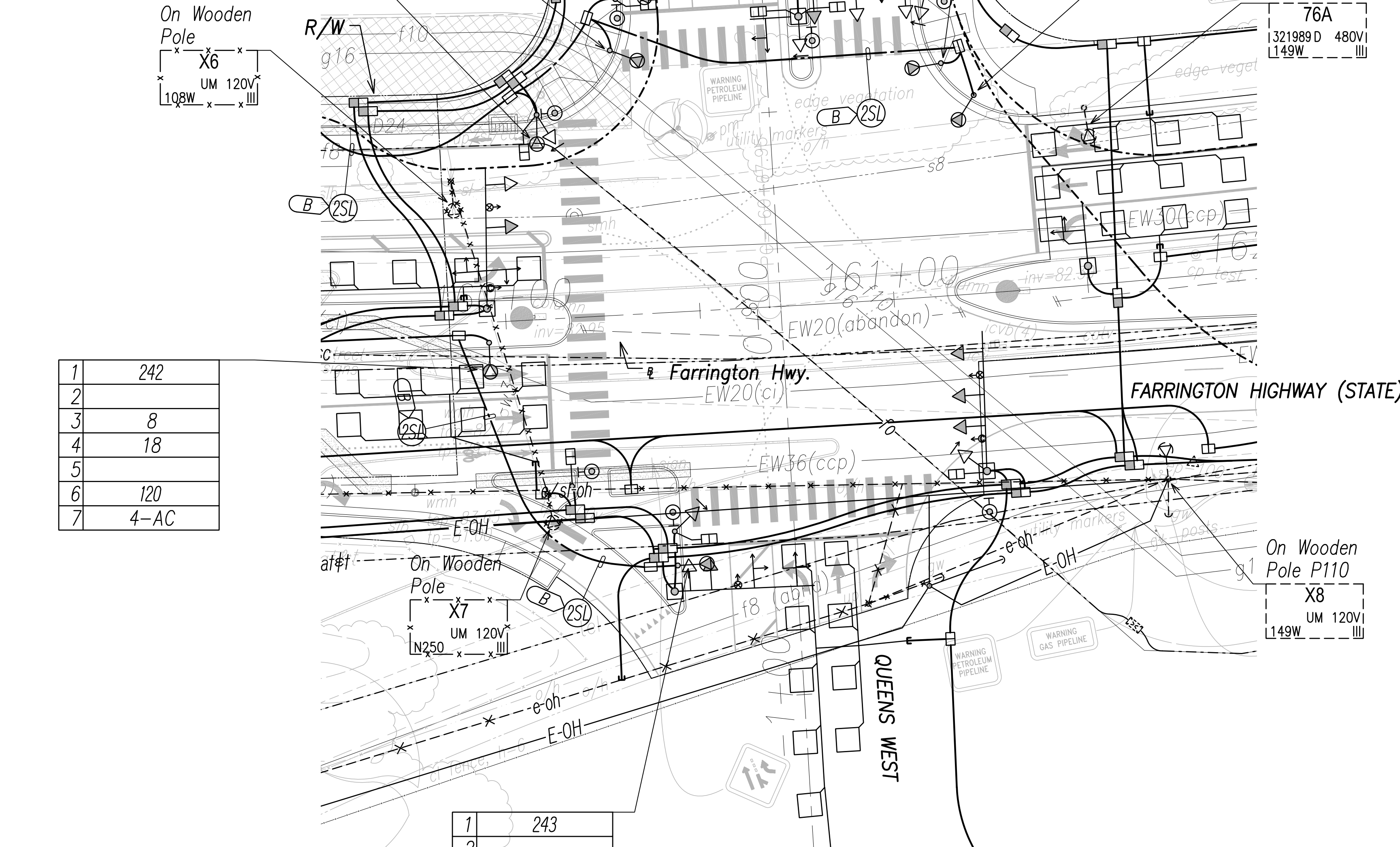
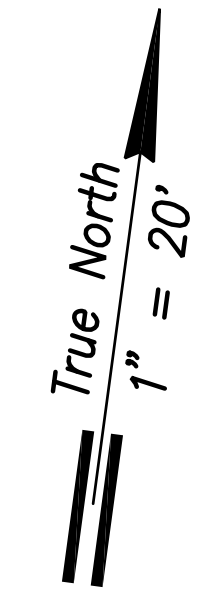
1	227
2	
3	8
4	25
5	
6	120
7	3-AC

1	229
2	
3	8
4	25
5	
6	120
7	3-AB

1	231
2	
3	8
4	25
5	
6	120
7	3-BC

1	233
2	
3	8
4	25
5	
6	120
7	3-AC

1	235
2	
3	8
4	25
5	
6	120
7	3-AB



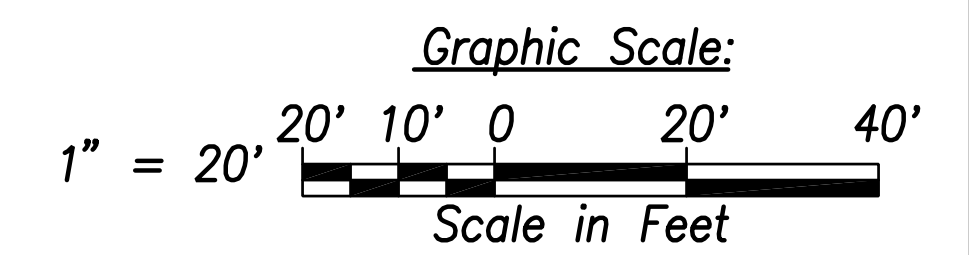
1	242
2	
3	8
4	18
5	
6	120
7	4-AC

1	243
2	
3	8
4	25
5	
6	120
7	4-AB

1 Typ.

NOTE:

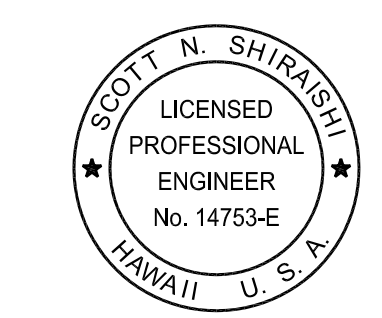
- See Sheet EG-18 for State Highway Light ID Tag Indicator Legend
- See Sheet EE-17 for Traffic Signal Work.



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QUANTIFIED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FILE: Z:\Mcd\Projects\220677A_ED34_220677A_SITS_Roadway_Plan_34 - Intersection M.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 34 - Intersection M
Scale: 1" = 20'

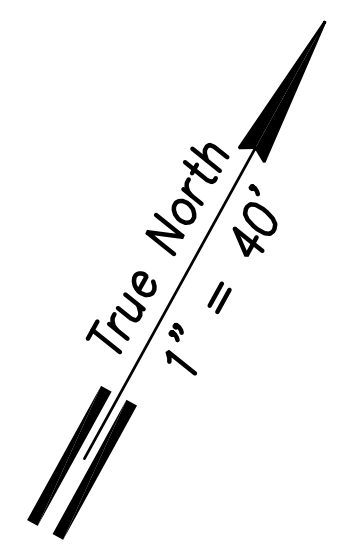
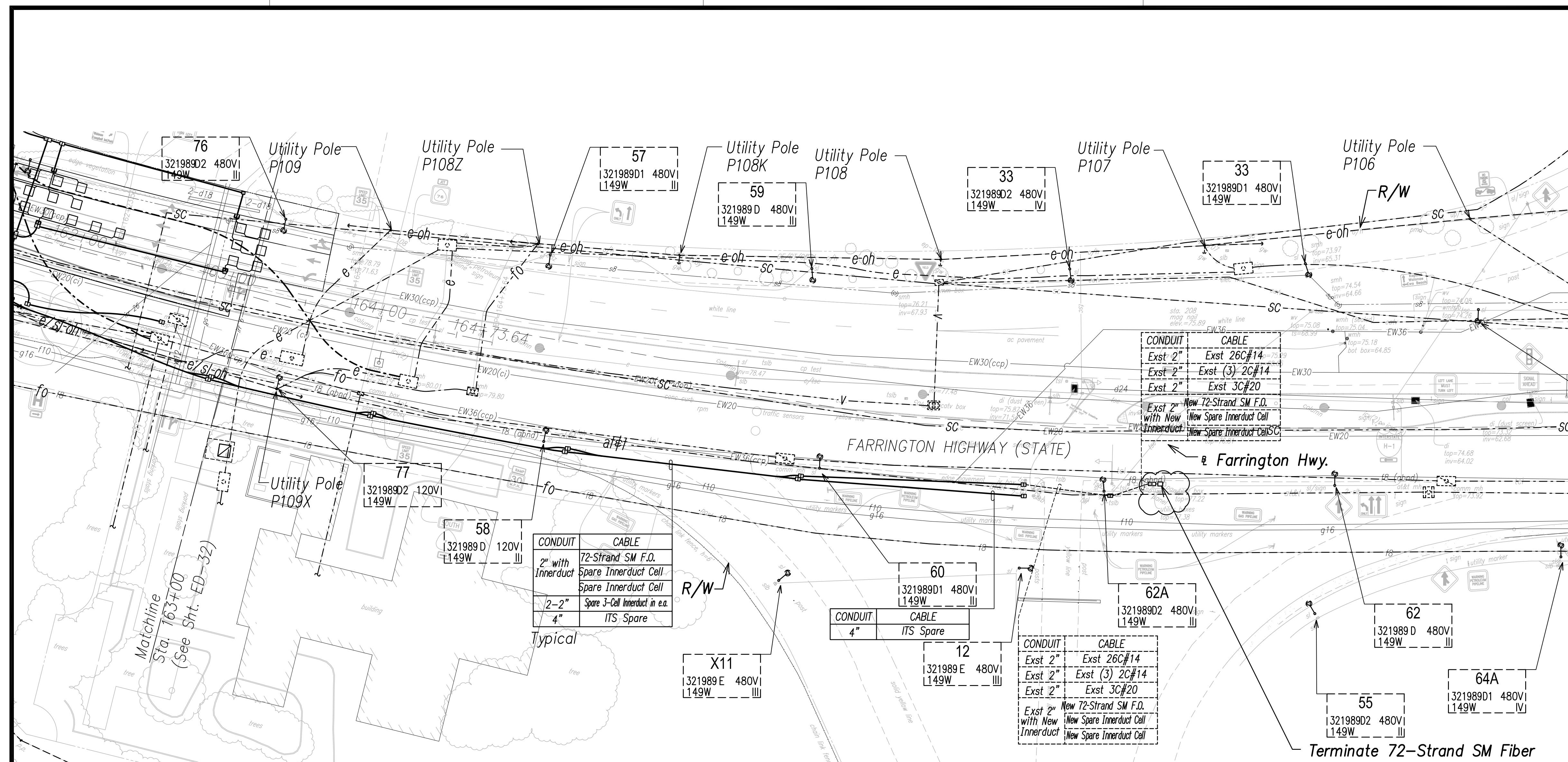


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Signature: Scott Shirasishi
Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT & TRAFFIC SIGNAL PLAN 34
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. ED-34 OF 35 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	ED-35	790

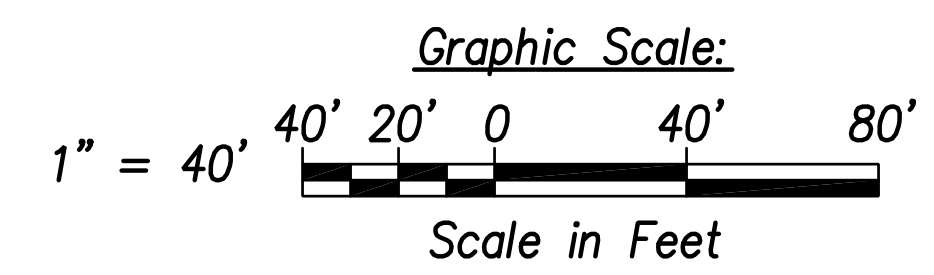


CONDUIT	CABLE
2" with Innerduct	72-Strand SM F.O.
2-2"	Spare Innerduct Cell
4"	Spare 3-Cell Innerduct in e.d.
ITS Spare	

Typical

Terminate 72-Strand SM Fiber Optic Cable in Existing CCTV Controller. Provide Equipment as Necessary to Interface New Fiber to Existing Controller Hardware.

- NOTE:**
- All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.



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NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FILE: Z:\mca\projects\220057H\ED35 - 220057H_SUTS_Roadway_Plan_35 - Sta. 163+00 to End.dwg saved April 8, 2022

Street Light & Traffic Signal Plan 35 - (Sta. 163+00 to End)
Scale: 1" = 40'

SCOTT N. SHIRAIKI
LICENSED PROFESSIONAL ENGINEER
No. 14753-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.

Scott Shiraiki
SIGNATURE
April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHT & TRAFFIC SIGNAL
PLAN 35**

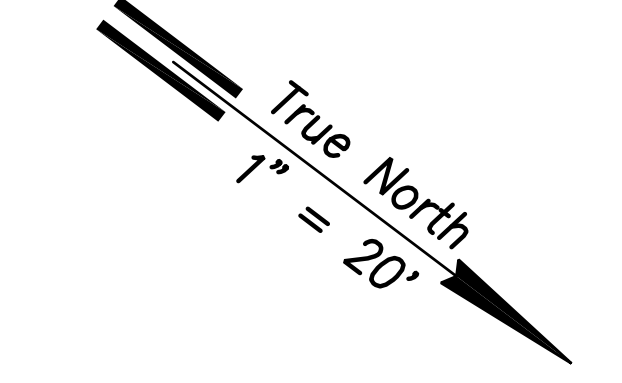
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

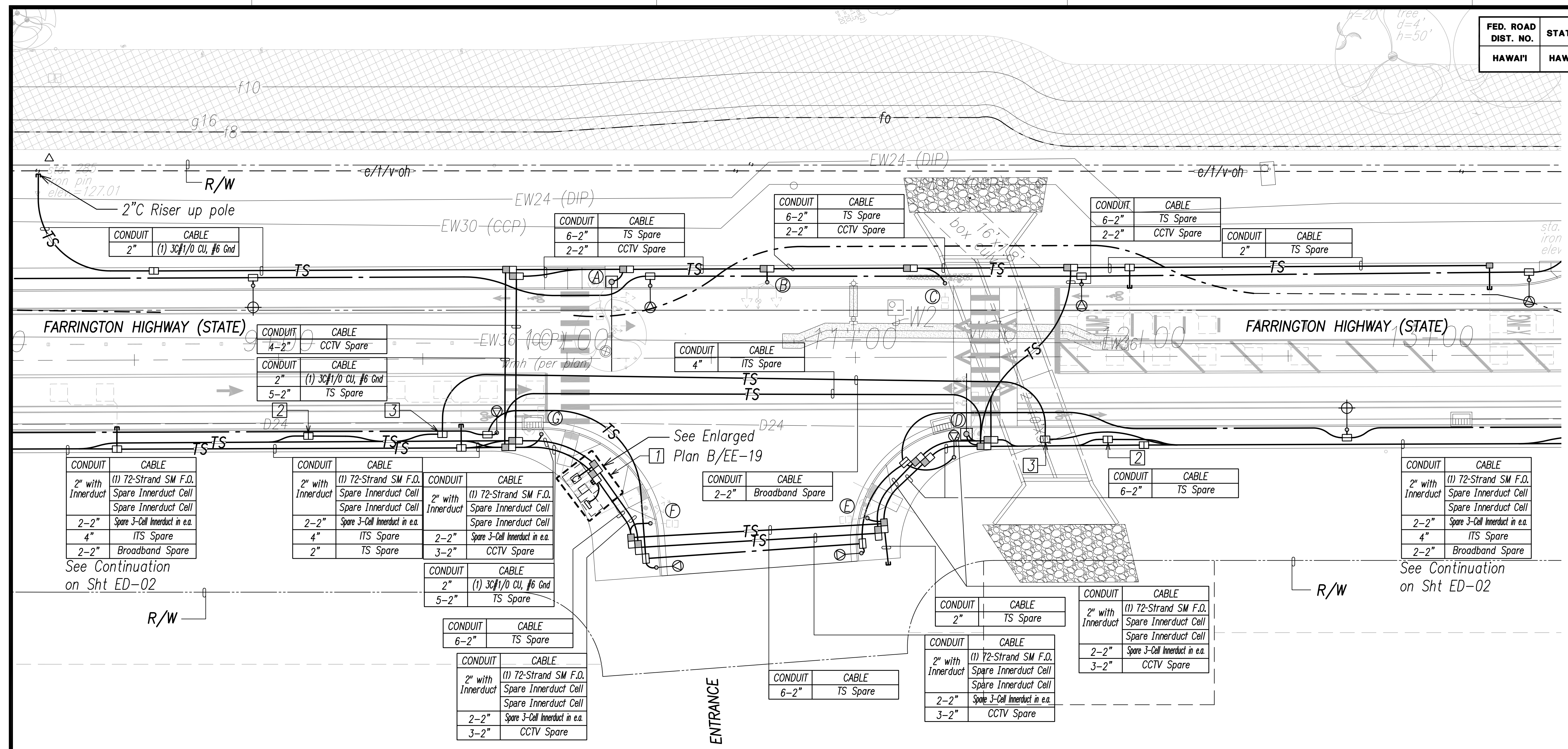
SHEET No. ED-35 OF 35 SHEETS

XXX

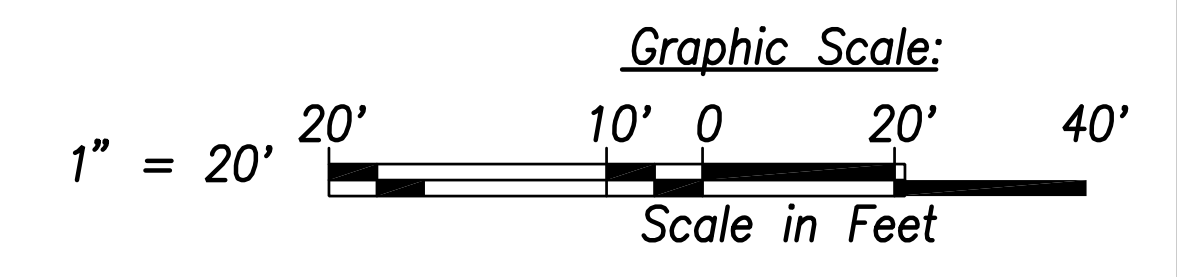
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-01	790



POLE	TYPE
A	Type II-30'
B	Type I-10'
C	Type I-10'
D	Type II-20'
E	Type I-10'
F	Type I-10'
G	Type I-10'



- Notes:
- Only CCTV Cabinet and Metering Equipment to be Installed. Space and Provisions for Future TS Cabinet to be Provided.
 - Type "B" TSPB to be labeled "ITS"
 - Type "B" TSPB to be labeled "STATE BROADBAND"
 - All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
 - All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.



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

FILE: Z:\Mcd\Projects\220677A\EDL_220677A\INTERSECTION A.dwg saved April 8, 2022

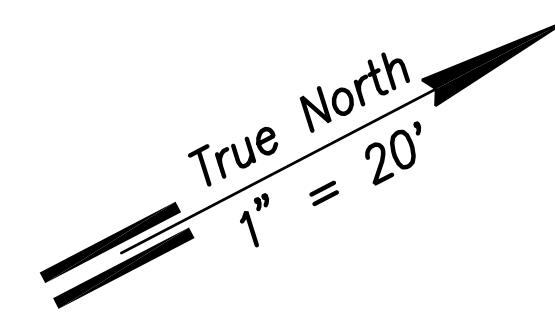
Traffic Signal Plan – Intersection A
Scale: 1" = 20'

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

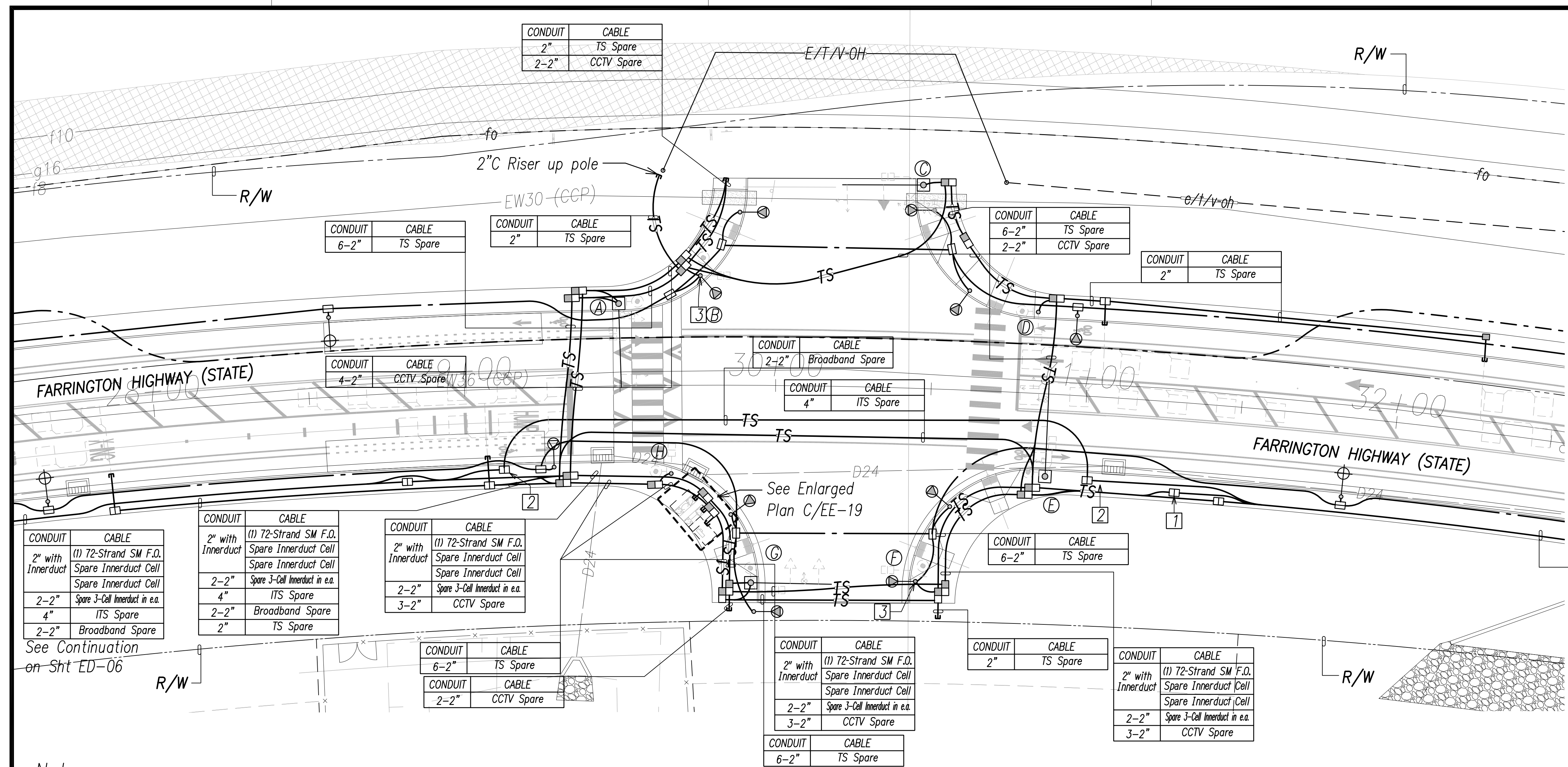
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
INTERSECTION A
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-01 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-02	790



POLE	TYPE
A	Type II-25'
B	Street Light
C	Type II-25'
D	Type I-10'
E	Type II-30'
F	Street Light
G	Type II-25'
H	Type I-10'



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
6-2"	TS Spare
2-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
6-2"	TS Spare

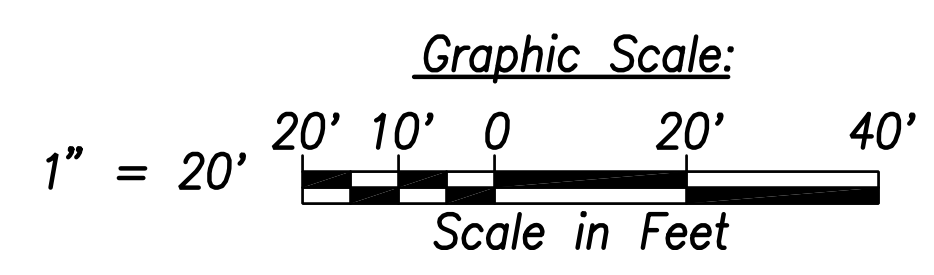
CONDUIT	CABLE
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

Notes:

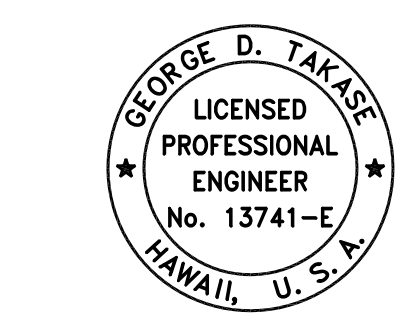
- 1 Type "B" TSPB to be labeled "ITS"
- 2 Type "B" TSPB to be labeled "Broadband"
- 3 Future Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TSPB.
4. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
5. All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.



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

FILE: Z:\Mcd\Projects\220677A\ED02_220677A\INTERSECTION C.dwg saved April 8, 2022

Traffic Signal Plan – Intersection C
Scale: 1" = 20'



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 Signature: [Handwritten Signature]
 Date: April 30, 2022
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL PLAN
 INTERSECTION C**

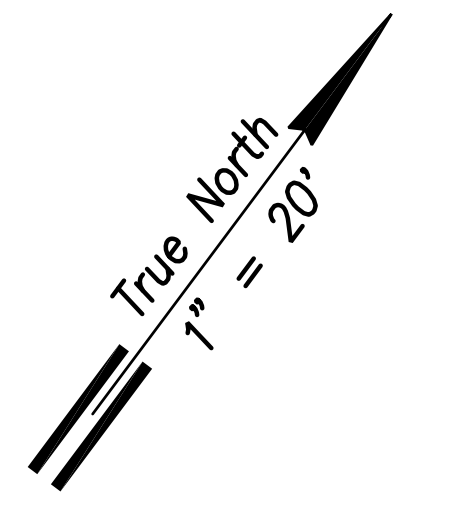
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

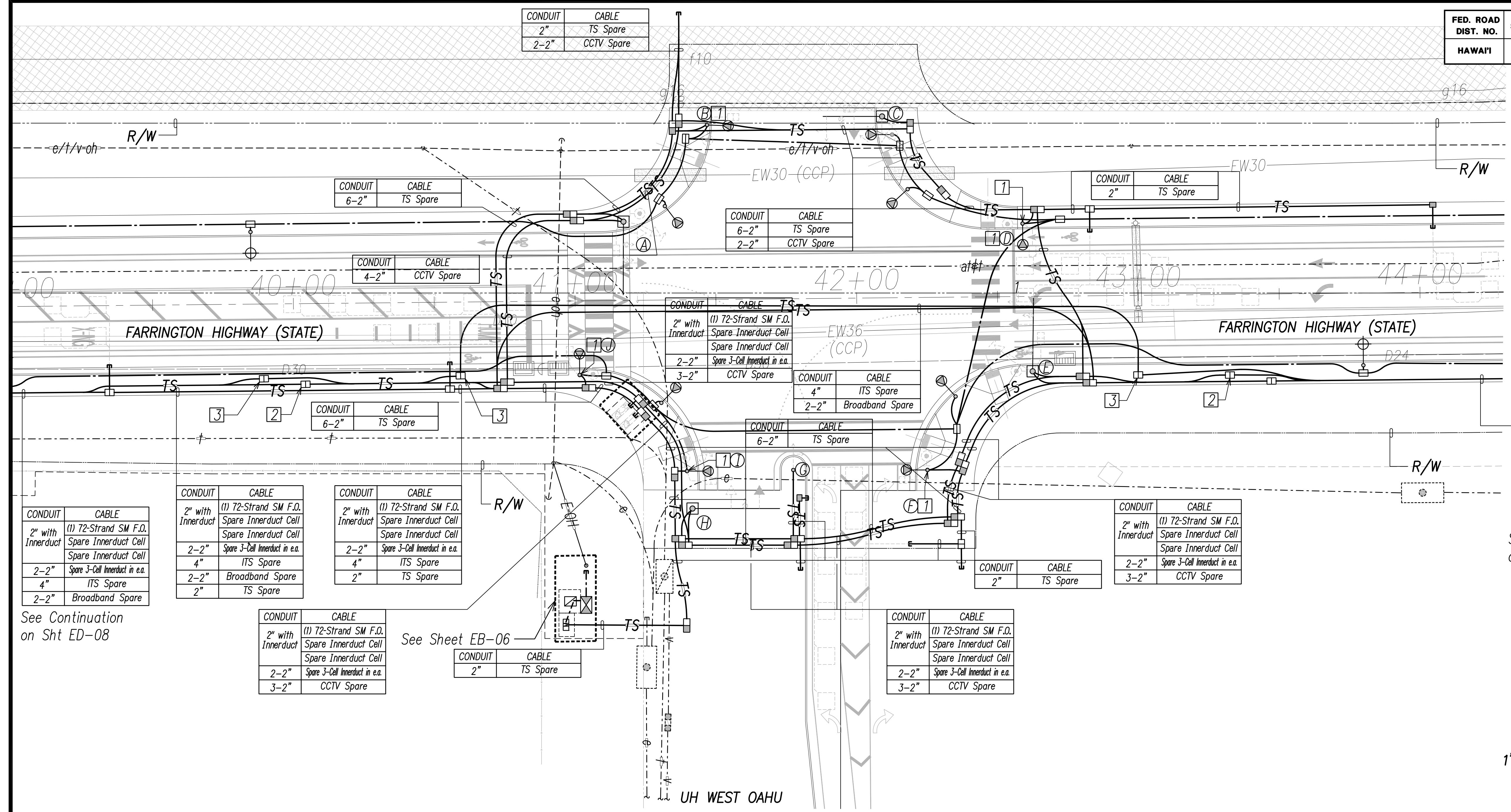
SHEET No. EE-02 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-03	790



POLE	TYPE
A	Type II-25'
B	Street Light
C	Type II-20'
D	Street Light
E	Type II-25'
F	Street Light
G	Type I-10'
H	Type II-30'
I	Street Light
J	Street Light



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-08

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

See Sheet EB-06

CONDUIT	CABLE
2"	TS Spare

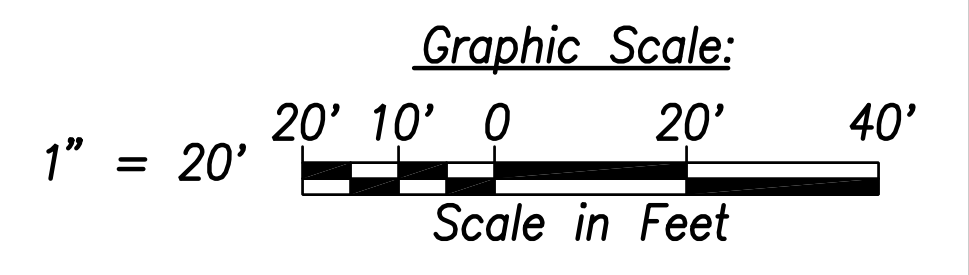
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-10



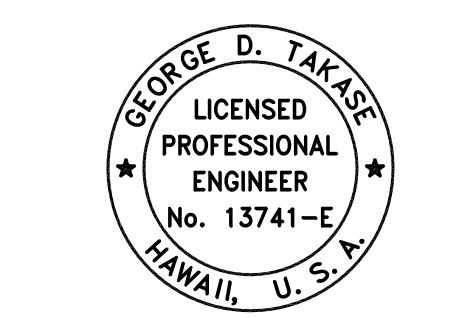
Notes:

- Future Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- Type "B" TSPB to be labeled "ITS"
- Type "B" TSPB to be labeled "STATE BROADBAND"
- All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

Traffic Signal Plan - Intersection D
UH West Oahu
Scale: 1" = 20'

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

FILE: Z:\Work\Projects\220670\INTERSECTION D.dwg saved April 8, 2022



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Signature: _____
Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

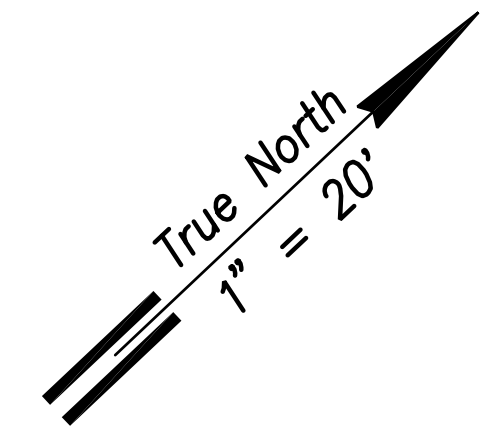
**TRAFFIC SIGNAL PLAN
INTERSECTION D**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

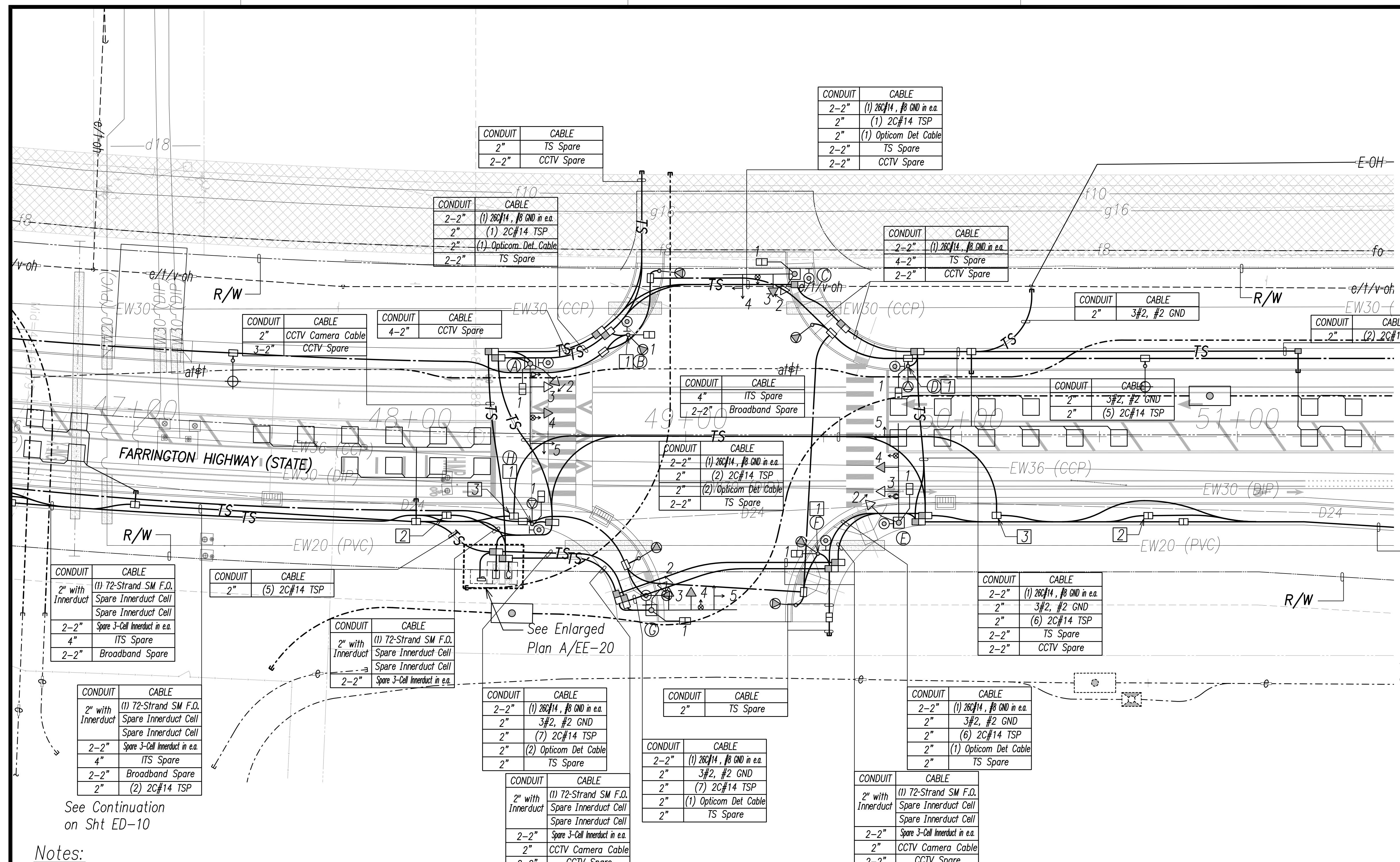
Scale: As Shown Date: April 2022

SHEET No. EE-03 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-04	790

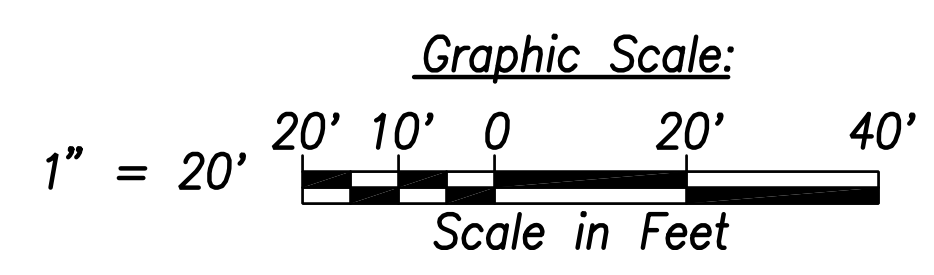


POLE	TYPE
A	Type II-30'
B	Street Light
C	Type II-25'
D	Street Light
E	Type II-35'
F	Street Light
G	Type II-30'
H	Street Light



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-12



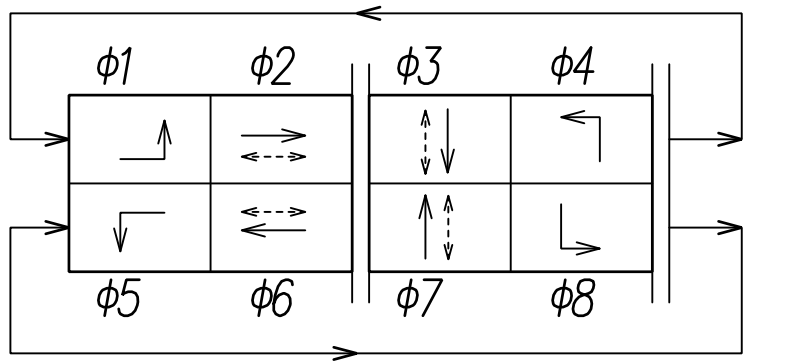
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

Notes:

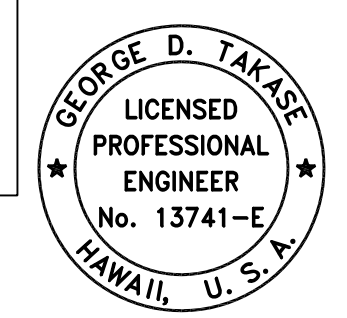
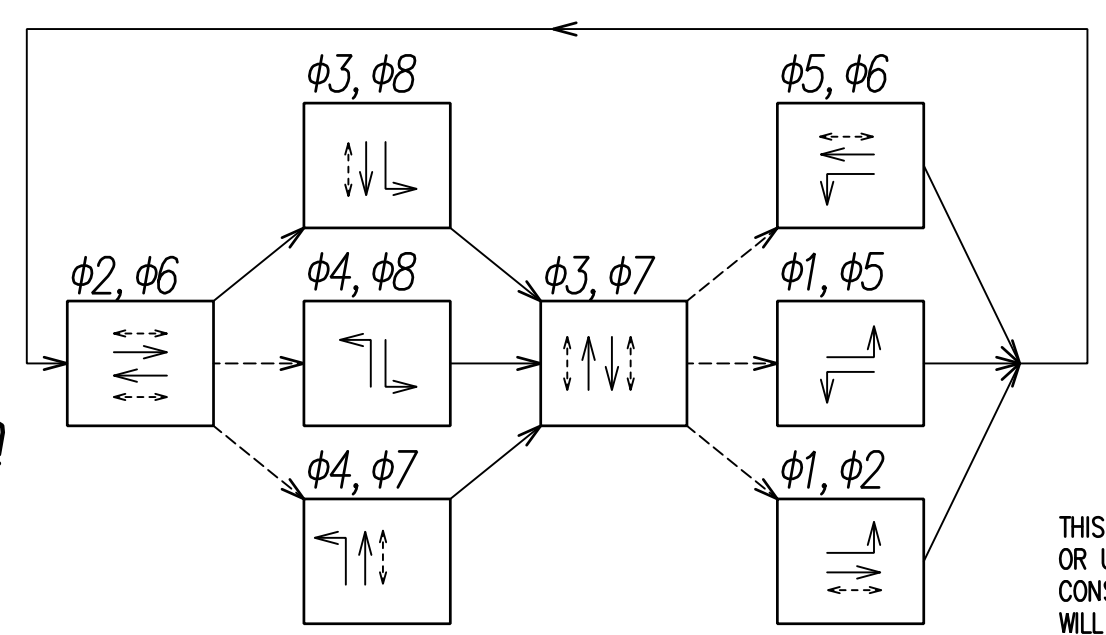
- 1 Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- 2 Type "B" TSPB to be labeled "ITS"
- 3 Type "B" TSPB to be labeled "Broadband"
- 4 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- 5 All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

Signal Indication	(LED)	(LED)	(LED)	(LED)
Description	12" RYG Ball	12" RYG (Left Arrow)	12" RYG (Str. Arrow)	Pedestrian Signal Head
Pole Letter- Signal Head Number	A-3 E-3 G-3	A-5* G-2 C-2 G-5* C-4* E-2	A-4 C-3 E-4 G-4	A-1 F-1 B-1 G-1 C-1 H-1 D-1 E-1

* Indicates Programmed Visibility Signal Head
Traffic Signal Plan - Intersection E
 Scale: 1" = 20'



Phase Sequence Diagram
 → Protected Movement
 - - - Permitted Movement
 - - - Pedestrian Movement



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 SIGNATURE: [Signature]
 APRIL 30, 2022
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

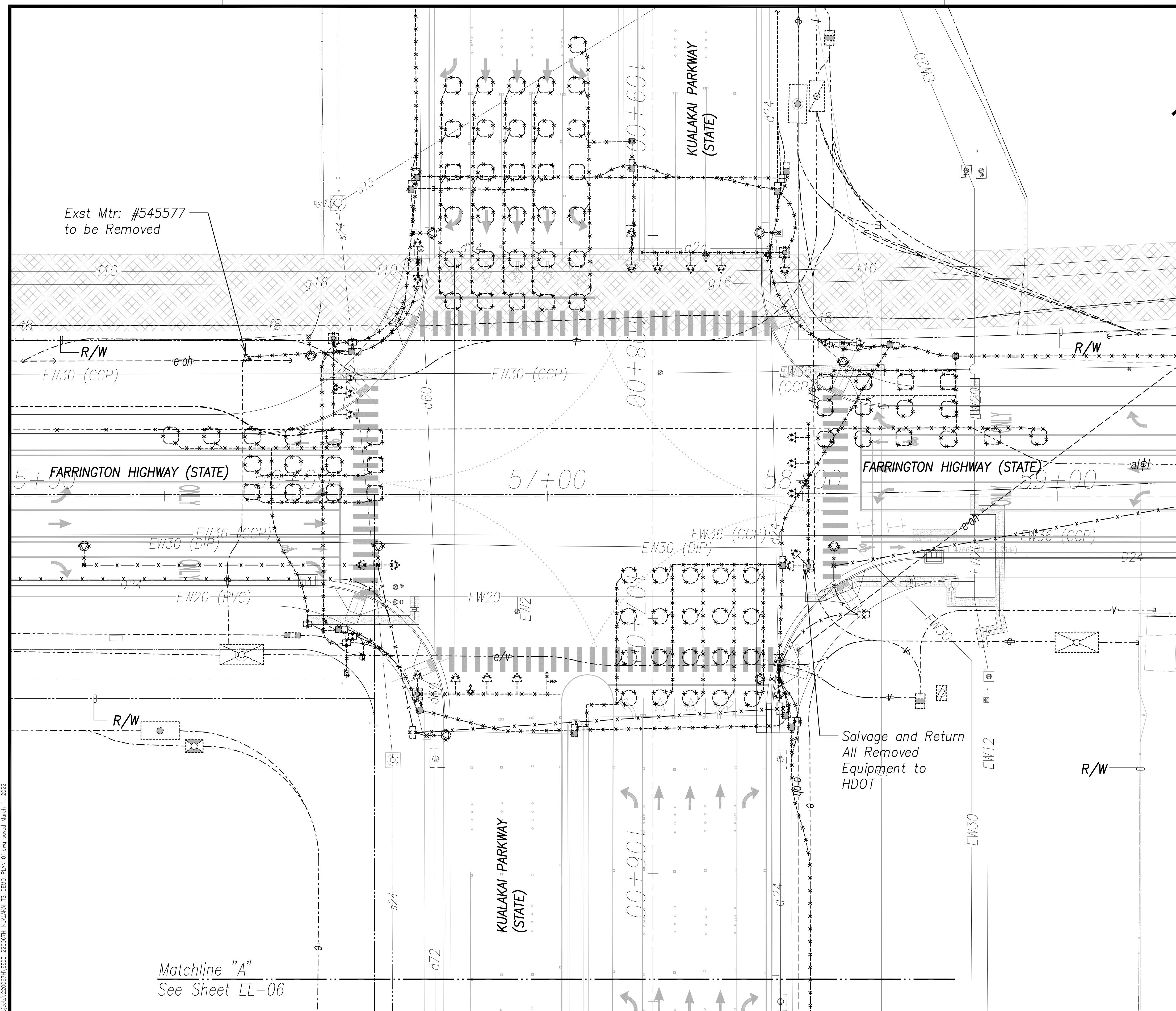
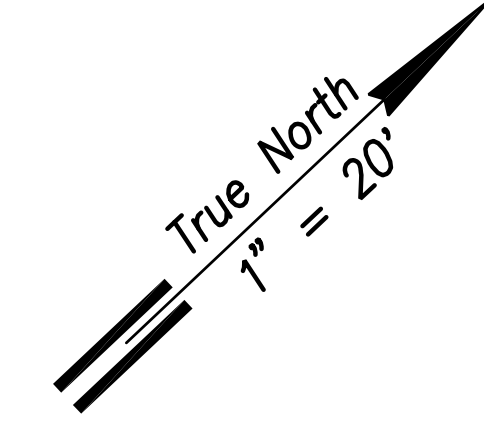
**TRAFFIC SIGNAL PLAN
 INTERSECTION E**

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022
SHEET No. EE-04 OF 790 SHEETS

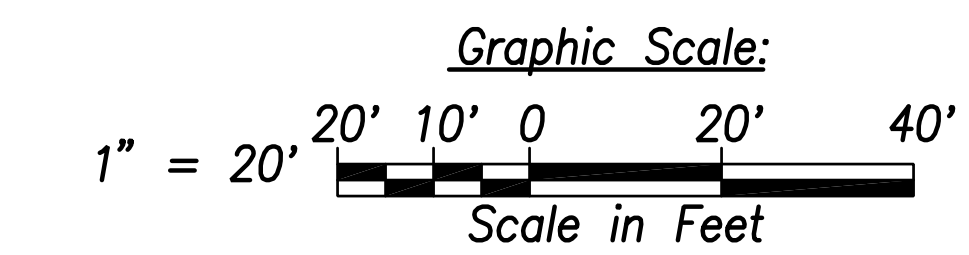
APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-05	790



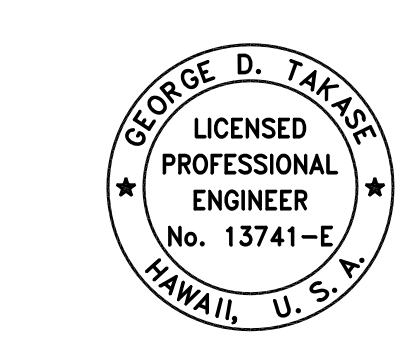
Matchline "A"
See Sheet EE-06

Traffic Signal Demo Plan 1 - Kualakai Parkway
Scale: 1" = 20'



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

FILE: Z:\Mcd\Projects\220067H_KUALAKAI.TS_DEMO_PLAN_01.dwg saved March 1, 2022



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 Signature: *[Handwritten Signature]*
 Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL DEMO PLAN 1
 KUALAKAI PARKWAY**

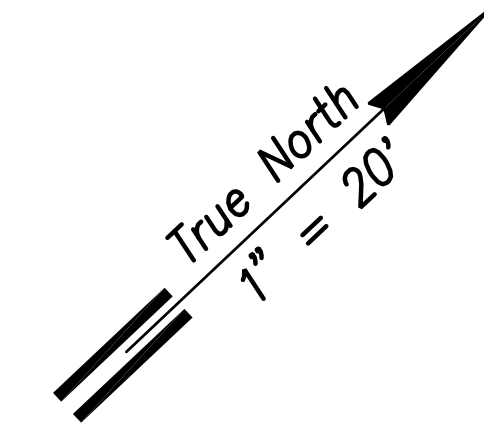
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

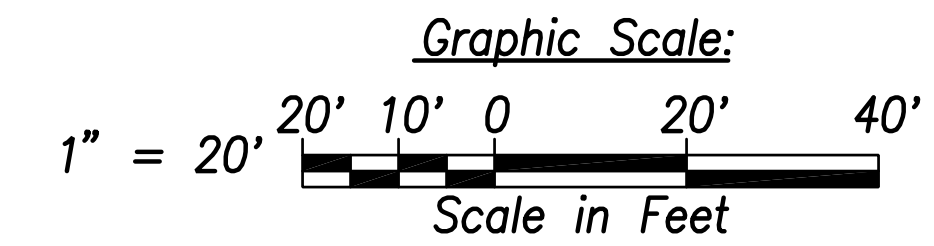
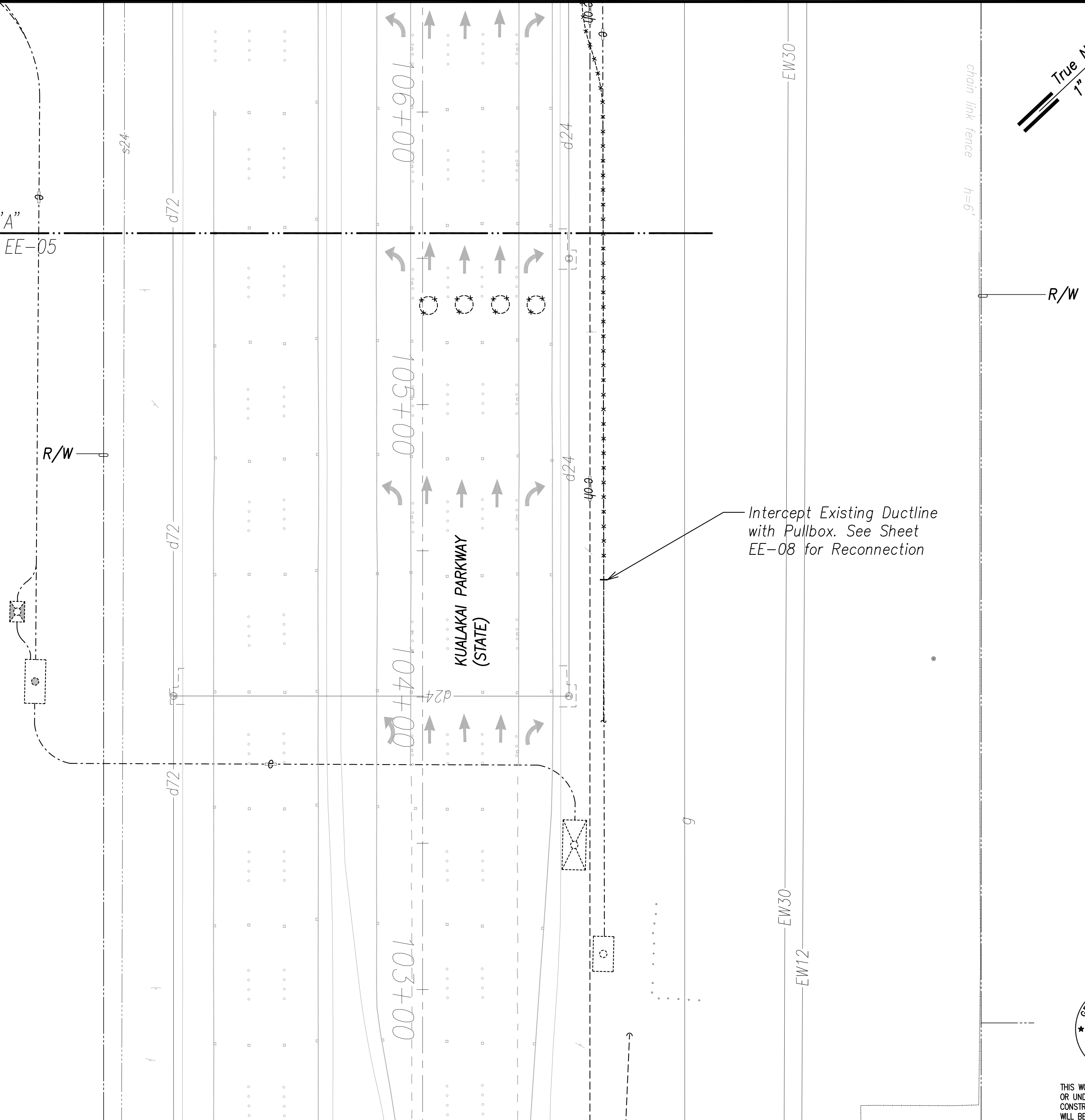
SHEET No. EE-05 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-06	790



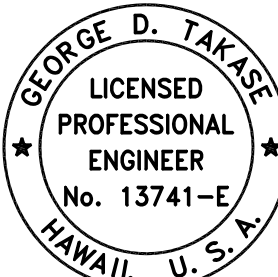

Matchline "A"
See Sheet EE-05



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

FILE: Z:\Mcd\Projects\220679A\EE06_220679A\KUALAKAI.TS_DEMO_PLAN_02.dwg saved March 1, 2022

Traffic Signal Demo Plan 2 - Kualakai Parkway
Scale: 1" = 20'


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

 SIGNATURE EXPIRATION DATE OF THE LICENSE: April 30, 2024

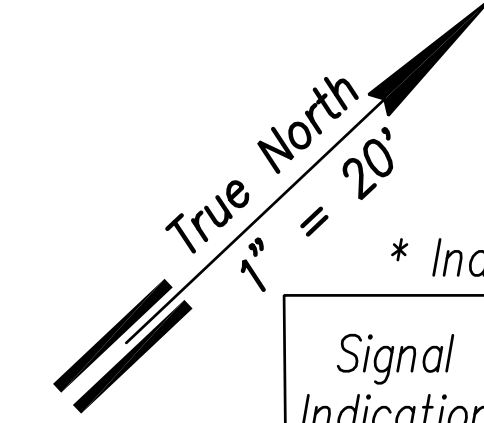
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC SIGNAL DEMO PLAN 2
KUALAKAI PARKWAY
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-06 OF 790 SHEETS

APRIL 2022

Matchline "B"
See Sheet EE-08

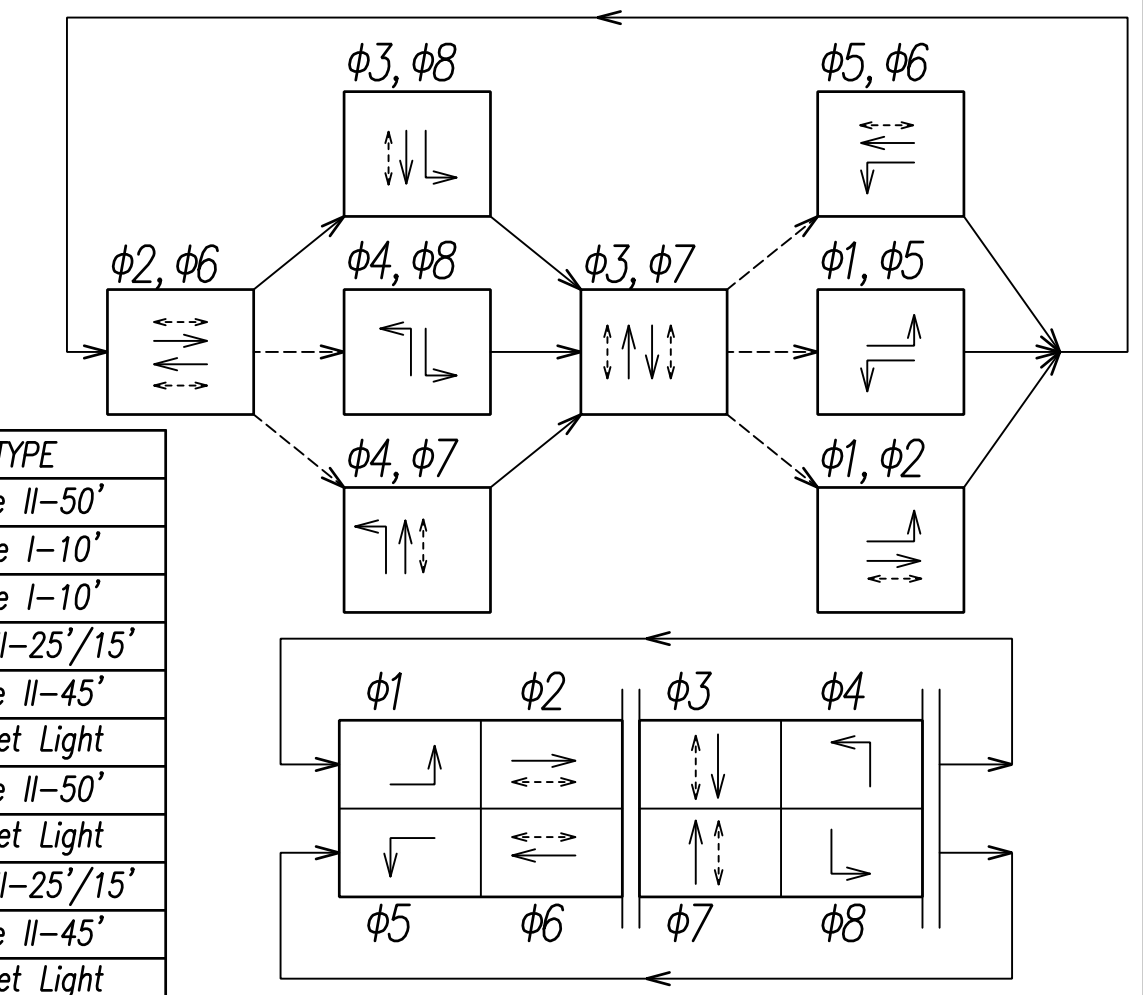
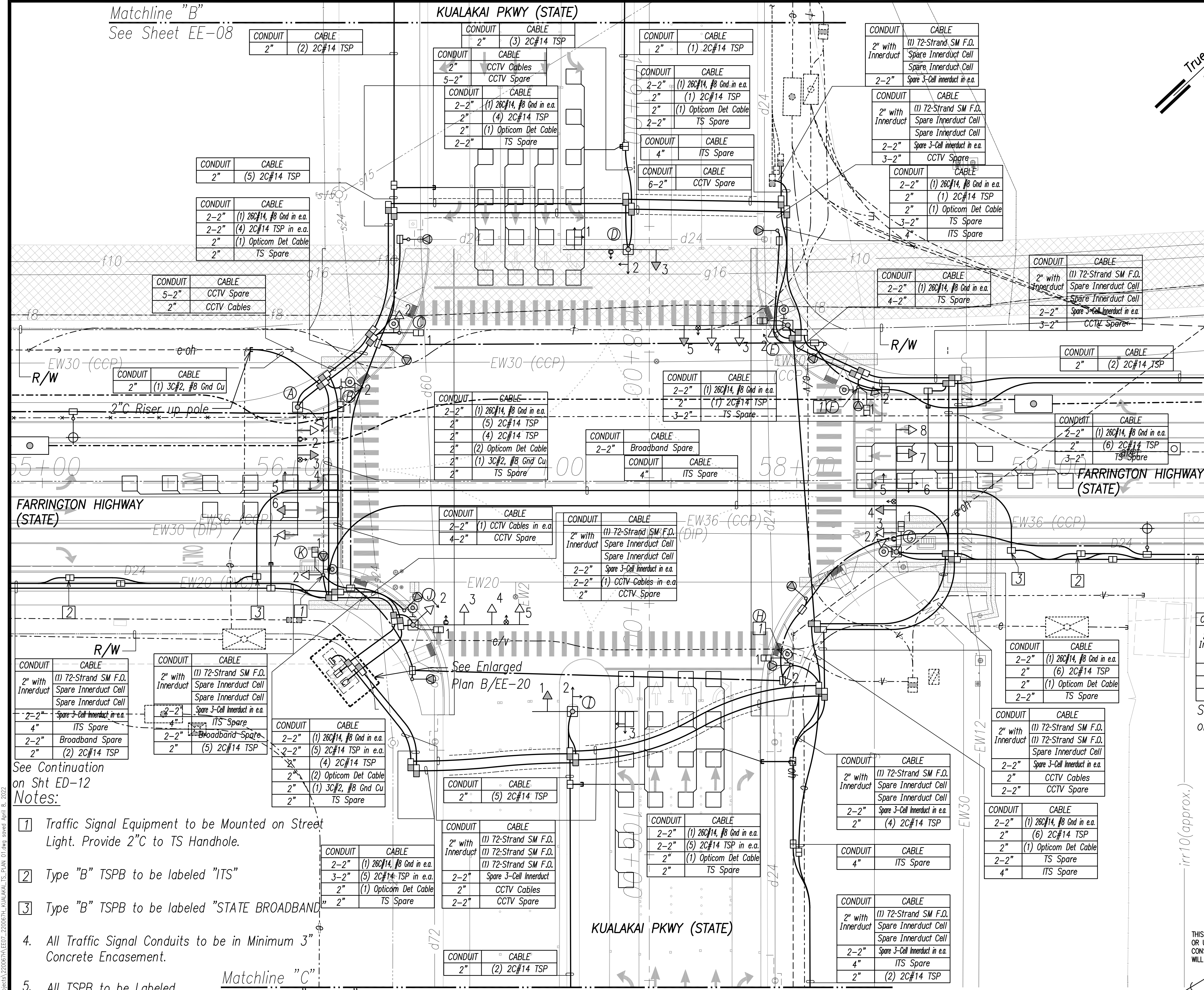
KUALAKAI PKWY (STATE)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-07	790



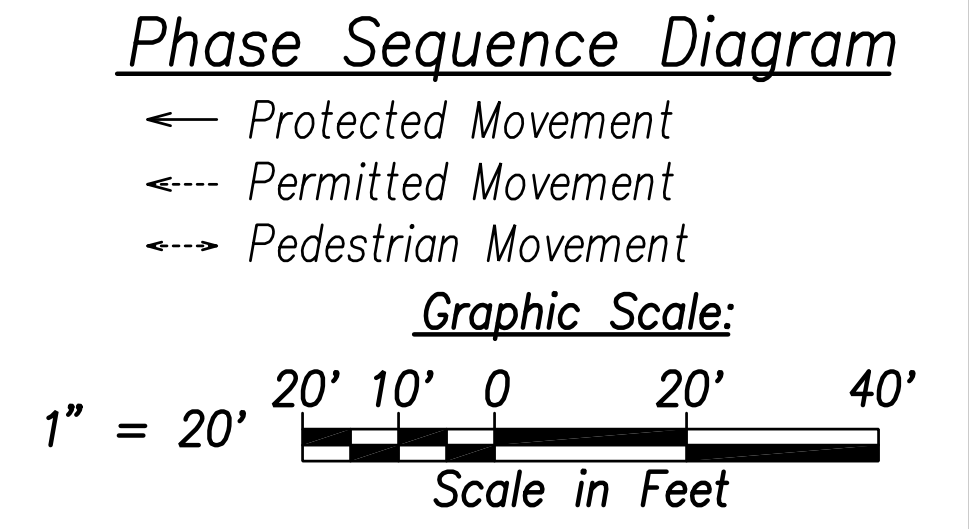
* Indicates Programmed Visibility Signal Head (Non-LED)

Signal Indication	(LED)	(LED)	(LED)	(LED)
Description	12" RYG Ball	12" RYG (Left Arrow)	12" RYG (Str. Arrow)	Pedestrian Signal Head
Pole Letter-Signal Head Number	A-2 J-3 A-7 J-4 C-2 J-5 E-3 K-2 E-4 F-2 G-3 G-8 H-2	A-1 I-3* A-4* J-2 A-5* E-2 D-2* D-1* G-2 G-5* G-6* I-2*	A-3 A-6 D-3 E-5 G-4 G-7 I-1	B-1 C-1 E-1 F-1 G-1 H-1 K-1 J-1



POLE	TYPE
A	Type II-50'
B	Type I-10'
C	Type I-10'
D	Type II-25'/15'
E	Type II-45'
F	Street Light
G	Type II-50'
H	Street Light
I	Type II-25'/15'
J	Type II-45'
K	Street Light

See Continuation on Sht ED-14



See Continuation on Sht ED-12
Notes:

- 1] Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- 2] Type "B" TSPB to be labeled "ITS"
- 3] Type "B" TSPB to be labeled "STATE BROADBAND"
4. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
5. All TSPB to be Labeled "STATE SIGNAL" Unless Otherwise Noted.

Matchline "C"
See Sheet "EE-08"

Traffic Signal Plan 1 - Kualakai Parkway
Scale: 1" = 20'

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

FILE: Z:\Work\Projects\2200679A\ED12\2200679A_KUALAKAI_TS_PLAN_01.dwg saved April 8, 2022

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

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April 30, 2024
EXPIRATION DATE OF THE LICENSE

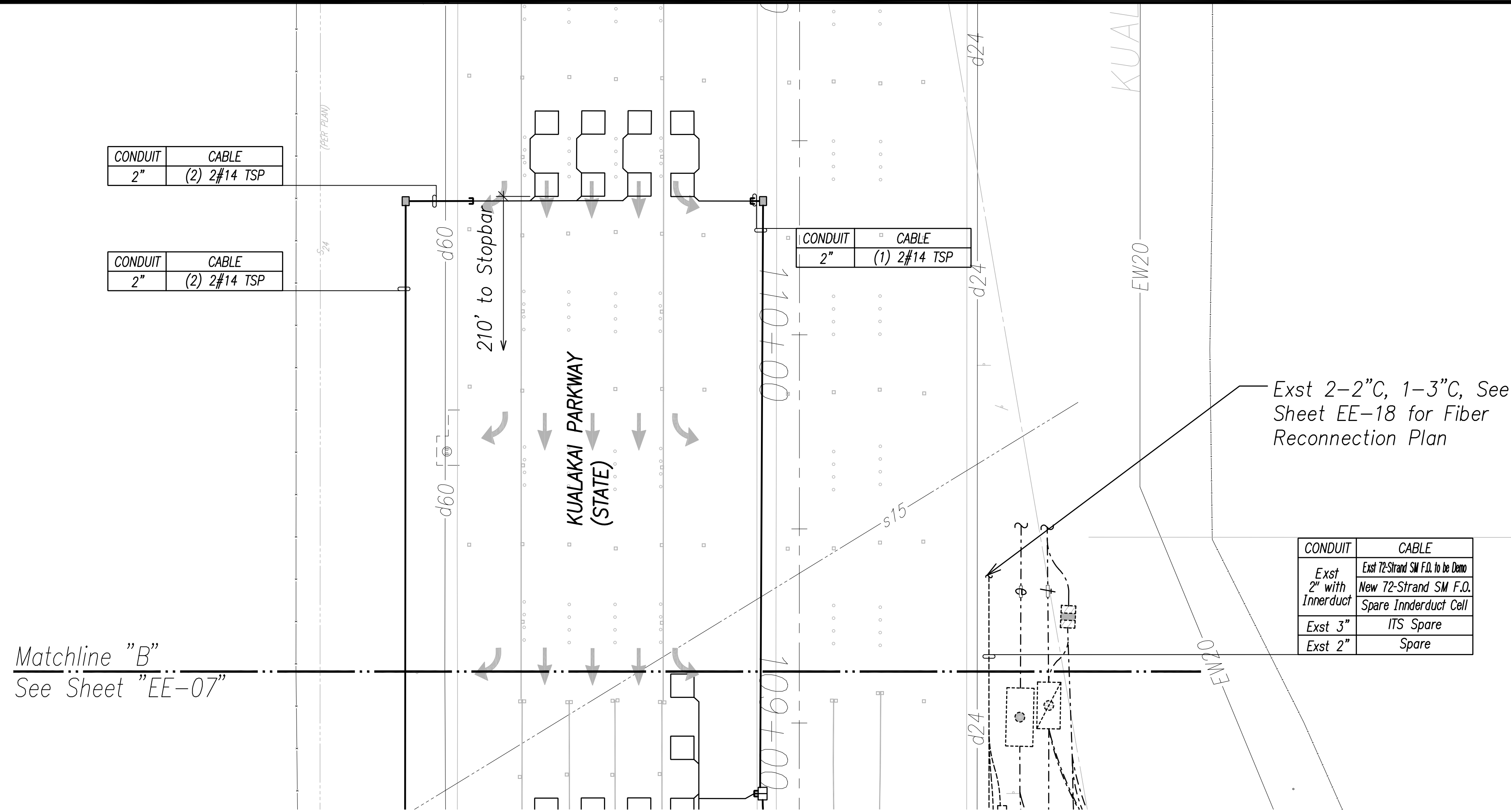
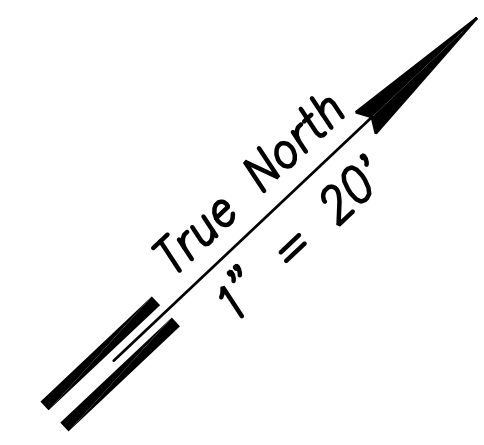
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN 1
KUALAKAI PARKWAY
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022
SHEET No. EE-07 OF 790 SHEETS

APRIL 2022

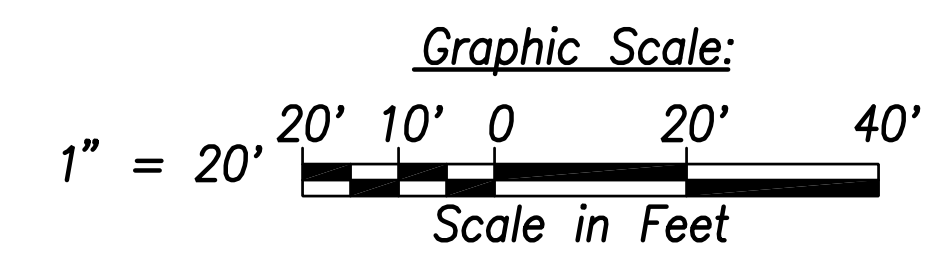
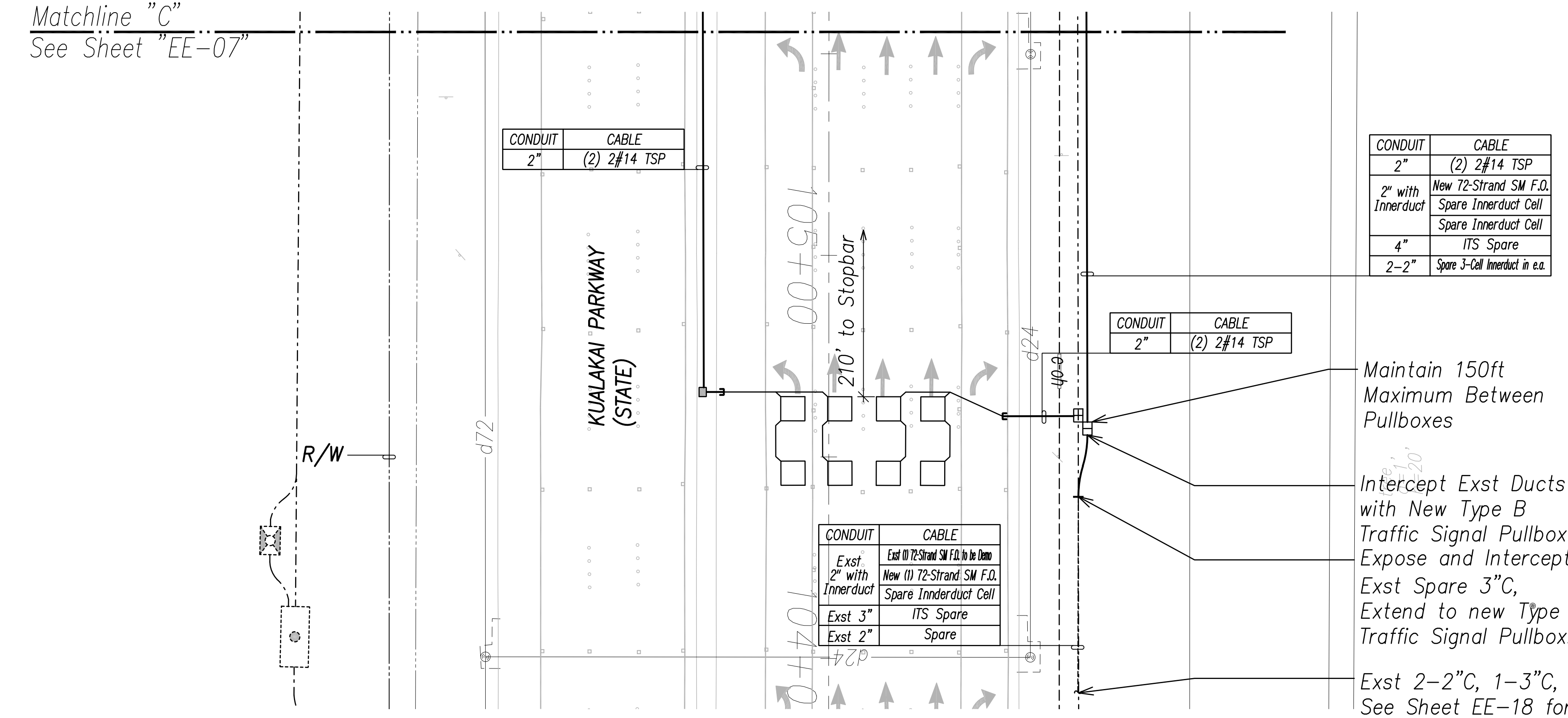
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-08	790



Matchline "B"
See Sheet "EE-07"

Matchline "C"
See Sheet "EE-07"

- Note:**
- All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
 - All Traffic Signal Handholes to be labeled "STATE SIGNAL" Unless Otherwise Noted.



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

FILE: Z:\Mcd\Projects\220679A\EE08_220679A_KUALAKAI_TS_PLAN_02.dwg saved March 7, 2022

Traffic Signal Plan 2 - Kualakai Parkway
Scale: 1" = 20'

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 SIGNATURE:

 EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

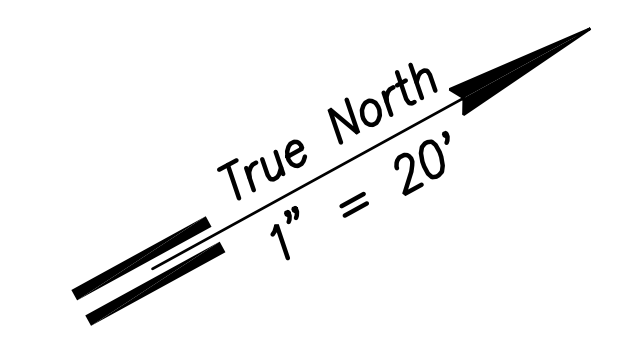
TRAFFIC SIGNAL PLAN 2
KUALAKAI PARKWAY

 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

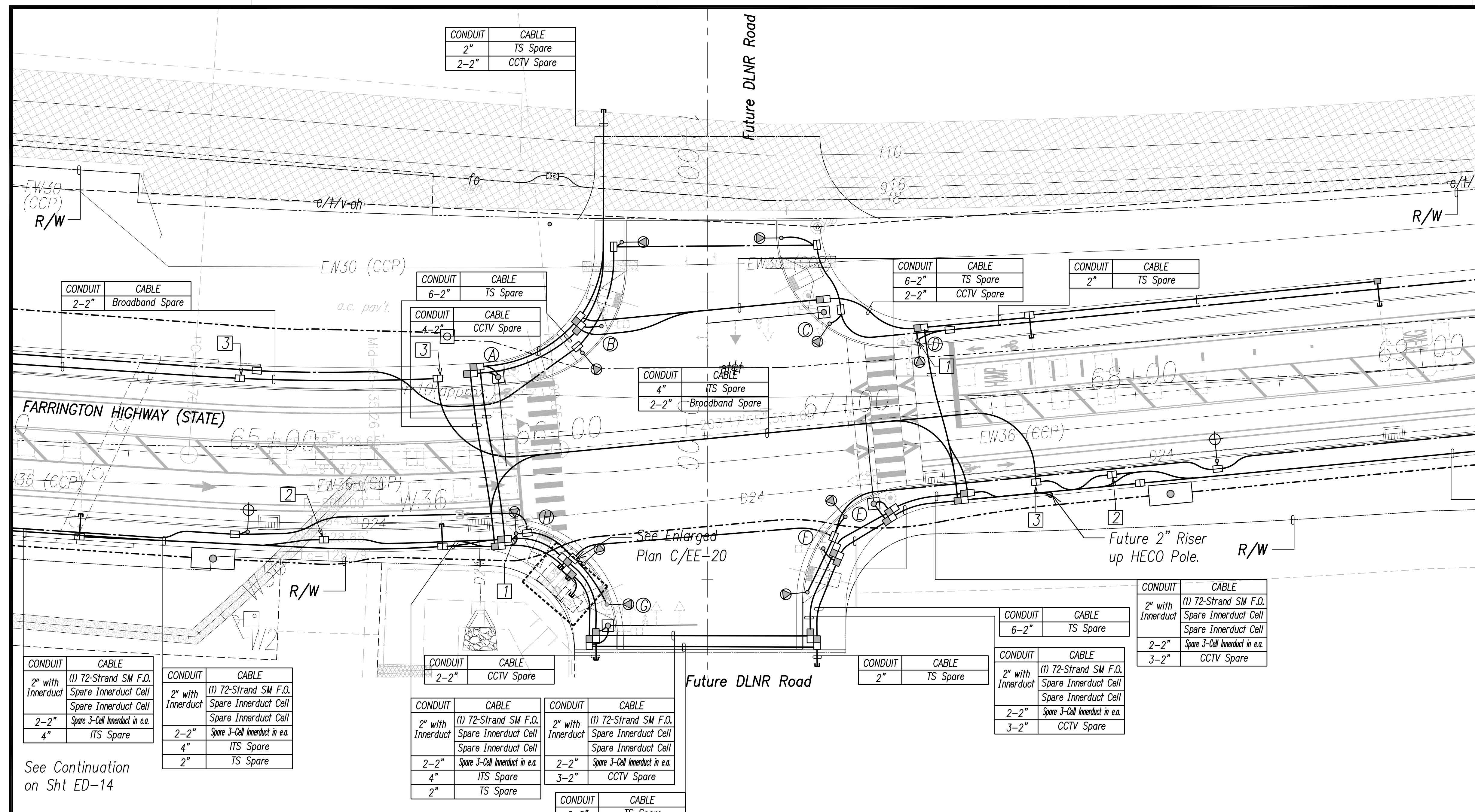
 Scale: As Shown Date: April 2022

SHEET No. EE-08 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-09	790



POLE	TYPE
A	Type II-30'
B	Type I-10'
C	Type II-40'
D	Street Light
E	Type II-30'
F	Type I-10'
G	Type II-30'
H	Street Light



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare J-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-16

CONDUIT	CABLE	CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell	2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare J-Cell Innerduct in e.a.	2-2"	Spare J-Cell Innerduct in e.a.
4"	ITS Spare	4"	ITS Spare
		2"	TS Spare

See Continuation on Sht ED-14

CONDUIT	CABLE	CONDUIT	CABLE
2-2"	CCTV Spare	2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell	2-2"	Spare J-Cell Innerduct in e.a.
2-2"	Spare J-Cell Innerduct in e.a.	2-2"	Spare J-Cell Innerduct in e.a.
4"	ITS Spare	3-2"	CCTV Spare
2"	TS Spare		

CONDUIT	CABLE
6-2"	TS Spare
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare J-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell Spare Innerduct Cell
2-2"	Spare J-Cell Innerduct in e.a.
3-2"	CCTV Spare

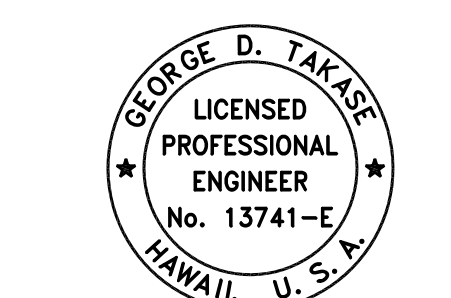
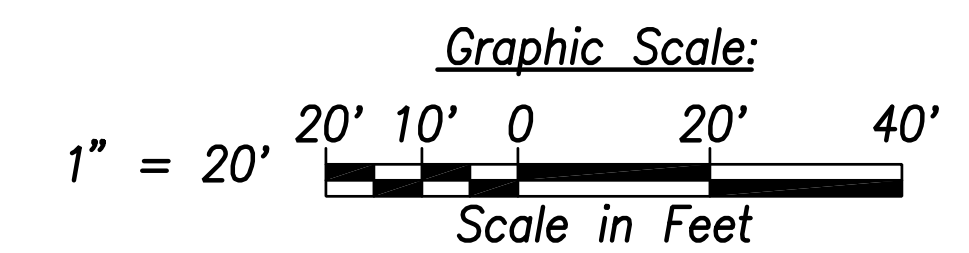
Notes:

- 1 Future Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- 2 Type "B" TSPB to be labeled "ITS"
- 3 Type "B" TSPB to be labeled "STATE BROADBAND"
4. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
5. All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

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FILE: Z:\Work\Projects\220679A\ED09_220679A\INTERSECTION F.dwg saved April 8, 2022

Traffic Signal Plan - Intersection F
Scale: 1" = 20'



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 Signature: [Handwritten Signature]
 Date: April 30, 2022
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

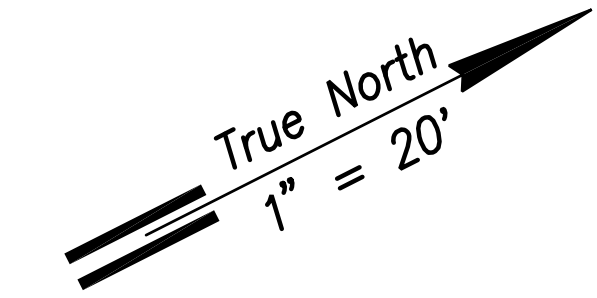
**TRAFFIC SIGNAL PLAN
 INTERSECTION F**
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

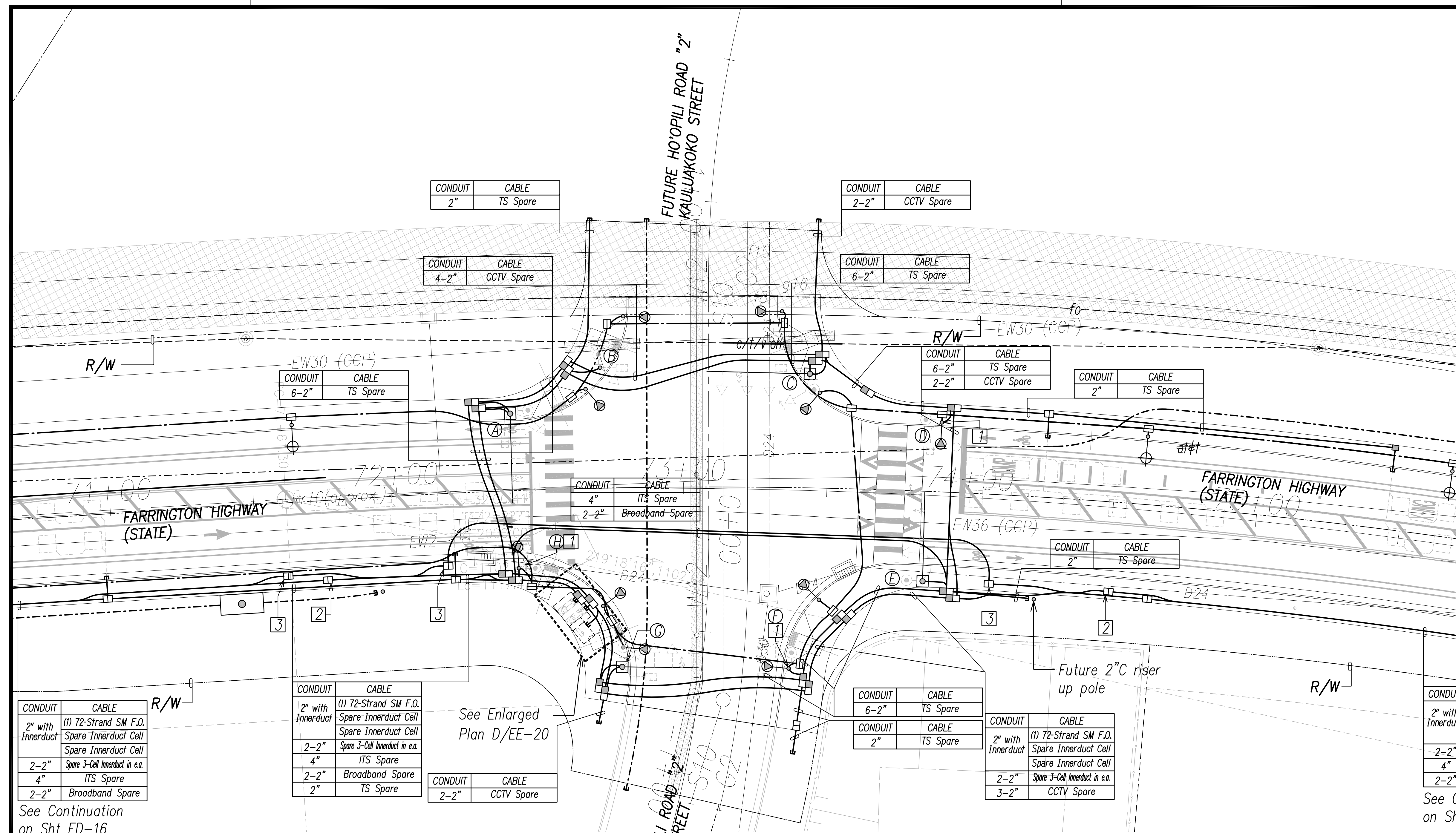
SHEET No. EE-09 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-10	790



POLE	TYPE
A	Type II-30'
B	Type I-10'
C	Type II-35'
D	Street Light
E	Type II-30'
F	Street Light
G	Type II-25'
H	Street Light



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	ITS Spare
2-2"	Broadband Spare
2"	TS Spare

CONDUIT	CABLE
2-2"	CCTV Spare

See Enlarged Plan D/EE-20

CONDUIT	CABLE
6-2"	TS Spare
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

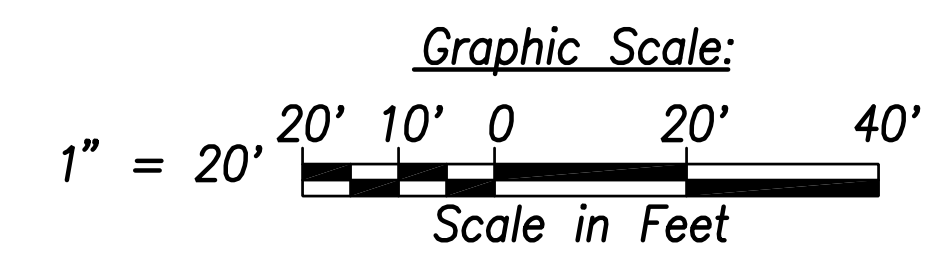
CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare Innerduct Cell
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-18

See Continuation on Sht ED-16

Notes:

- 1 Future Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- 2 Type "B" TSPB to be labeled "ITS"
- 3 Type "B" TSPB to be labeled "STATE BROADBAND"
- 4 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- 5 All TSPB to be labeled "STATE SIGNAL" Unless Otherwise Noted.



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FILE: Z:\Mort\Projects\2200679A\EE10_2200679A_INTERSECTION_G.dwg saved April 8, 2022

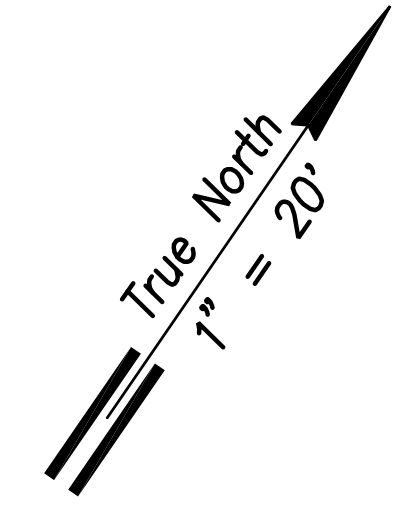
Traffic Signal Plan - Intersection G
Scale: 1" = 20'

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 SIGNATURE: *[Signature]* EXPIRATION DATE OF THE LICENSE: April 30, 2024

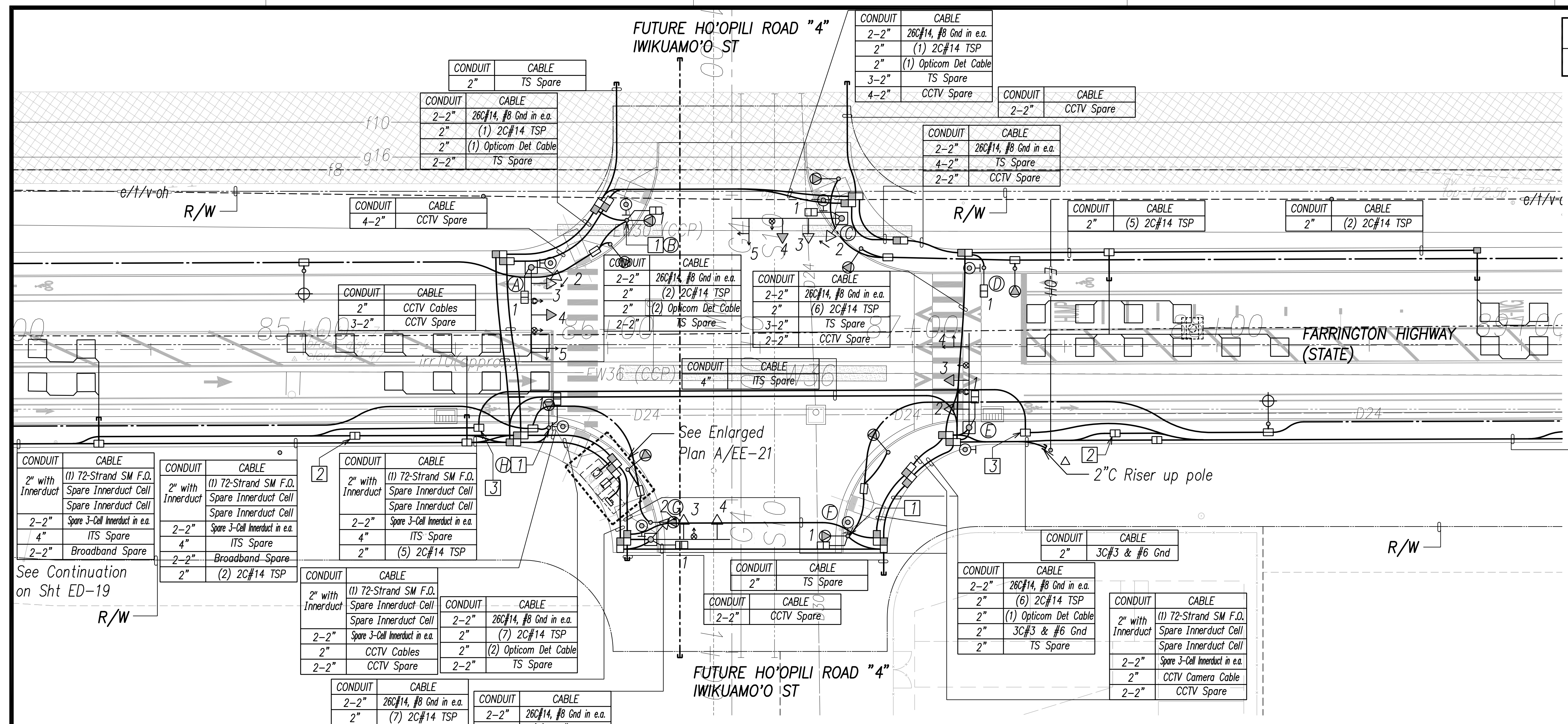
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TAFFIC SIGNAL PLAN INTERSECTION G
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-10 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-11	790



POLE	TYPE
A	Type II-30'
B	Street Light
C	Type II-35'
D	Type I-10'
E	Type II-30'
F	Street Light
G	Type II-25'
H	Street Light



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-19

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare
2"	(2) 2C#14 TSP

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2"	(5) 2C#14 TSP

CONDUIT	CABLE
2-2"	26C#14, #8 Gnd in e.a.
2"	(7) 2C#14 TSP
2"	(2) Opticom Det Cable
2"	3C#3 & #6 Gnd
2"	TS Spare

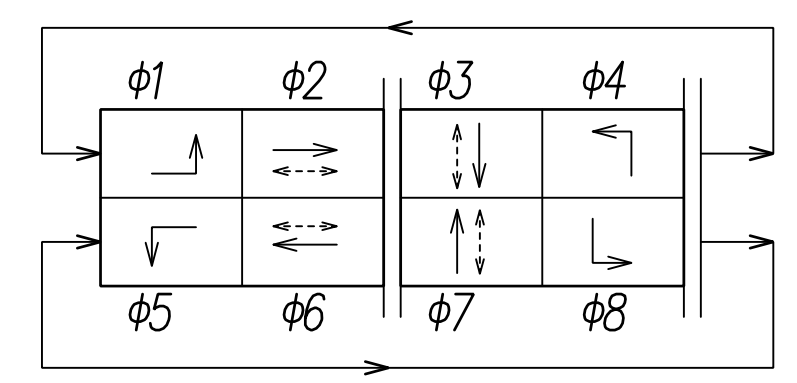
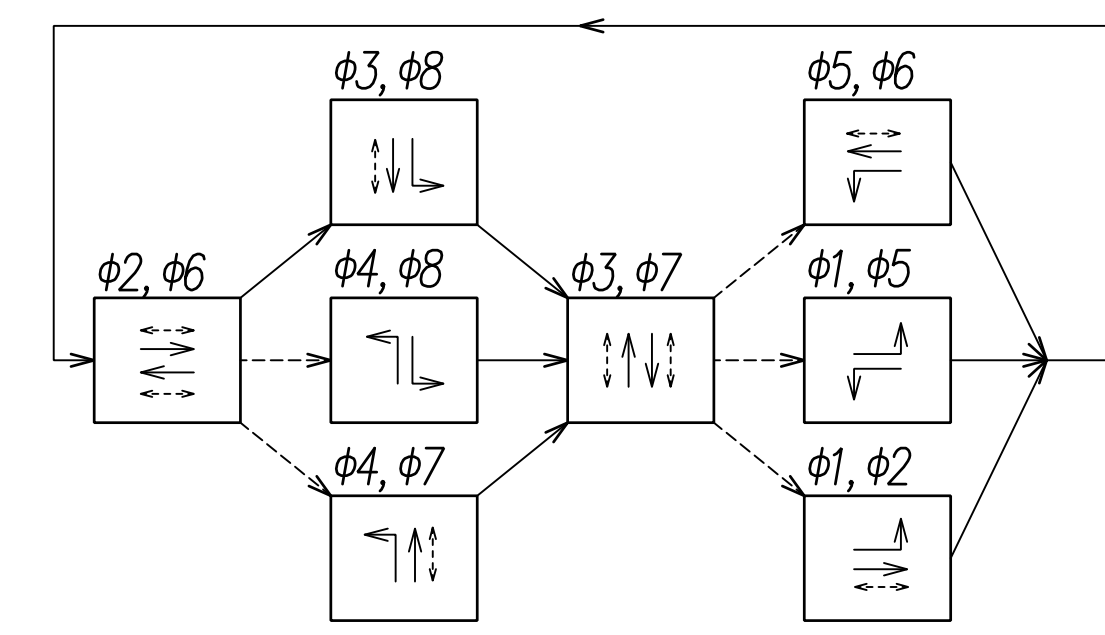
CONDUIT	CABLE
2-2"	26C#14, #8 Gnd in e.a.
2"	(7) 2C#14 TSP
2"	(1) Opticom Det Cable
2"	3C#3 & #6 Gnd
2"	TS Spare

Notes:

- 1 Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- 2 Type "B" TSPB to be labeled "ITS"
- 3 Type "B" TSPB to be labeled "Broadband"
- 4. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- 5. All TSPB to be labeled "STATE SIGNAL" Unless Noted Otherwise.

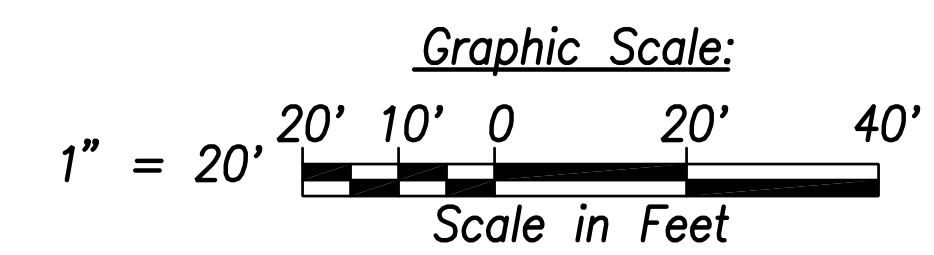
Signal Indication	(LED)	(LED)	(LED)	(LED)
Description	12" RYG Ball	12" RYG (Left Arrow)	12" RYG (Str. Arrow)	Pedestrian Signal Head
Pole Letter-Signal Head Number	A-3 C-3 E-2 G-3 G-4	A-2 A-5* C-2 C-5* E-4* G-2	A-4 C-4 E-3	A-1 H-1 B-1 C-1 D-1 E-1 F-1 G-1

* Indicates Programmed Visibility Signal Head (Non-LED)



Phase Sequence Diagram

- Protected Movement
- > Permitted Movement
- Pedestrian Movement



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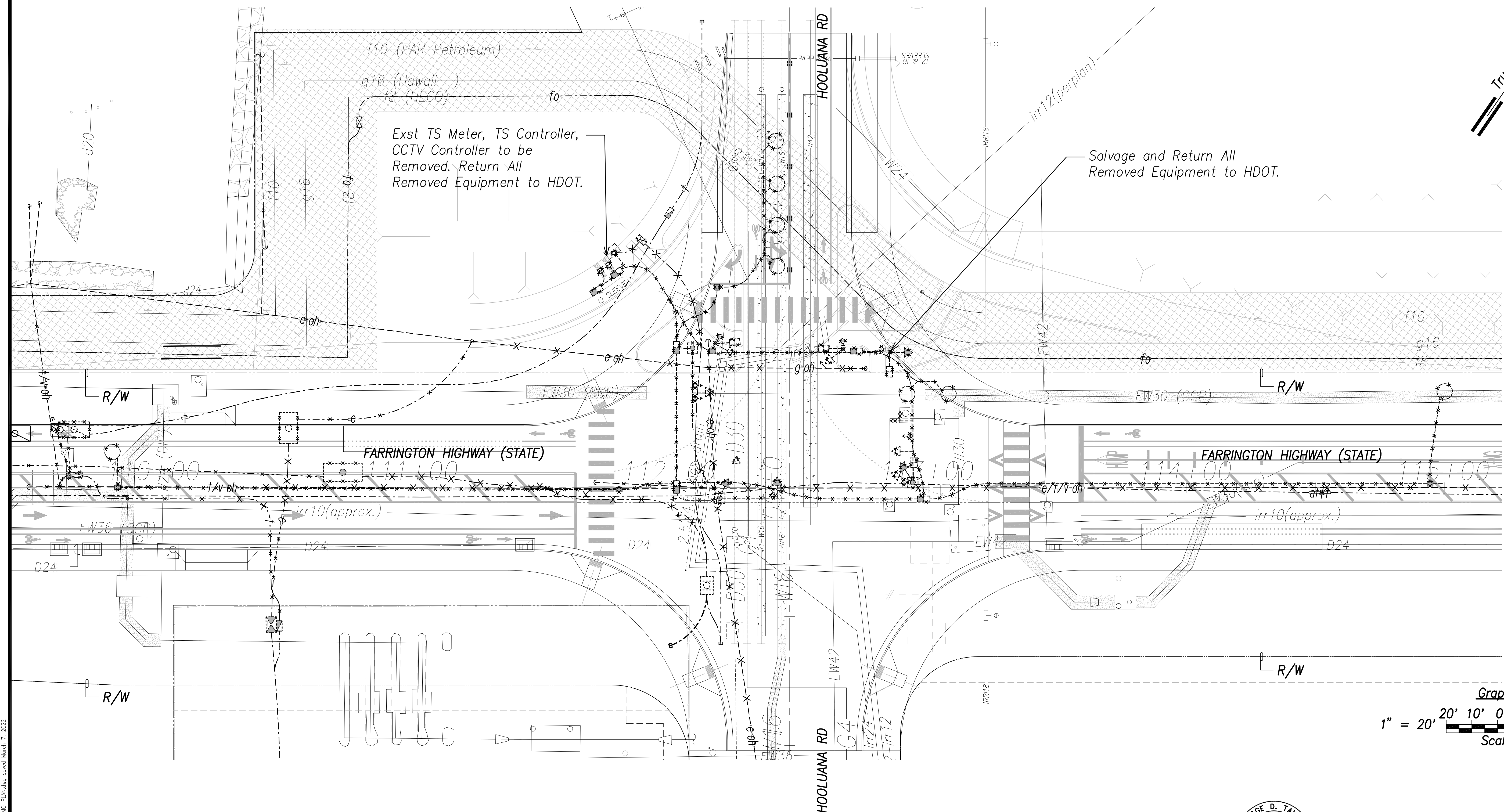
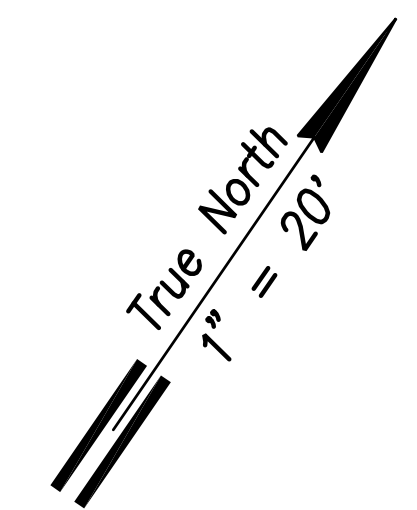
Traffic Signal Plan - Intersection H
Scale: 1" = 20'

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
INTERSECTION H
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-11 OF 790 SHEETS

APRIL 2022

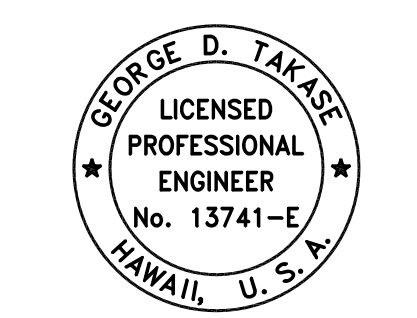
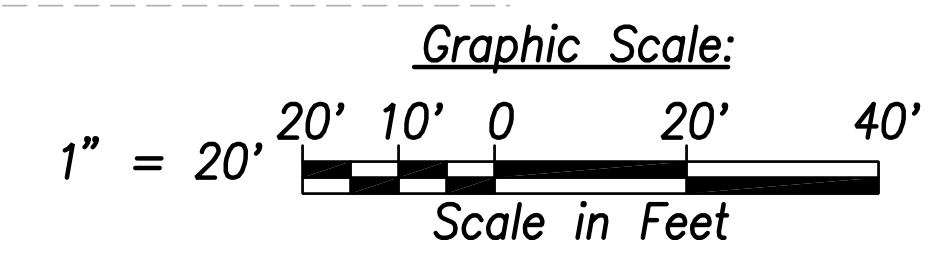
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-13	790



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ORIGINAL PLAN NOTE BOOK No.	

FILE: Z:\Acad\Projects\2200679A\EE13_2200679A\INTERSECTION K_DEMO_PLAN.dwg saved March 7, 2022

Traffic Signal Demo Plan – Intersection K
Scale: 1" = 20'



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[Signature]
SIGNATURE
April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

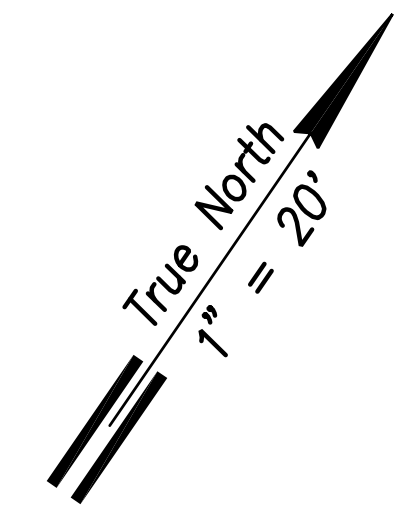
TRAFFIC SIGNAL DEMO PLAN
INTERSECTION K
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

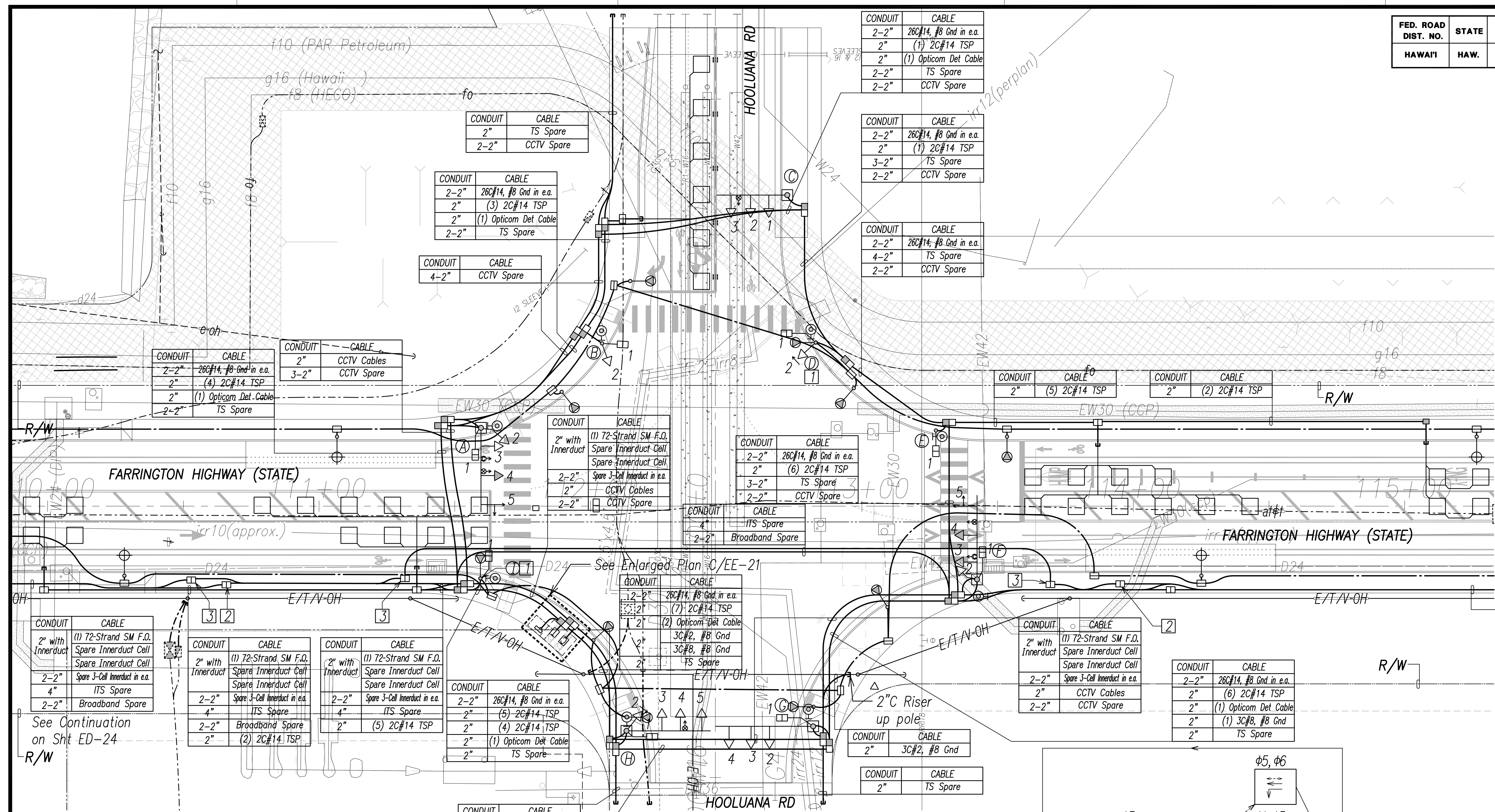
SHEET No. EE-13 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-14	790



POLE	TYPE
A	Type II-30'
B	Type I-10'
C	Type II-25'
D	Street Light
E	Type I-10'
F	Type II-30'
G	Type II-35'
H	Type II-30'
I	Street Light

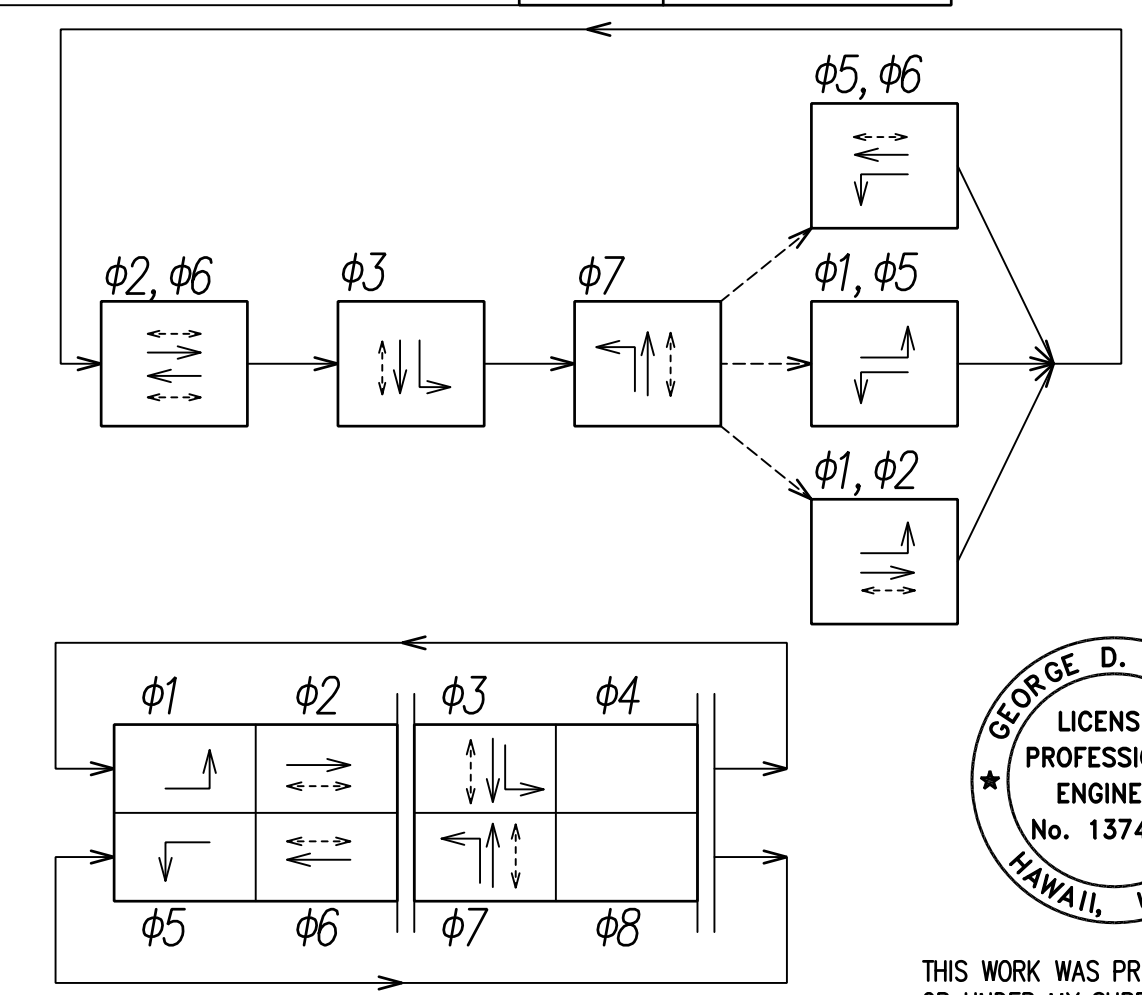


- Notes:**
- 1 Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
 - 2 Type "B" TSPB to be labeled "ITS"
 - 3 Type "B" TSPB to be labeled "STATE BROADBAND"
 4. All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
 5. All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

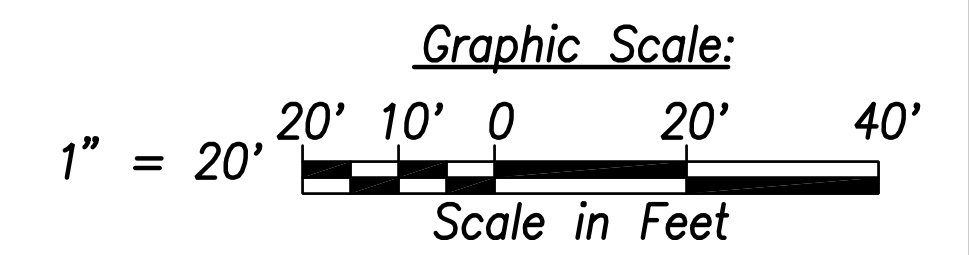
CONDUIT	CABLE
2-2"	CCTV Spare
2-2"	26C#14, #8 Gnd in e.a.
2"	(7) 2C#14 TSP
2"	(1) Opticom Det Cable
2"	3C#2, #8 Gnd
2"	3C#8, #8 Gnd
2"	TS Spare

Signal Indication	(LED)	(LED)	(LED)	(LED)
Description	12" RYG Ball	12" RYG (Left Arrow)	12" RYG (Str. Arrow)	Pedestrian Signal Head
Pole Letter-Number	A-2 G-2 A-3 G-3 B-2 G-4 C-1 H-3 C-2 H-4 C-3 H-5 F-2 F-3	A-5* D-2 F-5*	A-4 F-4	A-1 I-1 B-1 D-1 E-1 F-1 G-1 H-1

* Indicates Programmed Visibility Signal Head
Traffic Signal Plan - Intersection K
 Scale: 1" = 20'

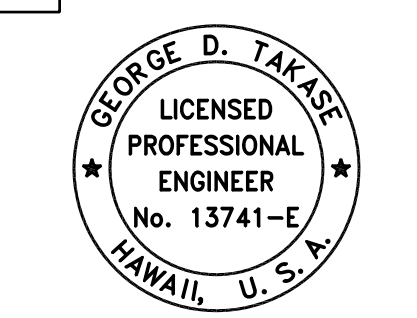


Phase Sequence Diagram
 → Protected Movement
 ⇄ Permitted Movement
 ⇄⇄ Pedestrian Movement



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 SIGNATURE: [Signature]
 EXPIRATION DATE OF THE LICENSE: April 30, 2024

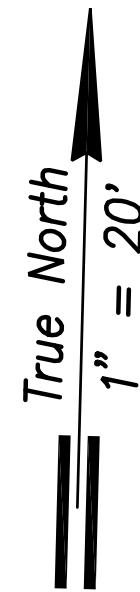
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL PLAN
 INTERSECTION K**
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

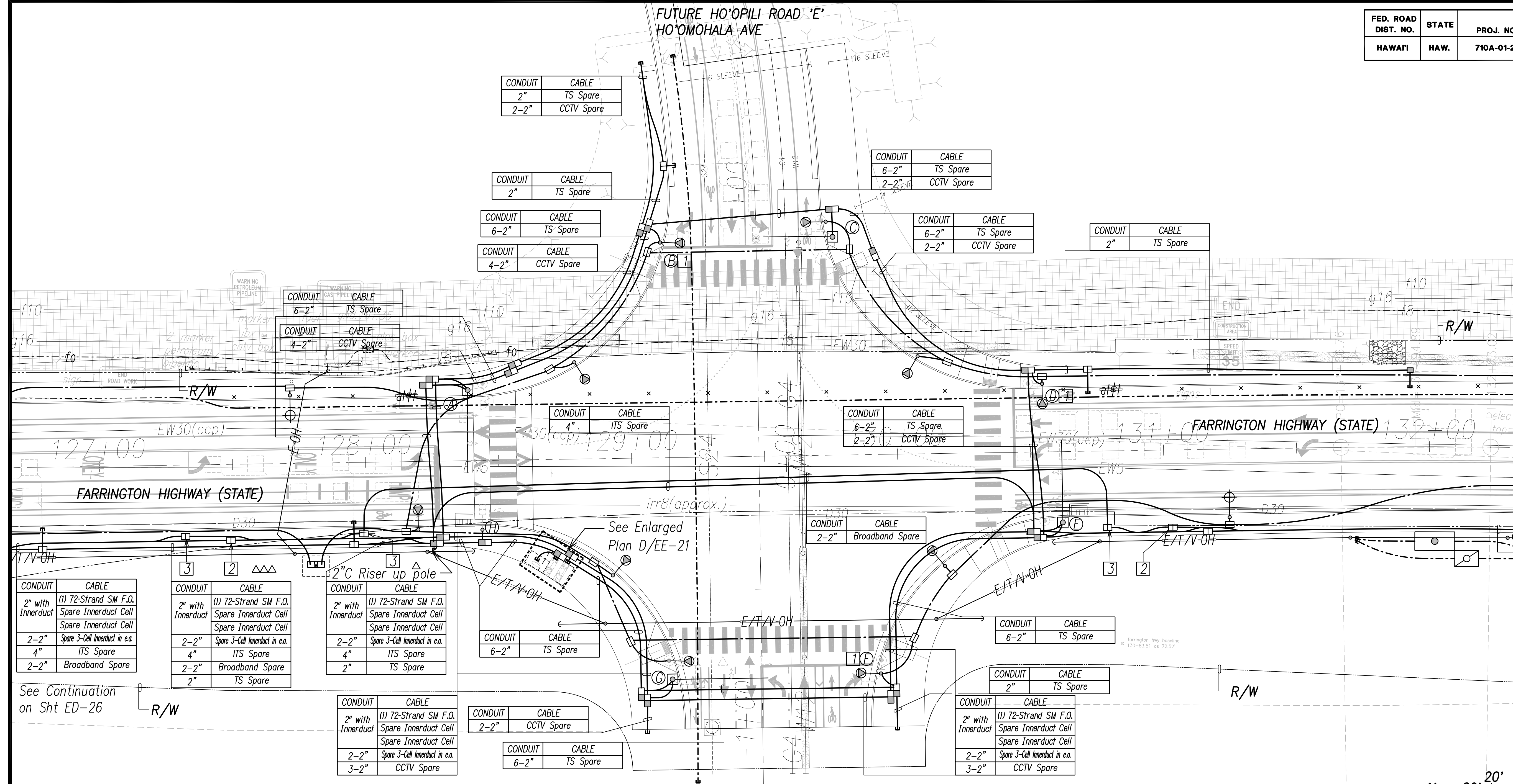
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SHEET No. EE-14 OF 790 SHEETS

APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-15	790



POLE	TYPE
A	Type II-30'
B	Street Light
C	Type II-25'
D	Street Light
E	Type II-30'
F	Street Light
G	Type II-35'
H	Type I-10'



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
2"	TS Spare

CONDUIT	CABLE
6-2"	TS Spare

CONDUIT	CABLE
2-2"	Broadband Spare

CONDUIT	CABLE
6-2"	TS Spare

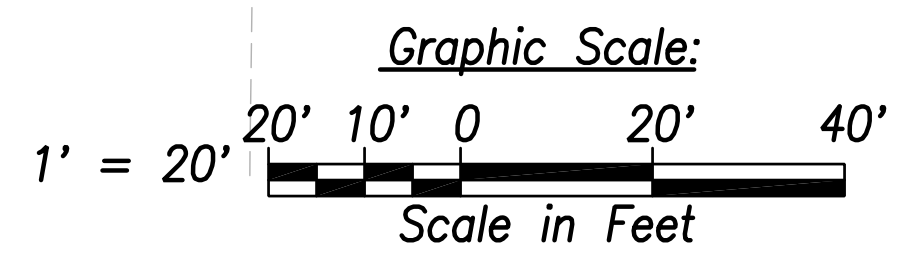
CONDUIT	CABLE
2"	TS Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-26

See Continuation on Sht ED-27



Notes:

- Future Traffic Signal Equipment to be Mounted on Street Light. Provide 2"C to TS Handhole.
- Type "B" TSPB to be labeled "ITS"
- Type "B" TSPB to be labeled "Broadband"
- All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

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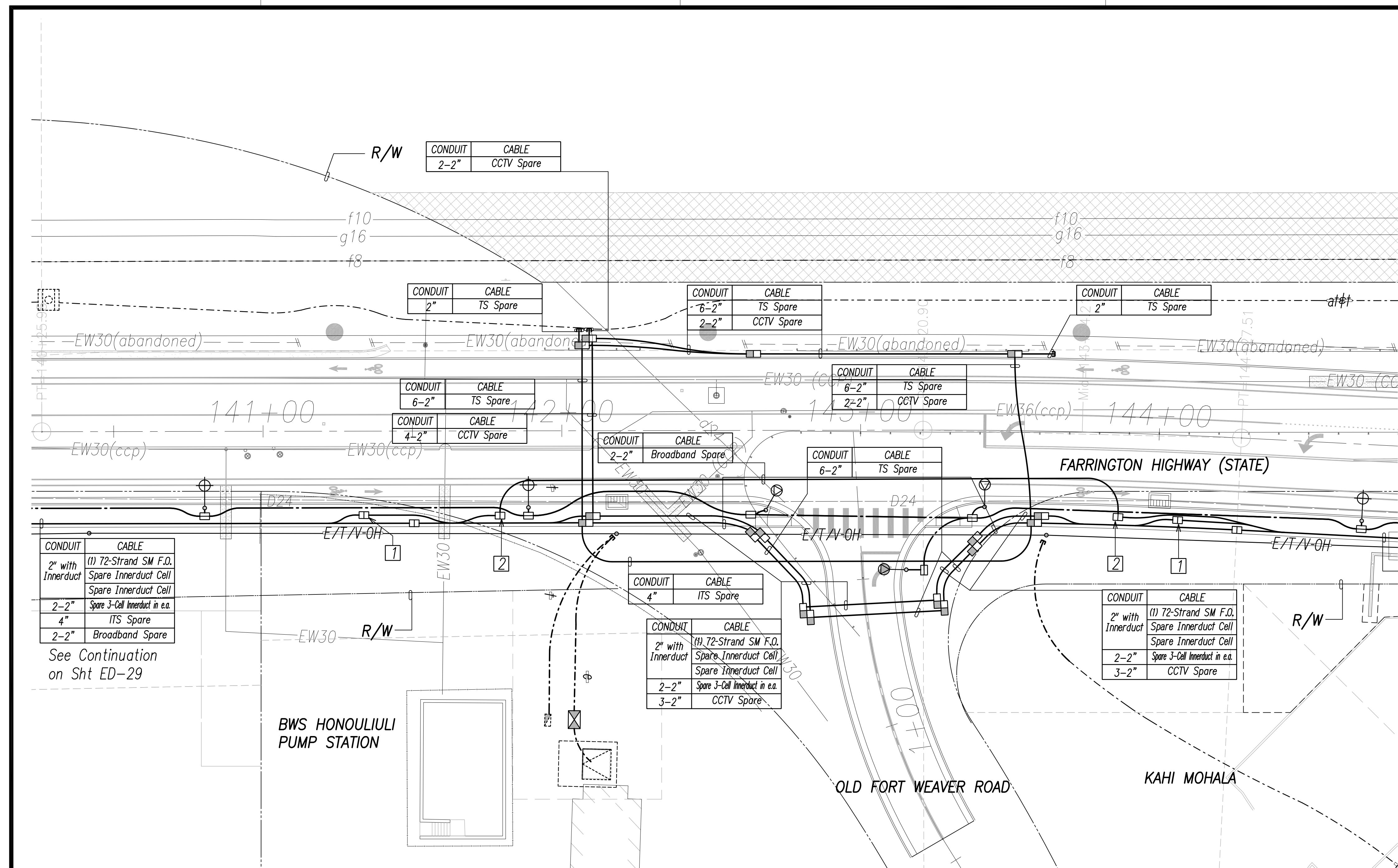
Traffic Signal Plan - Intersection L
Scale: 1' = 20'

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
INTERSECTION L
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-15 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-16	790

True North
1" = 20'



CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-29

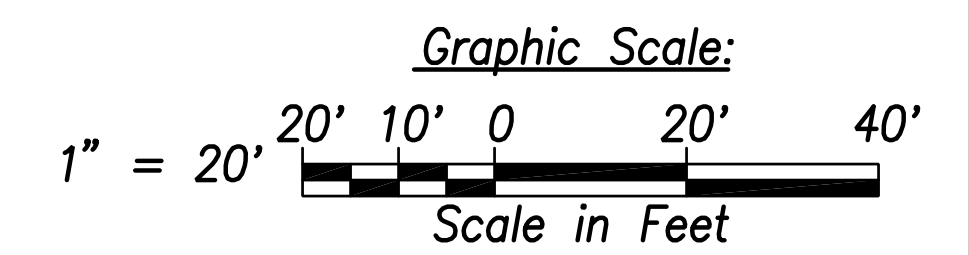
BWS HONOULIULI PUMP STATION

CONDUIT	CABLE
4"	ITS Spare
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
3-2"	CCTV Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

CONDUIT	CABLE
2" with Innerduct	(1) 72-Strand SM F.O. Spare Innerduct Cell
2-2"	Spare 3-Cell Innerduct in e.a.
4"	ITS Spare
2-2"	Broadband Spare

See Continuation on Sht ED-29



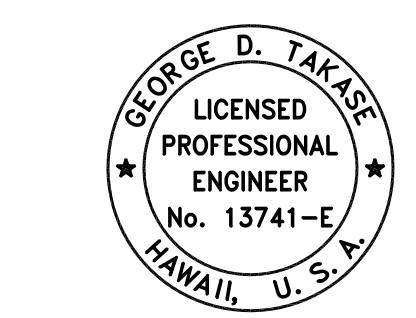
Notes:

- 1 Type "B" TSPB to be labeled "ITS"
- 2 Type "B" TSPB to be labeled "STATE BROADBAND"
- 3 All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- 4 All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

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Traffic Signal Plan - Kahi Mohala
Scale: 1" = 20'



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Signature: [Signature]
Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

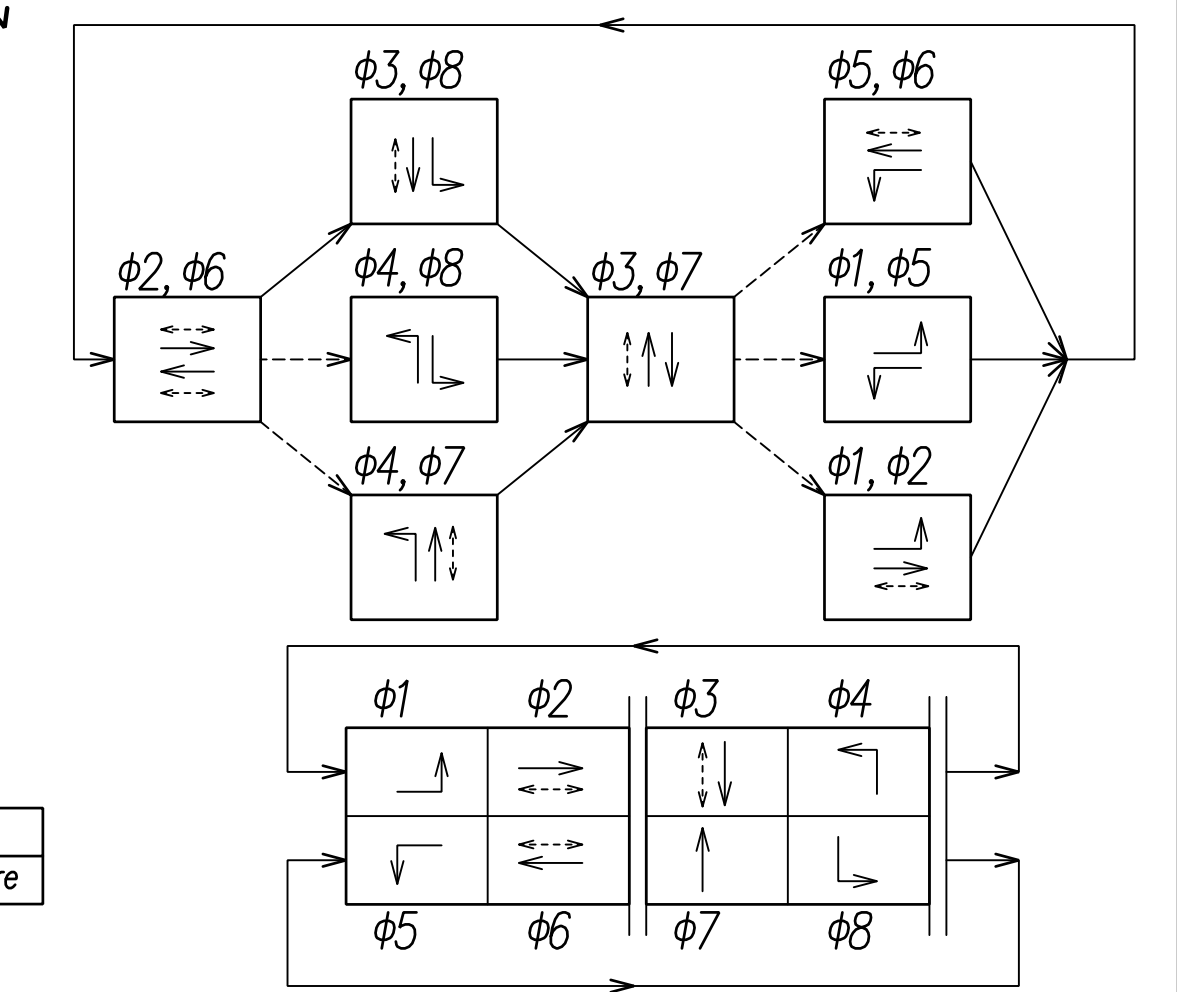
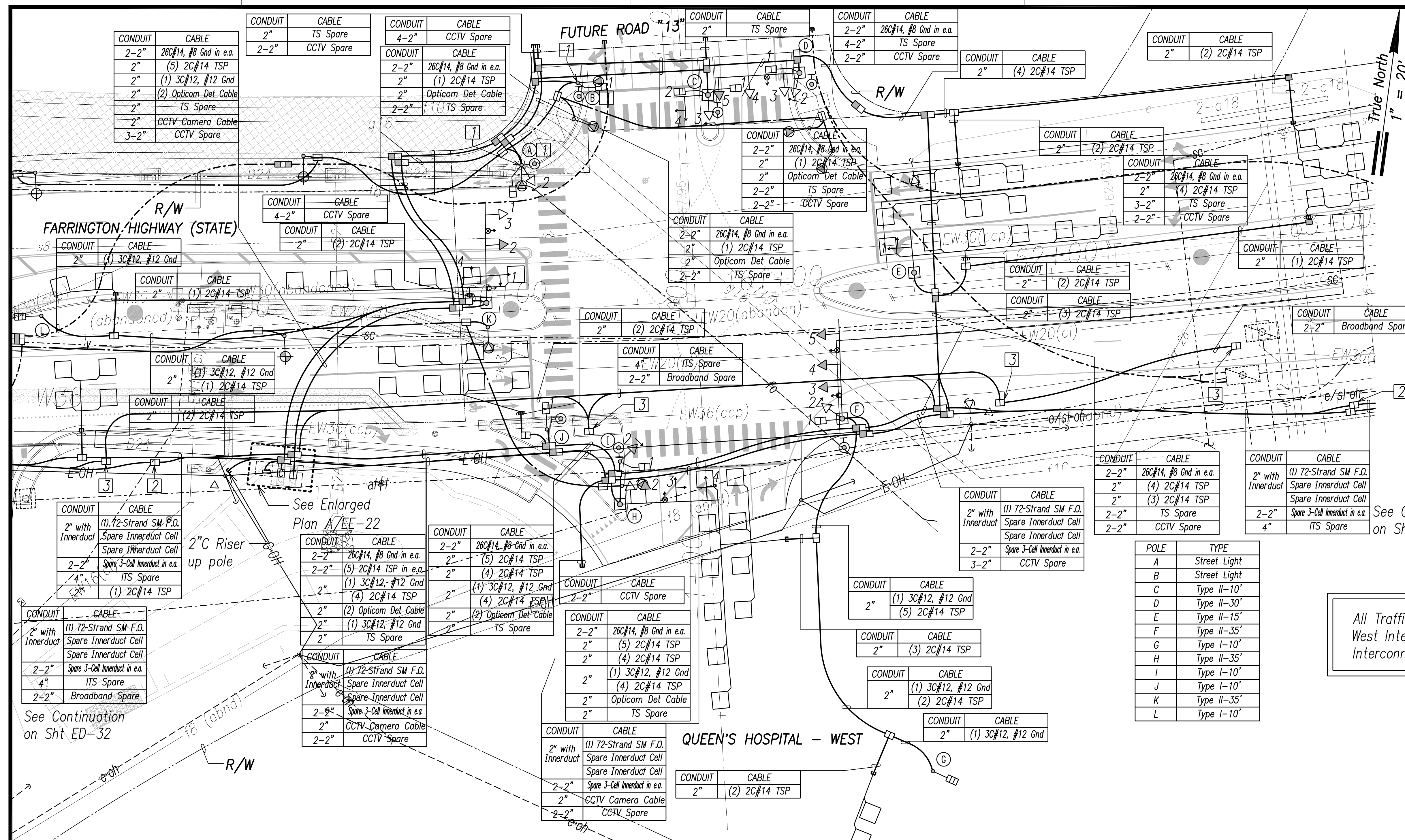
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
KAHI MOHALA
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022
SHEET No. EE-16 OF 790 SHEETS

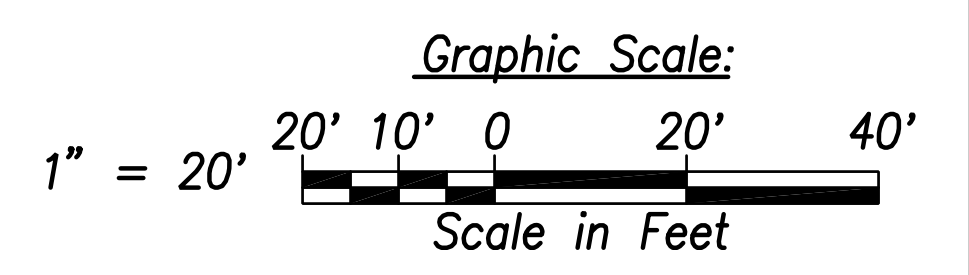
APRIL 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-17	790



Phase Sequence Diagram
 → Protected Movement
 - - - Permitted Movement
 ···· Pedestrian Movement

All Traffic Signal Work to be Part of the Queen's West Intersection Work. CCTV, Broadband, and Interconnect to be Part of Base Bid Work.



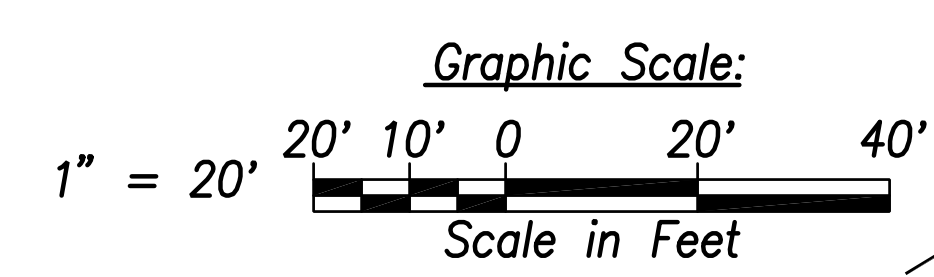
Notes:

- Future Traffic Signal Equipment to be Mounted on Street Light. Provide 2" C to TS Handhole.
- Type "B" TSPB to be labeled "ITS"
- Type "B" TSPB to be labeled "STATE BROADBAND"
- All Traffic Signal Conduits to be in Minimum 3" Concrete Encasement.
- All TSPB to be Labeled "STATE SIGNAL" Unless Noted Otherwise.

Signal Indication	(LED)	(LED)	(LED)	(LED)
Description	12" RYG Ball	12" RYG (Left Arrow)	12" RYG (Str. Arrow)	Pedestrian Signal Head
Pole Letter-Signal Head Number	D-3 D-4 H-1 K-3	A-2 H-3* C-3 H-4* C-4* I-2 D-2 K-1* E-1* K-4* F-2	D-5 F-3 F-4 F-5 H-2 K-2	D-1 B-1 F-1 C-1 I-1 C-2 J-1 A-1

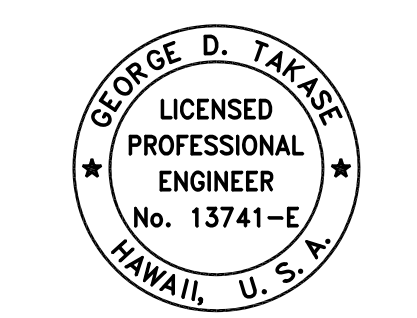
* Indicates Programmed Visibility Signal Head (Non-LED)
Traffic Signal Plan - Intersection M
 Scale: 1" = 20'

Note: Poles (C) and (L) are Type I-10' with Flashing Signal Heads with Sign: "STOP AHEAD WHEN FLASHING"



DATE	_____
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NOTED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

FILE: Z:\Work\Projects\2200679A\ED-17_2200679A_INTERSECTION_Making_samed_April_8_2022



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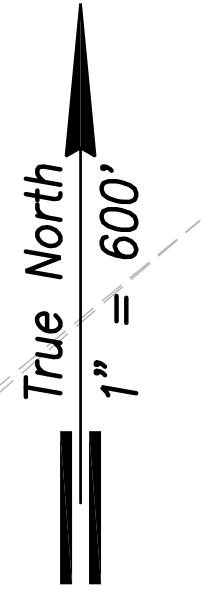
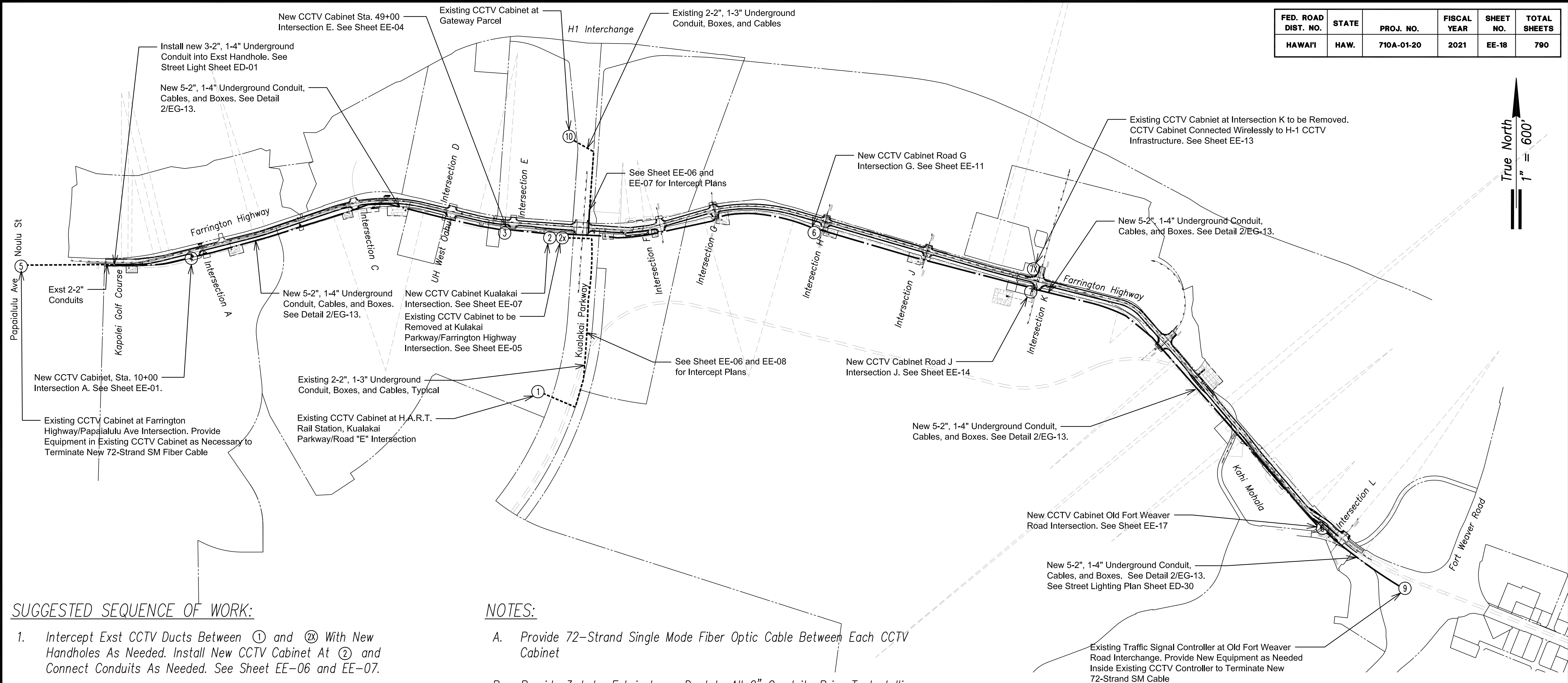
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL PLAN
 INTERSECTION M**

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022
SHEET No. EE-17 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-18	790

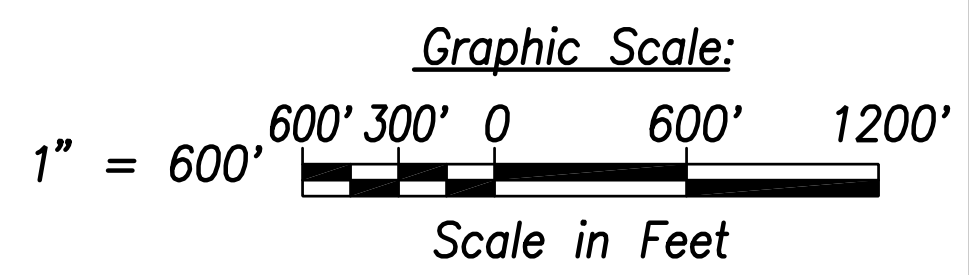


SUGGESTED SEQUENCE OF WORK:

- Intercept Exst CCTV Ducts Between ① and ②X With New Handholes As Needed. Install New CCTV Cabinet At ② and Connect Conduits As Needed. See Sheet EE-06 and EE-07.
- Intercept Exst CCTV Ducts Between ②X and ⑩ With New Handholes As Needed. See Sheet EE-08. Install New Conduits As Needed To Connect Cabinet At ⑩ To New Cabinet At ②.
- Install, Test and Verify New 72-Strand SM FOC Between ① and ②. Install, Test and Verify New Cables Between ② and ⑩. Remove Exst Cables Between ① and ②X, and ②X and ⑩. Demo CCTV Cabinet At ②X.
- Install Cabinets and Connecting Infrastructure Between ③ and ⑧. As Shown On Plan Sheets.
- Install, Test, and Verify All New Cables Between ③ and ⑧.
- Remove Existing Cabinet At ⑦X.

NOTES:

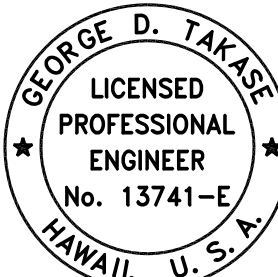
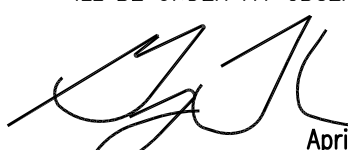
- Provide 72-Strand Single Mode Fiber Optic Cable Between Each CCTV Cabinet
- Provide 3-Lobe Fabric Inner-Duct In All 2" Conduits Prior To Installing Cables. Spare 2" Conduits with no Cables to have Spare 3-Lobe Fabric Inner-Duct Installed.
- Minimize Outage On The Existing Fiber Optic Cable, Maximum 8hrs.
- (2) New Traffic Signal Type B Boxes Shall be Installed as Shown on Street Light Sheets ED-01 Through ED-30. Two Type B Boxes to Be Installed one for the 3-2" Conduits with 3-Cell Innerduct in Each, and one for the 1-4" ITS Conduit. 150ft Maximum Run Between Boxes.



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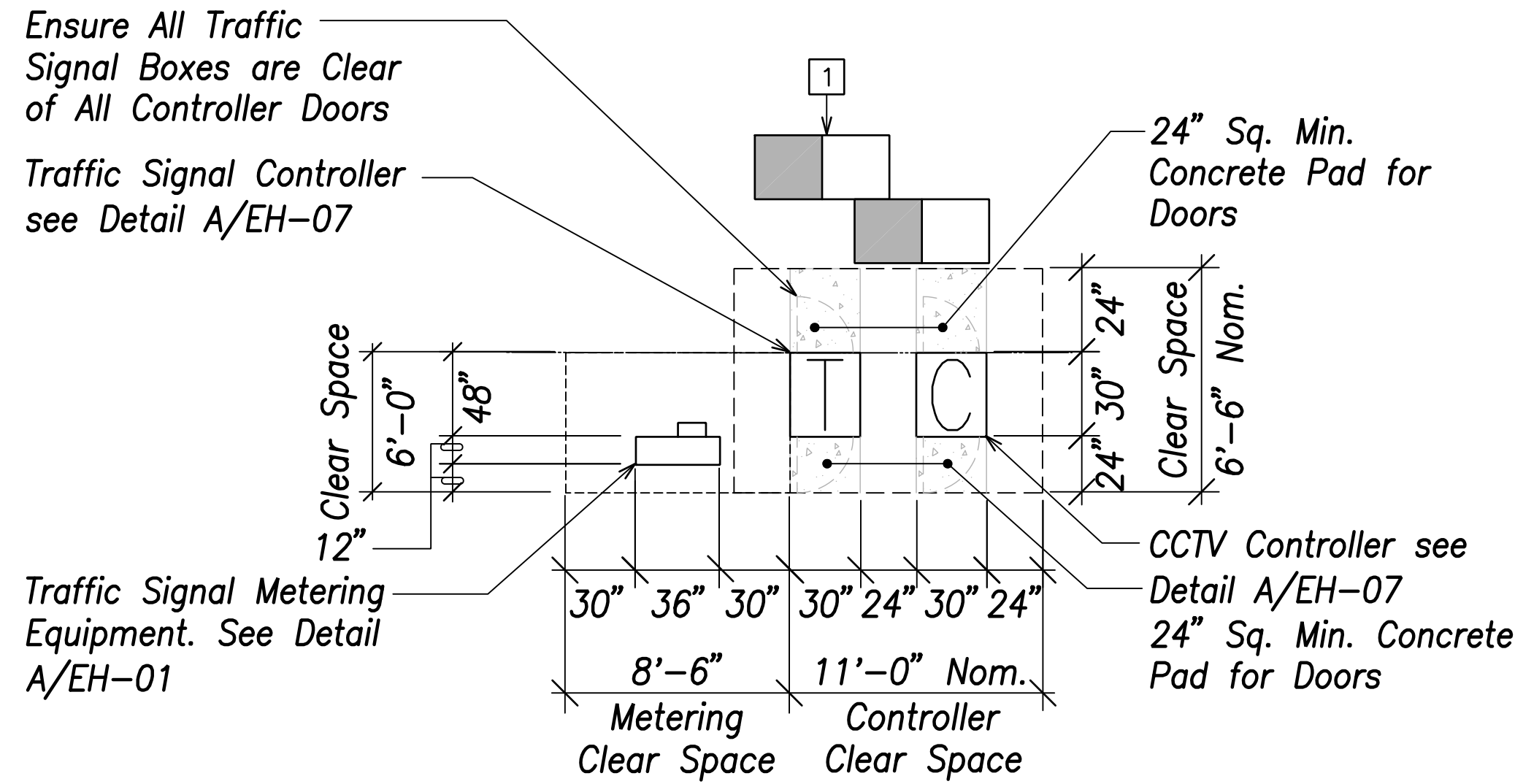
FILE: Z:\Acad\Projects\220067H\FIBER-CONNECTION_PLAN.dwg saved March 7, 2022

Fiber Optic/Interconnect Connection Plan
Scale: 1" = 600'


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 SIGNATURE APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

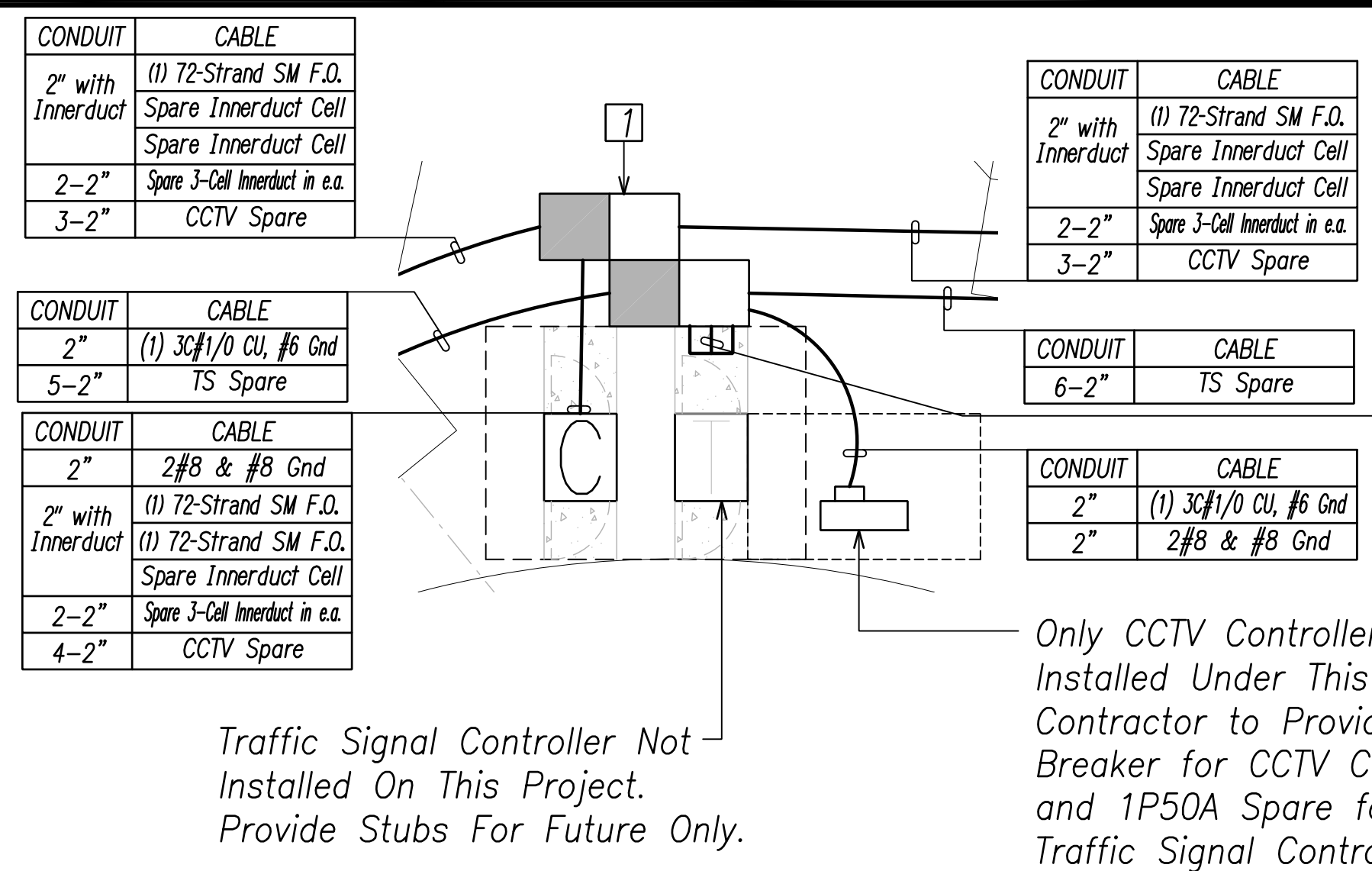
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
FIBER OPTIC/INTERCONNECT CONNECTION PLAN
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-18 OF 790 SHEETS

APRIL 2022



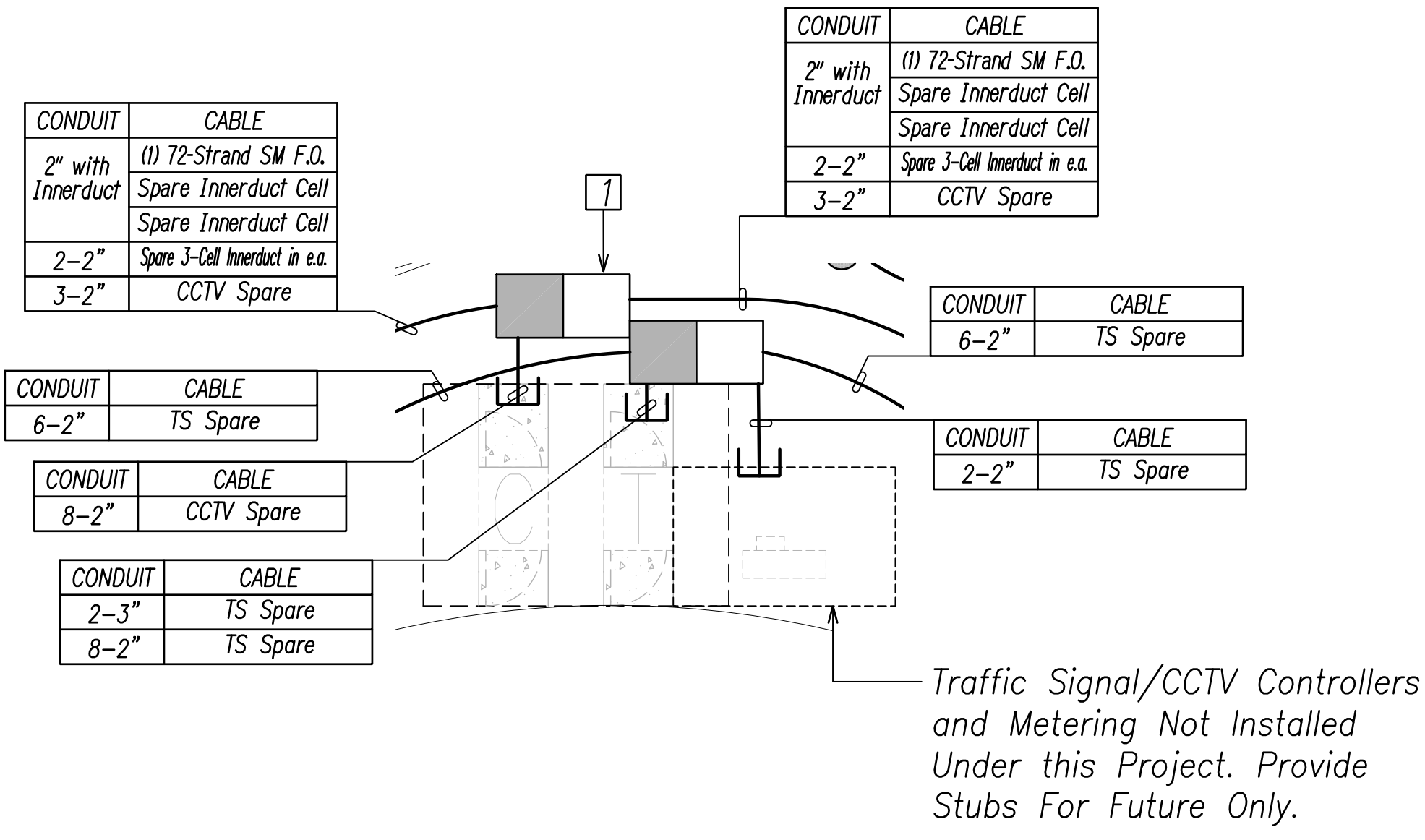
- Notes:
1. Easement Required if Clear Space is Outside of City/State Right of Way
 2. All Dimensions are Nominal Minimums.
 3. 24" sq. Concrete Pad Required Only if Doors Open Outside of Concrete Sidewalk.

A Typical Traffic Signal Controller Layout Dimensions
 EE-19 Scale: 1" = 5'

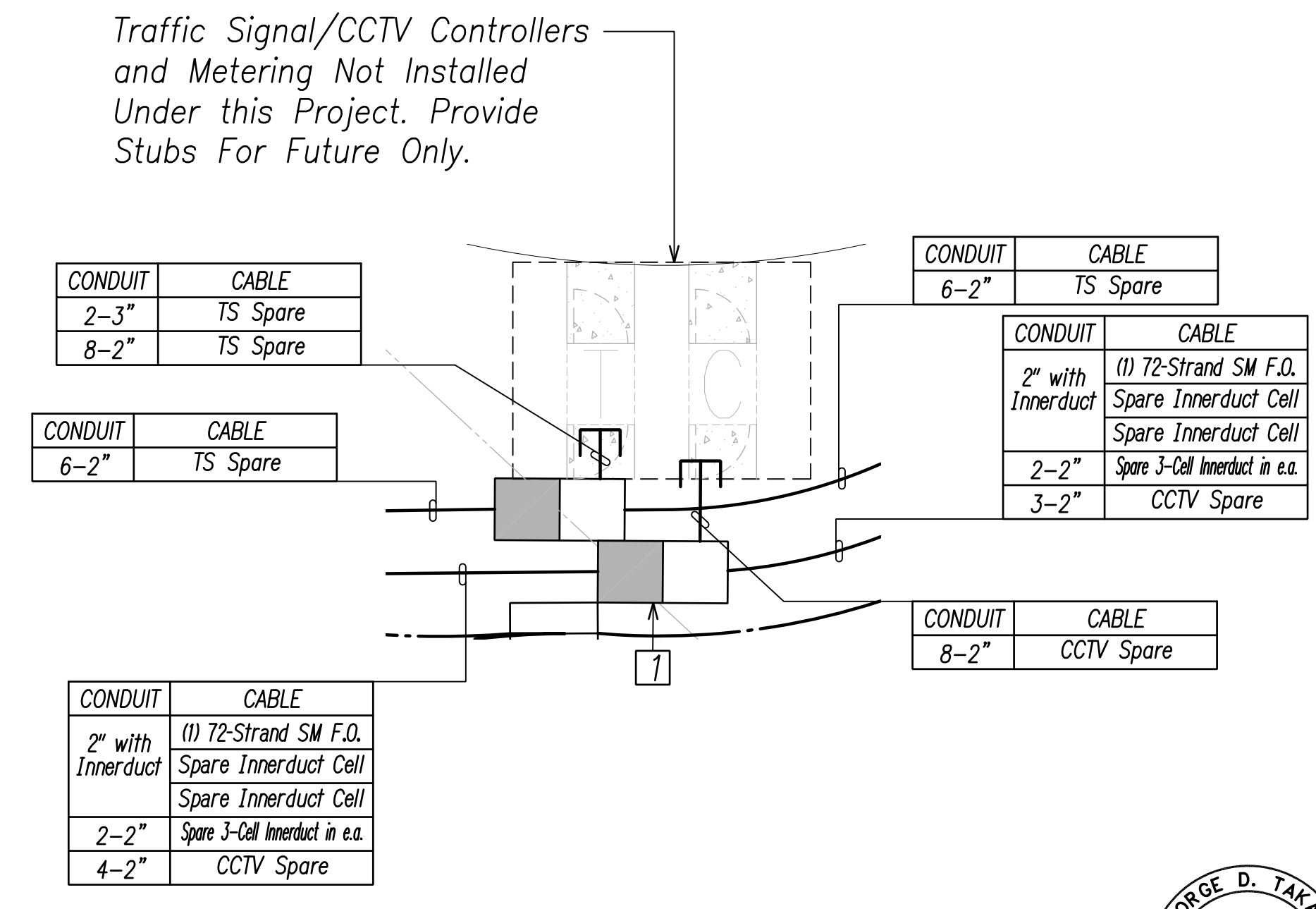


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-19	790

1" = 5' True North
B Intersection A
 EE-19 Scale: 1" = 5'

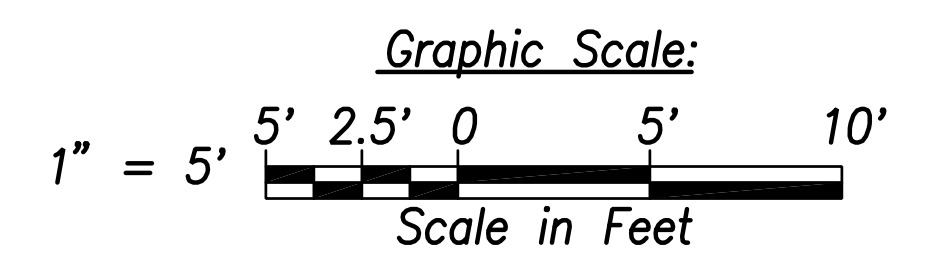


1" = 5' True North
C Intersection C
 EE-19 Scale: 1" = 5'



1" = 5' True North
D Intersection D
 EE-19 Scale: 1" = 5'

Note:
 1 See Detail D/EH-01



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FILE: Z:\Work\Projects\220679A\EE19_220679A\ENLARGED PLAN_01.dwg saved March 4, 2022

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

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Signature: [Signature]
 April 30, 2024
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ENLARGED INTERSECTION PLANS 1

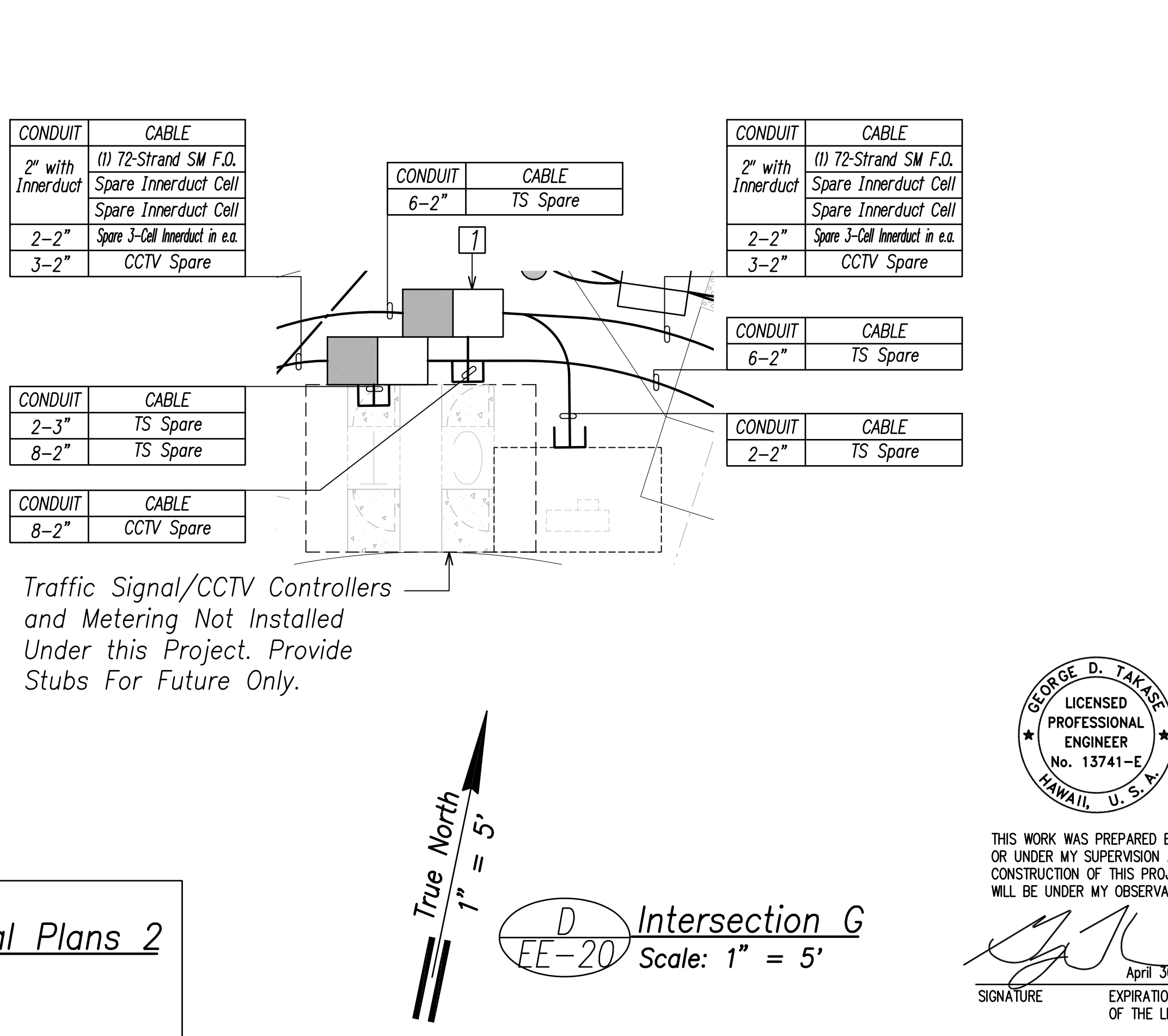
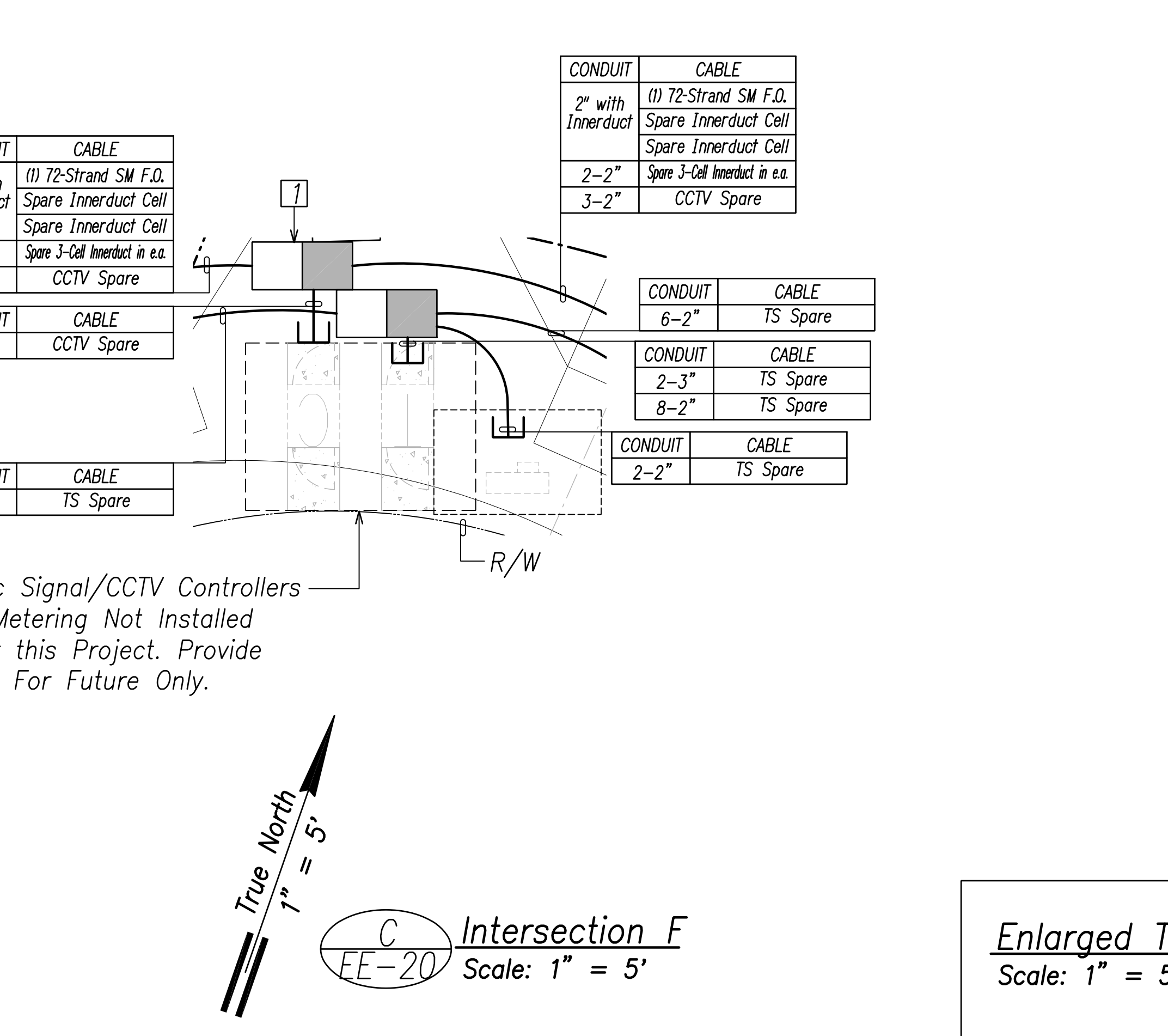
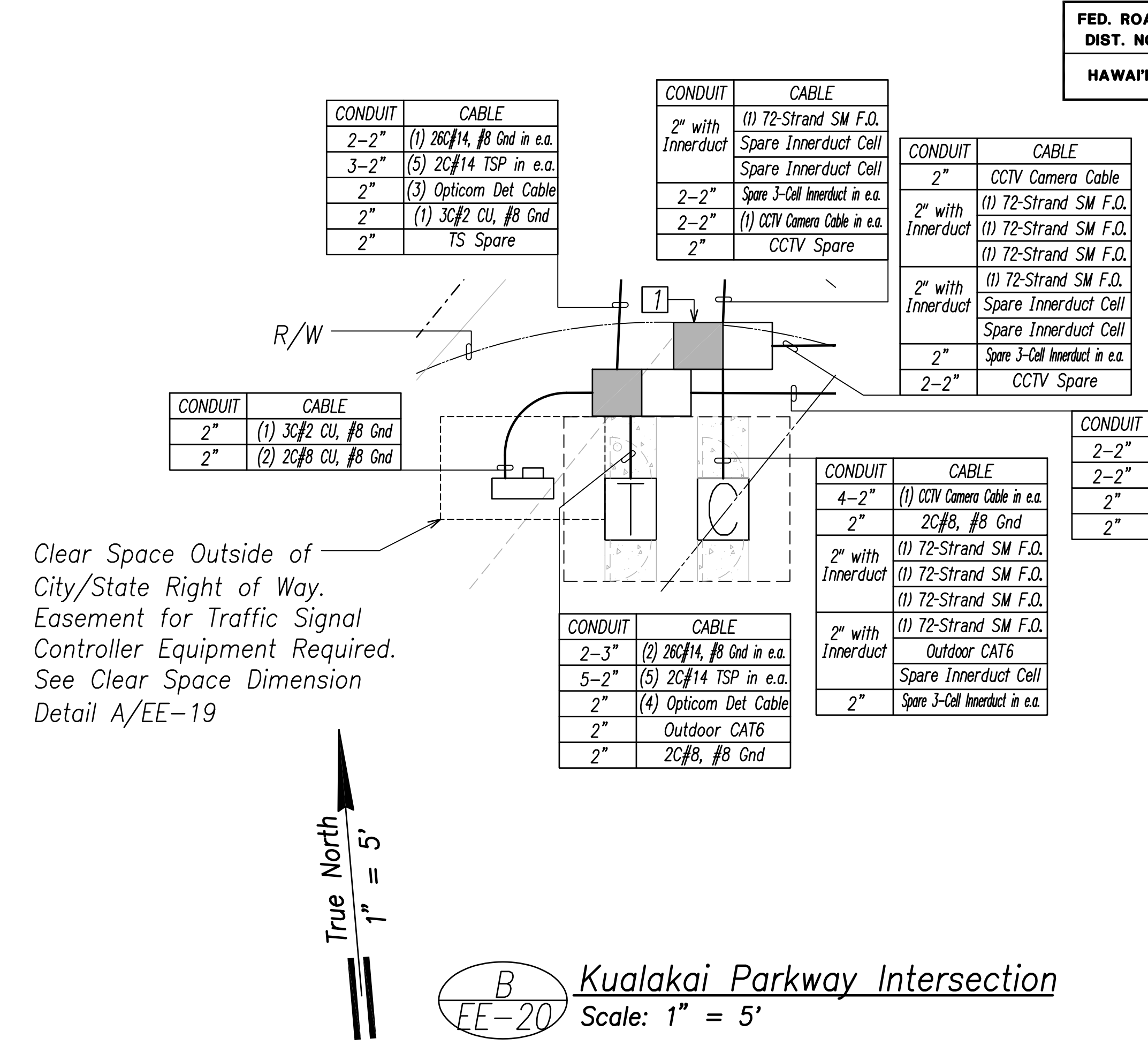
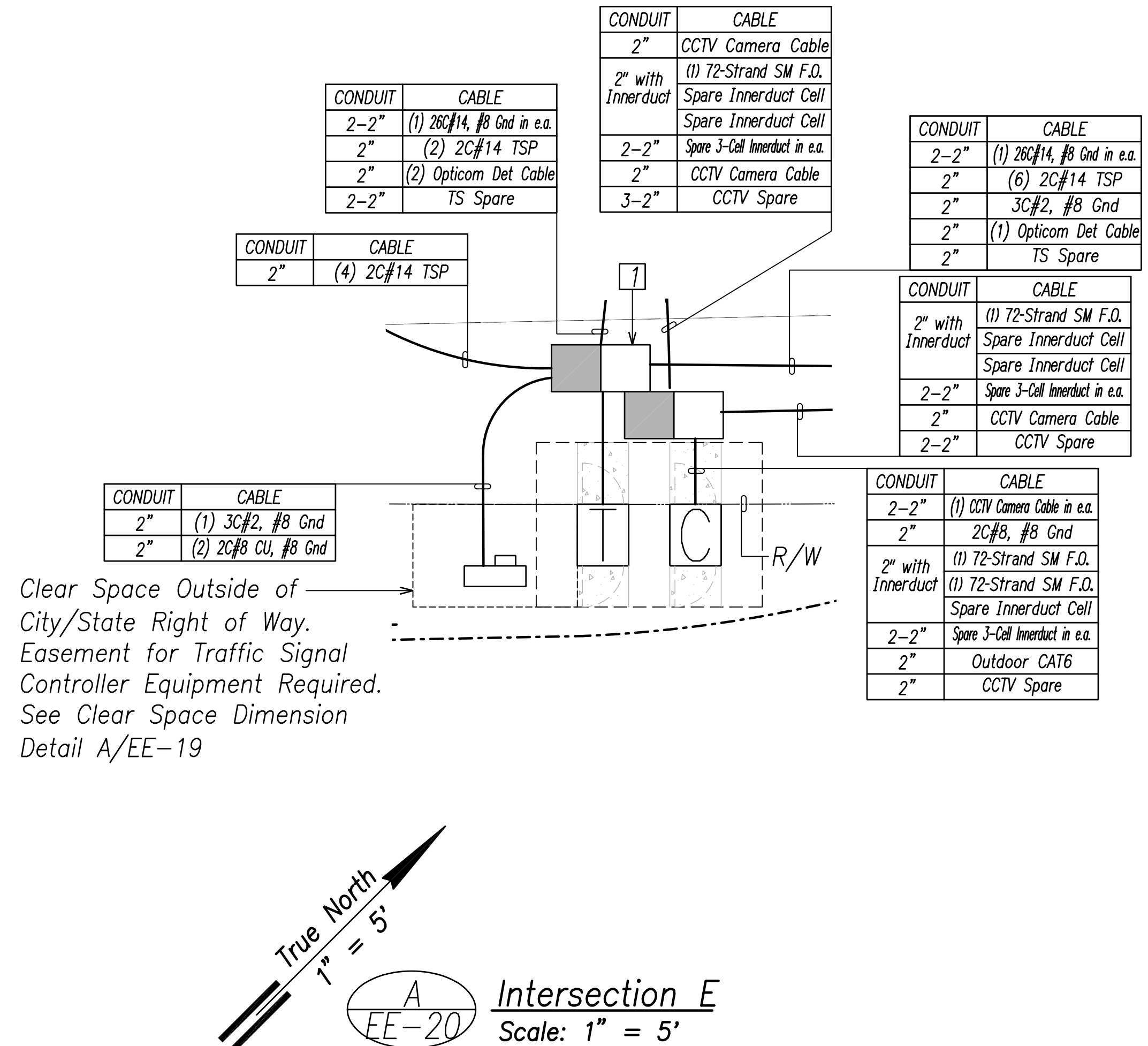
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

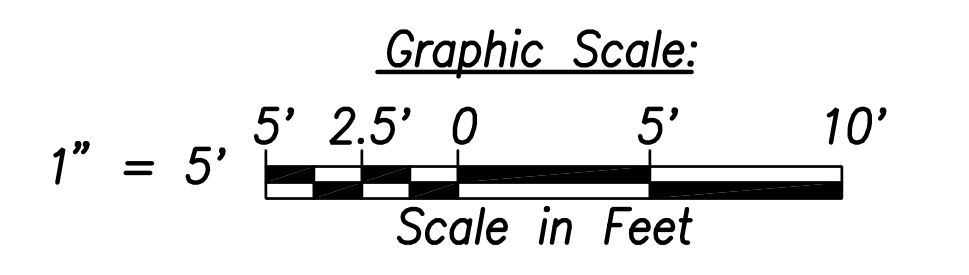
SHEET No. EE-19 OF 790 SHEETS

Enlarged Traffic Signal Plans 1
 Scale: 1" = 5'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-20	790

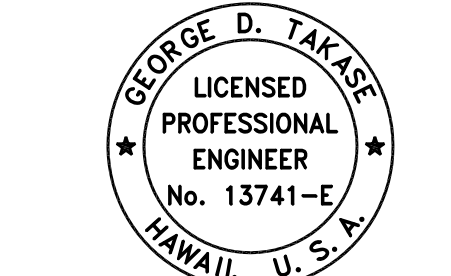


Note:
 1 See Detail D/EH-01



DATE	_____
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NOTED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ENLARGED INTERSECTION PLANS 2

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

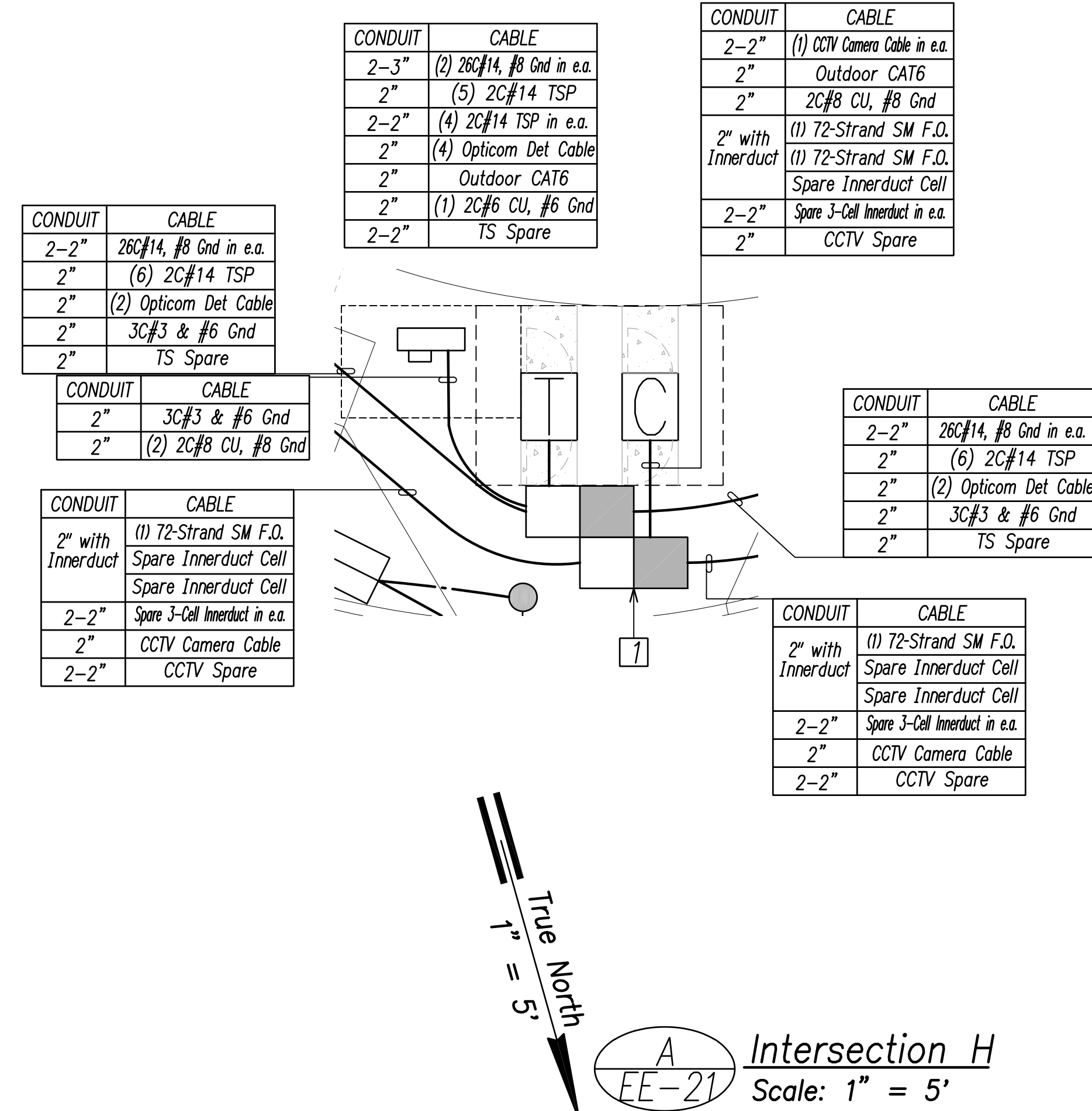
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SHEET No. EE-20 OF 790 SHEETS

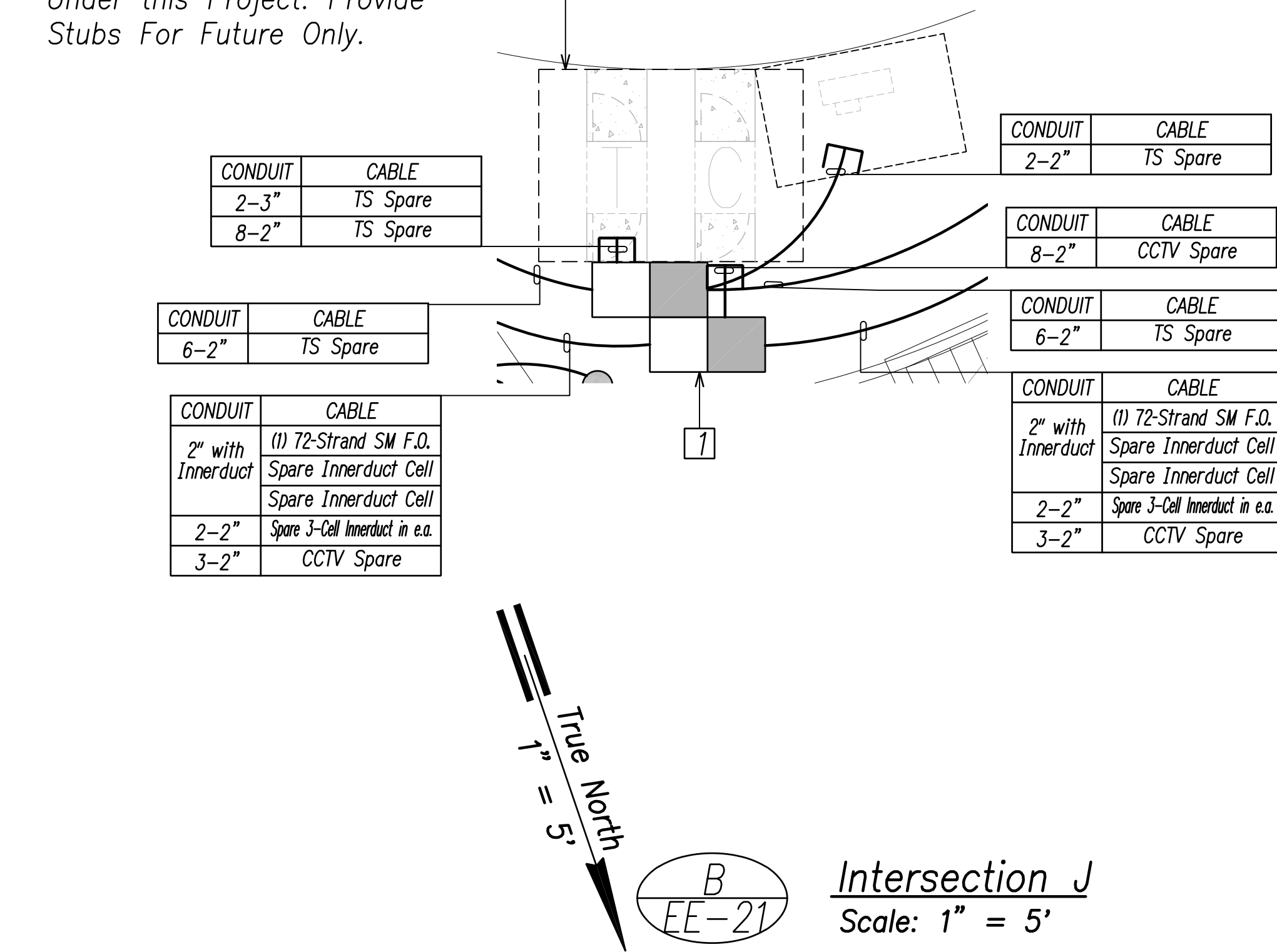
Enlarged Traffic Signal Plans 2
 Scale: 1" = 5'

D Intersection G
 EE-20 Scale: 1" = 5'

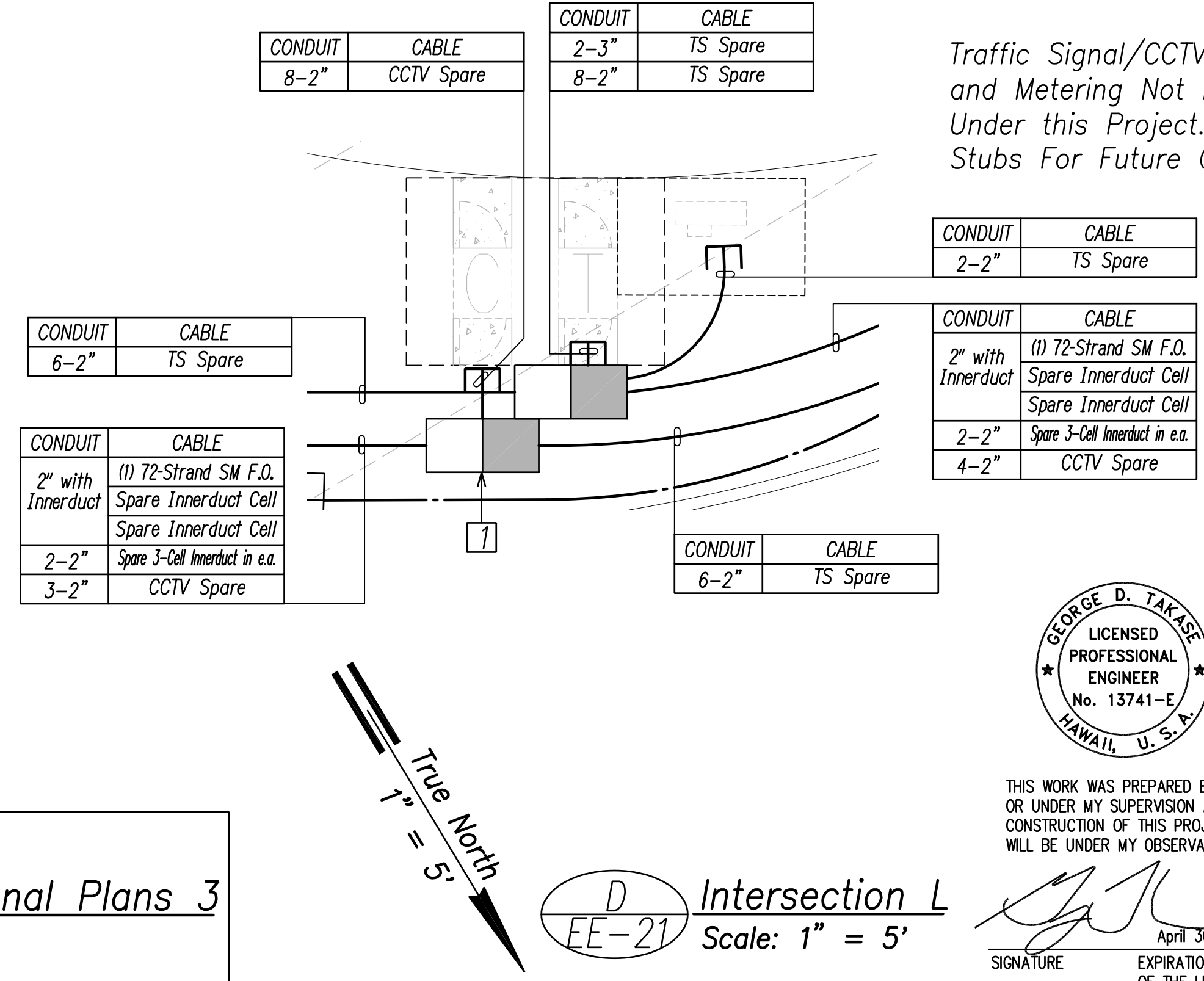
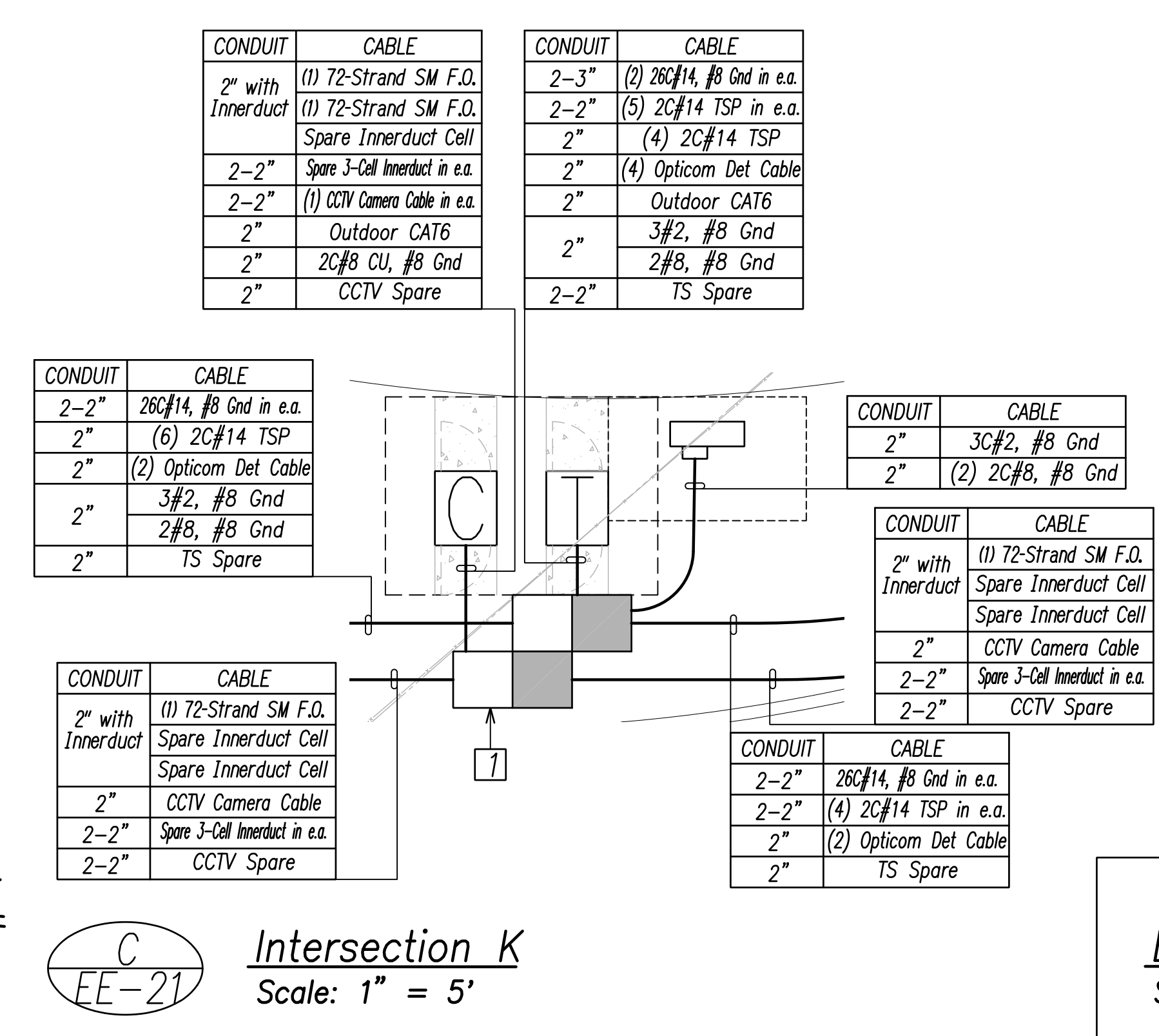
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HAWAII	HAW.	710A-01-20	2021	EE-21	790



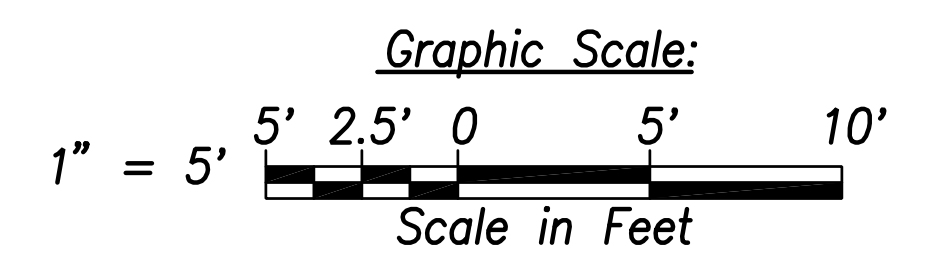
Traffic Signal/CCTV Controllers and Metering Not Installed Under this Project. Provide Stubs For Future Only.



NOTE(S):
1 See Detail D/EH-01



Traffic Signal/CCTV Controllers and Metering Not Installed Under this Project. Provide Stubs For Future Only.



DATE	_____
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QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN No.	_____

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Enlarged Traffic Signal Plans 3
Scale: 1" = 5'

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

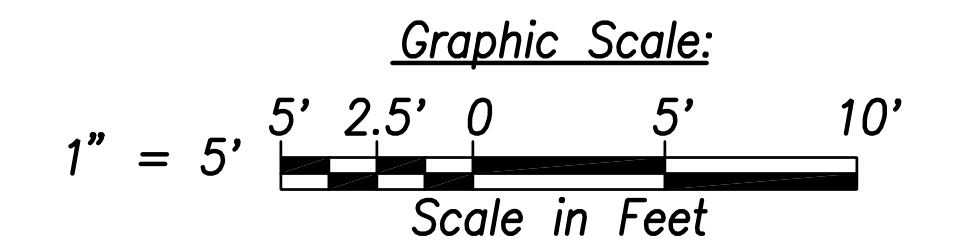
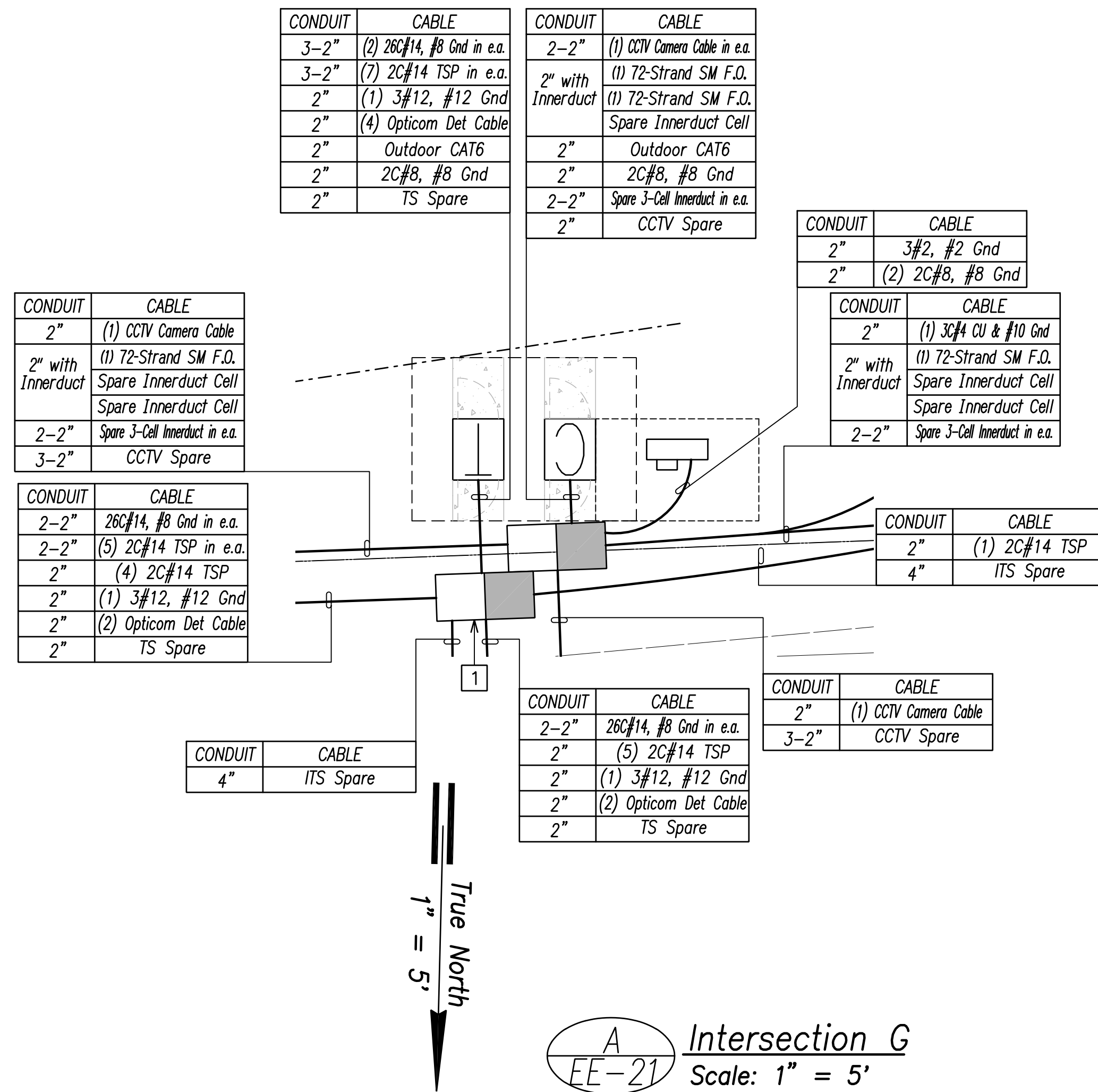
ENLARGED INTERSECTION PLANS 3
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022
SHEET No. EE-21 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-22	790

NOTE(S):

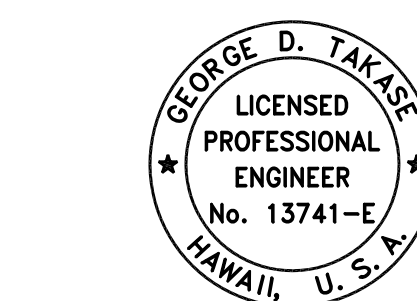
1 See Detail D/EH-01



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Enlarged Traffic Signal Plans 4
Scale: 1" = 5'



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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

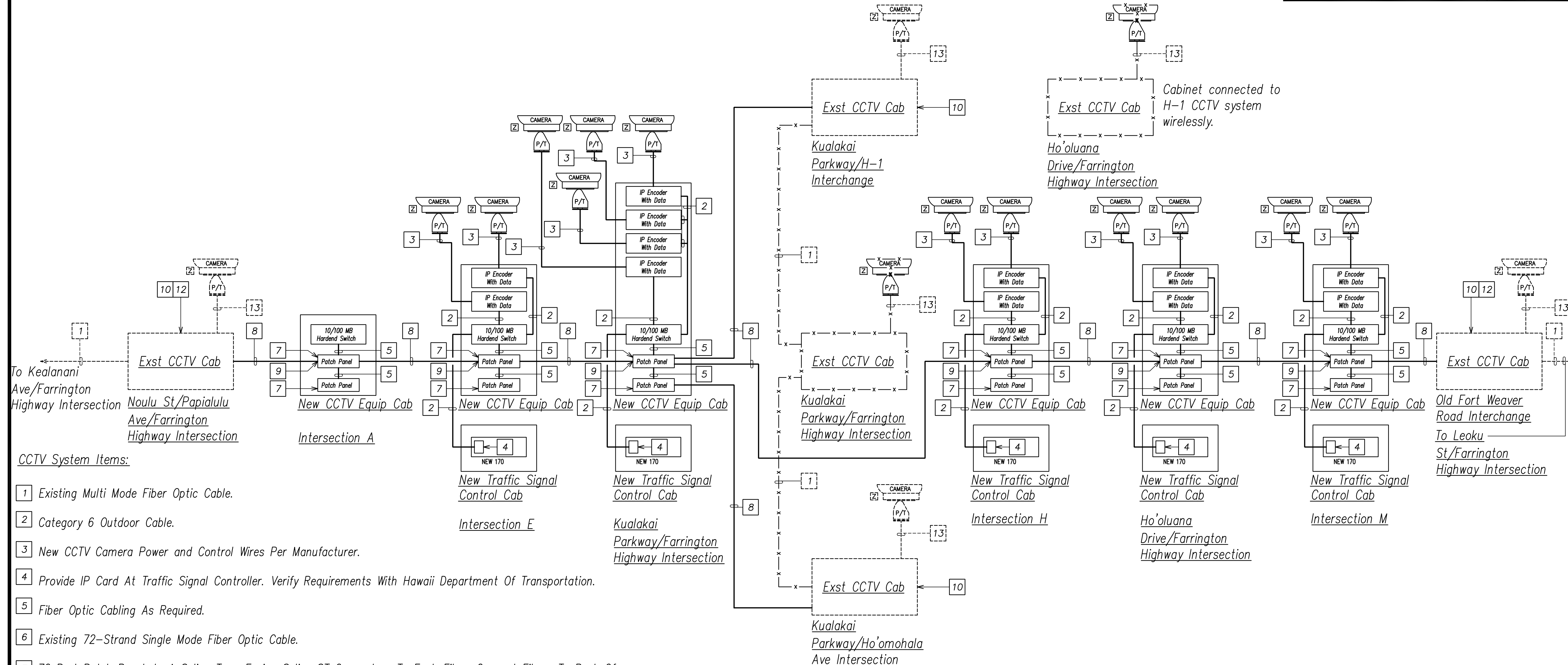
ENLARGED INTERSECTION PLANS 4

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EE-22 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EE-23	790

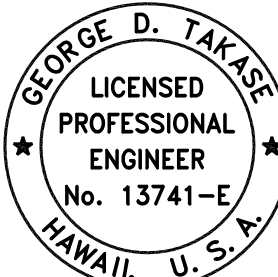



- CCTV System Items:**
- 1 Existing Multi Mode Fiber Optic Cable.
 - 2 Category 6 Outdoor Cable.
 - 3 New CCTV Camera Power and Control Wires Per Manufacturer.
 - 4 Provide IP Card At Traffic Signal Controller. Verify Requirements With Hawaii Department Of Transportation.
 - 5 Fiber Optic Cabling As Required.
 - 6 Existing 72-Strand Single Mode Fiber Optic Cable.
 - 7 72 Port Patch Panel. In A Splice Tray, Fusion Splice ST Connectors To Each Fiber. Connect Fibers To Back Of Patch Panel Using The ST Connectors.
 - 8 New 72-Strand Multi Mode Fiber Optic Cable Installed In New and Existing Signal Conduit.
 - 9 Fusion Splice Pigtail with ST Connectors to New Multi Mode Fiber Optic Cable.
 - 10 Fusion Splice Straight Through Using Spare Multi Mode Fiber Optic Cable To New Multi Mode Fiber Optic Cable.
 - 11 Fusion Splice Straight Through Using Spare Multi Mode Fiber Optic Cable.
 - 12 Provide New Equipment in Existing CCTV Cabinet to Accept new Fiber Optic Cables.
 - 13 Existing CCTV Camera Power and Data Cables.

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

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CCTV System Block Diagram

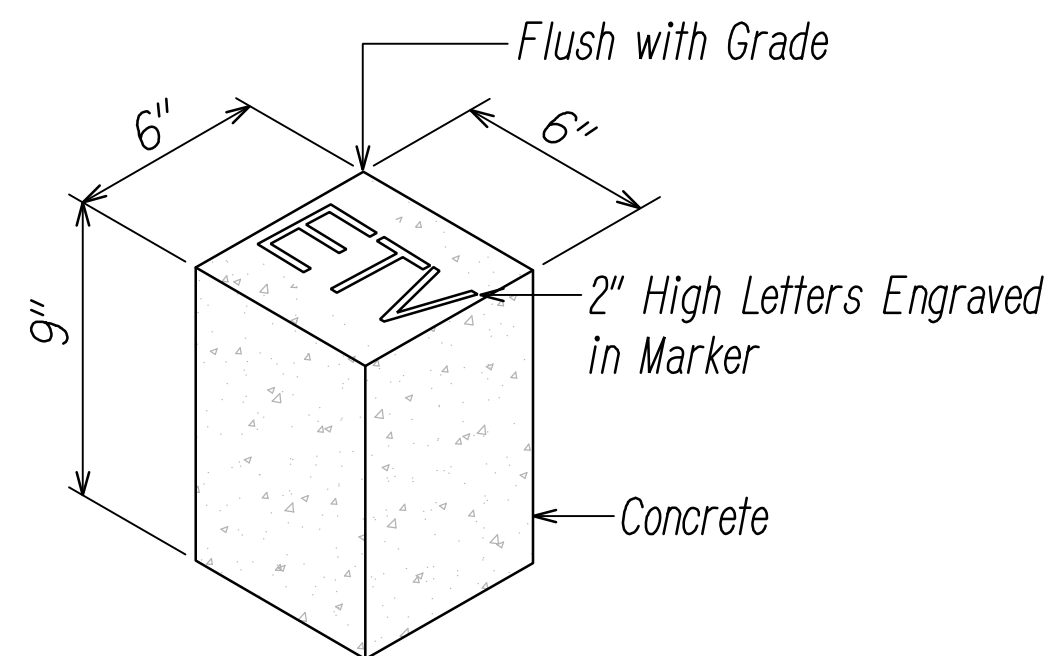

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**TRAFFIC SIGNAL
 CCTV BLOCK DIAGRAM**
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EE-23 OF 790 SHEETS

APRIL 2022

GENERAL DUCT SECTION NOTES:

1. For Trench Restoration Detail Requirements, See Civil Sheets.
2. 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.
 - A. For the Respective Utility Company Ducts, Provide Metal Detectable Warning Tape Over Respective Utility Company Ducts per Respective Utility Company Requirements and Approval.
 - B. For HECo, Provide Warning Tape per HECo Specification M0302-0.
 - C. 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.
 - 2) 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".
3. The Contractor may begin Backfilling the Conduit Trench when the Concrete Reaches 2800 PSI Compressive Strength or After 3 Days, Whichever is Later.
4. Clearances: Refer to HECo Note No. 14 for Clearance Requirements Between All Ductlines and All Adjacent Structures (Charted and Uncharted) Near the Trench.
5. All Traffic Signal Conduit Shall be Encased in Concrete with 3" Minimum Concrete Jacket around Ducts.



"E" = Electric
 "T" = Telephone
 "V" = Catv
 "L" = Street Lighting
 "S" = Traffic Signal

CONCRETE CONDUIT STUB-OUT MARKER
 NOT TO SCALE

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

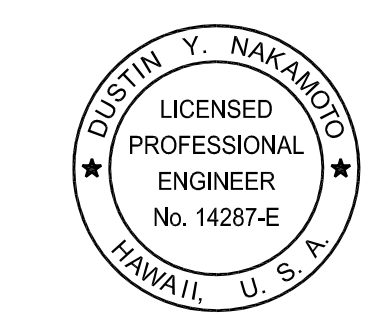
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CONDUIT SCHEDULE

Item	Description	Item	Description
(2E)	HECo 1-2"C	(4-1/2A)	ATΦT 4-1/8"C
(2-2E)	HECo 2-2"C	(4-1/2A)	ATΦT 4-1/2"C
(3E)	HECo 1-3"C		
(2-3E)	HECo 2-3"C	(2TS)	TRAFFIC SIGNAL 1-2"C, PVC Sched. 40
(4E)	HECo 1-4"C	(2TS)	TRAFFIC SIGNAL 2-2"C, PVC Sched. 40
(2-4E)	HECo 2-4"C	(3TS)	TRAFFIC SIGNAL 3-2"C, PVC Sched. 40
(3-4E)	HECo 3-4"C	(4TS)	TRAFFIC SIGNAL 4-2"C, PVC Sched. 40
(5E)	HECo 1-5"C	(3TS)	TRAFFIC SIGNAL 1-3"C, PVC Sched. 40
(2-5E)	HECo 2-5"C	(4TS)	TRAFFIC SIGNAL 1-4"C, PVC Sched. 40
(3-5E)	HECo 3-5"C		
(4-4E)	HECo 4-4"C	(1/2S)	STREET LIGHT 1-1/4"C, PVC Sched. 40
(4-5E)	HECo 4-5"C	(2S)	STREET LIGHT 1-2"C, PVC Sched. 40
(6-5E)	HECo 6-5"C	(2-2S)	STREET LIGHT 2-2"C, PVC Sched. 40
(8-5E)	HECo 8-5"C	(3S)	STREET LIGHT 1-3"C, PVC Sched. 40
(10-5E)	HECo 10-5"C	(4-2S)	STREET LIGHT 4-2"C, PVC Sched. 40
(6E)	HECo 1-6"C		
(2-6E)	HECo 2-6"C	(1C)	COMM 1-1"C, PVC Sched. 40
(6-6E)	HECo 6-6"C	(2-2C)	COMM 2-2"C, PVC Sched. 40
(2FO)	HECo FIBER OPTIC 1-2"C		
(2-2FO)	HECo FIBER OPTIC 2-2"C	(1T)	HTCo 1-1"C, PVC Sched. 40
(2-4FO)	HECo FIBER OPTIC 2-4"C	(2T)	HTCo 1-2"C, PVC Sched. 40
		(2-2T)	HTCo 2-2"C, PVC Sched. 40
		(3T)	HTCo 1-3"C, PVC Sched. 40
		(4T)	HTCo 1-4"C, PVC Sched. 40
		(2-4T)	HTCo 2-4"C, PVC Sched. 40
		(3-4T)	HTCo 3-4"C, PVC Sched. 40
		(4-4T)	HTCo 4-4"C, PVC Sched. 40
		(6-4T)	HTCo 6-4"C, PVC Sched. 40
		(4V)	CATV 1-4"C, PVC Sched. 40
		(2-4V)	CATV 2-4"C, PVC Sched. 40
		(3-4V)	CATV 3-4"C, PVC Sched. 40
		(4-4V)	CATV 4-4"C, PVC Sched. 40

Note: Dashed Indicates Existing

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 SIGNATURE _____
 Date: April 30, 2022
 EXPIRATION DATE OF THE LICENSE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-01	790

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

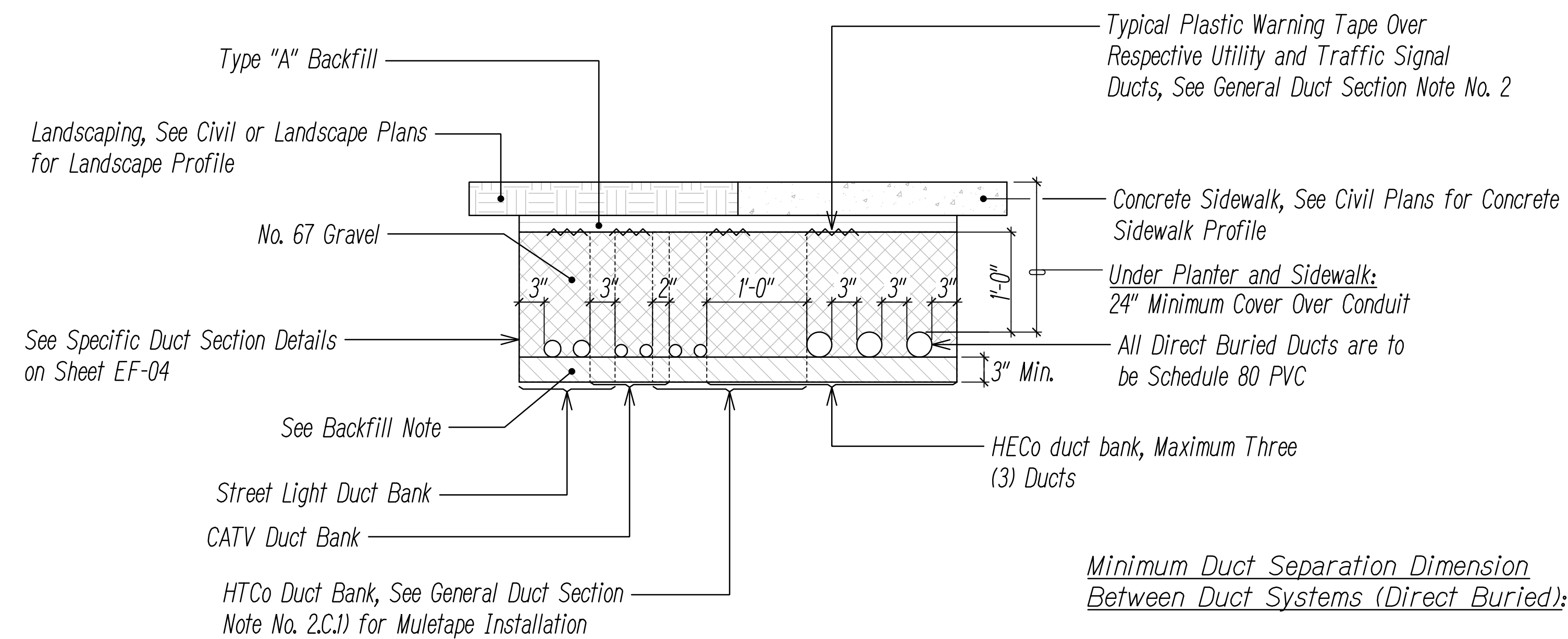
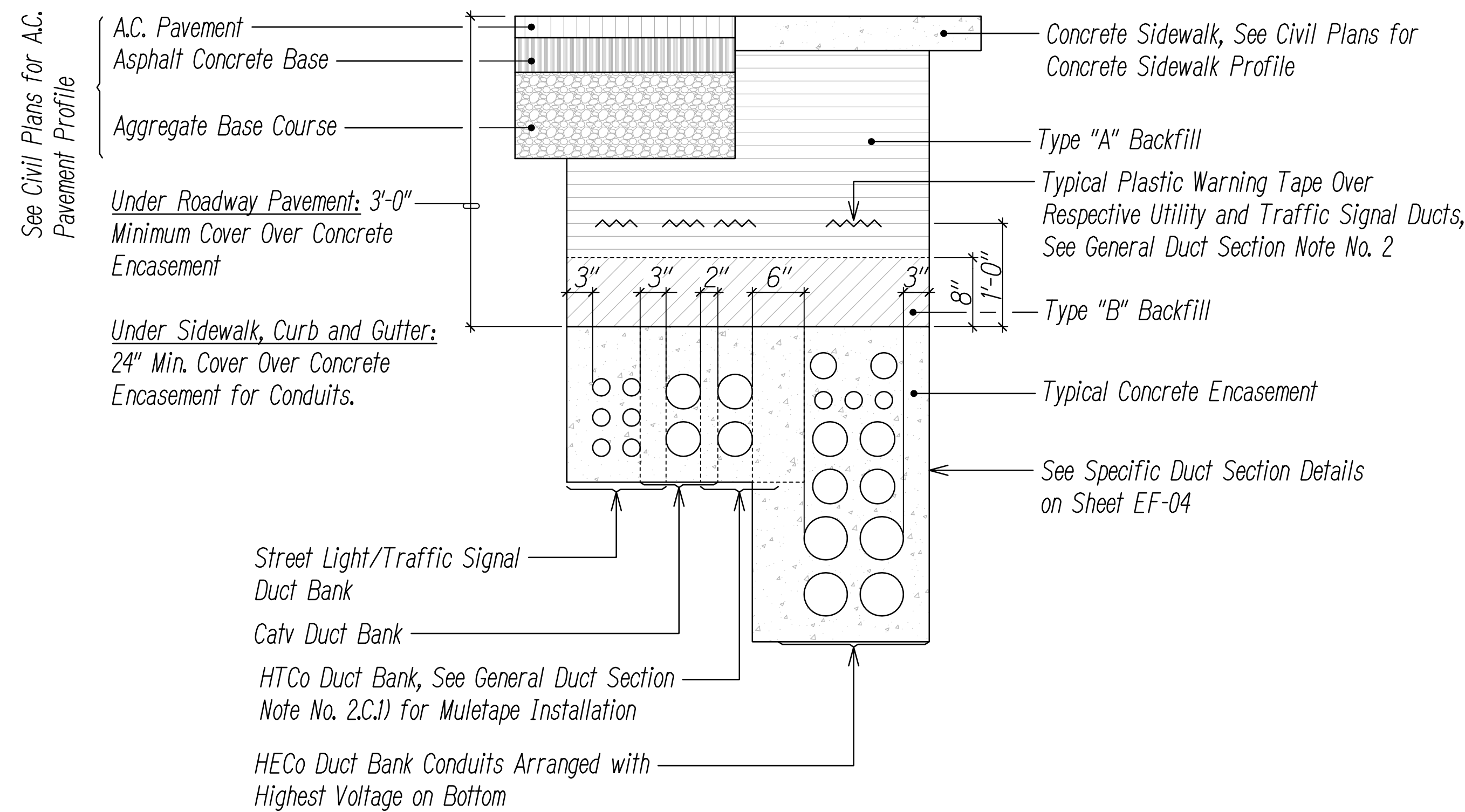
GENERAL DUCT SECTION NOTES & CONDUIT SCHEDULE

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-01 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-02	790

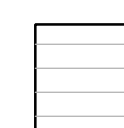

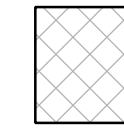




Minimum Duct Separation Dimension Between Duct Systems (Concrete Encased):

Elec - Elec:	1.5"
Elec - Other Systems:	6"
Tel - Tel:	1.5"
Tel - Elec:	6"
Tel - Catv:	2"
Catv - Catv:	1.5"
Catv - Elec:	6"
Catv - Tel:	2"

Minimum of 3" Concrete Encasement shall be Provided Around Ductbank

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".

Minimum Duct Separation Dimension Between Duct Systems (Direct Buried):

Elec - Elec:	3"
Elec - Other Systems:	12"
Tel - Tel:	1.5"
Tel - Elec:	12"
Tel - Catv:	2"
Catv - Catv:	1.5"
Catv - Elec:	12"
Catv - Tel:	2"

Minimum of 3" No. 67 Gravel shall be Provided Around Ductbank

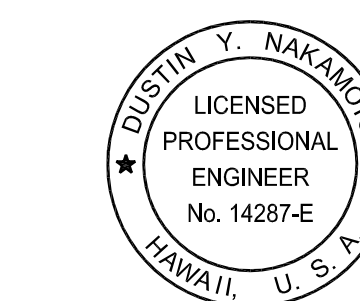
TYPICAL CONCRETE ENCASED DUCT SECTION DETAILS
NOT TO SCALE

TYPICAL DIRECT BURIED DUCT SECTION DETAILS
NOT TO SCALE

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

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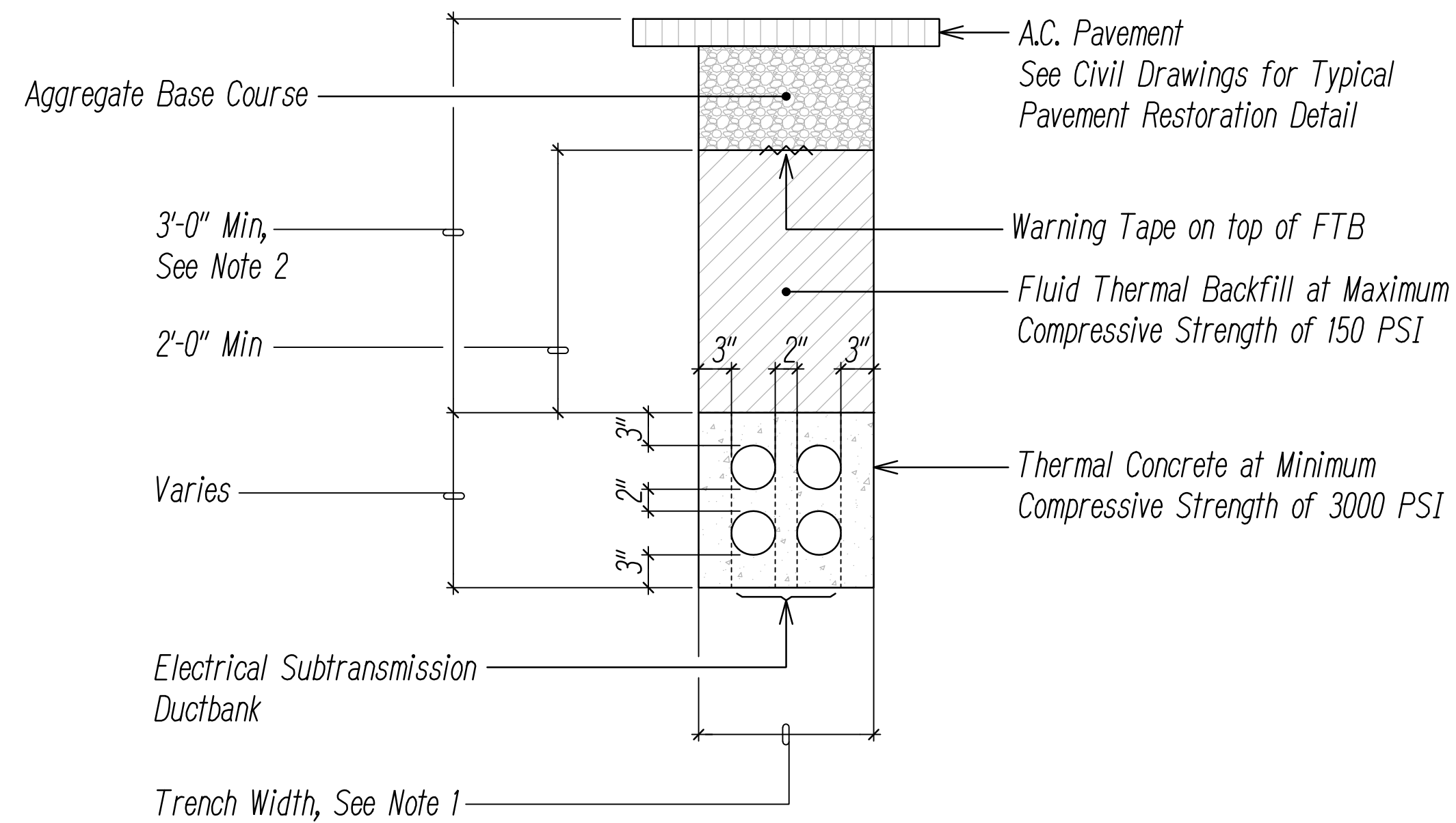
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Transmission & Distribution Engineering
Hawaiian Electric
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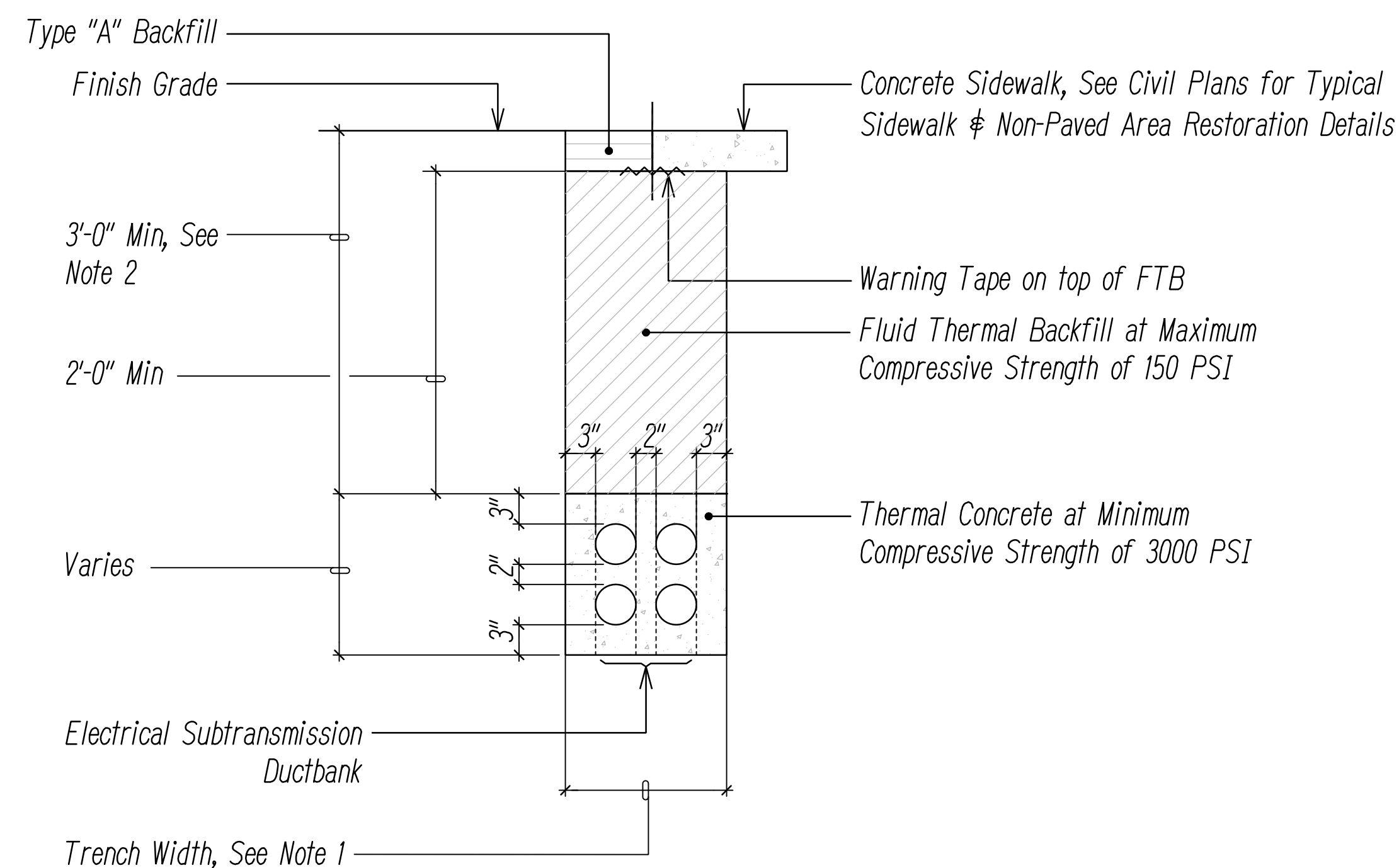
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DUCT SECTION BACKFILL DETAILS
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20
Scale: As Shown Date: April 2022
SHEET No. EF-02 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-03	790



TYPICAL SINGLE DUCTBANK SECTION IN PAVED AREAS

NOT TO SCALE



TYPICAL DUCT SECTION DETAILS IN NON-PAVED AREAS

NOT TO SCALE

NOTES:

1. Trench Width to be Determined by HECO Based on Number and Size of Conduits Required for the Ductbank and Ampacity Calculations to Determine Fluidized Thermal Backfill Configuration for Heat Dissipation. Obtain HECO Inspector Approval Before Final Backfill is Placed.
2. The Electrical Distribution Ductbank May Contain Communication Ducts. Provide 6" Separation Between Ducts of Different Systems.
3. See Plans for Number and Sizing of Ducts.
4. Red Concrete Dye is Required in FTB Mix for Identification Purposes.

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.

FLUIDIZED THERMAL BACKFILL DESIGN TABLE

LOW STRENGTH FTB APPROVED PROPRIETARY MIX DESIGNS			
PRODUCER	ID CODE	EXPIRATION	COMMENT
ISLAND READY MIX	XX67N021	JUNE 2023	ORCA FINE SAND
HC&D	XX67HE05	JUNE 2023	ORCA FINE SAND

3000 PSI THERMAL CONCRETE APPROVED PROPRIETARY MIX DESIGNS			
PRODUCER	ID CODE	EXPIRATION	COMMENT
ISLAND READY MIX	3067DB21	JUNE 2023	ORCA FINE SAND
HC&D	3067HE05	JUNE 2023	ORCA FINE SAND

DESIGN MIX TABLE NOTES:

1. Fluid Thermal Backfill and Thermal Concrete Shall be Provided in Accordance with HECO Specification No. CS1601-2 and CS1602-1. The Thermal Concrete and FTB Design Mixes Shown are Typical for Soil Thermal Resistivities of 90 C-CM/W. Contractor to Submit Test Cylinders for Thermal Resistivity Tests and Strength Tests to HECO Approved Testing Lab. Contractor to Contact Testing Lab for Sampling and Shipping Requirements.
2. Contractor Shall Conduct in SITU Soil Thermal Resistivity Tests at Sites Requiring 46kv and 138kv Underground Conduits. The Test Reports Shall be Submitted to HECO for Determination of The Range of Thermal Resistivities Required for the Thermal Concrete and FTB at Any Specific Site.
3. Red Concrete Dye is Required in FTB Mix for Identification Purposes.
4. If FTB or Concrete Approved Mixes Have Expired, Please Contact Hawaiian Electric Engineering For New Mix Numbers.

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NOTE BOOK	
No.	

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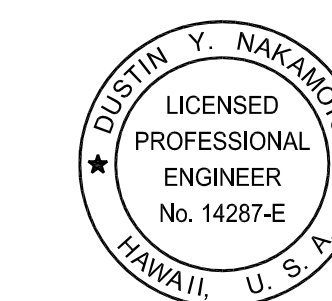
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Customer Installations Department
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STATE OF HAWAII
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HIGHWAYS DIVISION

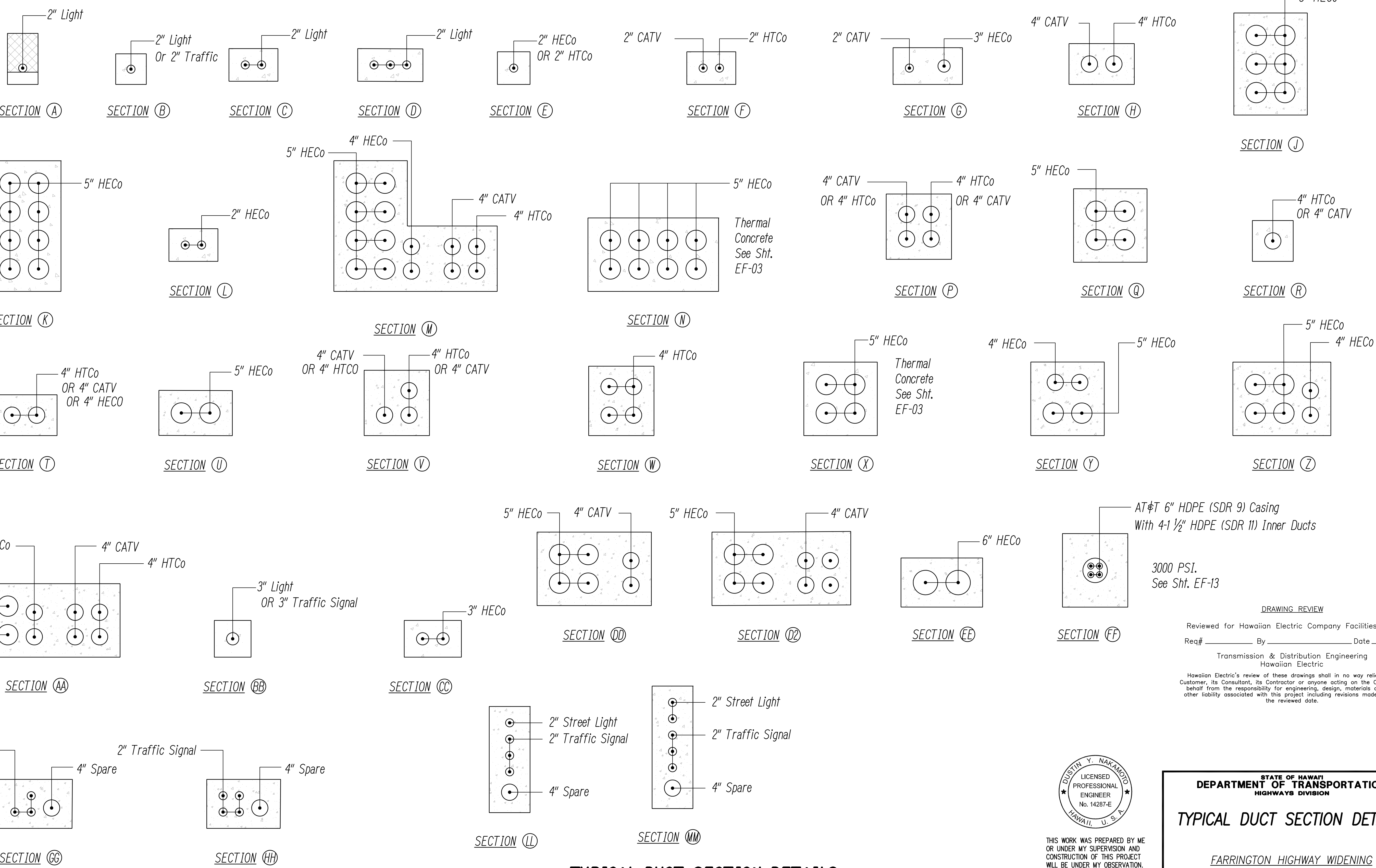
DUCT SECTION THERMAL BACKFILL DETAILS

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-03 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-04	790

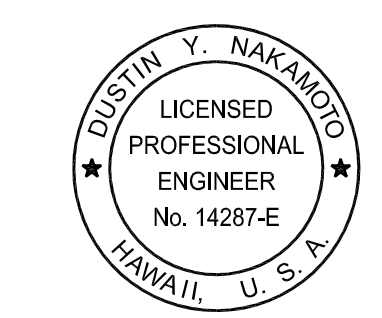


TYPICAL DUCT SECTION DETAILS
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

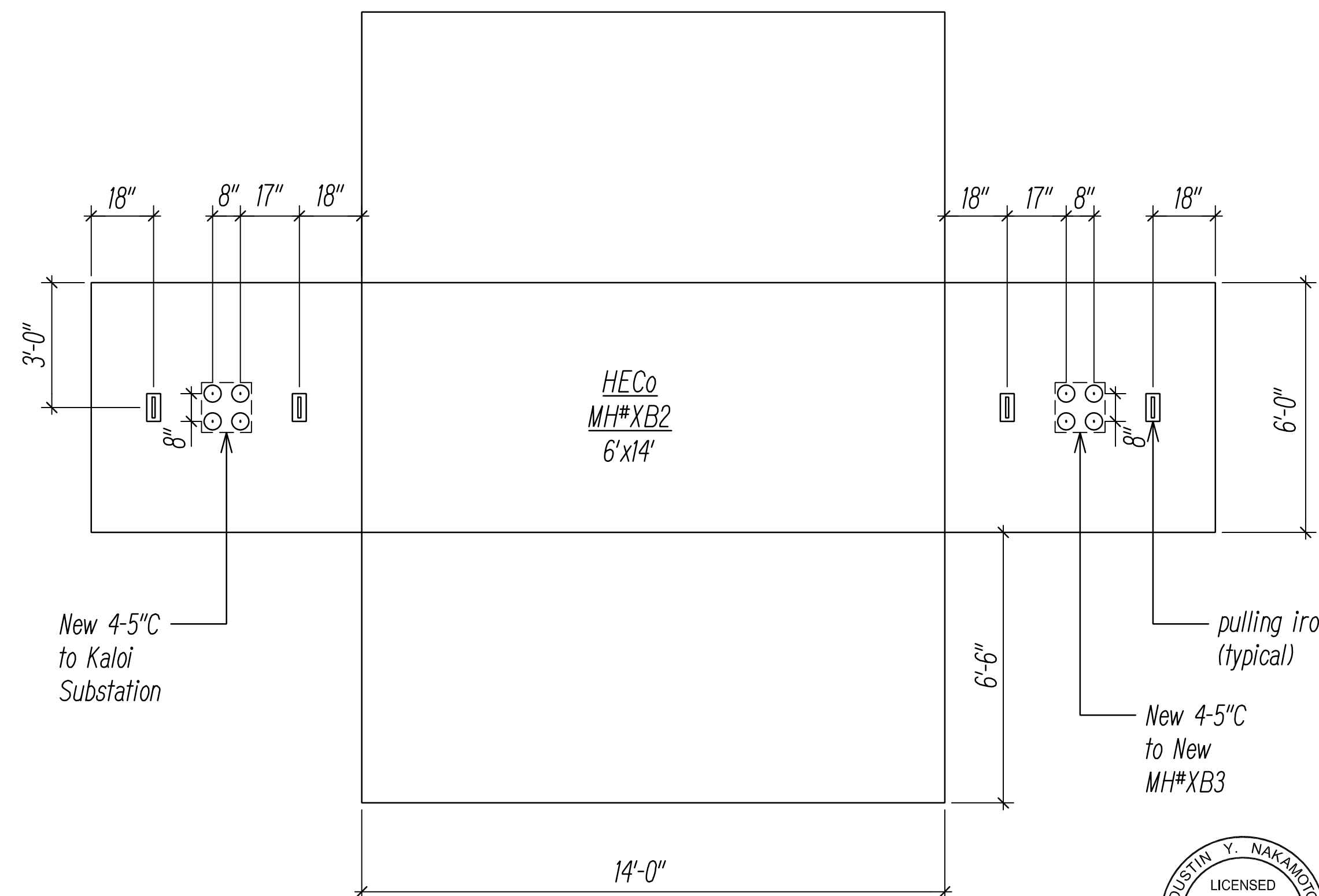
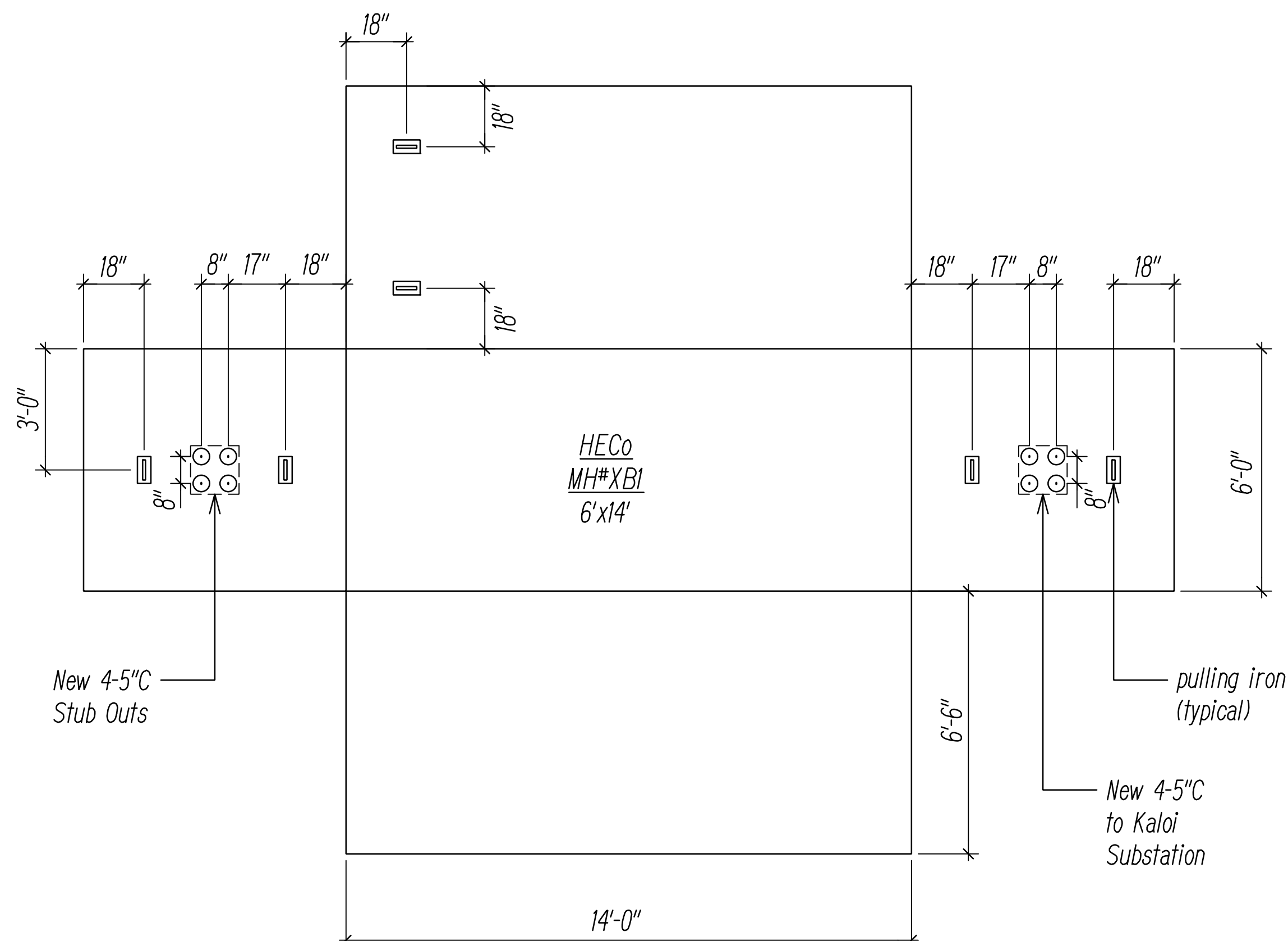
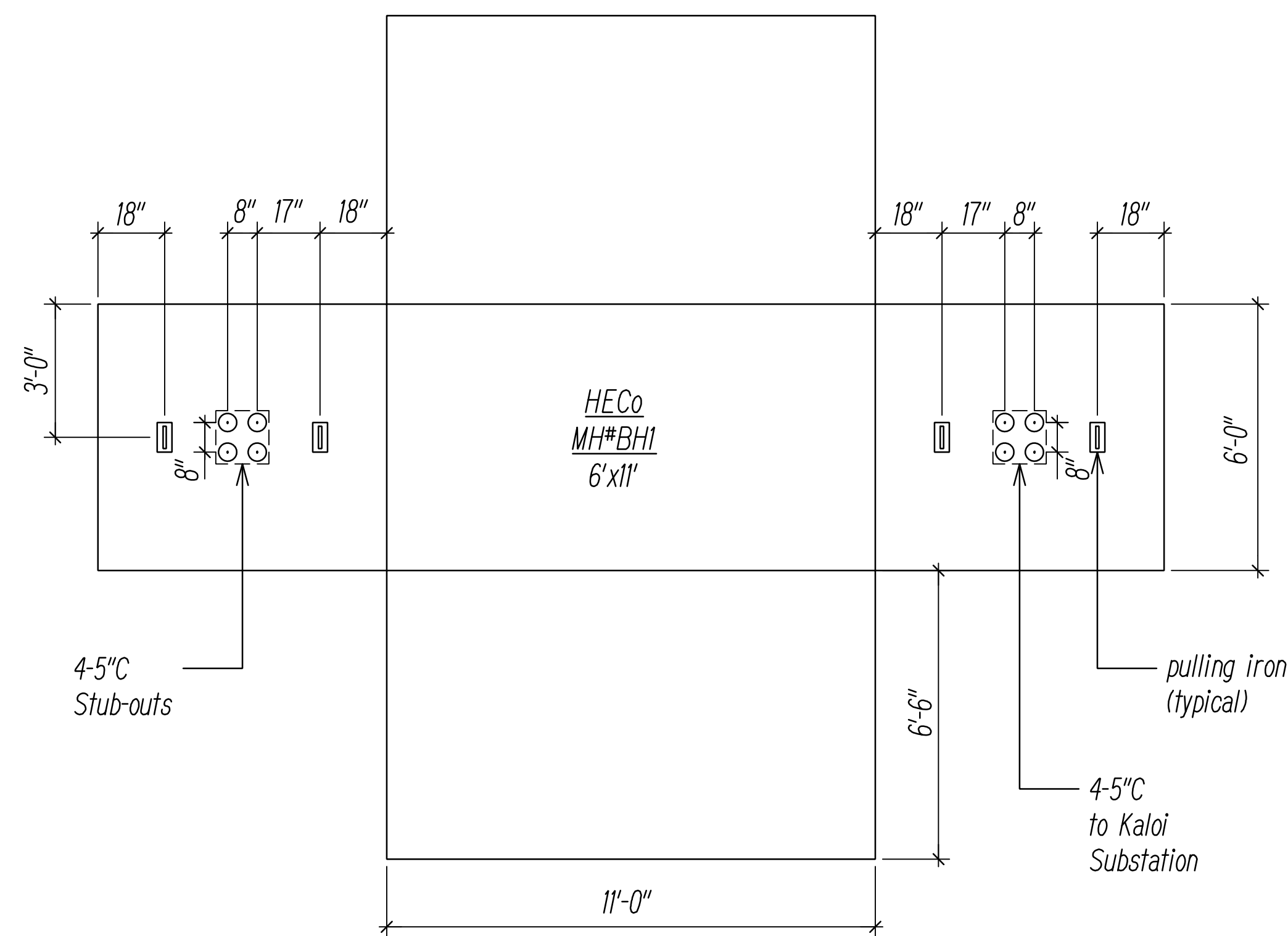
TYPICAL DUCT SECTION DETAILS

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-04 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-05	790



Notes:

1. Manhole Shop Drawings and Structural Calculations shall be submitted to to Utility Company(s) for review and approval prior to fabrication.
2. New Manhole(s) shall be constructed with 12" minimum and 18" maximum neck dimensions.

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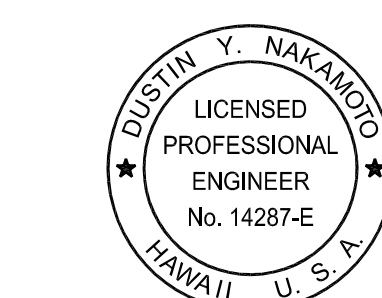
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HECO MANHOLE DIAGRAMS 1
NOT TO SCALE



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

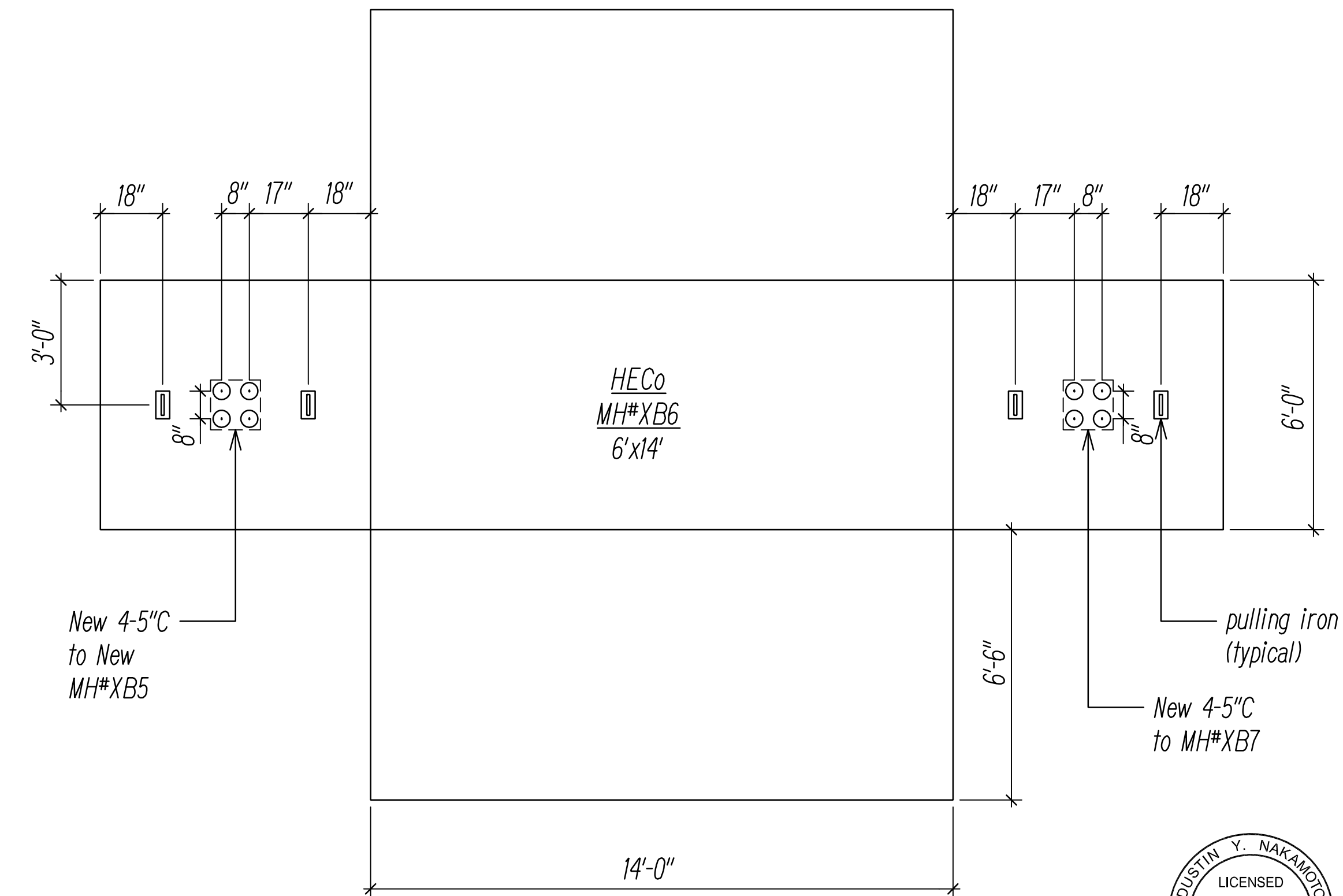
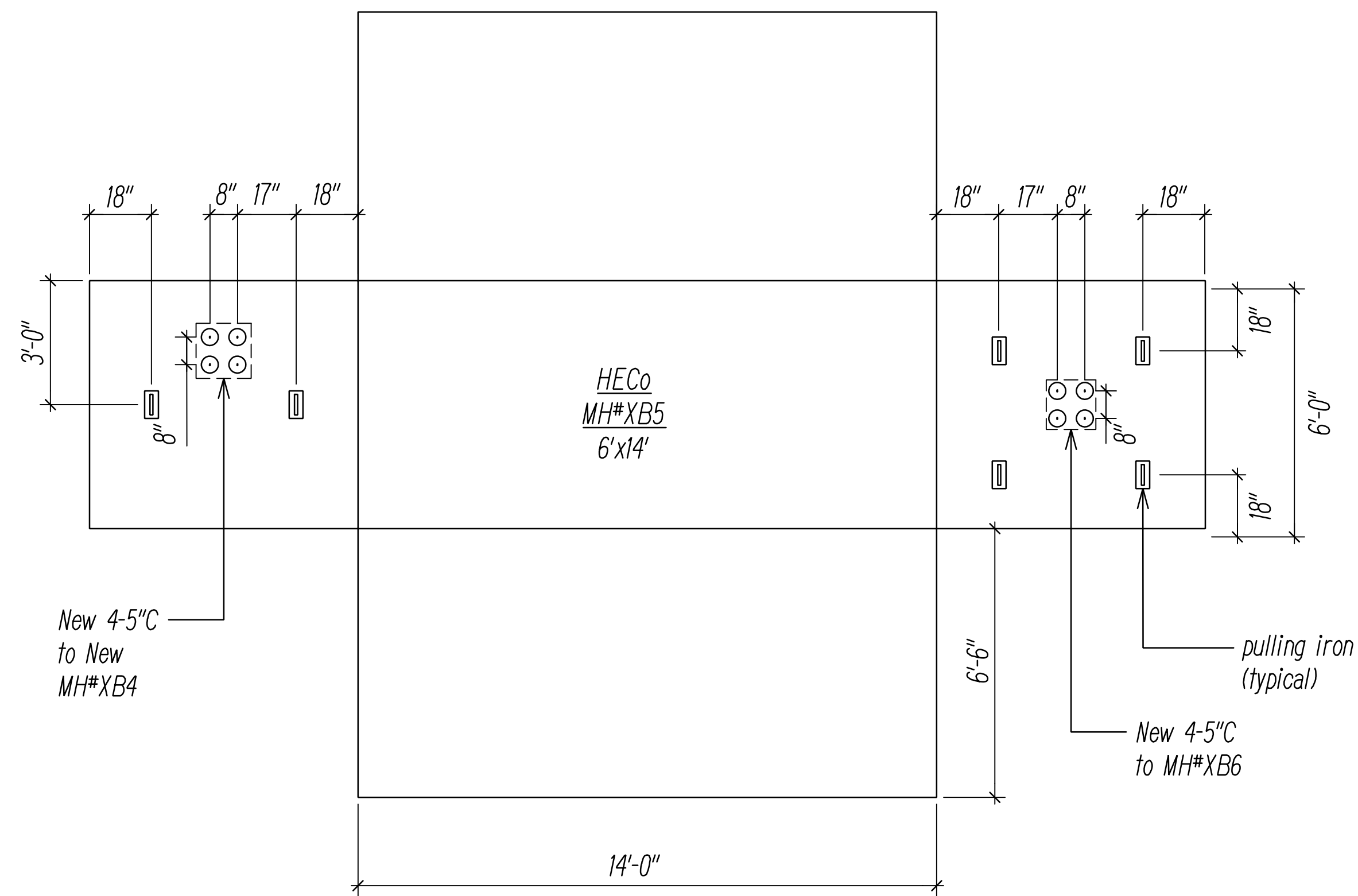
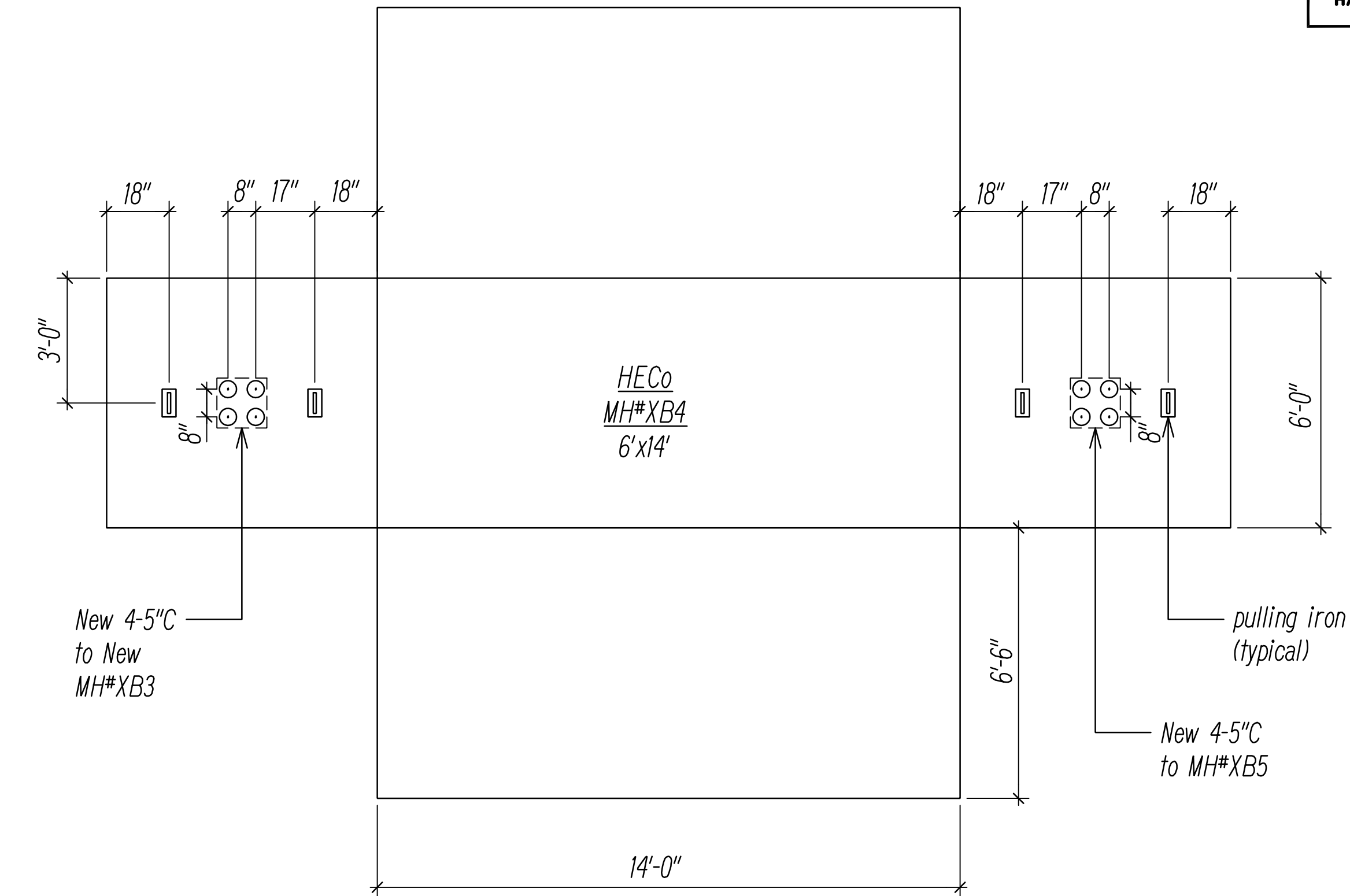
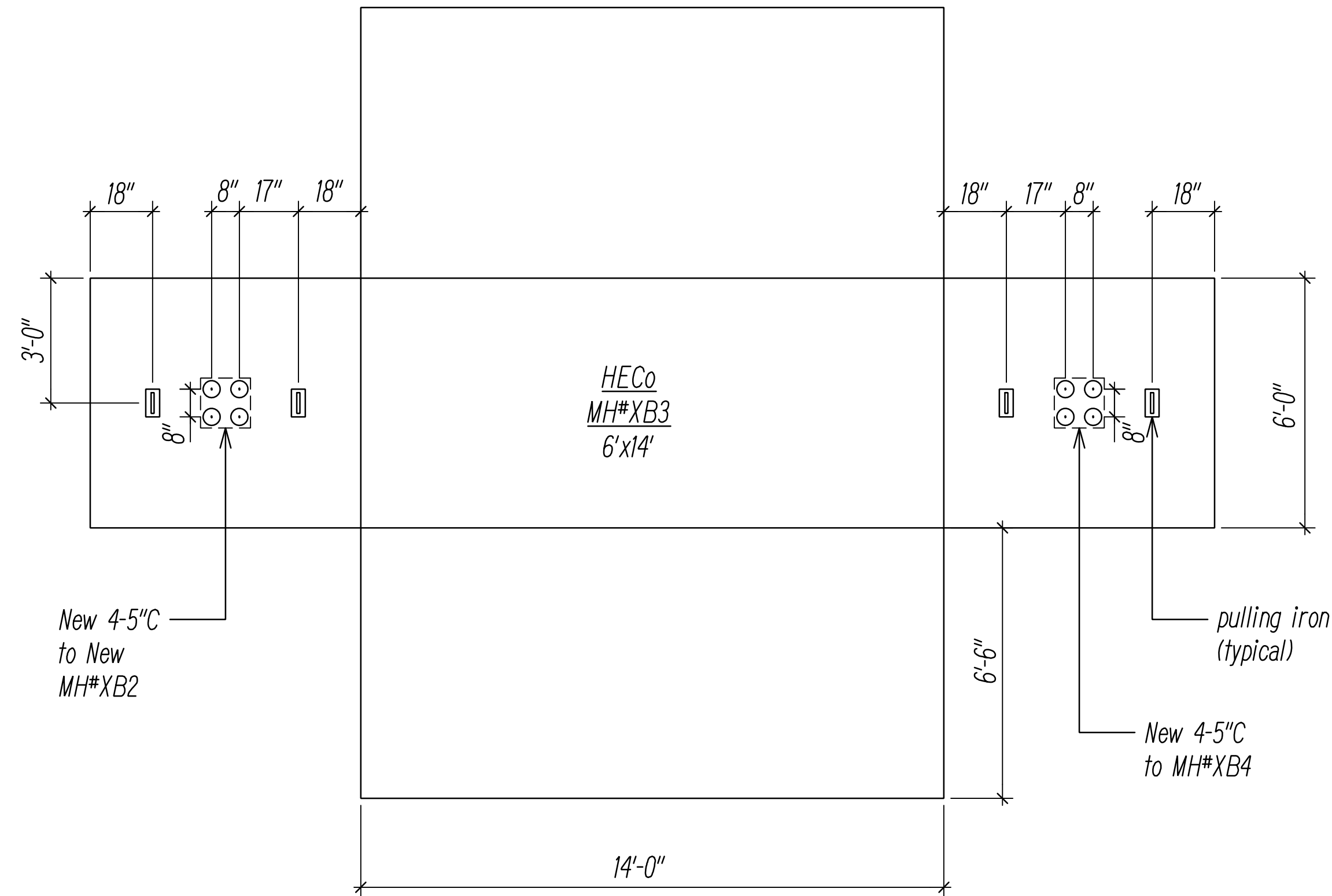
HAWAIIAN ELECTRIC Co. (HECo)
MANHOLE DIAGRAMS 1

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-05 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-06	790



Notes:

1. Manhole Shop Drawings and Structural Calculations shall be submitted to to Utility Company(s) for review and approval prior to fabrication.
2. New Manhole(s) shall be constructed with 12" minimum and 18" maximum neck dimensions.

DRAWING REVIEW

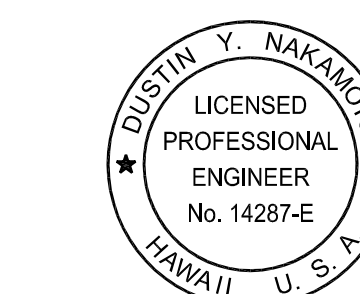
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 Customer Installations Department
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HECO MANHOLE DIAGRAMS 2
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

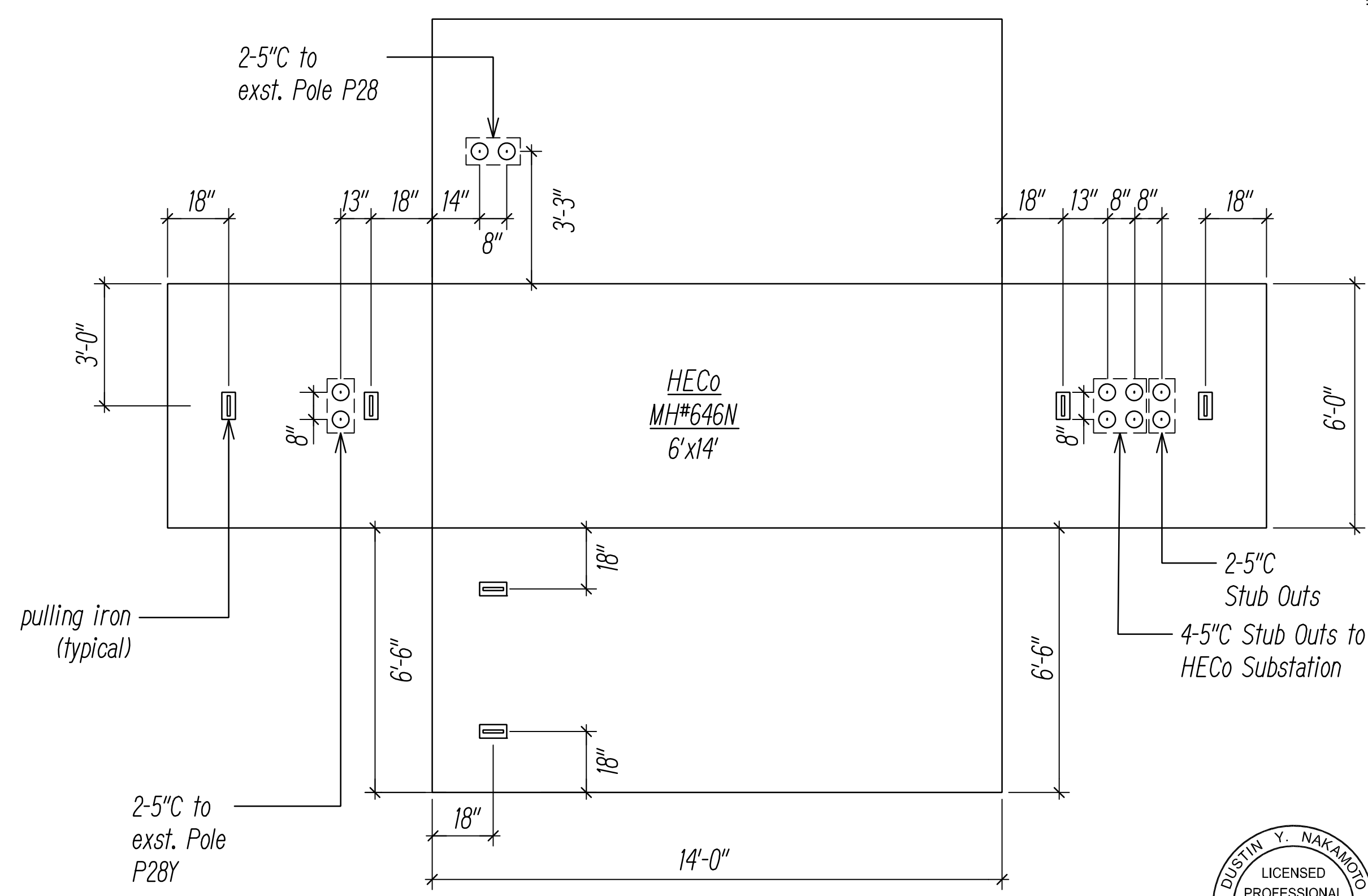
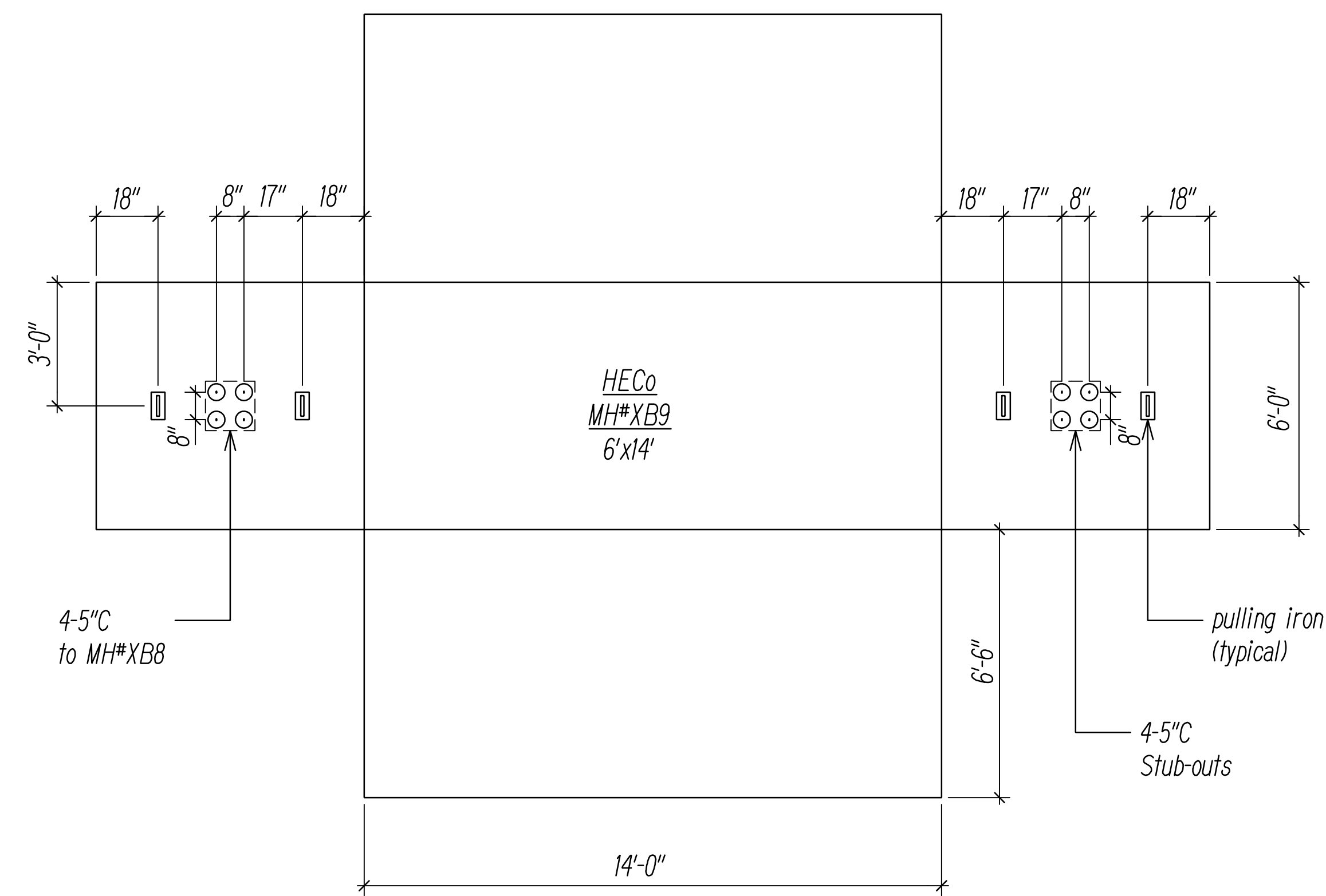
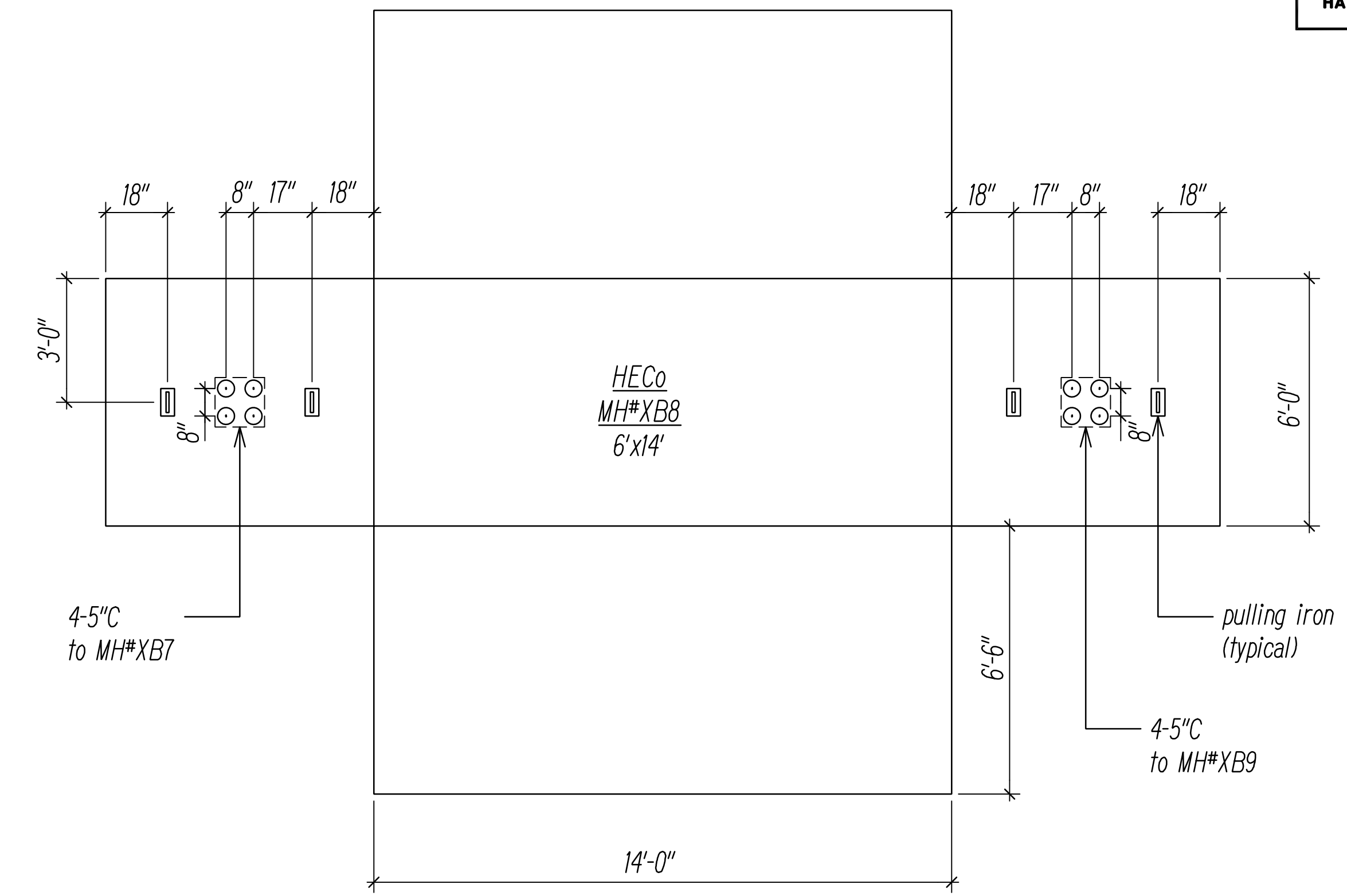
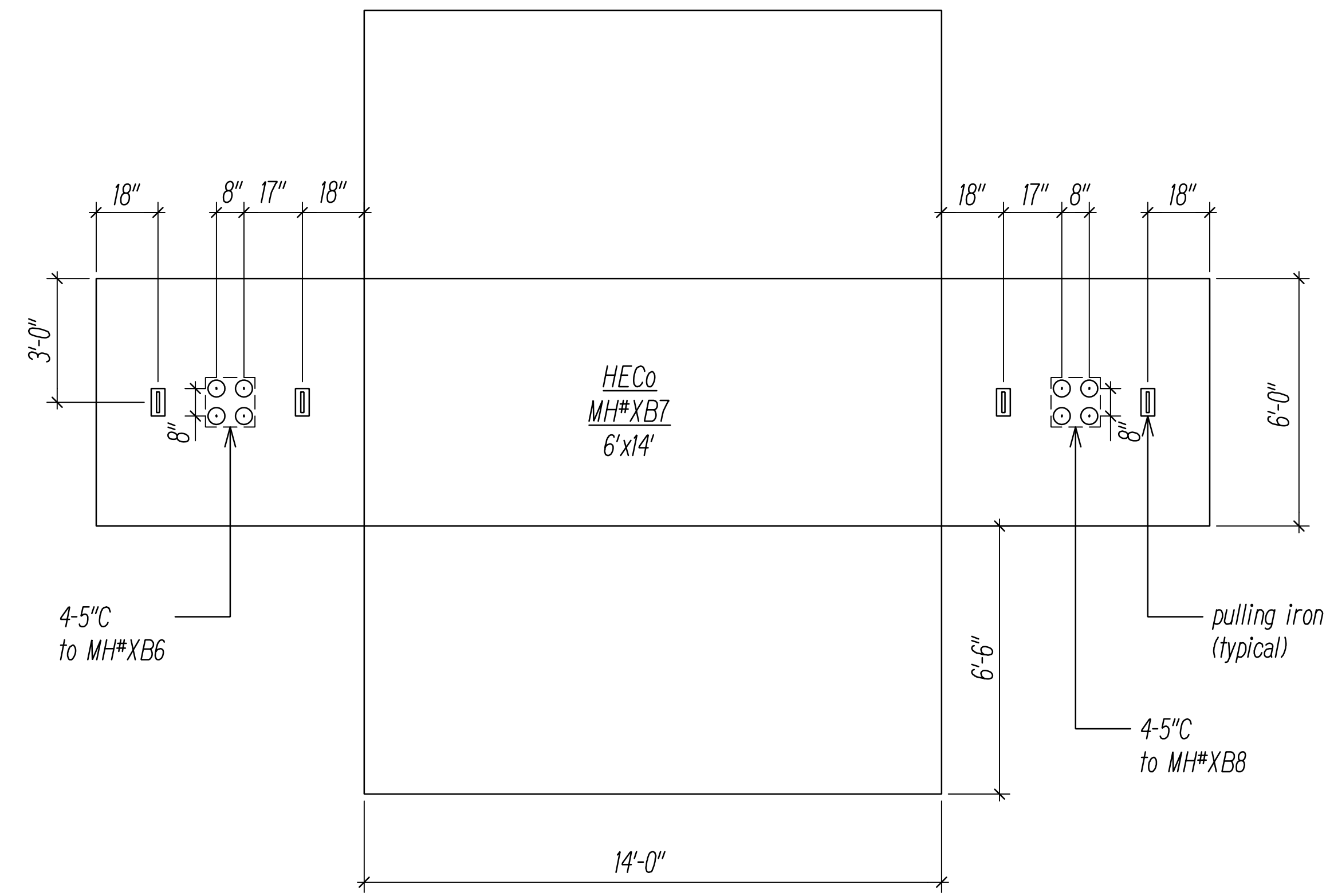
HAWAIIAN ELECTRIC Co. (HECO)
MANHOLE DIAGRAMS 2

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-06 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-07	790



- Notes:**
1. Manhole Shop Drawings and Structural Calculations shall be submitted to to Utility Company(s) for review and approval prior to fabrication.
 2. New Manhole(s) shall be constructed with 12" minimum and 18" maximum neck dimensions.

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 Hawaiian Electric

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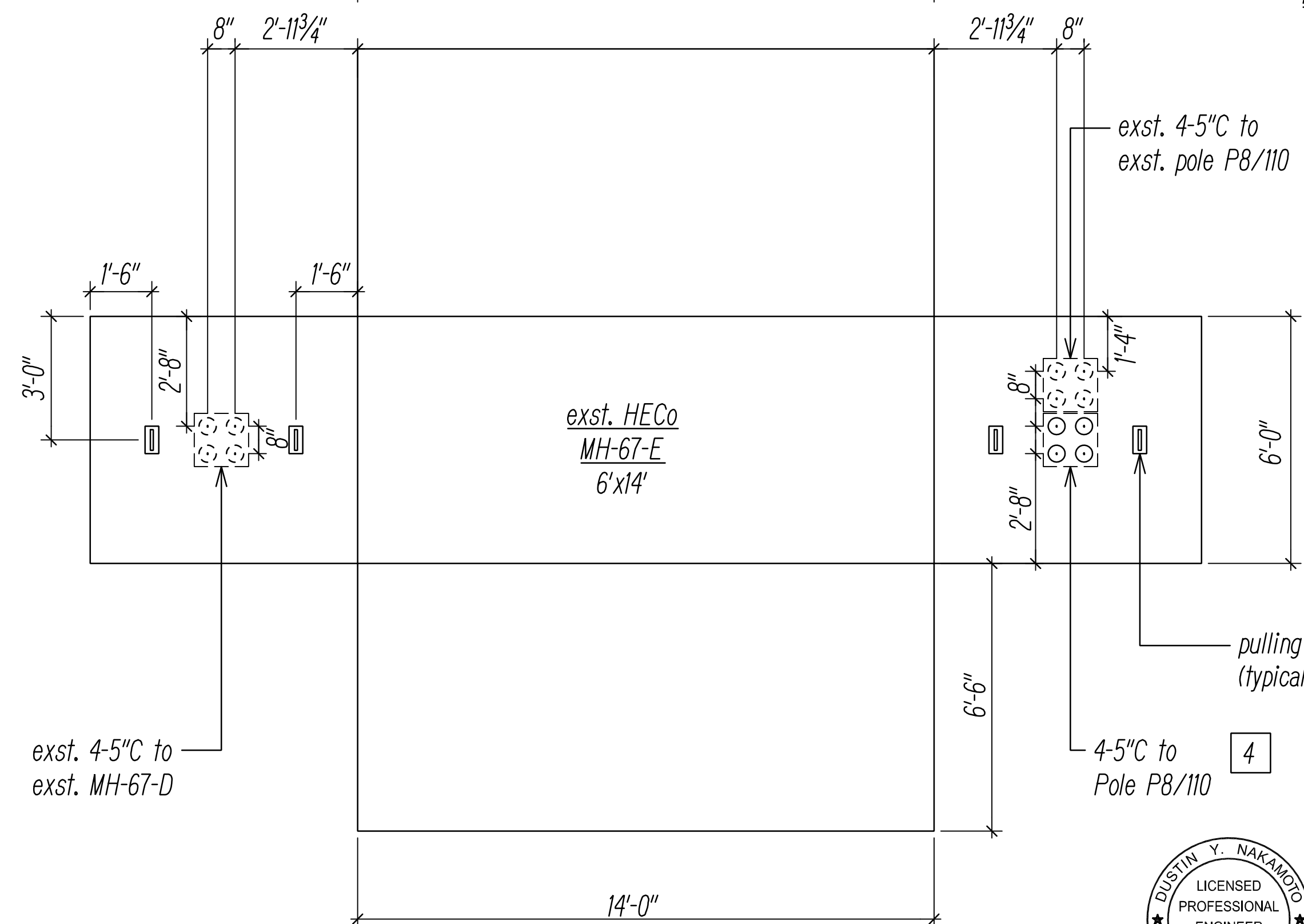
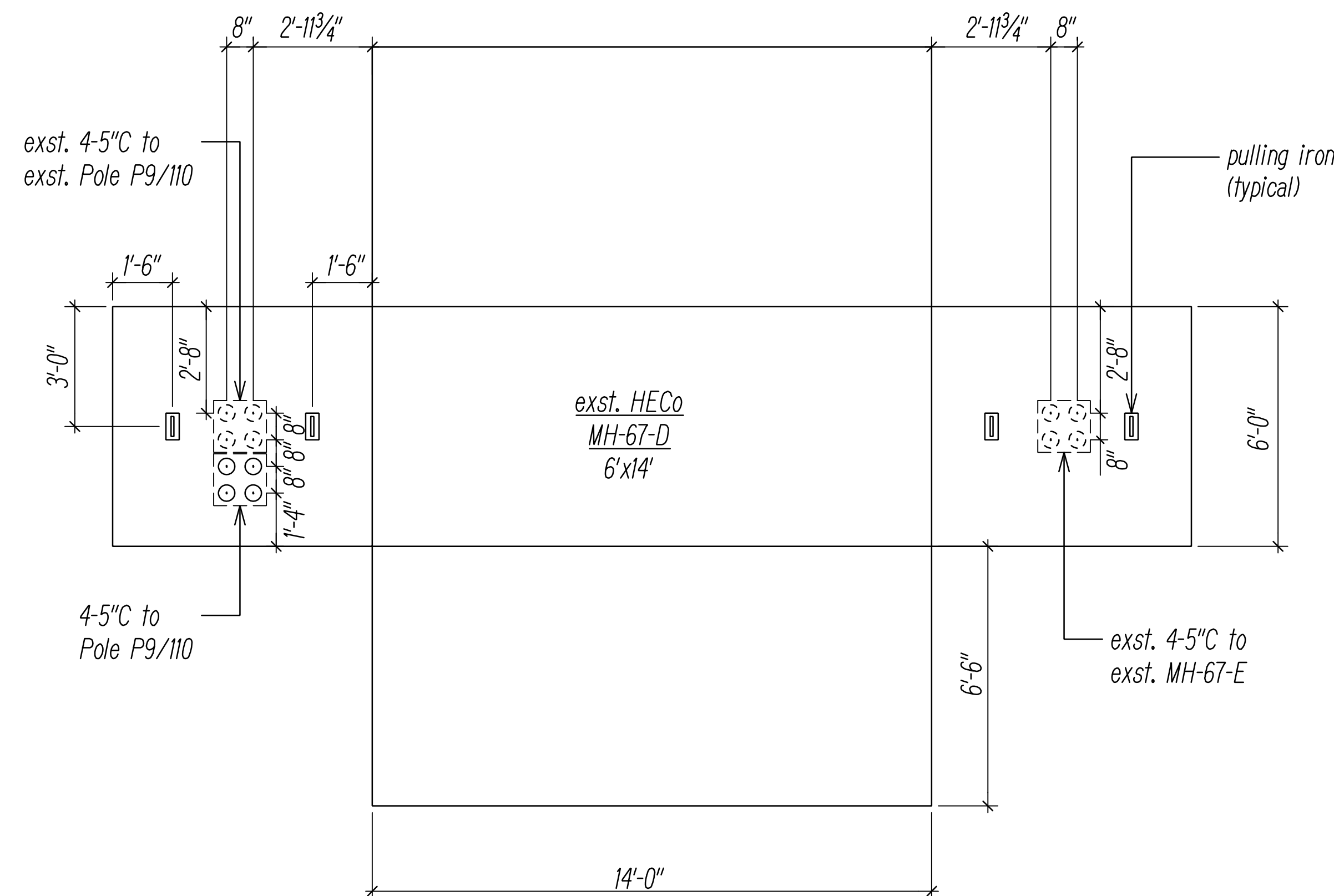
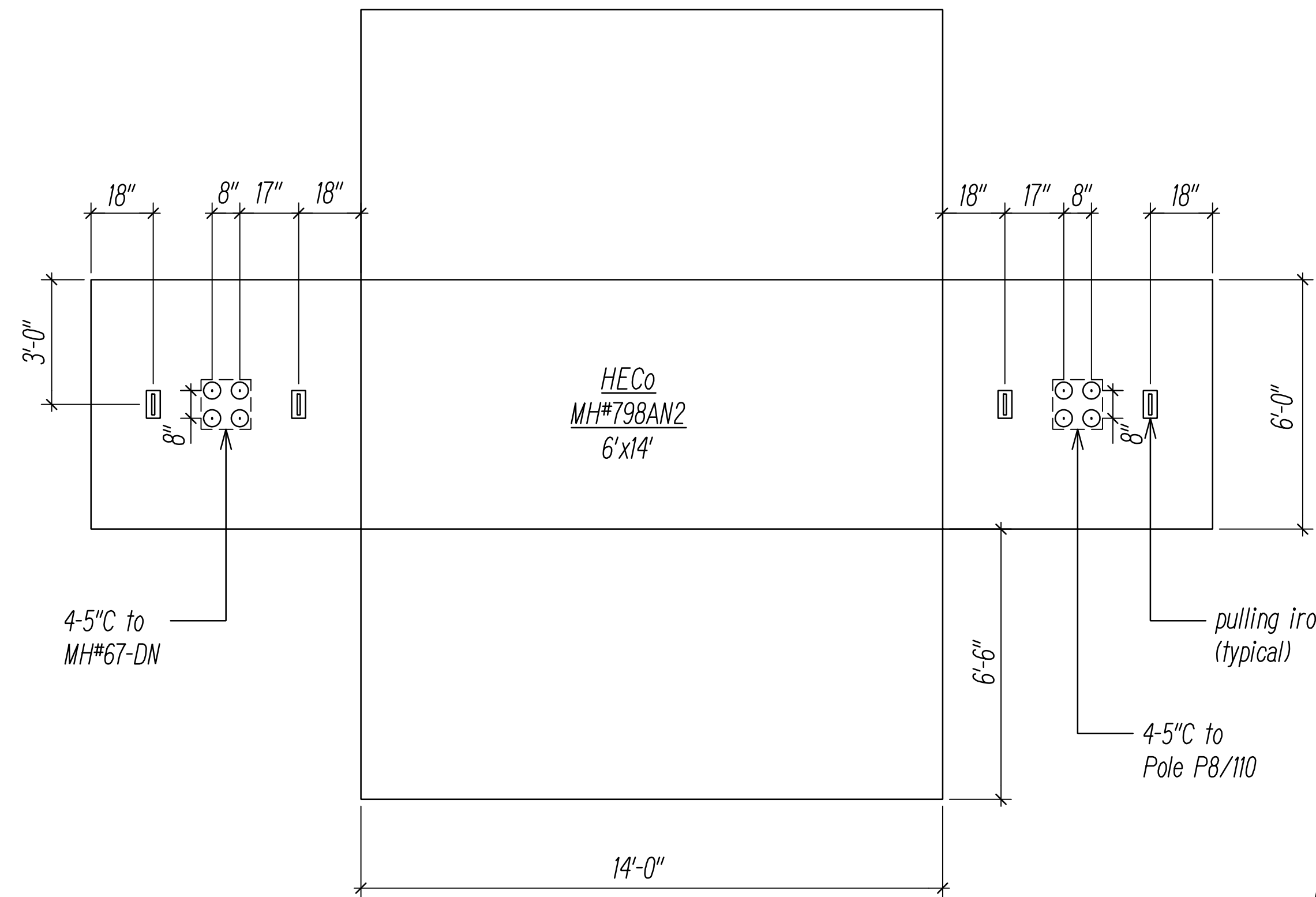
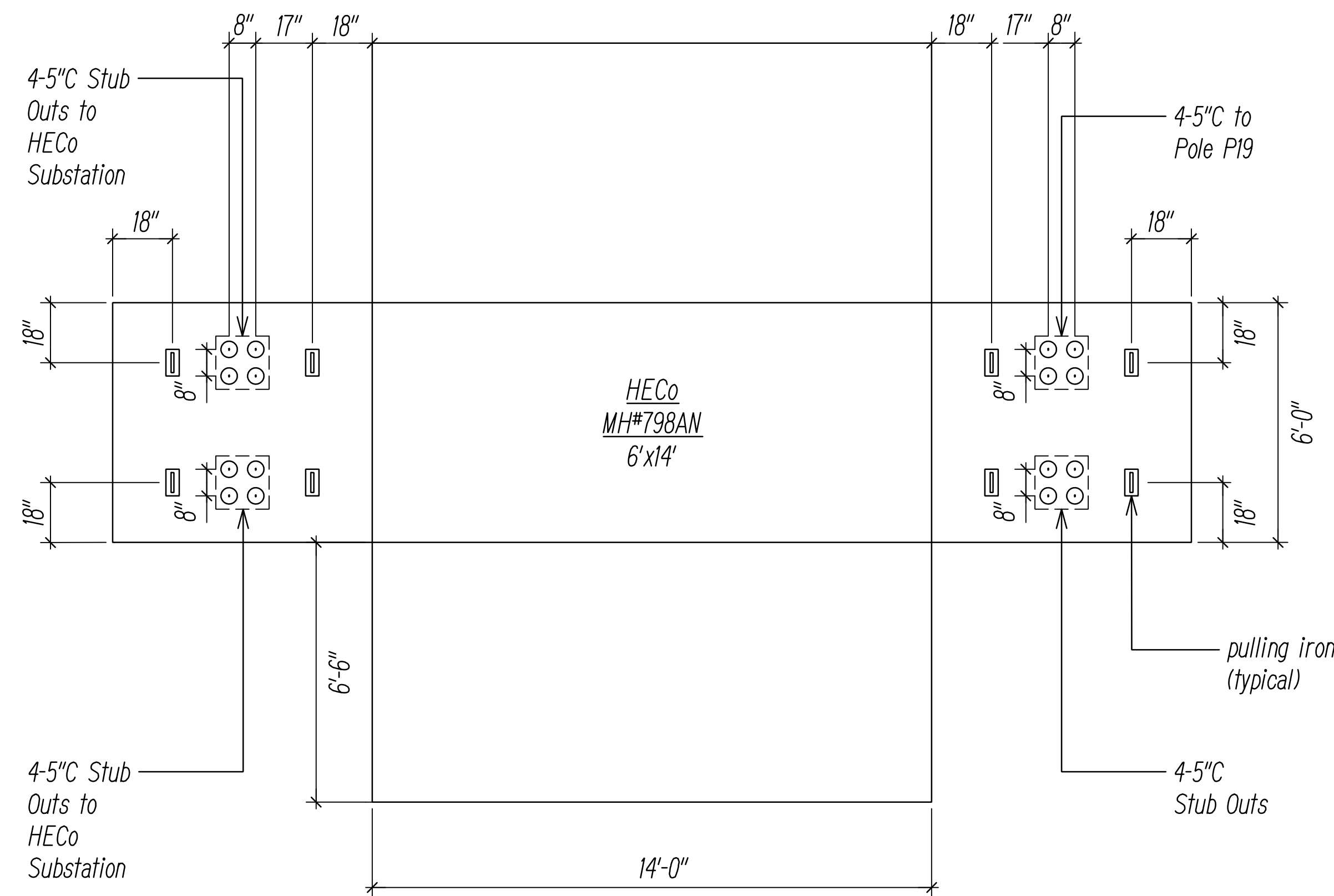
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HECO MANHOLE DIAGRAMS 3
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAIIAN ELECTRIC Co. (HECO)
MANHOLE DIAGRAMS 3
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EF-07 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-08	790



Notes:

1. Manhole Shop Drawings and Structural Calculations shall be submitted to to Utility Company(s) for review and approval prior to fabrication.
2. New Manhole(s) shall be constructed with 12" minimum and 18" maximum neck dimensions.
3. Verify all dimensions on existing manholes.
4. Utilize previous knockout and duct entry for new conduit(s).

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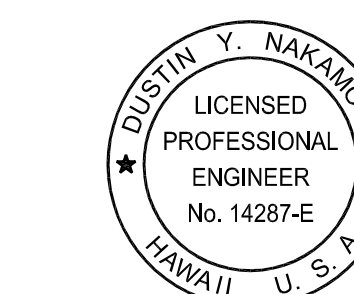
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HECO MANHOLE DIAGRAMS 4
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

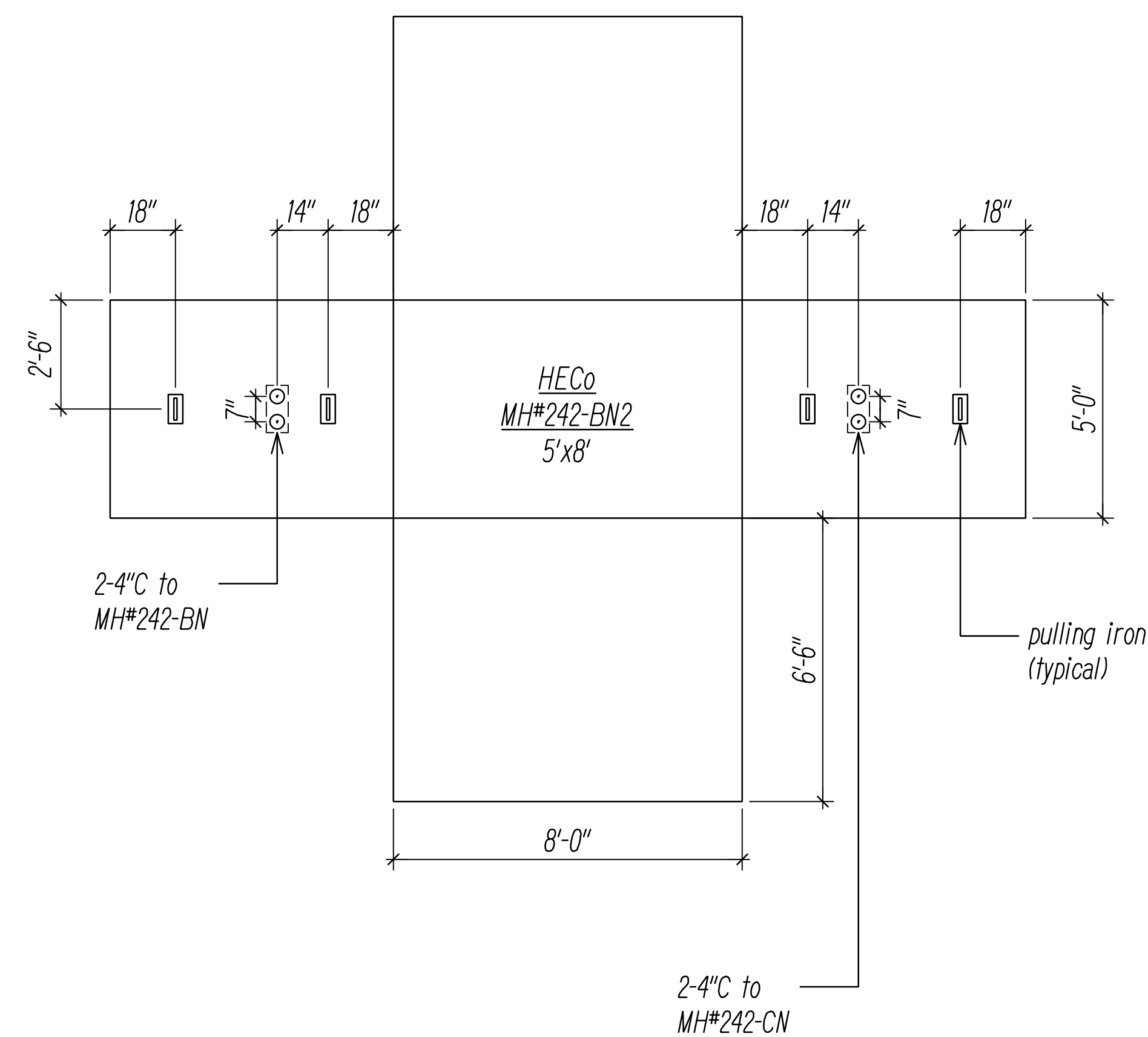
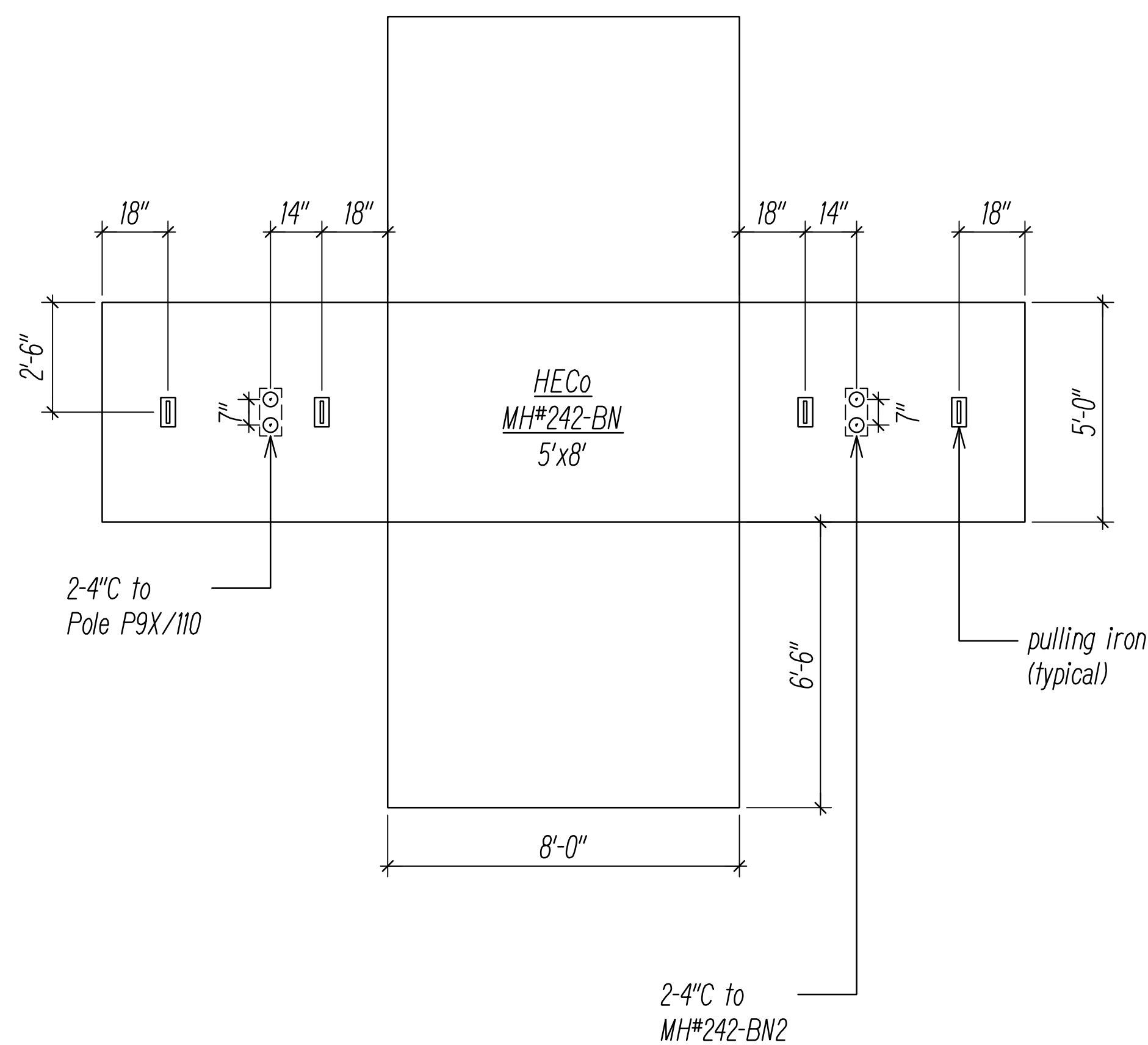
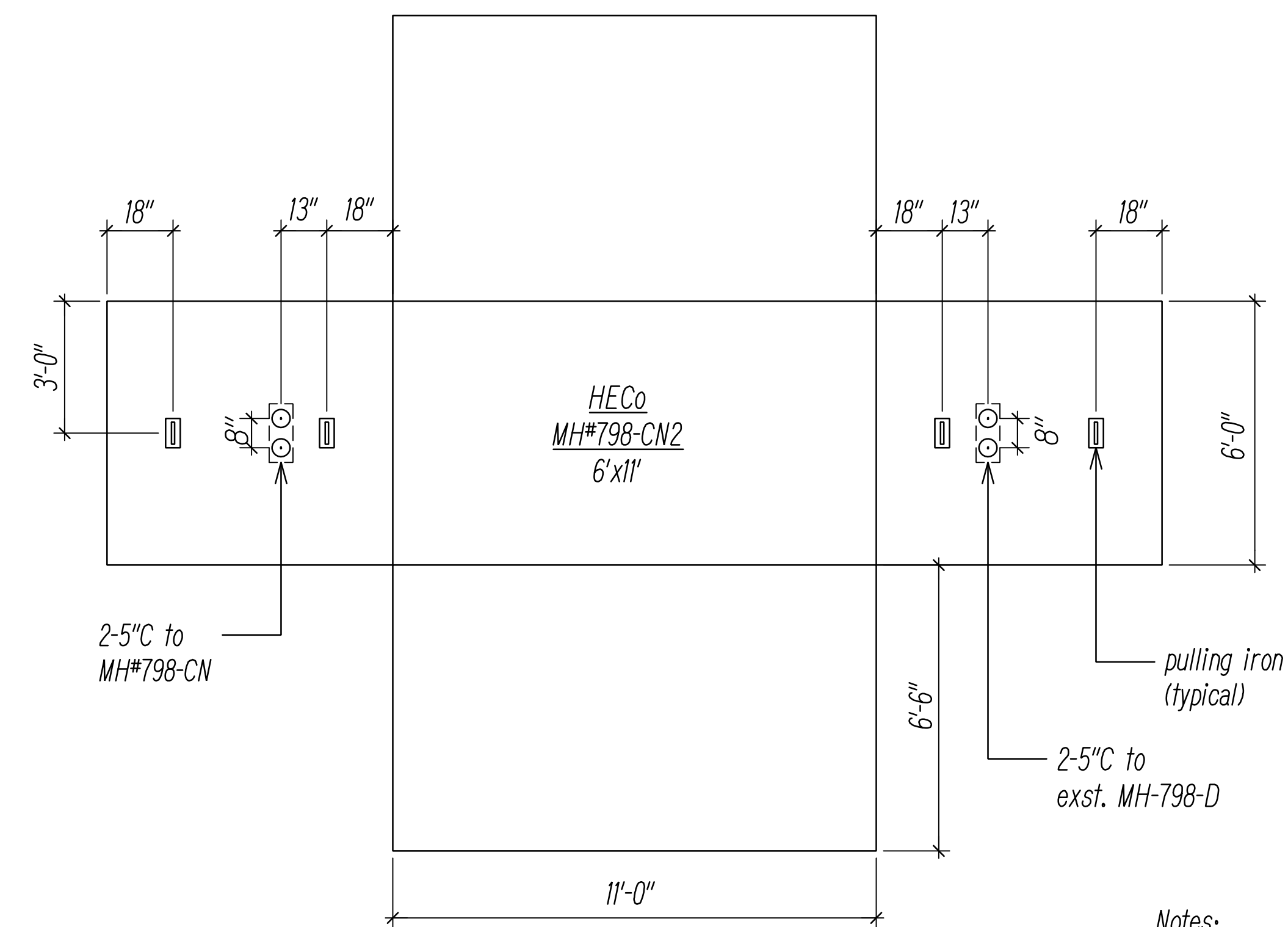
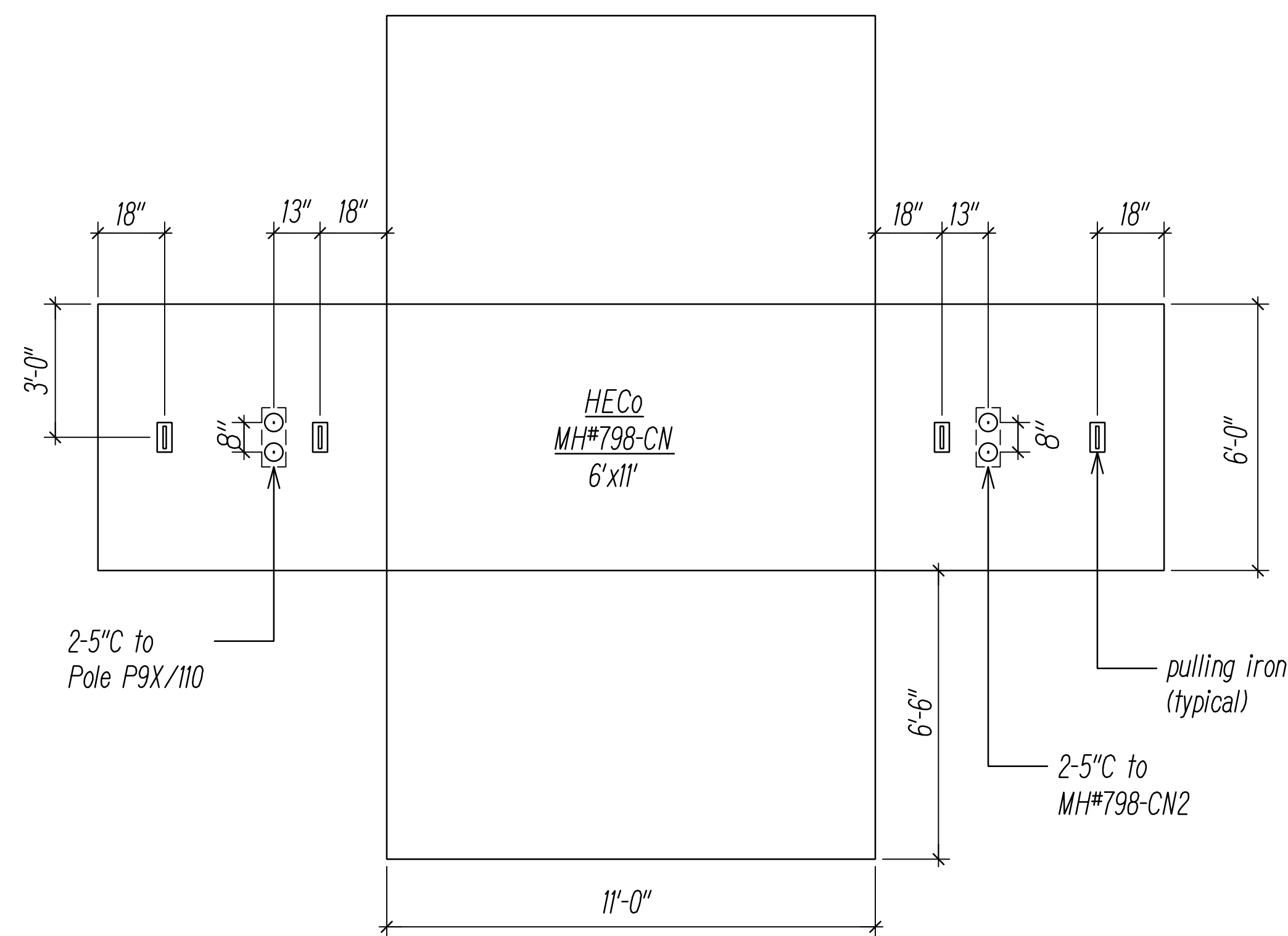
HAWAIIAN ELECTRIC Co. (HECO)
MANHOLE DIAGRAMS 4

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-08 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-09	790



Notes:

1. Manhole Shop Drawings and Structural Calculations shall be submitted to to Utility Company(s) for review and approval prior to fabrication.
2. New Manhole(s) shall be constructed with 12" minimum and 18" maximum neck dimensions.

DRAWING REVIEW

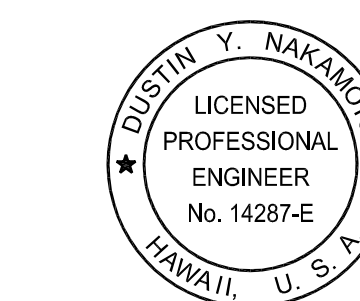
Reviewed for Hawaiian Electric Company Facilities Only
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 Transmission & Distribution Engineering
 Hawaiian Electric

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

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HECO MANHOLE DIAGRAMS 5
 NOT TO SCALE



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

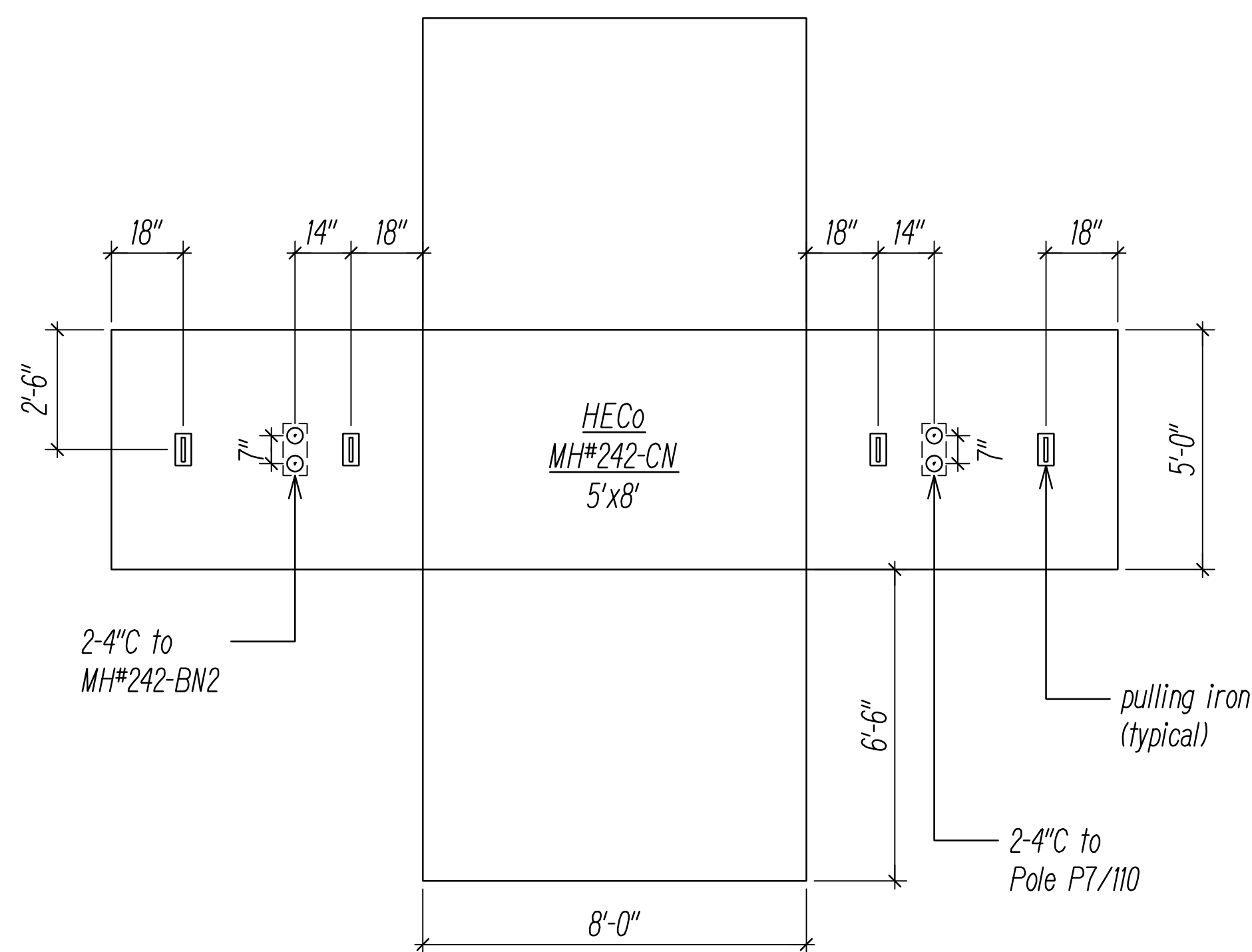
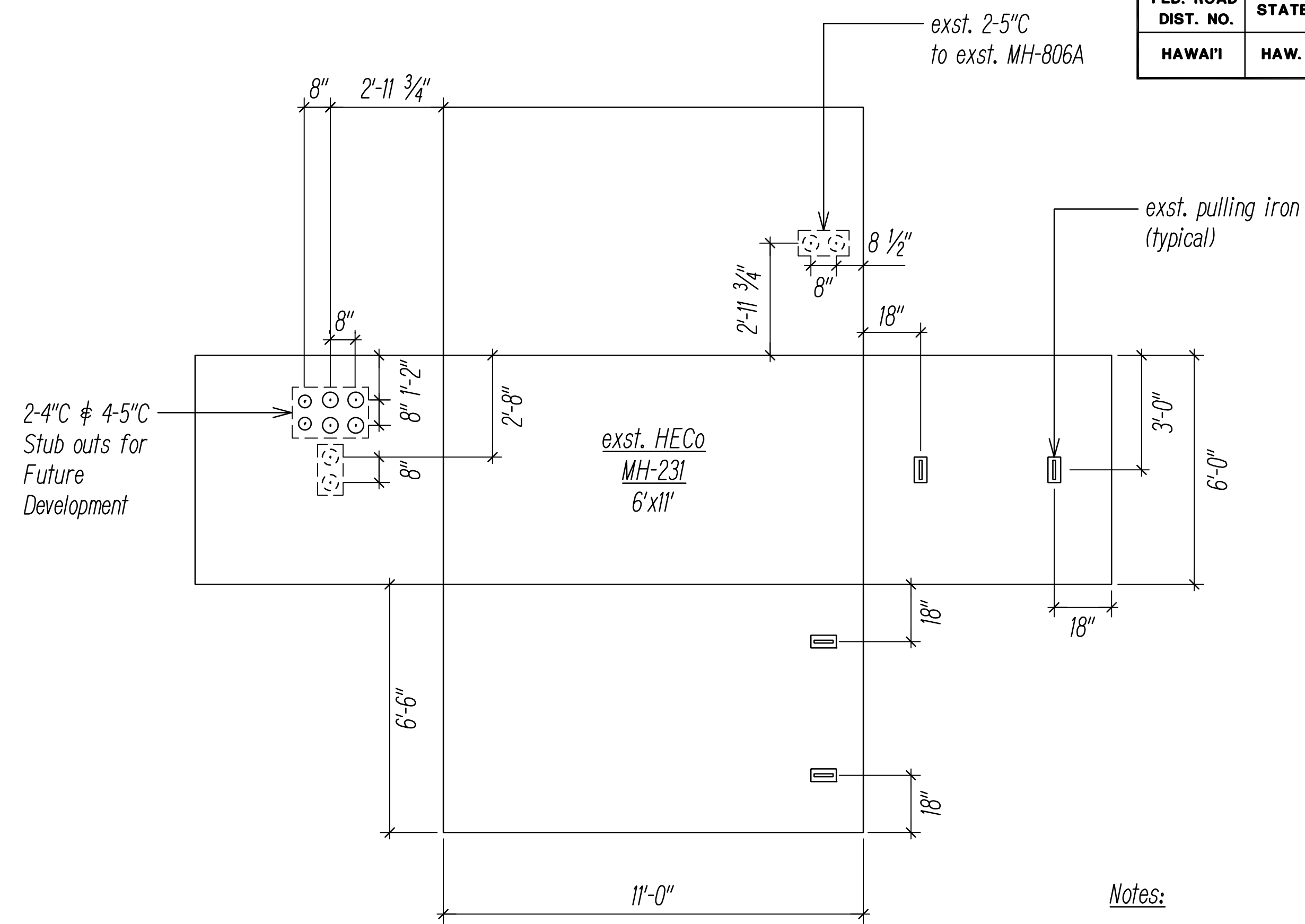
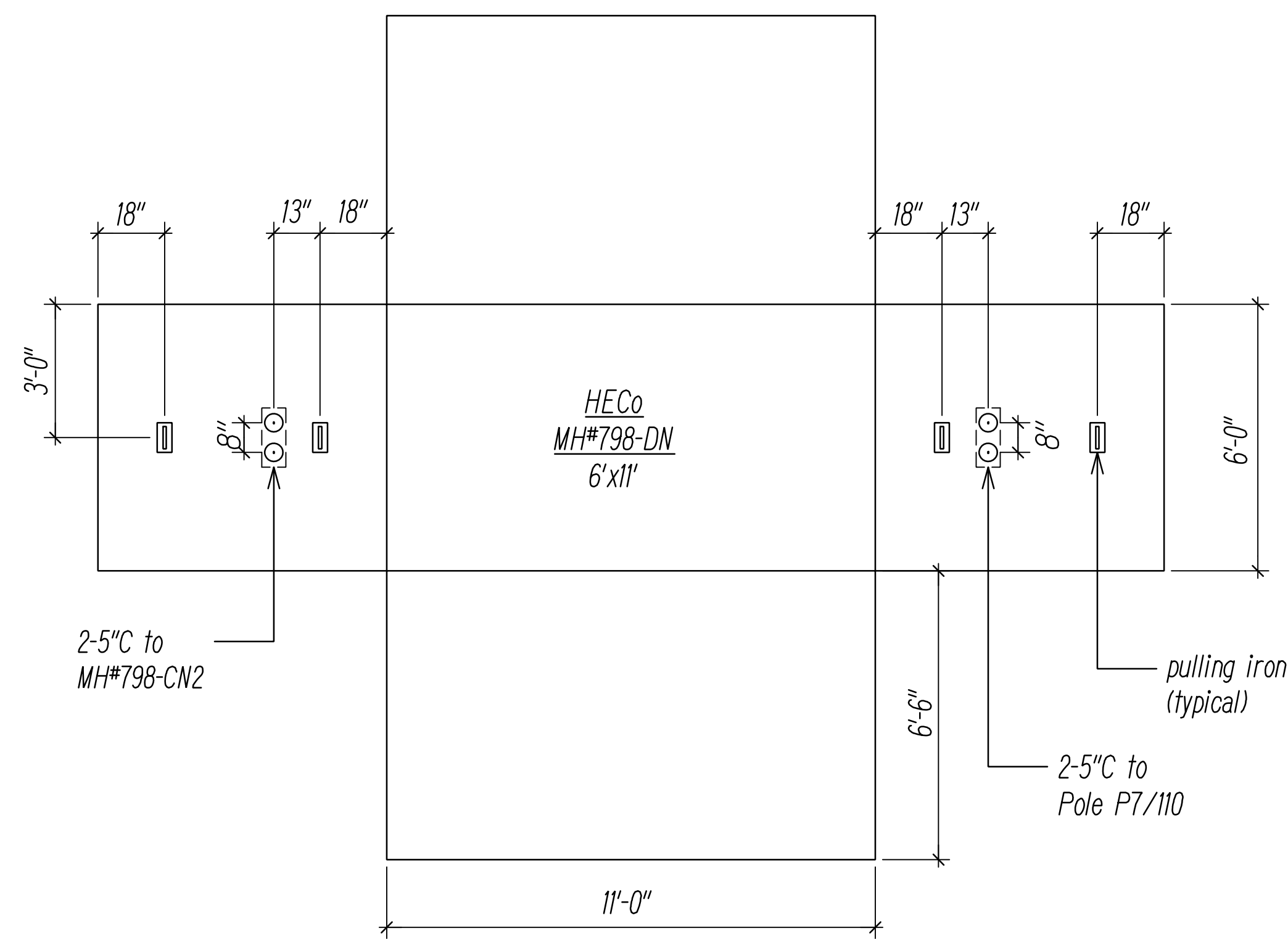
HAWAIIAN ELECTRIC Co. (HECO)
MANHOLE DIAGRAMS 5

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-09 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-10	790



Notes:

1. Manhole Shop Drawings and Structural Calculations shall be submitted to to Utility Company(s) for review and approval prior to fabrication.
2. New Manhole(s) shall be constructed with 12" minimum and 18" maximum neck dimensions.
3. Verify all dimensions on existing manholes.

DRAWING REVIEW

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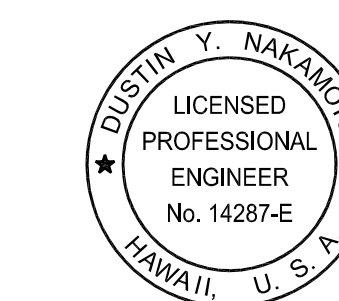
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HECO MANHOLE DIAGRAMS 6
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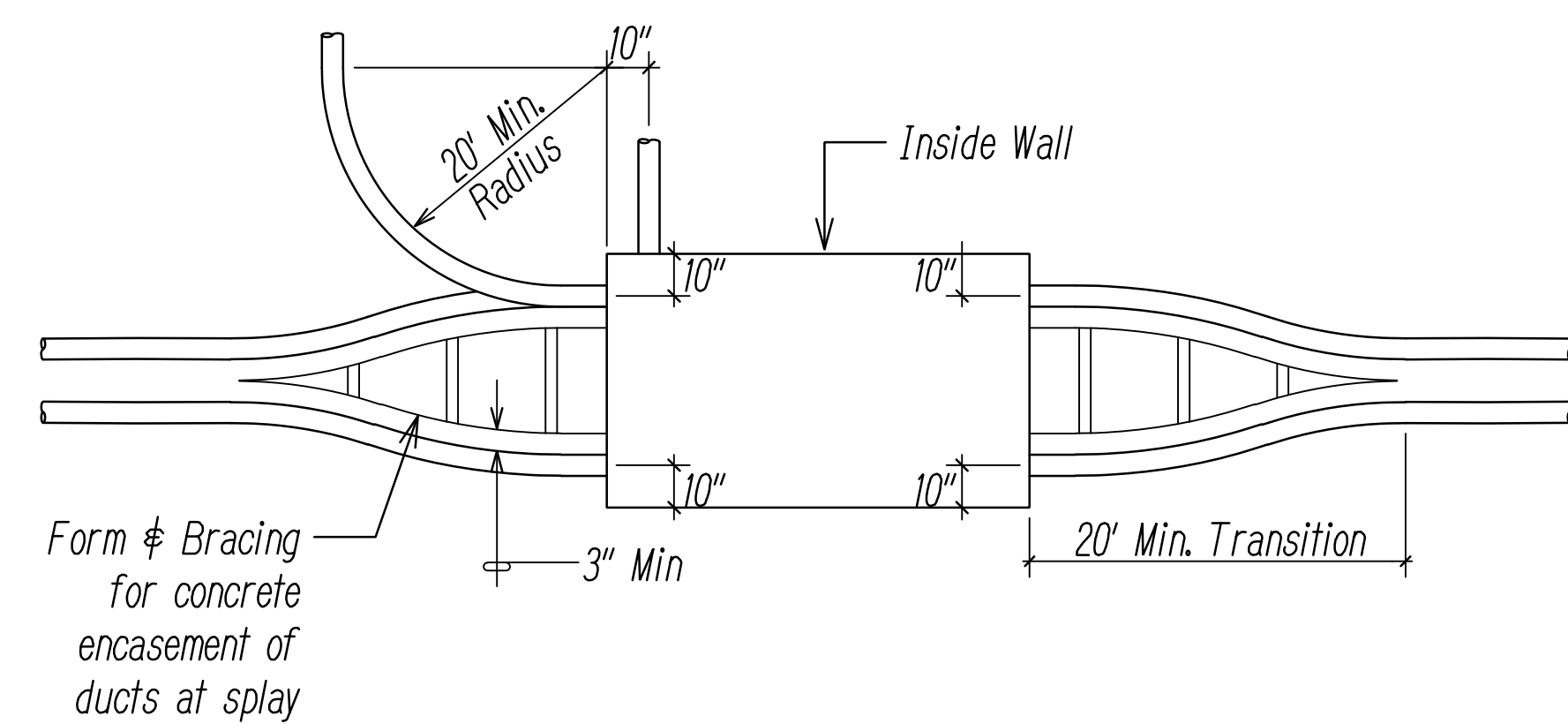
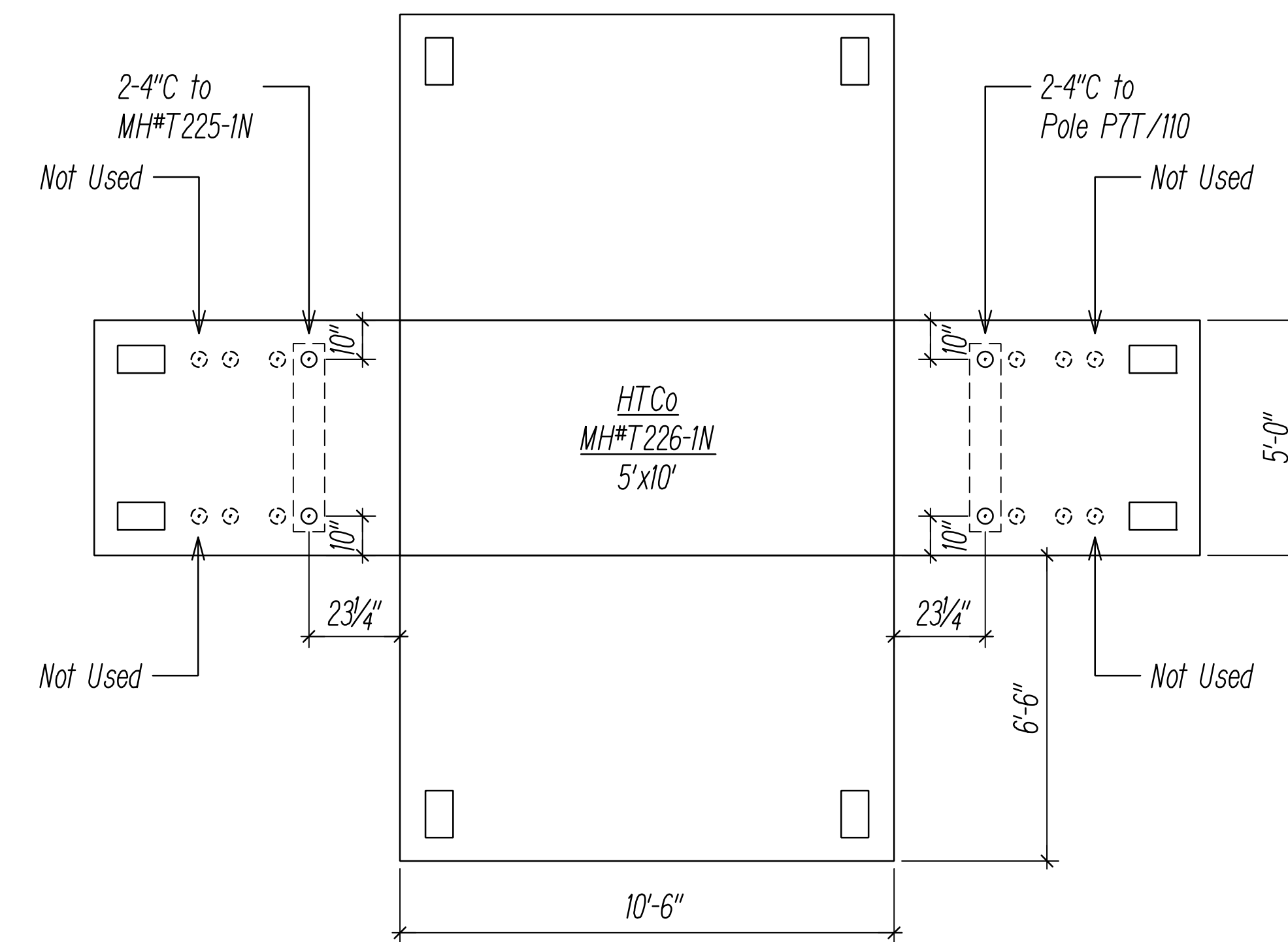
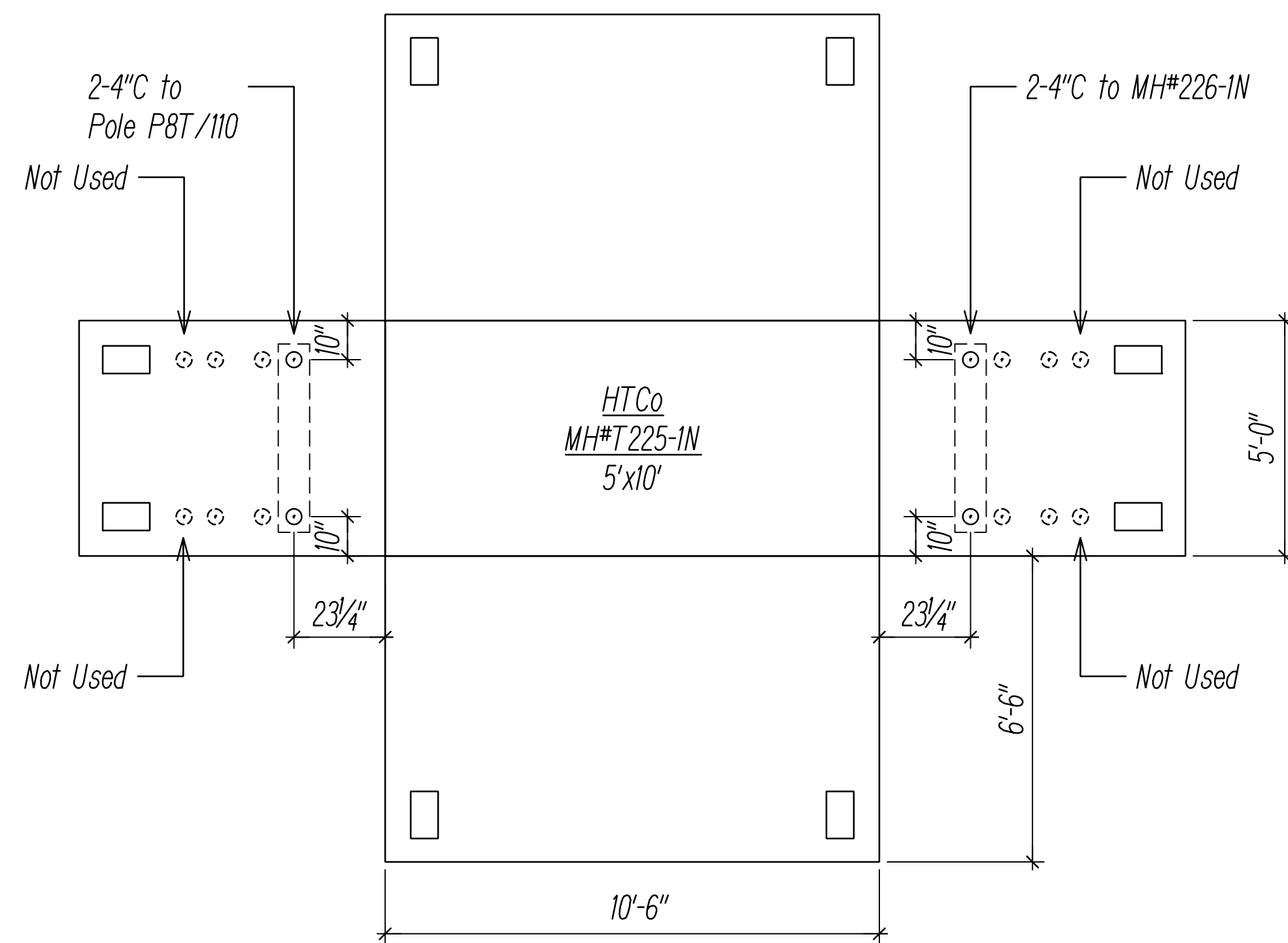
HAWAIIAN ELECTRIC Co. (HECO)
MANHOLE DIAGRAMS 6

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

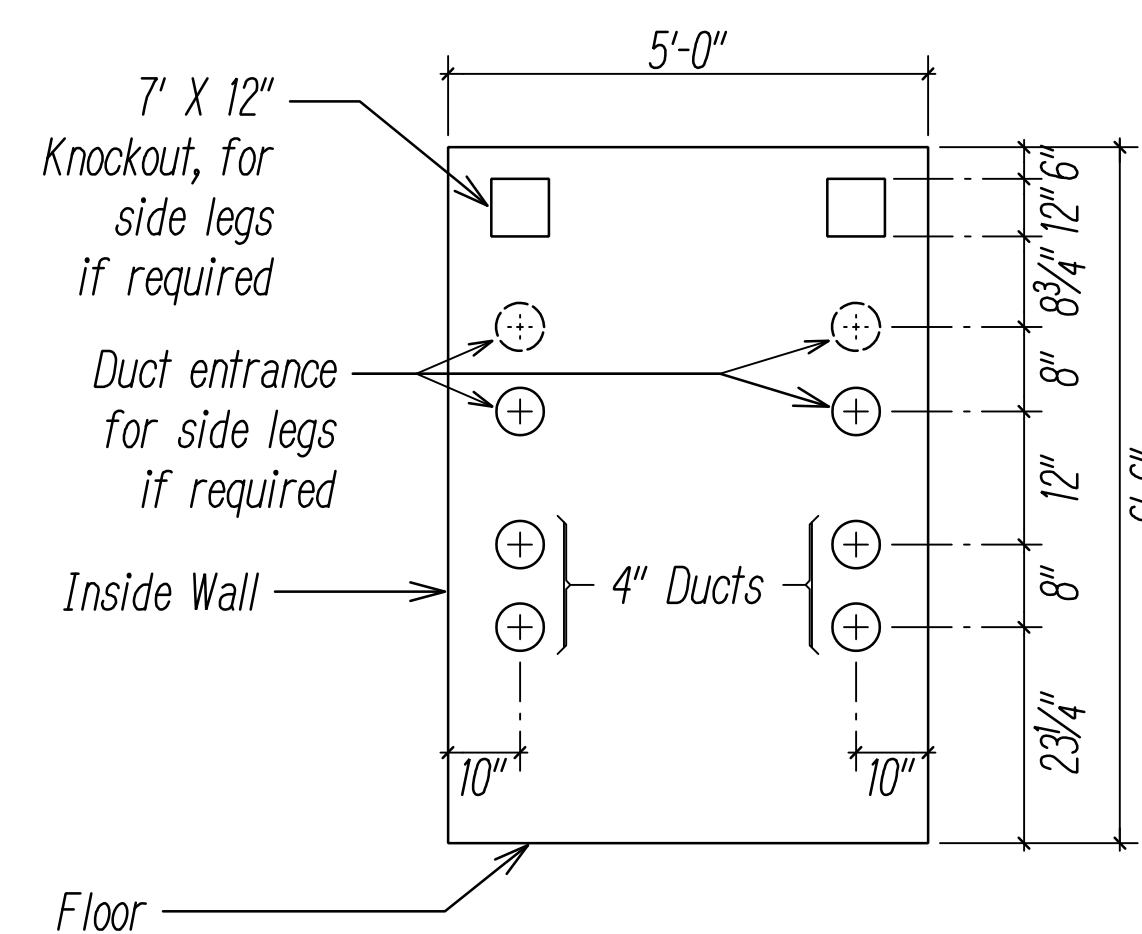
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SHEET No. EF-10 OF 21 SHEETS

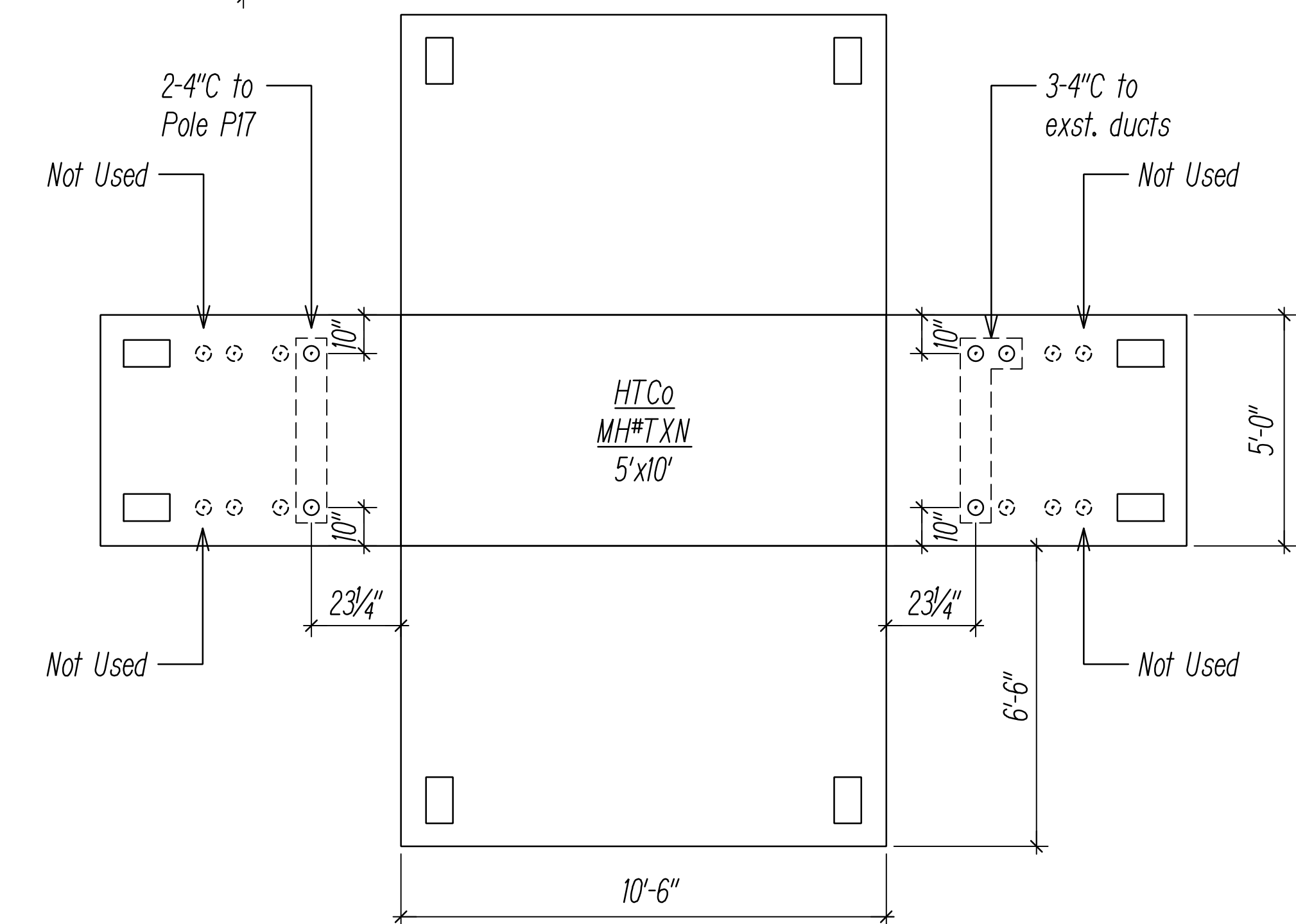
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-11	790



Typical Duct Transition to Splay Ducts at Manhole/Handhole



Typical Wall End Section



TYPICAL MANHOLE/HANDHOLE DETAILS
- HTCo MANHOLE DIAGRAMS 1

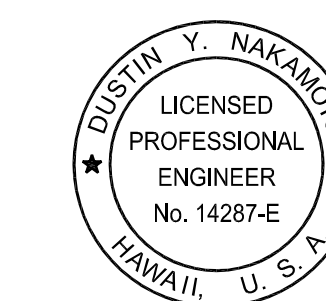
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HTCo MANHOLE DIAGRAMS 1

NOT TO SCALE

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 HAWAIIAN TELECOM DATE: _____
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
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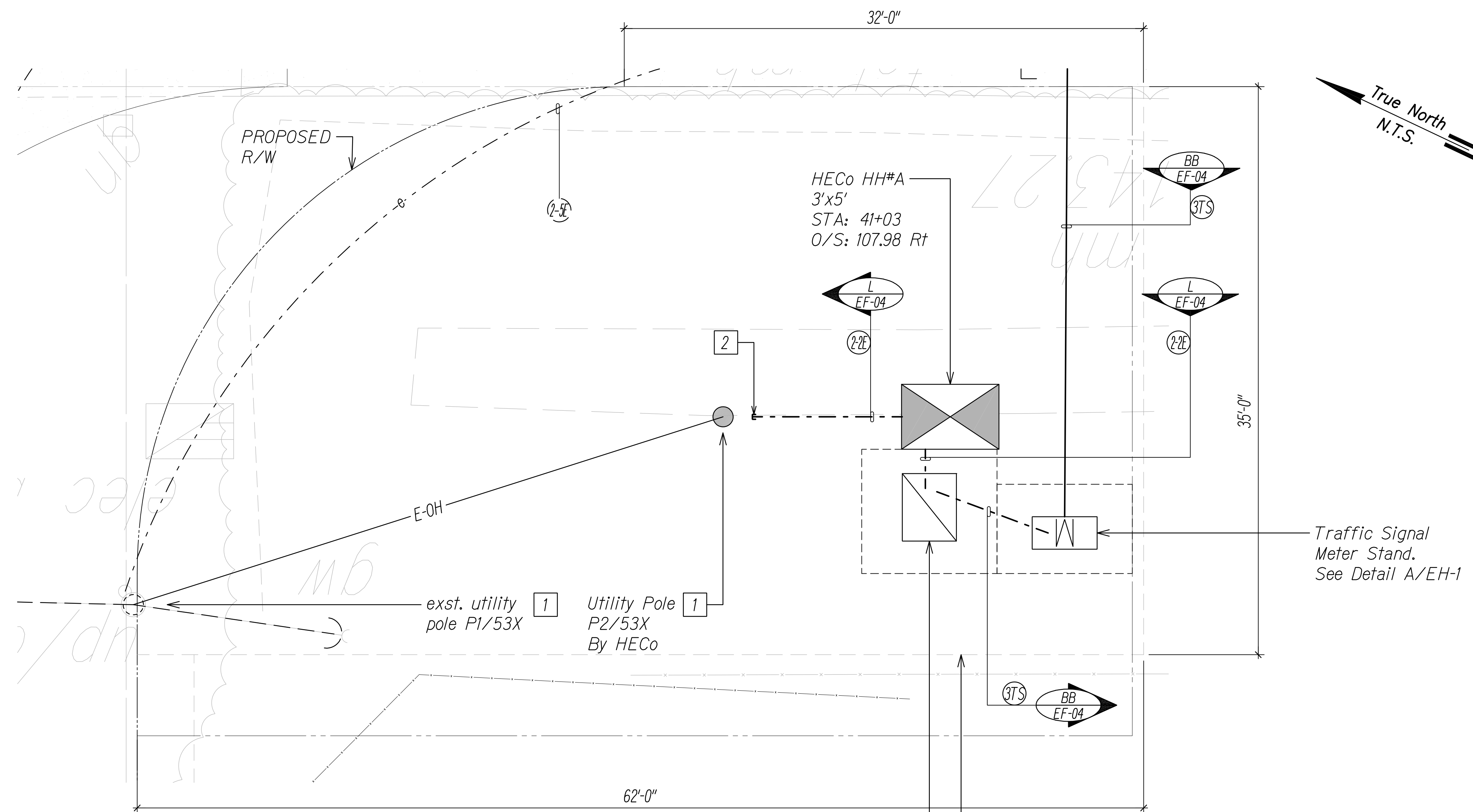
HAWAIIAN TELECOM (HTCo)
MANHOLE DIAGRAMS 1

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-11 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-12	790



- General Electrical Notes:
1. **Caution!!! Electrical Hazard!!!** Existing HECo overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECo. Only HECo 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 HECo facilities which can result in electrocution.
 2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
 3. See street lighting & traffic signal plans for street lighting & traffic signal work.
 4. HECo, HTCo & CATV to remove their respective overhead facilities.
 5. Coordinate manhole/handhole adjustments with respective utility(s).

- Notes:
- 1 Provide proper bracing/support for exst. utility pole during construction; submit details to respective utility company(s) for approval.
 - 2 Provide conduit riser(s) up pole per utility company requirements.

HECo 1PH XFMR. See Detail C/EF-14

Boundary of required easement in favor of HECo and the State Department of Transportation (for future traffic signal equipment and exst. service to UHWO).

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FARRINGTON HWY / INTERSECTION D
ENLARGED EQUIPMENT PLAN 1
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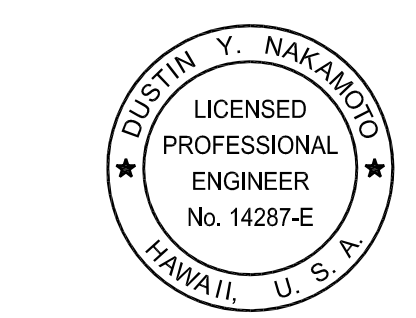
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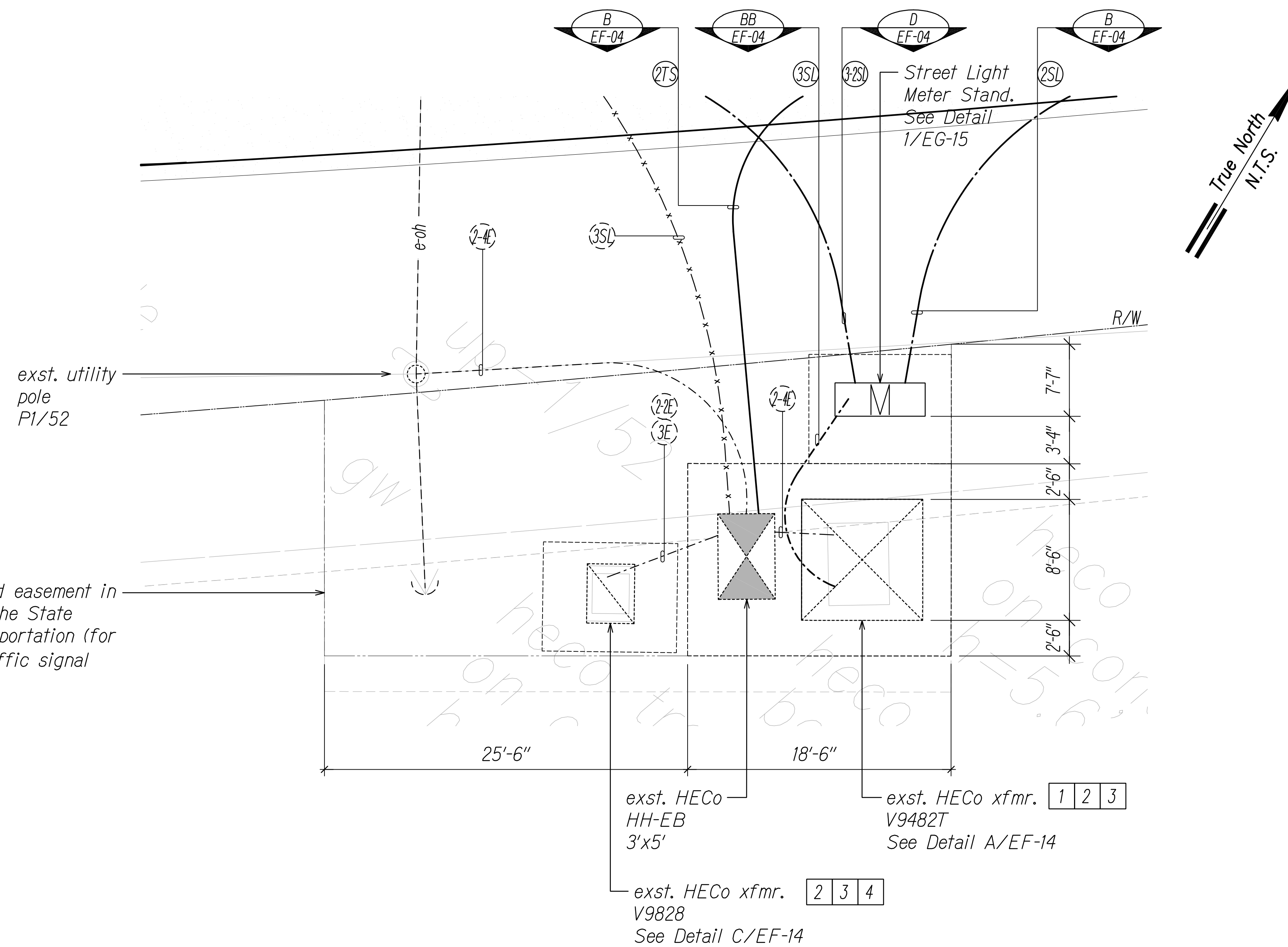
ENLARGED EQUIPMENT PLAN 1

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-12 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-13	790



Boundary of required easement in favor of HECO and the State Department of Transportation (for street lighting & traffic signal equipment).

General Electrical Notes:

1. **Caution!!! Electrical Hazard!!!** Existing HECO overhead and underground lines, are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO 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 HECO facilities which can result in electrocution.
2. Construct new utility structures & coordinate relocation of respective utility facilities, prior to removal of existing, respectively.
3. See street lighting & traffic signal plans for street lighting & traffic signal work.
4. HECO, HCo & CATV to remove their respective overhead facilities.
5. Coordinate manhole/handhole adjustments with respective utility(s).

Notes:

1. Excavate to add duct to transformer secondary compartment. Coordinate & schedule work with HECO prior to commencing with excavation. **Caution!!! Electrical Hazard!!!** Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule cable installation with HECO. Provide couplings as required, & extend ext. duct(s) from HECO transformer pad. Repair to match existing. The cost of HECO's assistance in providing proper support & protection will be charged to the contractor.
2. Currently De-energized. Verify.
3. Remove old customer secondary and equipment as required.
4. Excavate & expose exst. handhole/manhole wall(s). Coordinate & schedule work with HECO prior to commencing with excavation. **Caution!!! Electrical Hazard!!!** Only HECO personnel shall break & remove existing conduits, shift cables, & construct duct entry(s). Coordinate & schedule street light cable removal & traffic signal cable installation with HECO. Provide couplings as required, & extend duct(s). The cost of HECO's assistance in providing proper support & protection will be charged to the contractor. Repair to match existing.

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A
EF-13

**FARRINGTON HWY / NEAR INTERSECTION D
ENLARGED EQUIPMENT PLAN 2**

NOT TO SCALE

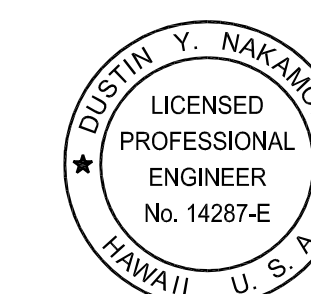
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Transmission & Distribution Engineering
Hawaiian Electric

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Date: April 30, 2024
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HIGHWAYS DIVISION

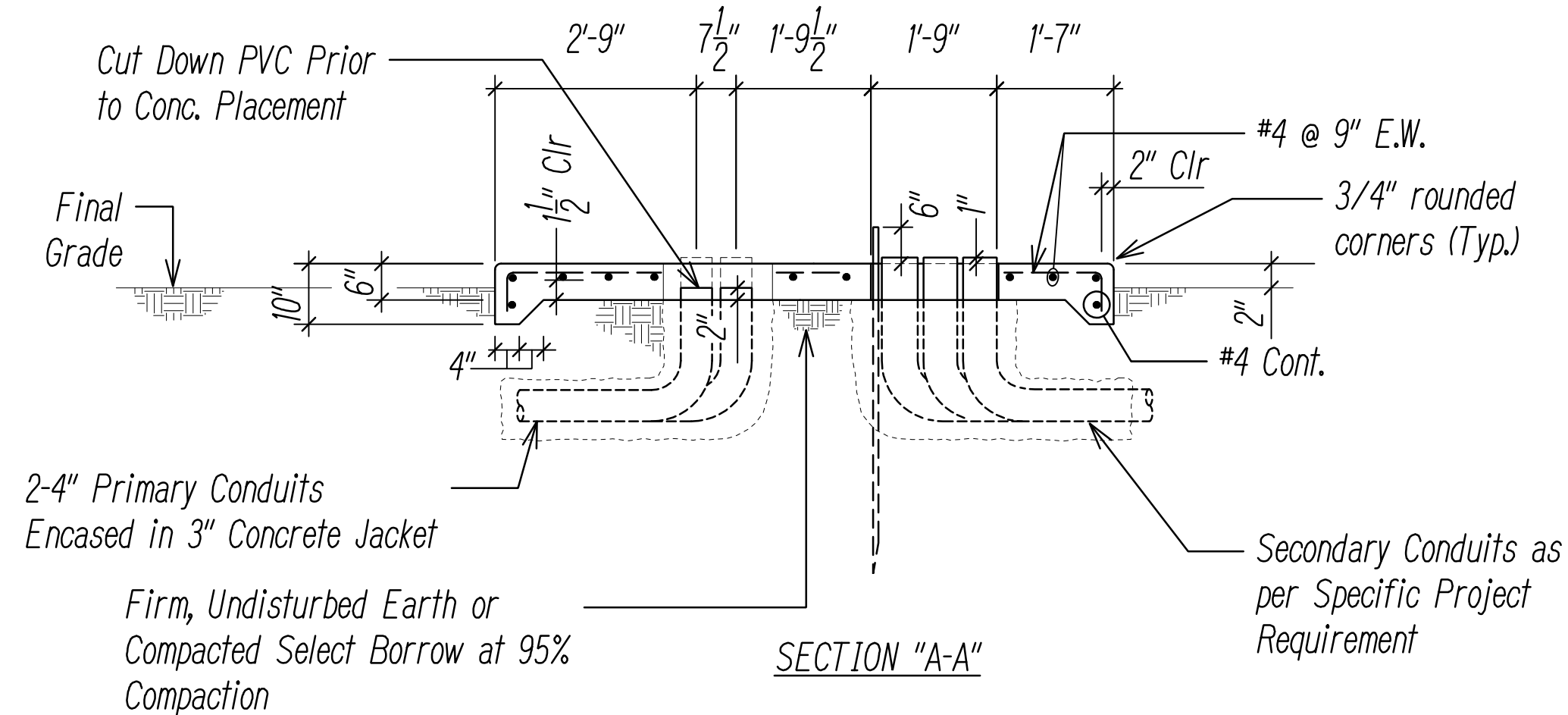
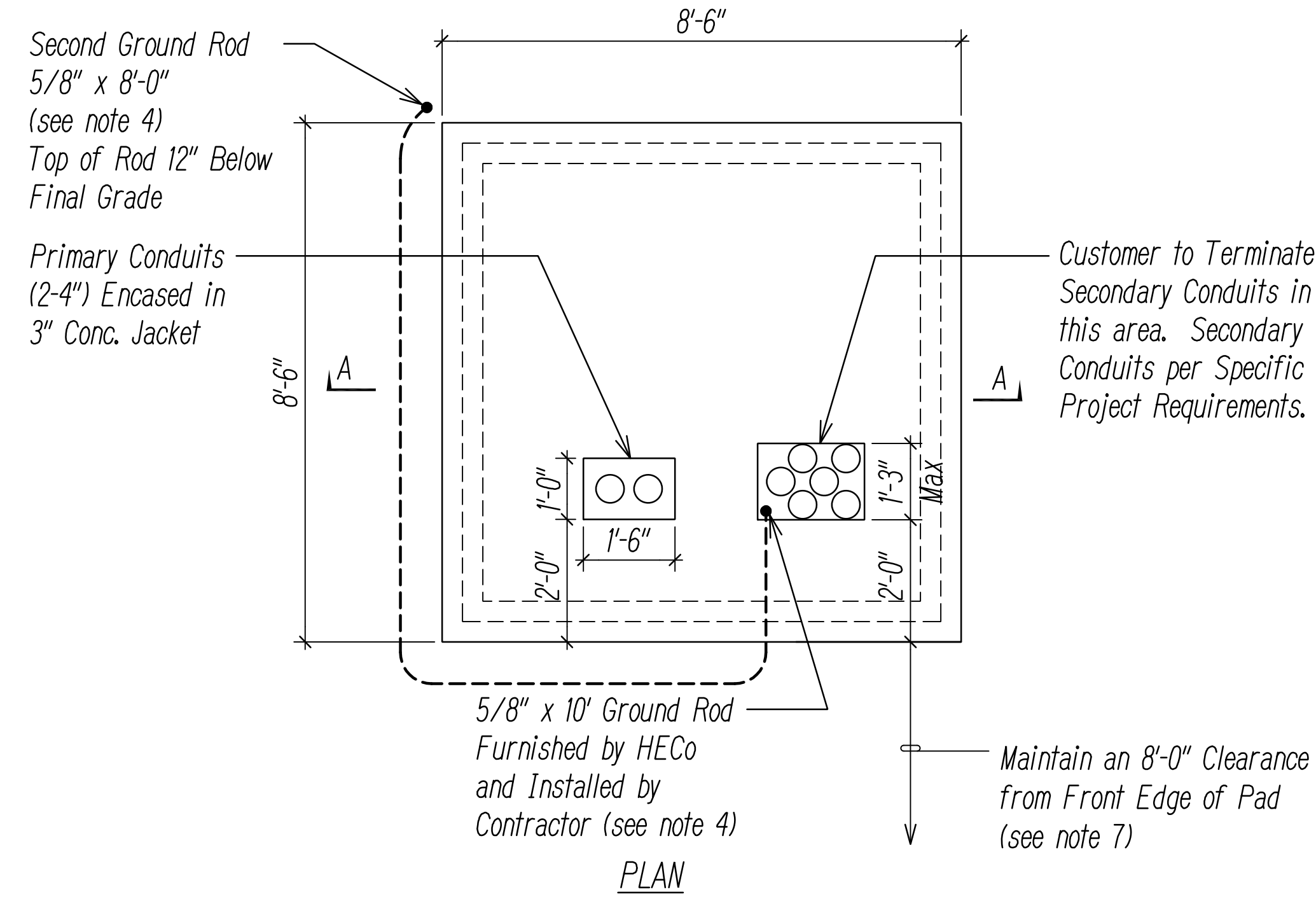
ENLARGED EQUIPMENT PLAN 2

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

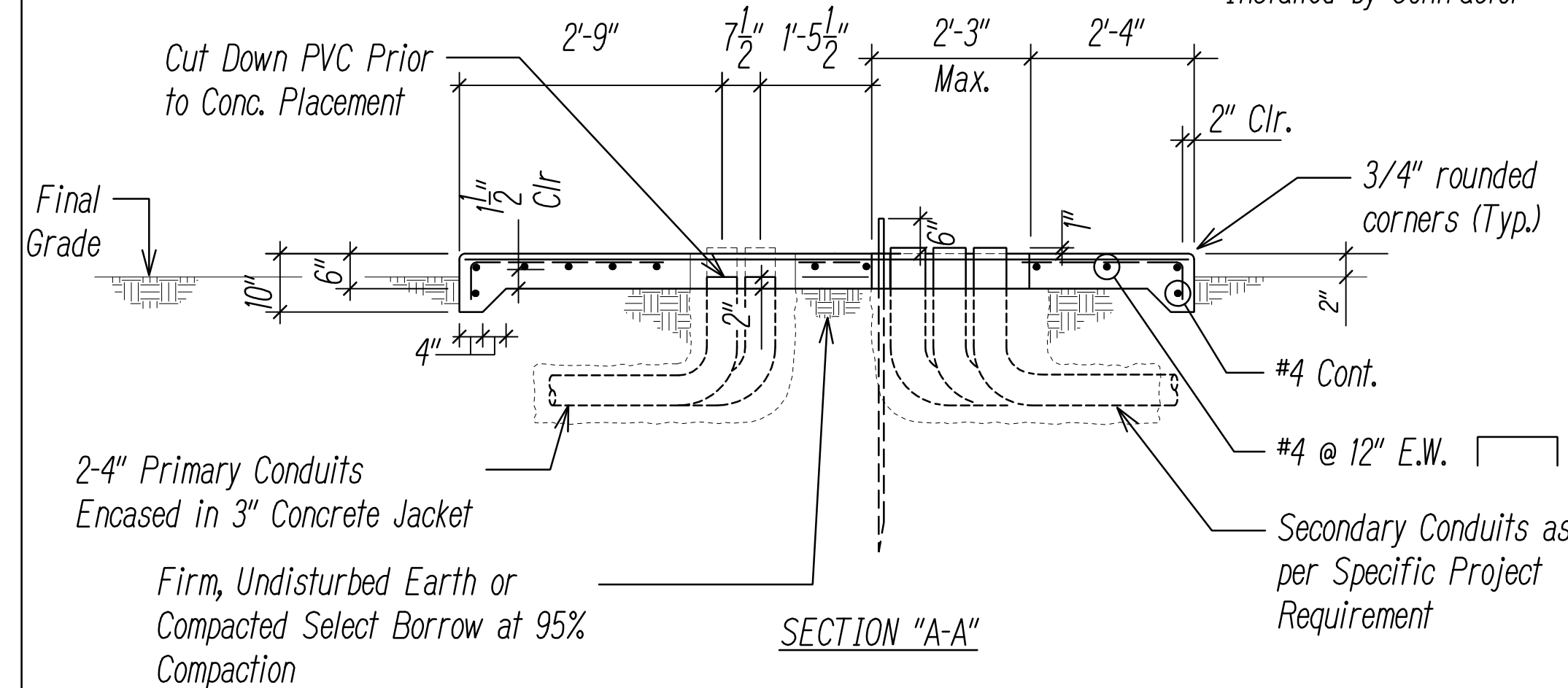
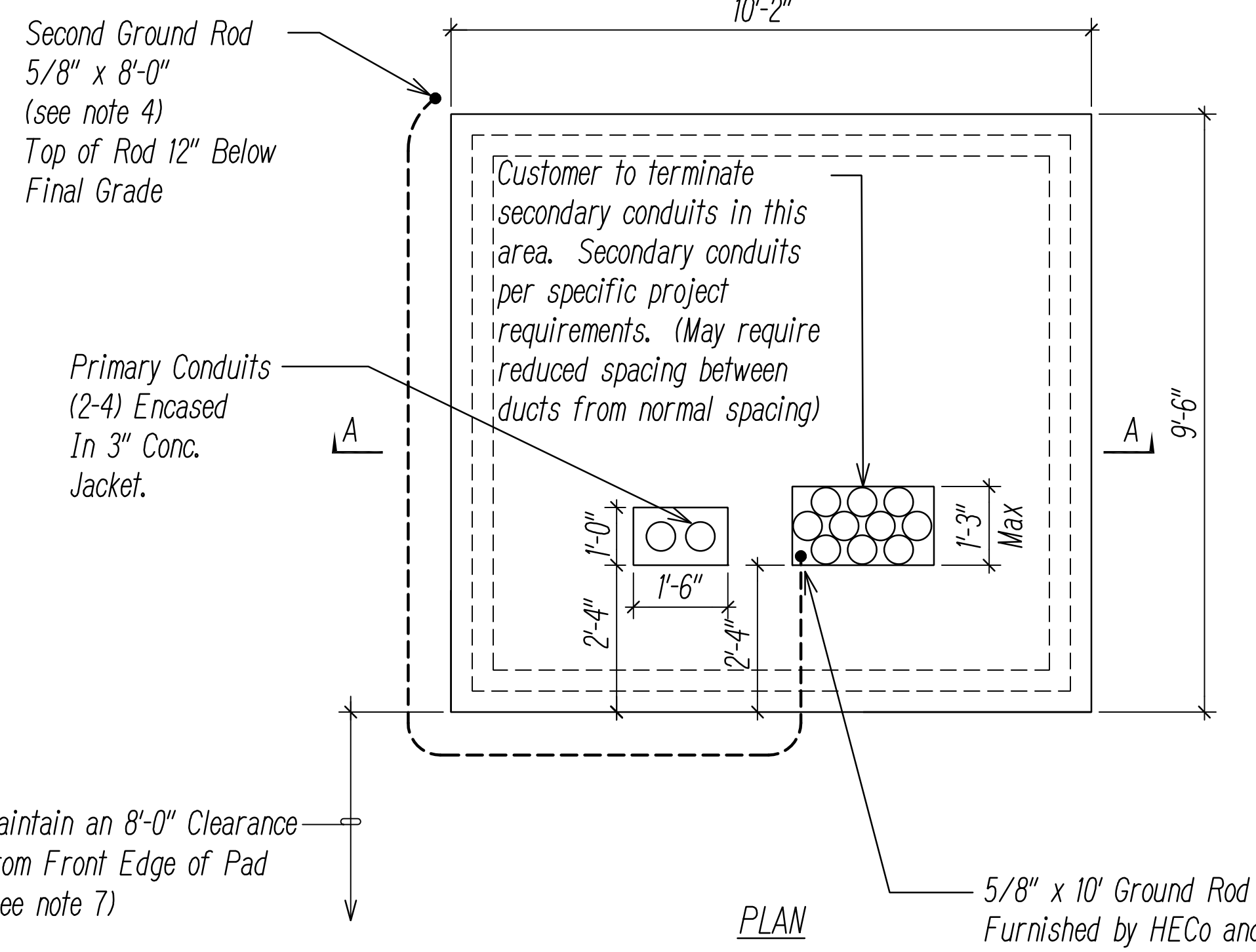
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SHEET No. EF-13 OF 21 SHEETS

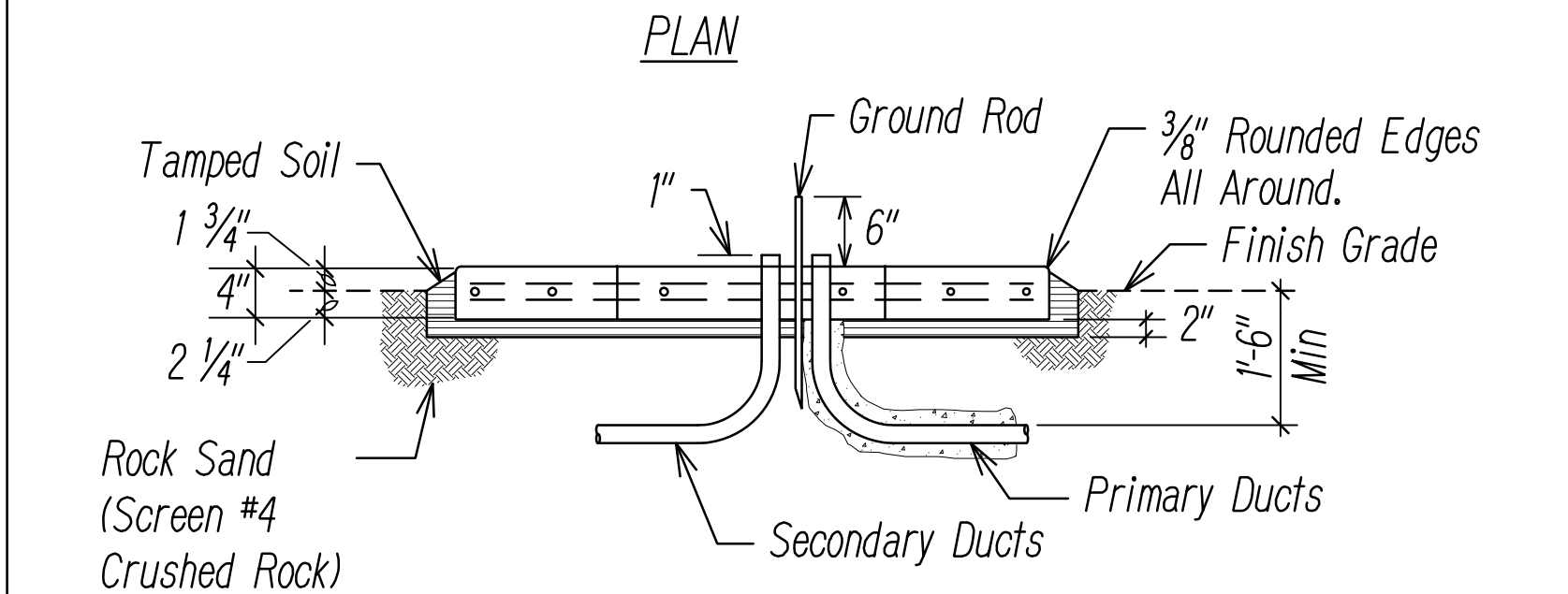
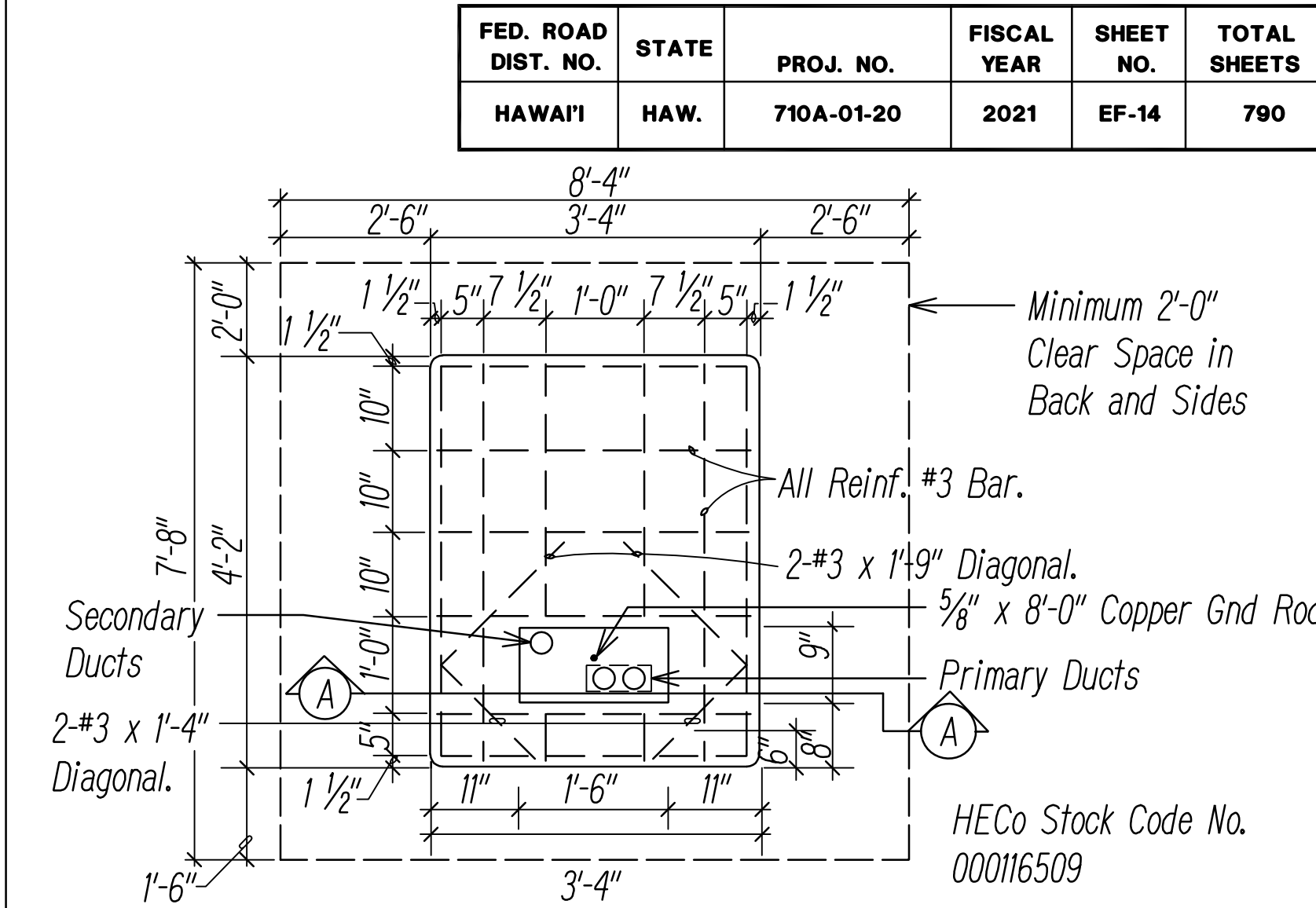
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-14	790



A **500-750 KVA CONCRETE TRANSFORMER PAD DETAIL**
EF-14 NOT TO SCALE



B **1000-1500 KVA CONCRETE TRANSFORMER PAD DETAIL**
EF-14 NOT TO SCALE



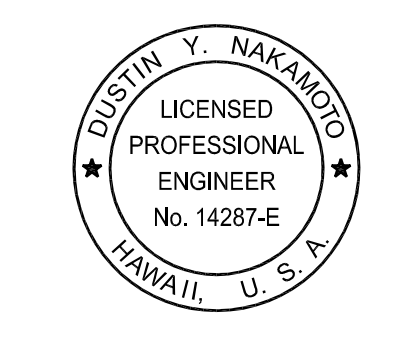
- C** **CONCRETE TRANSFORMER PAD DETAIL (1-PHASE) COMMERCIAL**
EF-14 NOT TO SCALE
- Notes:
- Compressive strength of concrete shall be 3,000 PSI in 28 days for cast in place pads. 5,000 PSI in 28 days for precast pads.
 - Reinforcing shall be clean & new round deformed bars.
 - Cure concrete by approved method (ASTM A15).
 - Contractor has option of furnishing cast-in-place or precast.
 - Top of conc. pad to be smooth, true & level, free from defects. Other exposed surfaces shall be smooth & free from defects.
 - Maintain a relatively level, minimum clearance of 2'-0" from sides of the pad, 2'-0" from the back of the pad, and 8'-0" in front of the pad.
 - Refer to Std. 30-5000 for Locations and Clearances.

- Notes for Details A & B:
- Compressive Strength of Concrete : 3000 PSI in 28 Days. Moisture Cure Concrete Pad a Minimum of 7 Days. Do Not Install Transformer Until Concrete Compressive Strength Reaches 1,500 PSI Minimum or After 14 Days.
 - Reinforcing: New, Clean and Free from Loose, Flaky Rust, ASTM A615, Grade 40 Minimum.
 - Construction to Comply with ACI 318 as Amended.
 - If Ground Resistance Exceeds 25 ohms, Install Additional 5/8" Diameter x 8'-0" Ground Rod and Connect 4/0 Bare Copper Ground Wire Between Ground Rods. A Minimum of 6'-0" Shall Be Maintained Between the Driven Ground Rods. A Second Ground Rod Will Probably be Required when Soil Resistivity is Greater than 67 ohm-Meters.
 - Locate, Secure and Cap All Conduits Before Pouring Pad. Top of Concrete to be Smooth and True, Wood-Float Finish, Free of Defects, as per City and County Specifications. Round Exposed Edges to 3/4" Chamfer.
 - Maintain a Relatively Level, Minimum Clearance of 2'-6" from the Sides of the Pad, 2'-0" from the Back of Pad and 10'-0" in Front of Pad. Extend Concrete Pad an Additional 10'-0" in Front if Located in Planting Area.
 - Refer to Std. 30-5000 for Locations and Clearances.
 - Refer to Std. 22-2005 for 3 Phase Pad Mounted Transformer Requirements.

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Customer Installations Department
Hawaiian Electric
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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

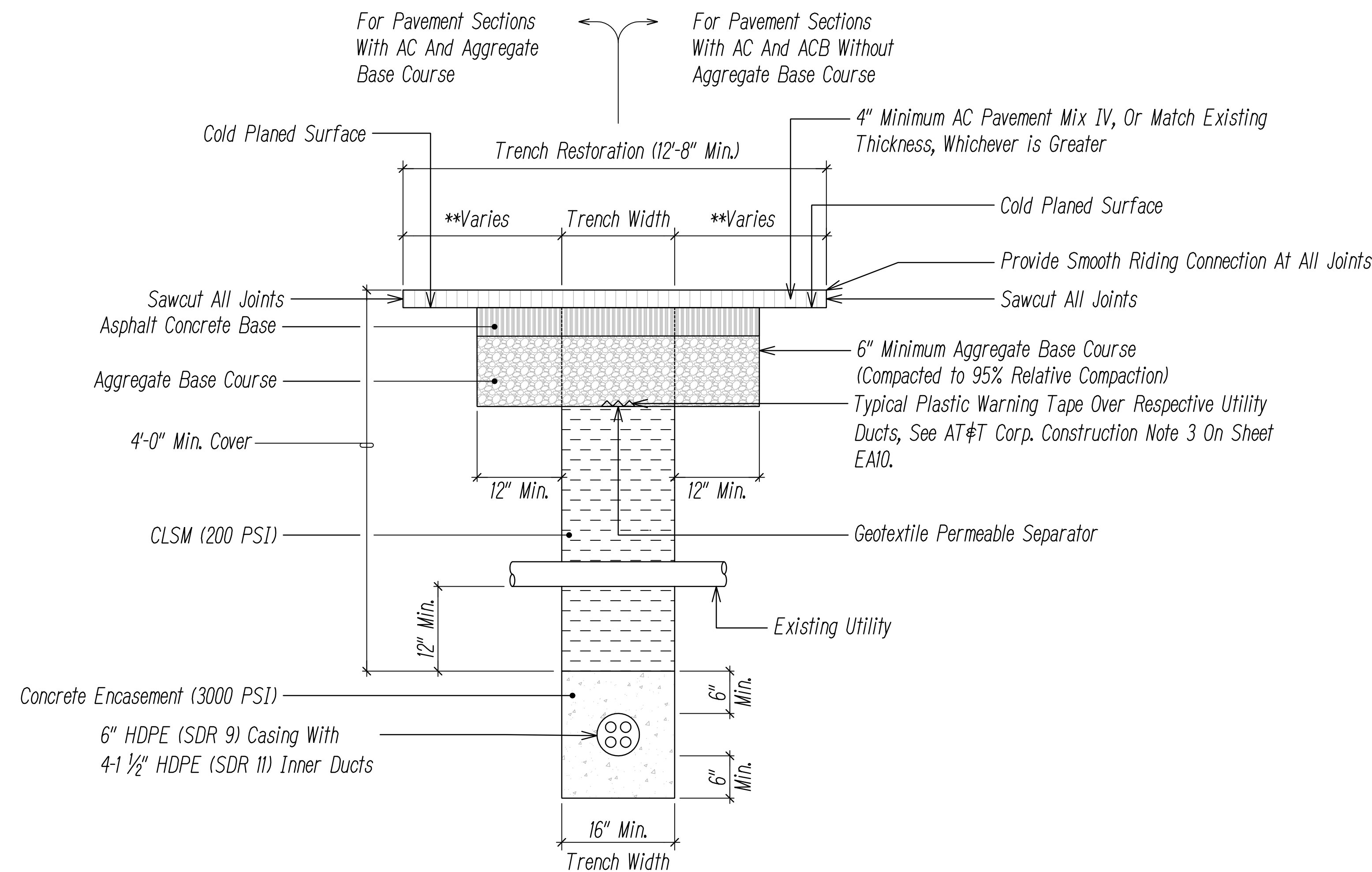
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO EQUIPMENT LAYOUT

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-15	790



CONCRETE ENCASED UNDER PAVED SURFACES - AT&T DUCT SECTION BACKFILL DETAILS

1 2

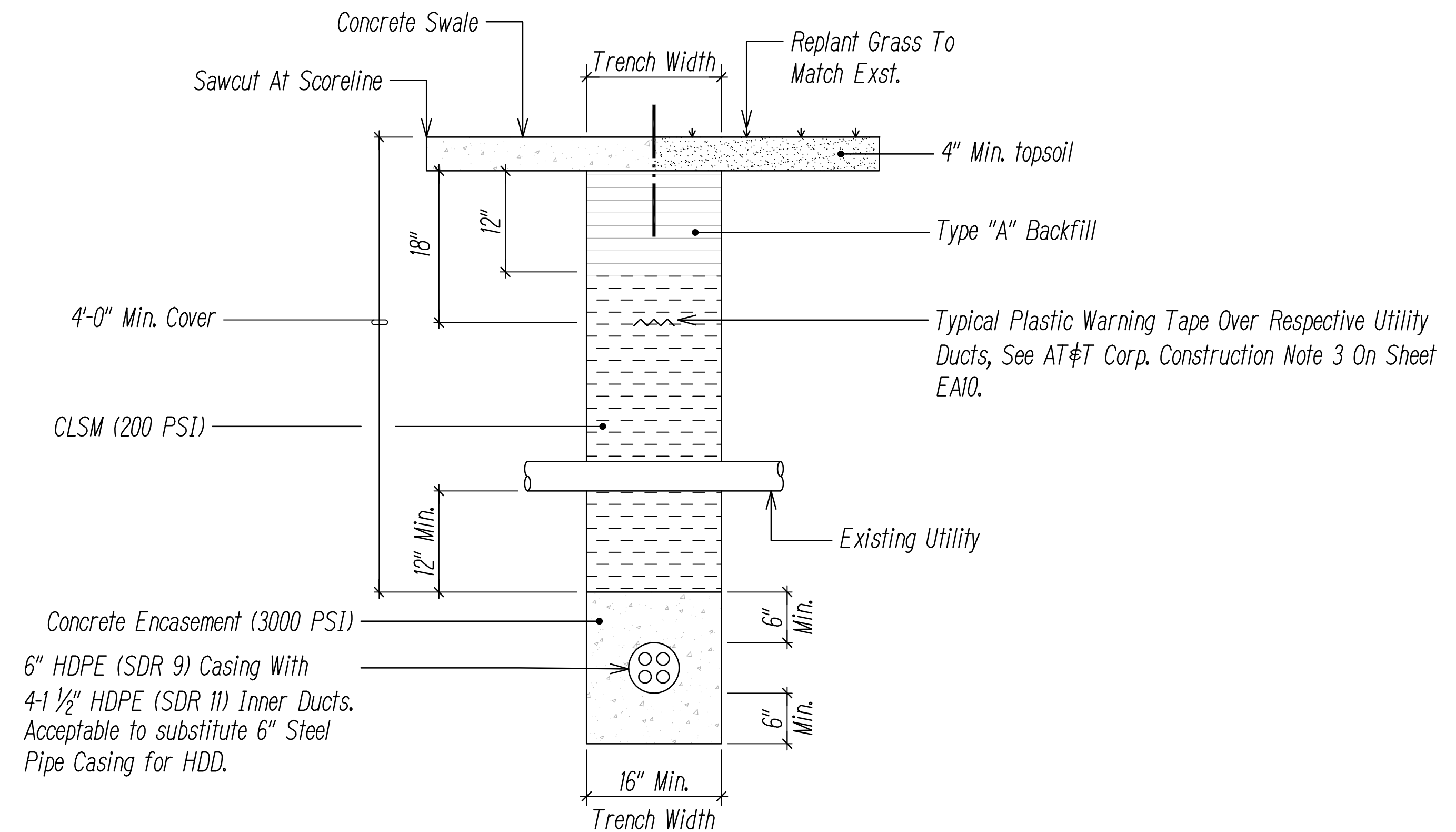
NOT TO SCALE

****Notes For Backfill Section:**

1. If Trench Aligned Transverse To Direction Of Travel, Sawcut 6 Feet On Each Side Of Trench.
2. If Trench Aligned Along Direction Of Travel, Sawcut To Edge Of Lane In Which Edge Of Trench Is Located.
3. Smoothness Of Paved Surfaces:
The Distance From The Paved Surface To The Testing Edge Of A Ten-foot Straight Edge Between Two Points Of Contact Shall Not Exceed 3/16".

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, 3000 PSI Compressive Strength @ 28 Days. with a Maximum Aggregate Size of 3/4".



CONCRETE ENCASED UNDER CONCRETE SWALE OR GRASSED AREA - AT&T DUCT SECTION BACKFILL DETAILS

1 2 3

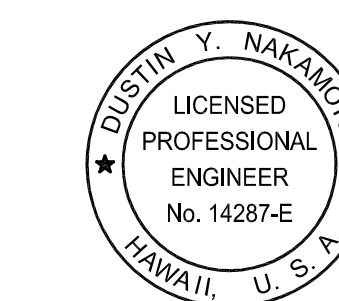
NOT TO SCALE

Notes:

1. Sawcutting & Repairing Of Exst A.C. Pavement Shall Not Be Paid For Separately, But Considered Incidental To The Various Contract Items.
2. Sawcutting & Repairing Of Exst Concrete Pavement Shall Not Be Paid For Separately, But Considered Incidental To The Various Contract Items.
3. Replanting Grass And Providing Top Soil Shall Not Be Paid For Separately, But Considered Incidental To The Various Contract Items.

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HIGHWAYS DIVISION

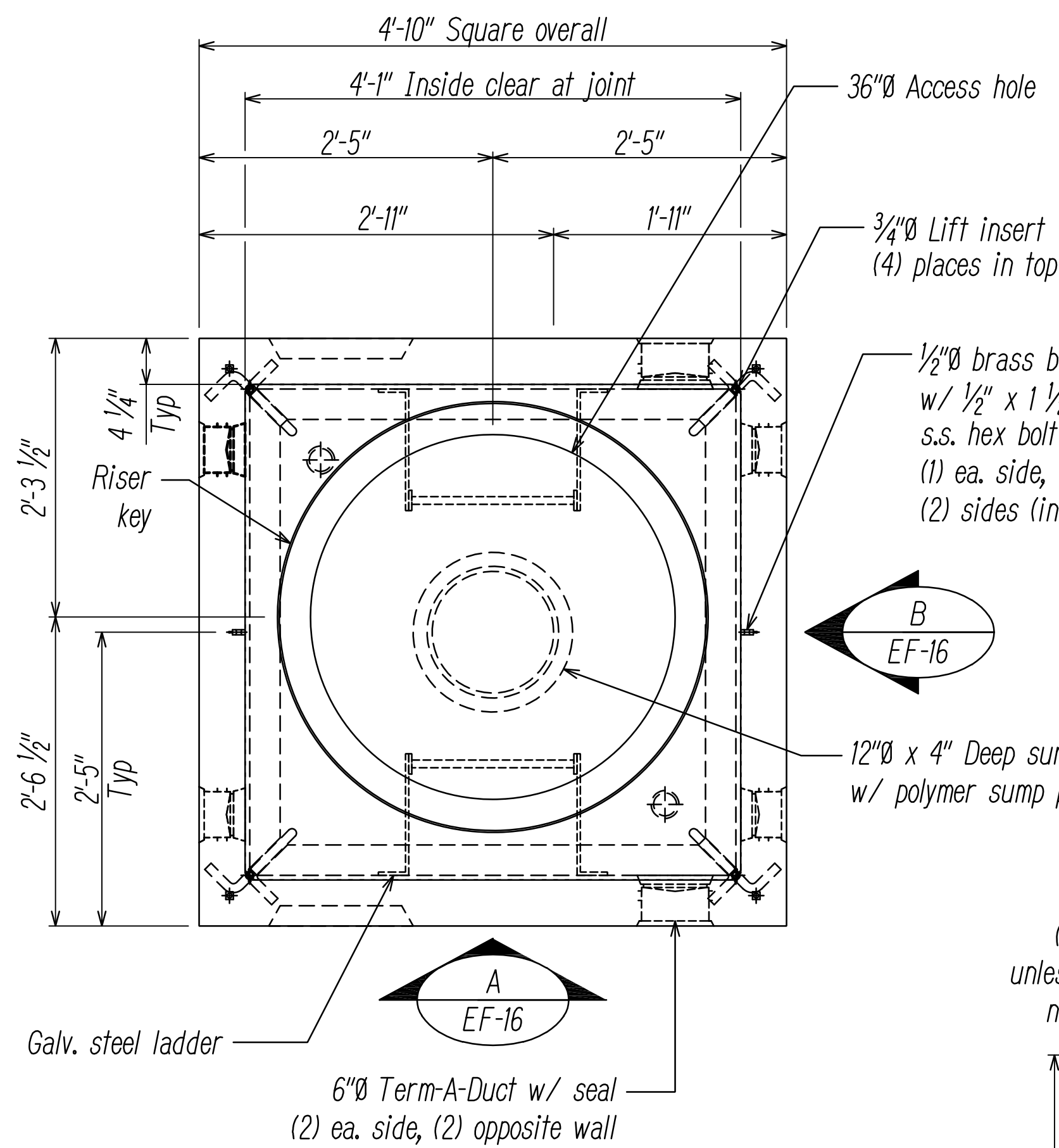
AT&T DUCT SECTION BACKFILL DETAILS

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-15 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-16	790



**PLAN VIEW -
AT&T MANHOLE DETAILS 1**
NOT TO SCALE

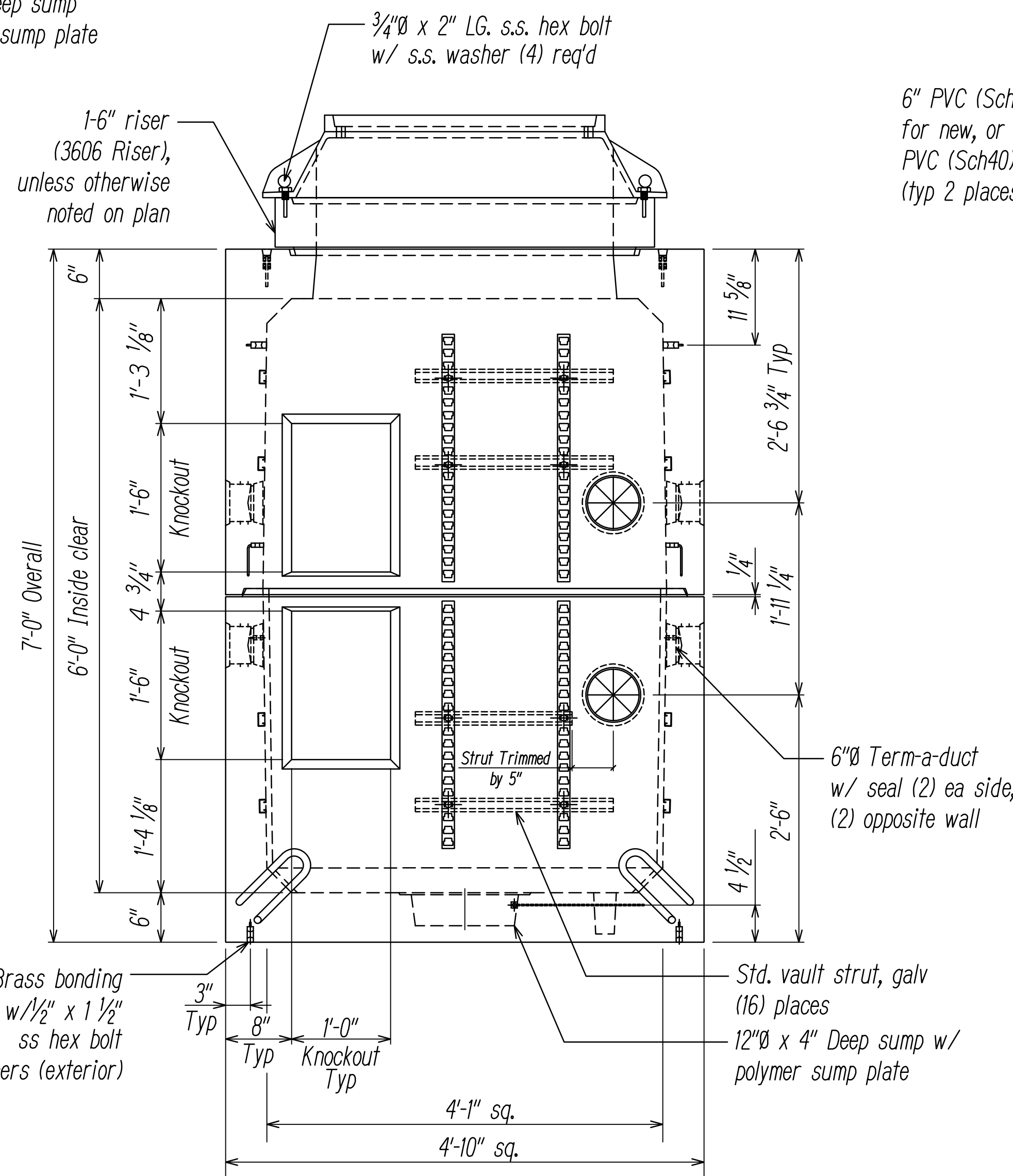
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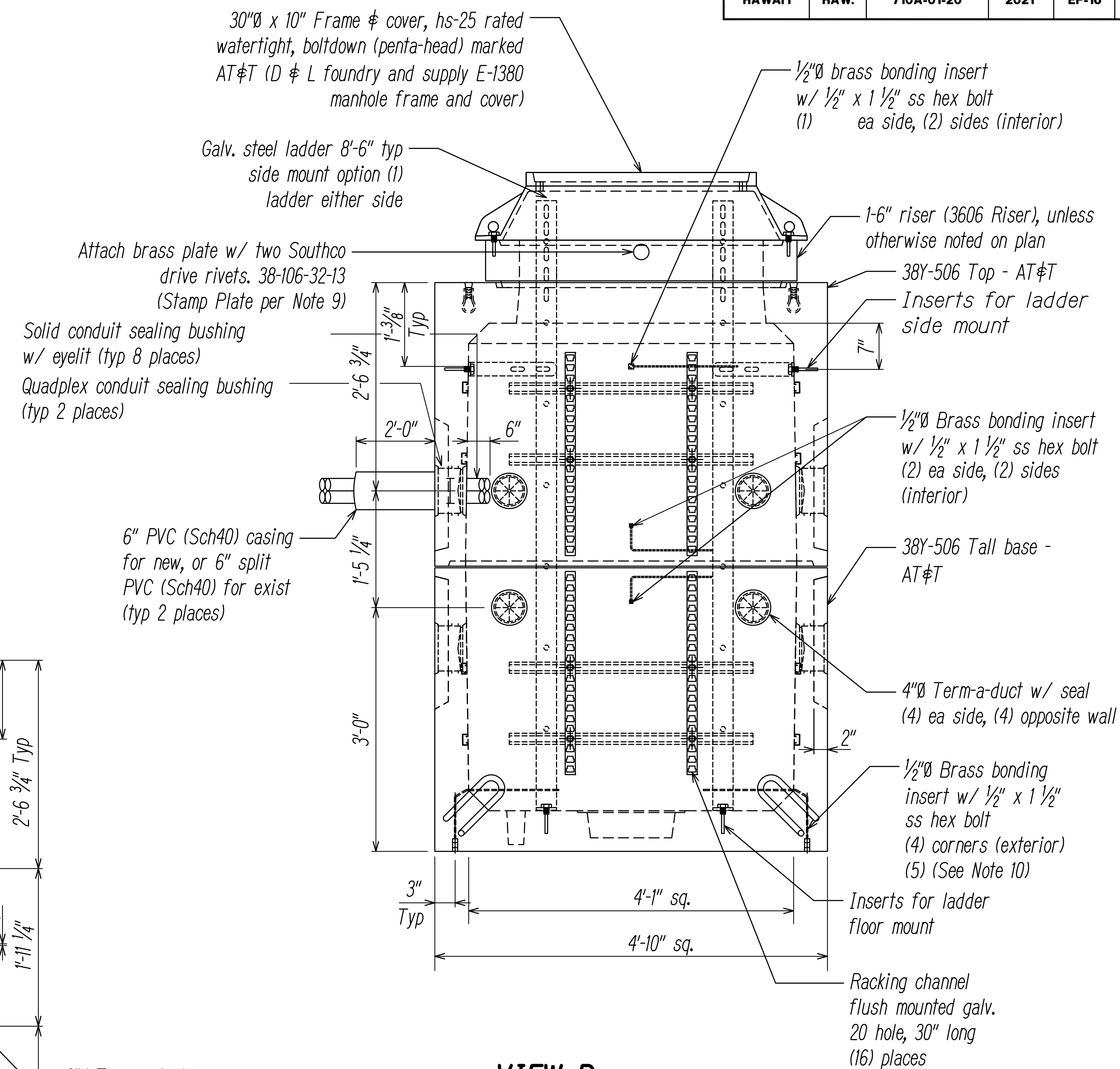
- See sheet EF-17 for AT&T manhole notes.

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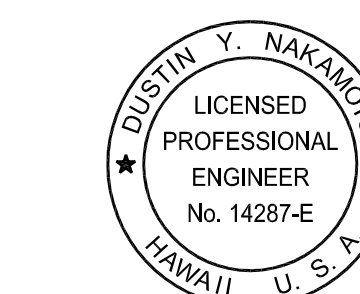
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**VIEW A -
AT&T MANHOLE DETAILS 1**
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**VIEW B -
AT&T MANHOLE DETAILS 1**
NOT TO SCALE



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AT&T MANHOLE DETAILS 1

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-16 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-17	790

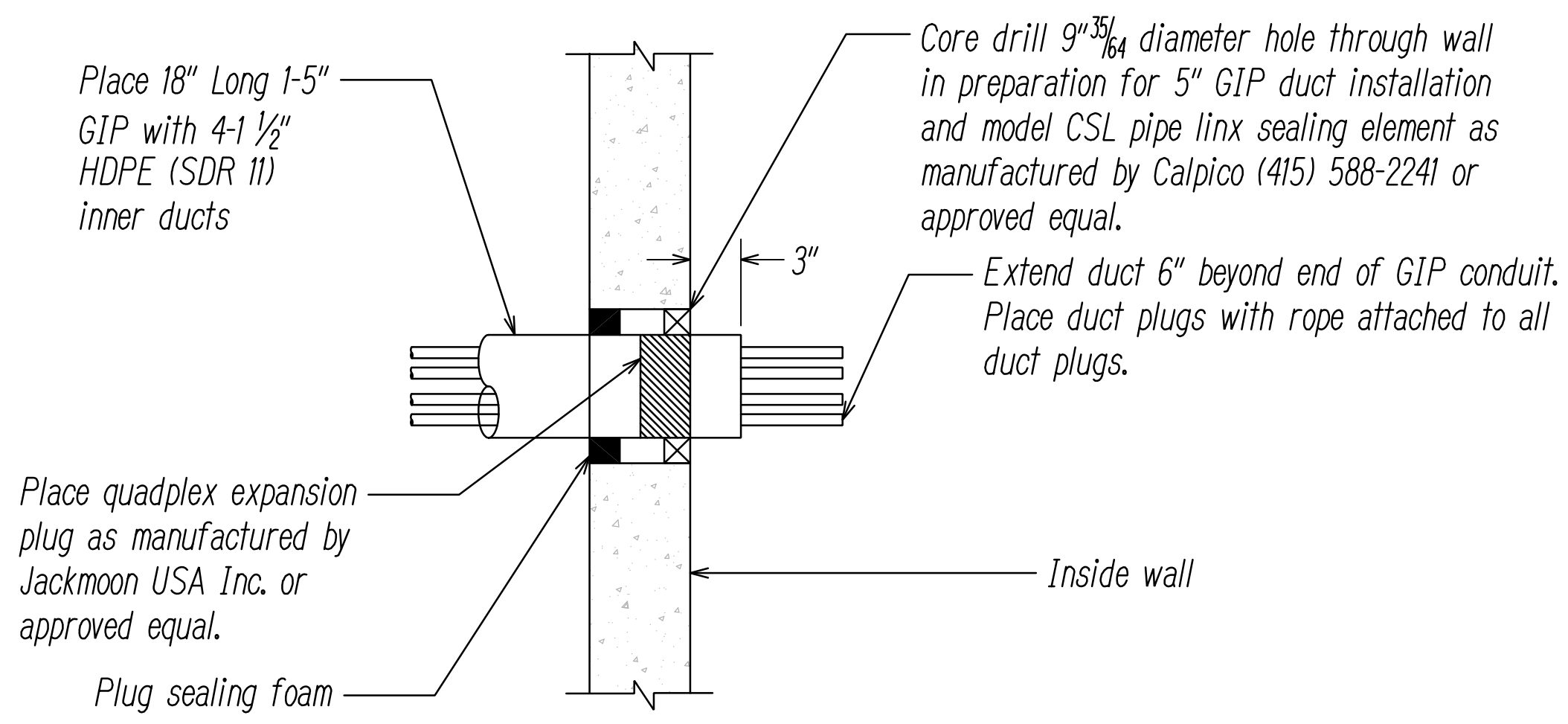
AT&T Manhole Notes:

- Manholes shall be as manufactured by Oldcastle Precast, 38Y-506-AT Vault Assembly Rev of CN-178 G, drawing no. 010-S141500-001 Revision C, Rev date 6/8/17, or approved equal. Contact Chris Cottle 253-561-8120 or 253-839-3500.
- Structural Notes
 - Concrete: 28 day compressive strength $f_c=7,000$ psi
 - Rebar: ASTM A-706 grade 60
 - WWF: ASTM A-1064 grade 65
 - Design: ACI-318-11 Building Code
 - Loads: ASTM C-857 "Minimum structural design loading for underground precast concrete utility structures". Loads and load distributions per AASHTO-HB-17 AASHTO HS-20 truck wheel, 16,000 lbs
30% Impact for less than 2'-0" soil cover
40 pcf E.F.P. Lateral soil pressure above watertable
80 pcf E.F.P. lateral soil pressure below watertable
80 psf Live load surcharge above 8'-0" soil depth
Top of vault 5'-0" below finished grade (Max)
Watertable 5'-0" below finished grade (assumed)
Painted white interior
- Contractor to:
 - Verify all vault features
 - Do all grouting of vault, holes & seams (Using Non-Shrink Grout)
 - Supply & install all piping & electrical
 - Install all ladders
 - Install all racking & related materials

- Shipping Weight:

30"ø x 10" frame & casting:	790 lbs
3606 riser:	320 lbs
38Y-506 Top-AT&T:	4,200 lbs
38Y-506 Tall Base-AT&T:	5,100 lbs
<u>Total:</u>	<u>10,410 lbs</u>
- All interior surfaces shall be painted with two coats of white latex paint (except floor surface).
- Contractor shall install a 2 foot section of 6" PVC (Schd 40) conduit where the multiducts (4-1 1/2" HDPE SDR 11) enters the manhole (typ 2 places). Note: 6" split PVC for exist intercept locations. Contractor to place quadplex conduit sealing bushings sized to fit the 6" PVC conduit and the 4-1 1/2" HDPE SDR 11 conduits (typ 2 places). Contractor to place solid conduit sealing bushings (w/eyelit) sized to fit 1 1/2" HDPE SDR 11 conduits. Install sealing bushings with pull line attached to bushing eyelit in all 1 1/2" conduits (typ 8 places). Conduit sealing bushings shall be as manufactured by Jack Moon or approved equal. (See 'Standard Interception / Intermediate Manhole Orientation' detail, drawing no. EF-18).
- Multiducts (4-1 1/2" HDPE SDR 11) shall extend 6 inches inside the wall of manhole.

- Ground rods shall be minimum 5/8-inch-diameter by 8-foot-long copper-clad steel ground rods and shall be installed at all new AT&T Corp. manhole locations. Contractor shall install 1 - 5/8" diameter by 8' long ground rod in the manhole bottom (base) corner floor ground rod manufactured knockout location. The ground rod shall be placed prior to placement of the manholes top section with approximately 6" of ground rod left exposed above the manhole floor. The ground rod knockout shall than be completely plugged with a non-shrink grout designed for forming a water-tight seal.
- Contractor shall field stamp the manhole frame and cover frame with 1/4" high x 1/16" deep numbers/letters as follows: MH # xx xxx CU. FT. (ie: MH 14A 105 CU. FT.), (See 'Manhole Volumes' detail, drawing no. EF-18).
- Contractor to install 1/2" x 1 1/2" SS Hex Bolt (4) corners (Exterior) prior to manhole installation.



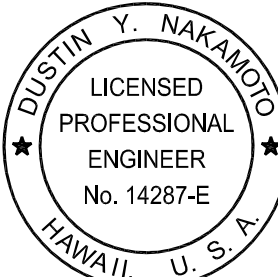
Notes:

- Contractor to verify exact size of core drill hole with dimensions of the conduit and the sealing element prior to drilling hole through wall.
- Exact location of manhole penetration shall be field verified by AT&T field engineer.
- Contact AT&T Communications Technician at (808) 455-1010 48 hrs prior to working around AT&T facilities.


CROSS SECTION DETAIL OF DUCT ENTRY INTO AT&T MANHOLE -
AT&T MANHOLE DETAILS 2
 NOT TO SCALE

SURVEY PLOTTED BY	DATE
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FILE: Z:\ACAD\PROJECTS\220674\EF17_22\0674_ATT-MH-DETAIL-02.dwg, saved April 6, 2022


 JUSTIN Y. NAKAMOTO
 LICENSED PROFESSIONAL ENGINEER
 No. 14287-E
 HAWAII, U. S. A.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

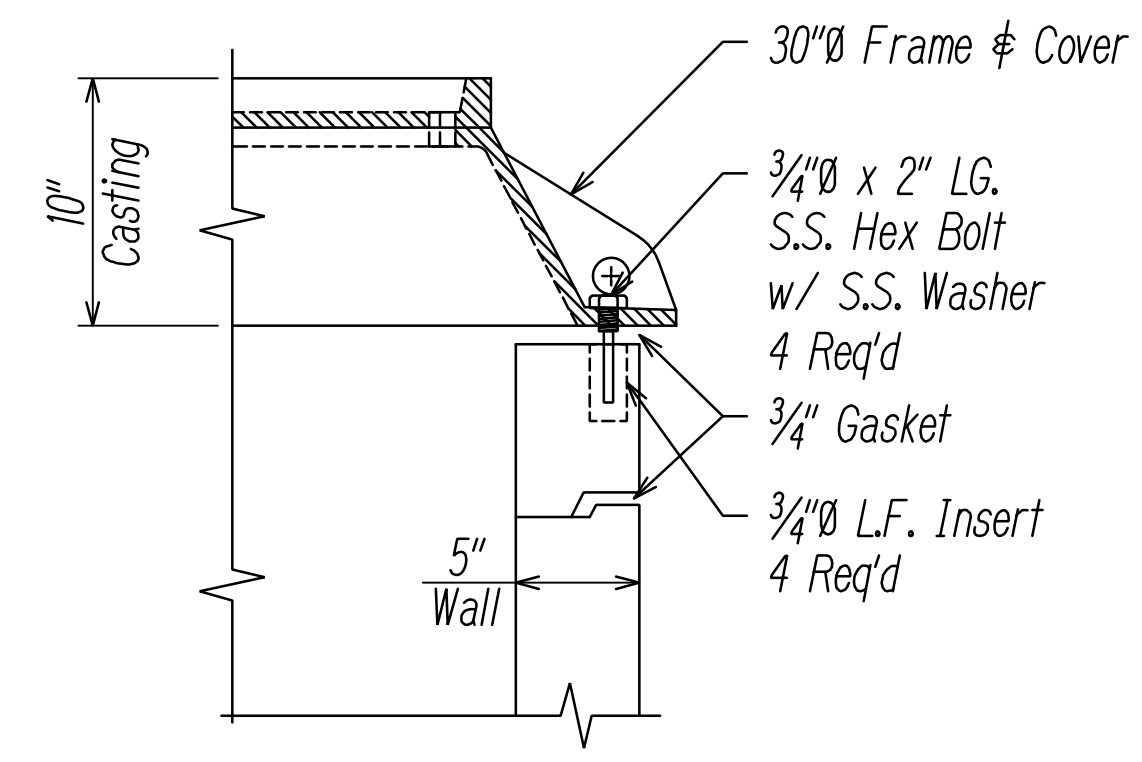
AT&T MANHOLE DETAILS 2

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

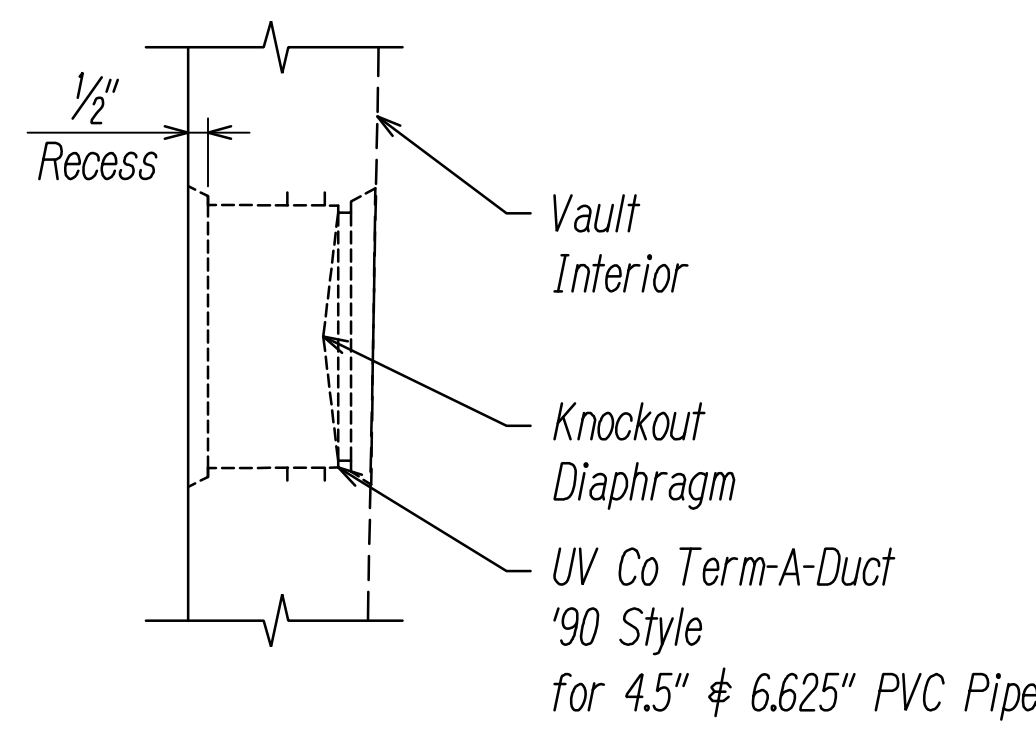
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SHEET No. EF-17 OF 21 SHEETS

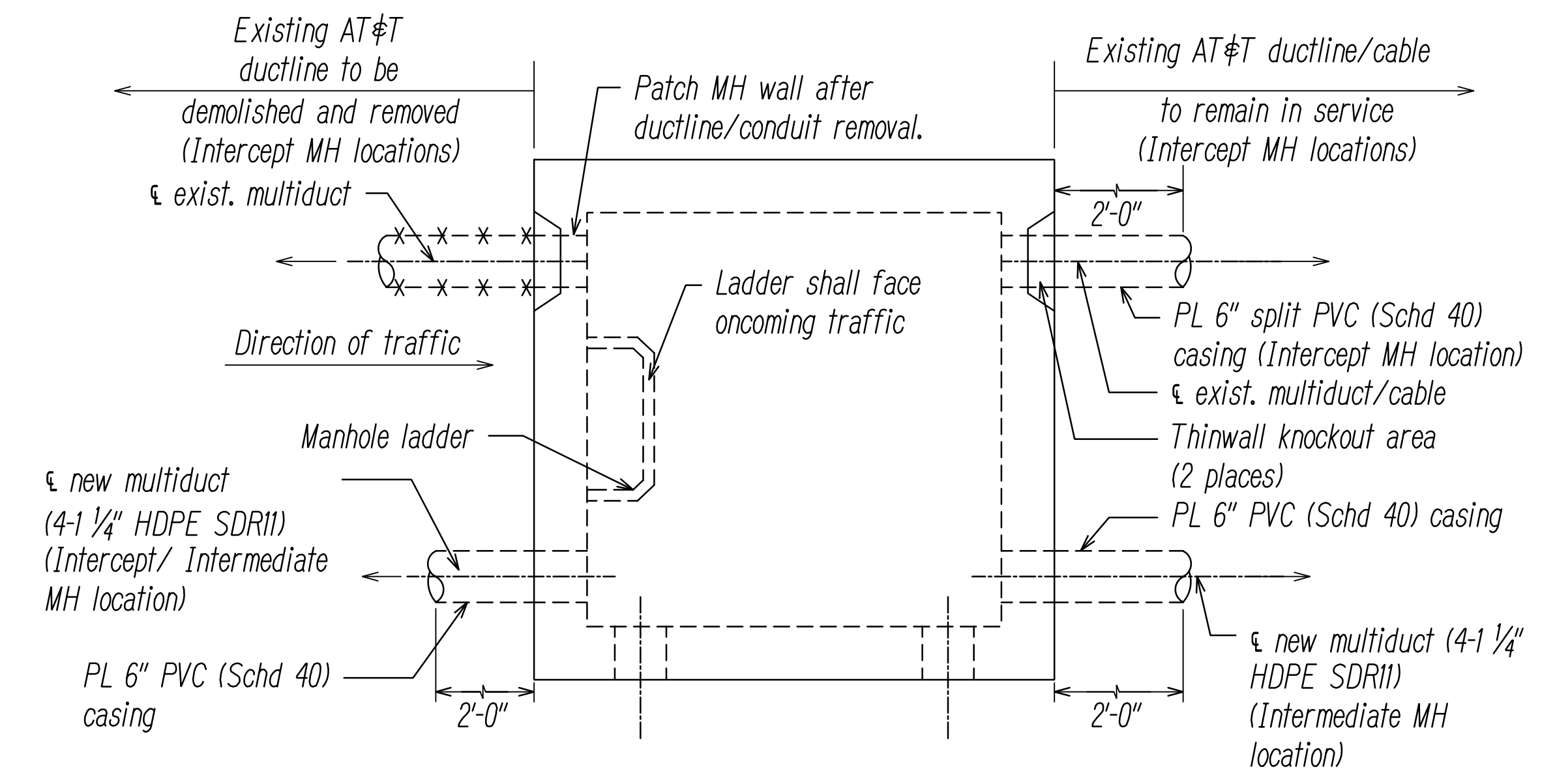
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HAWAII	HAW.	710A-01-20	2021	EF-18	790



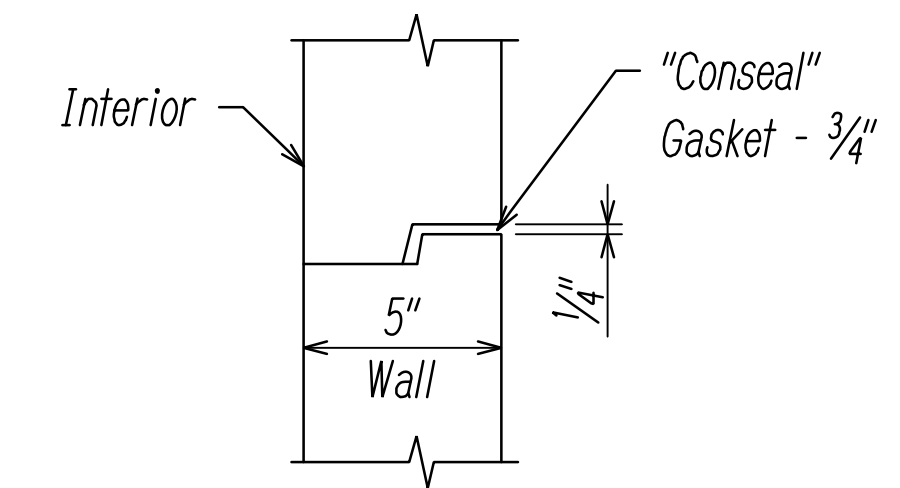
COVER DETAIL
AT&T MANHOLE DETAILS 3
 BETWEEN FRAME & RISER TYPICAL (4 LOCATIONS)



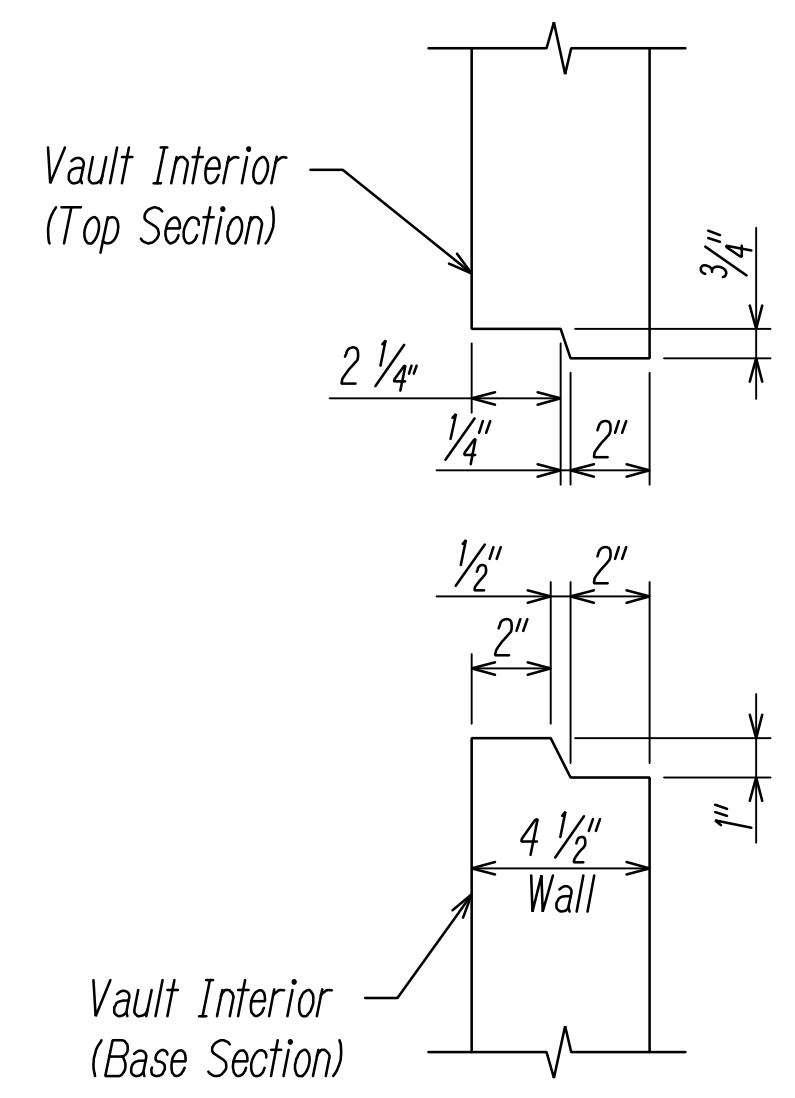
DUCT ENTRANCE DETAIL -
AT&T MANHOLE DETAILS 3
 TERM-A-DUCT ENTRANCE TYPICAL 12 PLCS IN VAULT



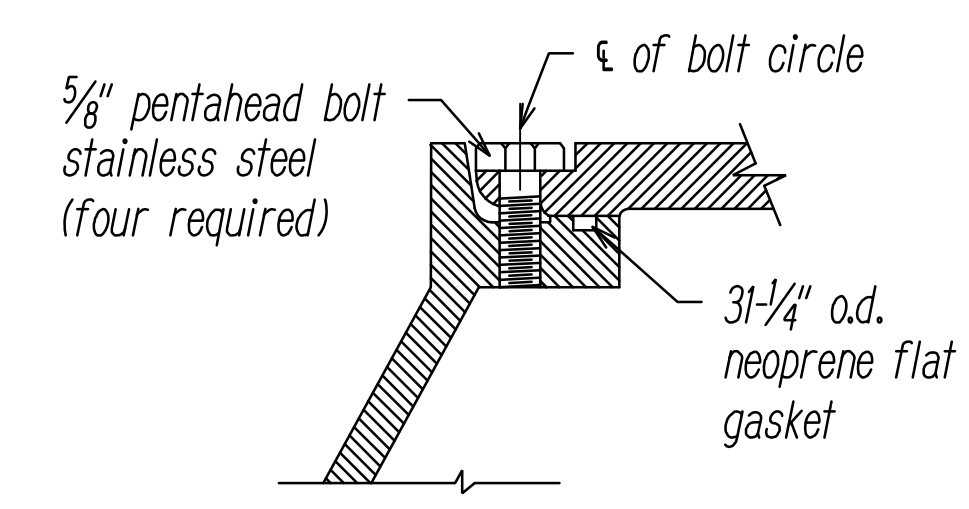
STANDARD INTERCEPT/INTERMEDIATE MANHOLE ORIENTATION -
AT&T MANHOLE DETAILS 3
 NOT TO SCALE



KEYWAY DETAIL 1 -
AT&T MANHOLE DETAILS 3
 BETWEEN RISER SECTIONS



KEYWAY DETAIL 2 -
AT&T MANHOLE DETAILS 3
 BETWEEN TOP & BASE SECTION



BOLT DETAIL -
AT&T MANHOLE DETAILS 3
 NOT TO SCALE

MANHOLE VOLUMES	
Standard volume = 100 ft ³	
Grade Ring Size	Additional Volume to Add to Standard Volume
4"	2.3 ft ³
6"	3.5 ft ³
12"	7.1 ft ³
Round volume up to nearest 5 ft. ³ Stamp that volume on appropriate marker.	

DATE	_____
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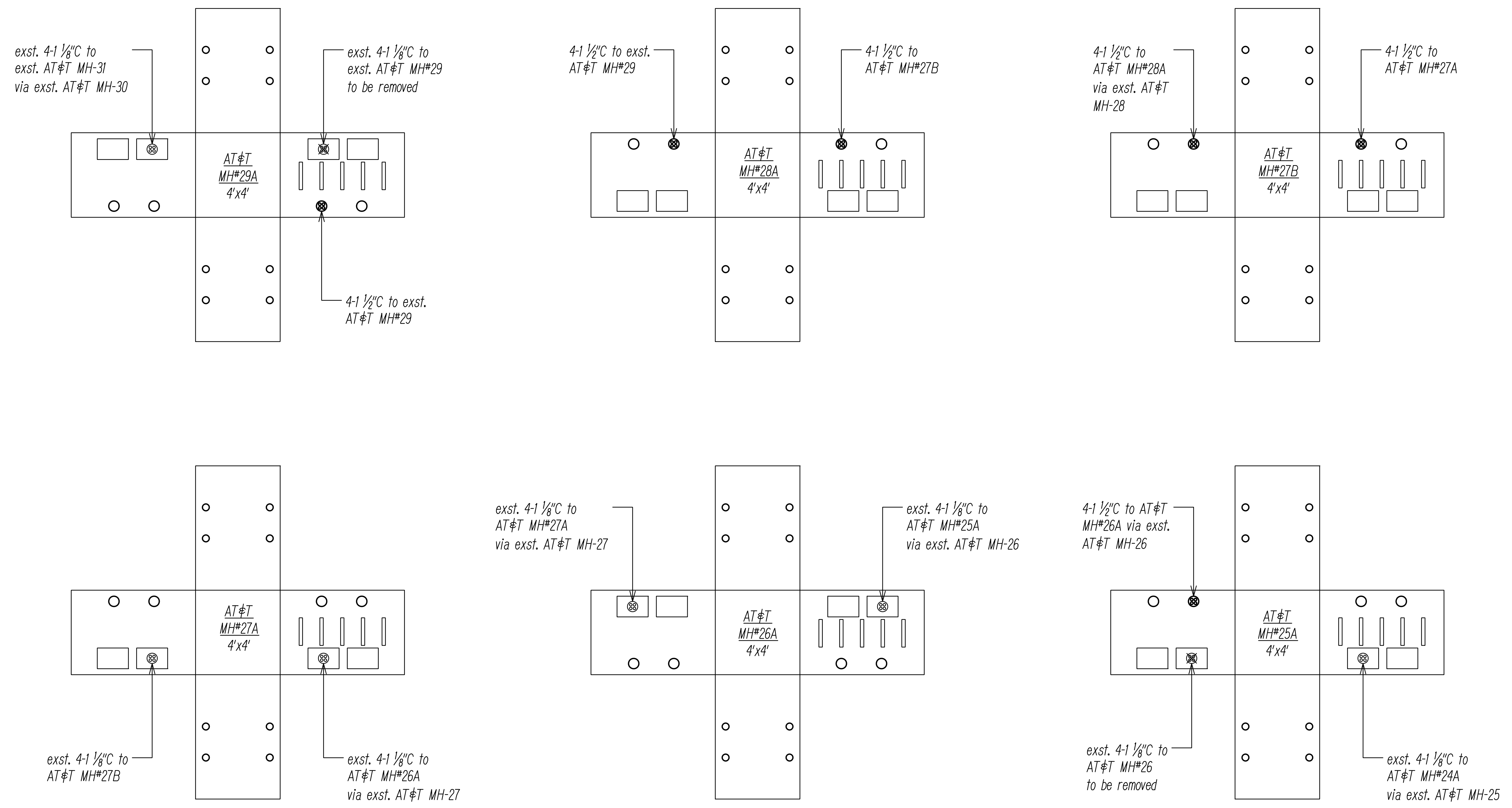
AT&T MANHOLE DETAILS 3

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-18 OF 21 SHEETS

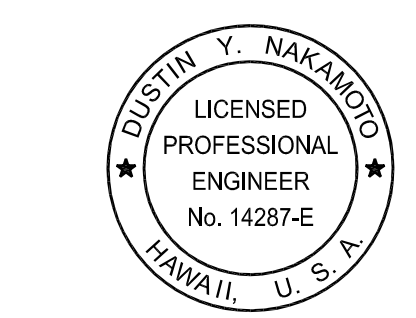
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-19	790



DATE	_____
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AT&T MANHOLE DETAILS 4
 NOT TO SCALE



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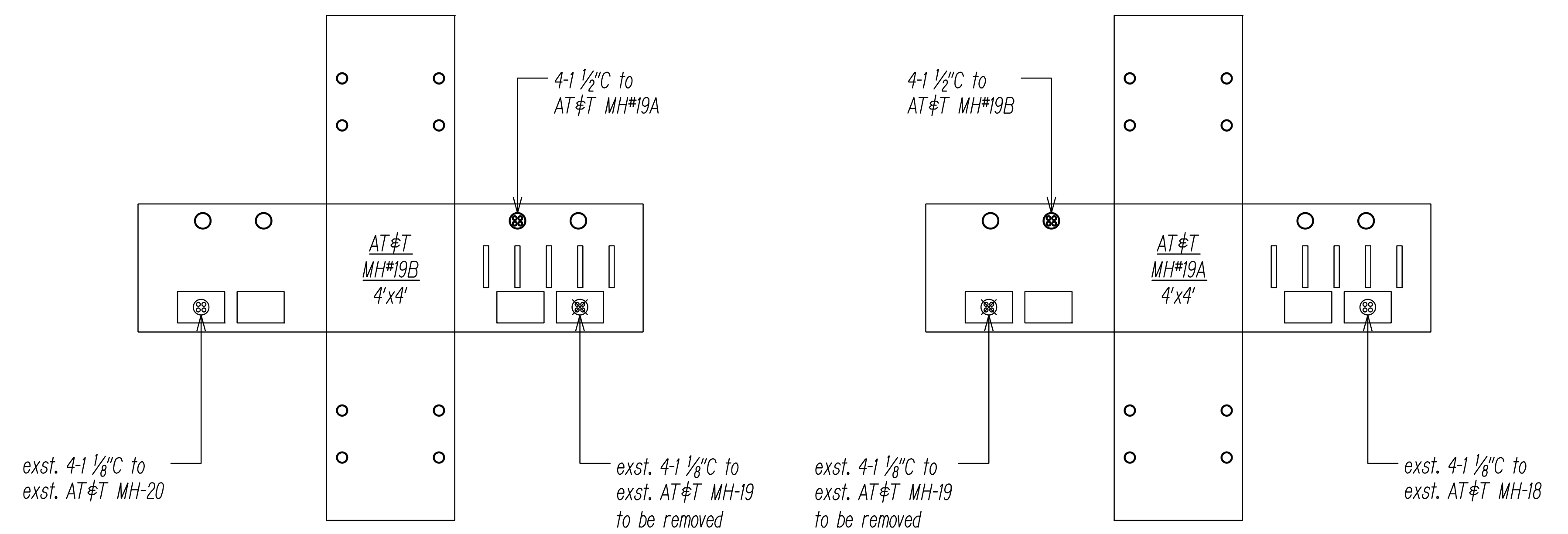
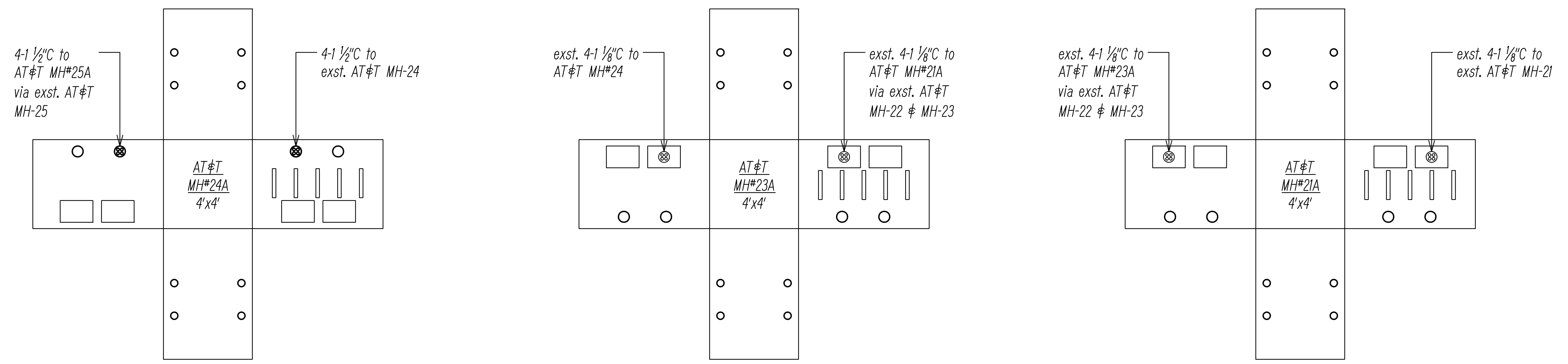
AT&T MANHOLE DETAILS 4

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-19 OF 21 SHEETS

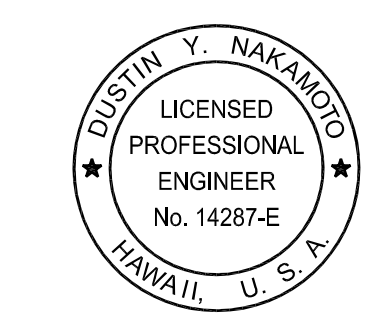
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-20	790



DATE	_____
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DESIGNED BY	_____
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AT&T MANHOLE DETAILS 5
NOT TO SCALE



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Date: April 30, 2024
Expiration Date of the License: _____

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HIGHWAYS DIVISION

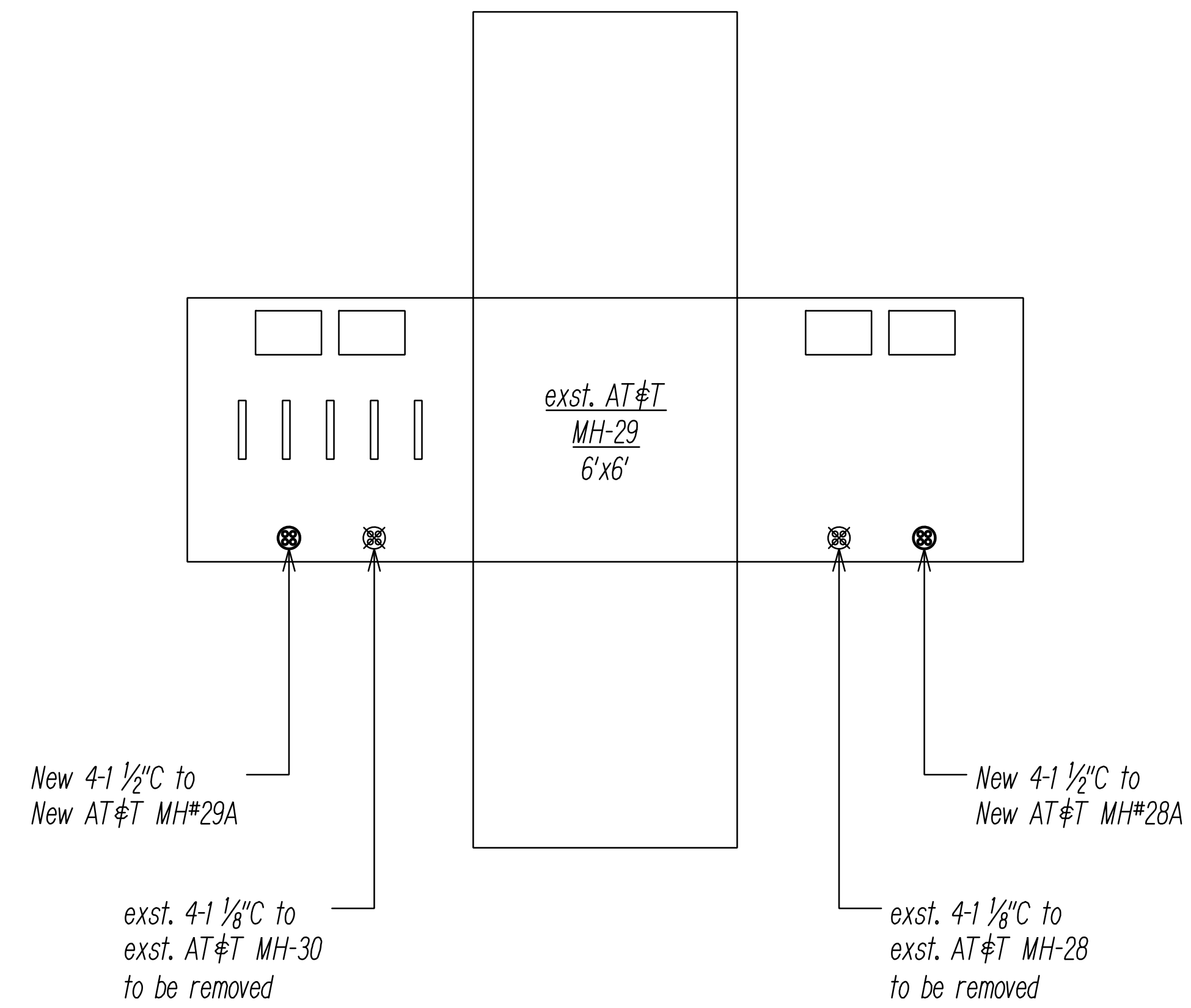
AT&T MANHOLE DETAILS 5

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-20 OF 21 SHEETS

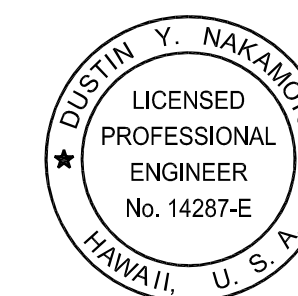
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EF-21	790



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	QUANTITIES BY	
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AT&T MANHOLE DETAILS 6
NOT TO SCALE



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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

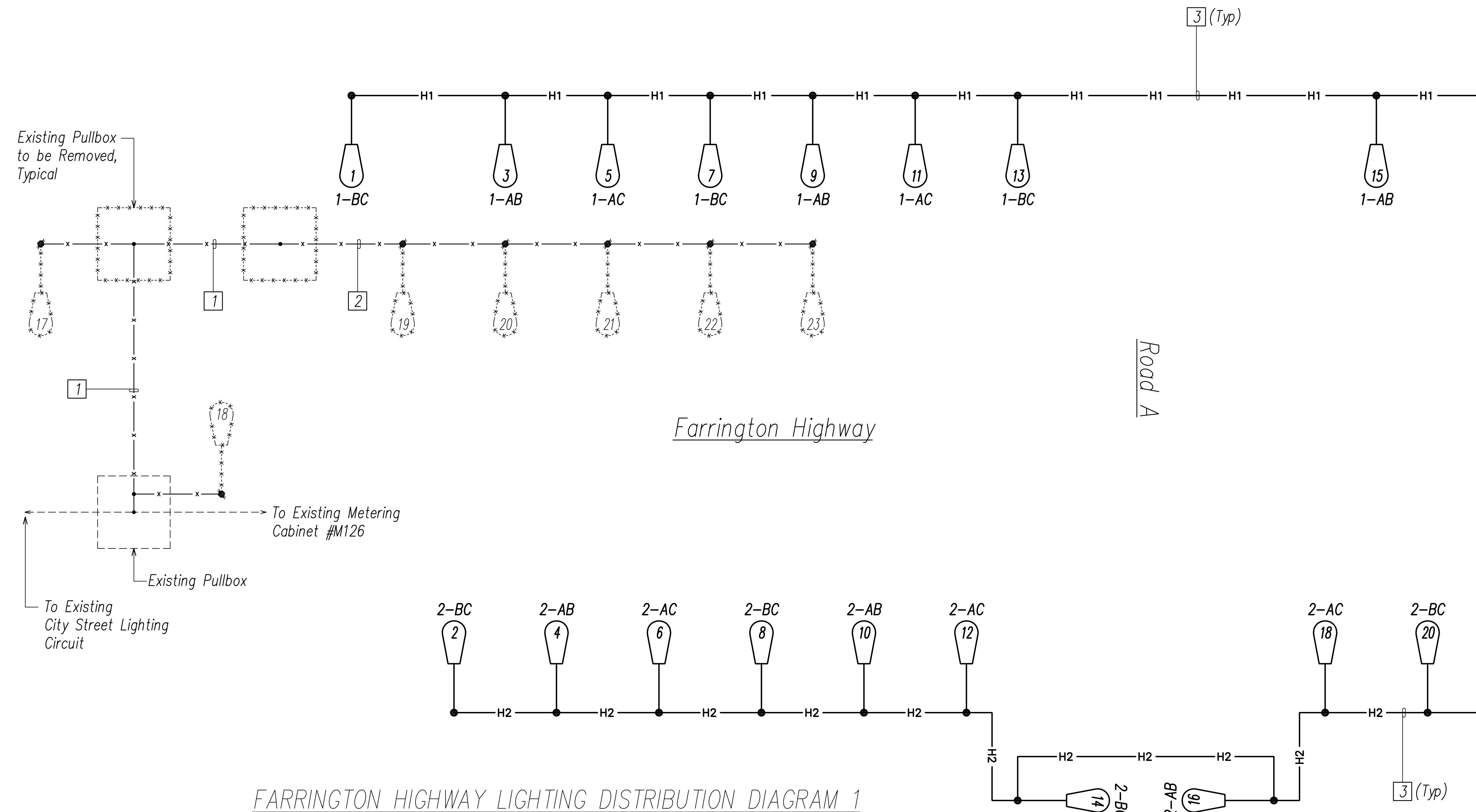
AT&T MANHOLE DETAILS 6

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EF-21 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-01	790



FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 1

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Existing Underground Conductors, to be Removed
- (2) Existing Overhead Conductors, to be Removed
- (3) New 2" C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

DIAGRAM WIRING SYMBOLS:

Symbol	Description
— H1 —	Denotes New Conduit with New Lighting Circuit H1
— H2 —	Denotes New Conduit with New Lighting Circuit H2
— K3 —	Denotes New Conduit with New Lighting Circuit H3.
— K4 —	Denotes New Conduit with New Lighting Circuit H4.
- - - - -	Denotes Existing Equipment and Wiring.
- x - x - x -	Denotes Existing Equipment, Conduit, and Wiring to be Removed.

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SCOTT N. SHIRASISHI
 LICENSED PROFESSIONAL ENGINEER
 No. 14753-E
 HAWAII U.S.A.

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SIGNATURE: *Scott Shirasishi* DATE: April 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
CONNECTION DIAGRAM 1
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-01 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-02	790

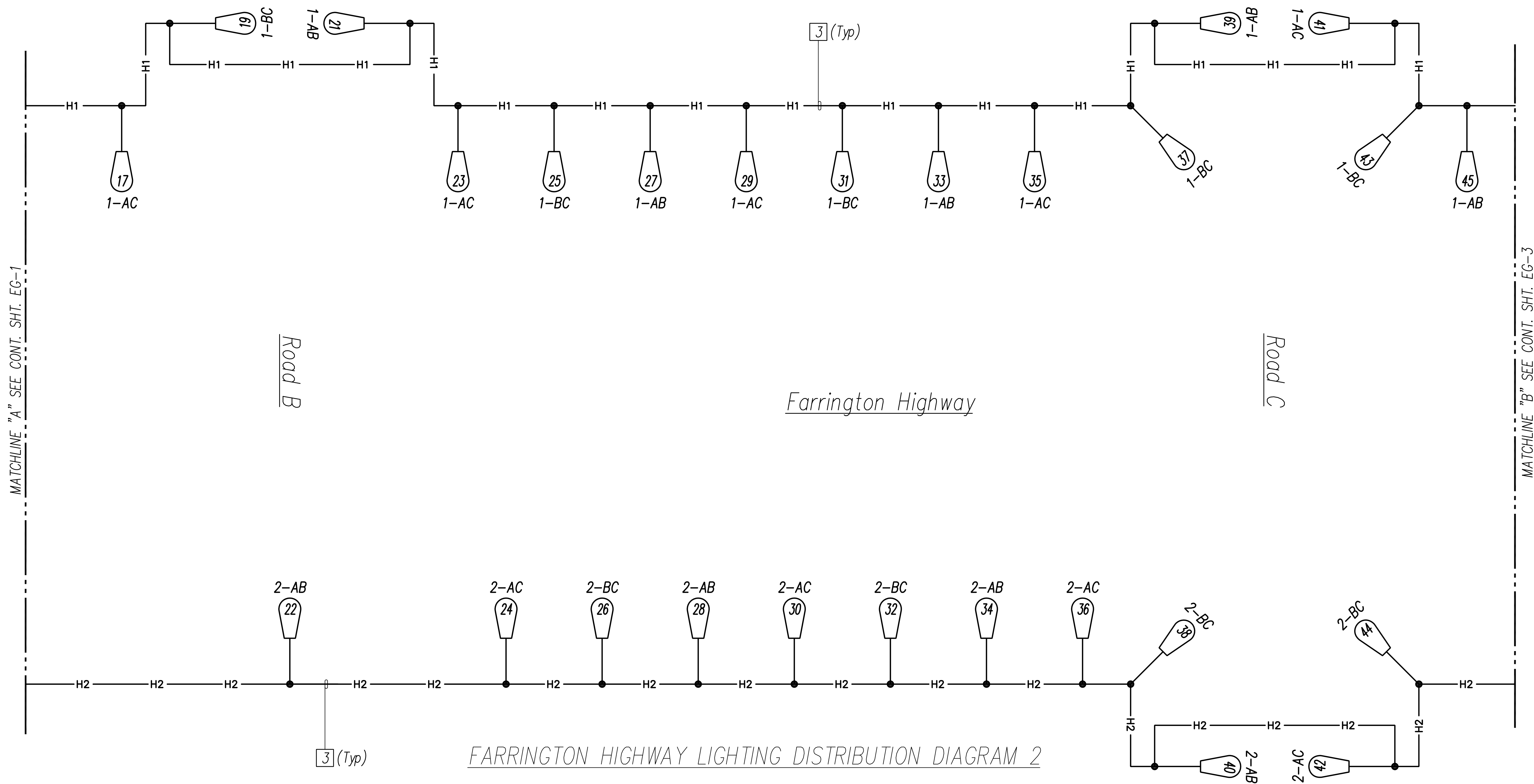
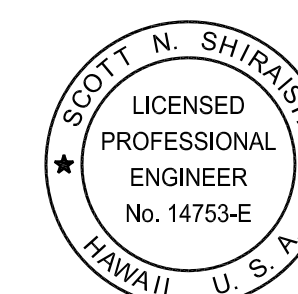


DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Not Used
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HIGHWAY LIGHTING CONNECTION DIAGRAM 2

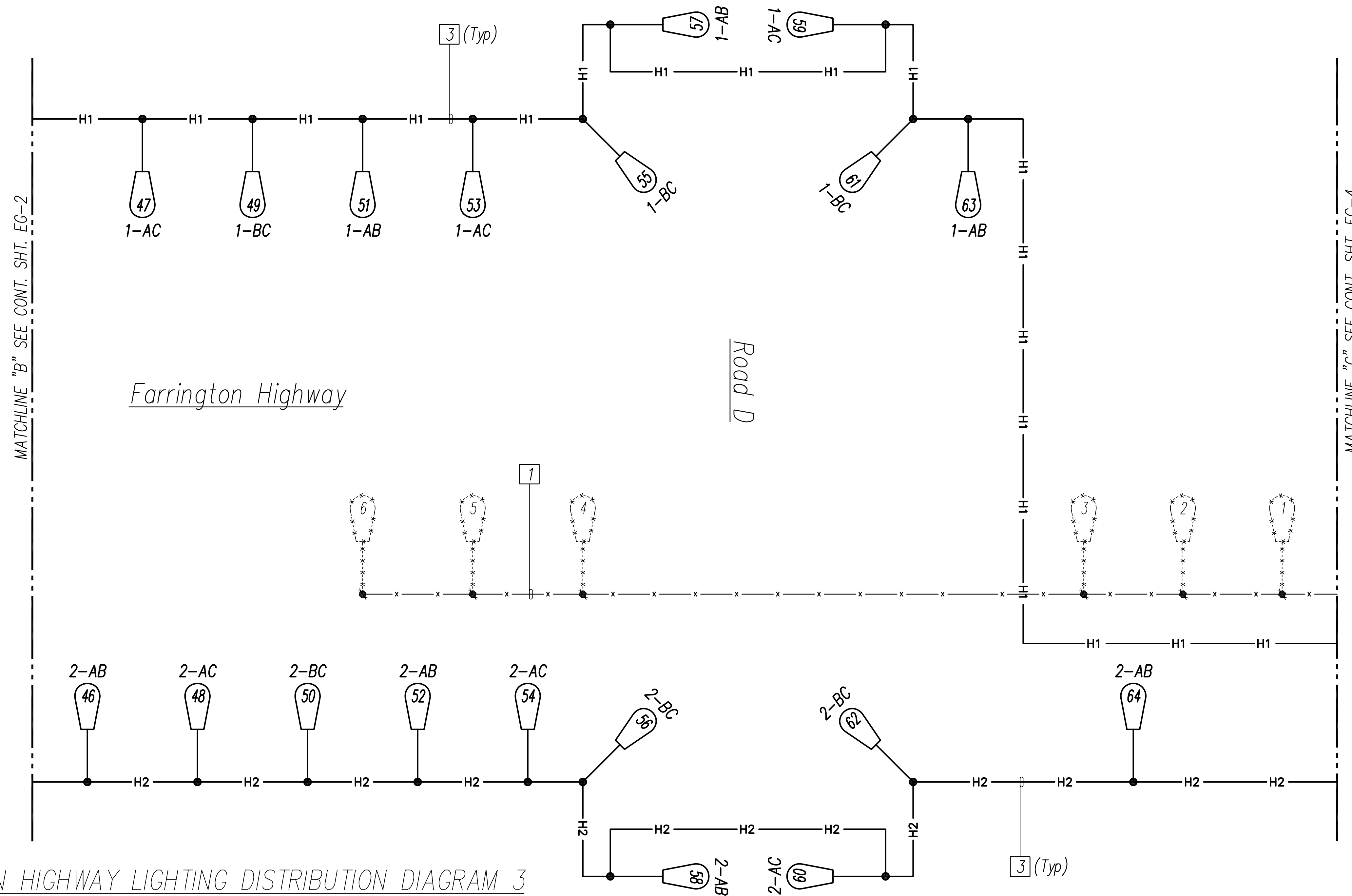
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-02 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-03	790



FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 3

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Existing Underground Conductors, to be Removed
- (2) Not Used
- (3) New 2" C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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SCOTT N. SHIRASISHI
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 No. 14753-E
 HAWAII U.S.A.

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DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

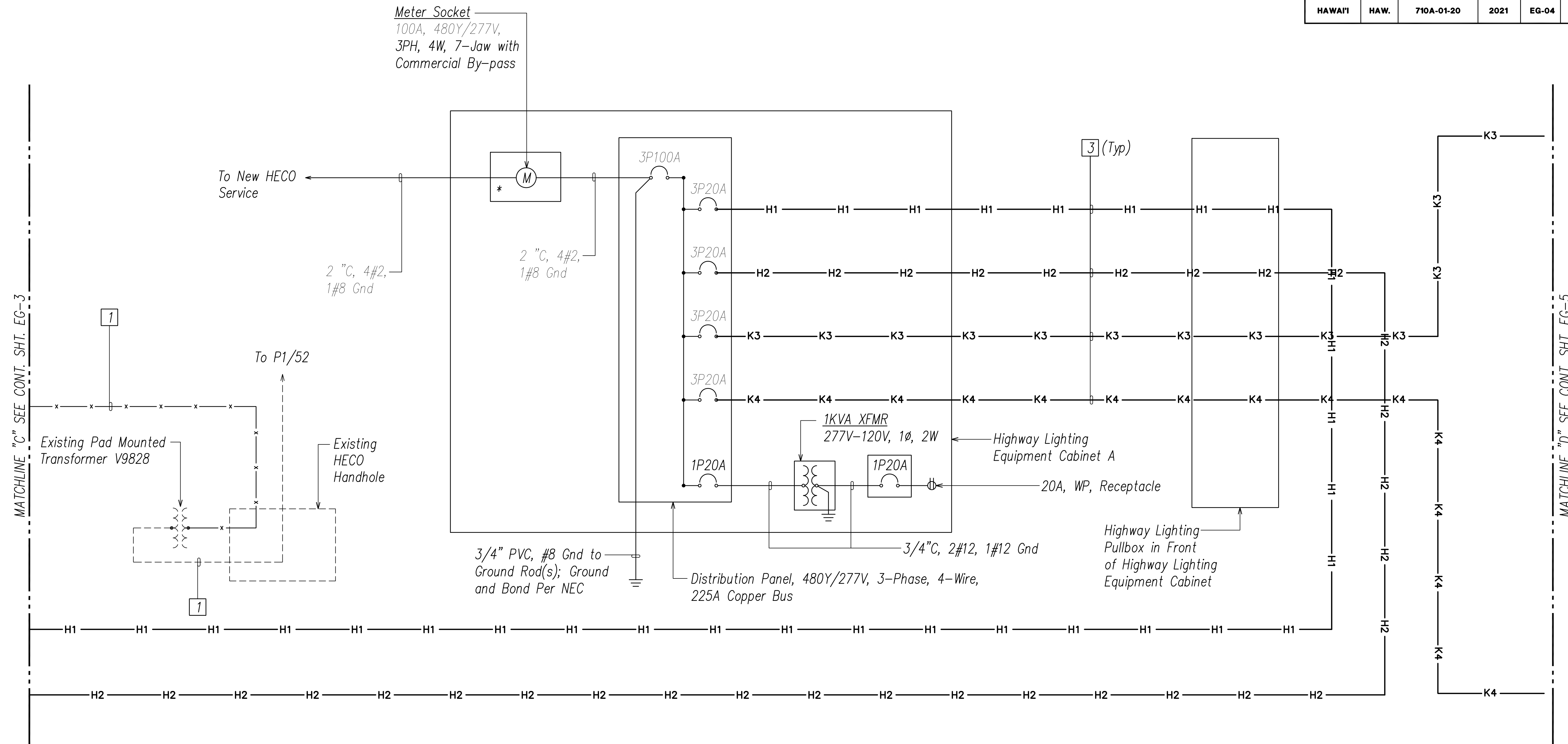
HIGHWAY LIGHTING
CONNECTION DIAGRAM 3
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-03 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-04	790



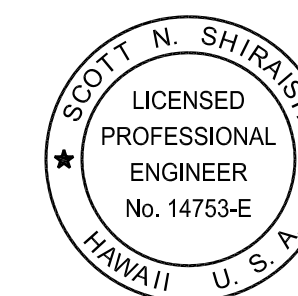
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 4

DIAGRAM NOTES: (Items in ()) Identified on Diagrams as Boxed Items)

- (1) Existing Underground Conductors, to be Removed
- (2) Not Used
- (3) New 2" C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING CONNECTION DIAGRAM 4

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-04 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-05	790

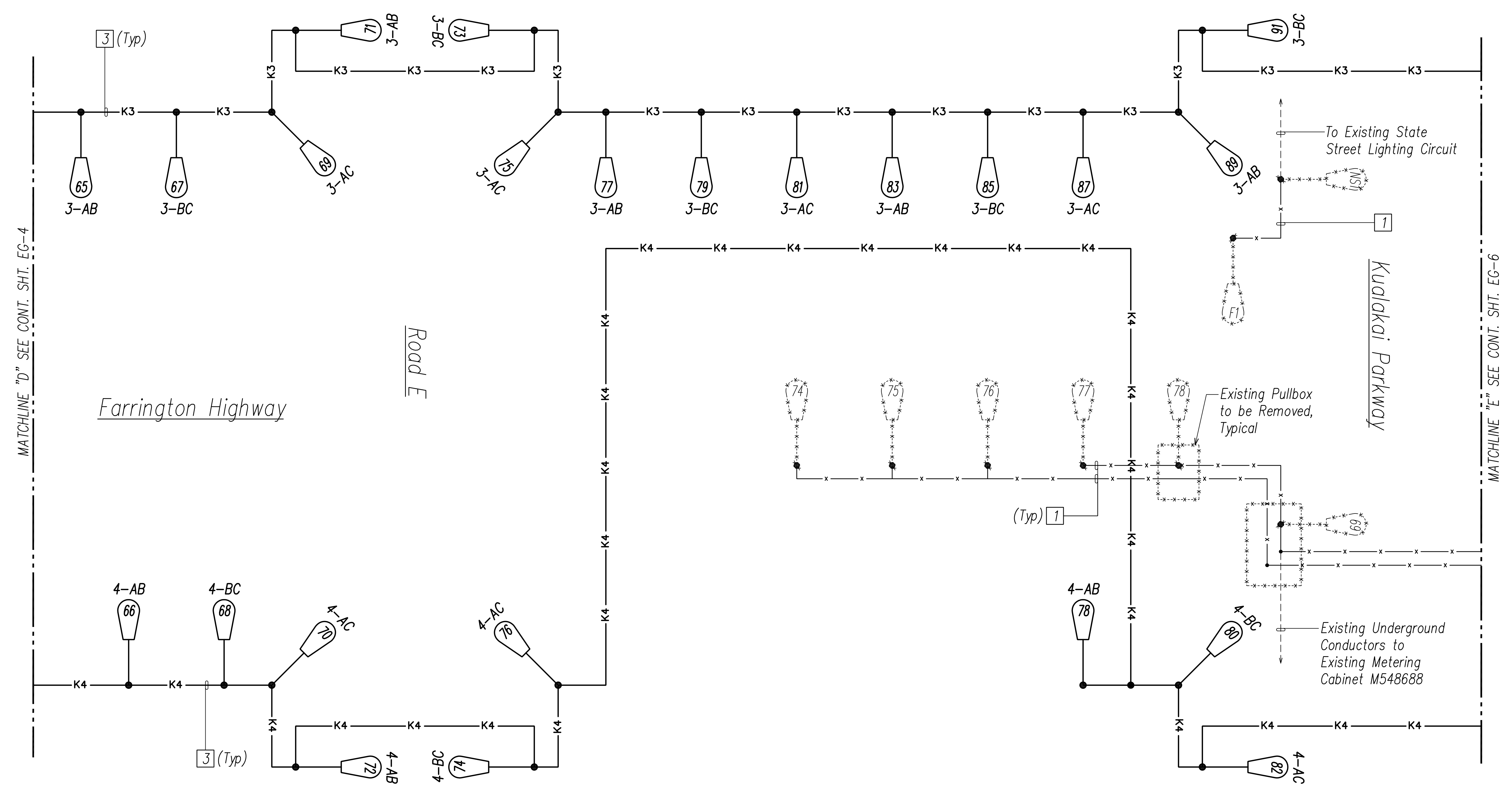


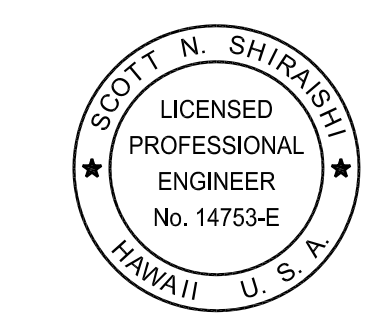
DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Existing Underground Conductors, to be Removed
- (2) Not Used
- (3) New 2" C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 5

DATE	_____
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DESIGNED BY	_____
QUANTITIES BY	_____
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**HIGHWAY LIGHTING
 CONNECTION DIAGRAM 5**

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-05 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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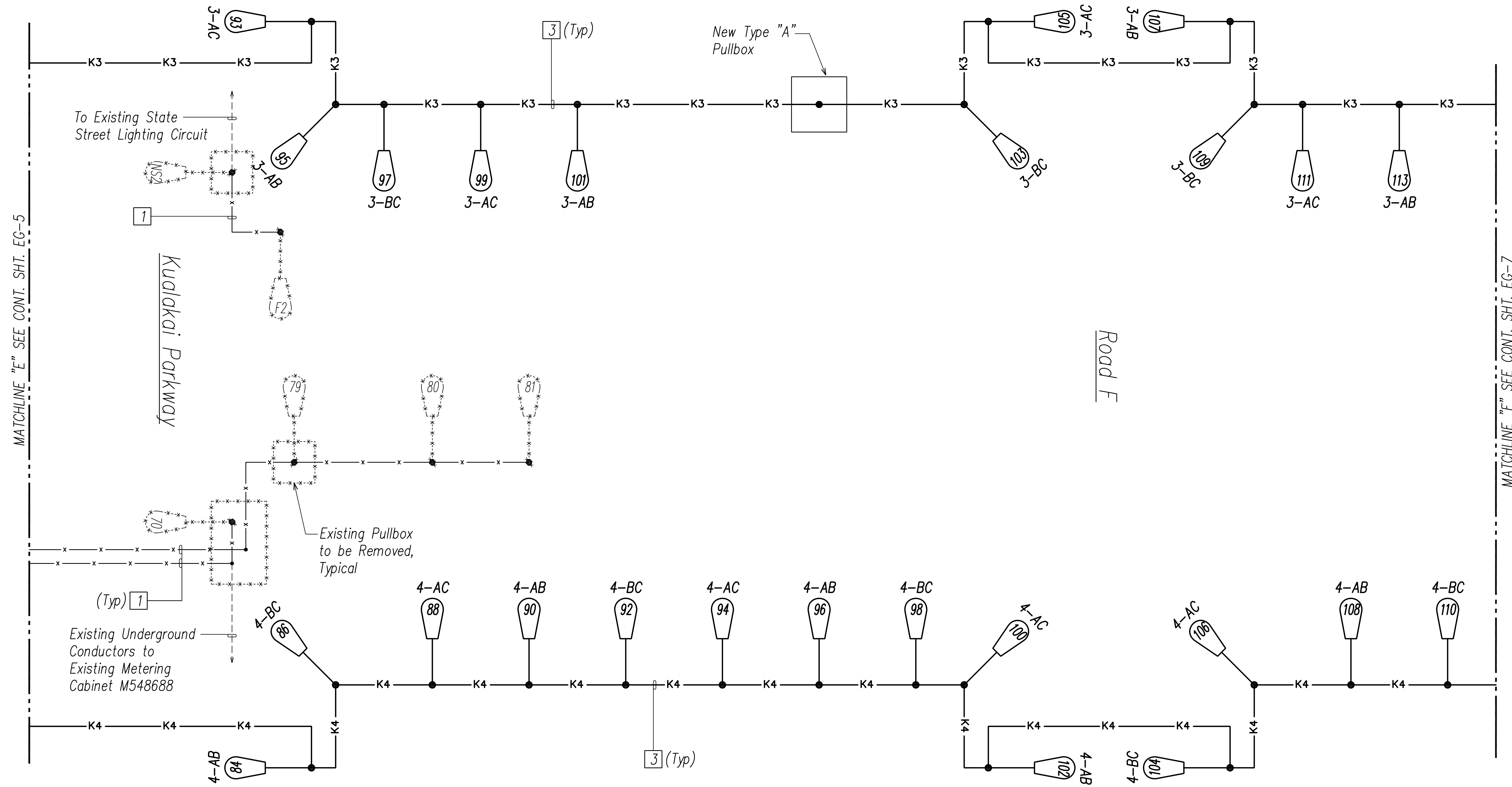


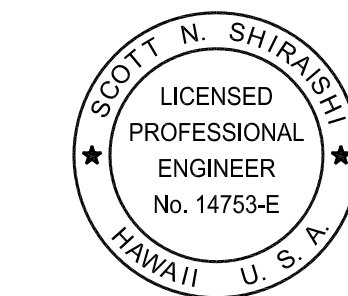
DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Existing Underground Conductors, to be Removed
- (2) Not Used
- (3) New 2" C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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NOTE BOOK	
No.	

FILE: Z:\Acad\Projects\220679A\EG06_220679A Hwy 11 connection diagram 6.dwg saved April 8, 2022

FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 6



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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

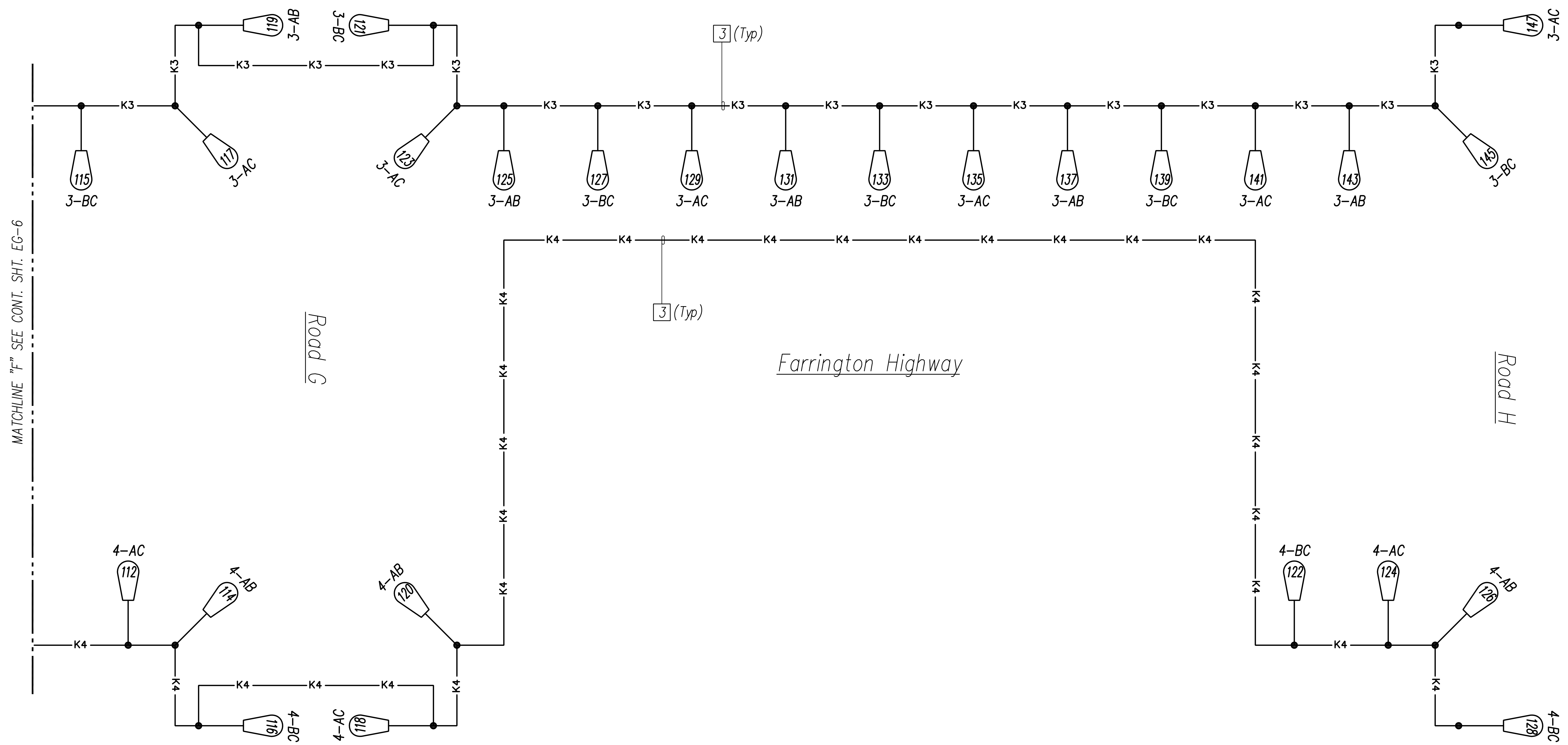
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
CONNECTION DIAGRAM 6
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-07	790



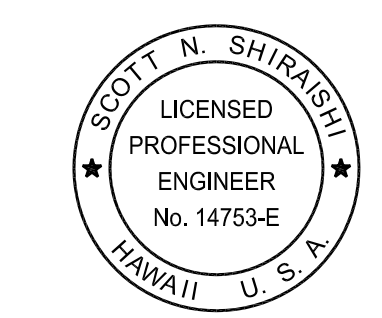
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 7

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Not Used
- (3) New 2" C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING CONNECTION DIAGRAM 7

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-07 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-08	790

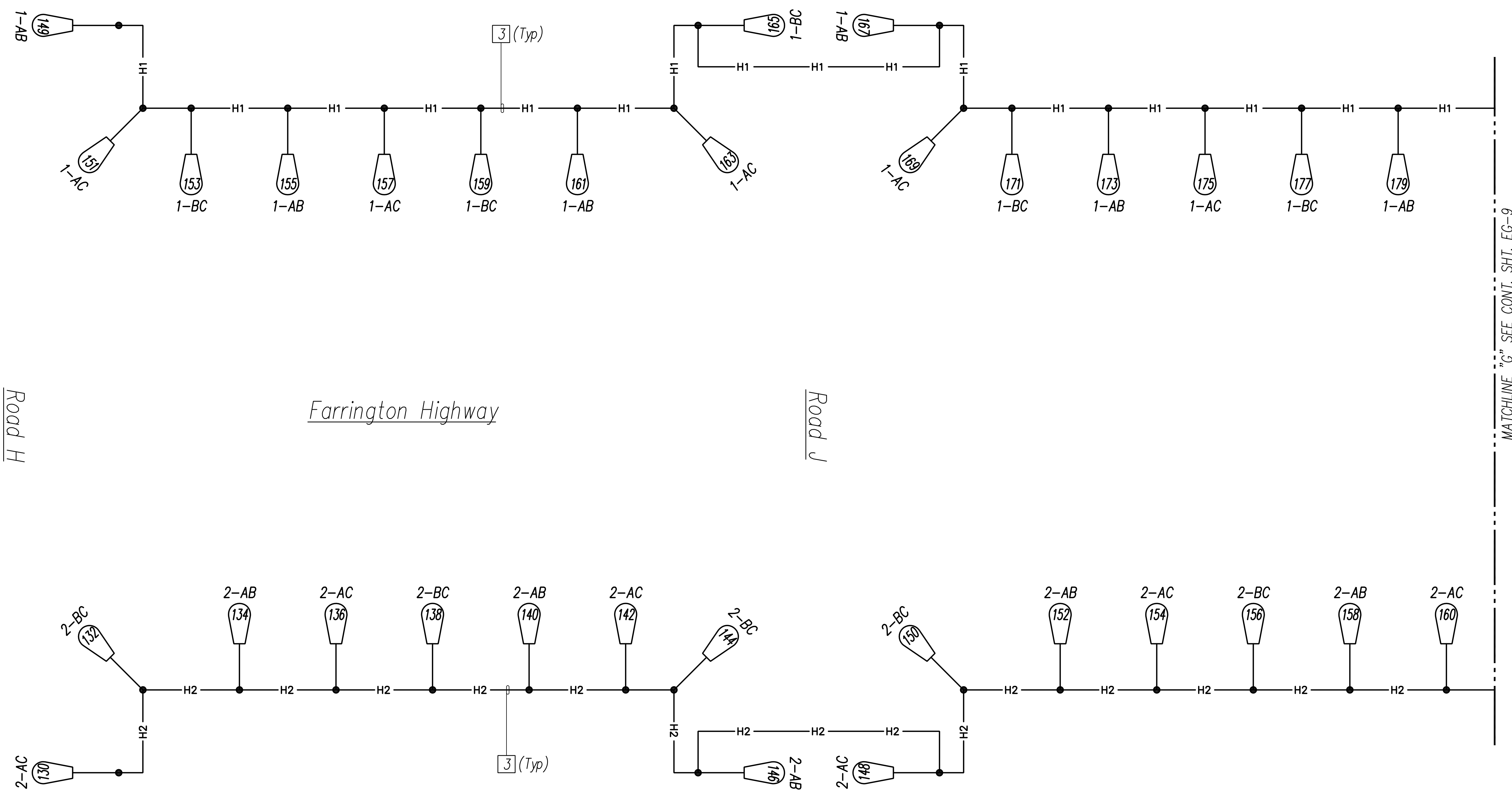


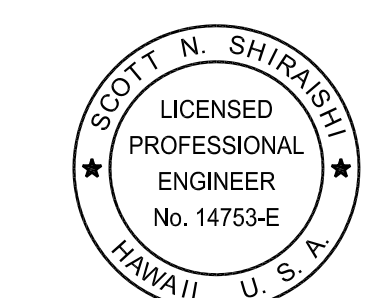
DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Not Used
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 8

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HIGHWAY LIGHTING CONNECTION DIAGRAM 8

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

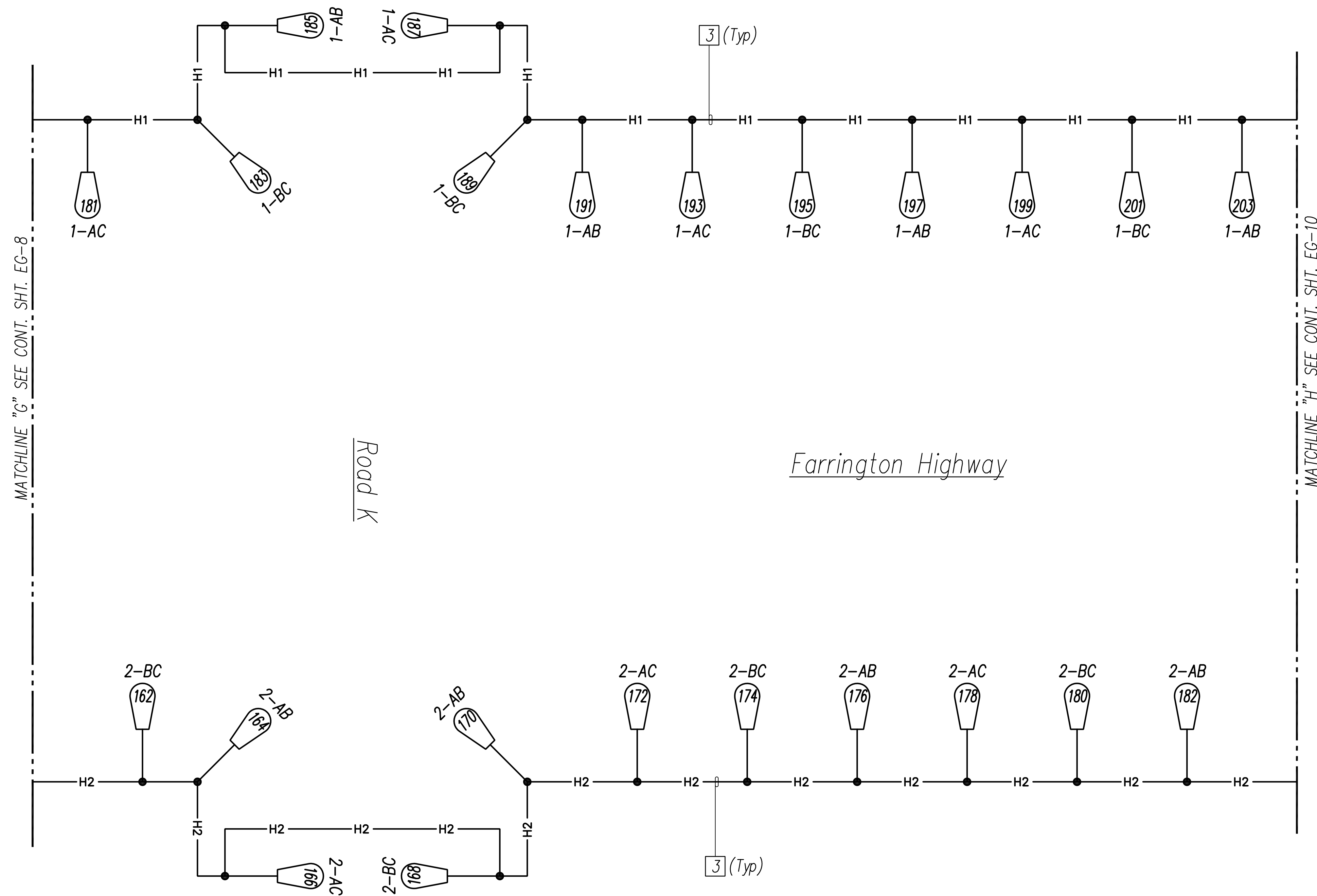
Scale: As Shown Date: April 2022

SHEET No. EG-08 OF 17 SHEETS

MATCHLINE "C" SEE CONT. SHT. EG-9

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-09	790



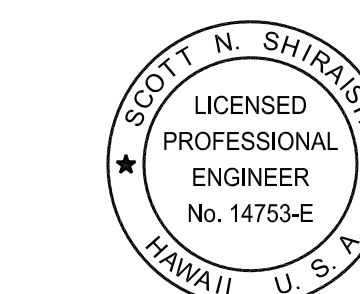
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 9

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Not Used
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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 HIGHWAYS DIVISION

**HIGHWAY LIGHTING
 CONNECTION DIAGRAM 9**

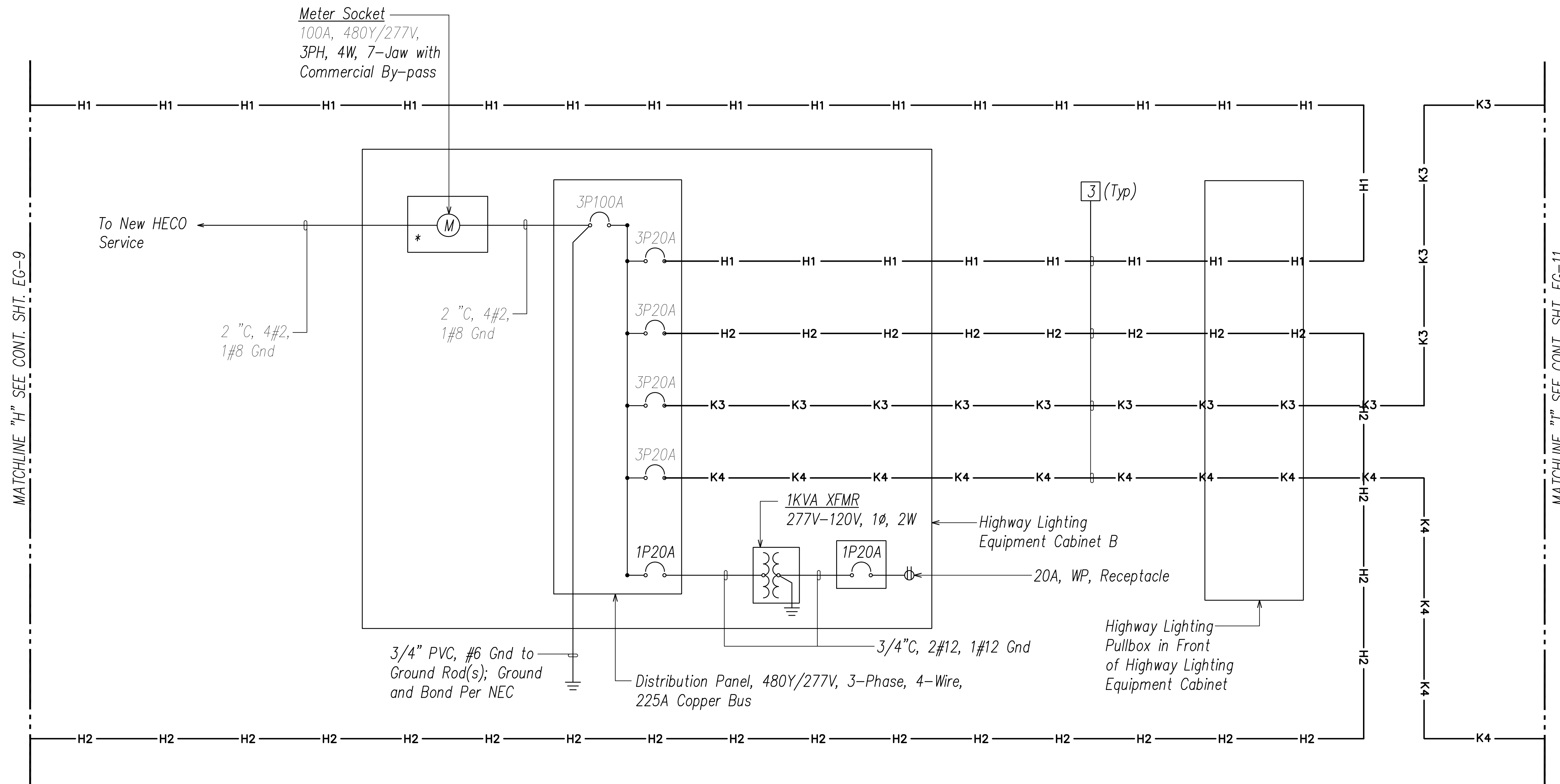
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-09 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-10	790



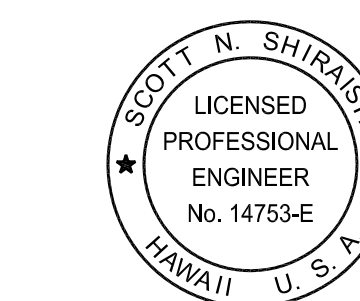
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 10

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Not Used
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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Expiration Date of License: April 30, 2024

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHTING
CONNECTION DIAGRAM 10**

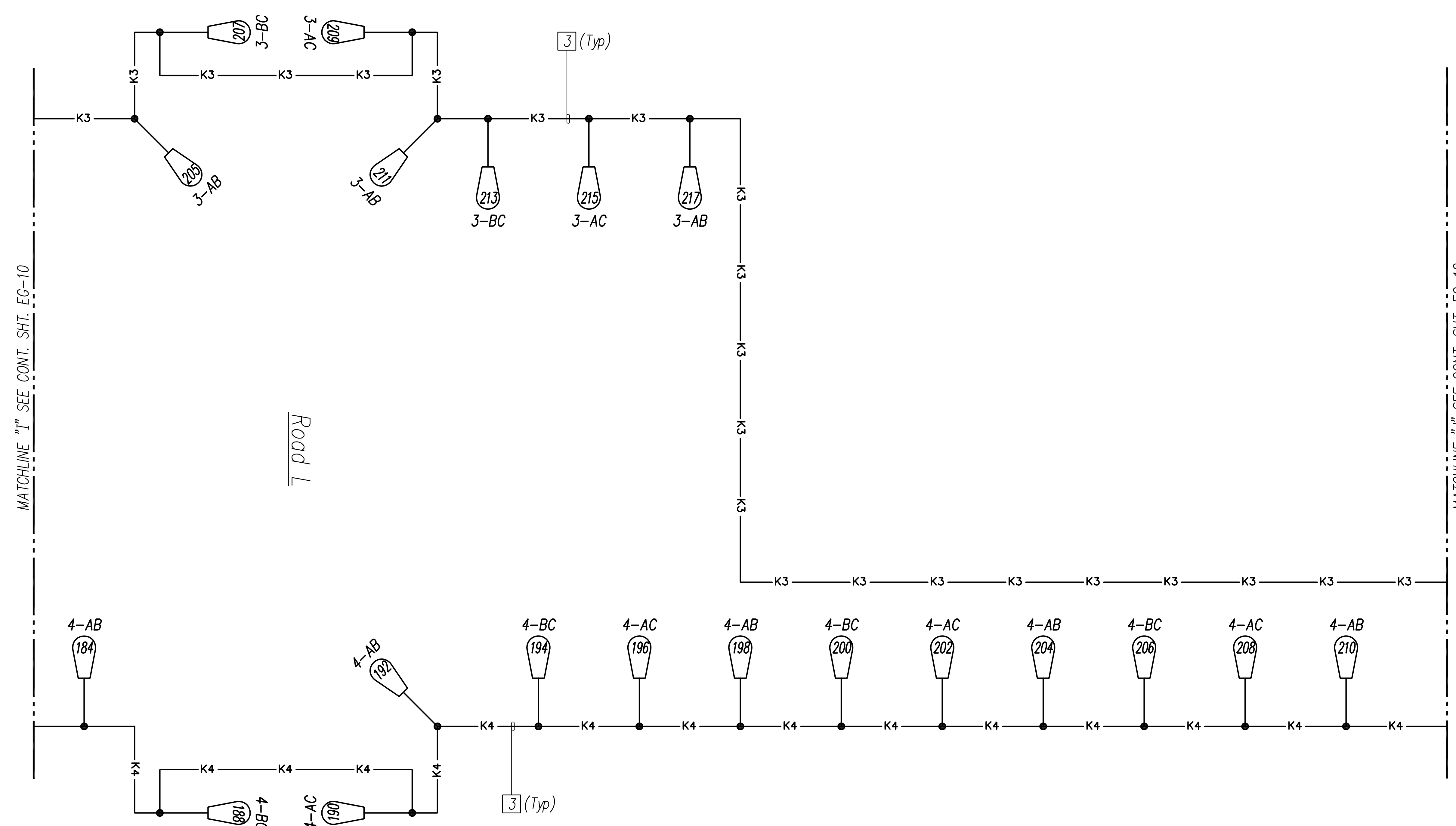
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-10 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-11	790



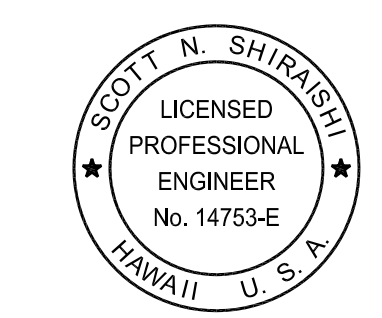
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 11

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Not Used
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING CONNECTION DIAGRAM 11

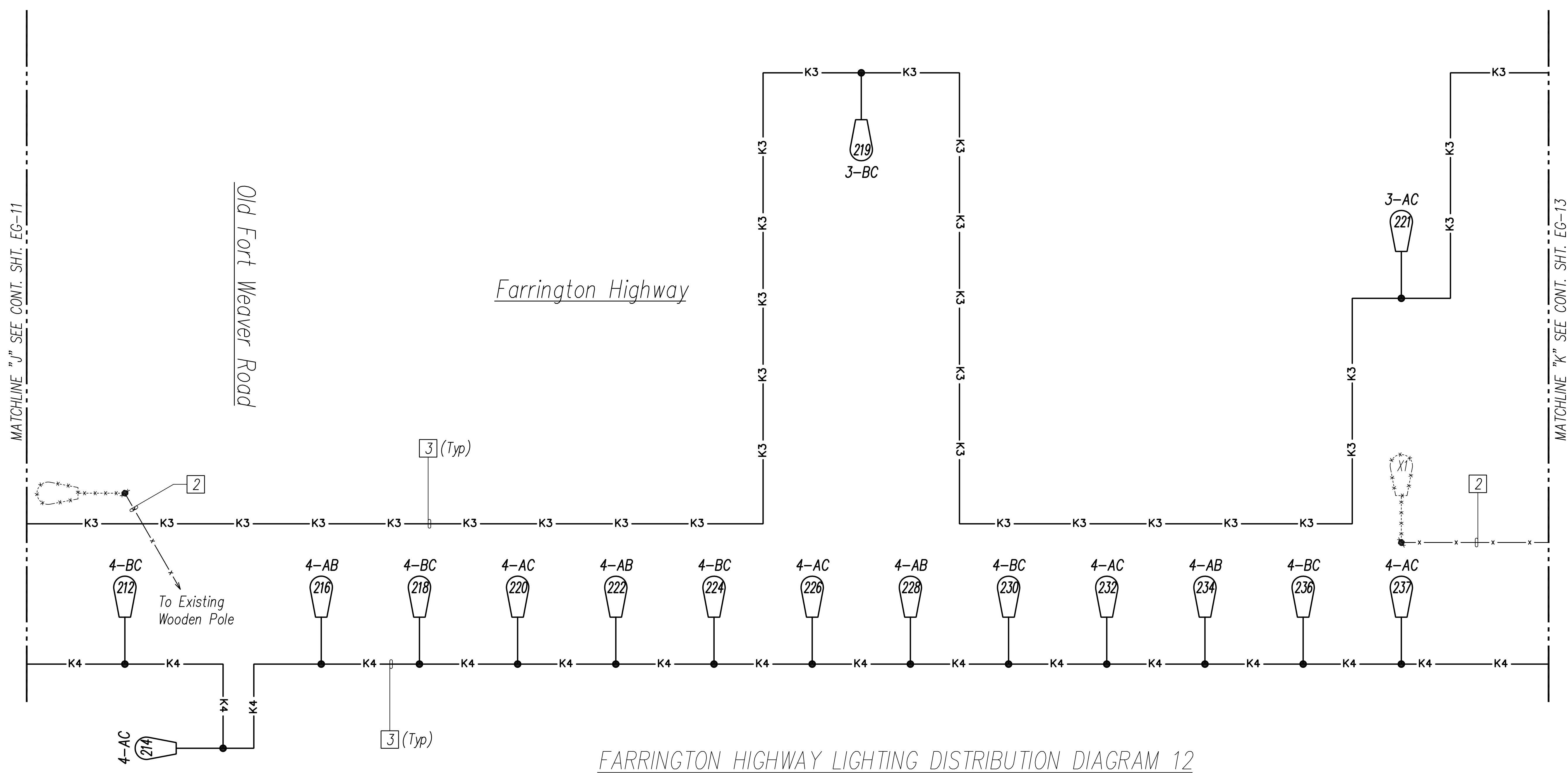
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-11 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-12	790



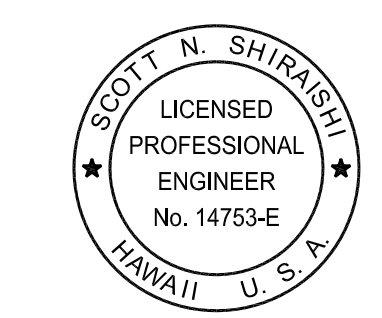
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 12

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Not Used
- (2) Existing Overhead Conductors, to be Removed
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
CONNECTION DIAGRAM 12

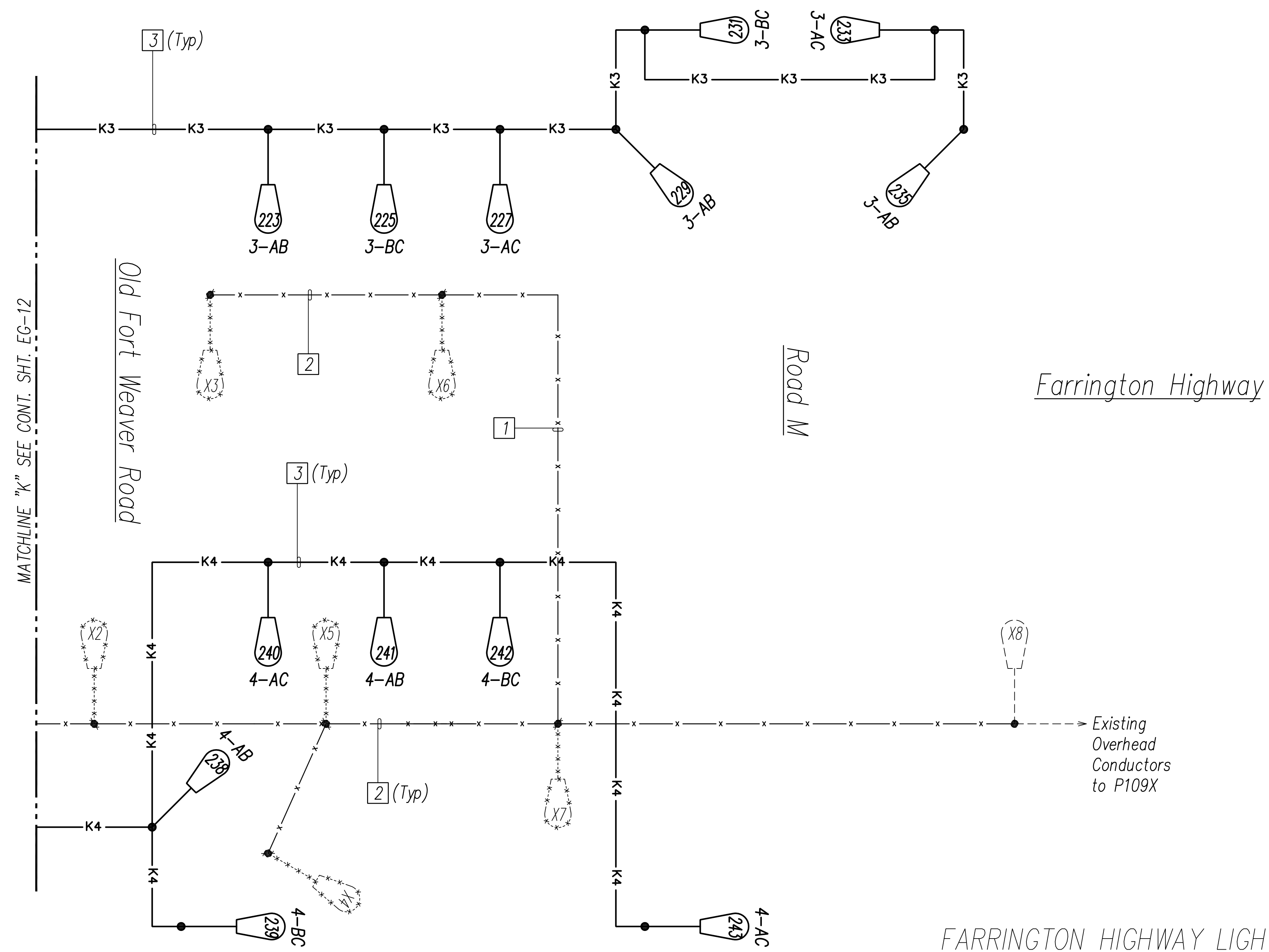
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-12 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-13	790



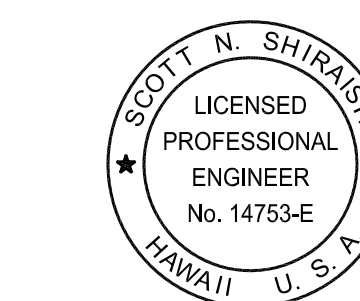
FARRINGTON HIGHWAY LIGHTING DISTRIBUTION DIAGRAM 13

DIAGRAM NOTES: (Items in () Identified on Diagrams as Boxed Items)

- (1) Existing Underground Conductors, to be Removed
- (2) Existing Overhead Conductors, to be Removed
- (3) New 2"C, 3#2, 1#2 Gnd
4. General Notes:
 - a. Not all Highway Light Pullboxes are shown; See Highway Lighting Plans for Conduit and Pullbox Requirements.
 - b. For Typical Highway Lighting Standard Wiring Connection Diagram, See Sheet EG-14.
5. New Pullboxes and Junction Boxes Are Not Shown on Diagram for Clarity.

DATE	_____
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 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**HIGHWAY LIGHTING
 CONNECTION DIAGRAM 13**

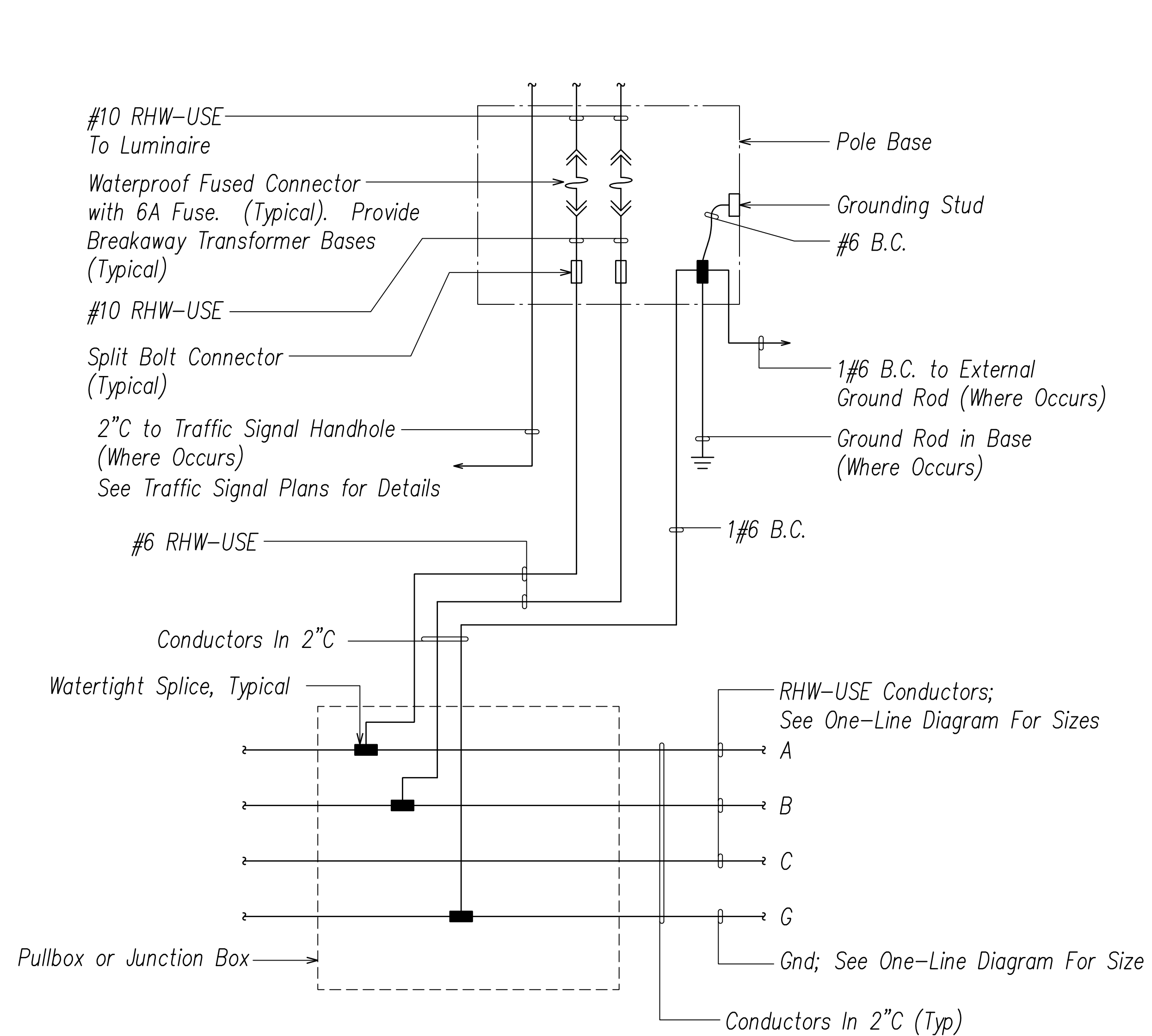
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

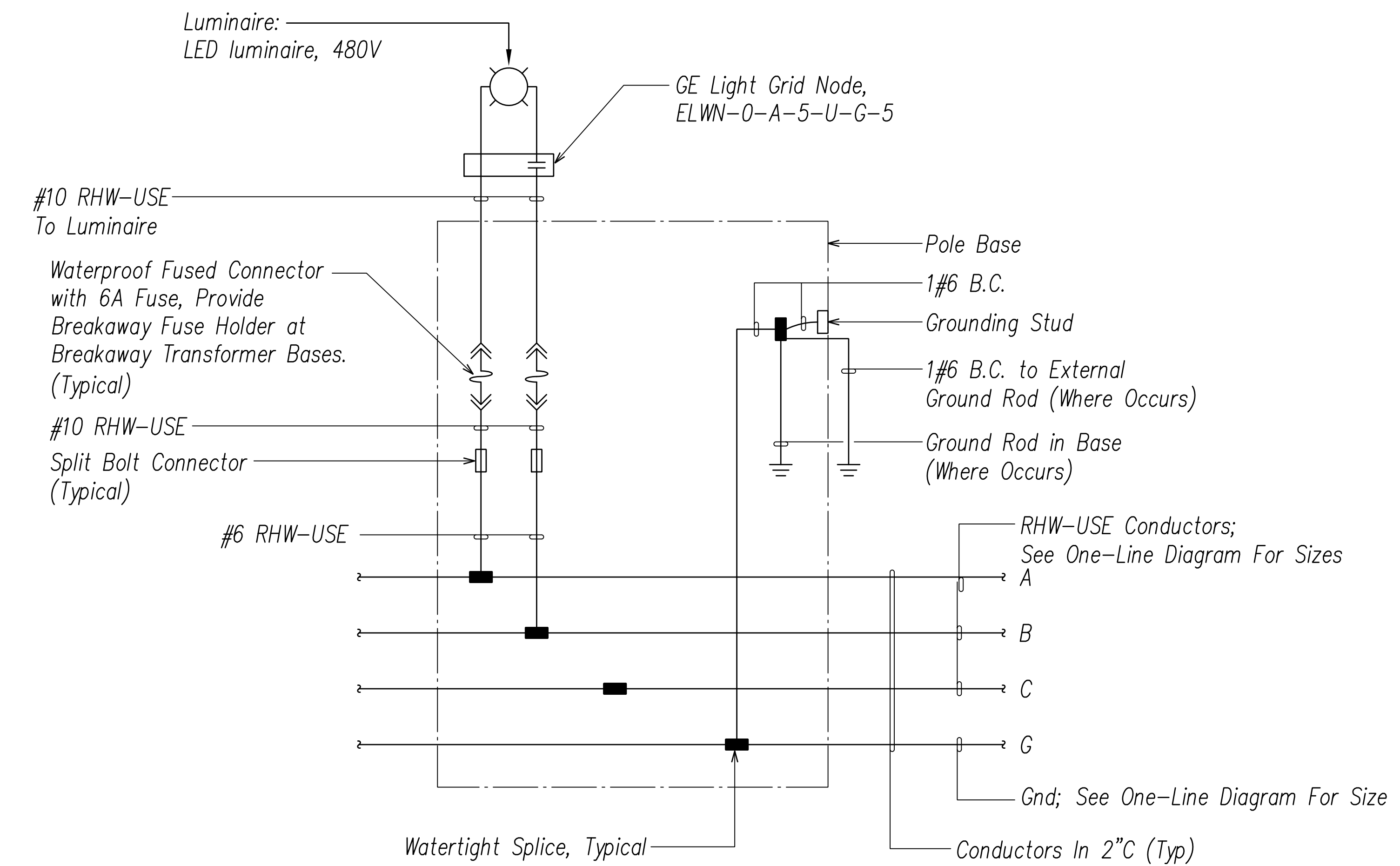
SHEET No. EG-13 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-14	790



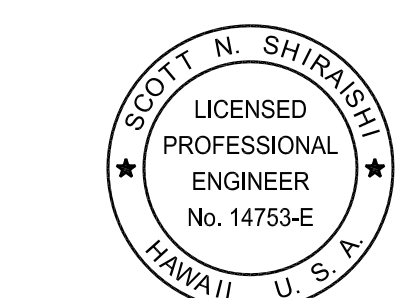
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EG-14 **WIRING CONNECTION DIAGRAM - HIGHWAY LIGHTING STANDARD WHERE PULLBOX INSTALLED**
Not to scale



2
EG-14 **WIRING CONNECTION DIAGRAM TYPICAL HIGHWAY LIGHTING STANDARD**
Not to scale

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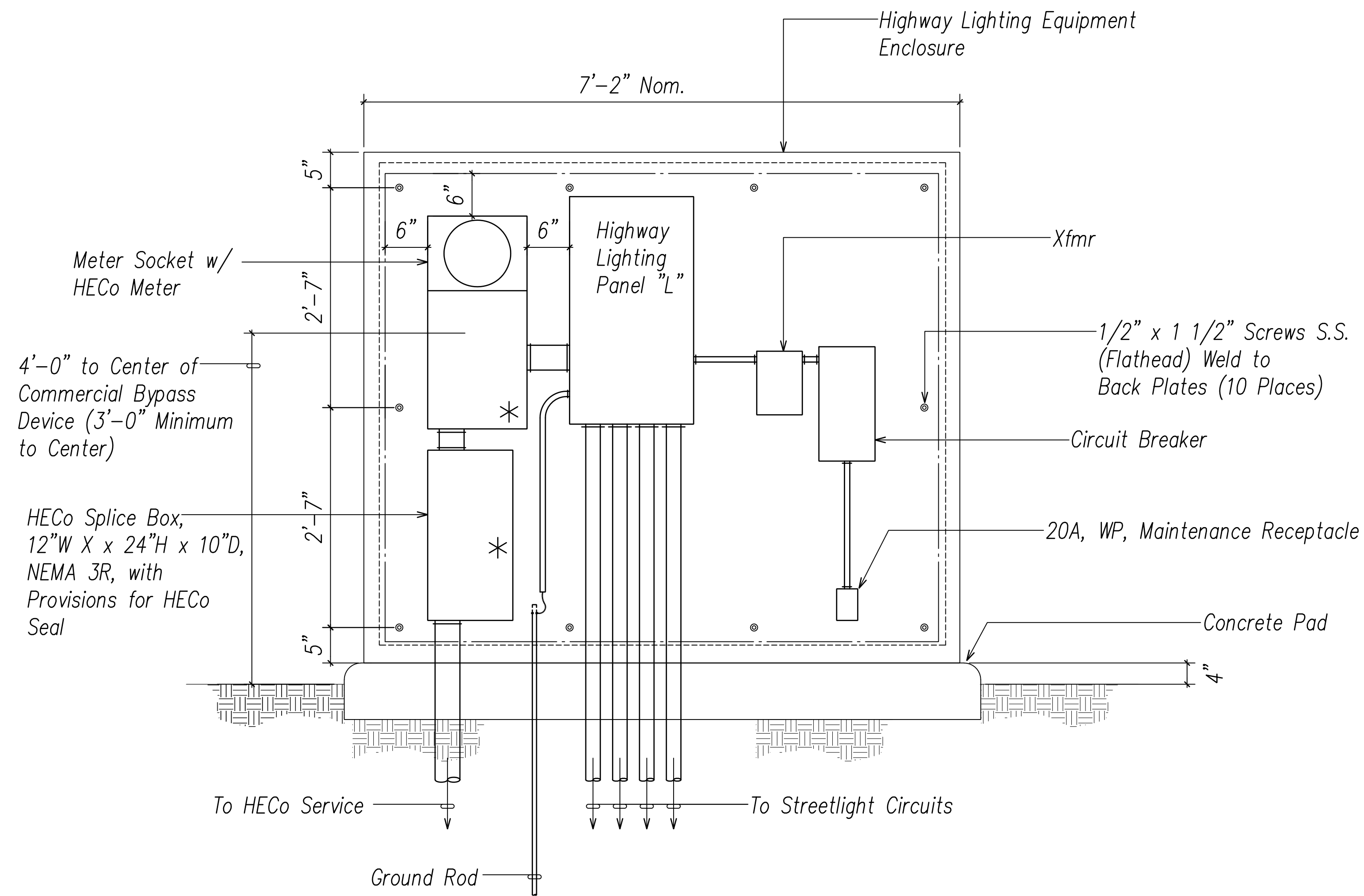
HIGHWAY LIGHTING TYPICAL CONNECTION DIAGRAM
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-14 OF 17 SHEETS

XXX

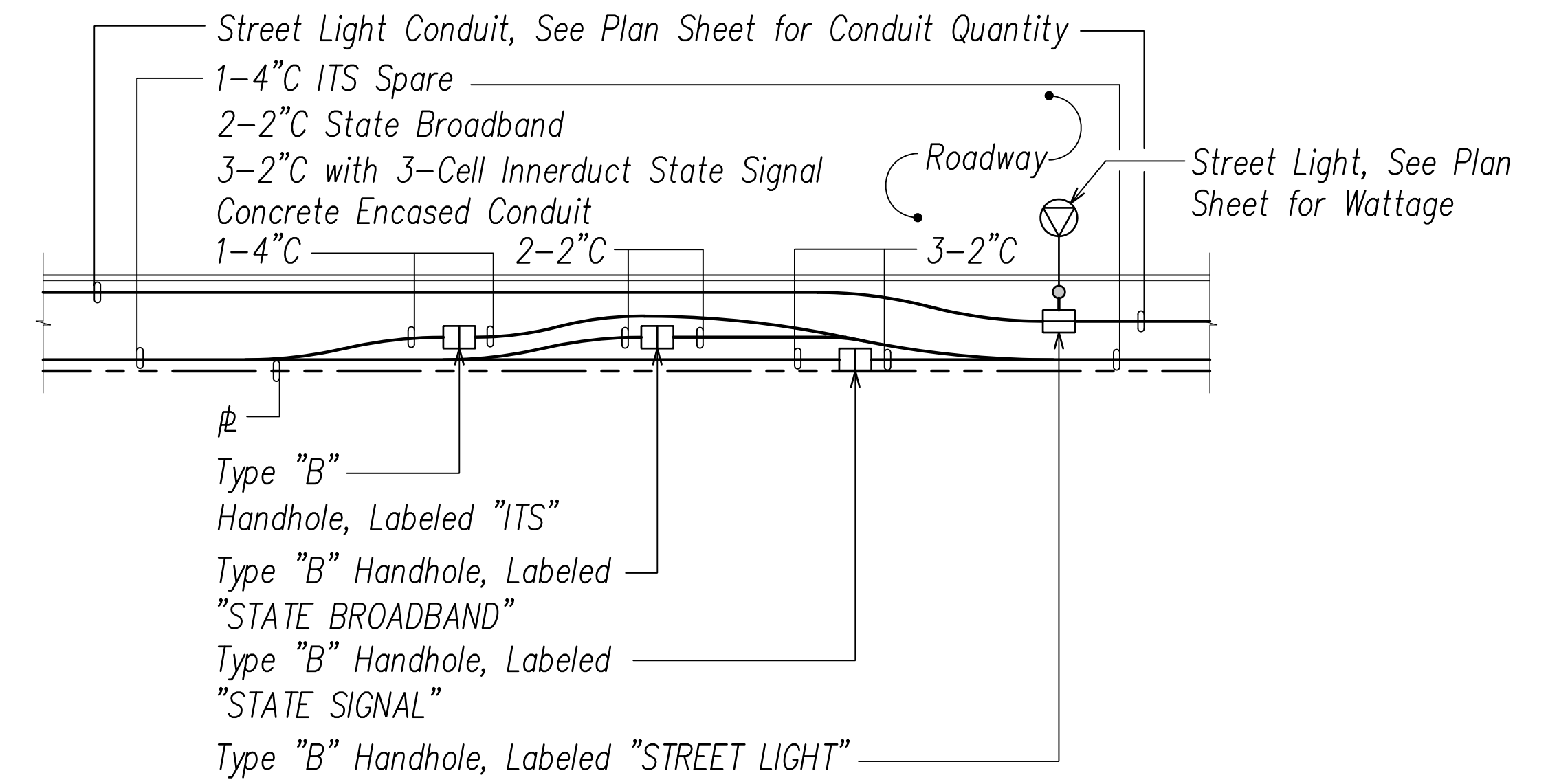
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-15	790



NOTES:

- "*" Indicates Provisions for HECO Seals.
- All Equipment Enclosure in Service Equipment Cabinet Shall be NEMA Type 1.
- Contractor Shall Verify Equipment Enclosure Size to Ensure All Required Equipment Being Provided can fit Within Enclosure as Required.
- Minimum 4'-0" Clear Space in Front of Metering Equipment Enclosure Required.

1 HIGHWAY LIGHTING EQUIPMENT ELEVATION
EG-15 Not to scale



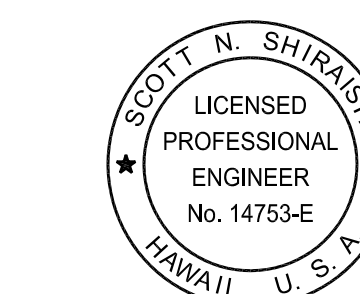
NOTES:

- Maintain maximum 150' between ITS, Broadband, or Traffic Signal boxes.
- All traffic signal conduits to be concrete encased.
- All street light conduits to be concrete encased at road crossings.

2 TYPICAL HANDHOLE GROUPING BETWEEN INTERSECTIONS
EG-15 Not to scale

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Date: April 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHT STANDARD
DETAILS 1**

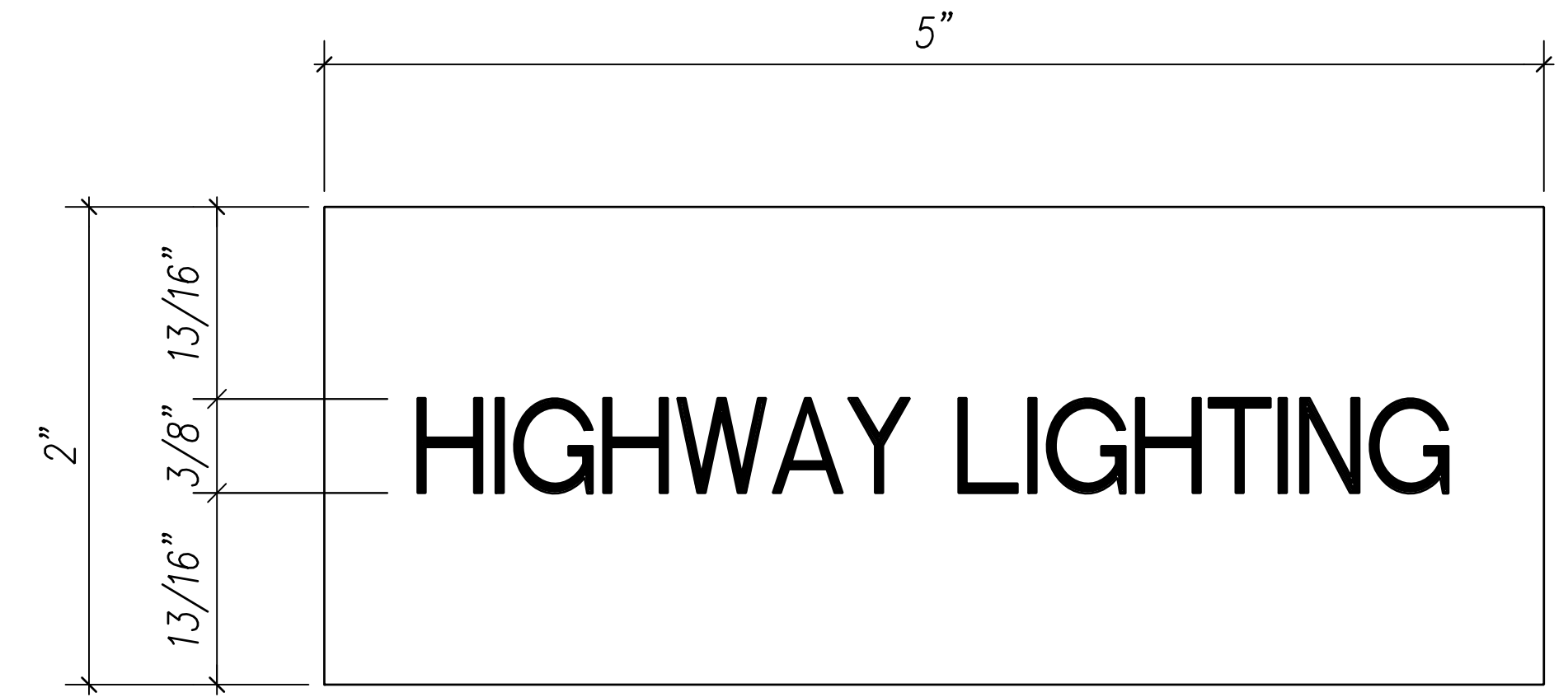
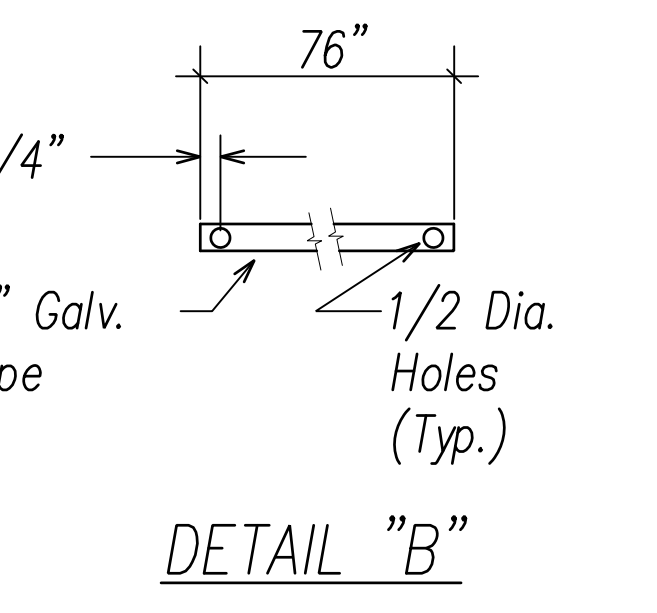
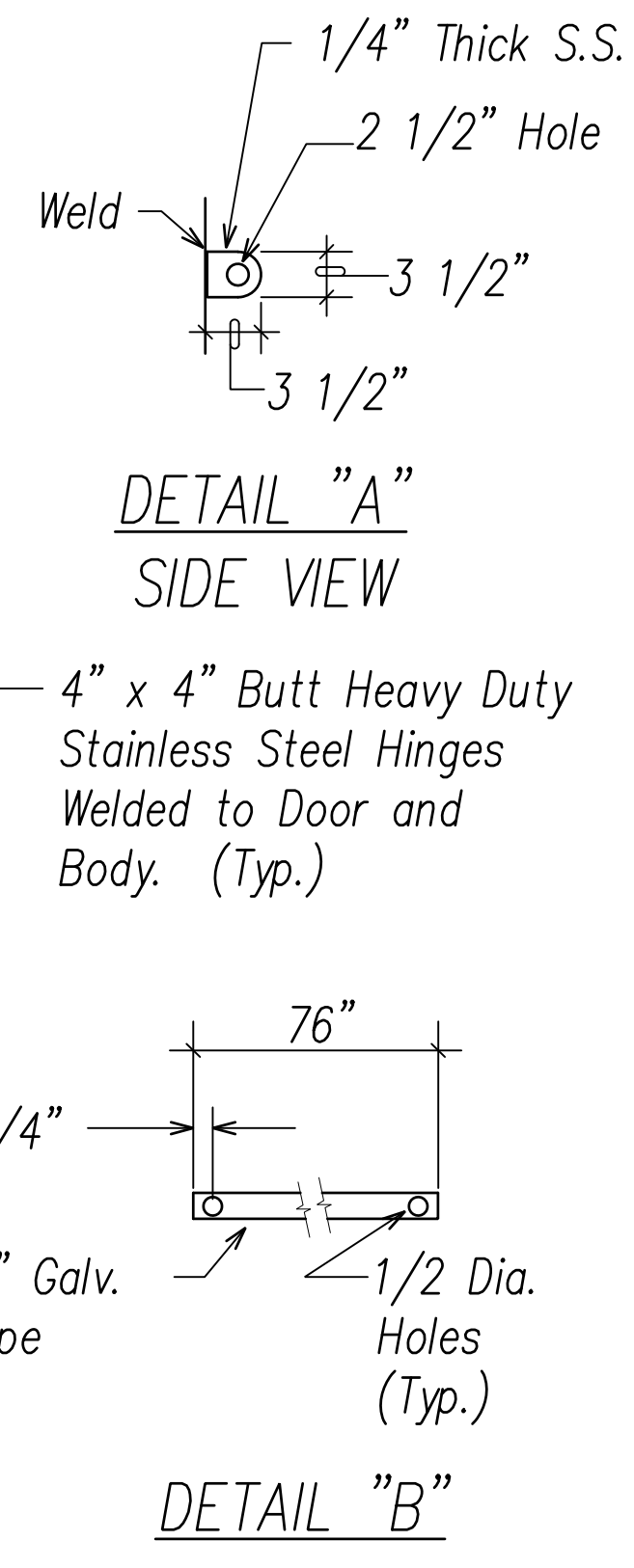
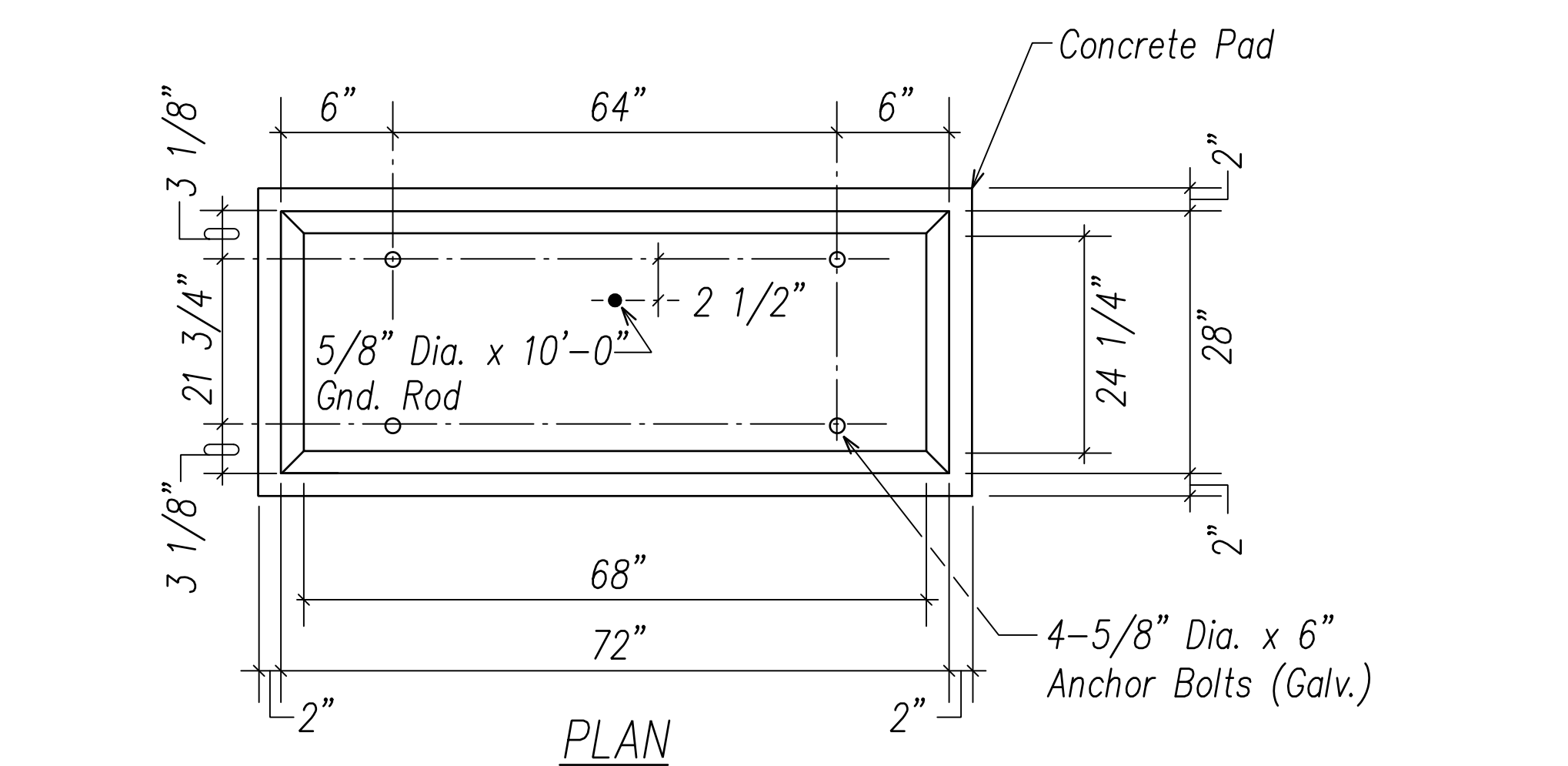
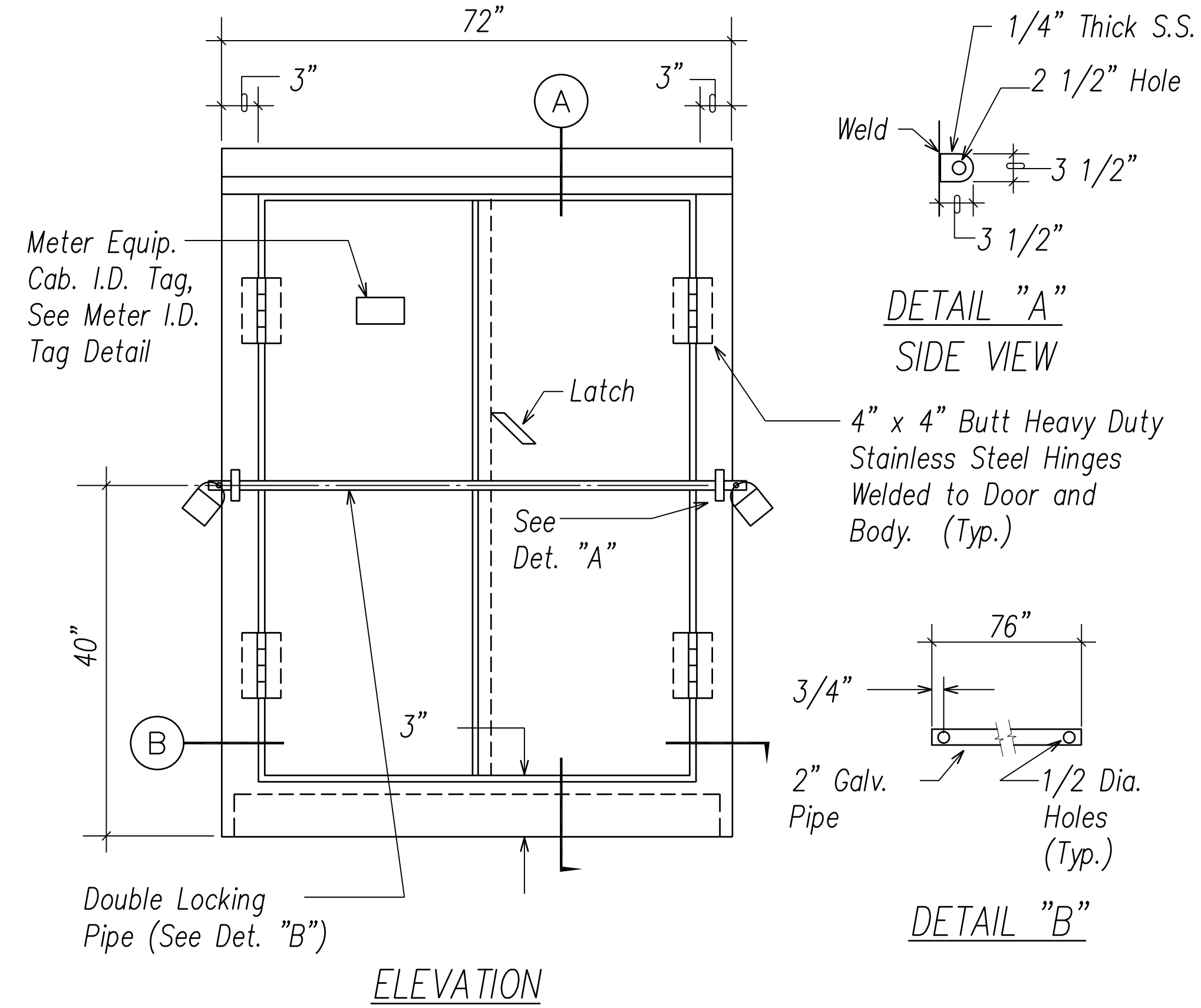
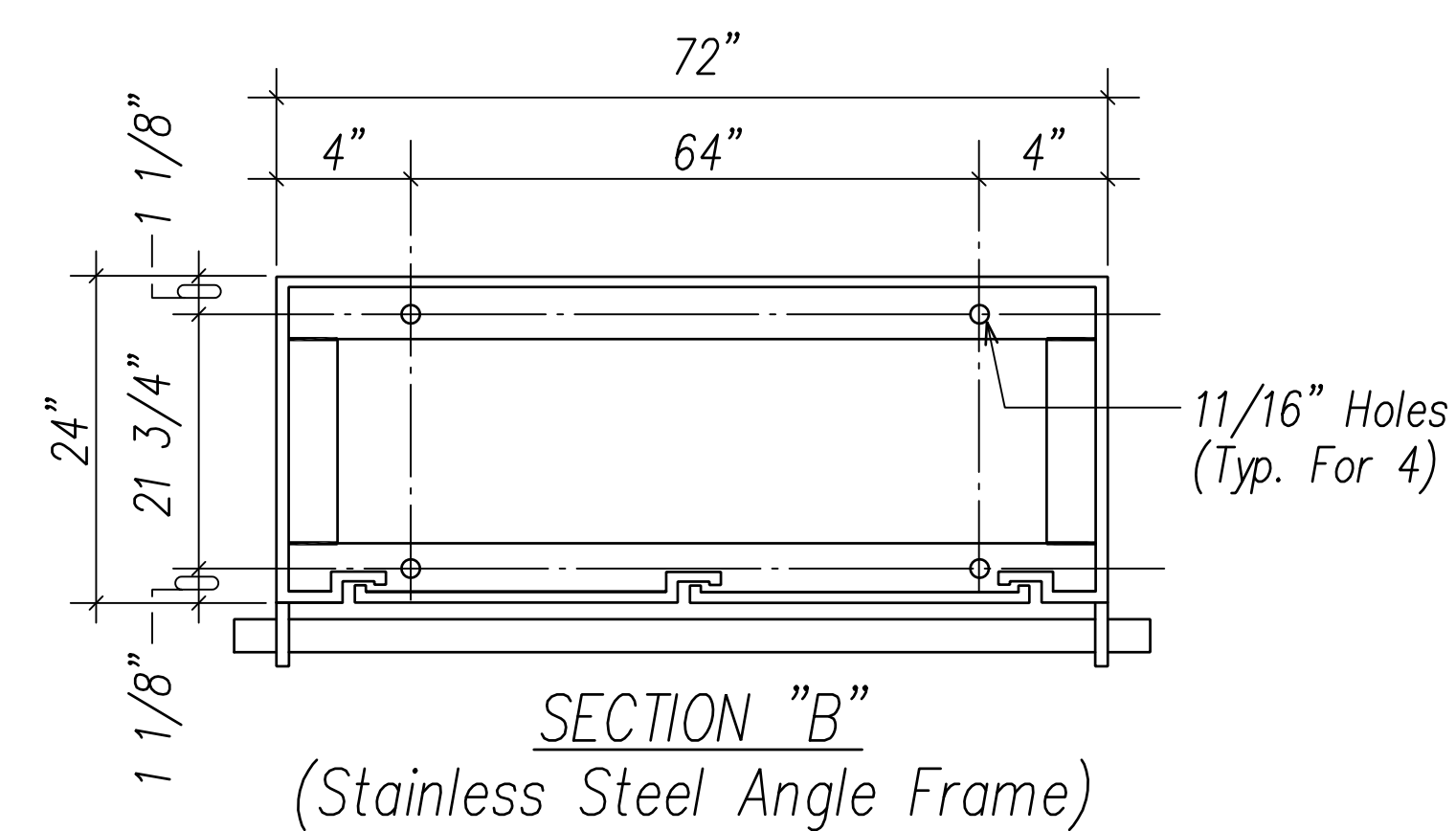
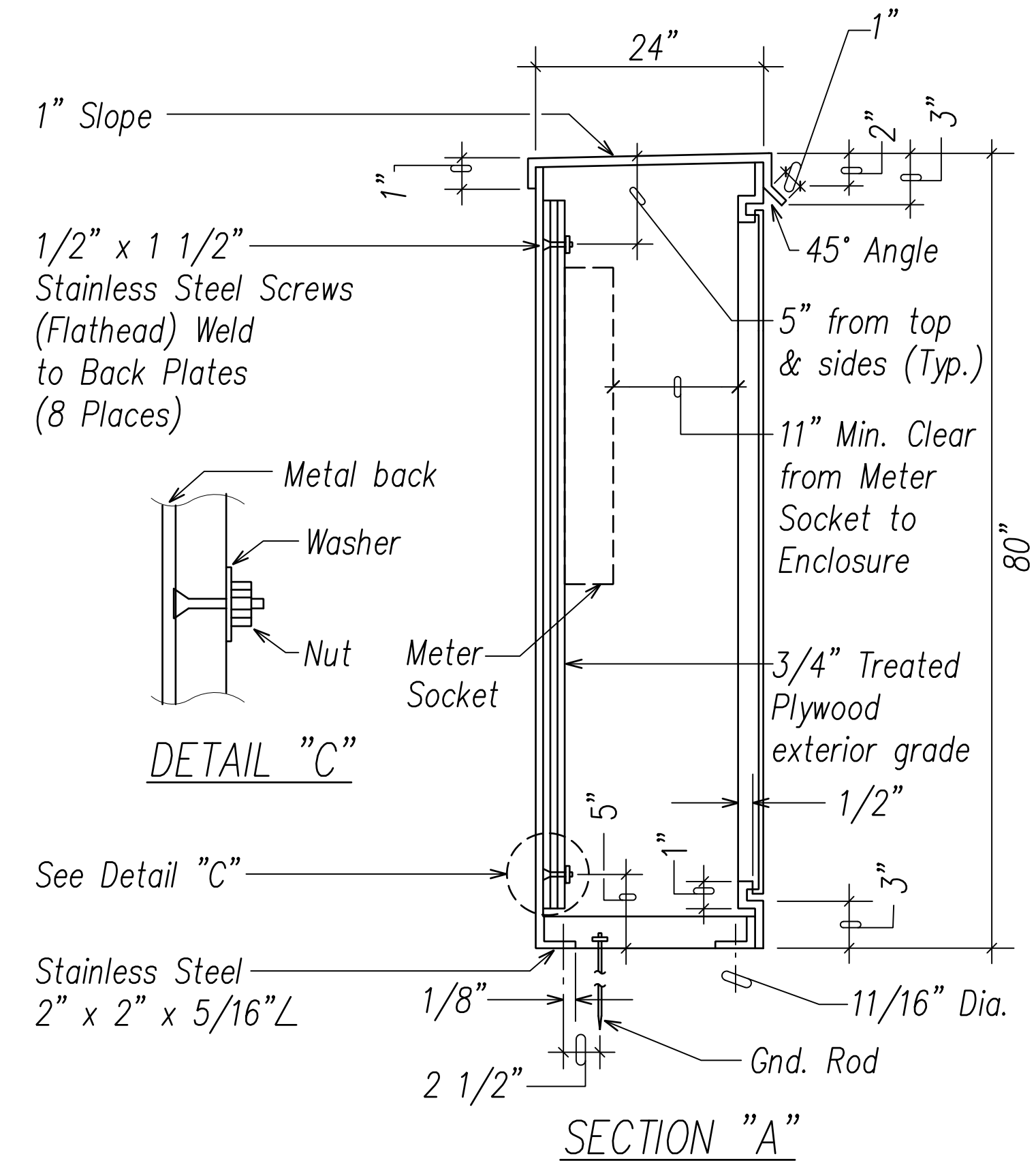
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-15 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-16	790



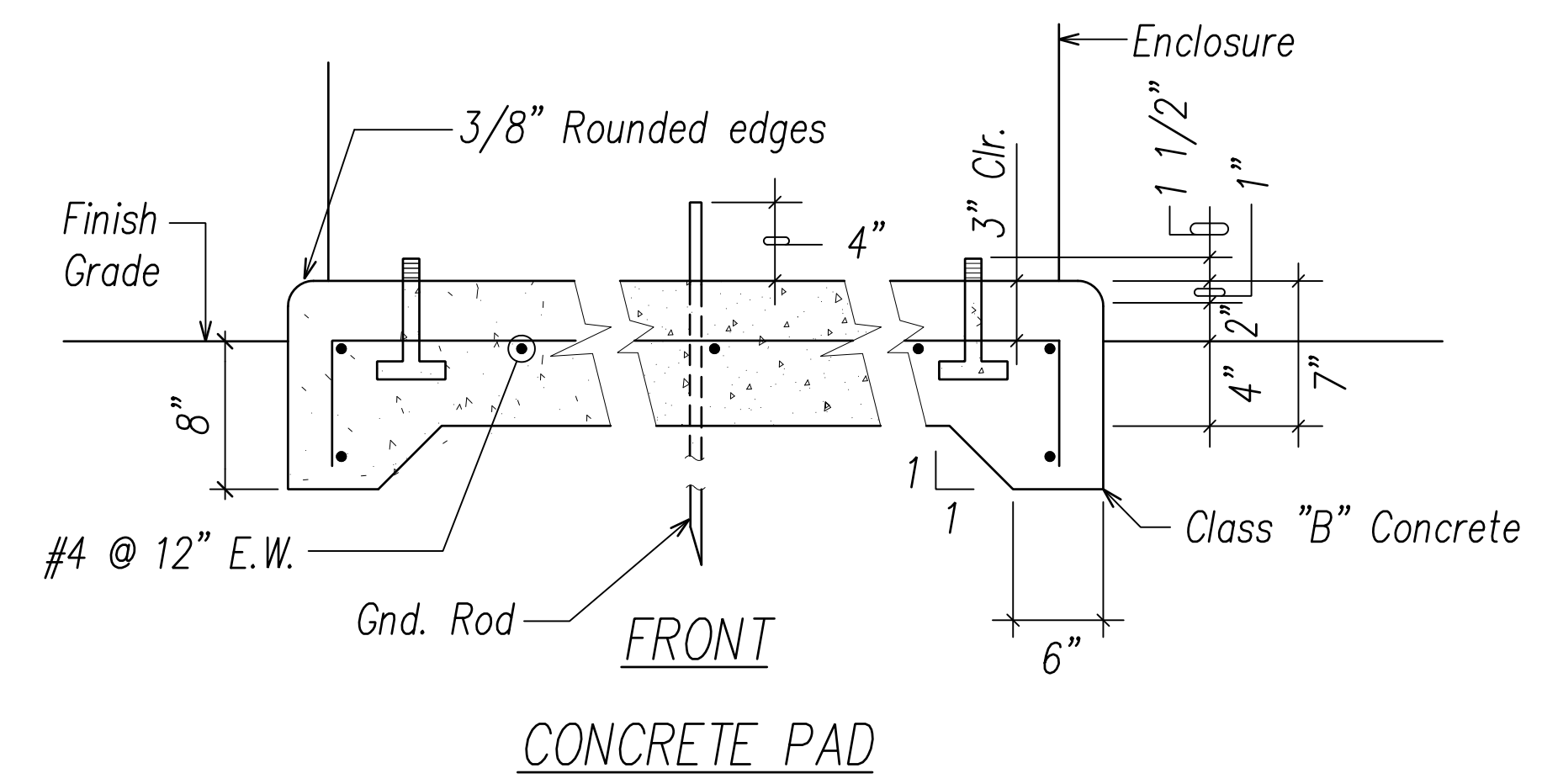
NOTES:

- 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".
- Attach to meter enclosure using Scotch 3 brand very high bond (VHB) double coated acrylic foam tape or equivalent.
- Letters/numbers shall be 3/8" high, 1/16" stroke (white in color).
- Letters/numbers area inscribed by cutting through "black cap sheet" to expose white letters/numbers.

2 METER ID TAG DETAIL
EG-16 Not to scale

Notes:

- Cabinet to be primed with one coat shop primer.
- Made from 10 gauge Type 316 Stainless Steel.
- Provide epoxy enamel finish, color shall be Munsell 7GY3.29/1.5 Green (two coats). The Munsell color notation is specified in ASTM D 1535.
- Enclosure shall be NEMA 3R with neoprene gasketing.
- Padlocks:
 - 1 - HECO furnished
 - 1 - Contractor furnished
- Shop fabrication drawings shall be submitted for approval.
- Add additional Gnd Rod as required if gnd resistance exceeds 25 ohms (max allowed).
- Maintain 4'-0" min. clearance fronting cabinet door, unless indicated otherwise.



1 HIGHWAY LIGHTING EQUIPMENT ENCLOSURE
EG-16 Not to Scale

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHT STANDARD
DETAILS 2**

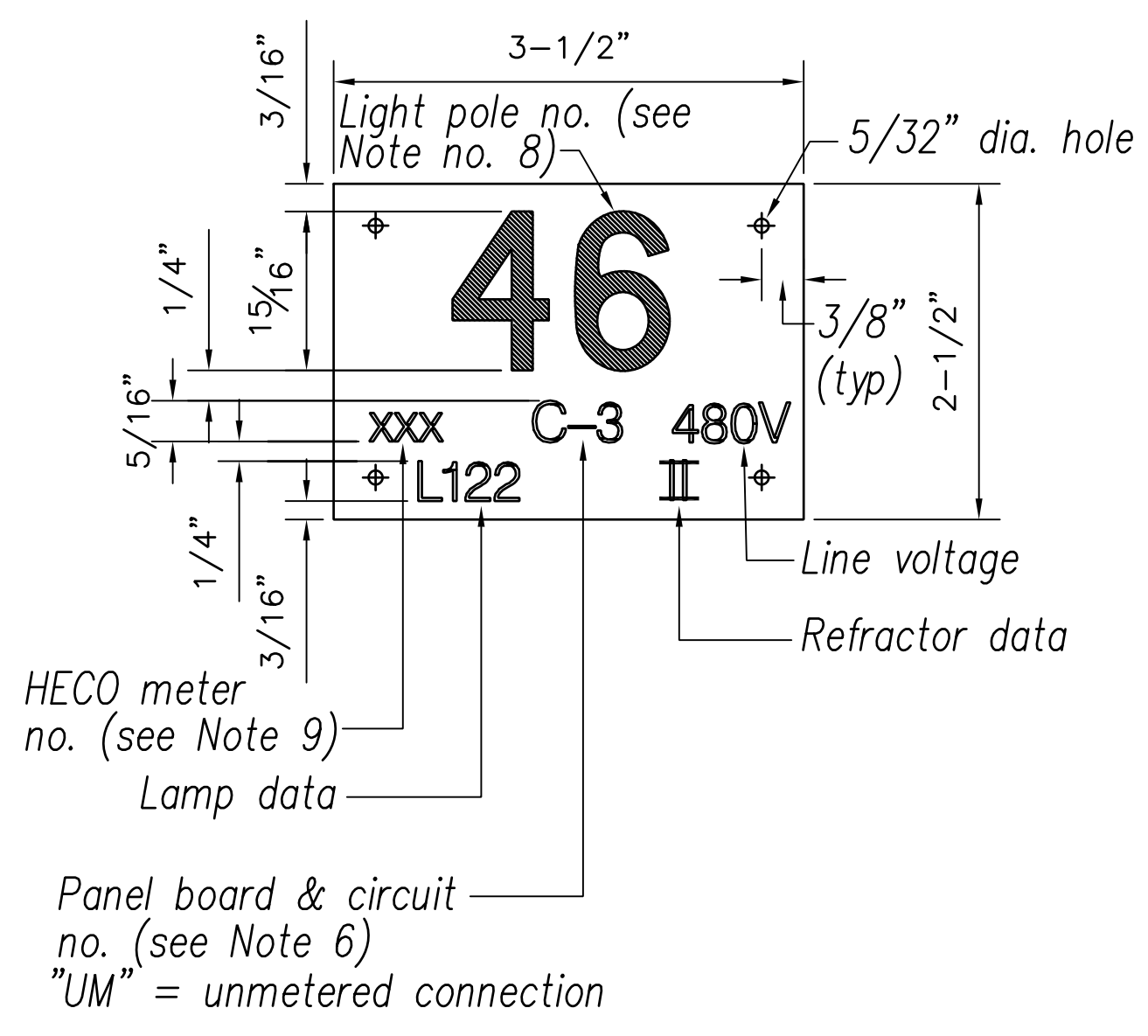
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-16 OF 17 SHEETS

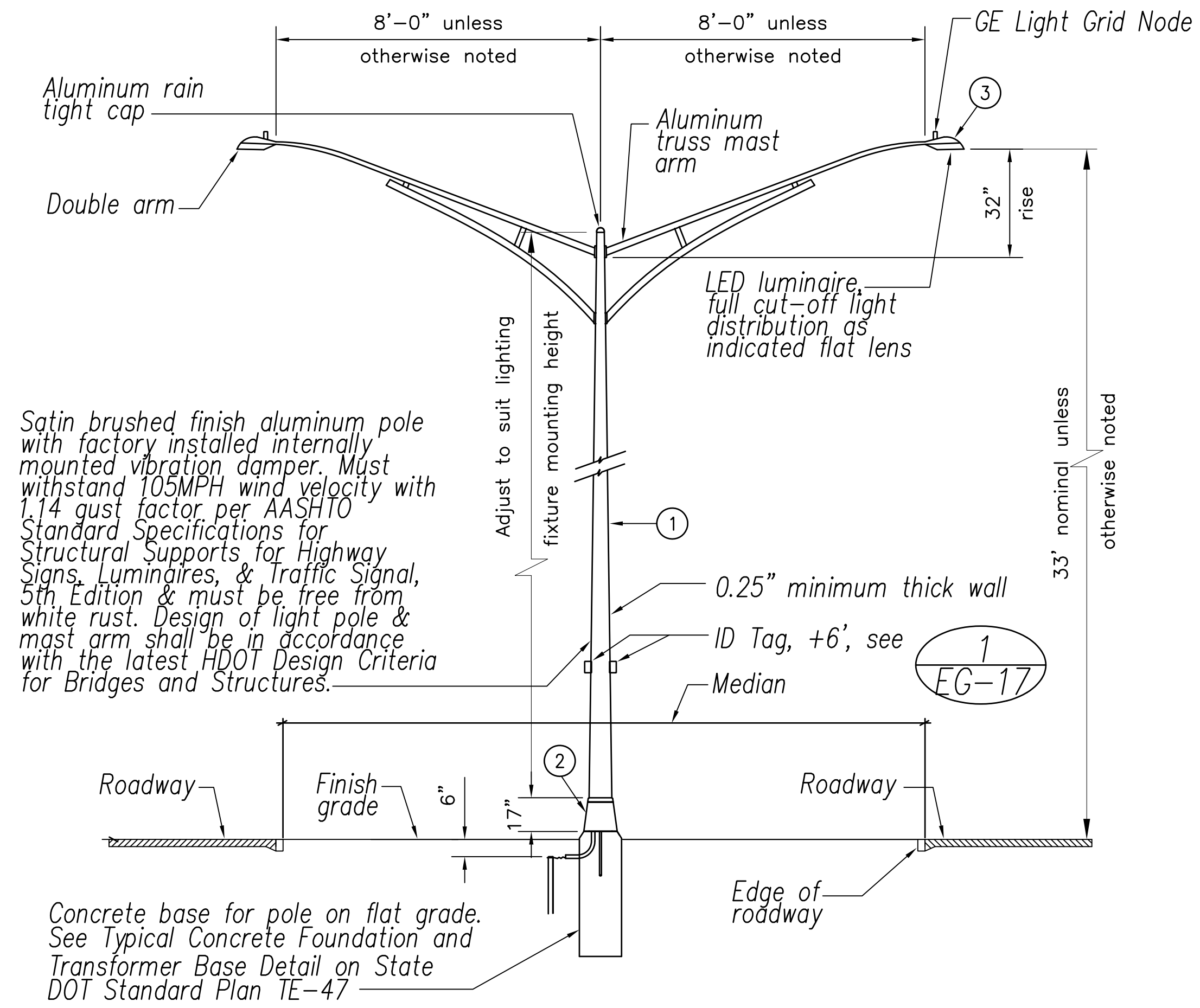
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-17	790



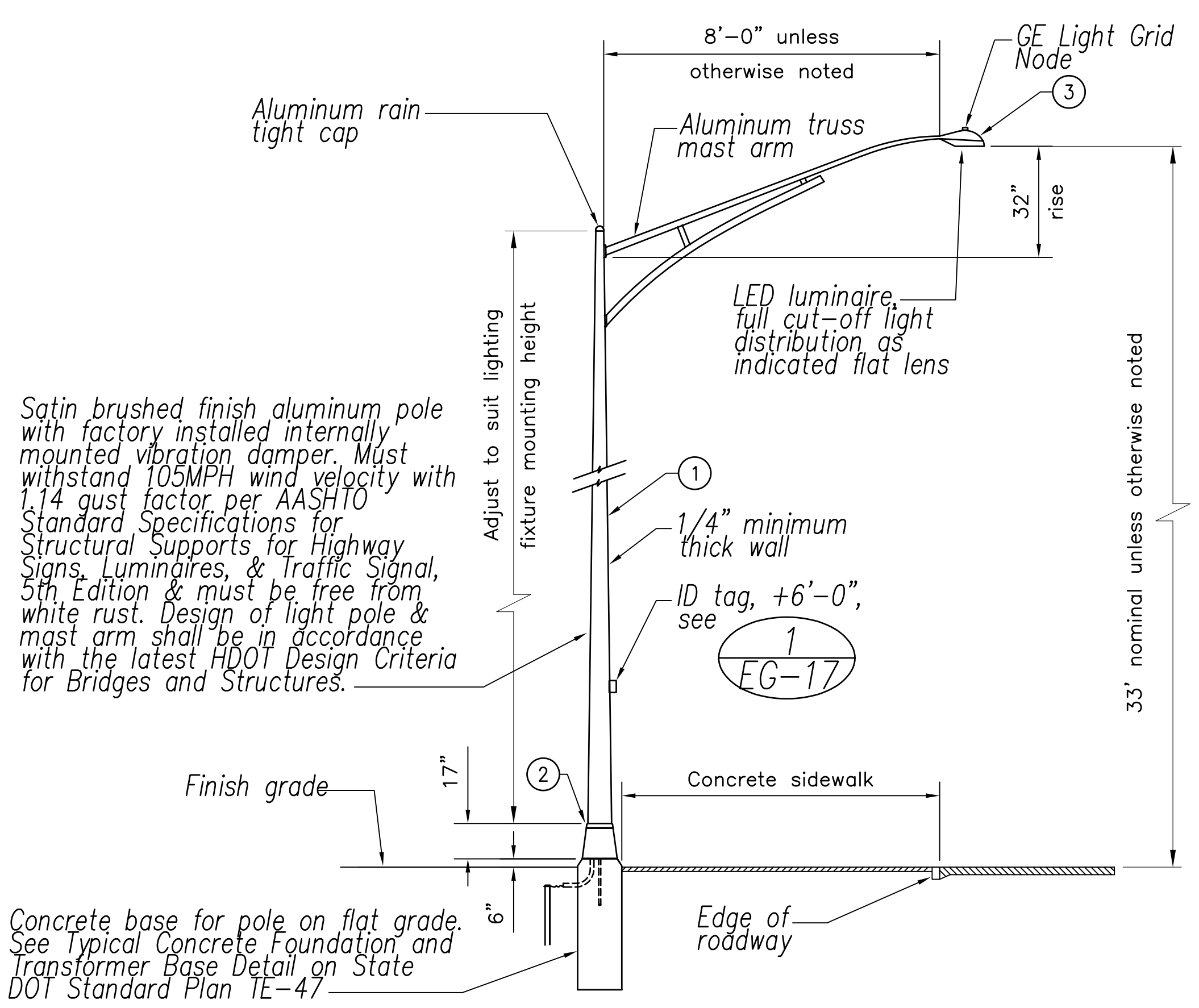
1 STREET LIGHT POLE TAG DETAIL
EG-17 NOT TO SCALE

- 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.



2 STREET LIGHT STANDARD DETAIL
EG-17 NOT TO SCALE

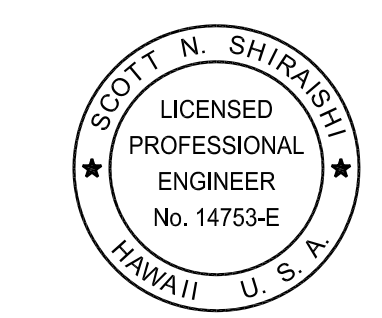
MATERIAL LIST		
Item	Description	Manufacturer
1	Light Pole, Alum	
2	Transformer Base (Alum) (type as indicated)	
3	Luminaire, LED, unless otherwise noted	



3 STREET LIGHT STANDARD DETAIL
EG-17 NOT TO SCALE

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

FILE: Z:\Mcd\Projects\220067HA\EST\17_220067HA_Light_Details_3.dwg saved April 11, 2022



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHT STANDARD
DETAILS 3**

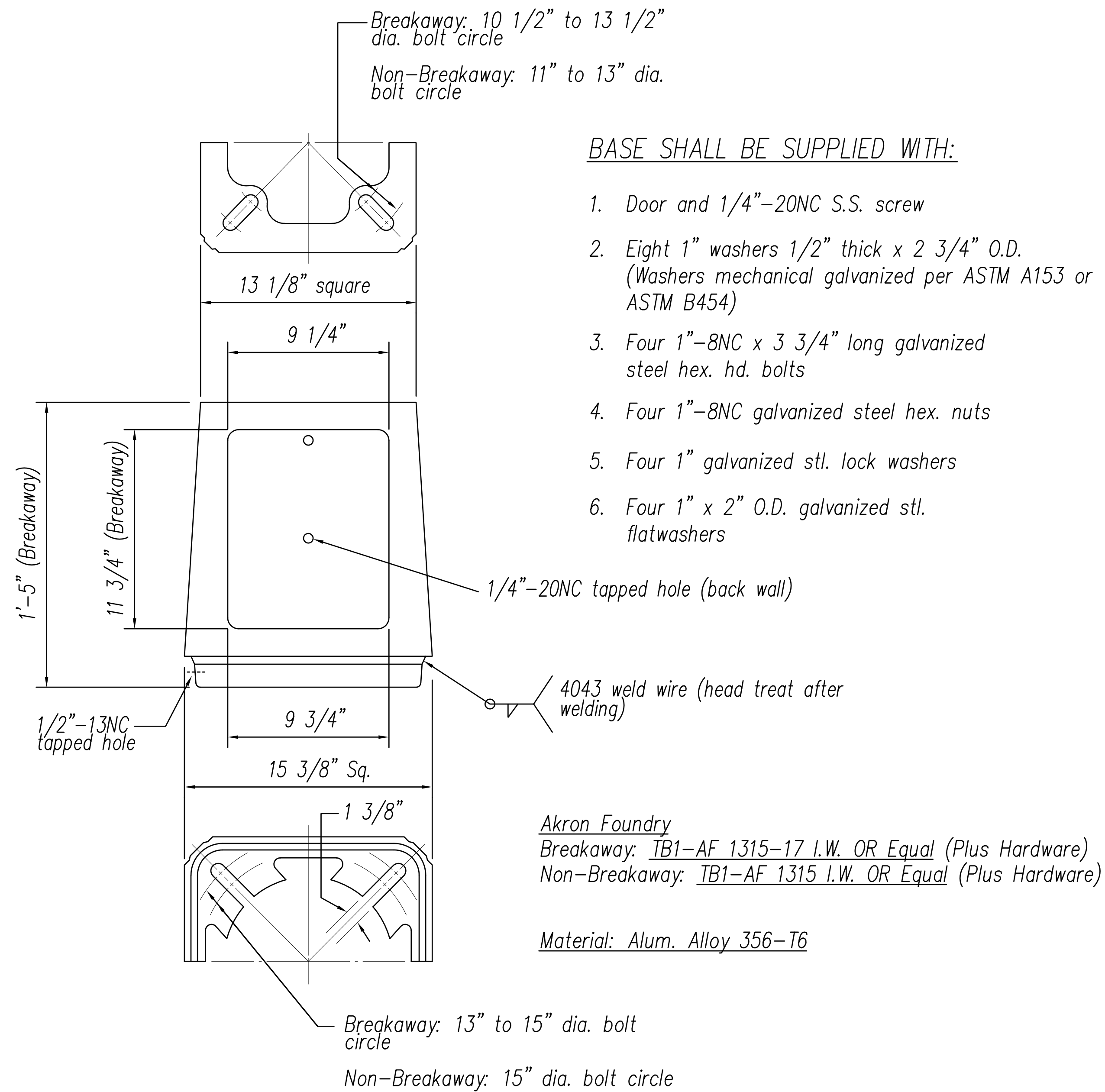
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-17 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-18	790

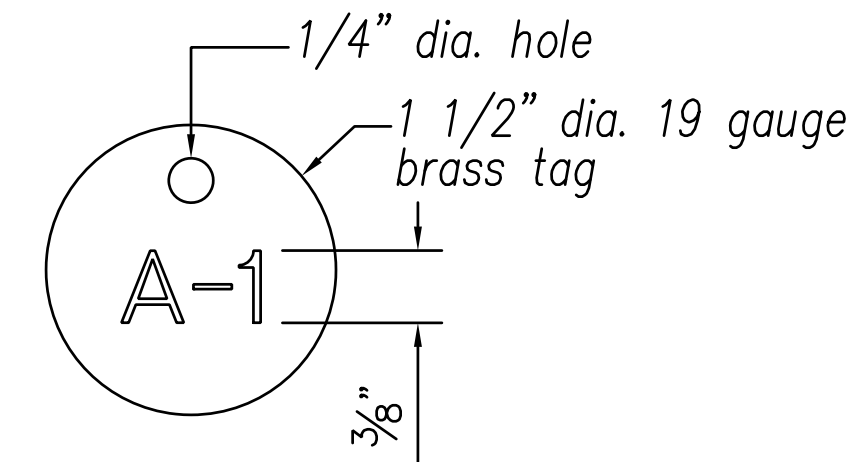


BASE SHALL BE SUPPLIED WITH:

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



NOTES:

1. Number size shall be 3/8" high and punched on brass tag.
2. Attached to circuit cables with nylon weather resistant locking cables ties, 3/16" wide.

2 HIGHWAY LIGHT CIRCUIT CABLE I.D. TAG DETAIL
 EG-18 NOT TO SCALE

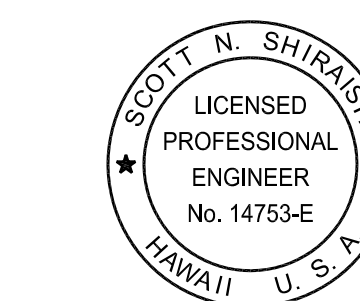
1	= Highway Light & Pole Number
2	= Pole Location, Offset In Feet from Baseline
3	= Bracket Arm Span, In Feet
4	= Pole Height, In Feet
5	= Pole Location, Station Number
6	= Wattage
7	= Light Circuit Number & Phase To Phase Connection, When Applicable

3 STATE HIGHWAY LIGHT I.D. TAG INDICATOR LEGEND
 EG-18 NOT TO SCALE

1 BREAKAWAY AND NON-BREAKAWAY TRANSFORMER BASE DETAIL
 EG-18 NOT TO SCALE

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

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 April 30, 2024
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**HIGHWAY LIGHT STANDARD
 DETAILS 4**

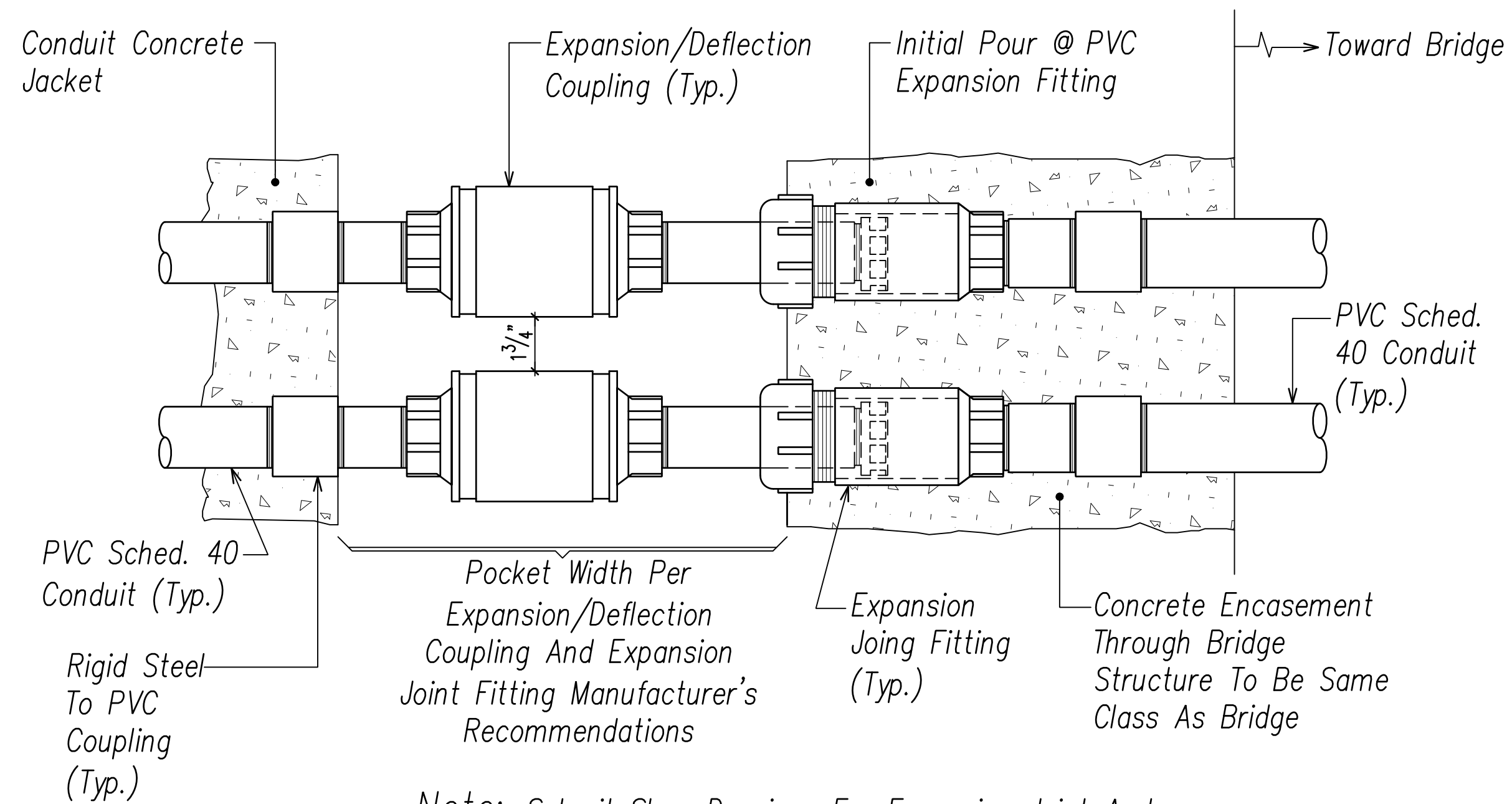
FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-18 OF 17 SHEETS

XXX

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EG-19	790

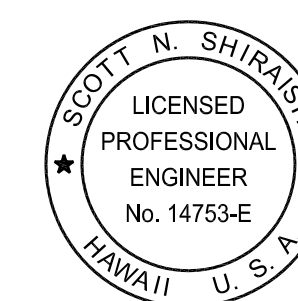


Note: Submit Shop Drawings For Expansion Joint And Expansion/Deflection Couplings For Approval

1 TYPICAL DUCTLINE EXPANSION/DEFLECTION FITTING DETAIL
EG-19 NOT TO SCALE

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

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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHT STANDARD
DETAILS 5**

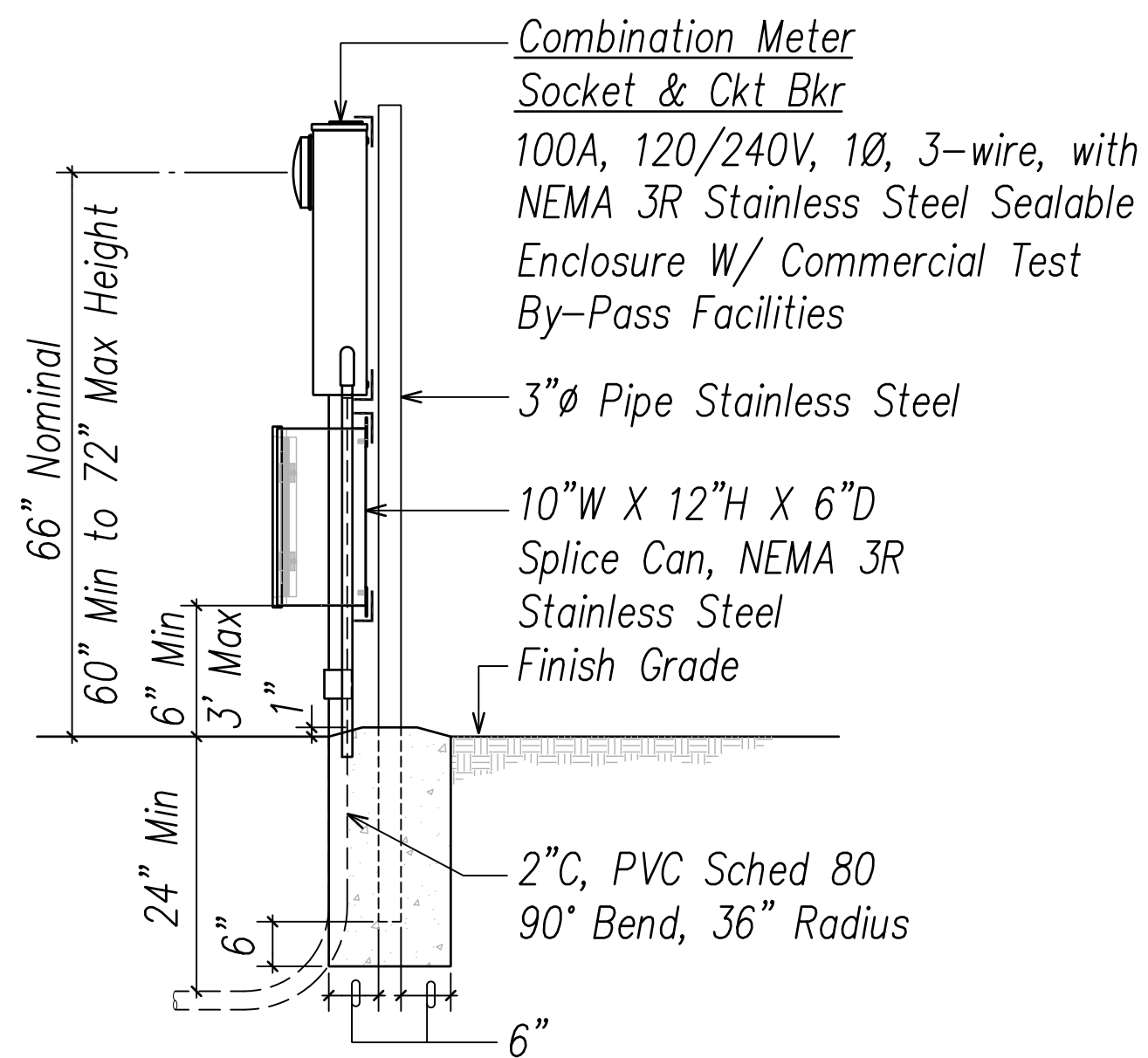
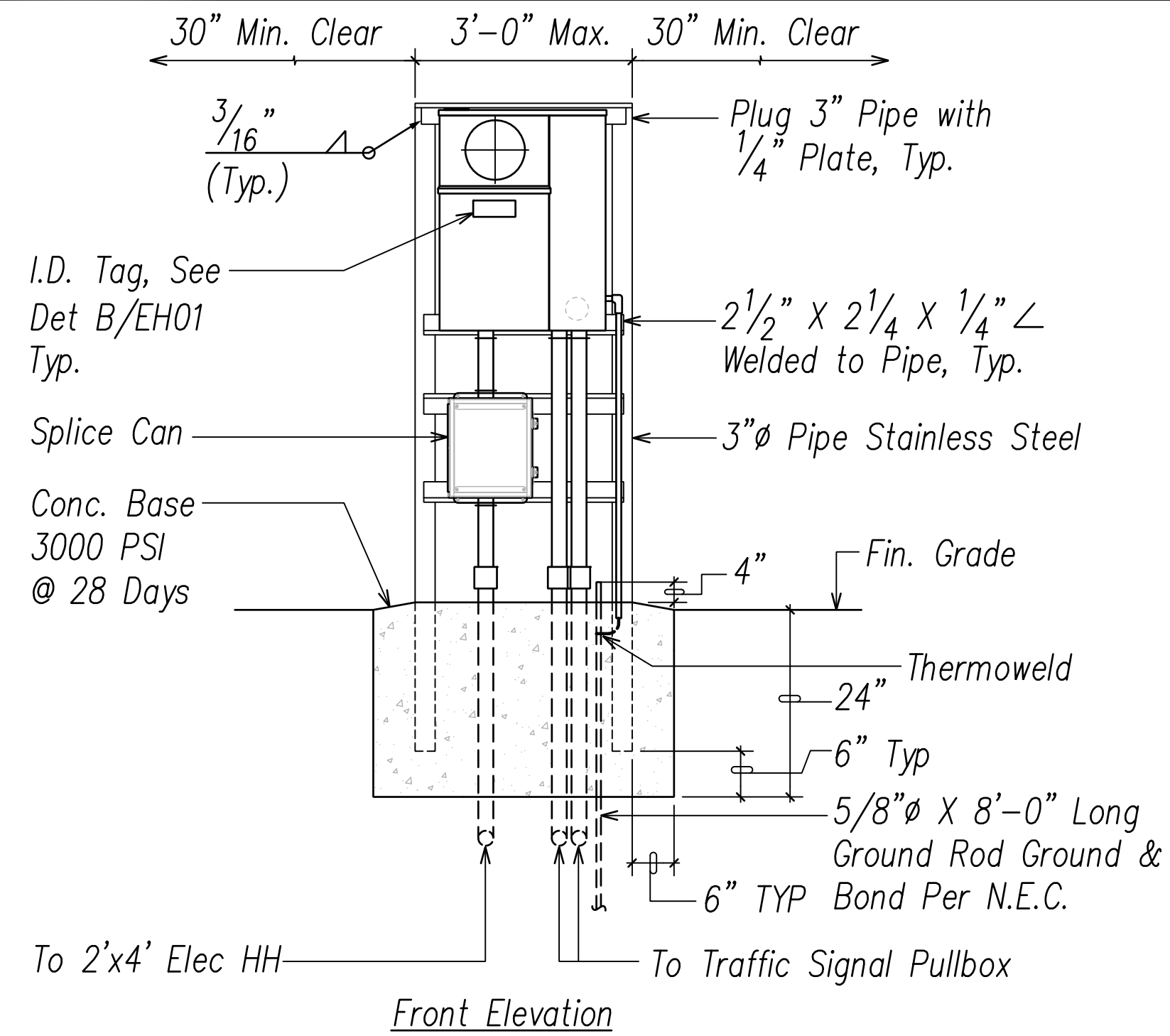
FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EG-19 OF 17 SHEETS

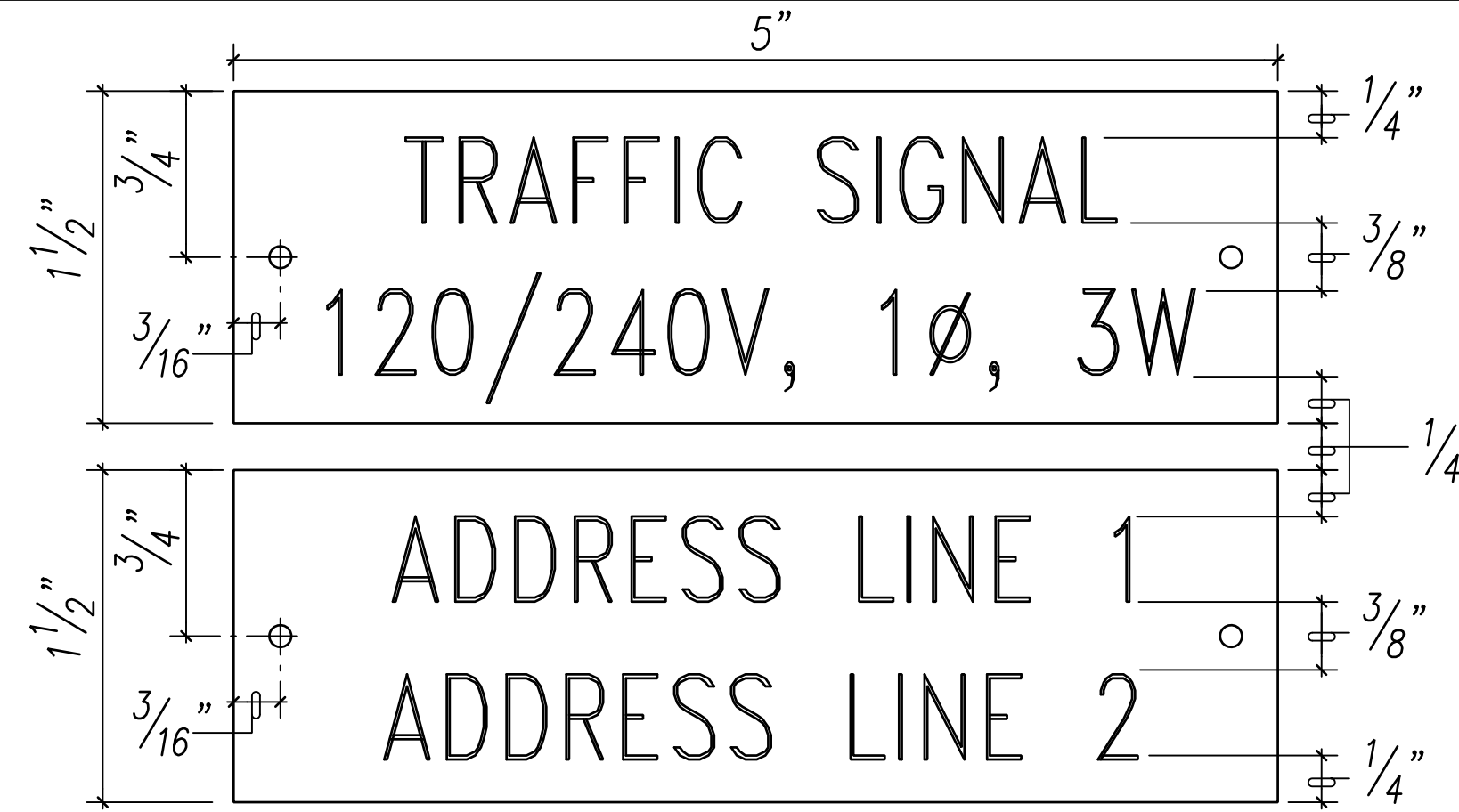
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-01	790



See One-Line Diagram on This Sheet

A
EH-01
Traffic Signal Metering Equipment Elevation
Not to Scale



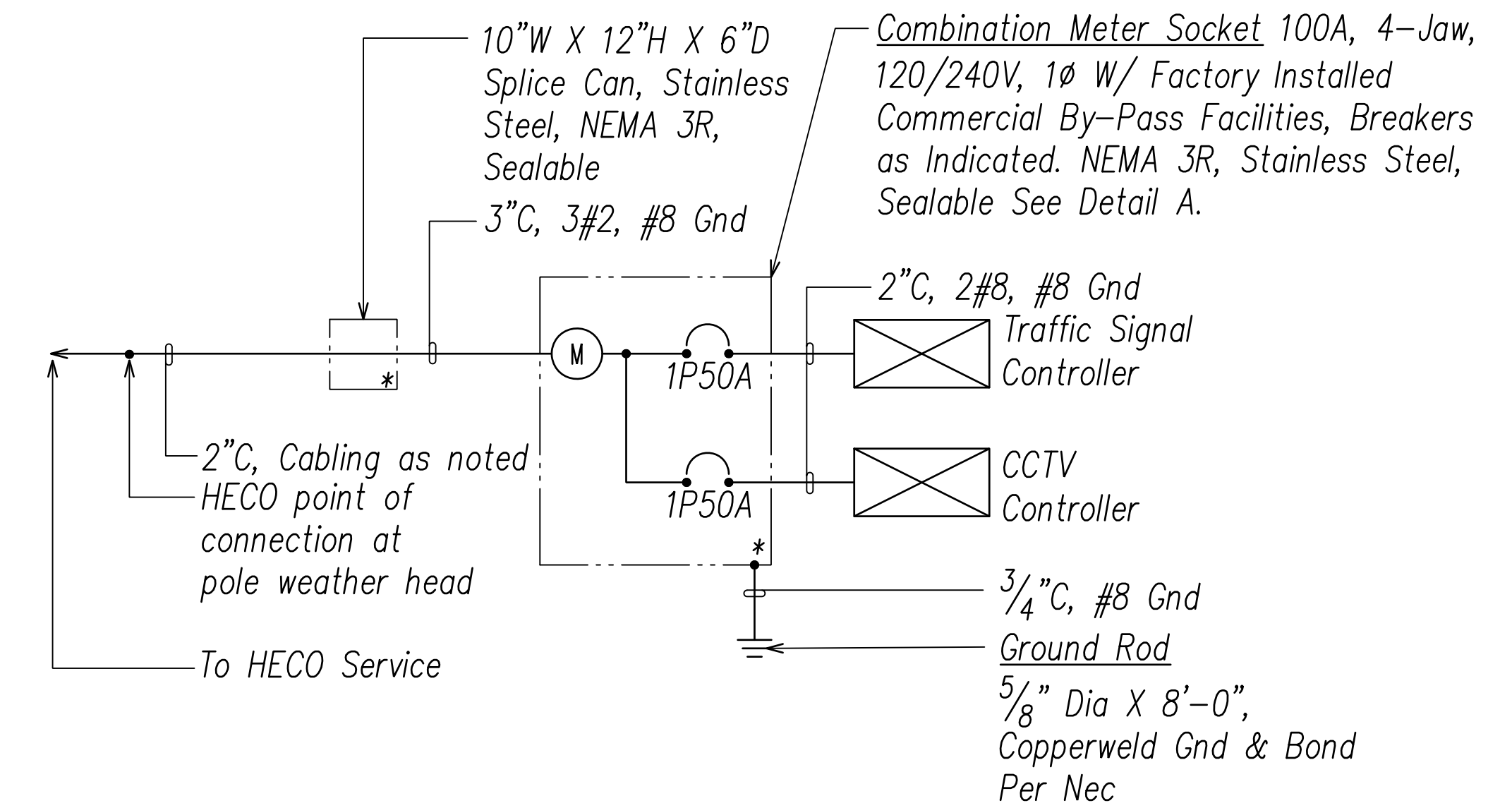
Notes:

1. Use (2) 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. Verify Address with HECO

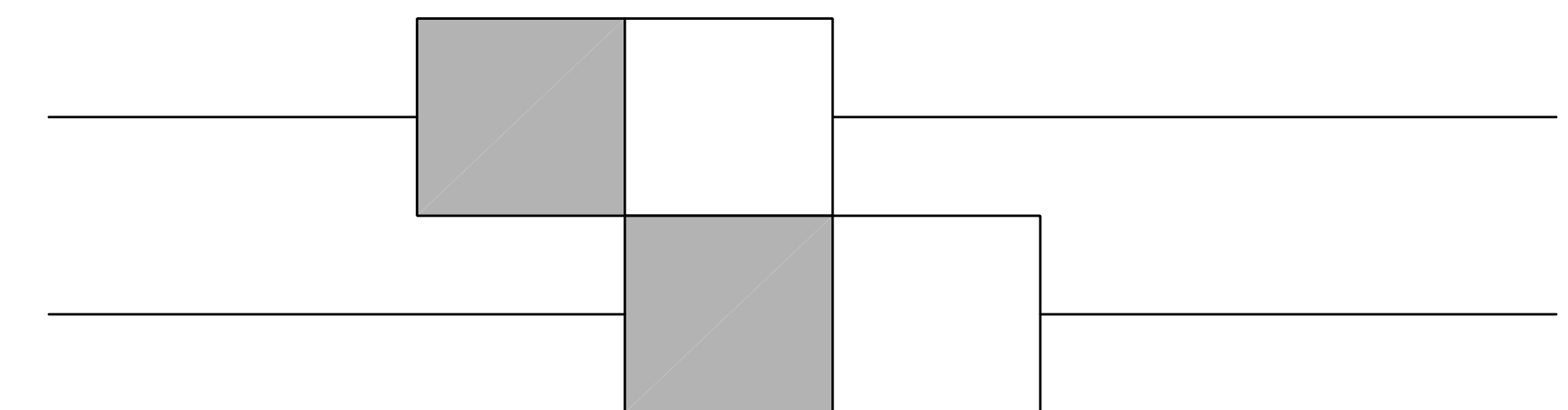
B
EH-01
Meter Socket I.D. Tag Detail
Not to Scale

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 Stainless Steel.
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.



C
EH-01
Traffic Signal One-Line Diagram
Not to Scale

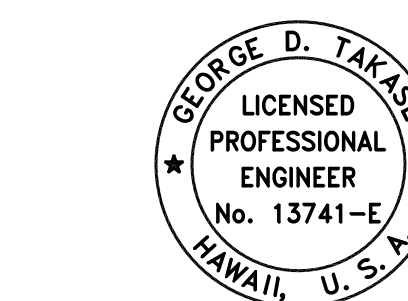


One Type "C" TSPB for Traffic Signal, One Type "C" TSPB for CCTV. Provide 3-2" C Minimum Tie-in Between TSPB. Both TSPB to be Labeled "STATE SIGNAL".

D
EH-01
Typical Dual TSPB Layout
Not to Scale

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CHECKED BY	
QUANTITIES BY	
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 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL
 DETAILS 1**

FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EH-01 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-02	790

New Design Requirements for Traffic Signal 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.

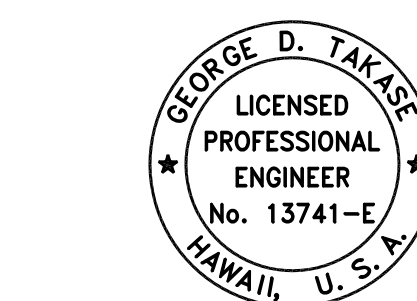
6. Minimum Anchor Bolts [Article 5.16]. Cantilevered Traffic Signal Structures with Mast Arms Greater Than 40 Feet and Other Cantilevered Support Structures with Design Life of 50 Years or More Shall Have Base Plate Connections with a Minimum of Six (6) Anchor Bolts. A Minimum of Four (4) Anchor Bolts 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).

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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Date: April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

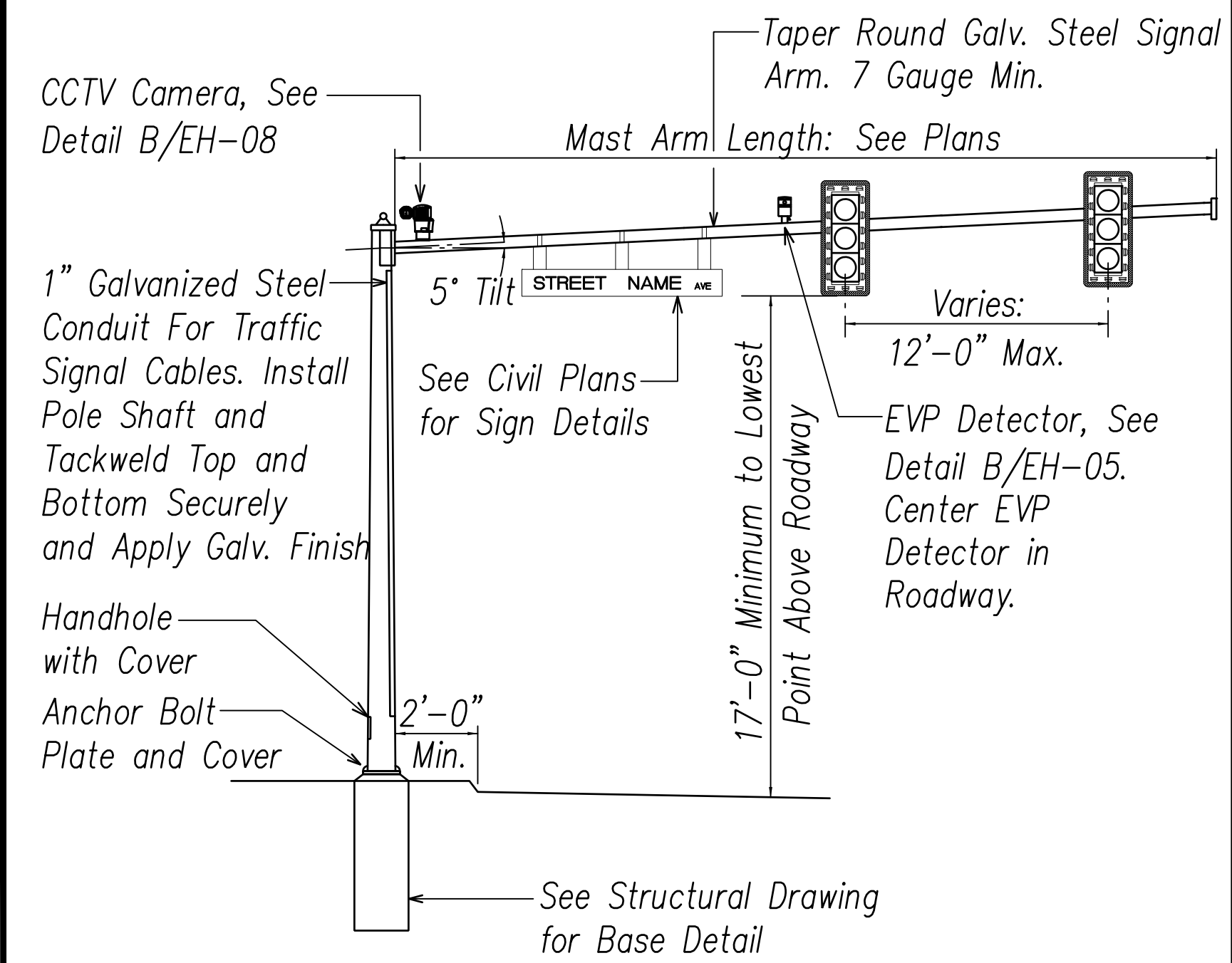
**TRAFFIC SIGNAL
DETAILS 2**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

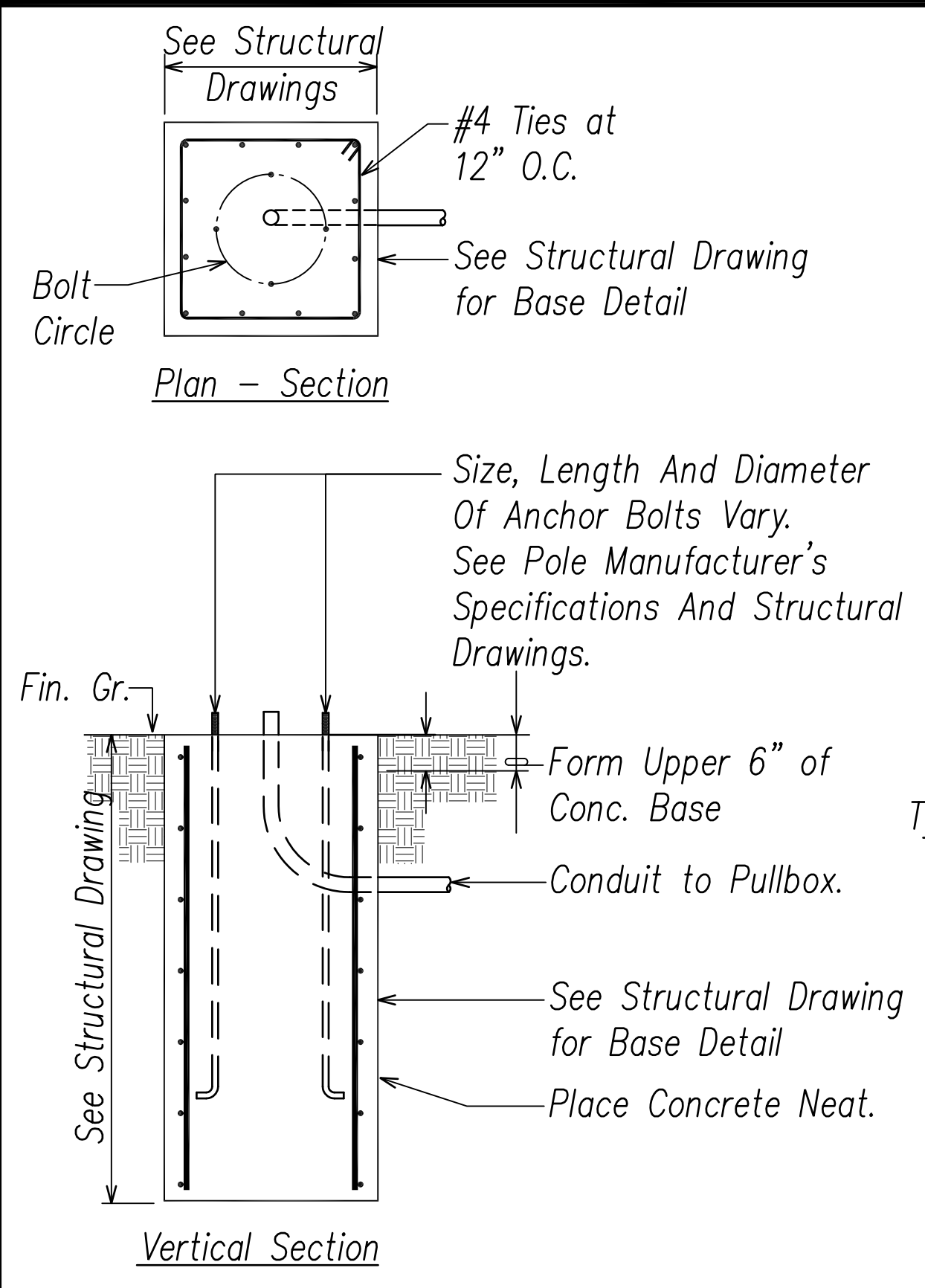
SHEET No. EH-02 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-03	790



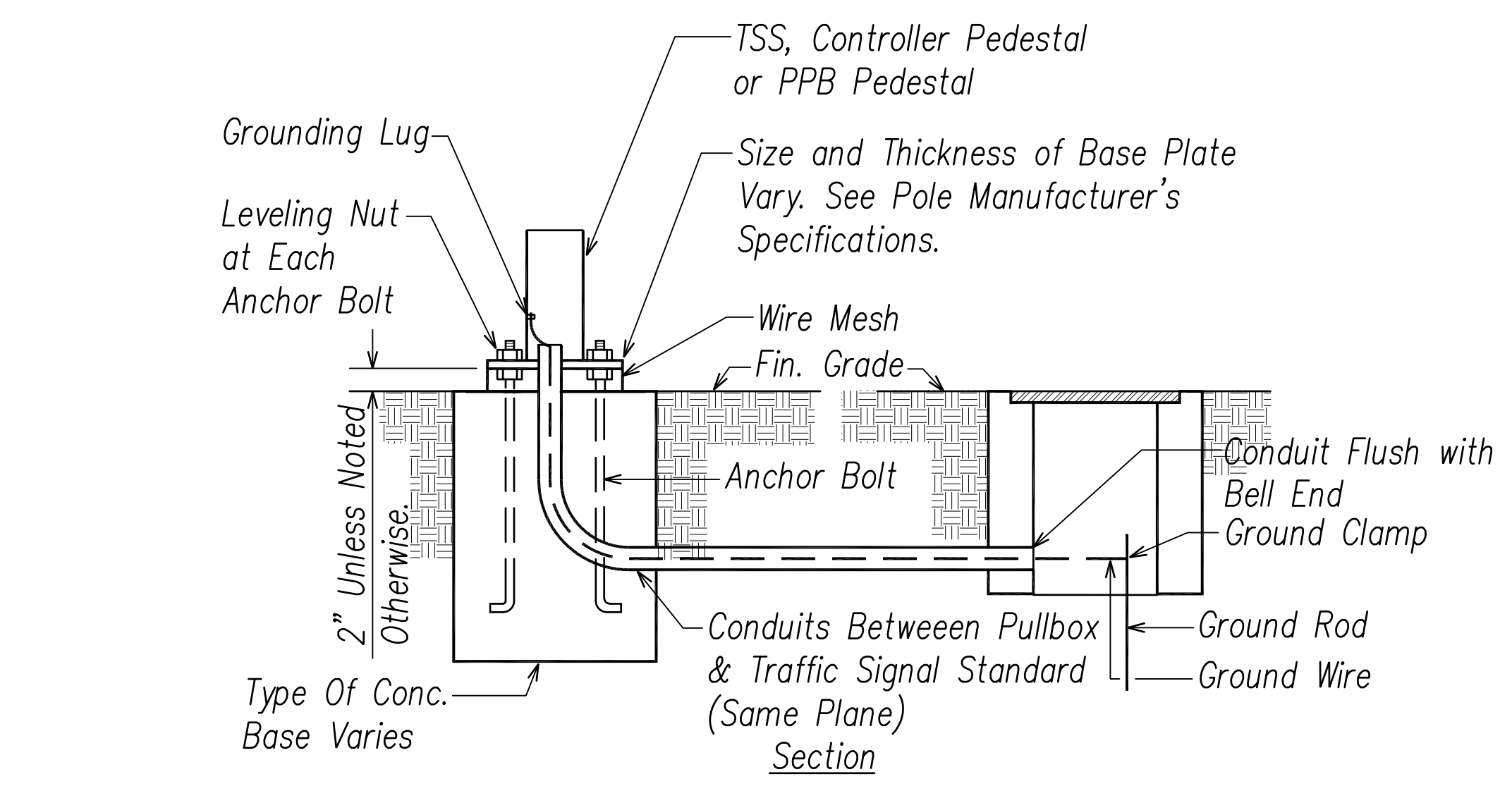
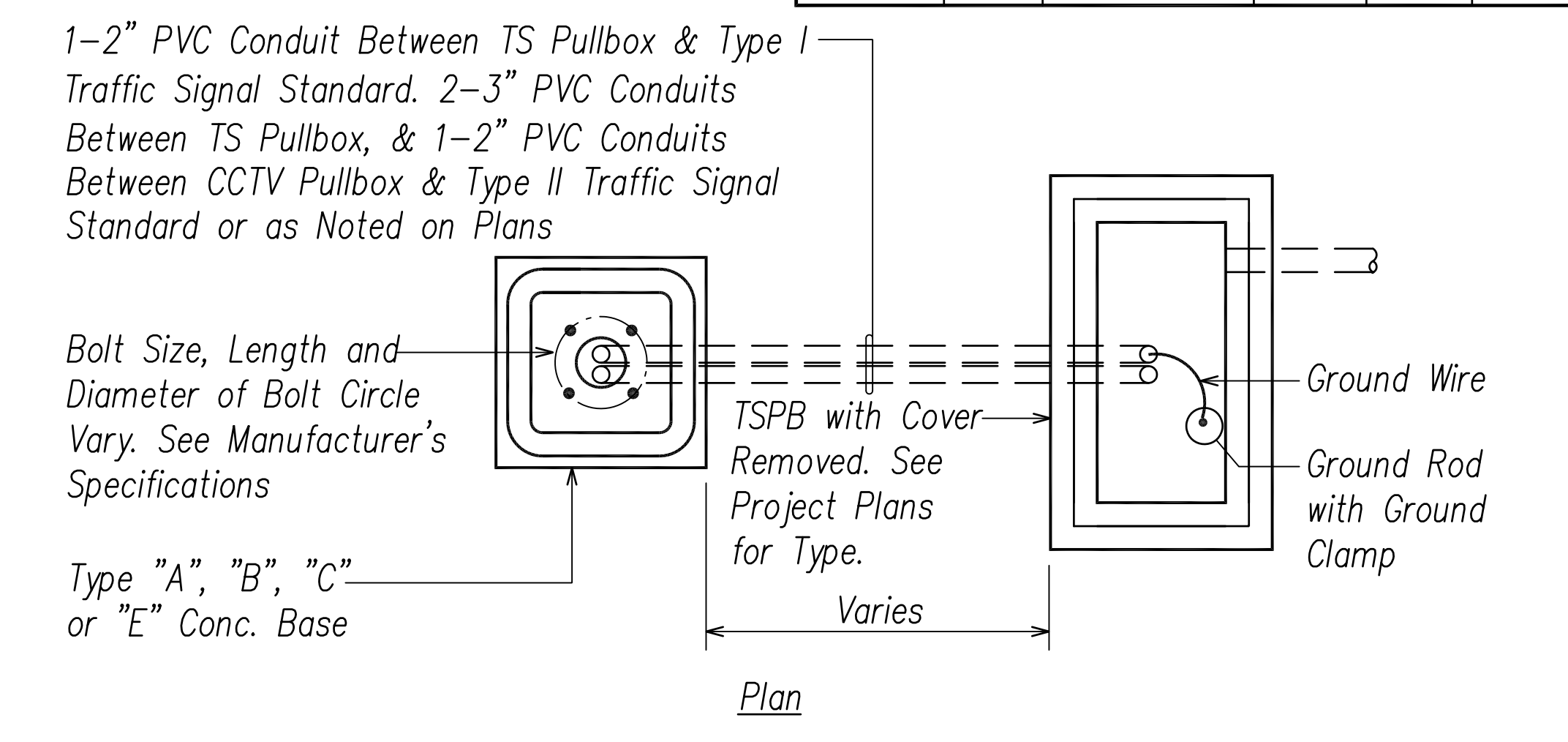
- Notes:**
- Standard and Mast Arm Shall be Designed in Accordance with Latest Edition of "Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals", with Revisions Noted on Sheet EH-02.
 - Mounting: Signals At Intermediate Points of Mast Arm Shall be of The Adjustable Type.
 - Signals Shall be Centered Over Lane Lines.
 - Submit Shop Drawings for Approval.
 - Back Plate to be Installed on All Traffic Signal Heads Attached to Mast Arms. See Detail D/EH-04.

A Type II Traffic Signal Standard
EH-03 Not to Scale



- Notes:**
- Design Lateral Pressure: 1,500 PSF.
 - Conduit Bend is Incidental to Concrete Base.

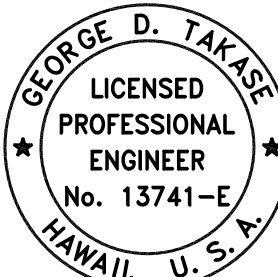
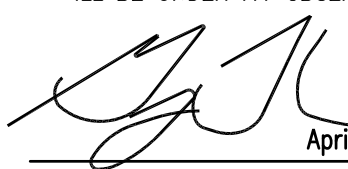
B Type II Traffic Signal Standard Base Detail
EH-03 Not to Scale



C Typical Standard & Pedestal Detail
EH-03 Not to Scale

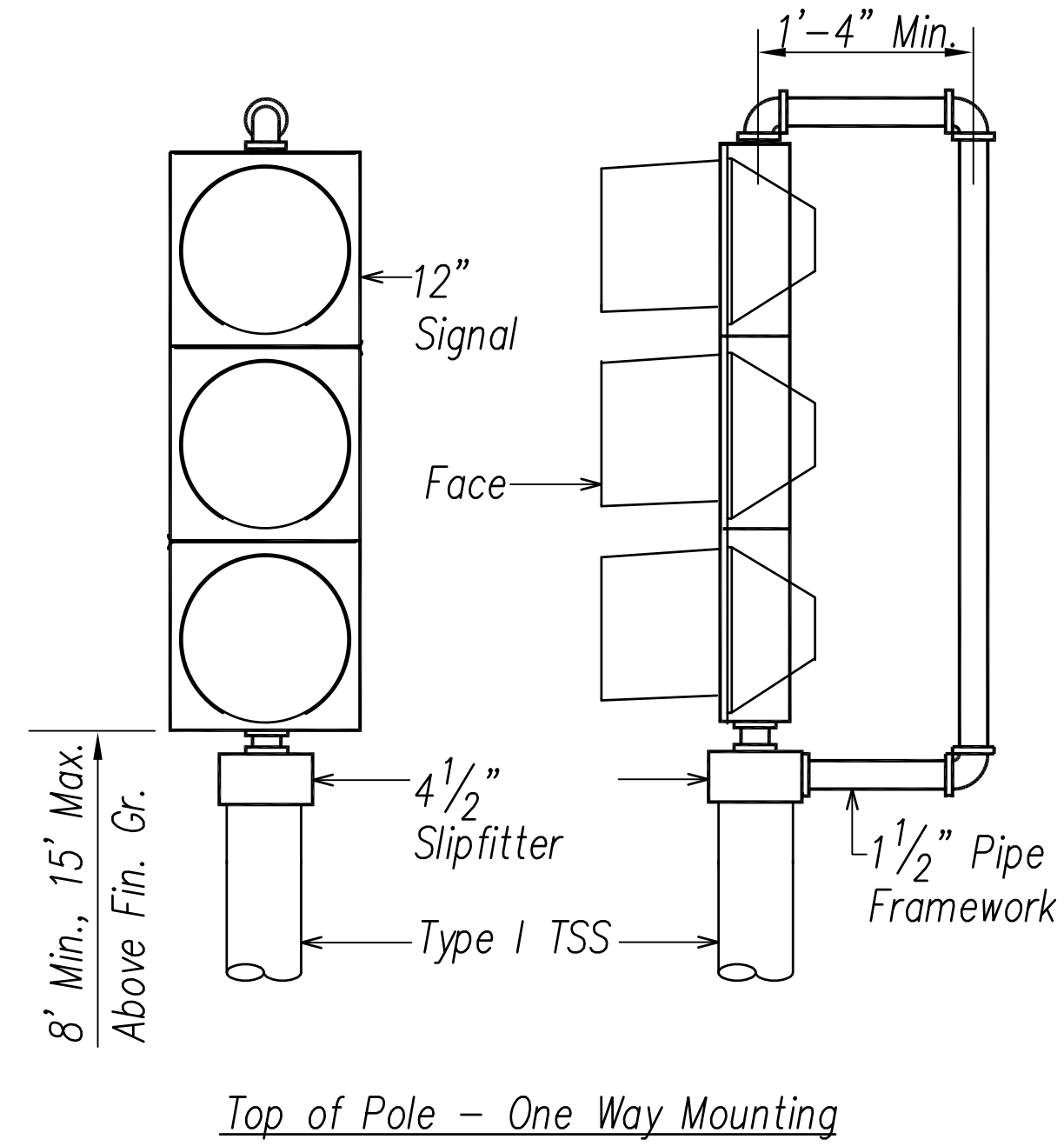
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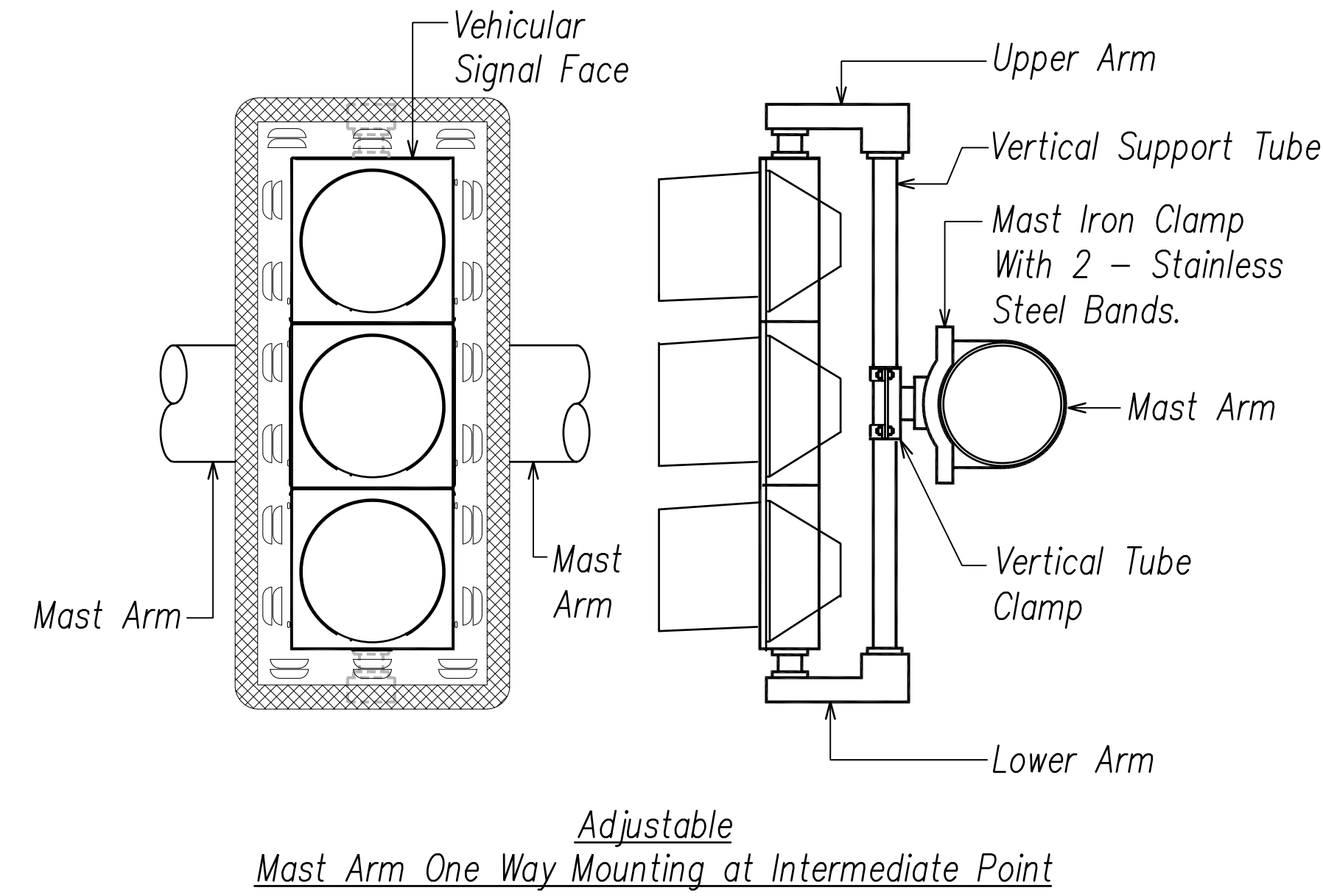

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STATE OF HAWAII
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 HIGHWAYS DIVISION
TRAFFIC SIGNAL DETAILS 3
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EH-03 OF 790 SHEETS

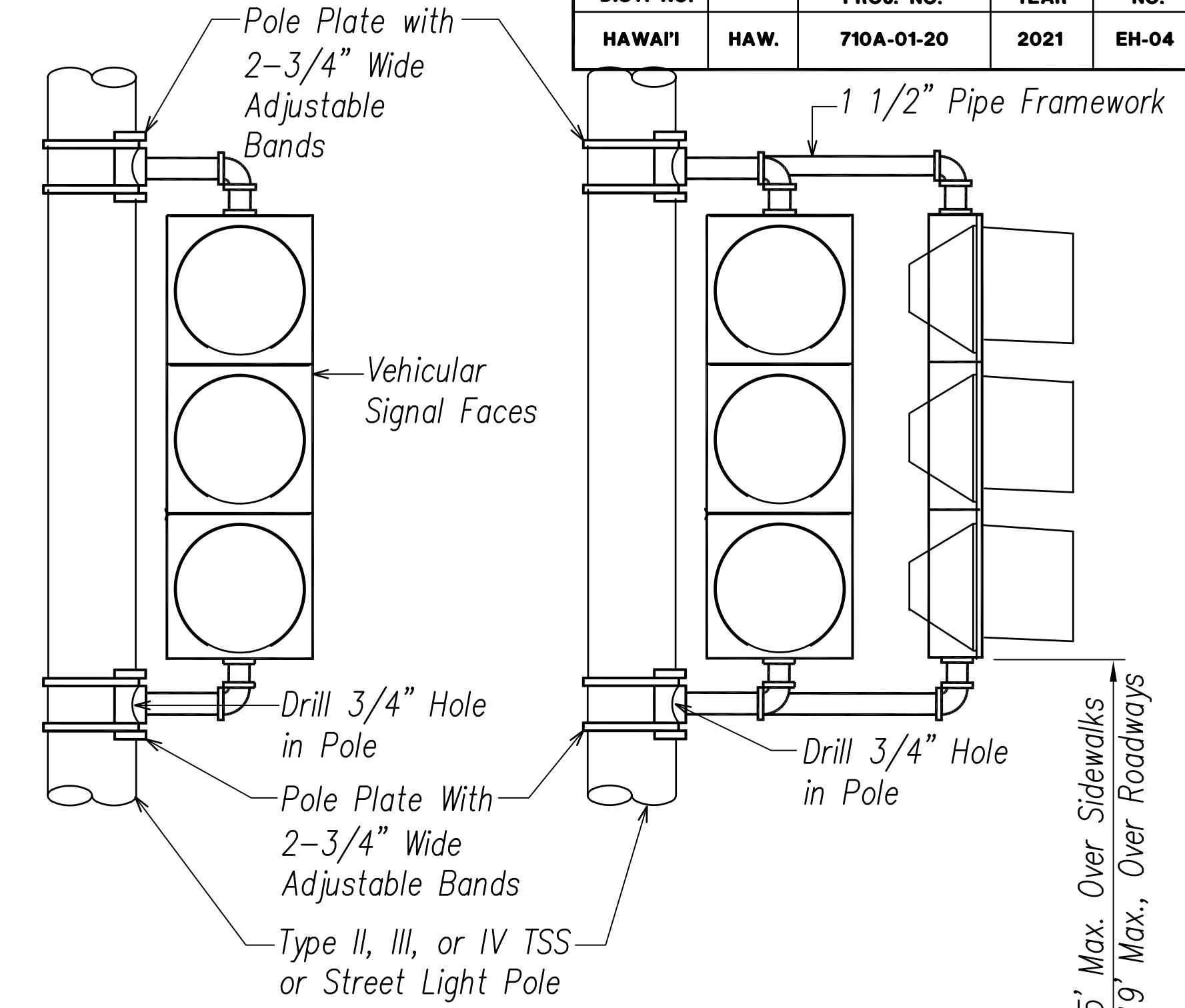
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-04	790



Top of Pole - One Way Mounting



Adjustable Mast Arm One Way Mounting at Intermediate Point



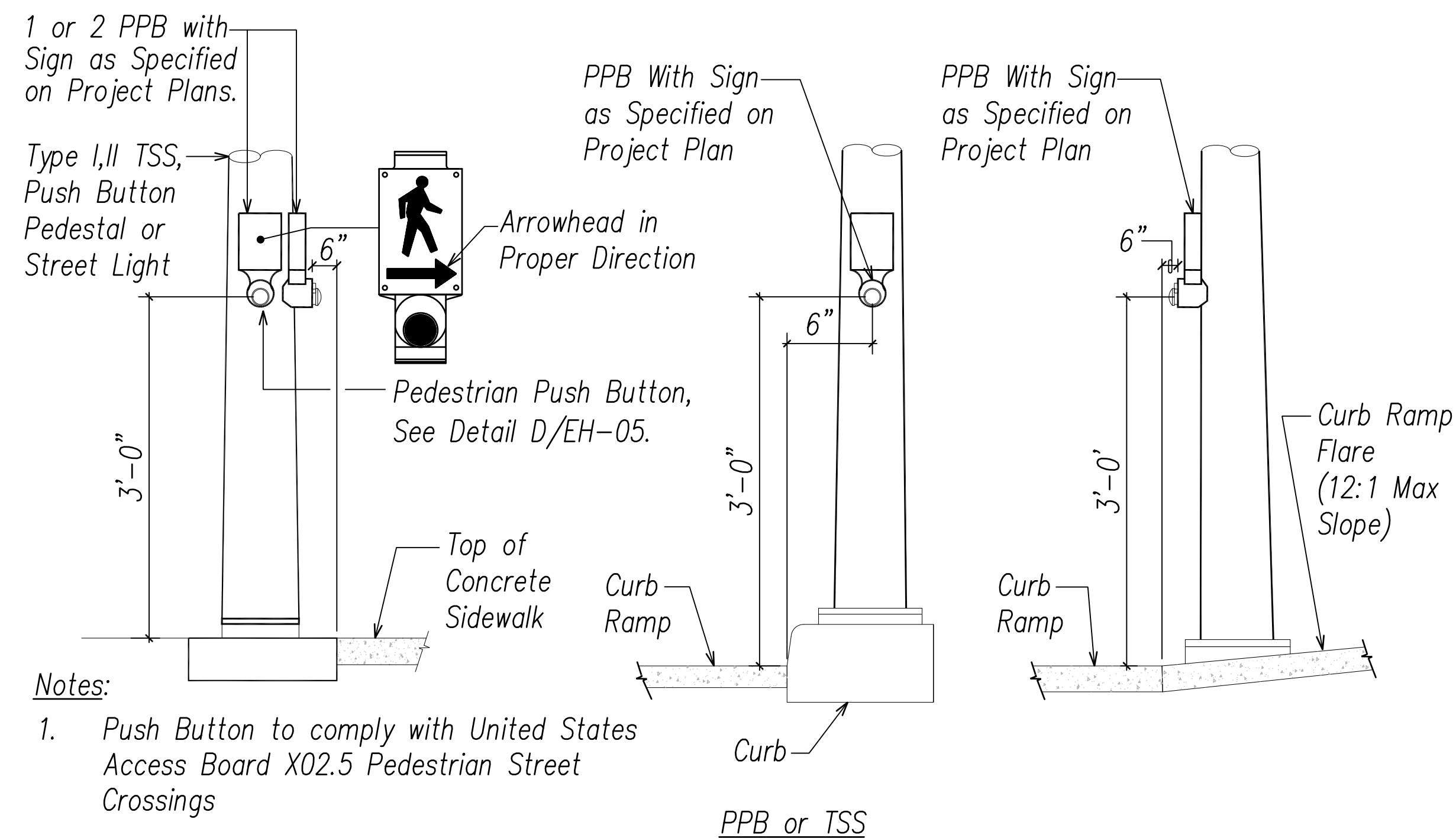
Bracket Mount - One Way (B-1W)

Bracket Mount - Two Way (B-2W)

Notes:

1. Stainless Steel Bands Shall be 1/2" Wide X .050" Thick, Minimum. Tensile Strength Shall be 100,000 PSI Minimum.
2. Upper Arm, Lower Arm and Vertical Support Tube Shall be of 356 Cast Aluminum.
3. All Wiring Shall be Concealed.
4. Vertical Tube Clamp Shall be of Malleable Iron, Grade 32510.
5. All Aluminum Parts Shall Have an Alodine 1200 Finish.
6. Signal as Noted on Plans.
7. Back Plates to be Installed on All Mast Arm Signal Heads. See Detail D on This Sheet.

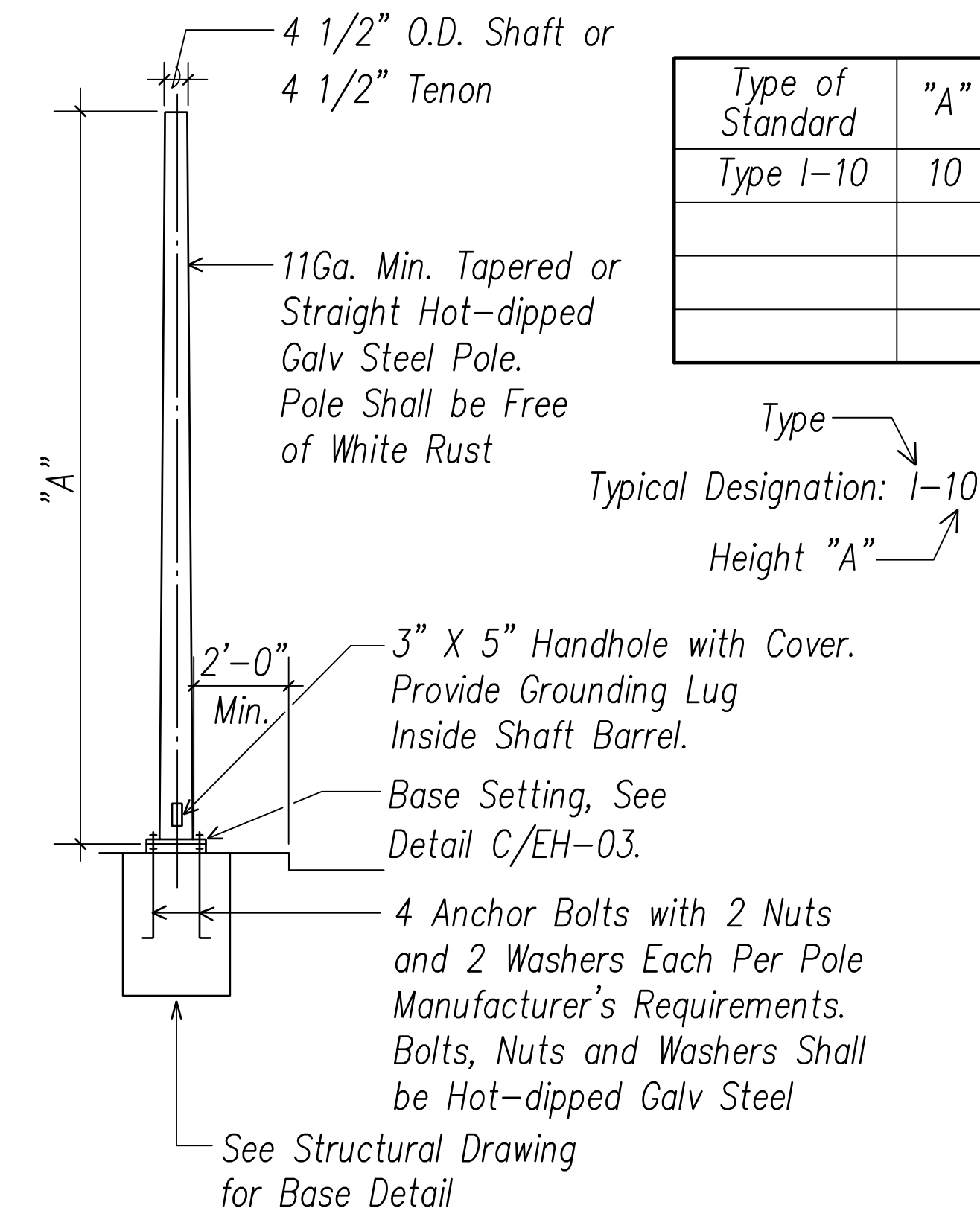
A Vehicular Signal Mounting Details
EH-04 Not to Scale



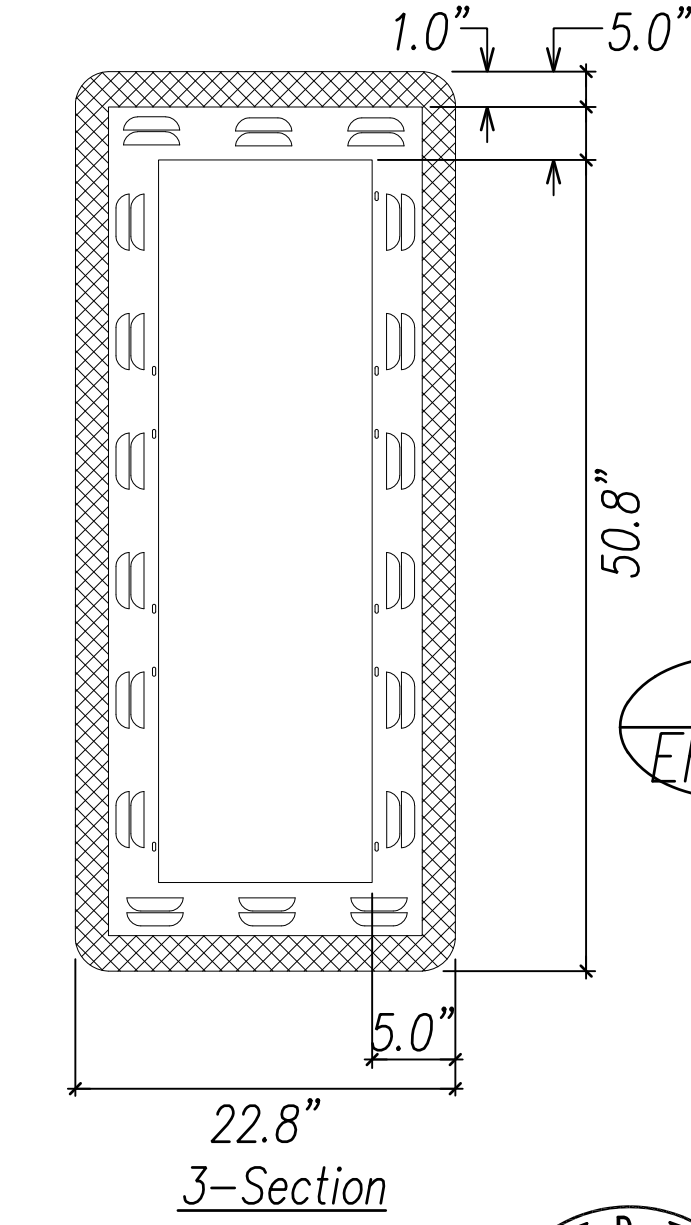
Notes:

1. Push Button to comply with United States Access Board X02.5 Pedestrian Street Crossings

B Pedestrian Push Button Mounting Details
EH-04 Not to Scale



C Type "I" Standard and Pedestal Detail
EH-04 Not to Scale



Notes:

1. 5" Border
2. Louvered
3. Aluminum
4. 1" Reflective Border. 2" Reflective Border by Special Request.
5. Backplates to be Installed Only on Signal Heads Attached to Mast Arms.

D Backplate Detail
EH-04 Not to Scale

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

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

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Signature: _____
Date: April 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

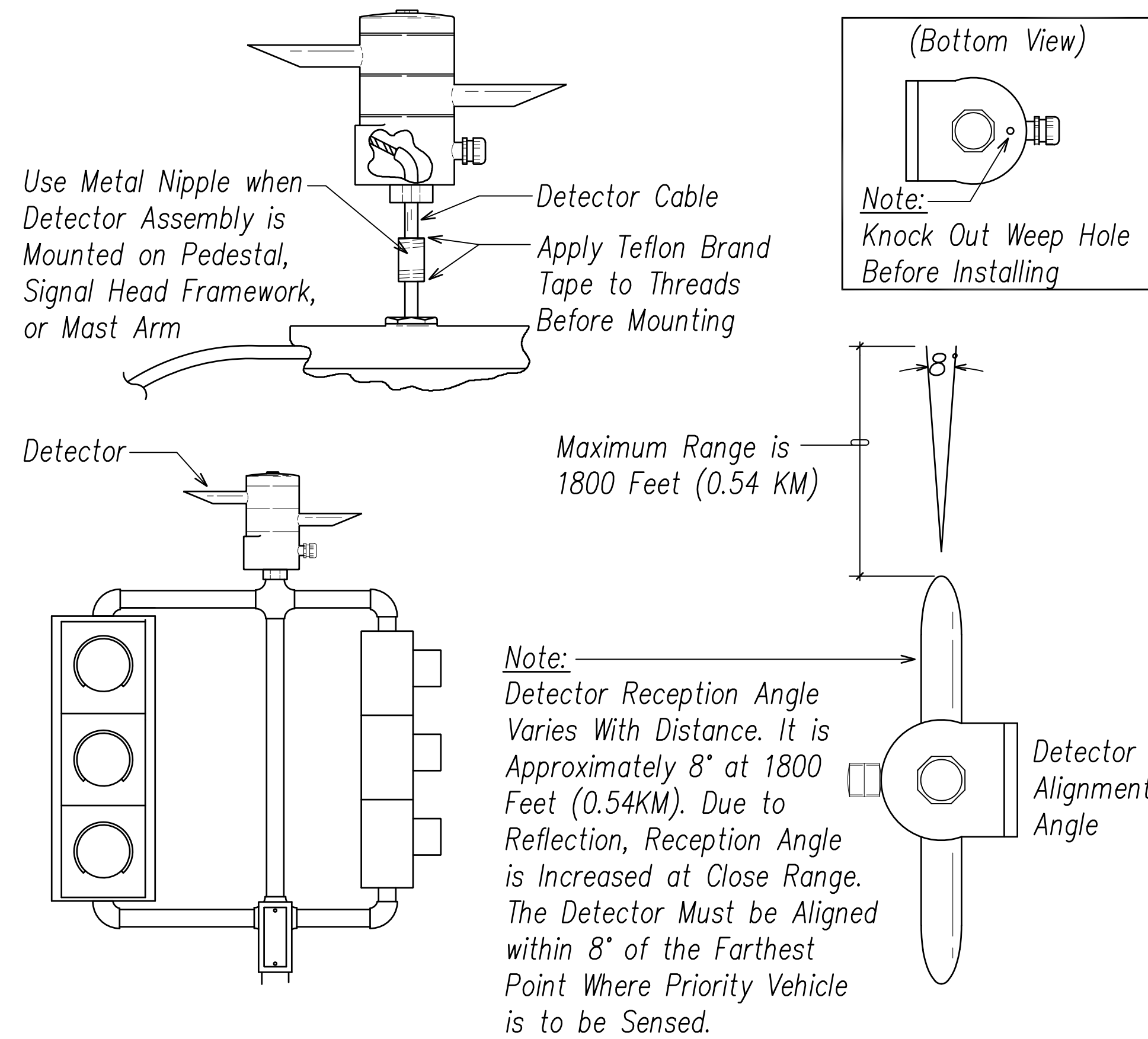
**TRAFFIC SIGNAL
DETAILS 4**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

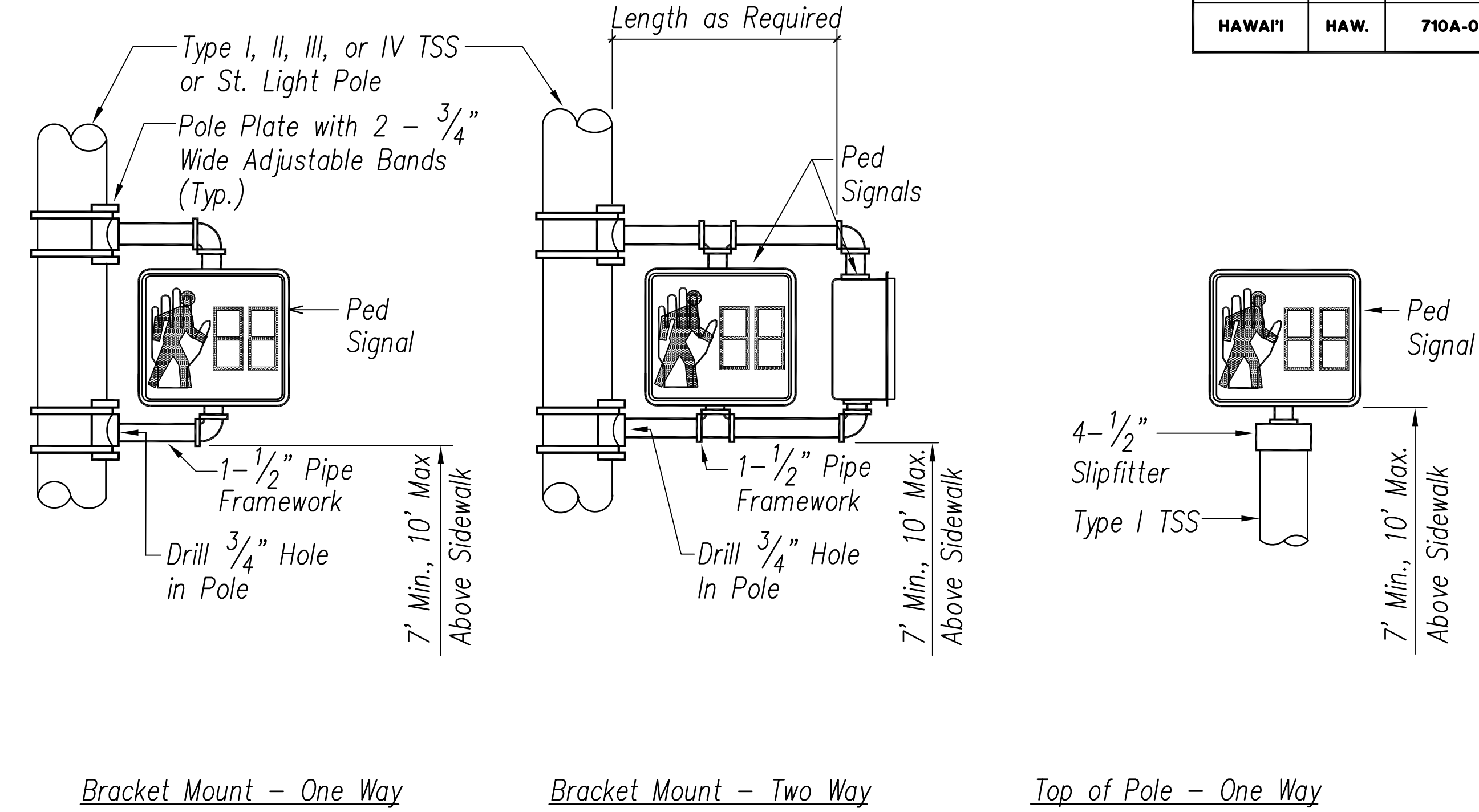
Scale: As Shown Date: April 2022

SHEET No. EH-04 OF 790 SHEETS

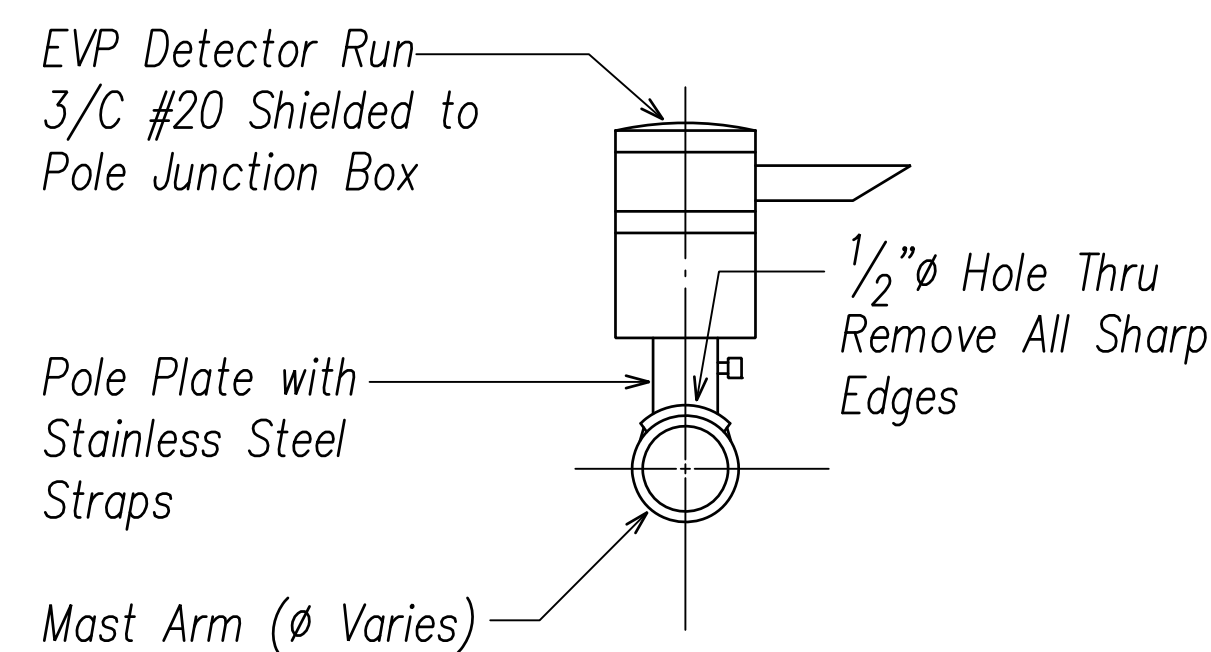
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-05	790



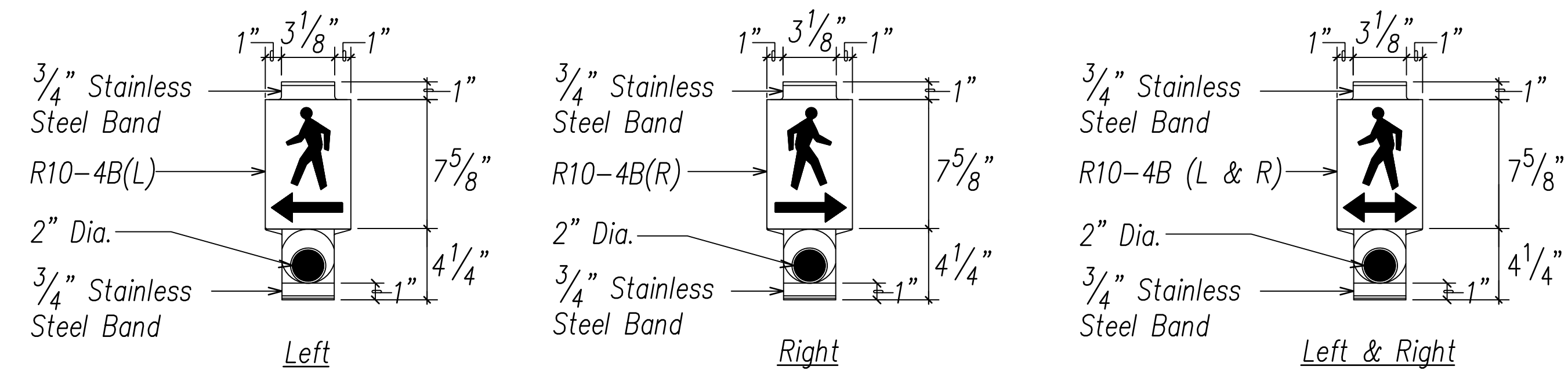
A Typical Pedestal/Mast Arm Installation of EVP Detector
EH-05 Not to Scale



C Pedestrian Signal Mounting Details
EH-05 Not to Scale



B Typical Horizontal Mount of EVP Detector
EH-05 Not to Scale



The Color Scheme Shall be:
White—Man, Arrow and Push Button
Black—Background

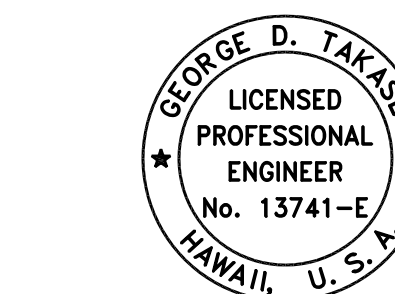
Notes:

1. On Plan Sheet, Use Applicable Detail
2. ADA Approved

D Pedestrian Push Button Detail
EH-05 Not to Scale

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

FILE: Z:\Mcd\Projects\220679A_EH05_220679A_TrafficSignal05.dwg saved March 4, 2022



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SIGNATURE: [Signature]
EXPIRATION DATE OF THE LICENSE: April 30, 2024

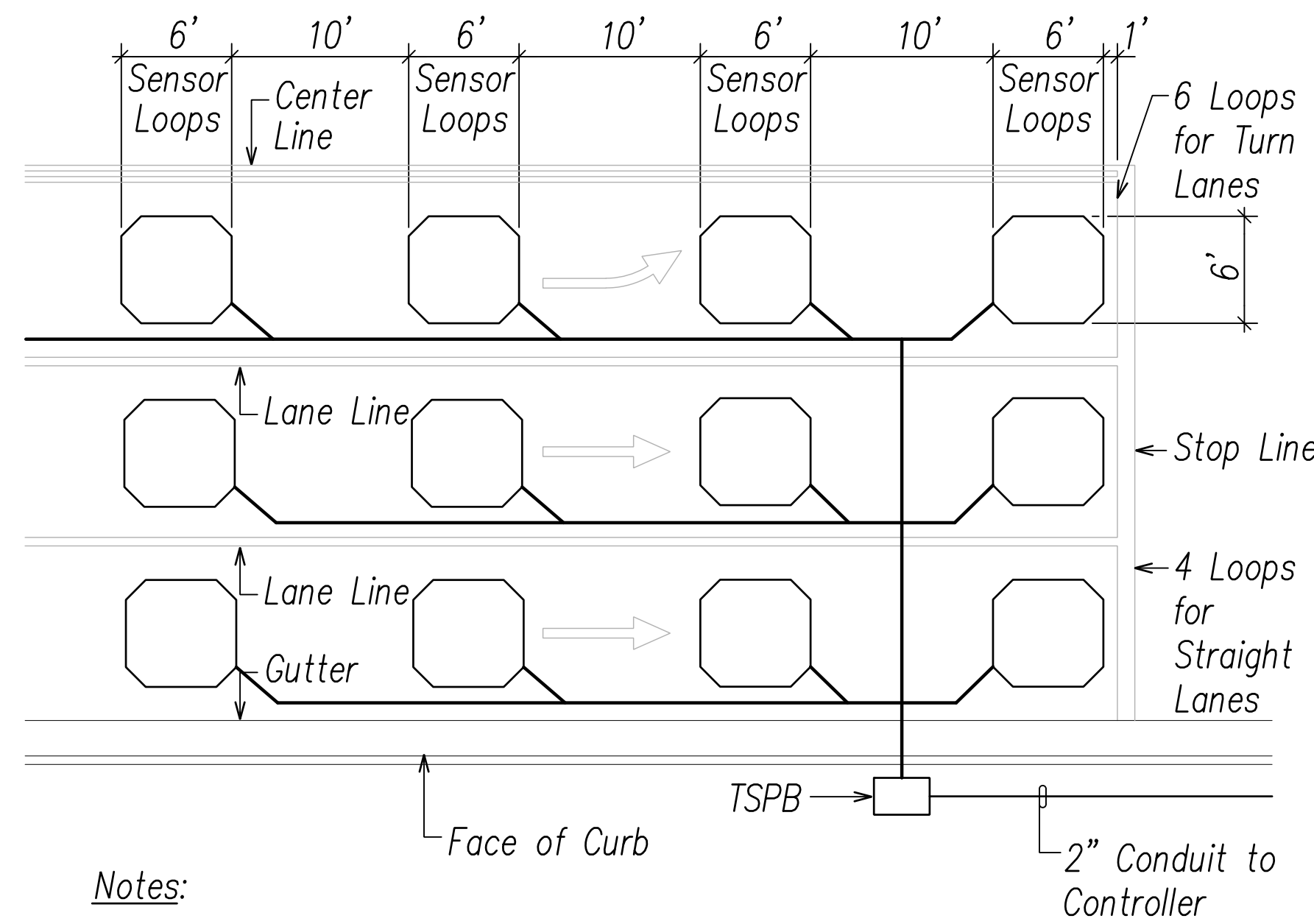
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC SIGNAL
DETAILS 5**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-06	790



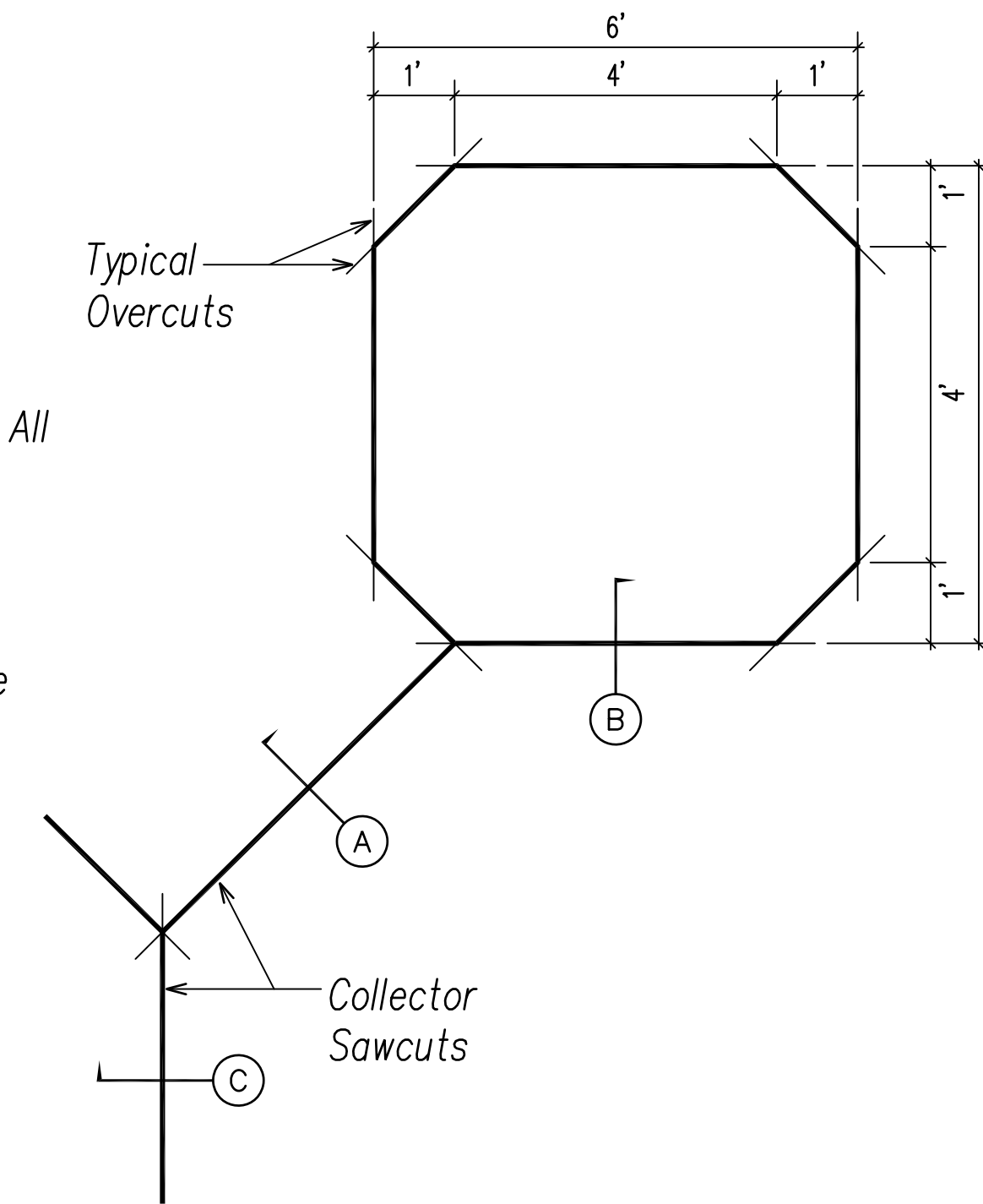
Notes:

- Center Sensor Loops in Lanes.
- Collector Cables Shall be Twisted 2 Turns Per Foot.
- Number of Loops and Locations Vary. See Project Plans.
- Number and Locations of Collector Sawcuts May be Varied in the Field to Suit.

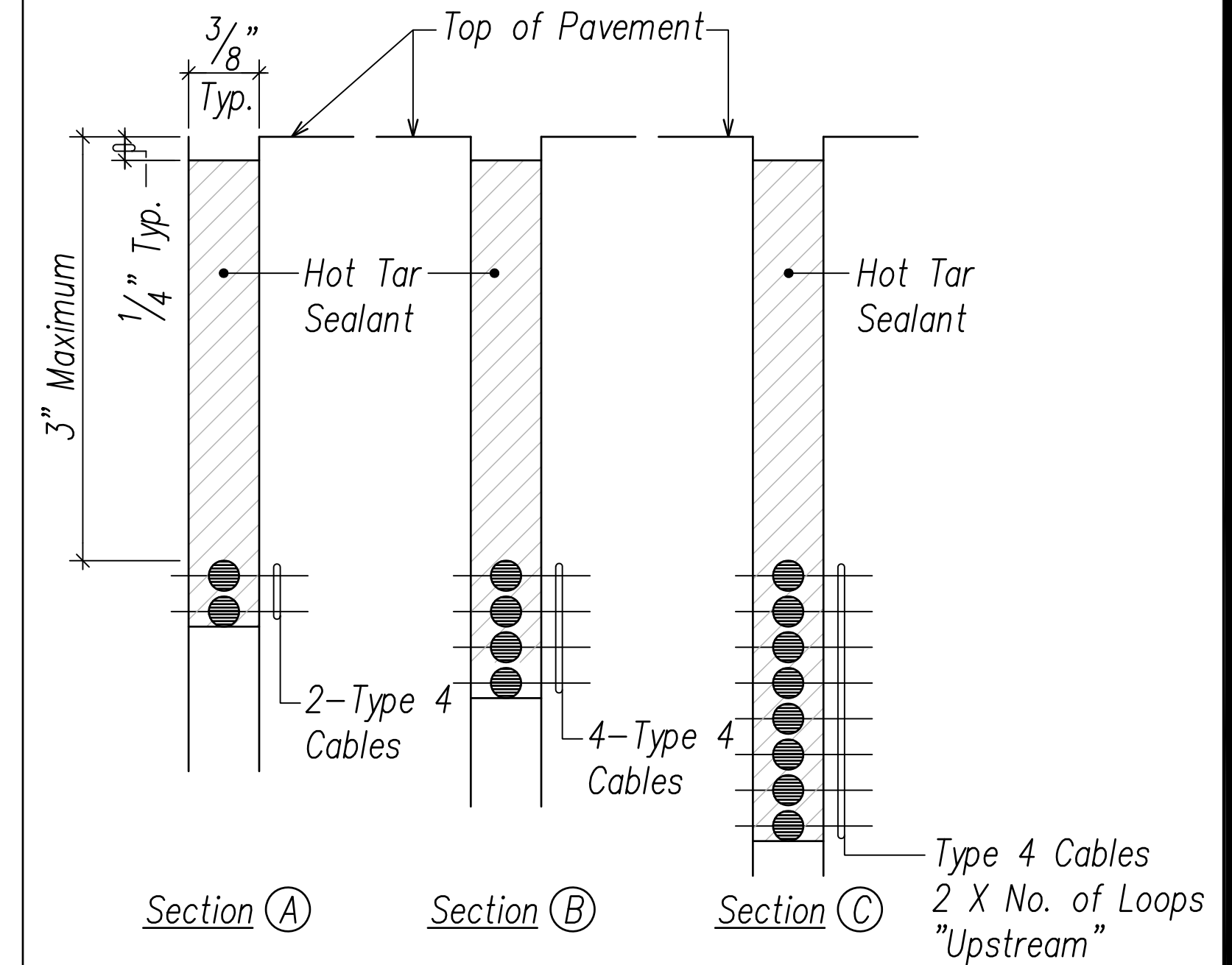
A Typical Sensor Loop Layout
EH-06 Not to Scale

Notes:

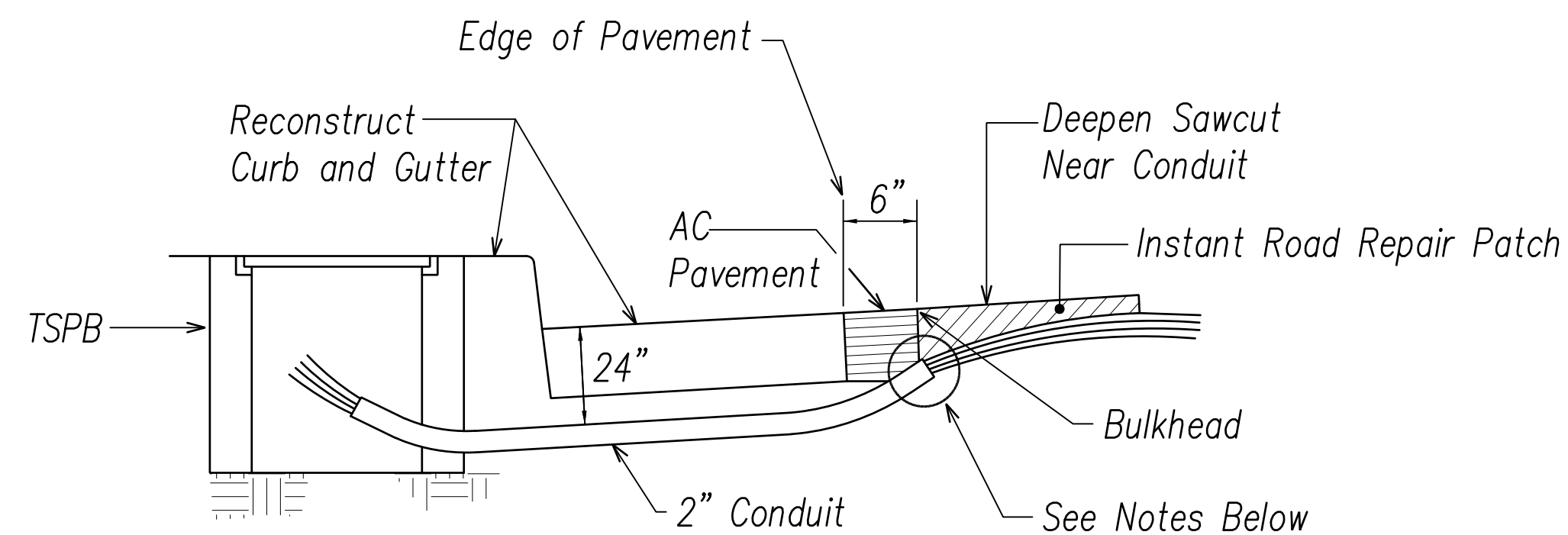
- Length of Overcuts Shall be Kept to a Minimum. All Overcuts Shall be Backfilled with Loop Cable Sealant.
- All Saw-Cutting Slurry Shall be Wet Vacuumed, Either Simultaneous with or Immediately After the Saw-Cutting Operations, and the Collected Slurry Disposed of Appropriately (I.E., Either Placed in a Filter Fabric Lined Filtration Box or In a Filter Fabric Lined Dug Up Retention/Percolation Basin, and After Filtration/Percolation, the Filter Fabric and the Retained Sediments, Disposed of Appropriately).
- Type 4 Cable - Loop Sensor Cable: Solid No. 12, Single Conductor to IMSA Spec 51-5.



B Typical Sensor Loop Wiring Diagram
EH-06 Not to Scale



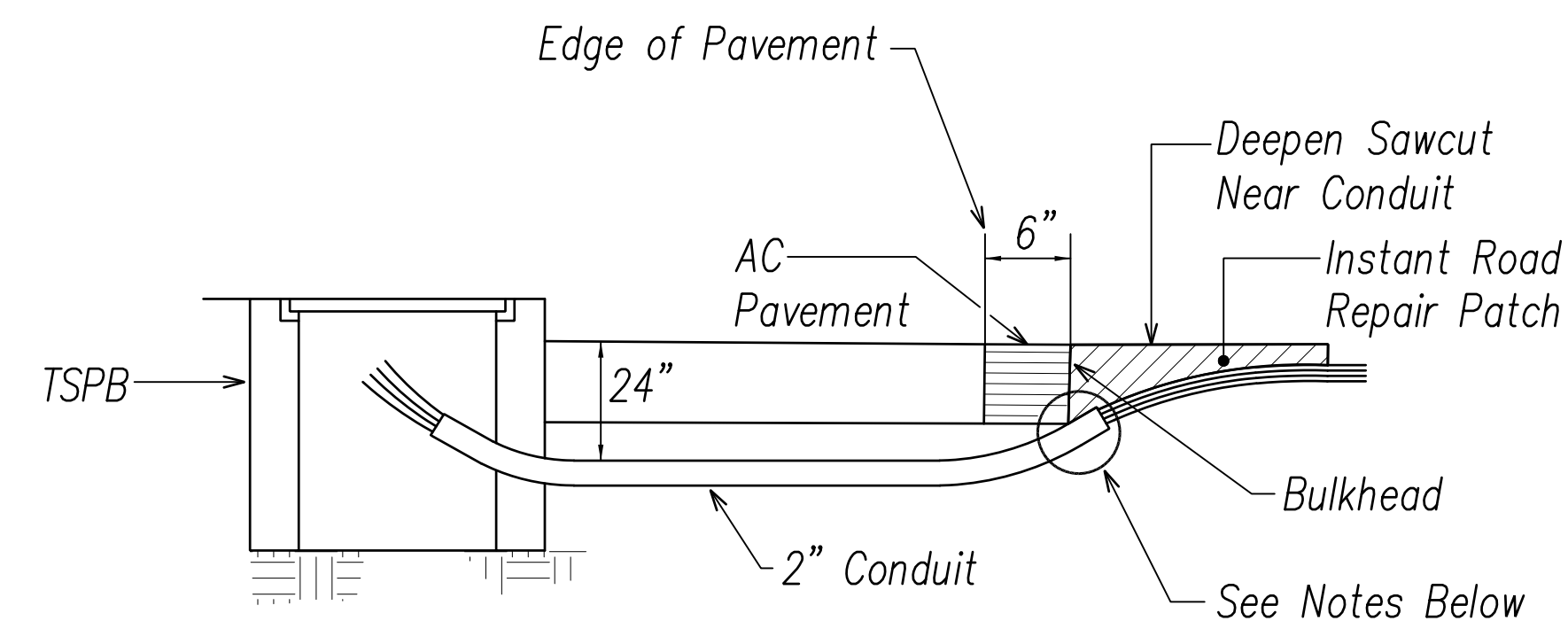
C Typical Sensor Loop Sawcut Detail
EH-06 Not to Scale



Notes:

- Seal Roadway End of Conduit After Installation of Conductors.
- Install Bulkhead Across Conduit Trench.
- Place Loop Cable Sealant in Loop Cable Sawcut.
- Backfill Over Conduit with Instant Road Repair Patch.
- Reconstruct Curb and Gutter as Required.

D Detail of Sensor Loop Installation at Curb and Gutter
EH-06 Not to Scale



Notes:

- Seal Roadway End of Conduit After Installation of Conductors.
- Install Bulkhead Across Conduit Trench.
- Place Loop Cable Sealant In Loop Cable Sawcut.
- Backfill Over Conduit with Instant Road Repair Patch.

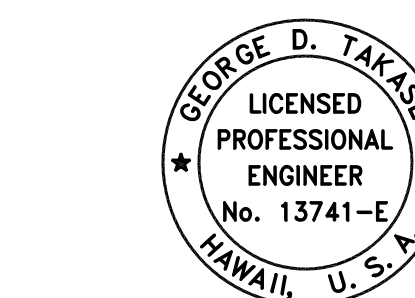
E Detail of Sensor Loop Installation at Edge of Roadway
EH-06 Not to Scale

Advanced Loop Detector Location		
Roadway	Design/85% Speed (MPH)	Advanced Loop Detector (Distance from Stop Bar)
Farrington Highway	35	150'
Kualakai Parkway	40	210'
Cross Streets	25	80'

F Advanced Sensor Spacing
EH-06 Not to Scale

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
DATE	
NO.	

FILE: Z:\Mach\Projects\220679A_EH06_220679A_Loop_Detail.dwg saved March 4, 2022



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SIGNATURE: [Signature] EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

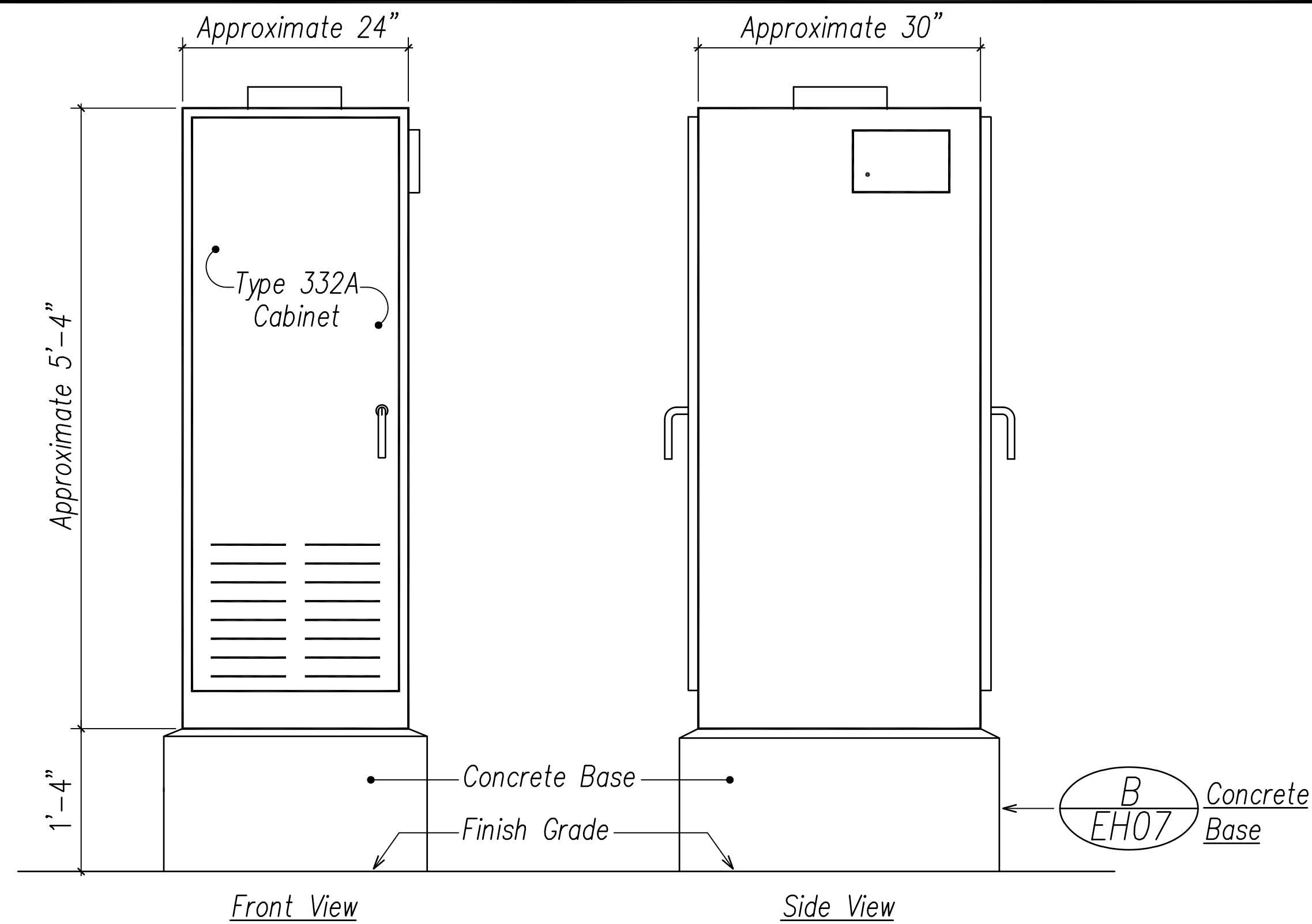
**TRAFFIC SIGNAL
LOOP DETECTOR DETAIL**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

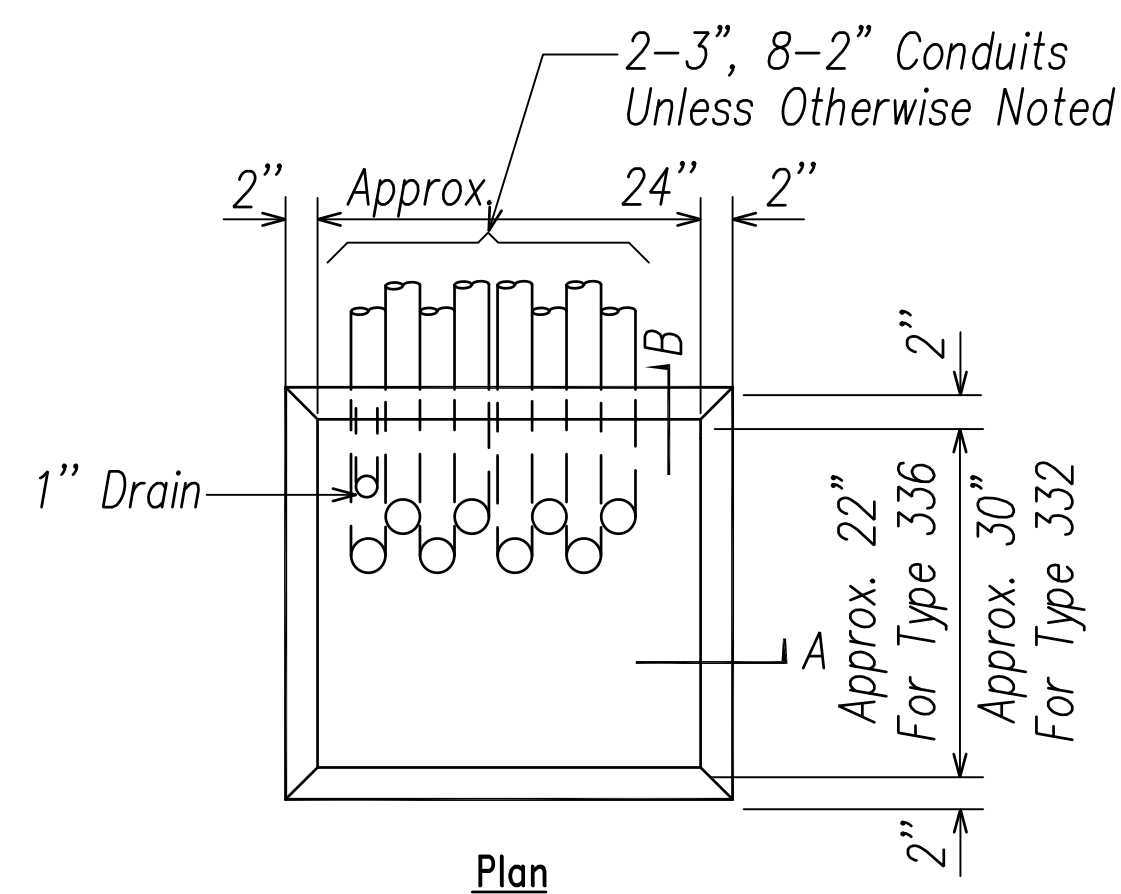
Scale: As Shown Date: April 2022

SHEET No. EH-06 OF 790 SHEETS

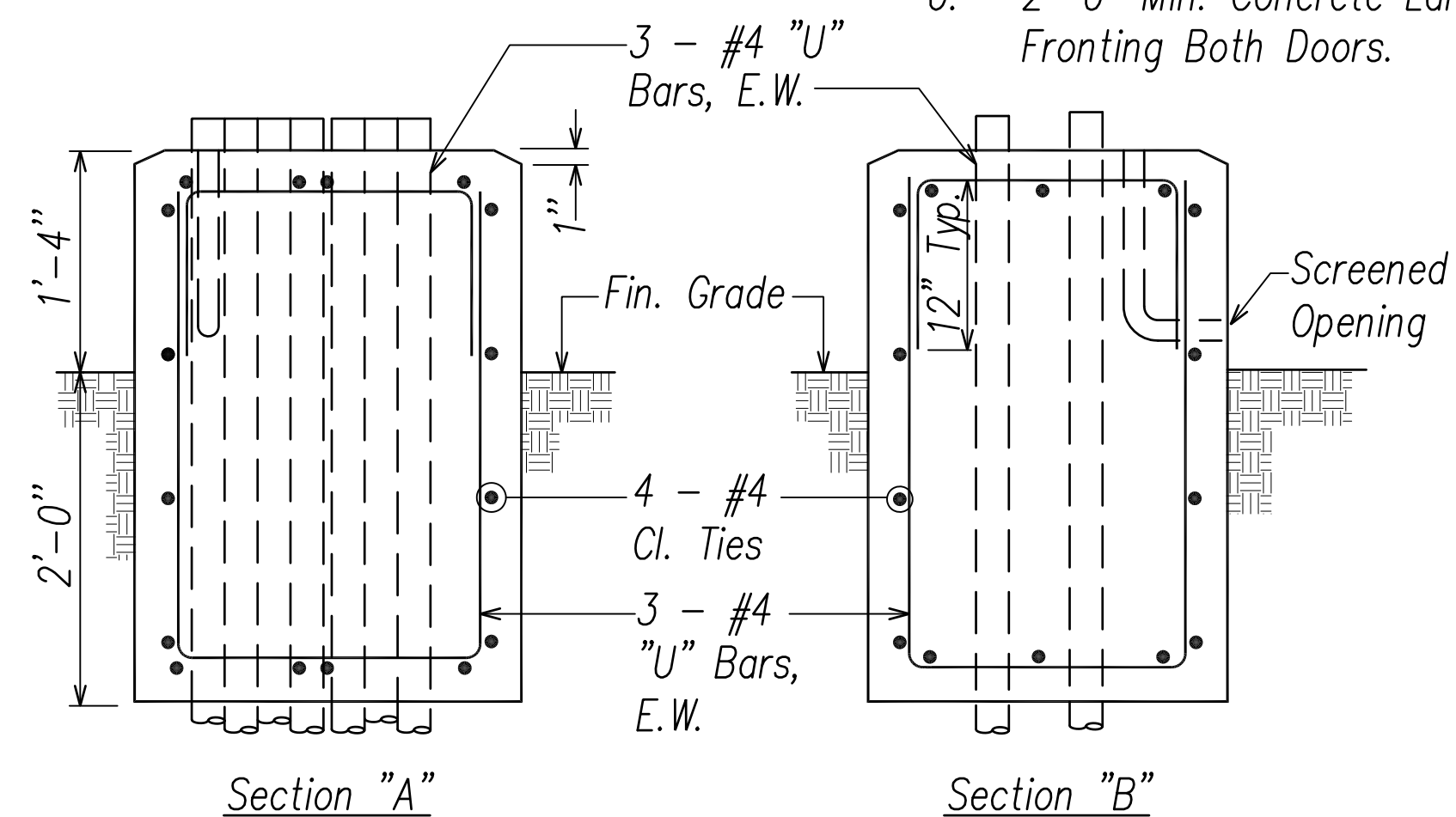
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-07	790



A
EH-07 **Type 332A Cabinet Detail**
Not to Scale



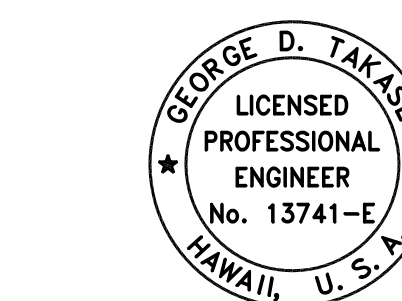
- NOTES:**
1. Concrete Shall Be Class "B".
 2. Dimensions Shall Be Altered To Suit Controller Cabinet Actually Furnished.
 3. Conduit Bends And Drain Are Incidental To Concrete Base.
 4. Refer To Cabinet Manufacturer's Specifications For Details Of Anchor Bolts And Base Setting.
 5. All Exposed Surfaces Of Concrete Base Shall Be Given A Class 2, Rubbed Finish.
 6. 2'-0" Min. Concrete Landing Area To Be Provided In Area Fronting Both Doors.



B
EH-07 **Type "D" Concrete Base Detail**
Not to Scale

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

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Signature: *[Signature]*
Date: April 30, 2022
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

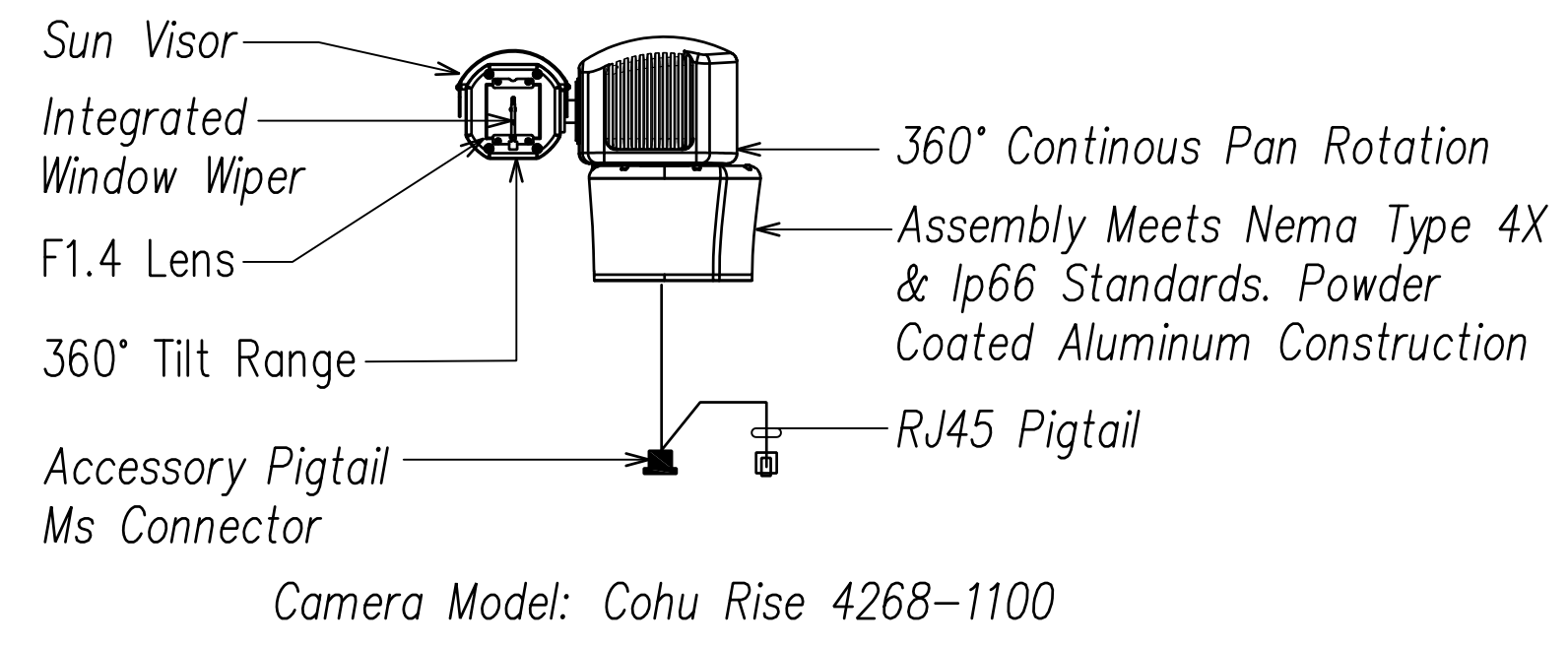
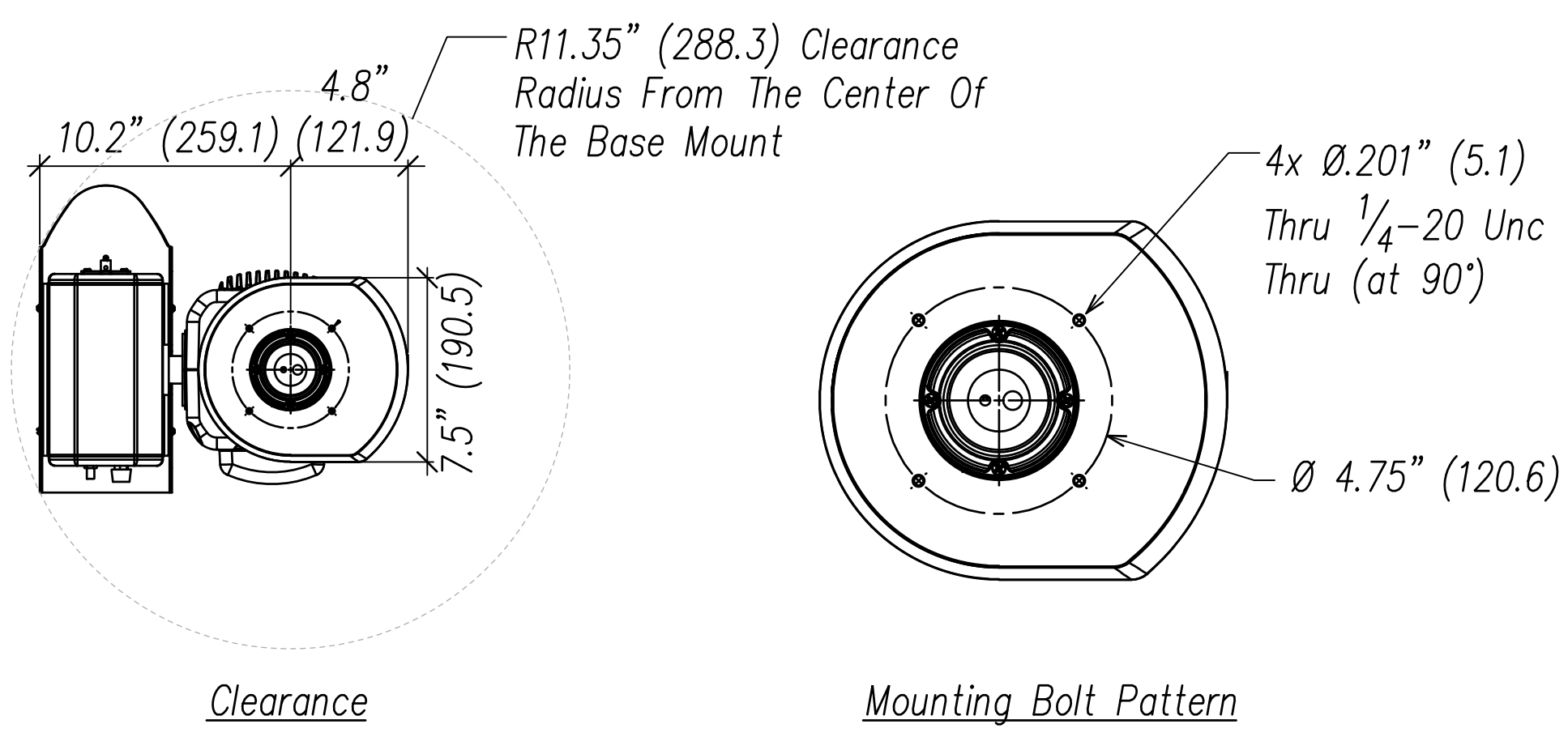
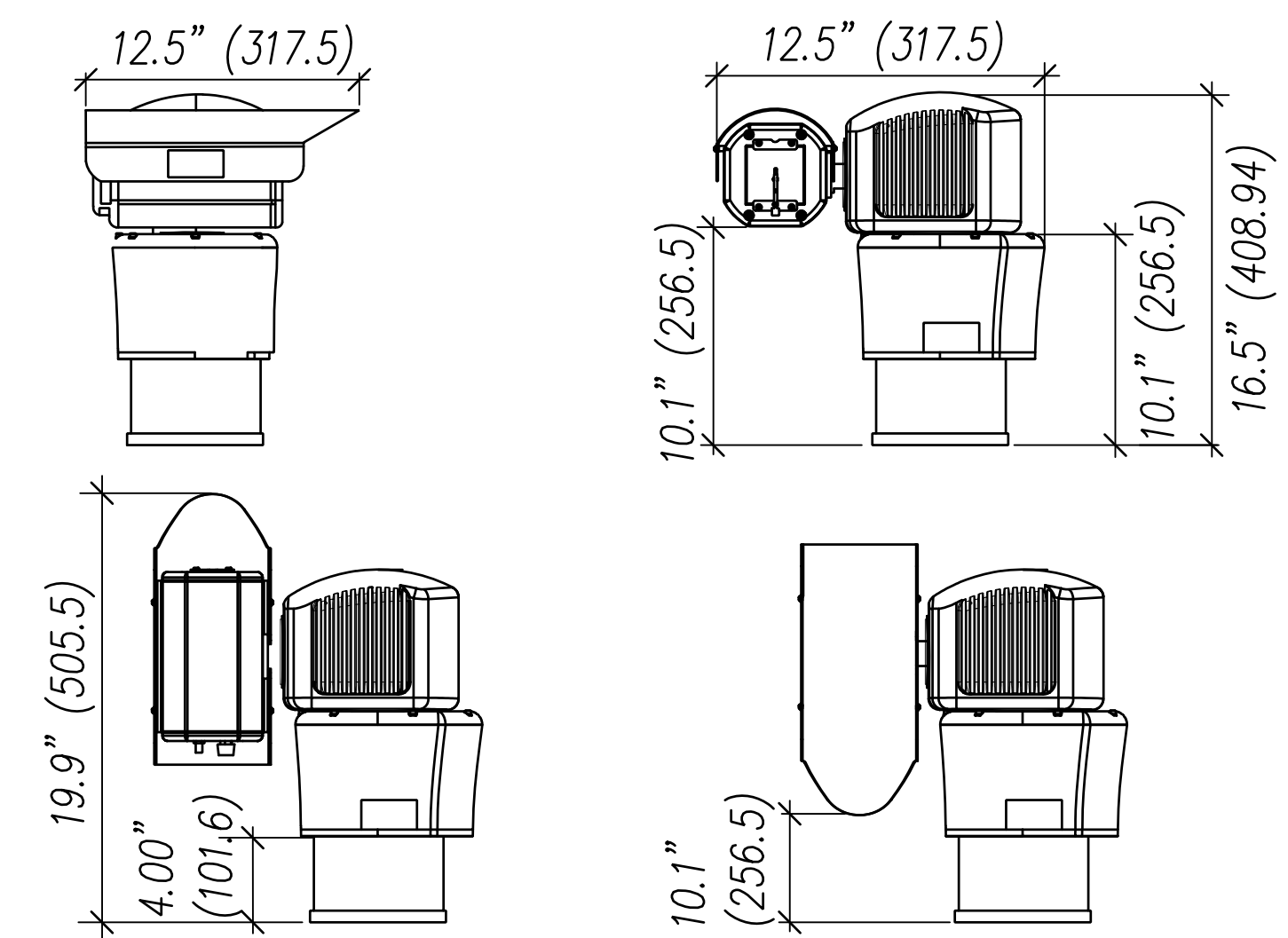
**TRAFFIC SIGNAL
CONTROLLER DETAIL**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

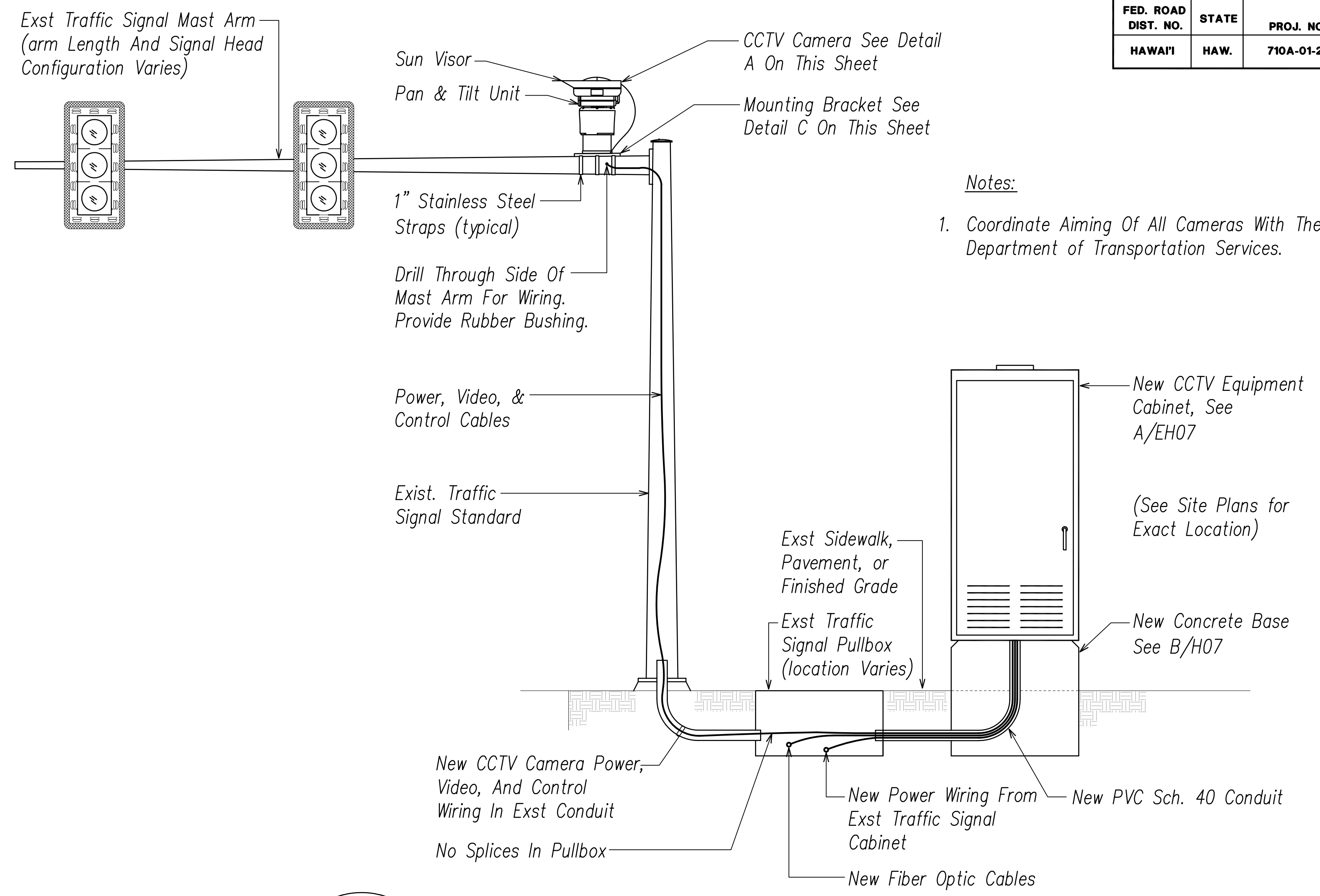
SHEET No. EH-07 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EH-08	790



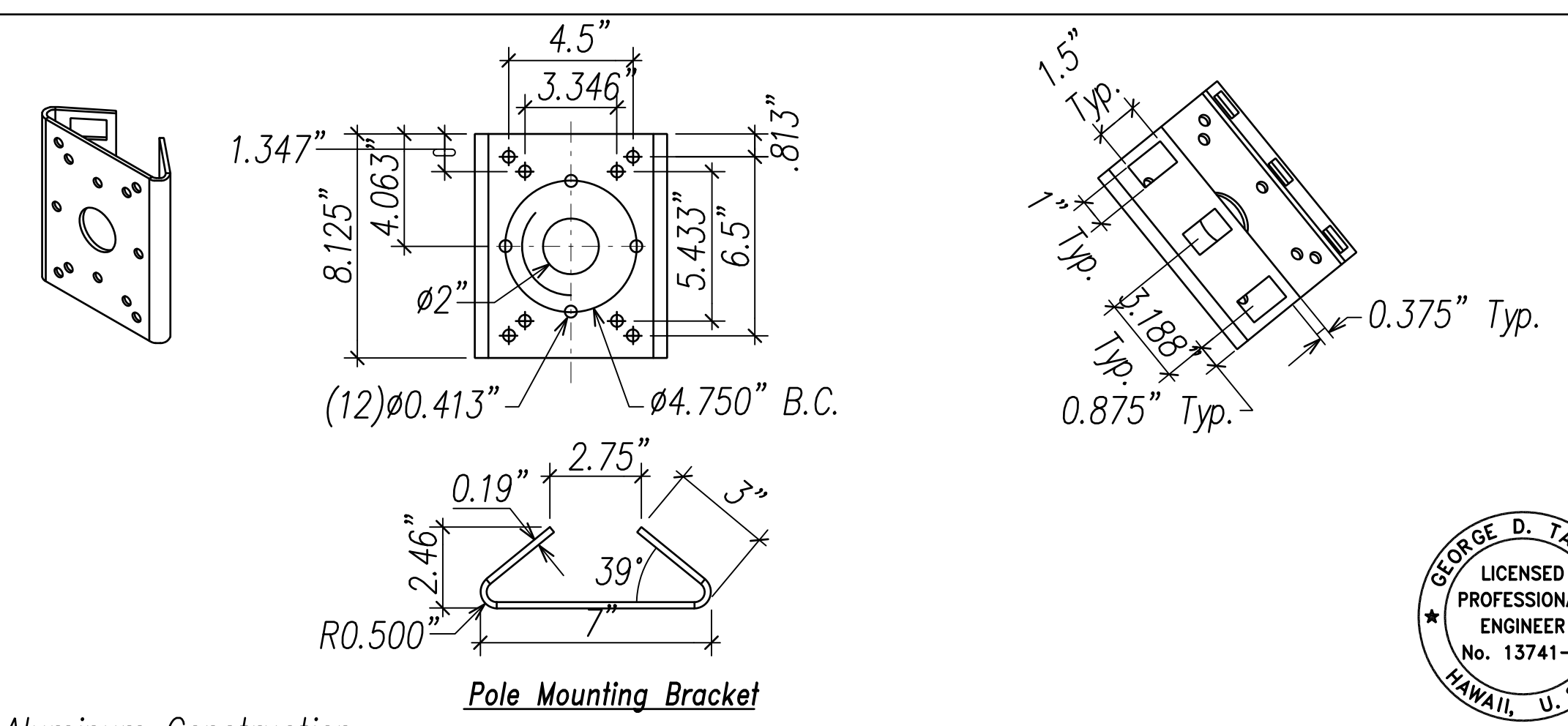
- Notes:
- Camera Options: 120VAC Power, MS Connector Pigtail, RJ45 Whip, I-series Pinout
HD 1080P 30X Camera Module
Faceplate Wiper
 - Each Camera Must Be Provided With ER6099B Cable Assembly/Harness
 - Each Camera Must Be Provided With Horizontal Leveling Plate For Installation On Traffic Pole Mast Arm

A Typical CCTV Camera Detail
EH-08 Not to Scale



- Notes:
- Coordinate Aiming Of All Cameras With The City Department of Transportation Services.

B Typical CCTV Camera Mounting Detail
EH-08 Not to Scale



- Notes:
- Powder Coated Aluminum Construction

C Typical CCTV Camera Mounting Bracket
EH-08 Not to Scale

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FILE: Z:\Work\Projects\220679A\EH08_220679A_CCTV_Detail.dwg saved March 4, 2022

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC SIGNAL
CCTV DETAIL**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EH-08 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-01	790

ENHANCED VEHICLE CLASSIFICATION (EVC) SYSTEM NOTES

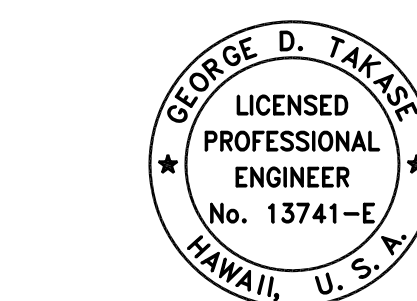
- The Location Of New Sensors Shall Be Staked Out In The Field By The Contractor And Approved By The Engineer Prior To Installation.
- The Contractor Shall Inform The Engineer At Least Three Days Prior To Saw Cutting Pavement And Installing Sensors.
- Highway Crossing Conduits Shall Be Provided With A Minimum Of 36" Cover And Shall Be Concrete Encased, Per Standard Plan TE-36.
- The Contractor Shall Verify The Location Of Existing Utilities And Underground Structures Whether Or Not Shown On The Plans.
- The Contractor Shall Assume That Underground Utilities Not Shown On The Plans May Exist. The Contractor Shall Be Responsible For Contacting The Different Utility Companies For Information And Toning.
- The Contractor Shall Be Held Liable For Any Damages Incurred To Existing Utilities And Underground Structures As A Result Of Operations. All Damaged Portions Shall Be Replaced In Accordance With The Standards And Specifications Of The Affected Utility Company At No Cost To The State.
- Changes To The Contract Plans And Specifications Will Not Be Permitted, Unless Approved By The Engineer In Writing.
- Saw Cuts Shall Be Made By Wet Cutting Only.
- After Saw Cutting Is Done, The Saw Cuts Shall Be Cleaned Of Dust, Dirt, And Refuse With Water Applied By Pressure Washer. Residual Water Within The Saw Cuts Shall Be Vacuumed Using A Wet/dry Vacuum. The Saw Cuts Shall Then Be Dried Using An Air Compressor.
- After Saw Cuts Are Dried, Any Remaining Debris Stuck Within The Cuts Shall Be Removed. The Saw Cuts Must Be Completely Clean And Dry Before Inserting The Sensors And Filling Cuts And Any Voids Surrounding The Sensors Or Their Lead Cables With Sealant.
- The Collected Slurry Shall Be Disposed Of Appropriately (i.e., Either Placed In A Filter Fabric-lined Filtration Box Or A Filter Fabric-lined Dug Up Retention/percolation Basin). After Filtration/percolation, The Filter Fabric And The Retained Sediments And Any Excavated Pavement Material Shall Be Disposed Of Appropriately.
- Sensor Lead Cables Shall Be Pulled Into Conduits Where Indicated. Cables Shall Be Tested For Acceptance Before And After Installation Into Conduits.
- Piezo Sensor Lead Cables Shall Be Continuous With No Splices.
- Sensor Lead Cables Shall Be Terminated In The Controller Cabinet And Shall Have A Minimum Of 12" Additional Slack.
- The Contractor Shall Restore All Affected Areas To Their Original Condition Or Better. This Item Of Work Shall Not Be Paid For Separately, But Shall Be Considered Incidental To Work Of Other Paid Items.
- Poles For Solar Panel Assemblies And Excavation Warning Signs Shall Be Located No More Than 20 Feet From Controller Cabinets.

LOOP SENSOR LAYOUT NOTES

- Loop Sensors Shall Consist Of Four Turns Of 1C #14 Cable (Meeting IMSA Spec. 51-3 Or Equivalent) Embedded In A 3/8" Wide By 4" Deep Saw Cut, Except As Noted. Loop Sensors Shall Be Provided A Minimum Of 2" Cover.
- Loop Sensors Shall Be Staggered On Roadways With Lanes That Are Less Than 12 Feet In Width, As Shown On Contract Plans Or By Direction Of The Engineer.
- After Laying The Loop Sensor Cable In Four (4) Turns Within The 4" Deep Cut, 1" Long Pieces Of Backer Rod Shall Be Pressed In Each Foot Of The Loop And The Loop Lead Saw Cut, To Anchor The Wire In The Bottom Of The Cut Before Applying The Loop Sealant. Backer Rod Shall Be Embedded At Least 2" Below The Top Of Pavement. The Backer Rod Shall Be Pressed Into The Saw Cut With A Blunt Object Such As A Wooden Paint Stir Stick. No Sharp Object (such As A Screw Driver) Shall Be Used To Press The Backer Rod Into The Saw Cuts.
- Loop Sensor And Lead Cable Shall Be One Continuous Wire. Lead Wires From The Same Loop Shall Be Twisted In Pairs, Five Twists Per Foot, From The End Of The Saw Cut At The Roadway Edge To The Pull Box. Do Not Twist One Loop Pair With Another Loop Pair.
- Continuity Of Loop Sensors And Lead Cables Shall Be Tested And Warrantied For One Year From The Date Of Acceptance By The Engineer.
- Loop Sensor Lead Cables Shall Be Spliced To Home-run Cables (Meeting IMSA Spec. 50-2 Or Equivalent) Only At The Closest Pull Box To The Loop. Splices Shall Be Made Using A Splice Kit. Splice Points Of Cables Shall Be Suspended Near The Top Of The Pull Box With A J-hook.
- The Contractor Shall Label The Loop And Piezo Sensor Leads Clearly To Identify Traffic Direction, Lane Number, And Sequence Of Loop And Piezo Sensors In Each Lane In Each Direction.
- The Left-most Lane In The Direction Of Traffic Flow Is Designated As Lane 1, And The Next Lane To Its Right As Lane 2, And So On, As Indicated On Plans.

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

FILE: Z:\Acad\Projects\220679A\EDL-220679H_Counting_Notes.dwg saved April 8, 2022



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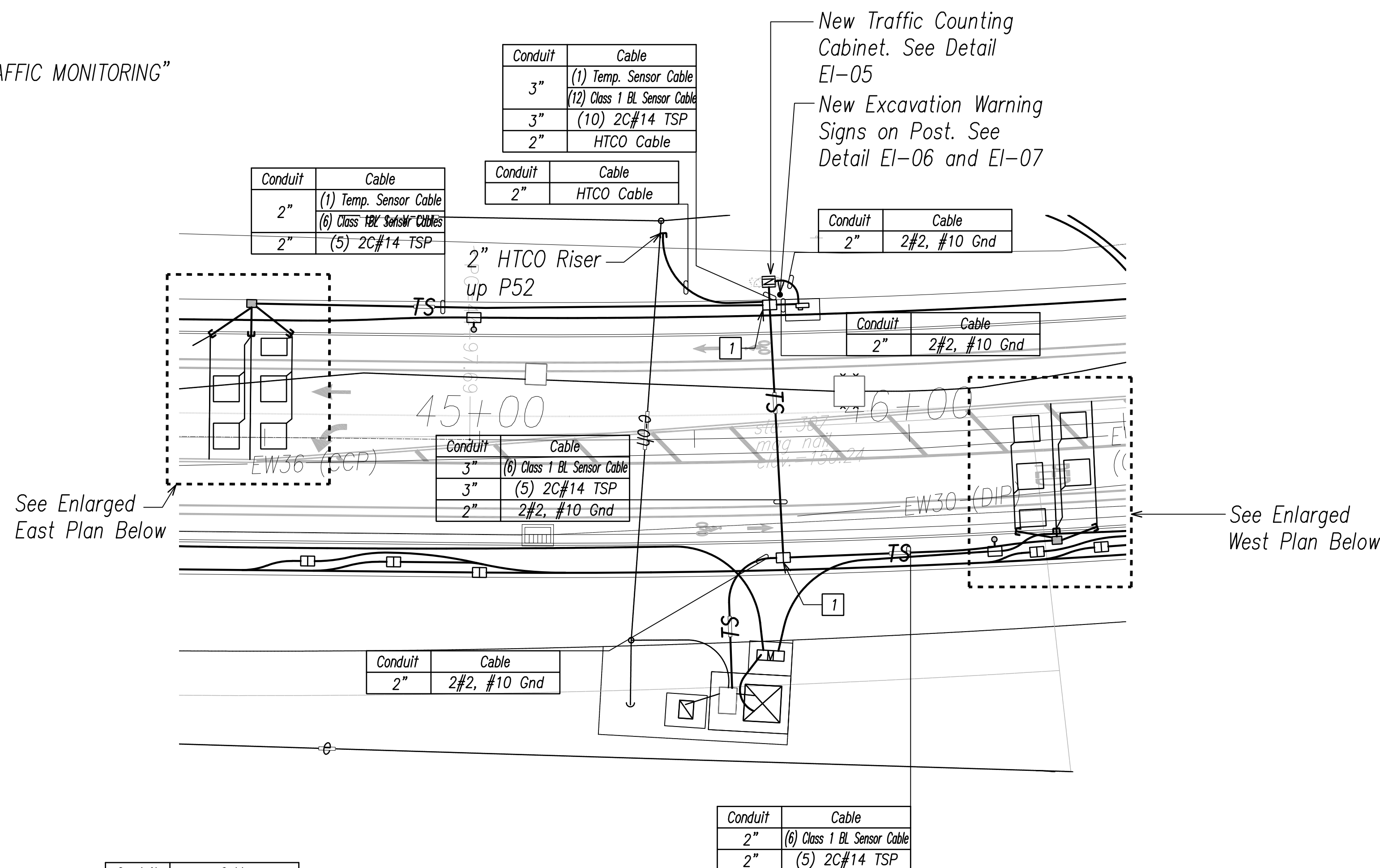
George D. Takase
 SIGNATURE EXPIRATION DATE OF THE LICENSE
 April 30, 2024

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
COUNTING STATION NOTES	
FARRINGTON HIGHWAY WIDENING Kapolei Golf Course Road to Fort Weaver Road Project No. 7101A-01-20	
Scale: As Shown	Date: April 2022
SHEET No. EI-01 OF 790 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-02	790

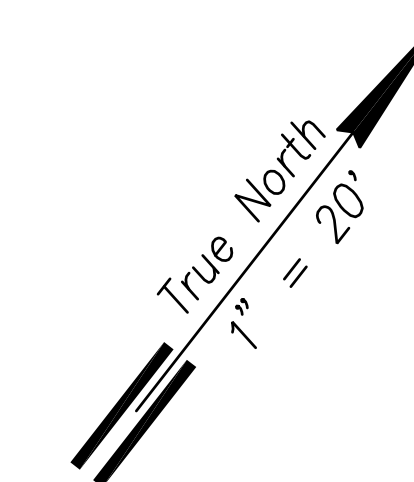
NOTES:

- 1 Pullbox to be Labeled "TRAFFIC MONITORING"



SAW CUT NOTES:

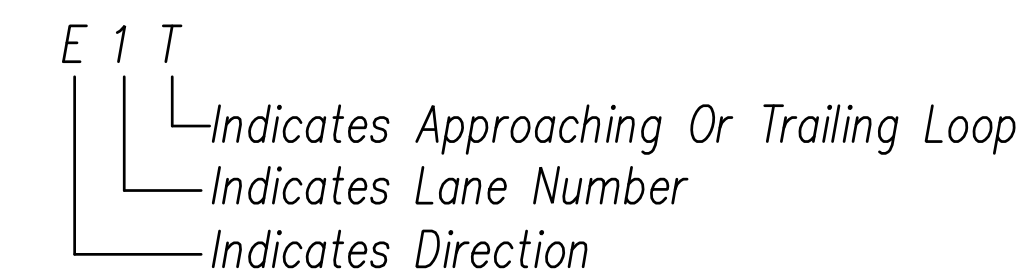
1. Piezo Sensor: 3/4"W, 2"D
2. Loop Sensor: 3/8"W, 4"D
3. Temp Sensor: 3/8"W, 2"D
4. Piezo Leads: 3/8"W, 2"D
5. Loop Leads: 3/8"W, 4"D
6. Temp Leads: 3/8"W, 2"D



See Sheet EI-04.

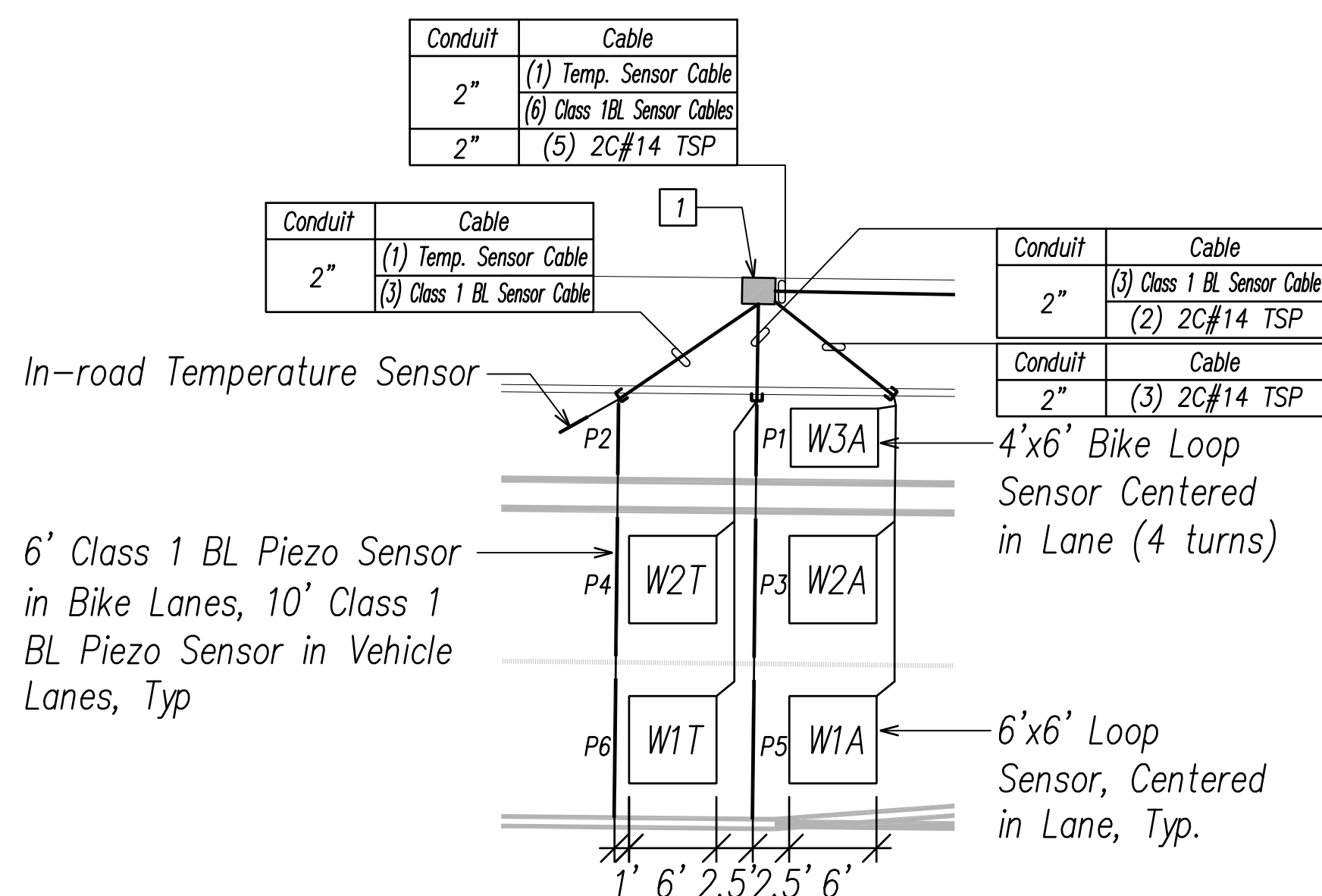
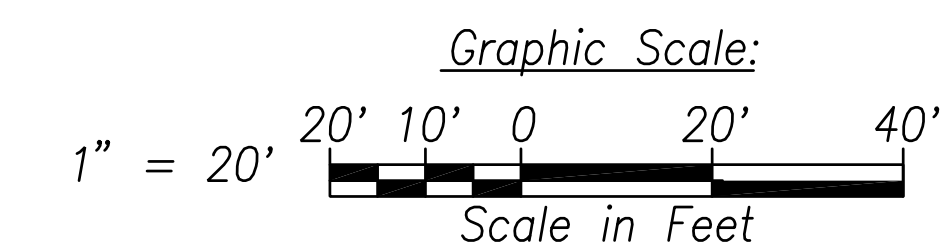
LOOP LABEL LEGEND

E = East
W = West
A = Approaching
T = Trailing



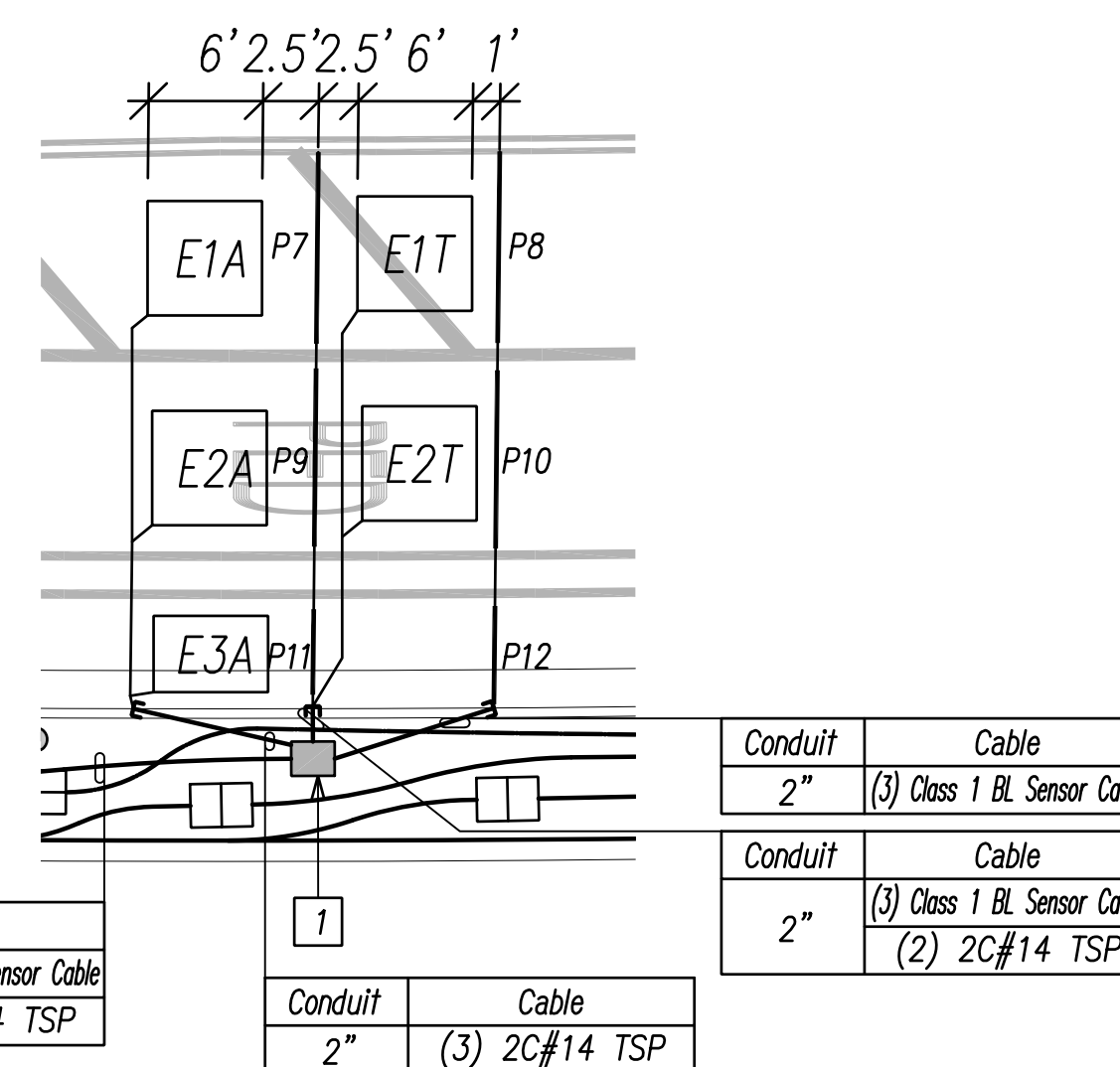
NOTES:

1. All Dimensions And Callouts Are Typical Unless Otherwise Noted On Plan.
2. Conduits Under Pavement And At Utility Crossings Shall Be Concrete Encased.
3. Conduits Shall Be Fitted With Belled Ends. The Belled Ends Shall End Flush With The Inside Wall Of The Pull Box And Extend No More Than 2" Above The Floor Of The Cabinet.
4. Contractor Shall Coordinate Service Agreements And Connections To Electrical And Communications Service. Contractor Shall Also Contact The Appropriate State Dept. Of Transportation Representative For Service Agreement (Highway Planning, Contact Richard Akana, PE, At 587-6345).



ENLARGED WEST PLAN

Scale: 1" = 10'



ENLARGED EAST PLAN

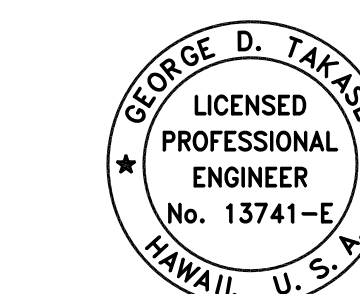
Scale: 1" = 10'

**EVC TRAFFIC COUNTING SYSTEM LAYOUT AND LABELING
STATION 071003 RESTORATION - MP 0.33 - SR 7110 - FARRINGTON HIGHWAY**

Scale: 1" = 20'

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

FILE: Z:\Mcd\Projects\220679A\EDL_220679A_Counting_Layout_1.dwg, saved April 8, 2022



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Signature: *[Signature]*
Date: April 30, 2022
Expiration Date of License: _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**COUNTING STATION
WEST**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

NOTES:

1 Pullbox to be Labeled "TRAFFIC MONITORING"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-03	790

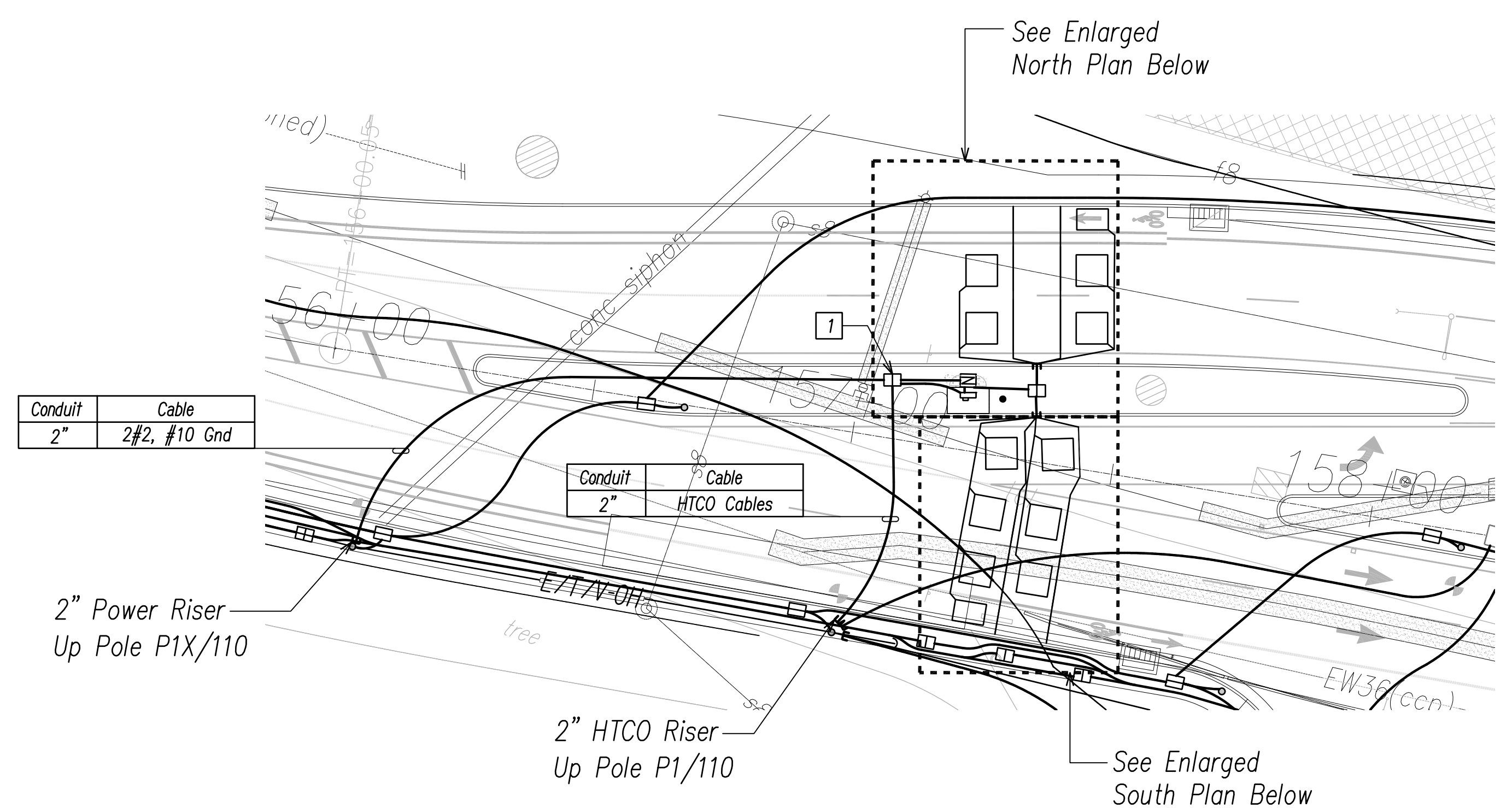
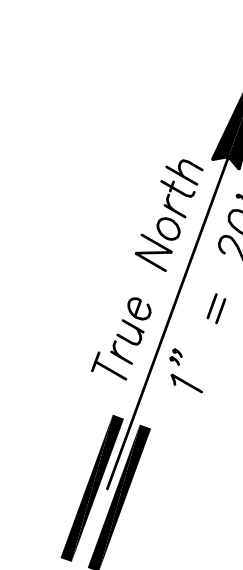
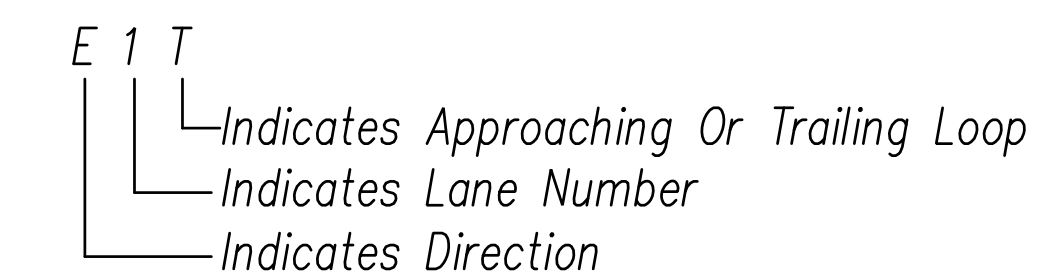
SAW CUT NOTES:

- Piezo Sensor: 3/4"W, 2"D
- Loop Sensor: 3/8"W, 4"D
- Temp Sensor: 3/8"W, 2"D
- Piezo Leads: 3/8"W, 2"D
- Loop Leads: 3/8"W, 4"D
- Temp Leads: 3/8"W, 2"D

See Sheet EI-04.

LOOP LABEL LEGEND

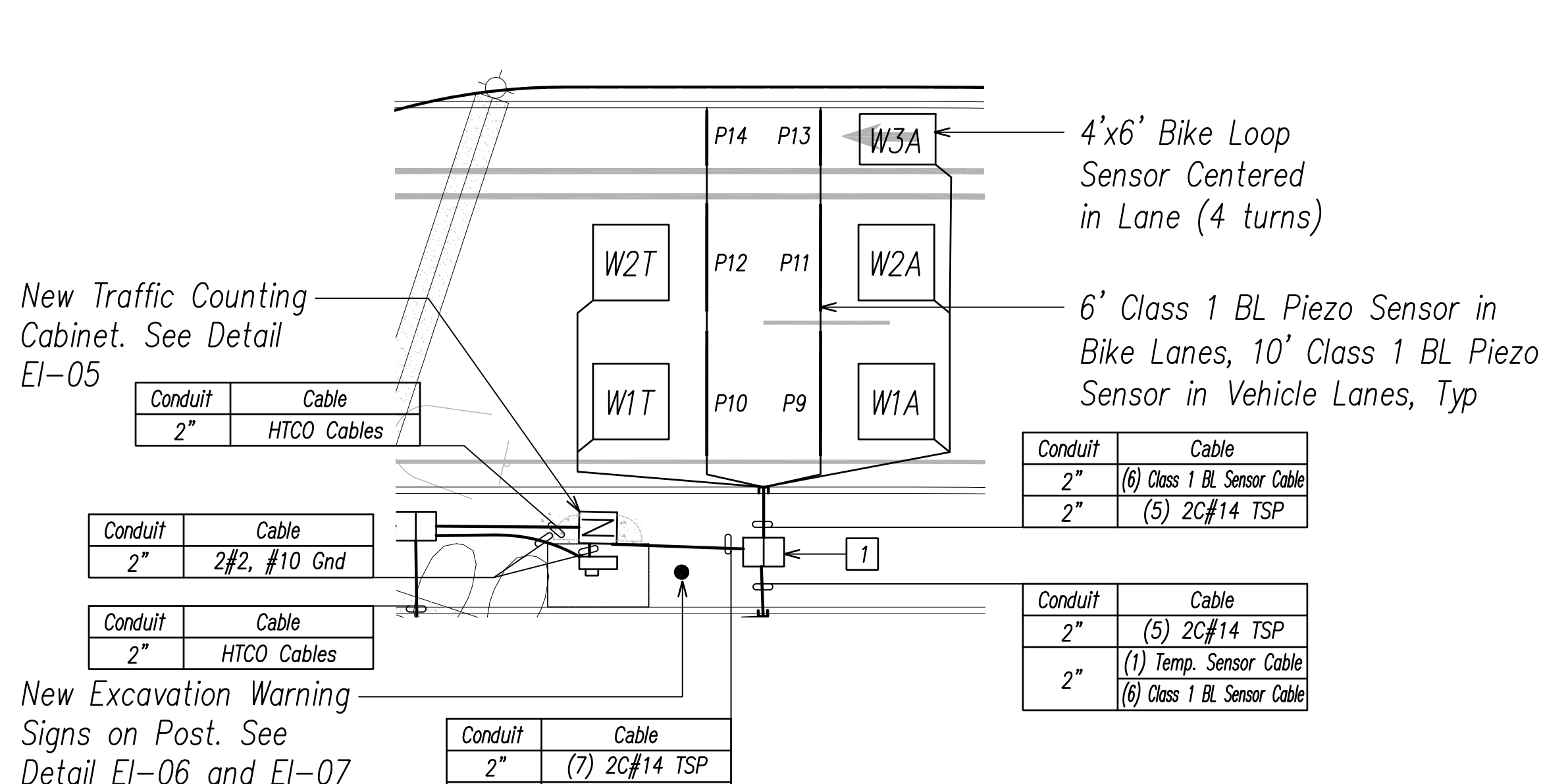
E = East
W = West
A = Approaching
T = Trailing



NOTES:

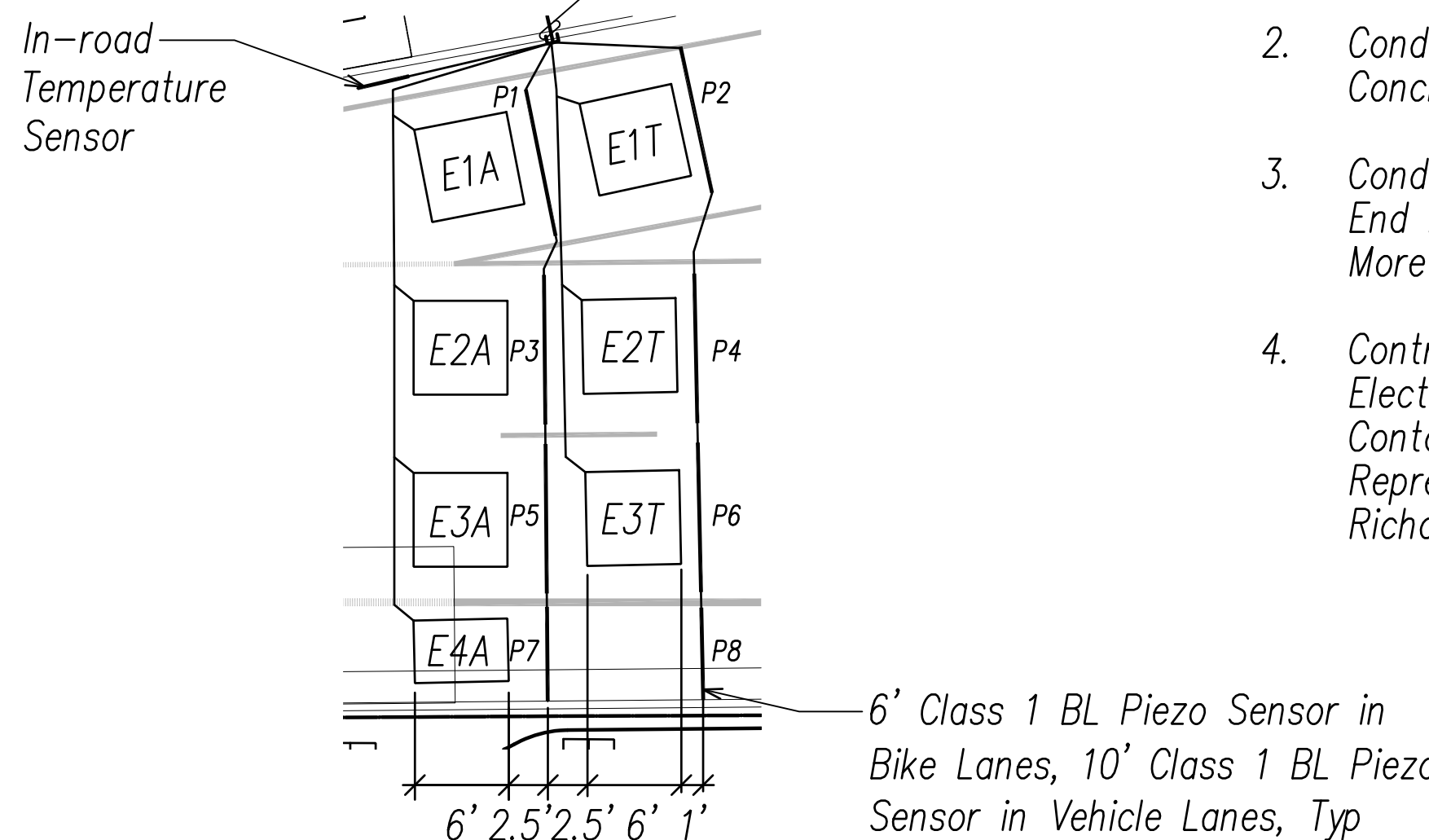
- All Dimensions And Callouts Are Typical Unless Otherwise Noted On Plan.
- Conduits Under Pavement And At Utility Crossings Shall Be Concrete Encased.
- Conduits Shall Be Fitted With Belled Ends. The Belled Ends Shall End Flush With The Inside Wall Of The Pull Box And Extend No More Than 2" Above The Floor Of The Cabinet.
- Contractor Shall Coordinate Service Agreements And Connections To Electrical And Communications Service. Contractor Shall Also Contact The Appropriate State Dept. Of Transportation Representative For Service Agreement (Highway Planning, Contact Richard Akana, PE, At 587-6345).

Conduit	Cable
2"	(5) 2C#14 TSP
2"	(1) Temp. Sensor Cable
2"	(6) Class 1 BL Sensor Cable



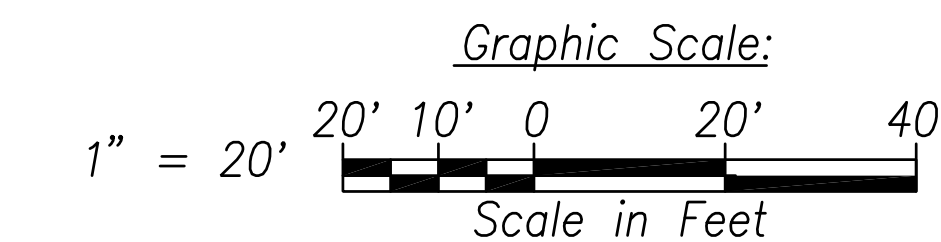
ENLARGED NORTH PLAN

Scale: 1" = 10'



ENLARGED SOUTH PLAN

Scale: 1" = 10'



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

FILE: Z:\Moore\projects\220679A\ED3_220679A_Layout_Layout_2.dwg saved April 8, 2022

**EVC TRAFFIC COUNTING SYSTEM LAYOUT AND LABELING
NEW EVC STATION - MP 1.83 - CR9107 - FARRINGTON HIGHWAY**
Scale: 1" = 20'

GEORGE D. TAKESE
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]
SIGNATURE

April 30, 2024
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

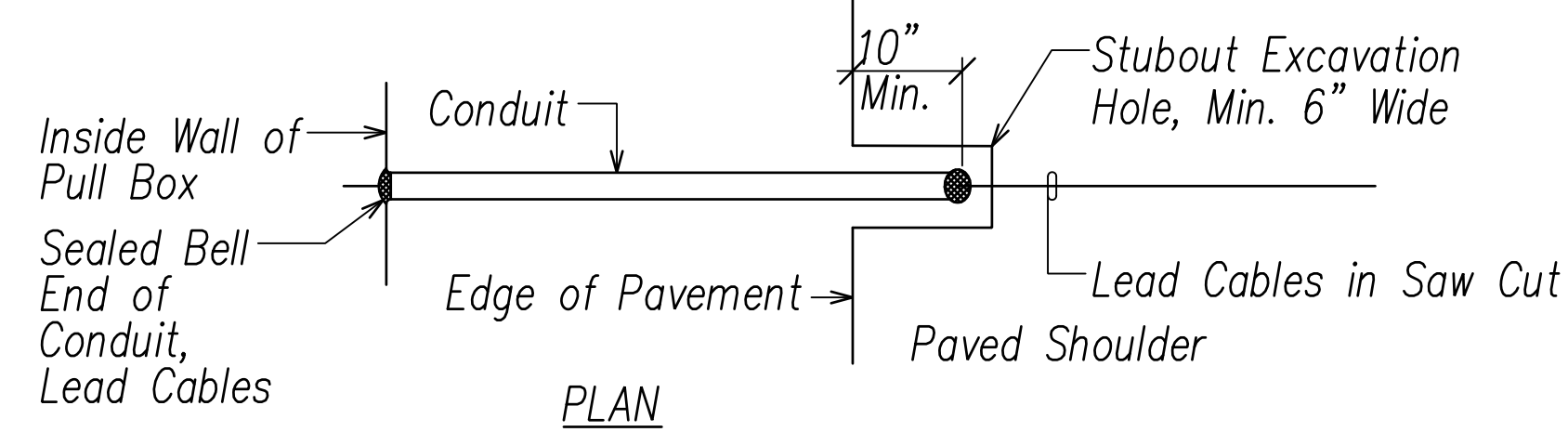
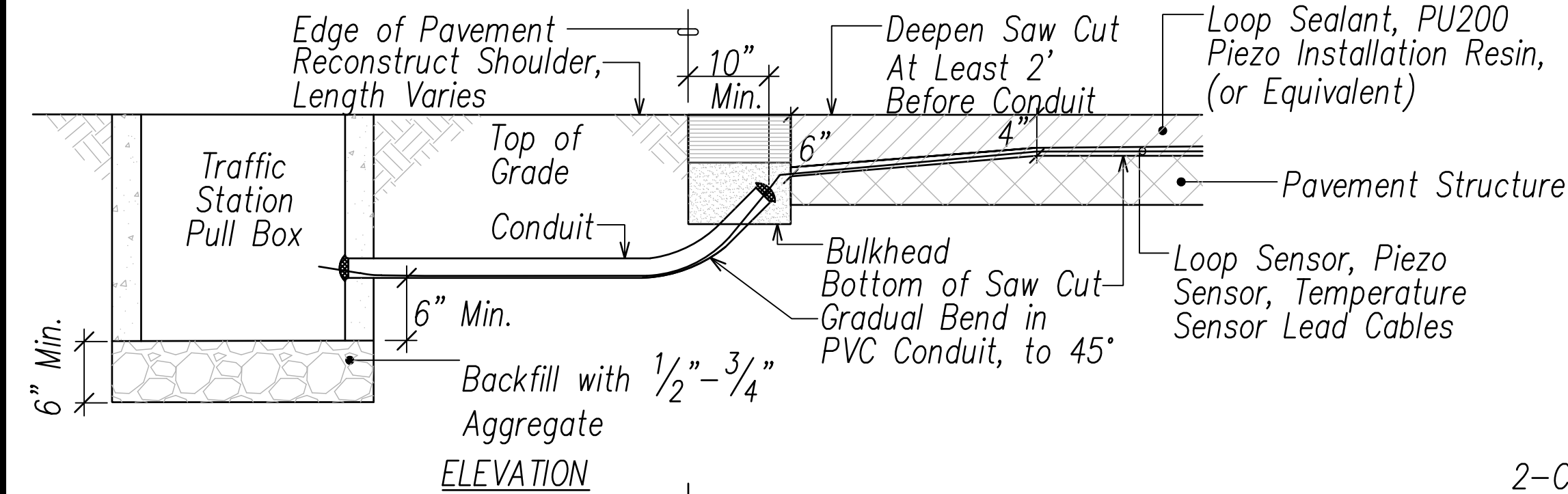
**COUNTING STATION
EAST**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

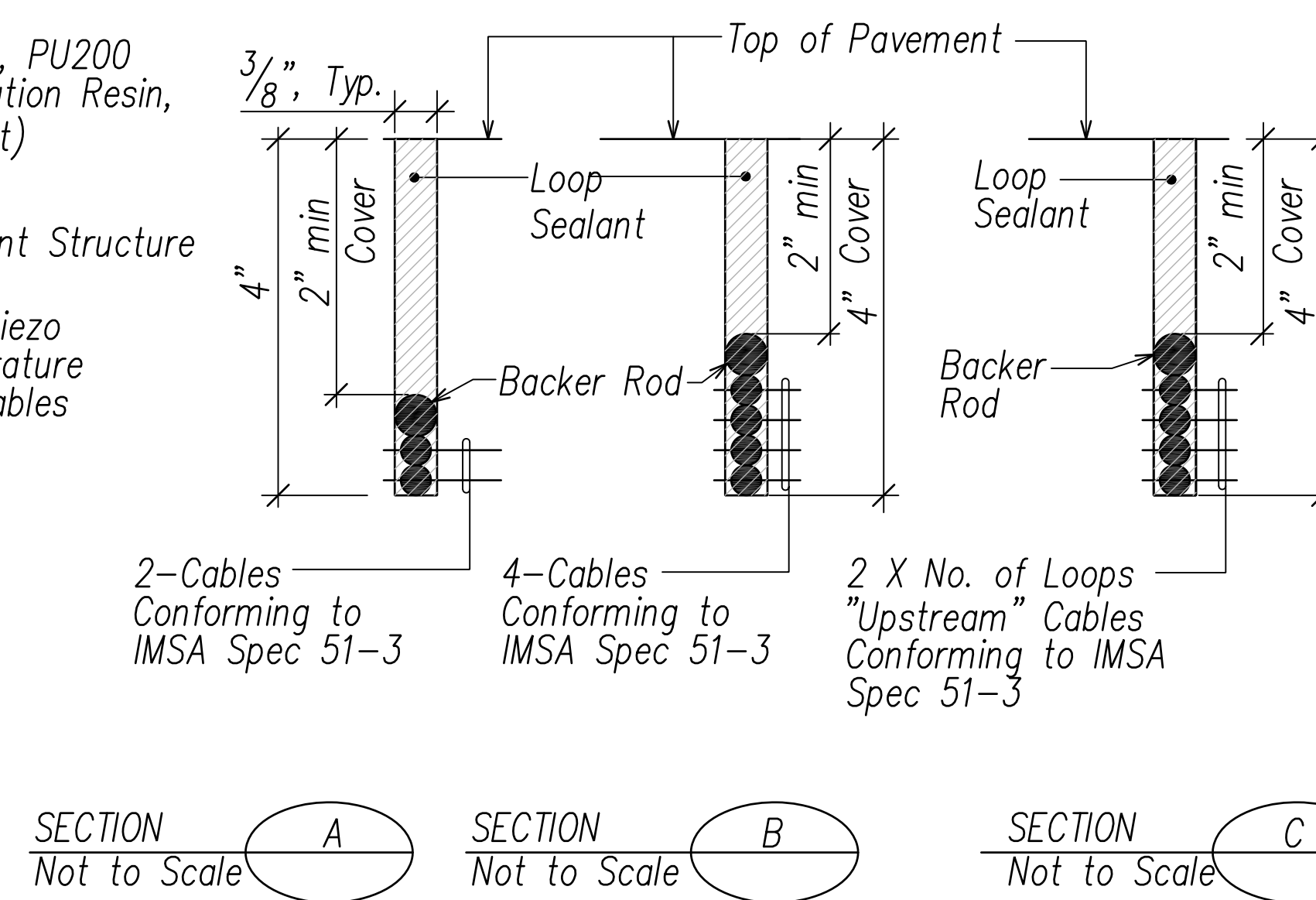
Scale: As Shown Date: April 2022

SHEET No. EI-03 OF 790 SHEETS

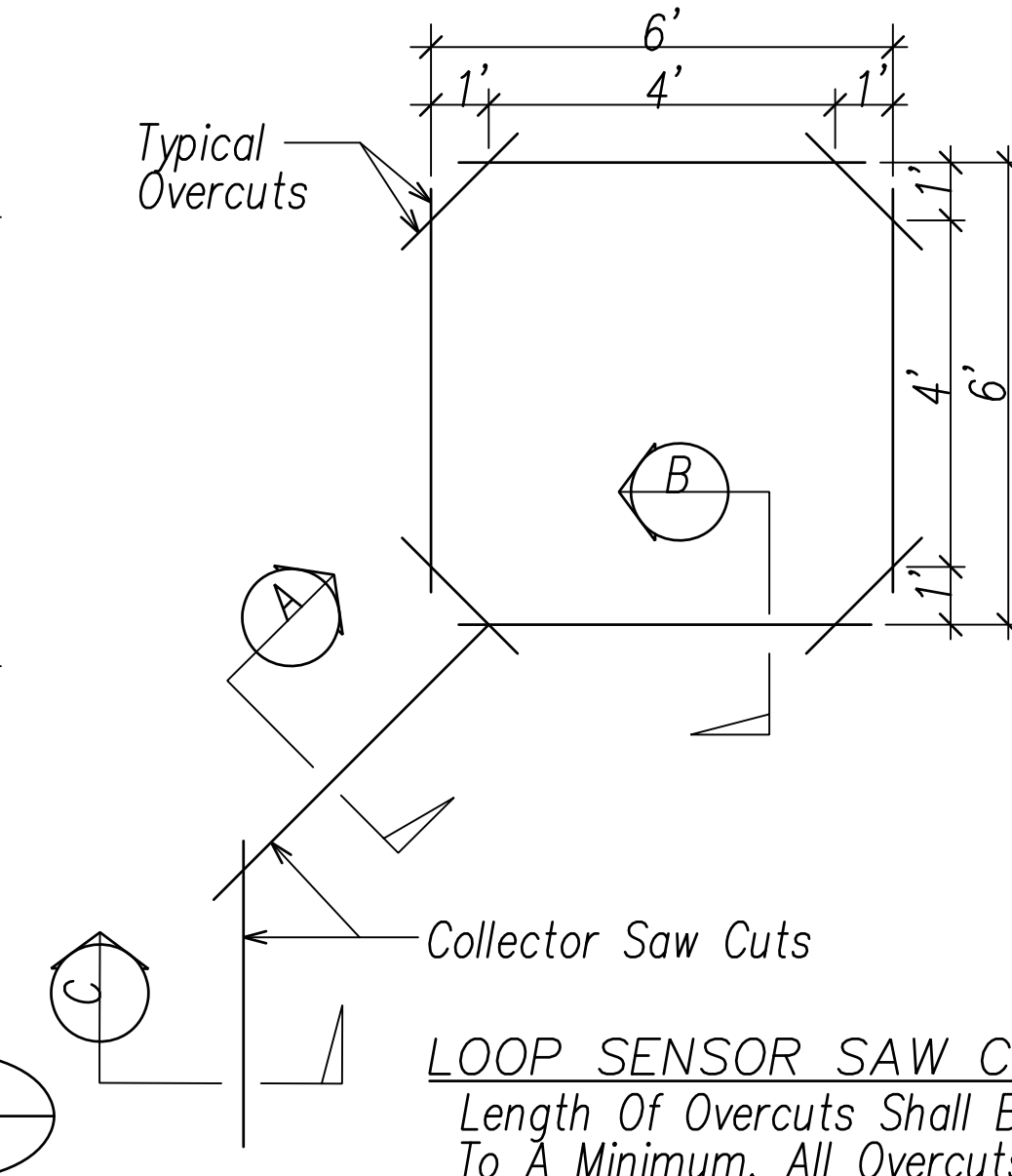
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-04	790



EDGE OF ROADWAY DETAILS
Not to Scale



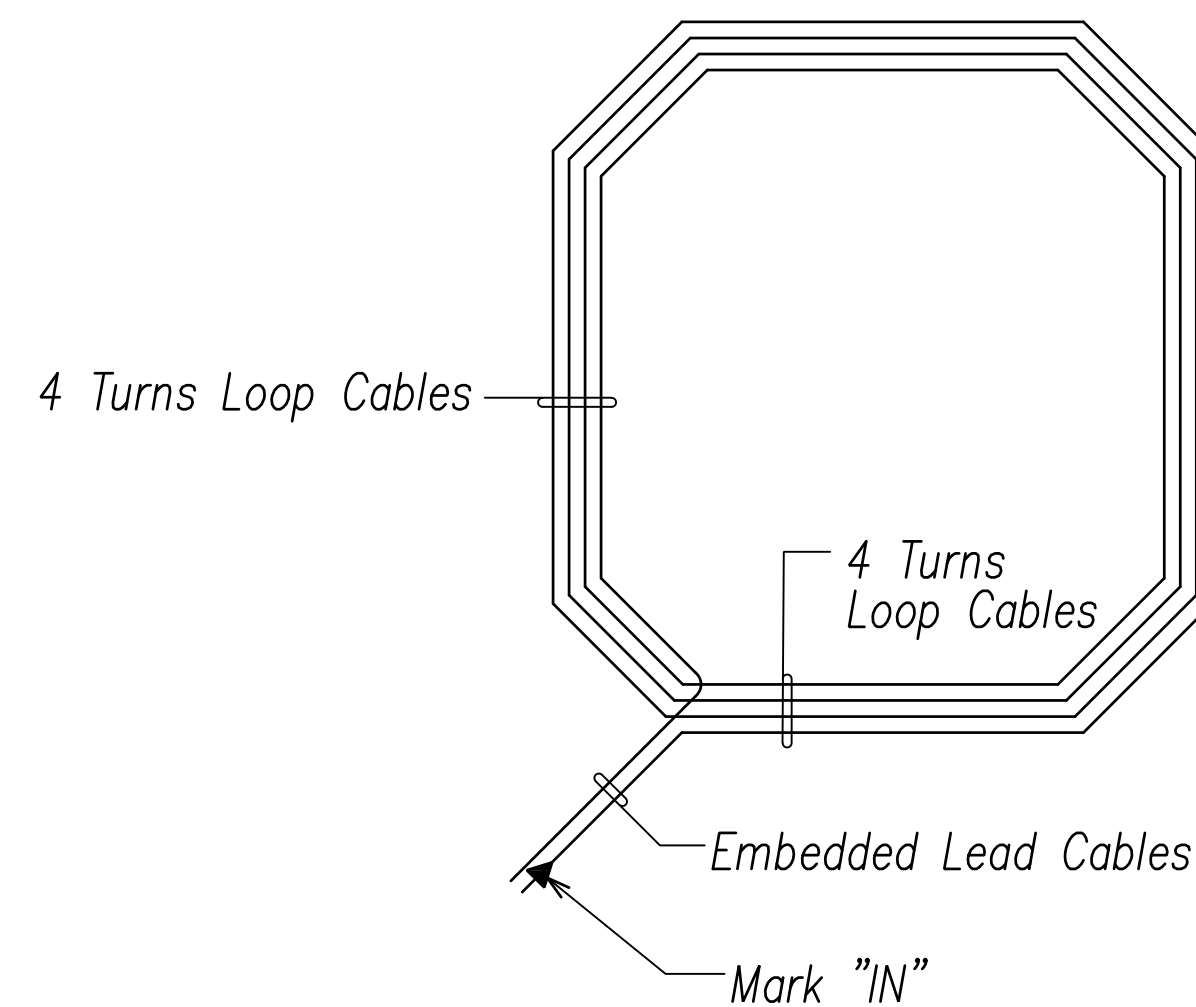
TYPICAL SECTIONS LOOP SENSORS
Not to Scale



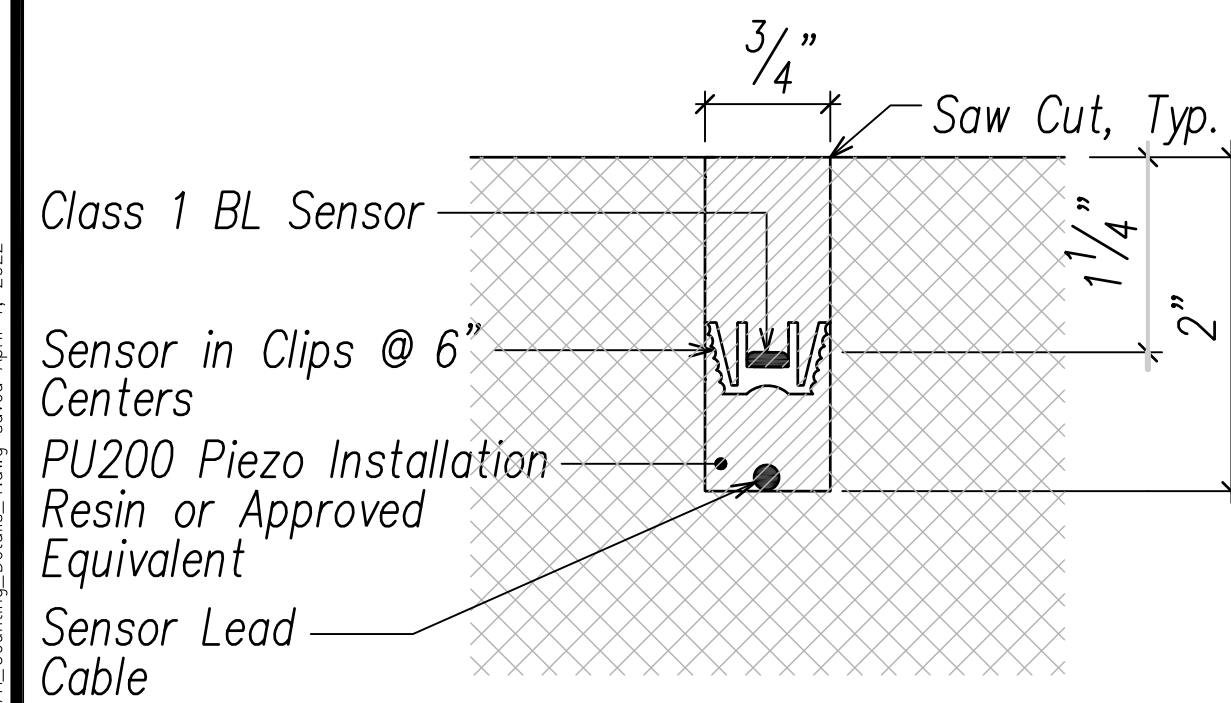
TYPICAL LOOP SENSOR SAW CUT DETAIL
Not to Scale

NOTES ON CONSTRUCTION AT END OF SAW CUT:

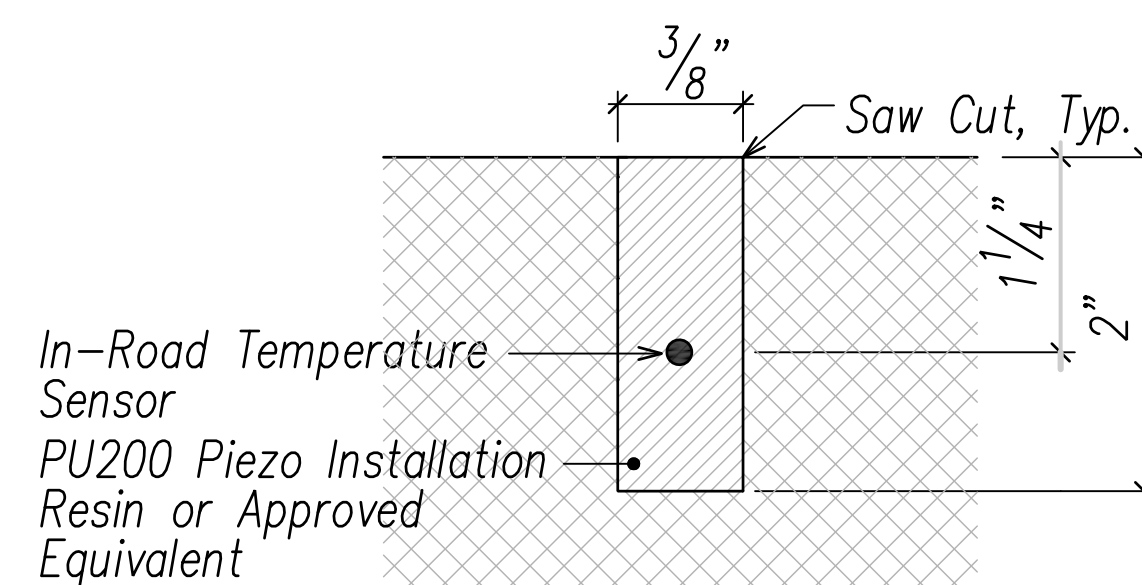
1. Install Bell Ends On Conduit And Seal With Duct Seal Compound After Installation Of Lead Cables.
2. Install Temporary Bulkhead/Dam Across Saw Cut To Keep Sealant In Saw Cut As It Is Placed.
3. Place Loop Sealant, Pu200 Piezo Installation Resin (or Equivalent) In Saw Cut.
4. Place Sand To Cover Exposed Lead Cables And Protect And Separate Them From Backfill.
5. Backfill Over Sand With New A.C. Cold Mix In Stubout Excavation Hole.
6. Reconstruct Shoulder, Curb, And Gutter As Required.
7. Conduit Stubout Should Be Installed At Least 10 Inches From The Edge Of Pavement. If The Depth Of Pavement Is 4 Inches Or Less At The Edge, Conduit Stubout Should Be Installed At Least 12 Inches From The Edge Of Pavement.



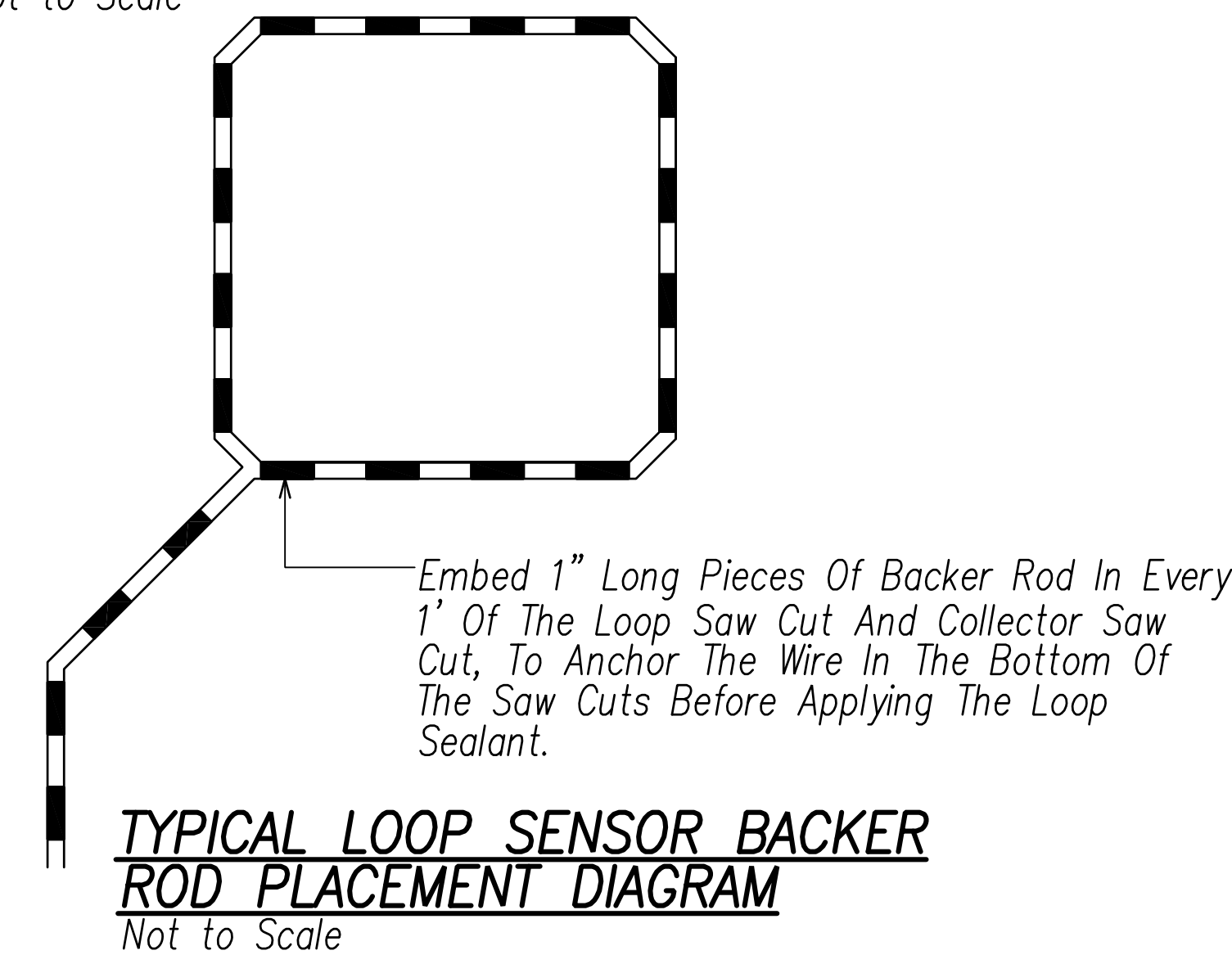
TYPICAL LOOP SENSOR WIRING DIAGRAM
Not to Scale



PIEZO SENSOR SAW CUT SECTION DETAIL
Not to Scale

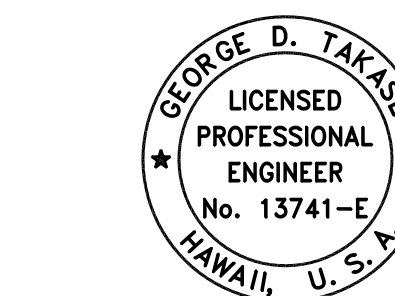


TEMPERATURE SENSOR SAW CUT SECTION DETAIL
Not to Scale



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

FILE: Z:\Work\Projects\220679A\EDL\220679H_Counting_Details.dwg saved April 1, 2022



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Signature: *George D. Takase*

April 30, 2024

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM SENSOR DETAIL

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

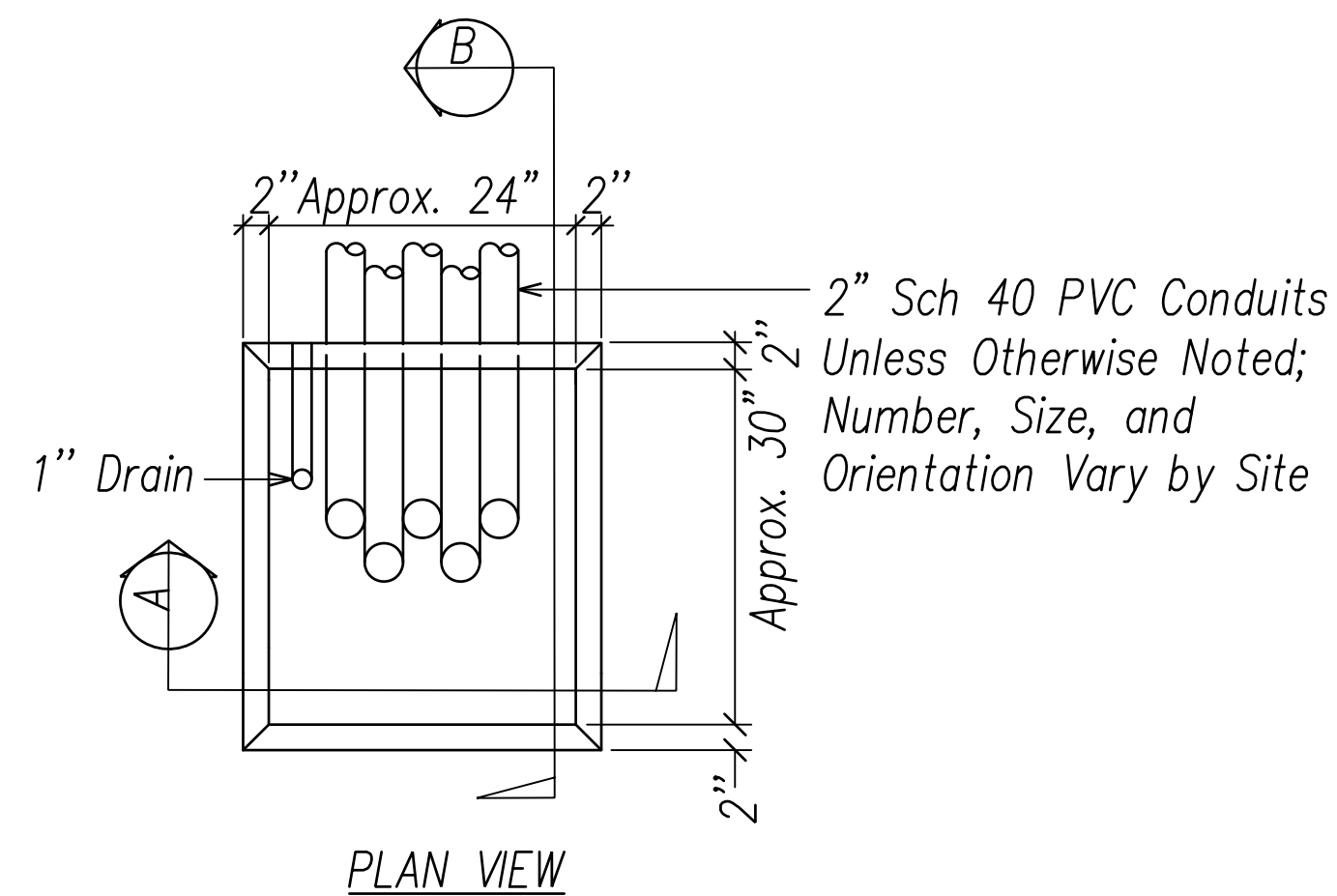
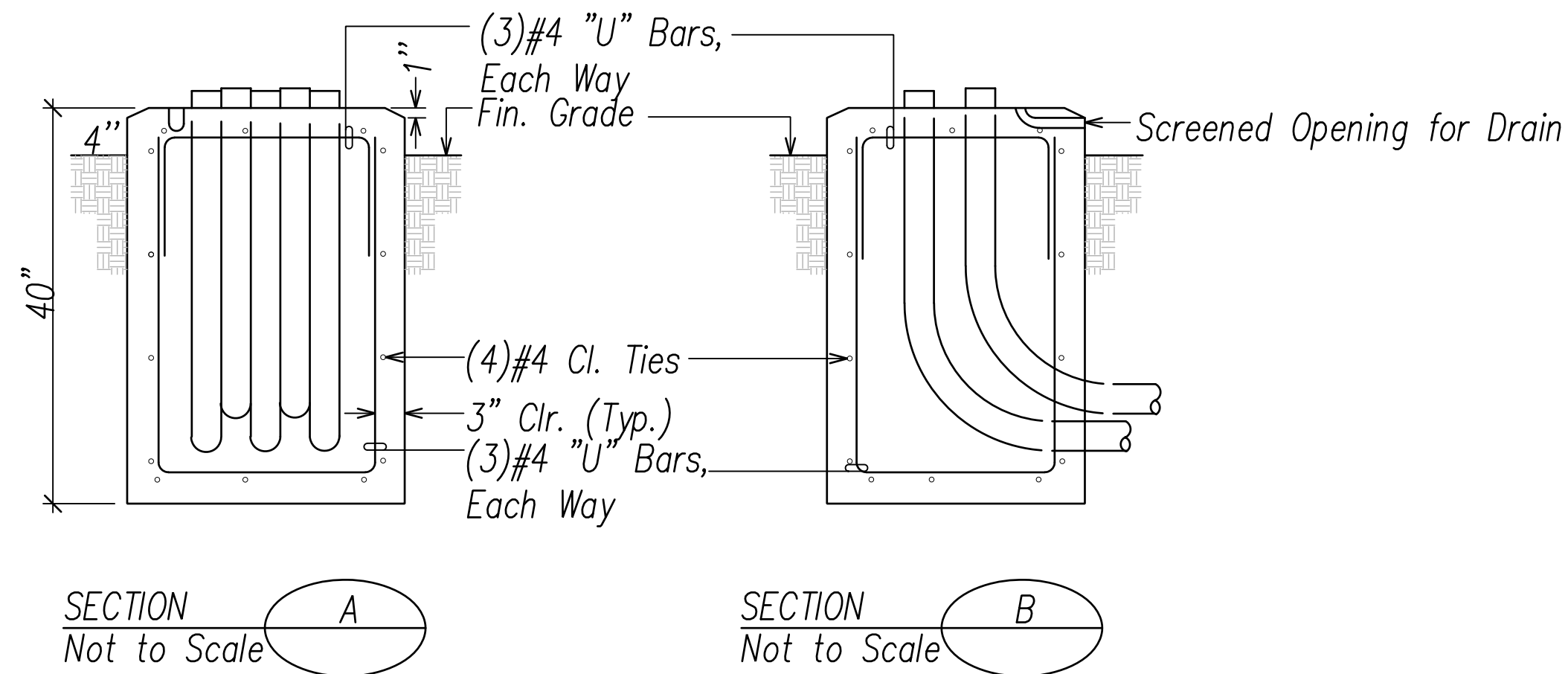
Scale: As Shown Date: April 2022

SHEET No. EI-04 OF 790 SHEETS

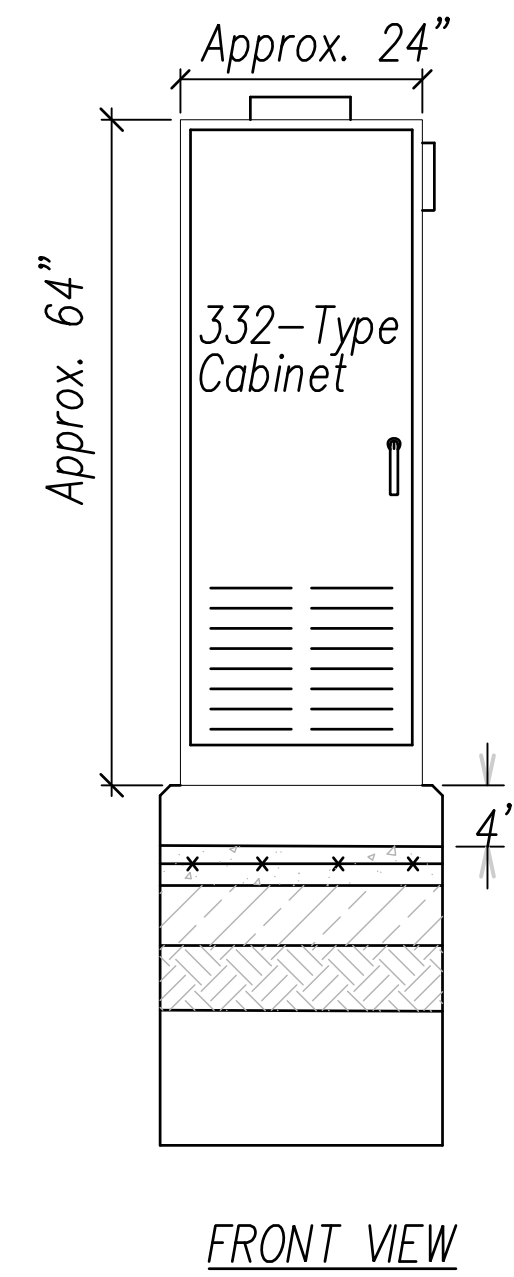
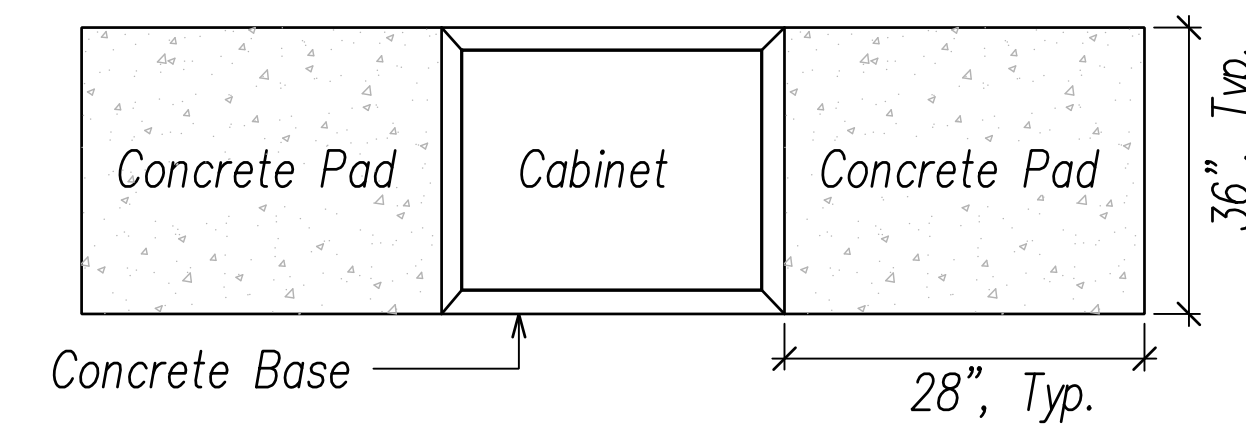
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-05	790

CONCRETE BASE NOTES:

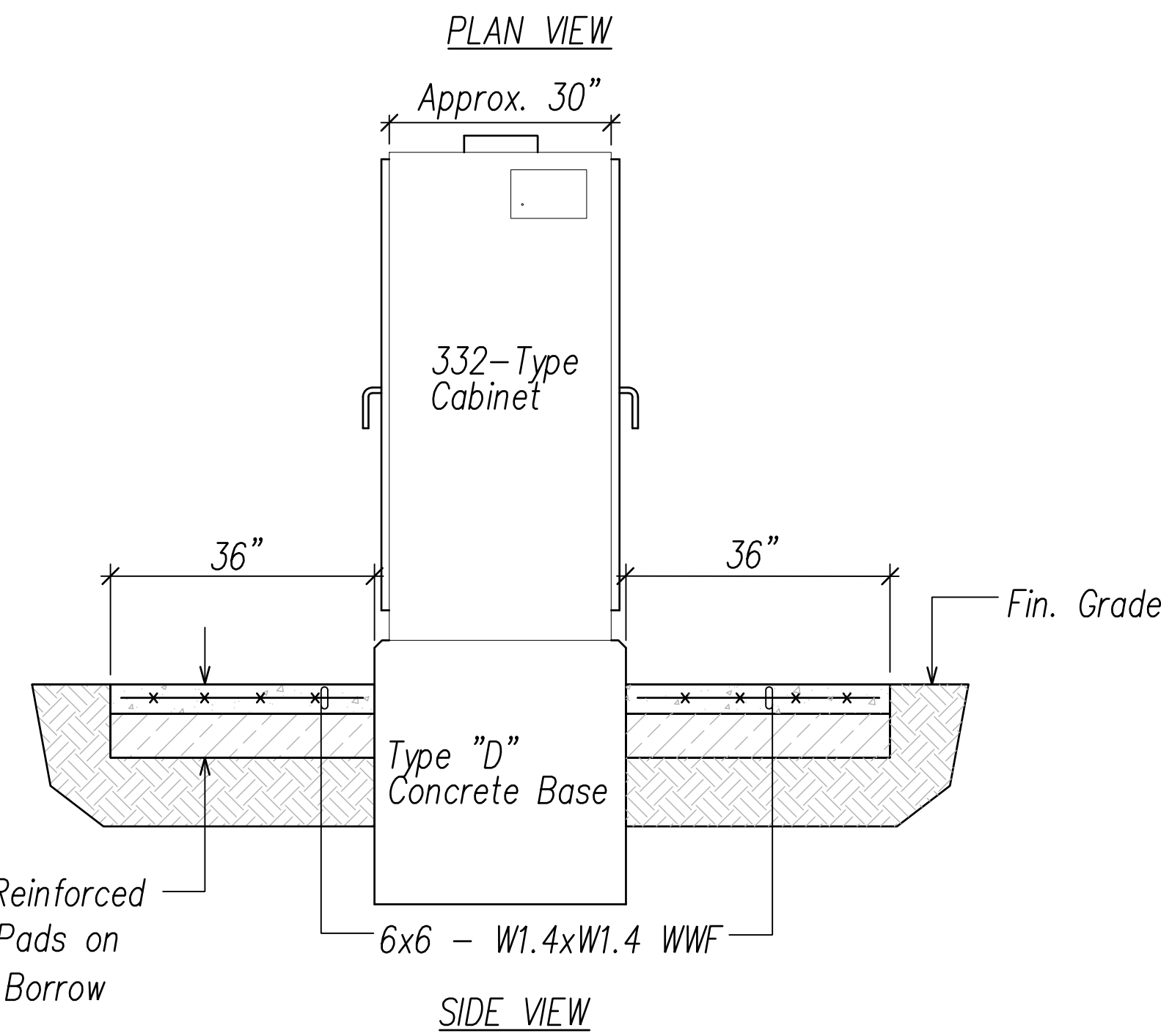
- Concrete Shall Be Class "B".
- Dimensions Shall Be Altered To Suit The Cabinet Actually Furnished.
- Conduits Shall Have Belled Ends Extending No More Than 2" Above The Base.
- Conduit Bends And Drain Are Incidental To The Concrete Base.
- All Exposed Surfaces Of The Concrete Base Shall Have A Class 2, Rubbed Finish.



TYPE "D" CONCRETE BASE
Not to Scale



332-TYPE CABINET
Not to Scale

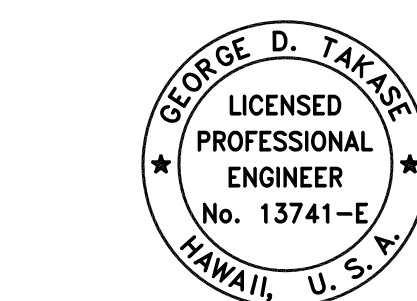


CABINET NOTES:

- Cabinet Shall Be Oriented So That Closed Doors Are Perpendicular To The Road.
- Work Pads Shall Be Class "B" Concrete And Shall Allow View Of Traffic With Doors Open.
- Conduits Shall Have Belled Ends Installed On Their Ends Inside The Cabinet.
- With Belled Ends Installed, Conduits Shall Extend No More Than 2" Above The Base.
- Unused, Spare Conduits Shall Be Provided With A Pull Line And Be Capped Or Sealed.
- Stainless Steel Wedge Anchors (1/2" X 4 1/2") Shall Be Used To Attach Cabinet To Base.
- All Above Ground Exposed Conduits Shall Be PVC-coated Galvanized Rigid Steel Conduits.
- Grounding And Bonding Shall Be Provided That Meets Or Exceeds The Latest NEC Requirements.
- AC Power Shall Be Connected To The Power Strip Mounted On The Inside Of The Cabinet.
- Surge Protection And A Power Interrupt Capability Shall Be Provided For The Cabinet.
- Silicone Caulking Compound Shall Be Used To Seal The Cabinet To The Base.
- Key(s) To The Cabinet Shall Be Provided To The State.

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

FILE: Z:\Mcd\Projects\22067FH\EDS_22067FH_Config_Details_Z.dwg saved April 1, 2022



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

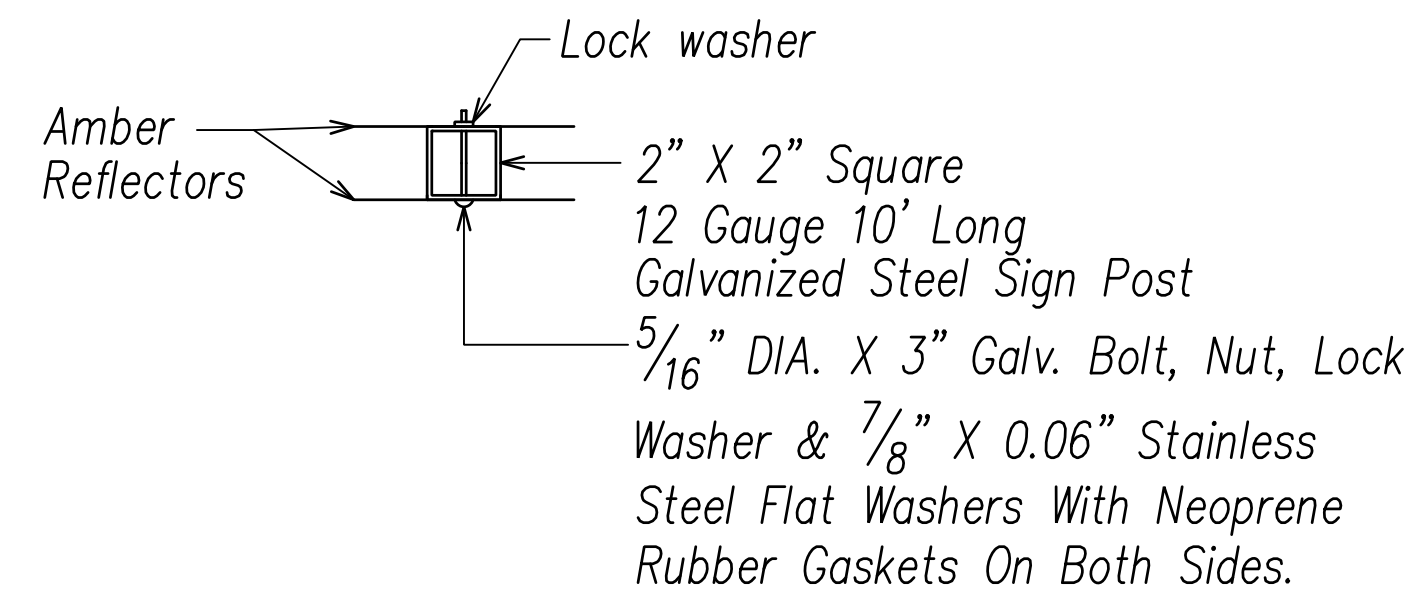
**TRAFFIC COUNTING SYSTEM
CABINET AND FOUNDATION**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

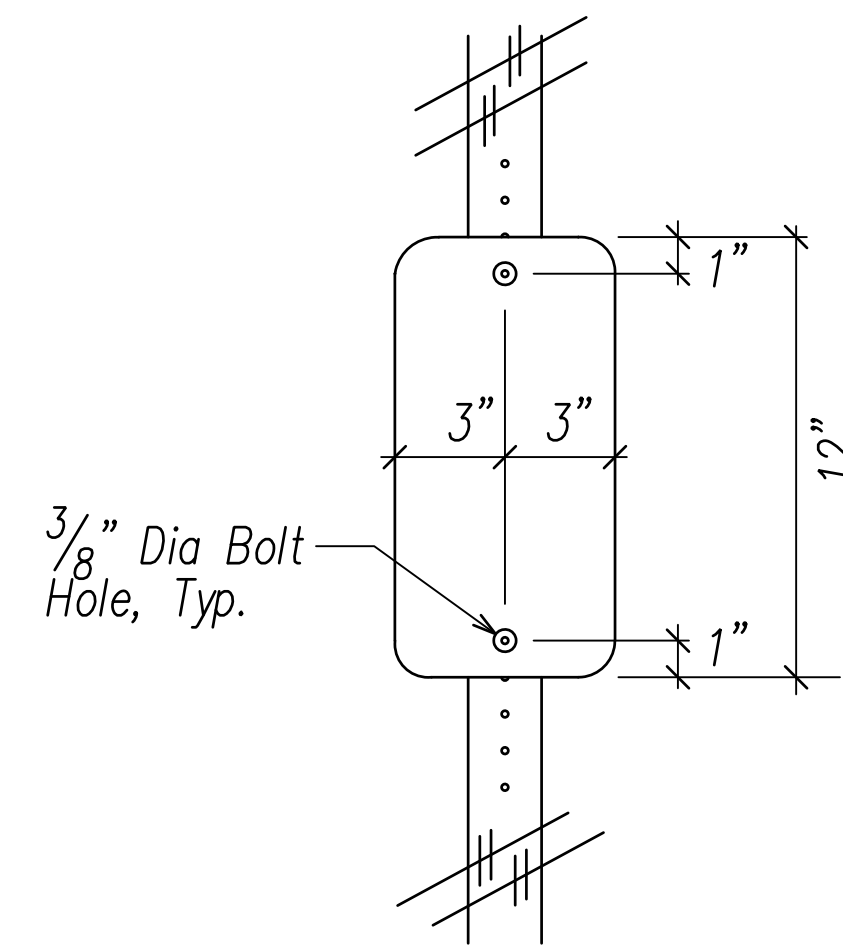
Scale: As Shown Date: April 2022

SHEET No. EI-05 OF 790 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-06	790



PLAN

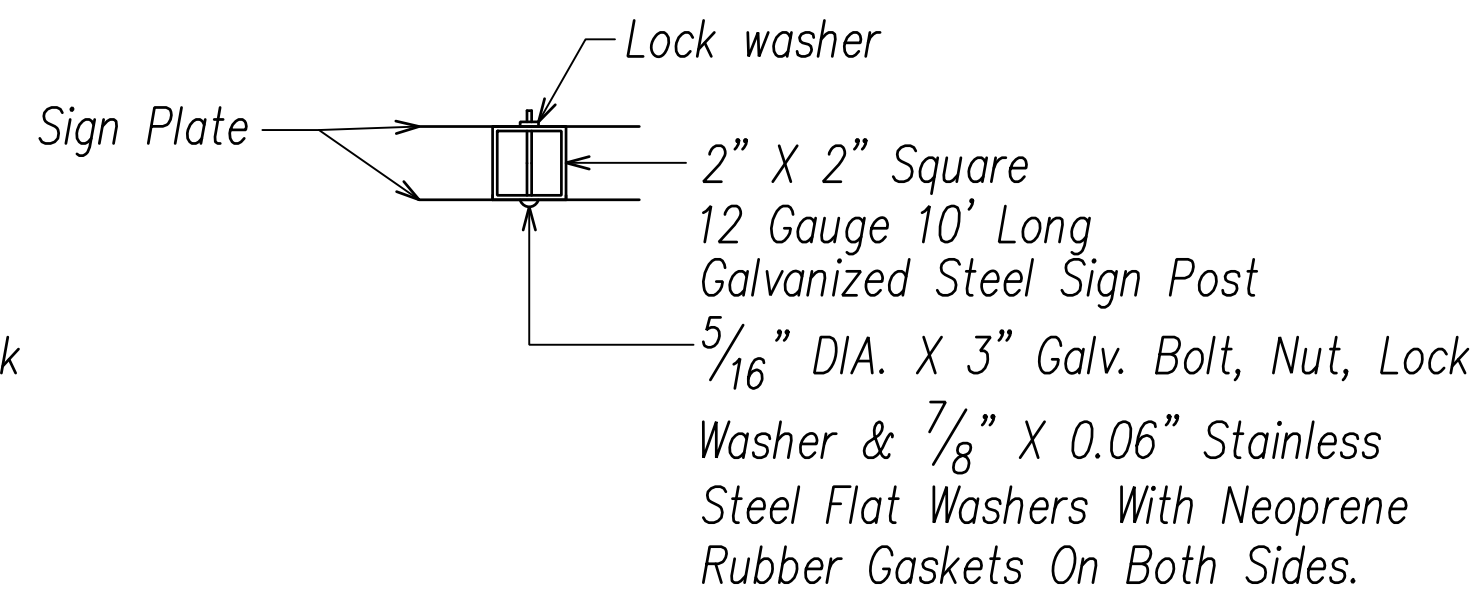


ELEVATION

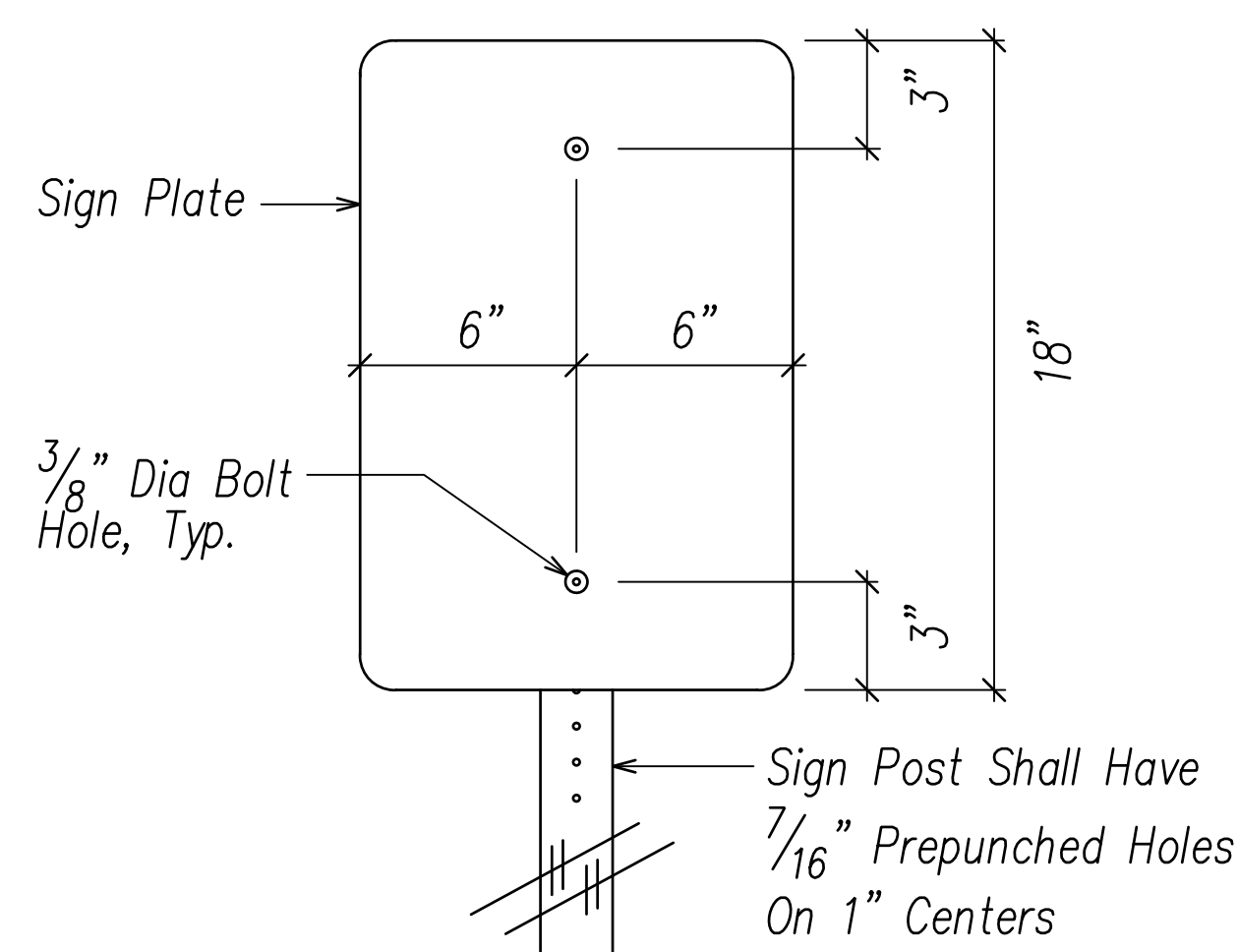
NOTES:

1. Two (2) reflectors shall be mounted back to back, below the warning signs on the same sign post, perpendicular to the roadway and to the warning signs.
2. Bottom of reflectors shall be 4' above finished grade.

TYPE II OBJECT MARKER (REFLECTOR) MOUNTING
Not to Scale



PLAN

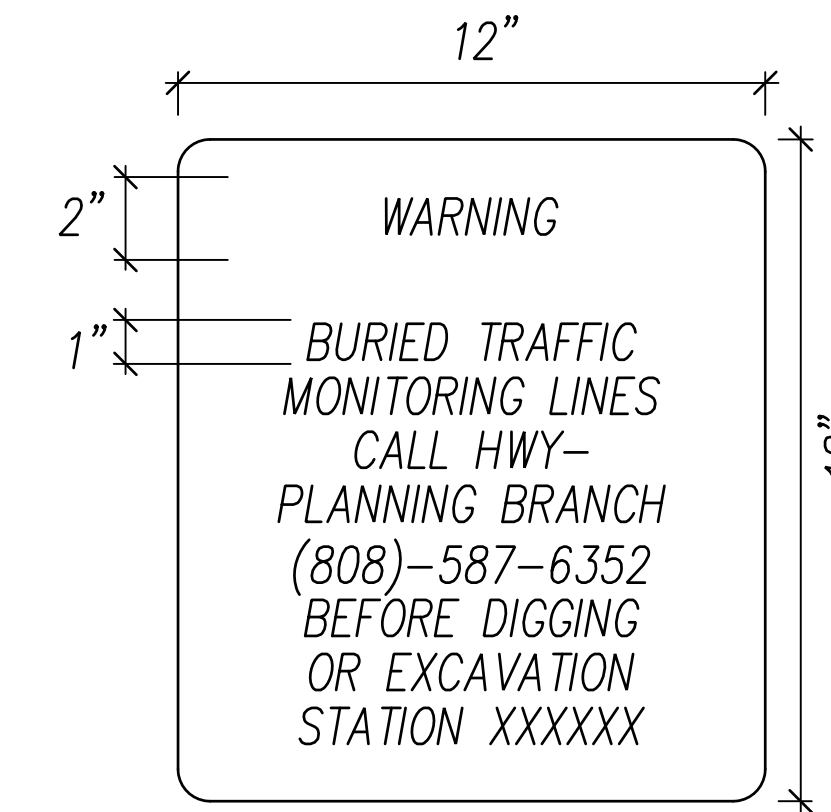


ELEVATION

NOTES:

1. Two (2) warning sign plates shall be mounted back to back, parallel to the roadway.
2. Bottom of signs shall be 8' above finished grade.

WARNING SIGN MOUNTING
Not to Scale



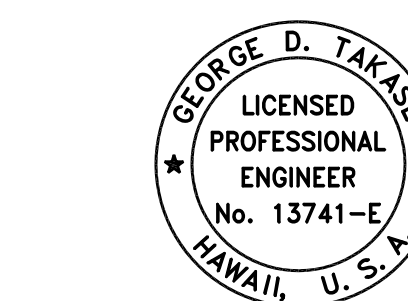
NOTES:

1. Two (2) Warning Signs Shall Be Placed On Each Sign Post Back To Back.
2. Text On Sign Shall Be Centered Both Ways And Shall Be Black Text On Yellow Non-Retro Reflective Background.
3. Include Existing Station Name In Place Of XXXXXX. For New Stations, Leave Blank (Name To Be Added Later When Assigned).

WARNING SIGN DETAIL
Not to Scale

DATE
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
QUANTITIES BY
CHECKED BY
NO.

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Signature: *George D. Takase*
Date: April 30, 2024
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

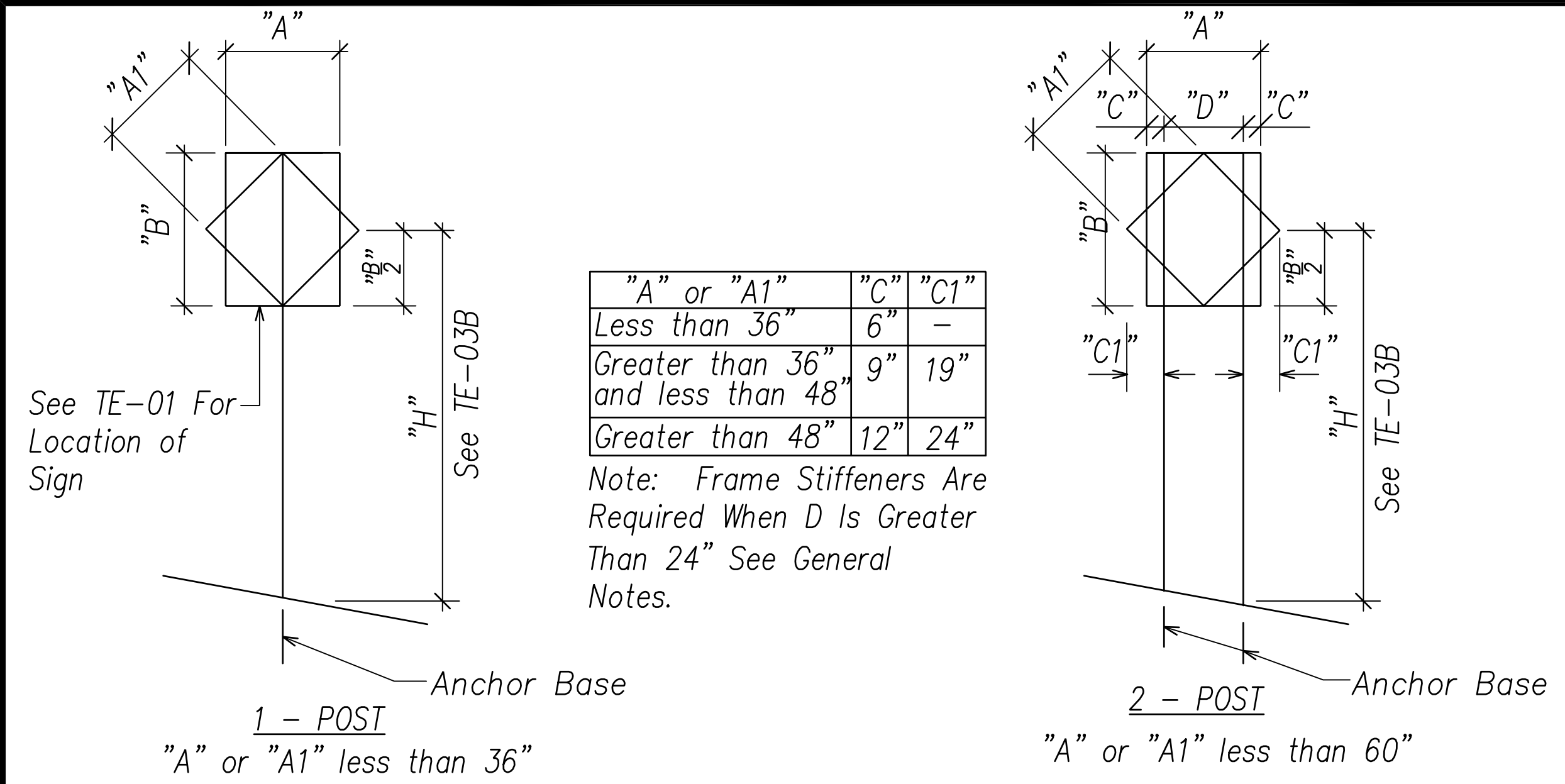
**EVC TRAFFIC COUNTING
SYSTEM WARNING SIGN**

FARRINGTON HIGHWAY WIDENING
Kapolei Golf Course Road to Fort Weaver Road
Project No. 7101A-01-20

Scale: As Shown Date: April 2022

SHEET No. EI-06 OF 790 SHEETS

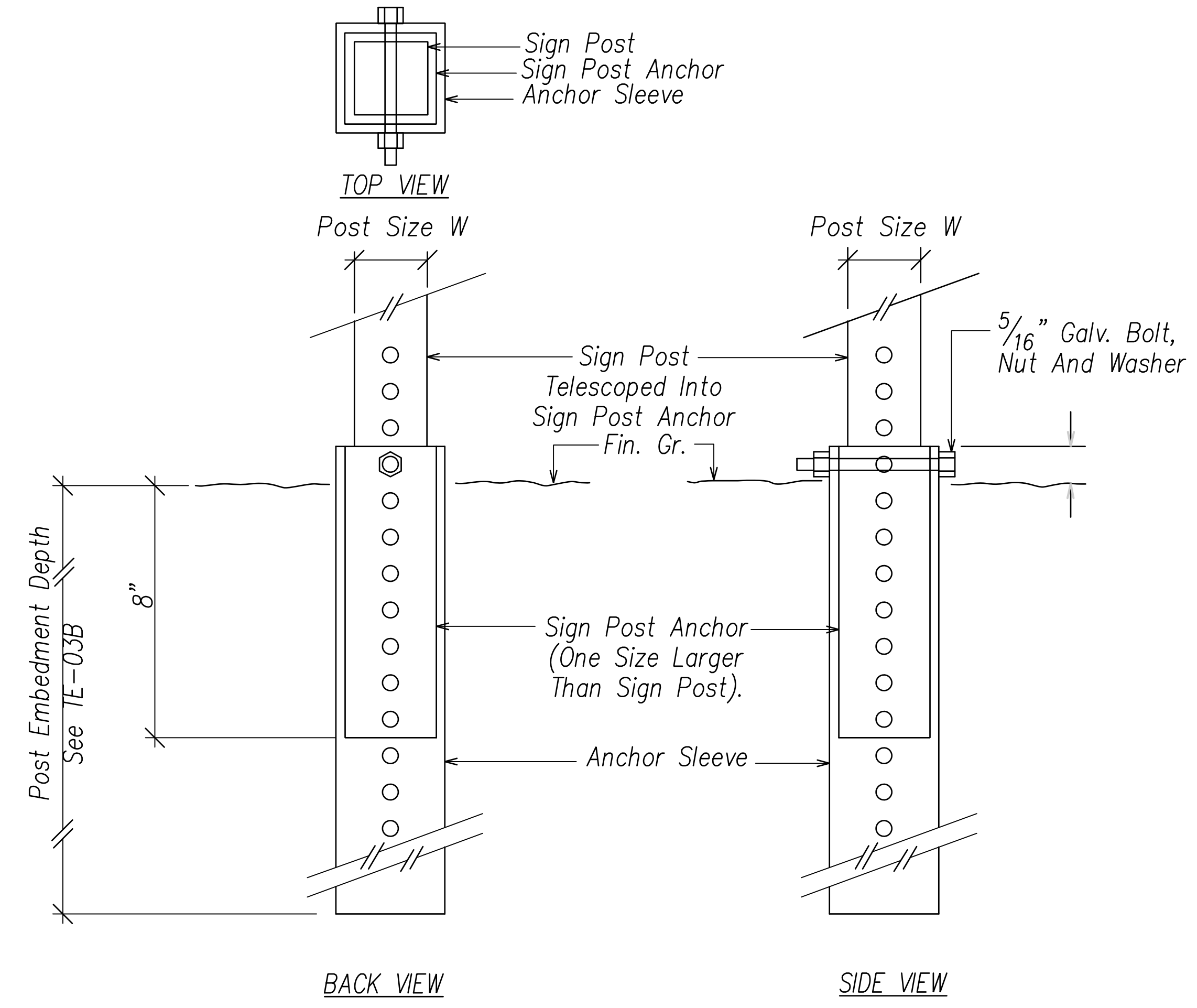
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	710A-01-20	2021	EI-07	790



"A" or "A1"	"C"	"C1"
Less than 36"	6"	-
Greater than 36" and less than 48"	9"	19"
Greater than 48"	12"	24"

Note: Frame Stiffeners Are Required When D Is Greater Than 24" See General Notes.

TYPICAL INSTALLATION
Not to Scale



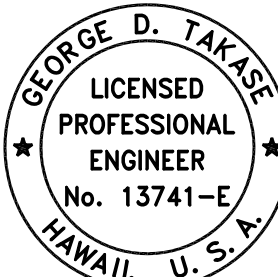
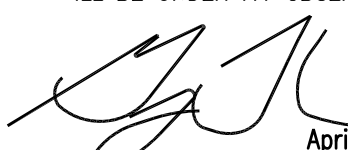
SIGN POST INSTALLATION
ANCHOR BASE DETAIL
Not to Scale

GENERAL NOTES

1. Design Specifications:
 - 1.1. Design Shall Conform with The Latest AASHTO Standard Specifications For The Structural Supports For Highway Signs, Luminaries & Traffic Signals And Its Interim Supplements And Modifications By The Highways Division, Department Of Transportation State Of Hawaii.
 - 1.2. Latest HDOT Memorandum With Subject Title "Design Criteria For Bridges And Structures."
2. Loads:
 - 2.1. Basic Wind Speed: 105 MPH.
 - 2.2. Recurrence Interval Of 10 Years.
3. Materials:
 - 3.1. Post Shall Conform To The Standard Specifications.
 - 3.2. All Connection Bolts Shall Be AASHTO M164 Bolts And Anchor Bolts Shall Be AASHTO M314-105 Bolt.
 - 3.3. Lap Splice Nuts And Bolts Shall Be M180, With An Ultimate Tensile Strength Of 180 KSI, Min
 - 3.4. Aluminum Members And Surfaces In Contact With Structural Steel Shall Be Isolated With Neoprene Material As Approved By The Engineer.
4. General:
 - 4.1. See General Notes On B-01, TE-01, And TE-03b For Additional Information.
 - 4.2. All Posts Shall Be 12 Gage Unless Otherwise Specified Or Shown On The Plans.
 - 4.3. Square Tube Posts Shall Be Perforated With $\frac{1}{8}$ " ~ Holes, 1" O.C., 4 Sides, Along Entire Length Of Post.
 - 4.4. All Accessories, Fittings And Stiffener Details (As Required) Shall Be Submitted To The Engineer For Approval 20 Days Prior To Installation.
 - 4.5. Alternate Designs In Accordance With The Plans And Specifications Shall Use The Service Load Design Method And Shall Be Stamped By A Registered Structural Engineer Of The State Of Hawaii And Submitted To The Engineer For Approval.
 - 4.6. All Sign Support Posts Shall Be Outside Of The Clear Zone Or Shielded By An Appropriate Traffic Barrier System. The Traffic Barrier System Shall Be Submitted To The Engineer For His Approval.
 - 4.7. The Contractor Shall Use Templates While Installing The Anchor Bolts. Anchor Bolts Shall Be Vertical.
 - 4.8. Excavation And Backfill Shall Be Considered Incidental To The Cost Of The Sign Foundation.

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CHECKED BY	
ORIGINAL PLAN	
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 SIGNATURE Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
GALVANIZED SQUARE TUBE SIGN POST MOUNTING
 FARRINGTON HIGHWAY WIDENING
 Kapolei Golf Course Road to Fort Weaver Road
 Project No. 7101A-01-20
 Scale: As Shown Date: April 2022
SHEET No. EI-07 OF 790 SHEETS

APRIL 2022