FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	1	136

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STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

HONOLULU, HAWAII

PLANS FOR

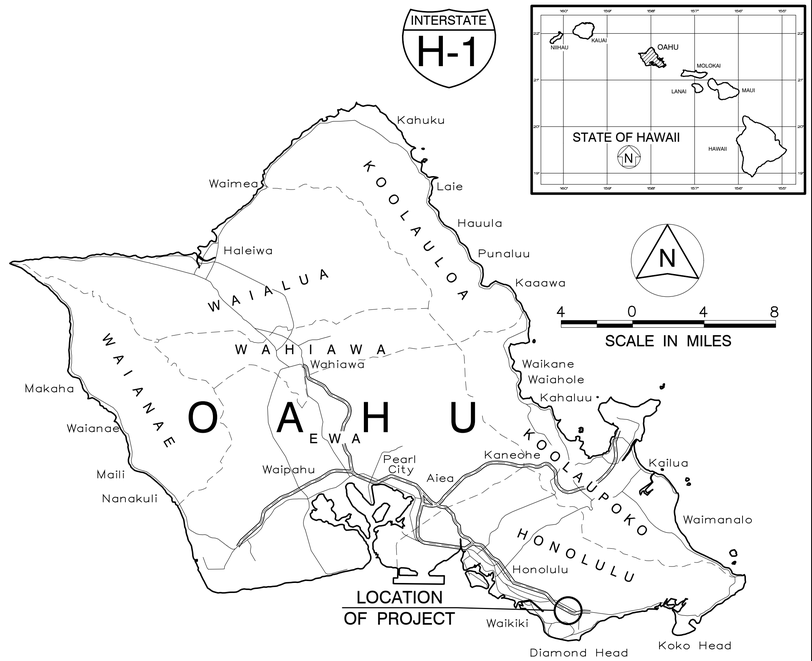
TRAFFIC SIGNAL MODERNIZATION

OAHU - PHASE 2

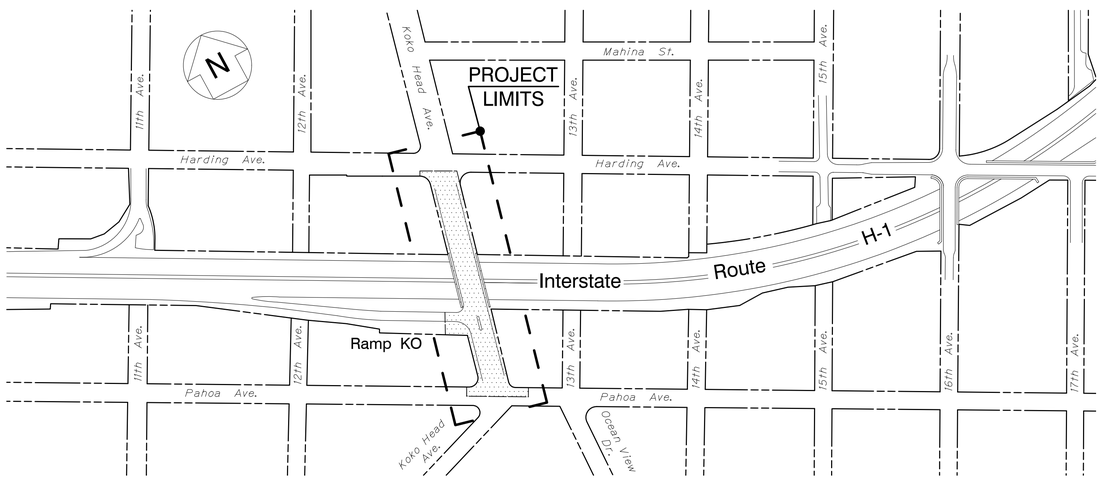
FEDERAL - AID PROJECT NO. STP-0300(213)

DISTRICT OF HONOLULU

ISLAND OF OAHU



Federal Aid Interstate Projects Previously Constructed or Under Construction



DESIGN DESIGNATION

Interstate Route H-1,
Off Ramp to
Koko Head Avenue

2024 ADT	113,900
2044 ADT	133,600
2044 DHV	10,020
Design K	7.5
Design D	60/40
Design T	3.5
T24	4.0

INTERSTATE ROUTE H-1
MILE POST 25.8 TO MILE POST 25.9

The calculated land disturbance area for this project based on the construction plans is 0.17 acres not including Contractor Staging and Storage areas.

GROSS LENGTH OF PROJECT . . . . . 0.333 MILES
NET LENGTH OF PROJECT . . . . . 0.000 MILES

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED:

Sep 11, 2024

for DIR. OF TRANSPORTATION DATE

Aug. 2024 DATE

692-7679 PHONE

HWY-TD MANAGED BY

Engineering Concepts DESIGNED BY

STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	2	136

STANDARD PLAN NO.	TITLE	DATE
B-01	NOTES & MISCELLANEOUS DETAILS	05/31/07
B-03	BACKFILL DETAILS AT EARTH RETAINING STRUCTURES	05/31/07
B-12	PRESTRESSED CONCRETE PILES & COMPRESSION SPLICE	05/31/07
	CAN DETAILS	
B-12A	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION	05/31/07
	SPLICE CAN DETAILS & NOTES	
B-12B	PILE INTERACTION DIAGRAM	05/31/07
B-13	PRESTRESSED CONCRETE PILE BUILD-UP DETAILS	05/31/07
D-01	CATTLE GATE	05/31/07
D-02	CHAIN LINK FENCE WITH TOPRAIL	05/31/07
D-03	CHAIN LINK FENCE WITHOUT TOPRAIL	05/31/07
D-04	WIRE FENCE WITH METAL POSTS	05/31/07
D-05 ●	TYPICAL DETAILS OF CURBS AND/OR GUTTERS	05/31/07
D-06 ●	TYPICAL DETAIL OF REINFORCED CONCRETE DROP DRIVEWAY	05/31/07
D-07	CENTERLINE AND REFERENCE SURVEY MONUMENTS	05/31/07
D-08	STREET SURVEY MONUMENT	05/31/07
D-15 ●	CONCRETE SIDEWALK	05/31/07
D-16	P.C.C. BUS PAD	05/31/07
D-17	P.C.C. BUS PAD	05/31/07
D-18	P.C.C. PAVEMENT LAYOUT	05/31/07
D-19	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-20	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-21	P.C.C. LONGITUDINAL JOINT DETAILS	05/31/07
D-22	P.C.C. CONNECTION TO CURBS AND GUTTERS	05/31/07
D-23 ●	JOINTS	05/31/07
L-01	TREE PLANTING	08/16/06
L-02	TREE PLANTING	08/16/06
L-03	TREE TRANSPLANTING	08/16/06
L-04	PALM PLANTING	08/16/06
L-05	SHRUB PLANTING	08/16/06
L-06	LANDSCAPE DETAILS	08/16/06
L-07	LANDSCAPE DETAILS	08/16/06
L-08	LANDSCAPE DETAILS	08/16/06
L-09	LANDSCAPE DETAILS	08/16/06
L-10	LANDSCAPE DETAILS	08/16/06
L-11	PLANTING NOTES	08/16/06
L-12	IRRIGATION DETAILS	08/16/06
L-13	IRRIGATION DETAILS	08/16/06
L-14	IRRIGATION DETAILS	08/16/06
L-15	IRRIGATION DETAILS	08/16/06
L-16	IRRIGATION DETAILS	08/16/06
L-17	IRRIGATION DETAILS	08/16/06
L-18	IRRIGATION DETAILS	08/16/06
L-19	IRRIGATION DETAILS	08/16/06
L-20	IRRIGATION DETAILS	08/16/06
L-21	IRRIGATION DETAILS	08/16/06
L-22	IRRIGATION DETAILS	08/16/06
L-23	IRRIGATION DETAILS	08/16/06
L-24	IRRIGATION NOTES	08/16/06

STANDARD PLAN NO.	TITLE	DATE
H-01A	TYPE A CATCH BASIN	05/31/07
H-01B	TYPE B CATCH BASIN	05/31/07
H-01C	TYPE C CATCH BASIN	05/31/07
H-01D	TYPE D CATCH BASIN	05/31/07
H-01E	CATCH BASIN SECTIONS	05/31/07
H-02A	TYPE A1 CATCH BASIN	05/31/07
H-02B	TYPE B2 CATCH BASIN	05/31/07
H-02C	TYPE C1 CATCH BASIN	05/31/07
H-02D	TYPE D1 CATCH BASIN	05/31/07
H-02E	CATCH BASIN SECTION	05/31/07
H-03	TYPE A, B, AND C STORM DRAIN MANHOLE	05/31/07
H-04	TYPE D STORM DRAIN MANHOLE	05/31/07
H-05	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-06	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-07	CATCH BASIN AND MANHOLE CASTINGS	05/31/07
H-08	TYPE 1A-9 AND 1A-9P GRATED DROP INLET	05/31/07
H-09	TYPE 2A-9 AND 2A-9P GRATED DROP INLET	05/31/07
H-10	TYPE A-9 OR A-9P STEEL FRAMES	05/31/07
H-11	TYPE A-9 AND A-9P STEEL GRATES	05/31/07
H-12	TYPE 61614P AND 1211214P GRATED DROP INLET	05/31/07
H-13	TYPE 61616P AND 1211216P GRATED DROP INLET	05/31/07
H-14	TYPE 61214P GRATED DROP INLET	05/31/07
H-15	TYPE 1211214, 1211214P, 1211216, 1211216P STEEL	05/31/07
	FRAME AND GRATES	05/31/07
H-16	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME	05/31/07
	AND GRATES	05/31/07
H-17	TYPE 61214 STEEL FRAMES AND GRATES	05/31/07
H-18	TYPE 61214P STEEL GRATES	05/31/07
H-19	TYPE 61614B STEEL FRAME AND GRATES	05/31/07
H-20	CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-21	CONCRETE AND CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-22	INLET/OUTLET STRUCTURE	05/31/07
H-23	INLET/OUTLET STRUCTURE	05/31/07
H-24	FLARED END SECTION FOR CULVERTS	05/31/07
H-25	FLARED END SECTION FOR CULVERTS	05/31/07
H-26	CONCRETE SPILLWAY INLET	05/31/07
H-27	CAP COUPLING DETAILS STANDARD JOINT	05/31/07
H-28	REINFORCED CONCRETE COLLAR & JACKET	05/31/07
H-29	UNDERDRAIN CLEANOUT STEEL FRAME AND COVER	05/31/07
H-30	UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURE	05/31/07
TE-01 ●	SIGN HEIGHT AND LOCATION	07/11/08
TE-01A ●	SIGN INSTALLATION	07/11/08
TE-02A ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-03B ●	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-04 ●	REGULATORY SIGNS	07/11/08
TE-05 ●	WARNING SIGNS	07/11/08
TE-06 ●	MISCELLANEOUS SIGNS	07/11/08
TE-07 ●	CONSTRUCTION SIGNS	07/11/08
TE-08 ●	MISCELLANEOUS INTERSECTION SIGNS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
TE-09	BIKE ROUTE SIGN & SUPPLEMENTARY PLATES	07/11/08
TE-10	INTERSTATE ROUTE MARKER	07/11/08
TE-11	STATE ROUTE MARKER AND AUXILIARY MARKERS	07/11/08
TE-12	STATE ROUTE MARKER AND BORDER DETAIL FOR	07/11/08
	GUIDE SIGNS	
TE-12A	ROUTE SIGN ASSEMBLIES	07/11/08
TE-13	STREET NAME SIGN ON MAST ARM	07/11/08
TE-14 ●	MISCELLANEOUS REFLECTOR MARKERS	07/11/08
TE-15 ●	OBJECT MARKERS	07/11/08
TE-16	MILE POSTS	07/11/08
TE-17A	CANTILEVER OVERHEAD SIGN ELEVATION & DETAILS	05/31/07
TE-17B	CANTILEVER SIGN FRAME DETAIL AND SECTION	05/31/07
TE-17C	CANTILEVER SIGN FRAME DETAIL	05/31/07
TE-17D	CANTILEVER SIGN FRAME SECTION	05/31/07
TE-17E	CANTILEVER SIGN FRAME DETAILS	05/31/07
TE-18A	TWO POST OVERHEAD SIGN FRAME ELEVATIONS	05/31/07
TE-18B	TWO POST SIGN FRAMING PLAN SECTION	05/31/07
TE-18C	TWO POST SIGN FRAMING SECTIONS AND DETAILS	05/31/07
TE-18D	TWO POST SIGN FRAME DETAILS	05/31/07
TE-18E	TWO POST SIGN FRAME DETAILS	05/31/07
TE-19A	OVERHEAD SIGN FRAMING SCHEDULE	05/31/07
TE-19B	SIGN POST DRILLED SHAFT FOUNDATION	05/31/07
TE-19C	SPREAD FOOTING	05/31/07
TE-19D	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.1	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.2	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.3	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.4	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.5	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19E	ANCHORAGE DETAILS	05/31/07
TE-19F	ANCHORAGE DETAILS	05/31/07
TE-19G	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-19H	LUMINAIRE WALKWAY SUPPORT	05/31/07
TE-19J	FIXED MESSAGE LUMINAIRE SUPPORT	05/31/07
TE-19K	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19L	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19M	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-20	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20A	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20B	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20C	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-21A	SIGN BREAKAWAY MOUNTS	05/31/07
TE-21B	SIGN BREAKAWAY MOUNTS	05/31/07
TE-22	LAMINATED ALUMINUM SIGN PANELS (OVERHEAD)	05/31/07
TE-23	LAMINATED ALUMINUM SIGN PANELS (GROUND MOUNTED)	07/11/08
TE-24	SOLID ALUMINUM EXTRUDED SIGN PANEL AND	05/31/07
	ACCESSORY DETAILS	
TE-25	GUIDE SIGNS LUMINAIRE MOUNTINGS	05/31/07
TE-26 ●	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-27 ●	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-28 ●	ENTRANCE AND EXIT PAVEMENT MARKINGS	07/11/08
TE-28A ●	MISCELLANEOUS PAVEMENT MARKINGS	07/11/08
TE-29 ●	PAVEMENT ARROWS AND SYMBOLS	07/11/08
TE-30 ●	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08
TE-31 ●	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
TE-32 ●	TYPE I & II TRAFFIC SIGNAL SYSTEM MISC. DETAILS	05/31/07
TE-33	TYPE II TRAFFIC SIGNAL SYSTEM	08/16/06
TE-33A.1	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-33A.2	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-34 ●	LOOP DETECTOR DETAILS	07/11/08
TE-35	LOOP DETECTORS & DUCT DETAILS	07/11/08
TE-36	TRAFFIC SIGNAL DETAILS	07/11/08
TE-37 ●	PULLBOX & COVER DETAILS	07/11/08
TE-37A	TYPE "A" TRAFFIC PULLBOX	05/31/07
TE-37B	TYPE "A" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37C	TYPE "B" TRAFFIC PULLBOX	05/31/07
TE-37D	TYPE "B" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37E	TYPE "B" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37F	TYPE "C" TRAFFIC PULLBOX	05/31/07
TE-37G	TYPE "C" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37H	TYPE "C" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37J	TRAFFIC PULLBOX COVER AND DETAILS	05/31/07
TE-38	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.1	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.2	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-39	METAL GUARDRAIL CONNECTION TO CONCRETE BARRIER	07/11/08
TE-40	CONCRETE BARRIER TRANSITION	05/31/07
TE-40A	CONCRETE BARRIER TRANSITION SECTIONS	05/31/07
TE-41	GUARDRAIL TYPE 4 (RIGID BARRIER)	05/31/07
TE-42	PORTABLE CONCRETE BARRIER	05/31/07
TE-43	PORTABLE CONCRETE BARRIER	05/31/07
TE-44	GUARDRAIL TYPE 4 MISCELLANEOUS DETAILS	07/11/08
TE-45 ●	BARRICADES	07/11/08
TE-46	DELINEATION & PAVEMENT MARKINGS AT NARROW BRIDGES	07/11/08
TE-47	HIGHWAY LIGHT STANDARD	05/31/07

NOTE:
STANDARD PLANS APPLICABLE TO THIS PROJECT ARE INDICATED BY A " ● " NEXT TO THE STANDARD PLAN NO. (FOR EXAMPLE: D-07 ●)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLANS SUMMARY

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted   Date: July 2024

SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	3	136

GENERAL NOTES

1. The project includes removing portions of existing traffic signal equipment, roadway pavement, curb, gutter, sidewalks, driveways, and curb ramps; installing new traffic signal equipment, curb, gutter, sidewalks, driveways, curb ramps, signing, and pavement markings; relocation of existing irrigation system; restoration of asphalt concrete roadway pavement and landscaping.

2. The Contractor is reminded of the requirements of Subsection 105.16-Subcontracts, which requires him to perform work amounting to not less than 30 percent of the total contract cost less deductible items. Non-compliance with this subsection may be grounds for rejection of bid.

3. The Contractor's attention is directed to the following sections of the special provisions: Subsection 107.06 - Contractor Duty Regarding Public Convenience; Subsection 107.12 - Protection of Persons and Property; and Section 645 - Work Zone Traffic Control.

4. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.

5. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall tone for the exact locations and depths of all underground facilities, either shown on the or omitted from the plans, in areas where work, such as the placement of sign posts, traffic signal conduits, etc. may affect these properties. Toning shall be considered incidental to the various contract items and will not be paid for separately. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

6. The exact pavement locations and limits or areas to be resurfaced or reconstructed shall be determined in the field by the Engineer.

7. The Contractor shall notify the Department of Transportation Services, Public Transit Division at (808) 768-8396 and Oahu Transit Services, Inc. [bus operations: (808) 848-4578 or (808) 848-6016 and para-transit operations: (808) 454-5041 or (808) 454-5020] of scope of work, location, and proposed closure of any street, traffic lane, sidewalk, or bus stop and duration of project at least two (2) weeks prior to construction.

8. The Contractor shall notify the Emergency Medical Services Department, EMS Operations Chief [phone number: (808) 723-7906], one (1) week prior to construction, informing them of location, scope of work, and dates of lane closure(s). For after hours, in case of emergency notify District Chief on duty [phone number: (808) 723-7844].

9. The Contractor shall notify the Honolulu Fire Department, Fire Communication Center [phone number: (808) 723-3473], one (1) week prior to construction, informing them of location, scope of work, and dates of lane closure(s).

10. The Contractor shall notify the Honolulu Police Department, Downtown Police Station, District 7 [phone number: (808) 723-3369], one (1) week prior to construction, informing them of location, scope of work, and dates of lane closure(s).

11. The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.

12. The Contractor shall remove and dispose of all existing raised pavement markers prior to the overlaying of asphalt concrete. This work shall be considered incidental to asphalt concrete pavement, Mix No. IV and will not be paid for separately.

13. Smooth riding connections shall be constructed at all connections between new and existing pavement, sidewalk, ramps, driveway, curb, and gutter.

14. Existing drainage system shall be functional at all times during construction. The Contractor shall furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.

15. The Contractor shall provide for access to and from all existing streets at all times.

16. All saw cutting work shall be considered incidental to the various contract items and not be paid for separately. Removal of slurry generated by all saw cutting work shall be incidental to the contract items and will not be paid for separately.

17. Prime coat/tack coat shall be incidental to the various contract items and will not be paid for separately.

18. Drilling holes and installing dowel reinforcing bars shall be incidental to the various contract items and will not be paid for separately.

19. The Contractor's attention is directed to Subsection 401.03 of the special provisions. All longitudinal and transverse tapers within the traveled way shall be removed prior to commencing and continuing of paving operations.

20. Per Subsection 107.02, the Contractor shall obtain all permits and licenses required to perform the work; and shall be responsible for for identifying, acquiring, and paying for all permits and licenses required to perform the work.

21. The Contractor is reminded that this is a Federal-Aid project and, as such, shall conform to the requirements in Subsection 106.11. For Federal-Aid projects, the major quantities of steel and iron construction material that are permanently incorporated into the project shall consist of American-made materials only in accordance with 23 CFR Subpart 635.410 and 49 CFR 661.

22. The Contractor shall coordinate all lane closures with other projects.

23. Per Subsection 645.03, the Contractor shall furnish a minimum of two (2) police officers, unless otherwise requested by the State.

24. The Contractor shall not do operations involving traffic lane closures or slow down of traffic during the following peak hours:

    Morning peak hours - 6:30 a.m. to 8:30 a.m.

    Afternoon peak hours - 3:00 p.m. to 6:00 p.m.

    Exceptions to the above peak hours, as required by the contract documents, shall require the acceptance of the Engineer.

25. The Contractor may use Figures 1 through 7 in Section 645 of the Hawaii Standard Specifications for Road and Bridge Construction, 2005, if necessary, in addition to the traffic control plans on sheets 137 through 149.

26. Traffic signal systems shall remain operational at all times during construction. Existing traffic signal standards, vehicle signal heads, and pedestrian signal heads may be removed ONLY after new equipment is operational.

27. All work specified in the Contract but not listed separately in the Proposal Schedule shall be considered incidental to the various contract items and shall not be paid for separately.

28. All materials shall be new and free from defects, such as rust, damage, or corrosion. The Engineer will determine acceptability. No payment will be made for material that is not accepted by the Engineer. Removed signs or guardrails shall not be reused.

29. The Contractor shall be responsible for coordinating with the HDOT Surveyor and referencing monuments prior to disturbance of survey monuments. All survey monuments disturbed or destroyed by the Contractor shall be reinstalled at no cost to the State. Only licensed State of Hawaii Land Surveyor's shall reinstall monuments.

30. In the event subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes are identified during the demolition and/or construction work, the Contractor shall cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division, at (808) 692-8015.

31. The Contractor shall provide oversight for quality control of work. The Contractor shall submit copies of all measurements and test results to the Engineer on a weekly basis. This includes compaction, density, survey, drill shaft, and pavement quality results.

32. The Contractor shall indemnify and be solely responsible for the protection of adjacent properties, utilities, and existing structures from damage due to construction. Repairing any damages to the satisfaction of the Engineer shall be at the Contractor's own expense.

33. The Contractor shall comply with utility coordination requirements per Standard Specification Section 104.11. As part of coordination requirements, the Contractor shall include the Engineer in all email correspondences with utilities, facilities, and agencies

34. The Contractor shall verify the presence of existing utilities which may conflict with construction activities and shall coordinate with utility companies for temporary relocation as necessary. All costs associated with the temporary relocation shall be borne by the Contractor.

35. The Contractor shall inform the Engineer of all scheduled work to facilitate inspection per Subsection 105.11 - Inspection of the Work and Materials. See schedule requirements in Subsections 108.06 - Progress Schedules and 108.07 - Weekly Meetings. Failure to inform the Engineer shall result in withholding payment or the work being considered unauthorized and subject to Subsection 105.12 - Removal of Non-Conforming and Unauthorized Work.

36. The Contractor shall allow access to all materials that will be used in the project for inspection and/or testing (this includes, but is not limited to, access to the Contractor's or Subcontractor's baseyards, manufacturers' yards, production plants, and separate storage areas). The Engineer reserves the right to reject any material for which access or inspection is not allowed.

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted   Date: July 2024

SHEET No. 1 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	4	136

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY

1. The Contractor shall obtain a permit to perform work upon State highways from the Oahu District Engineer, State Highways, at 727 Kakoi Street, prior to commencement of work within State highway right-of-way.

2. Construction and restoration of all existing highway facilities within the State's right-of-way, including the Legal Relations and Responsibility to the Public, shall be in accordance with the current Hawaii Standard Specifications for Road and Bridge Construction, 2005, and the Specifications for Installation of Miscellaneous Improvements within State Highways, of the State Highways Division.

3. Work may be performed only between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except holidays, unless otherwise permitted by the District Engineer.

   During work hours, only one lane of traffic shall be closed, unless otherwise approved in writing by the District Engineer.

   At certain locations, "No Lane Closure" will be allowed during the "Back to School Jam", Thanksgiving weekend, Christmas/New Year period and at other times as directed by the Highways Division.

4. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones, and other protective facilities, and shall take all necessary precautions for the protection, convenience, and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highway Administration "Manual on Uniform Traffic Control Devices, Part 6 - Temporary Traffic Control".

   Lane closures shall conform to the traffic control plans incorporated into these construction plans and must be approved by the Division prior to the issuance of the permit.

5. No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way, except at locaions designated in writing and approved by the District Engineer.

6. Compaction tests shall be taken in accordance with the specifications for installation of miscellaneous improvements within State highways, as follows:

   a. Subbase: One (1) compaction test per lift per 1,000 square feet of roadway.

   b. Base Course: One (1) compaction test per lift per 1,000 square feet of roadway.

   c. One (1) compaction test per 300 lineal feet of trench.

   d. A copy of the test results shall be submitted to the Resident Engineer.

7. Prior to commencing trench excavation work, the Contractor shall take a profile along the centerline of the proposed utility trench. This information shall be used in the verification of restoring the roadway to its original condition. A copy of the profile shall be submitted to the District Engineer.

8. The Contractor shall provide an adequate and safe non-skid bridging material, including shoring, over trenches in pavement areas. The bridging shall be able to support all types of vehicular traffic.

9. Unless otherwise noted, no trench shall be opened more than 300 feet in advance of installed and tested pipeline and/or duct line.

10. Existing drainage systems shall be functional at all times.

11. The Contractor shall exercise care to minimize damages to existing highway improvements. All damages shall be repaired by the Contractor, at his expense, to the satisfaction of the District Engineer.

12. All regulatory, guide and construction signs and barricades shall have a high-intensity reflective background.

13. The Contractor shall submit requests for detours and lane closures in accordance with Hawaii Standard Specification Subsection 645.03(F) and with the minimum time frames required for implementation. Once the request has been approved by HDOT, the Contractor shall provide written Weekly Lane Closure Request to the HDOT Construction field office at least one (1) week prior to commencing work.

14. Driveways shall be kept open unless the owners of the property using these right-of-way are otherwise provided for satisfactorily.

15. Where pedestrian walkways exist, they shall be maintained in a safe and passable condition or other facilities for pedestrians shall be provided. Passages between walkways at intersections shall likewise be provided. All walkways shall conform to the ADA requirements.

16. The Contractor shall reference, to the satisfaction of the District Engineer, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic signs, posts and pavement markings disturbed by his activities, at his expense, unless directed otherwise by the District Engineer or his representative.

17. The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense.

18. The Contractor shall notify the State Highway's highway lighting supervisor [(808) 837-8056] one (1) week prior to commencing work.

19. The Contractor shall notify the City Department of Transportation Services, Traffic Signal Engineer [(808) 523-4589], one (1) week prior to any signalization intersection work.

20. Traffic signals shall be kept operational during construction. Temporary operational microwave or other approved detection devices shall be installed one (1) week prior to any signalization intersection excavation work. All work shall be done in accordance to the requirements of the Department of Transportation Services, City and County of Honolulu, and paid for by the Contractor.

21. The Contractor shall notify the Department of Transportation Services, Public Transit Division at (808) 768-8396 and Oahu Transit Services, Inc. [bus operations: (808) 848-4578 or (808) 848-6016 and para-transit operations: (808) 454-5041 or (808) 454-5020] of scope of work, location, and proposed closure of any street, traffic lane, sidewalk, or bus stop and duration of project at least two (2) weeks prior to construction.

22. The permit to perform work upon State Highways may be revoked because of default in any of the following, but not limited to, conditions:

    a. Work performed before or after permitted hours.

    b. Failure to maintain roadway surfaces in a smooth and safe condition.

    c. Failure to clean up construction debris generated from project work.

    d. Failure to provide proper traffic control.

    e. Failure to replace damaged pavement markings and signs.

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 2 OF 15 SHEETS

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	5	136

NOTES FOR CONSTRUCTION W/IN STATE ROW (Continued)

23. The Contractor shall notify the HDOT Construction field office in writing at least one week of all upcoming work. This work shall include any backfilling and compacting trench material; any placing and compacting of base course material; and any paving operations. Any trench restoration work performed by the Contractor that is not witnessed by a State representative will required to be removed and restored with a State representative present. All restoration work will be at the Contractor's expense.

24. Temporary cold mix trench patches will be permitted in any given area for a maximum duration of two weeks, and shall be a minimum of 2 inches thick. All temporary patches shall be placed over properly placed and compacted backfill and base course layers. Contractor shall be responsible for maintaining all temporary patches and to make repairs to unsatisfactory patches within 24 hours.

25. The Contractor will make every effort to minimize the use and the duration of use of steel plates. All steel plates shall have a non-skid surface. The State may require the backfilling and patches of trenches due to the excessive usage of steel plates.

26. Plastic marking tape. Provide plastic marking tape that is acid and alkali resistant polyethylene film 6 inches wide with minimum thickness of 0.004 inch. Provide tape with minimum strength of 1,750 PSI lengthwise and 1,500 PSI crosswise. Manufacture tape with integral wires, foil backing or other means to enable detection by a metal detector when tape is buried up to 3 feet deep. Manufacture tape specifically for marking and locating underground utilities. Provide the metallic core of the tape encased in a protective jacket or provided with other means to protect it from corrosion. Conform to the following tape color and bear a continuous printed inscription describing the specific utility.

    Red: Electric

    Yellow: Gas, oil & dangerous materials

    Orange: Telephone, telegraph, television, police & fire communications

    Blue: Water systems

    Green: Sewer systems

27. The Contractor shall place an advertisement in the newspaper for the temporary road closure. The "Notice to Motorist" shall be placed in the Honolulu Star Advertiser for three consecutive days within one week before the temporary lane closures. The "Notice to Motorist" shall be in accordance with the current Hawaii Standard Specifications for Road and Bridge Construction, 2005, Subsection 107.06 - Contractor Duty Regarding Public Convenience and Subsection 645.03(H) - Advertisement. The "Notice to Motorist" advertisement shall be incidental to lump sum traffic control item 645.1000 - Traffic Control and shall not be paid for separately unless otherwise directed by the Engineer.

ABBREVIATIONS

A.C.	Asphalt Concrete
Approx.	Approximate
℄	Base Line
BC	Bottom of Curb
BW	Bottom of Wall
Blvd.	Boulevard
℄	Center Line
Ch	Chord
C & C	City & County of Honolulu
Clr.	Clear
Conc.	Concrete
CMU	Concrete Masonry Unit
CRM	Concrete Rubble Masonry
Demo.	Demolition
Dept.	Department
Det.	Detail
DOT	Dept. of Transportation
Dwy.	Driveway
E.W.	Each Way
Elev.	Elevation
ESCP	Erosion and Sediment Control Plan
Exist.	Existing
Ex.	Existing
G	Gutter
Ft.	Feet
HECO	Hawaiian Electric Co.
HMA	Hot Mix Asphalt
HTCO	Hawaiian Telcom
Hwy.	Highway
Inv.	Invert
Irr.	Irrigation
Lc	Length of Curve
LF	Linear Feet
Lt.	Left
Max.	Maximum
Min.	Minimum
Mon.	Street Monument
No.	Number
o.c.	On Center
O.D.	Outside Diamenter
o/s	Offset
P	Top of Pavement
Pav't	Pavement
PPB	Pedestrian Push Button
P.C.	Point of Curvature
PCC	Portland Cement Concrete
P.O.C.	Point on Curve
P.T.	Point of Tangency
℄	Property Line
R	Radius
Rd.	Road
Rt.	Right
ROW	Right-of-Way
R/W	Right-of-Way
Sht.	Sheet
Shldr.	Shoulder
St.	Street
Sta.	Station
Std.	Standard
T	Tangent
Thk.	Thick
TMK	Tax Map Key
TC	Top of Curb
TW	Top of Wall
Trans.	Transition
Typ.	Typical
WWF	Welded Wire Fabric

LEGEND

–e–oh–	Existing Electrical Overhead Line
——e——	Existing Electrical Duct
○jp	Existing Joint Utility Pole
○emh	Existing Electrical Manhole
——t——	Existing Telephone Duct
○tmh	Existing Telephone Manhole
—catv—	Existing Cable TV Duct
——w——12	Existing 12" Water Line
○wmh	Existing Water Manhole
○arv	Existing Water Air Relief Valve
●wv	Existing Water Valve
☒wm	Existing Water Meter
——s——12	Existing 12" Sewer Line
◎smh	Existing Sewer Manhole
——g——4	Existing 4" Gas Line
○gv	Existing Gas Valve
◎mon	Existing Monument
——d——24	Existing 24" Drain Line
○dmh	Existing Storm Drain Manhole
▥gdi	Existing Grated Drop Inlet
cb	Existing Catch Basin
○	Existing Traffic Sign
——sl——	Existing Street Light Duct
slpb	Existing Street Light Box
sl	Existing Highway Lighting Standard
tss	Existing Traffic Signal Standard
tspb	Existing Traffic Signal Pullbox
	"
A	"
B	"
C	"
	Existing Guardrail

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	6	136

WATER POLLUTION AND EROSION CONTROL NOTES

A. GENERAL:

1. *See Special Provisions Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment. In addition, Appendix A lists potential pollutant sources and corresponding BMPs used to mitigate the pollutants.*

2. *Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, "applicable bid documents" include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.*

3. *Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standard and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.*

4. *The Engineer may assess liquidated damages of up to $27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.*

5. *The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.*

6. *If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.*

7. *Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 21 calendar days of date of award. The Site-Specific BMP Review Checklist may be obtained from http://www.stormwaterhawaii.com.*

B. WASTE DISPOSAL:

1. *Waste Materials*

   Collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the Engineer. The Contractor shall be responsible for seeing that these procedures are followed. Submit the Solid Waste Disclosure Form from Construction Sites to the Engineer within 21 calendar days of date of award. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.

2. *Hazardous Waste*

   Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.

3. *Sanitary Waste*

   Collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. *For projects with a NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.*

2. *For projects without a NPDES Permit for Construction Activities, inspect all control measures weekly.*

3. *Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "Immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.*

4. *Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.*

5. *Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.*

6. *Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.*

7. *Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.*

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 4 OF 15 SHEETS

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	7	136

WATER POLLUTION AND EROSION CONTROL NOTES (Continued)

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES (continued):

8. Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold-planed materials, dirt or rock tracked from the site. Do not hose down the street without containing or vacuuming wash water. Cover dump trucks hauling materials from the construction site with a tarpaulin. Remove sediment tracked onto the street, sidewalk, or other paved area by the end of the day in which the track-out occurs.

9. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

10. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

11. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

12. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Do not allow discharge into the drainage system or State waters.

13. For projects with a NPDES Permit for Construction Activities, immediately initiate stabilizing exposed soil areas upon completion of earth-disturbing activities for areas where earth-disturbing activities have permanently or temporarily ceased. Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future. For construction areas discharging into waters not impaired for nutrients sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities. For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities. Classification of water at the discharge point may be found in the SWPPP.

14. For project without an NPDES Permit for Construction Activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete
Detergents
Paint (enamel and latex)
Metal Studs
Tar
Fertilizers
Petroleum Based Products
Cleaning Solvents
Wood
Masonry Block
Herbicides and Pesticides
Curing Compounds
Adhesives

b. Used Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.

c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.

d. Keep products in their original containers with the original manufacturer's label.

e. Do not mix substances with one another unless recommended by the manufacturer.

f. Whenever possible, use a product up completely before disposing of the container.

g. Follow manufacturer's recommendations for proper use and disposal.

h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan

a. Keep products in original containers unless they are not resealable.

b. Retain original labes and Safey Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS).

c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

3. Onsite and Offsite Product Specific Plan

The following product specific practices shall be followed onsite:

a. Petroleum Based Products:

Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.

b. Fertilizers:

Apply fertilizers used only in the minimum amounts recommended by the manufacturer and Federal, State, and local requirements. Avoid applying just before a heavy rain event. Apply at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth. Once applied, work fertilizer into the soil to limit exposure to storm water. Do not apply to storm conveyance channels with flowing water. Storage shall be in a covered shed or in an area where fertilizer will not come into contact with precipitation or stormwater. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.

c. Paints:

Seal and store all containers when not required for use. Do not discharge excess paint to the drainage system, sanitary sewer system, or State waters. Dispose properly according to manufacturers' instructions and State and local regulations.

d. Concrete Trucks:

Washout or discharge concrete truck drum wash water only at a designated site as far as practicable from storm drain inlets or State waters. Do not discharge water in the drainage system or State waters. Disposal by percolation is prohibited. Clean disposal site as required or as requested by the Engineer.

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STATE OF HAWAII
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HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 5 OF 15 SHEETS

7

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	8	136

WATER POLLUTION AND EROSION CONTROL NOTES (Continued)

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES (continued):

4. Spill Control Plan

a. Post a spill prevention plan to include measures to prevent and clean up each spill.

b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area on a weatherproof bulletin board or other accessible location acceptable to the Engineer and in the office trailer onsite.

c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and location of the information and cleanup supplies.

d. Keep ample materials and equipment necessary for spill cleanup in the material storage area onsite.

e. Clean up all spills immediately after discovery.

f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, the Contractor shall notify the Engineer as soon as the Contractor has knowledge of the discharge. The Engineer will notify the National Response Center (NRC) at (800) 424-8802, the Clean Water Branch during regular business hours at (808) 586-4309, and the Hawaii State Hospital Operator at (808) 247-2191 and the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately. The Contractor shall also provide to the Engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested.

E. PERMIT REQUIREMENTS:

1. The calculated land disturbance area for this project based on the construction plans is 0.05 acres not including Contractor Staging and Storage areas. If the total of the disturbed area and the Contractor Staging and Storage area is one acre or greater, the Contractor shall obtain the NPDES Construction Activities Permit using HDOT's latest SWPPP template. See Hawaii Administrative Rules Chapter 11-55, Appendix C for the definition of land disturbance. The Contractor shall be responsible for obtaining the required NPDES Construction Activities Permit and complying with the requirements of HAR 11-55 including, but not limited to:

a. Deadlines for initiating and completing initial stabilization.

b. Increased inspection frequency and installation of rain gage if applicable.

c. Deadlines to initiate and complete repairs to BMPs.

d. Reporting requirements and corrective action reports.

2. Comply with all applicable State and Federal Permit conditions. Permits may include, but not limited to the following:

a. NPDES Permit for Construction Activities

b. NPDES Permit for Construction Dewatering

c. NPDES Permit for Hydrotesting Waters

d. Water Quality Certification

e. Stream Channel Alteration Permit

f. Section 404 Army Corps of Engineer Permit

F. SITE-SPECIFIC BMP REQUIREMENTS:

Each BMP below is referenced to the corresponding section of the current HDOT Construction Best Management Practices Field Manual and appropriate Supplemental Sheets. The Manual may be obtained from the HDOT Statewide Stormwater Management Program Website at http://www.stormwaterhawaii.com/resources/contractors-and-consultants/ under Construction Best Management Practices Field Manual. Supplemental BMP sheets are located at http://www.stormwaterhawaii.com/resources/contractors-and-consultants/storm-water-pollution-prevention-plan-swppp/ under Concrete Curing and Irrigation Water.

The requirements for Water Pollution, Dust, and Erosion Control submittals are included in Section 209 of the Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and applicable Special Provisions. A list of pollutant sources and corresponding BMP used to mitigate the pollutants are included in Section 209 of the Special Provisions under Appendix A.

Follow the requirements below:

1. Protect all Drainage Inlets receiving runoff from disturbed areas (SC-1).

2. Contain on-site runoff using Perimeter Sediment Controls

a. SC-7 Silt Fence or Filter Fabric Fence

b. SC-2 Vegetated Filter Strips and Buffers

c. SC-6 Compost Filter Berm/Sock

d. SC-8 Sandbag Barrier

e. SC-9 Brush or Rock Filter

3. Control offsite runoff from entering construction area

a. EC-3 Run-On Diversion

b. EC-6 Earth Dike, Swales, and Ditches

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Conrad Higashionna

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 6 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	9	136

WATER POLLUTION AND EROSION CONTROL NOTES (Continued)

F. SITE-SPECIFIC BMP REQUIREMENTS (continued):

4. Incorporate applicable Site Management BMP

   a. SM-1 Employee Training / Construction BMP Training

   b. SM-2 Material Storage and Handling

   c. SM-3 Stockpile Management

   d. SM-6 Solid Waste Management

   e. SM-7 Sanitary Waste Management

   f. SM-9 Hazardous Materials and Waste Management

   g. SM-10 Spill Prevention and Control

   h. SM-11 Vehicle and Equipment Cleaning

   i. SM-12 Vehicle and Equipment Maintenance

   j. SM-13 Vehicle and Equipment Refueling

   k. SM-14 Scheduling

   l. SM-15 Location of Potential Sources of Sediment

   m. SM-16 Staging Area

   n. SM-17 Preservation of Existing Vegetation

   o. SM-19 Dust Control

5. Contain pollutants within the Construction Staging/Storage Area BMP with applicable Perimeter Sediment Controls and Site Management BMP. Include a Stabilized Construction Entrance/Exit (SC-11) for all areas which exit onto a paved street. Restrict vehicle access to these points.

6. Manage Concrete Waste including installing a Concrete Washout Area (SM-4) and properly disposing of Concrete Curing Water (California Stormwater BMP Handbook NS-12 Concrete Curing).

7. Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

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SHEET No. 7 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	10	136

CONSTRUCTION NOTES

1. All applicable construction work shall be done in accordance with the, Standard Specifications for Public Works construction, September 1986 and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.

2. The underground pipes, cables or duct lines 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 new lines. The Contractor shall contact the Hawaii One Call Center at 811 prior to any work in public right of way or on private property.

3. No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.

4. The General Contractor/Developer/Owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administractive Rules, Title 11, Chapter 54, "Water Quality Standards," and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best Management Practices shall be employed at all times during construction.

   The General Contractor/Developer/Owner of the project shall obtain National Pollutant Discharge Elimination System (NPDES) Permit coverage(s) for the following:

   a. Storm water discharges associated with construction activities that disturb one (1) acre or more, and

   b. Discharges of hydrotesting effluent, dewatering effluent, and well drilling effluent to state waters.

   In accordance with State law, all discharges related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Administrative Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

5. The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting, at (808) 768-8084 to arrange for inspection services and submit two (2) sets of approved construction plans seven (7) days prior to commencement of construction work.

6. Confined Space

   For entry by City personnel, including inspectors, into a permit required confined space as defined in 29 CFR Part 1910.146(b), the Contractor shall be responsible for providing:

   I. All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to the following:

      a. Full body harnesses for up to two personnel.
      b. Lifeline and associated clips.
      c. Ingress/egress and fall protection equipment.
      d. Two-way radios (walkie-talkies) if out of line-of-sight.
      e. Emergency (escape) respirator (10 minute duration).
      f. Cellular telephone to call for emergency assistance.
      g. Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance at least 20 feet away).
      h. Personal multi-gas detector to be carried by inspector.

   II. Continuous forced air ventilation adequate to provide safe entry conditions.
   III. One attendant/rescue personnel topside (two, if conditions warrant it).

7. Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division [(808) 692-8015]. In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting [(808) 768-8084]; and for City projects, notify the responsible City agency.

8. For bench mark, see sheet 22. The Contractor shall survey and stake out the work per Section 105.10 Construction Stakes, Lines and Grades of the Hawaii Standard Specifications for Road and Bridge Construction, 2005.

9. The Contractor shall verify and check all dimensions and details shown on the drawings prior to the start of construction. The Contractor shall immediately notify the Engineer of any discrepancy or conflict found in the field prior to or during the course of construction and shall not proceed with construction until the Engineer resolves the said discrepancy or conflict.

10. Unless otherwise noted, all existing pavement, utility lines and other improvements damaged or undermined as a result of the Contractor's operations shall be reconstructed or replaced by the Contractor at his own expense to match existing conditions.

11. All visible utility structures have been located in the field. However, connections to underground utility lines as shown are unverified and compiled from existing data. Underground utilities shown hereon are for information only, having been obtained from the best available sources. No guarantee is made on the accuracy or completeness of said information. The contractor shall be responsible for and pay for all damaged utilities.

12. The Contractor shall observe and comply with all federal, state and local laws required for the protection of public health, safety and environmental quality.

13. The Contractor shall observe and comply with the administrative rules of the Department of Health regarding noise control for Oahu.

14. The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense.

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Conrad Higashionna

APPROVED BY:

Director, Department of Planning and Permitting Date
(for construction in City ROW only)

Chief, Civil Engineering Branch, DPP Date
(for construction in City ROW only)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 8 OF 15 SHEETS

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	11	136

HAWAII ONE CALL CENTER NOTES:

1. Before conducting any excavation work in the public right-of-way or on private property, the Contractor shall call the Hawaii One Call Center at least five (5) working days before planning to dig. Be sure to give them the address and location of the nearest cross street(s) near where digging is planned.

   Call 811 toll-free 24 hours a day.
   For more information, go to www.callbeforeyoudig.org

2. The Hawaii One Call Center will contact all utility companies to tone, mark or identify the location of their underground utilities for free. Mark the area where Contractor plans to excavate in white and label all of the other utilities as listed below:

RED	Electric power lines, cables, or conduits, and lighting cables.
YELLOW	Gas, oil, steam, petroleum or other hazardous liquid or gaseous materials.
ORANGE	Communications, cable TV, alarm or signal lines, cables, or conduits.
BLUE	Water, irrigation, and slurry lines.
GREEN	Sewers, storm sewer facilities or other drain lines.
WHITE	Proposed excavation.
PINK	Temporary survey markings.
PURPLE	Reclaimed water, irrigation, and slurry lines.

3. In accordance with Hawaii State Law Section 269E-7, the Hawaii One Call Center (HOCC) shall provide an inquiry identification number for each location request provided by the Contractor. The inquiry identification number and utility marks shall remain valid for not more than twenty-eight (28) calendar days from the date of issuance and after that date shall require the Contractor to submit a new request for HOCC revalidation. The Contractor shall provide all inquiry identification numbers for each location request to the Engineer.

ORIGINAL PLAN

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP — Date
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	12	136

WATER NOTES

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "Water System Standards" dated 2002, the "Water System External Corrosion Control Standards", Volume 3, dated 2021, and all subsequent amendments and additions.

2. The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water. (for connection only)

3. The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees and bends wherever there is a possibility of water line movement due to the removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction method.

4. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but are not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and shall pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.

5. The Contractor/Developer shall obtain a NPDES permit prior to chlorination and/or hydrotesting as required. A copy of the permit shall be submitted to the Board of Water Supply, Capital Projects Division, Construction Section.

6. Cleaning shall be by the use of "pigs" introduced into the pipeline and run completely through all installed pipelines and all branch lines for fire hydrants. "Pigging" of service laterals is not required. Bare foam "pigs" shall be used to swab piping clean as each length of the pipeline is installed. The type, density, size, diameter and length of the pig shall be submitted for review and approval by the manager prior to pigging work. "Pig" shall be used per manufacturer's specifications. Prior to use, the "pig" shall be submerged in a chlorine solution of 1 oz. of 5% chlorine bleach in 5 gallons of water. "Pigging" of the pipeline shall be considered incidental to the installation of the new pipeline. Manual sweeping, hand cleaning or swabbing may be allowed in lieu of "pigging" as approved by the Board of Water Supply manager.

7. Pipe cushion shall be of high resistively material. the Contractor shall submit a soil certification that high resistant cushion material has a resistively greater than 5,000 ohm-cm. Remainder of the backfill material shall be as specified in Volume 1 of the Water System Standards. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury, chromium, cadmium, zinc, strontium, and polychlorinated biphenyl's (pcb).

8. Two-way blue reflective hydrant markers Type DB shall be installed at all new fire hydrant installations. Contractor shall verify the exact locations of hydrant markers with the nearest Honolulu Fire Department Battalion Chief.

9. Install 4 mil. thk. detectable, blue colored, 6 inches wide warning tape over centerline of the PVC pipe and below the base course along the entire length of trench in roadway areas and 6" below finish grade in landscape areas. Tape should be marked with "Caution Water Line Buried Below".

10. All water mains and appurtenances shall be subject to hydrostatic test pressure of 150 psi by the Contractor in accordance with Division 300 - Construction, Section 302.28, pipe pressure test of the "Water System Standards", dated 2002. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.

11. Water Pipeline chlorination and testing procedures.

   The following chlorination and water sample collection procedure shall apply to all water pipeline projects (all work to be coordinated through Board of Water Supply inspector):

   Chlorination of water systems

   A) The contractor shall provide a 4-week advance notice, in writing, to the officer-in-charge for proposed flushing, filling and bacterial testing of the new pipeline.

   B) The Contractor shall hire a State of Hawaii - Department of Health certified laboratory to provide water sampling services and to deliver water samples to the micro lab for analysis. Water samples for bacterial testing shall be delivered no later that 2:30 p.m. on the day the samples are taken to the Board of Water Supply micro lab located at 630 S. Beretania St., Honolulu, HI 96843. The micro lab shall perform analysis and provide their results to the Officer-in-Charge by 4:30 p.m. on the following day (in some cases, final results notification may take up to 48 hours).

   C) Water mains shall be disinfected in accordance with the Board of Water Supply Water System Standards (2002), as amended, Section 302.29.

   Step 1 - Preliminary flushing (prior to chlorination): the mains shall be flushed with maximum available pressure and velocity. adequacy of turnovers shall be determined by the absence of particles. Turbidity shall be less than 1.0 NTU before chlorination. During all flushing operations, the Manager or the Manager's authorized representative shall determine the rate of water use.

   Step 2 - Chlorination: The contractor shall submit to the Manager, for approval, a sketch showing locations of sampling points and a plan or schedule delineating the method or steps the contractor proposes to use to accomplish the work. The following methods for chlorination shall be used:

   (A) The following chlorination and water sample collection procedure shall apply to all water pipeline projects:

   ((i)) Step 1: Chlorinate main by filling with water and introducing chlorine in sufficient quantity to obtain a minimum chlorine concentration of 50 parts per million. leave chlorinated water in main overnight.

   ((ii)) Step 2: Flush main with fresh water until all chlorine has been flushed out as evidenced by the n,n-diethyl-p-phenylenediamine (dpd) test, then collect a water sample while continuing to flush the main.

   ((iii)) Step 3: Repeat steps 1 and 2. After collecting the second water sample, stop flushing and allow the water to stand in the main overnight.

   ((iv)) Step 4: Thoroughly flush the main with fresh water until all water that had been standing in the main overnight has been flushed out. Stop flushing and let the water stand in the main for one hour. Collect a water sample.

   (B) The main is deemed acceptable and certified when (i) the three consecutive water samples, collected on different days as reasonably close to 24 hours apart as practical operating conditions allow under Steps 1 and 2, show no TC (total coliform bacteria), no E Coli, less than 200 CFU/ml (colony forming units per ml) of HPC (heterotrophic plate count bacteria) or less than 202 HPC using the MPN (most probable number) method and turbidity <1.0 NTU and (ii) the sample of water held in the main for one hour, collected under step 4, also shows no TC, no E. Coli, less than 200 CFU/ml of HPC or less than 202 HPC using the MPN method and turbidity <1.0 NTU.

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Conrad Higashionna

APPROVED BY:

Manager and Chief Engineer, BWS Date
(for work affecting BWS facilities in City/State R/W and BWS easements only)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 10 OF 15 SHEETS

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	13	136

WATER NOTES

11. Water Pipeline Chlorination and Testing Procedures (continued)

(C) Chlorination, flushing, sampling and testing will be extended should unsatisfactory results be encountered. any sample that shows positive tc, E. Coli, hpc >200 cfu/ml, hpc >202 mpn or turbidity >1.0 ntu is unsatisfactory.

(D) Steps 1 and 2 may be repeated before collecting the one hour hold sample specified in Step 4. Repeating Steps 1 and 2 is recommended in the event samples show the presence of tc and/ or E. Coli and/or increasing total bacterial results from one sample to the next.

(E) Water samples that show the presence of atypical results, debris, high turbidity or results inconsistent with existing water are subject to reconfirmation. The Manager reserves the right to request and test additional water samples in the interest of safeguarding public health and safety at no cost to the Department.

(F) Liquid chlorine, chlorine based liquid disinfectants or calcium hypochlorite that has been tested and certified as meeting the specifications of ANSI/NSF Standard 60, Drinking Water Treatment Chemicals - Health Effects, shall be used for the chlorination of the water mains.

D) Prior to chlorination, the water mains shall be thoroughly flushed.

E) The interior surfaces of the water mains shall be exposed to the chlorinating solution by completely filling the main to remove air pockets for a minimum of 24-hours and the free chlorine residual shall not be less than 10 ppm after such time.

F) Should the calcium hypochlorite be used, no solid and/or undissolved portion of the compound shall be introduced into any section of the water mains to be chlorinated.

G) At the end of the 24-hour disinfection period, representative samples shall be taken and analyzed to assure a free chlorine residual of at least 10 ppm.

H) Should the free chlorine residual results indicate adequate chlorination, the water mains shall be thoroughly flushed and filled with water from the existing system and again tested for free chlorine residual. The flushing shall be considered adequate if the free chlorine residual test results indicate that the water in the water mains has a comparable chlorine residual as the water in the existing system.

I) The contractor shall be responsible for the proper disposal of chlorinated water to safeguard public health and the environment in accordance with applicable State of Hawaii Department of Health requirements. A neutralizing chemical shall be applied to the water to be disposed to thoroughly neutralize the chlorine residual remaining in the water in accordance with Board of Water Supply Water System Standards (2002), as amended.

J) The Contractor shall be responsible for obtaining a National Pollutant Discharge Elimination System (NPDES) permit from the Department of Health, Clean Water Branch prior to the start of construction, for the disposal of water used for hydro testing and chlorination, as required by the contract documents.

K) Following the acceptable flushing of the water mains, three (3) consecutive days of acceptable samples, taken at least 24-hours apart, from representative points shall be taken and subjected to microbiological tests. For water lines, at least one set of samples shall be collected from every 1,200 feet of the new water main, plus one from the end of the line and at least one set from each branch. Positive or invalid test results will not be acceptable, and the process will be repeated.

L) All measurements for chlorine residual shall be analyzed using E.P.A. approved methods for drinking water.

M) All microbiological tests shall be performed by a laboratory approved by the Department of Health, State of Hawaii and the Water Quality Division of the Board of Water Supply.

N) The contractor shall be responsible for all costs associated with all of the foregoing.

O) Cleaning and swabbing procedures shall be in accordance with Board of Water Supply Water System Standards (2002), as amended.

P) All materials in direct contact with the potable water shall have National Sanitation Foundations (NSF) approvals. The contractor shall submit these approvals to the Board of Water Supply for information only prior to its application.

12. All duct iron pipe, including sections requiring reinforced concrete jacketing, shall be ductile iron pipe Class 53 with a bonded dielectric coating as per the Board of Water Supply 2002 Water System Standards, as amended.

13. Contractor shall cut & plug all existing unused laterals at the main whether or not shown on the plans. Meter and valve boxes to be or already abandoned shall be demolished or removed and properly disposed of. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.

14. No deviation to the Board of Water Supply 2002 Water System Standards as amended, shall be allowed without the Manager and Chief Engineer's approval.

15. When a utility (gas, sewer, electrical duct line, fiber optic, drainage, etc.) crosses below a Board of Water Supply water main, the designer of record and their construction engineer shall be responsible for determining the adequate water main structural support and submit the construction method and shop drawing, stamped by a licensed engineer and reviewed and accepted by the designer of record, to the Board of Water Supply for review and approval. All work shall be at no cost to the Board of Water Supply.

16. The contractor shall notify Board of Water Supply Capital Projects Division, Construction Section in writing or call (808) 748-5730, and submit six (6) sets of 24"x36" approved construction drawings, one week prior to commencing construction activities.

17. Re-approval shall be required if this project is not under construction within a period of two (2) years.

18. Prior to any excavation, the Contractor shall verify in the field, the location of existing waterlines and appurtenances.

19. Any adjustments to the existing water system required during construction, to meet the requirements of the Board of Water Supply standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board of Water Supply.

20. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply.

21. All waterline construction requiring shutdown connection shall be scheduled for normal working hours at six (6) hours maximum downtime.

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Conrad Higashionna

APPROVED BY:

Manager and Chief Engineer, BWS — Date
(for work affecting BWS facilities in City/State R/W and BWS easements only)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

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SHEET No. 11 OF 15 SHEETS

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WATER NOTES

22. Prior to installation, the Contractor shall submit for approval by Board of Water Supply, the manufacturer's certification that all cast iron (gray or ductile) fittings for the project conform in all respects to the Water System Standards, dated 2002 and addendums.

23. Polygon shape for mechanical joint glands as described in AWWA Standard C111 shall be "straight-sided" or an approved equal on a job-to-job basis.

24. All ductile iron fittings and metallic valves shall have a factory applied coating and wrapped with petrolatum wax tape.

25. All fire hydrants to be adjusted and/or relocated shall be replaced with new fire hydrants, unless otherwise directed by the Board of Water Supply.

26. The contractor shall install electronic markers to all mains and test the electronic markers prior to installations to verify proper operation. Board of Water Supply personnel shall verify the number and locations of placed electronic markers before final paving of the project.

27. Soil resistivity for the site has a corrosion rating of __ as reported by Geolabs, Inc. All required electrical isolation procedures and corrosion control requirements shall apply.

28. The contractor shall furnish and install an insulating corporation stop and petrolatum wax tape at all taps (for D.I. pipe and copper lateral combination only).

29. The electrical/cable/signal ductline water crossings, adjust all electrical/cable/signal ductline elevations to maintain 12" vertical clear separation from all waterlines at no cost to the Board of Water Supply.

30. Maintain 3'-0" minimum horizontal clear separation between all waterlines, and the nearest electrical/cable/signal ductlines paralleling the water system at no cost to the Board of Water Supply.

31. Maintain 3'-0" minimum horizontal clear separation electrical/cable/signal appurtenances (including any modular units) and the nearest waterline or water appurtenance. contractor shall field verify for any conflict at each electrical/ cable/signal appurtenance location. Where conflicts occur, the Contractor shall coordinate with the Project Engineer to revise the electrical/cable/signal appurtenance to provide the required clearances at no cost to the BWS.

32. Wherever new electrical/cable/signal duct lines, 16-inches wide or greater, cross over an existing cast iron water main, the Contractor shall re-align the water main with ductile iron pipe, encase the duct iron pipe with a concrete jacket, and provide corrosion protection in accordance with BWS standards and the water notes. The Contractor shall submit plans/drawings to BWS for review and approval prior to construction and pay for all costs for this work.

33. Wherever new electrical/cable/signal duct lines, 16-inches wide or greater, cross over an existing ductile iron water main, the Contractor shall encase the existing main in a concrete jacket in accordance with BWS standards and the water notes. The Contractor shall pay for all costs for this work.

34. Thirty (30) days prior to any work on the existing water systems, the Contractor shall submit six (6) sets of their cathodic protection plan/shop drawings designed and stamped by a registered professional corrosion engineer or NACE certified Cathodic Protection Specialist (CP4) to the design consultant, Engineering Concepts, Inc. prior to submitting to the Board of Water Supply for acceptance and approval. No work on the water systems shall commence until this is approved by the Board of Water Supply. External corrosion control requirements shall comply with the Water System External Corrosion Control Standards, dated 2021 and its subsequent amendments and additions.

35. The Contractor shall construct the water system improvements and its cathodic protection system per the approved plans and shop drawings. The approved cathodic protection plans/shop drawings shall be incorporated on the as-built drawings submitted to the Board of Water Supply upon completion of the project.

36. At utility crossings where proper compaction under a water main is difficult to achieve, CLSM shall be installed in place of backfill material and pipe cushion material. CLSM mixture to be furnished shall be in accordance with Division 200 - Materials, Section 209.06 Controlled Low Strength Material (CLSM) of the Water System Standards, as amended.

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

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CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

APPROVED BY:

Manager and Chief Engineer, BWS Date
(for work affecting BWS facilities in City/State R/W and BWS easements only)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 12 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	15	136

SEWER NOTES

1. All sewer construction shall be performed in accordance with the City's "Standard Specifications," September 1986, the Department of Environmental Services "Wastewater System Design Standards," July 2017, and "Wastewater System Standard Details," July 2017, Current City Practices and Revised Ordinances of Honolulu, 1990 as amended.

2. The Contractor shall notify the Construction Management Branch, Wastewater Engineering and Construction Division, ENV, at (808) 768-8785, (808) 768-8769, or (808) 768-8755 to arrange for inspection services and submit four (4) sets of approved construction plans to Wastewater Branch, DPP seven (7) days prior to commencement of sewer work. The Contractor shall pay for all inspection costs.

3. The underground pipes, cables or duct lines known to exist by the engineer from his research of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities, including and affecting sewer lines, in the presence of the wastewater inspector and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.

4. The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.

5. The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notifications and press releases.

6. Maintain 3'-0" minimum horizontal clear separation between all sewer systems and nearest duct lines, pull boxes, and hand holes paralleling the sewer system at no cost to the City. Maintain 6'-0" minimum horizontal clear separation between all sewer system and electrical transformer pads at no cost to the City. Do not place electrical appurtenances in between sewer laterals.

7. At the duct line sewer crossings, adjust all duct line elevations to maintain 24" vertical clear separation above all sewer lines. If less than 24" clear above the sewer line, RC jacket the sewer line per City Standard Detail S-03 at no cost to City.

8. If the duct line crosses under the sewer line, provide a RC jacket on the sewer line per City Sewer Standard Detail S-03 at no cost to the City.

CONSTRUCTION NOTES FOR GAS FACILITIES

1. HawaiiGas gas pipeline in the project area are plastic coated and cathodically protected. The Contractor shall be extremely careful when working near these gas pipelines.

2. Written clearances must be obtained from HawaiiGas, Maps and Records Department, 515 Kamakee Street, at least five (5) working days prior to starting excavation near these gas pipelines.

3. Since gas line locations on field maps are approximate, the Contractor, after obtaining written clearance, shall call Hawaii One Call Center a minimum of five (5) working days before starting excavation to arrange for field location of the existing gas pipelines. The telephone number is 811 or 1-866-423-7287.

4. The Contractor shall excavate and backfill around gas pipelines in the presence of a representative of HawaiiGas.

5. For relocation of any gas pipeline, the Contractor shall notify HawaiiGas five (5) working days before starting work. The telephone number is (808) 594-5574. The Contractor shall provide the necessary excavation and backfill, obtain traffic permits, and restore pavement, sidewalks, and other facilities. Any relocation of gas facilities shall be done by HawaiiGas and paid for by the Contractor.

6. The Contractor shall notify HawaiiGas immediately after any damage has been caused to existing gas pipelines, coatings, or its cathodic protection devices. The telephone number is (808) 535-5933, 24 hours a day. The Contractor shall be liable for any damage of HawaiiGas facilities. Repair work on such damage shall be done by HawaiiGas with payment for this work to be borne by the Contractor.

7. Minimum vertical and horizontal clearance between the gas pipelines and other pipelines, conduits, ductlines, or other facilities shall be 12 inches. Adequate support and protection for gas pipelines exposed in the trench shall be provided by the Contractor and approved by HawaiiGas.

8. The Contractor shall work in an expeditious manner in order to keep the uncovered gas pipelines exposed for as short a period of time as possible.

9. The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense.

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Wastewater Branch, DPP Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 13 OF 15 SHEETS

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

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	16	136

TRAFFIC NOTES FOR WORK IN CITY STREETS

1. A permit shall be obtained from the Department of Transportation Services before work on any portion of a public street or highway may begin. Construction traffic control plans approved by the Department of Planning and Permitting must be provided when applying for the permit.
2. The Contractor shall provide, install, and maintain all necessary signs and other protective facilities, which shall conform with the "Hawaii Administrative Rules Governing the Use of Traffic Control Devices at Work Sites On or Adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highway Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part 6 - Temporary Traffic Control."
3. Work on any City street area may be performed only between the hours of 8:30 a.m. to 3:30 p.m., Monday through Friday, unless otherwise permitted by the Department of Transportation Services.
4. During working hours, the Contractor shall provide for through traffic. During non-working hours, all trenches shall be covered with a safe non-skid bridging material and all lanes shall be open to the traffic.
5. As required by the Department of Transportation Services, the Contractor shall provide off-duty police officers to control the flow of traffic.
6. Where pedestrian walkways exist, they shall be maintained in passable condition or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.
7. Driveways shall be kept open unless the owners of the property using these rights-of-way are otherwise provided for satisfactorily.
8. The Contractor shall reference to the approval of the Department of Transportation Services and the Department of Planning and Permitting, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic sign, posts and pavement markings disturbed by his activities.
9. The Contractor shall notify the Department of Planning and Permitting at (808) 768-8084 one (1) week prior to any work to be done on signs, post and pavement markings.
10. No equipment shall be stored within street rights-of-way except at locations designated in writing and approved by the Department of Transportation Services.
11. The State Department of Transportation shall ensure that the Contractor installs the construction traffic control devices in accordance with the MUTCD and the Hawaii Administrative Rules as specified in traffic note #2.

HPD-PARKING METER NOTE

1. The Contractor shall contact the Honolulu Police Department, Parking Meter Section at (808) 832-7836 at least five (5) working days prior to any parking meter work.

SIGNS & MARKINGS NOTES FOR WORK IN CITY STREETS

1. All traffic sign and pavement marking installations shall be done in accordance with the "Manual of Uniform Traffic Control Devices for Streets and Highways," 2009 Edition, as amended, the latest specifications from the Traffic Review Branch, Department of Planning and Permitting and as shown on the plans.
2. The Contractor shall notify and coordinate work with the Civil Engineer Branch, Department of Planning and Permitting, one (1) week in advance of commencing work at (808) 768-8084.
3. The Contractor shall submit material brochures for all signs and paint materials to the Permitting and Inspection Section of the Civil Engineering Branch, Department of Planning and Permitting.
4. The signing and/or striping contractor shall keep one (1) set of approved plans at the project site at all times during construction work.
5. The Contractor shall paint temporary guidelines and outline of arrows, legends and crosswalks with a two (2) inch wide brushed line on the day of the roadway is opened to traffic. These markings must be approved by the Inspector from the Civil Engineering Branch, Department of Planning & Permitting.
6. The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting at (808) 768-8084, three (3) days in advance of final inspection.
7. The Contractor shall meet with the Inspector from the Civil Engineering Branch, Department of Planning and Permitting during the final inspection.
8. Within ten (10) days following notification of award of contract, the Contractor shall submit to the Permitting and Inspection Section, Civil Engineering Branch, Department of Planning and Permitting (768-8084) for approval, a list of any signing and pavement marking material, which he proposes to install. The list shall be complete as to the name of manufacturer, catalog number and shall be supplemented with material brochures.
9. Upon final inspection of the project, the Contractor shall submit a letter of certification for all traffic signing and pavement marking materials installed.
10. Signs shall be attached to brackets with 5/16" zinc plated steel bolts, nuts and washers. Signs 48" wide or larger than 10 square feet in area shall be mounted on two - 2" galvanized pipe post. The sign shall be installed with at least one (1) foot clearance from the sign edge to the curb face.
11. All traffic signs shall be reflectorized.
12. Raised pavement markers shall be installed in accordance with the Department of Planning and Permitting standards.
13. Pavement word and symbol marking shall be in accordance with the Department of Planning and Permitting standards.
14. The Contractor shall use thermoplastic material, approved by the Permitting and Inspection Section of the Civil Engineering Branch, Department of Planning and Permitting, for all crosswalks, stop bars, pavements arrows, centerlines, lane lines, arc lines, channelized traffic islands and legends.
15. All construction material submittals within the State's limits shall be approved and accepted first by Hawaii Department of Transportation (HDOT) Materials Testing and Research Laboratory prior to using the materials in any construction work.

TRAFFIC SIGNAL AND TECHNOLOGY DIVISION NOTES

1. The Contractor shall notify the Traffic Signal and Technology Division, Department of Transportation Services [(808) 768-8388] three (3) working days prior to commencing work on the traffic signal system.
2. The traffic signal system shall be kept operational during construction. Any relocation required shall be approved by the Traffic Signal 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 the traffic signal interconnect 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 and the State of Hawaii.
4. The Contractor shall be responsible for any damages to the existing traffic signal 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 and the State of Hawaii.

CONRAD S. HIGASHIONNA
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No. 6763-C
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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 14 OF 15 SHEETS

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

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	17	136

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

1. The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
2. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
3. Traffic control devices shall be installed such that the sign or device farthest from the work area is placed first. The others shall then be placed progressively toward the work area.
4. Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered.
5. Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
6. When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the traffic control plans.
7. All traffic lanes shall be a minimum of ten (10) feet wide.
8. All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
9. The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have message on both faces).
10. Lane closure shall be limited only to the extent of accomplishing each day's work. As soon as each day's work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation. Existing faded or obliterated pavement markings that are necessary for safe traffic flow in the construction area shall be replaced with temporary or permanent markings before opening the roadway to public traffic each day.
11. Permanent pavement markings and traffic signs shall be replaced upon completion of each phase of work.
12. Cones and delineators shall be spaced at a maximum distance of twenty (20) feet apart. A minimum of six (6) channelizing devices shall be used for each taper length.
13. Driveways shall be kept open unless the owners of the property using the right-of-way are otherwise provided for satisfactorily. Further, the permittee shall control traffic going in and out of driveway.
14. Buffer and taper areas on approach to any work area shall be kept clear of vehicles and equipment.
15. A high level warning device (flag tree) shall be installed on approach to all work areas.
16. "NO PARKING" signs shall be posted within any work area and for the buffer and taper areas approaching the work area.
17. Traffic control plans are approved for work on any City street area only between the hours of 8:30 a.m. and 3:30 p.m. Monday thru Friday.

MECHANICAL & ELECTRICAL DIVISION NOTES

1. The Contractor shall notify the Joint Pole Committee two (2) weeks in advance of any relocation of utility pole(s) that may be necessary.
2. The Contractor shall notify the Mechanical & Electrical Division, Department of Design and Construction [(808) 768-8431], three (3) working days prior to commencing work on the street lighting system.
3. The street lighting system shall be kept operational during construction. Any relocation required shall be approved by the Mechanical & Electrical Division, Department of Design and Construction, and paid for by the Contractor.
4. The Contractor shall be responsible for any damages to the existing street lighting 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 and the State of Hawaii.
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 and the State of Hawaii.
6. The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense

PUBLIC TRANSIT DIVISION (DTS) NOTES

CONSTRUCTION OF THIS PROJECT SHALL NOT AFFECT TRANSIT OPERATIONS. BUS ROUTES AND BUS STOPS SHALL REMAIN OPEN AND ACCESSIBLE AT ALL TIMES. ANY WORK AFFECTING BUS OPERATIONS, ROUTES, OR STOPS MUST BE SUBMITTED TO DTS-TMD FOR REVIEW NO LESS THAN 30 DAYS PRIOR TO START DATE.

POINT OF CONTACT INFORMATION (NOTIFICATION IS REQUIRED TO ALL PHONE NUMBERS AND EMAILS):

DTS-TMD
(808) 768-8371
THEBUSSTOP@Honolulu.gov
HANDIVAN@Honolulu.gov

OAHU TRANSIT SERVICES - BUS OPERATIONS
(808) 768-9520
(808) 768-9534
Sean-Bennett.Paio@TheBUS.org
Joshua.Vaoalii@TheBUS.org
Walter.Oba@TheBUS.org

OAHU TRANSIT SERVICES - PARATRANSIT OPERATIONS
(808) 768-9802
(808) 768-9851
(808) 454-5021
Tracie.Coelho@TheBUS.org
Richard.Mole@TheBUS.org

CONRAD S. HIGASHIONNA
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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Wastewater Branch, DPP Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 15 OF 15 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
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Sep 29, 2024--1:31pm
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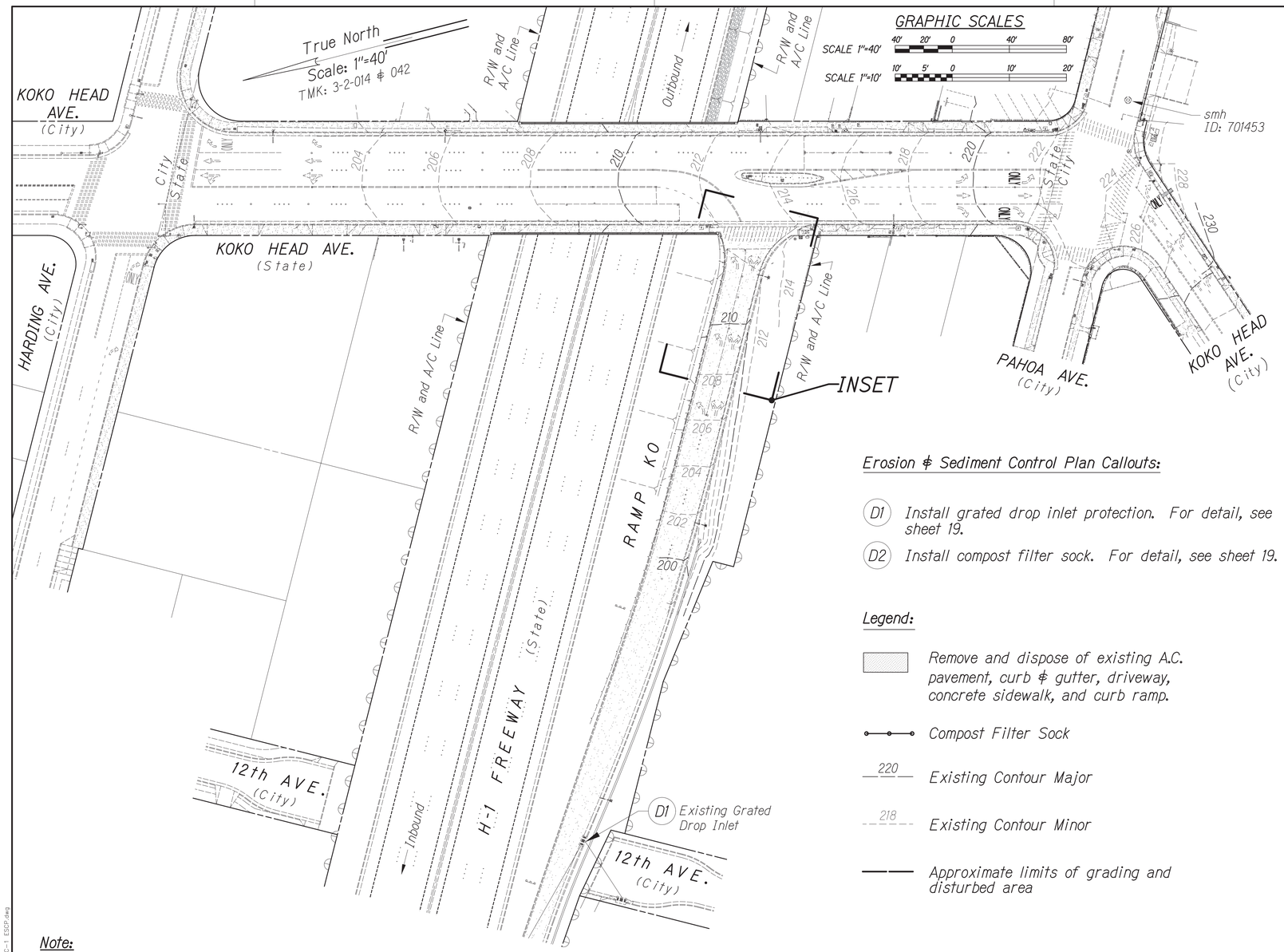


Erosion & Sediment Control Plan Callouts:

(D1) *Install grated drop inlet protection. For detail, see sheet 19.*

(D2) *Install compost filter sock. For detail, see sheet 19.*

Legend:

Remove and dispose of existing A.C. pavement, curb & gutter, driveway, concrete sidewalk, and curb ramp.

Compost Filter Sock

220 Existing Contour Major

218 Existing Contour Minor

Approximate limits of grading and disturbed area

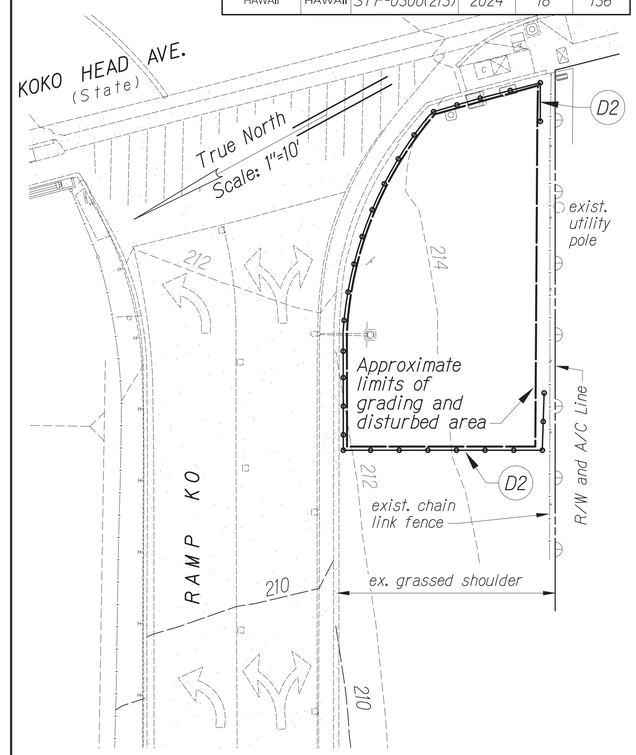
Note:

Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Cost shall be included in Pay Item 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP.

EROSION & SEDIMENT CONTROL PLAN (ESCP)

Scale: "40"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	18	136



INSET

Scale: 1"=10'

CONRAD S. HIGASHIONNA
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No. 6763-C
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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ESCP

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted *Date: July 2024*

SHEET No. *1* OF *4* SHEETS

ORIGINAL PLAN	DATE
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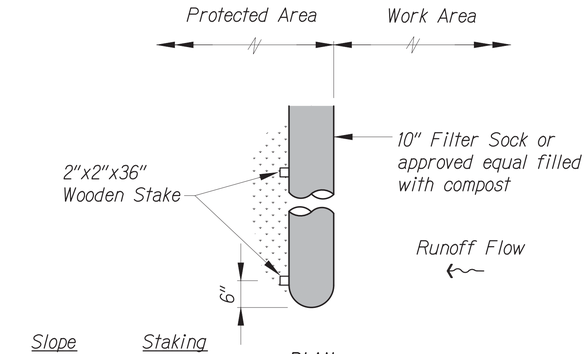
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	19	136



PLAN

Slope	Staking
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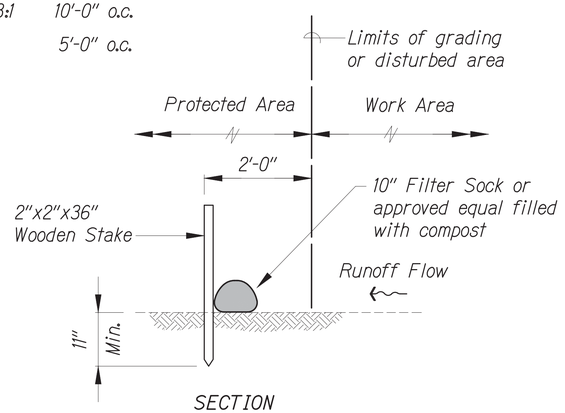
4:1 TO 3:1	10'-0" o.c.
>3:1	5'-0" o.c.



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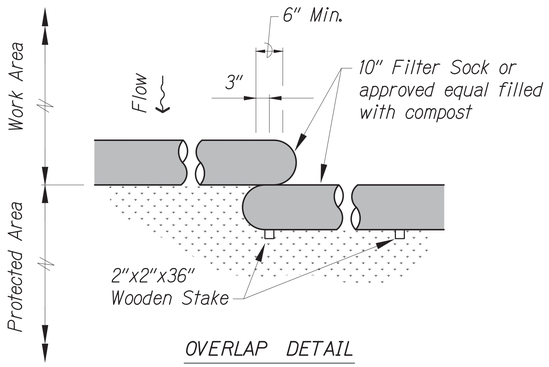


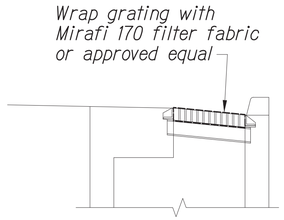
OVERLAP DETAIL

Note:

Compost shall not contain biosolids and should be consistent with EPA guidelines.

COMPOST FILTER SOCK DETAIL

No Scale



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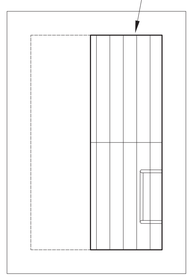

PLAN

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ESCP

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	20	136

EROSION AND SEDIMENT CONTROL NOTES (FOR WORK WITHIN CITY RIGHT-OF-WAY):

1. The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality."

2. Measures to control erosion and other pollutants shall be in place before any construction is initiated.

3. Regularly inspect and maintain all erosion and sediment controls to ensure continued performance.

4. PERMANENT STABILIZATION

   All disturbed areas shall be permanently stabilized using vegetative covering, pavement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized.

5. PERIMETER CONTROLS

   Perimeter controls are required down slope of equipment/ vehicle staging areas at the end of each business day and around material stockpiles that are not actively being used. Stockpiles are not allowed in the City right-of-way.

6. INLET PROTECTION

   •• All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device unless they are directed to a sediment basin.

   •• Sediment levels may not exceed one third of the height of a sediment barrier or inlet protection device at any point along the length of the sediment barrier or the inlet protection device.

   •• Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.

   •• Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.

7. TRACKING CONTROL

   •• Minimize sediment track-out onto off-site streets, other paved areas, and sidewalks from vehicles exiting the construction site by restricting vehicle traffic to properly designated areas and using additional controls to remove sediment from vehicle tires prior to exiting the site.

   •• Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicle paths, which shall be marked with flags or boundary fencing.

   •• All pollutants and materials that are dropped, washed, tracked, spilled, or otherwise discharged from a project site to off-site streets, other paved areas, sidewalks or the MS4 must be cleaned using dry methods such as sweeping or vacuuming.

   •• Washing pollutants and materials that are discharged from the project site to the MS4 into drain inlets or catch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin or sediment trap.

8. Best management practices (BMPs) shall not be removed until final stabilization is complete for that phase.

9. Refer to City and County of Honolulu Best Management Practices Manual-Construction for more information on BMPs.

10. The following BMP's were determined to not be applicable based on the site-specific conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.

    •• Dewatering practices are not applicable.

    •• Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.

    •• Velocity dissipation devices are not applicable.

    •• Sediment barriers are not applicable.

11. An ESCP coordinator must be designated using the form in Appendix A of the Rules Relating to Water Quality prior to permitting.

12. Notify DPP in writing of project start date two weeks prior to starting work.

13. Practice good housekeeping measures throughout the duration of construction.

14. Inspections will be performed weekly.

PROJECT SEQUENCE:

•• Install inlet protection and perimeter controls around staging areas and material stockpiles as needed.

•• Proceed with construction with least possible disturbance of vegetative areas and temporary structures.

•• Install perimeter controls around active work areas at the end of each business day if not stabilized.

•• Plant permanent ground cover according to the landscaping plan as soon as possible.

•• Remove or dismantle temporary erosion control structures after permanent stabilization.

RAIN RESPONSE PLAN:

The following will be performed when rain is imminent or is forecasted in the next 48 hours:

1. Temporary suspension of active trenching.

2. Inspect all perimeter controls and inlet protection devices and maintain as needed. Reinstall any perimeter controls that were removed due to active work in the area. If severe storm is expected, remove inlet protection devices to prevent flooding on surrounding streets.

3. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.

4. Place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event.

5. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMPs as needed.

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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP — Date
(for construction in City ROW only)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ESCP

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 3 OF 4 SHEETS

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

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	21	136

GOOD HOUSEKEEPING BMPs:

1. STREET SWEEPING AND VACUUMING

   All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.

2. MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT

   Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other sources of pollution shall not be stored in buffer areas, near areas of concentrated flow, or areas abutting the MS4, receiving waters, or drainage improvements that discharge off-site. Primary and secondary containment controls and covers shall be implemented to the MEP.

3. SPILL PREVENTION AND CONTROL

   Create and implement spill prevention and response plans to eliminate and minimize the discharge of pollutants to the MS4 and receiving waters from leaks and spills by reducing the chance for spills, absorbing, containing, and cleaning up spills and properly disposing of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately.

4. HAZARDOUS MATERIALS

   Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the director no less than 3 days after notification by phone.

5. NONHAZARDOUS MATERIALS

   In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the director no less than 3 days after notification by phone.

6. VEHICLE AND EQUIPMENT CLEANING

   Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using off-site facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.

7. VEHICLE AND EQUIPMENT FUELING

   Prevent fuel spills and leaks by using off-site facilities, fueling only in designated areas, enclosing or covering stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.

8. VEHICLE AND EQUIPMENT MAINTENANCE

   Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using off-site facilities when feasible, performing work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.

9. SOLID WASTE MANAGEMENT

   Prevent or reduce discharge of pollutants to the land, groundwater, and in storm water from solid waste or construction and demolition waste by providing designated waste collection areas, collect site trash daily, and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.

10. SANITARY/SEPTIC WASTE MANAGEMENT

    Temporary and portable sanitary and septic waste systems shall be mounted or staked in, well-maintained and scheduled for regular waste disposal and servicing. Sources of sanitary and/or septic waste shall not be stored near the MS4 or receiving waters.

11. STOCKPILE MANAGEMENT

    Stockpiles shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the city right-of-way. Sediment barriers or silt fences shall be used around the base of all stockpiles. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require 8-foot wide benching in accordance with ROH Chapter 14, Article 15. Stockpiles must be covered with plastic sheeting or a comparable material if they will not be actively used within 7 days.

12. LIQUID WASTE MANAGEMENT

    Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.

13. CONCRETE WASTE MANAGEMENT

    Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout offsite or performing onsite washout in a designated area constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10-millimeter polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material. Containment areas or devices should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains. Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75 percent full. Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of as solid wastes.

14. CONTAMINATED SOIL MANAGEMENT

    At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable regulations.

15. DUST CONTROL

    Dust from the project site shall not be transported or discharged to off-site areas.

16. DEWATERING OPERATIONS

    Non-storm water from dewatering operations cannot be discharged from the site without prior notice and approval from the DPP and Department of Health. Dewatering discharges shall be kept onsite using a sediment basin, sediment trap, weir tank, dewatering tank, filtration system or other manufactured system.

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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ESCP

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 4 OF 4 SHEETS

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

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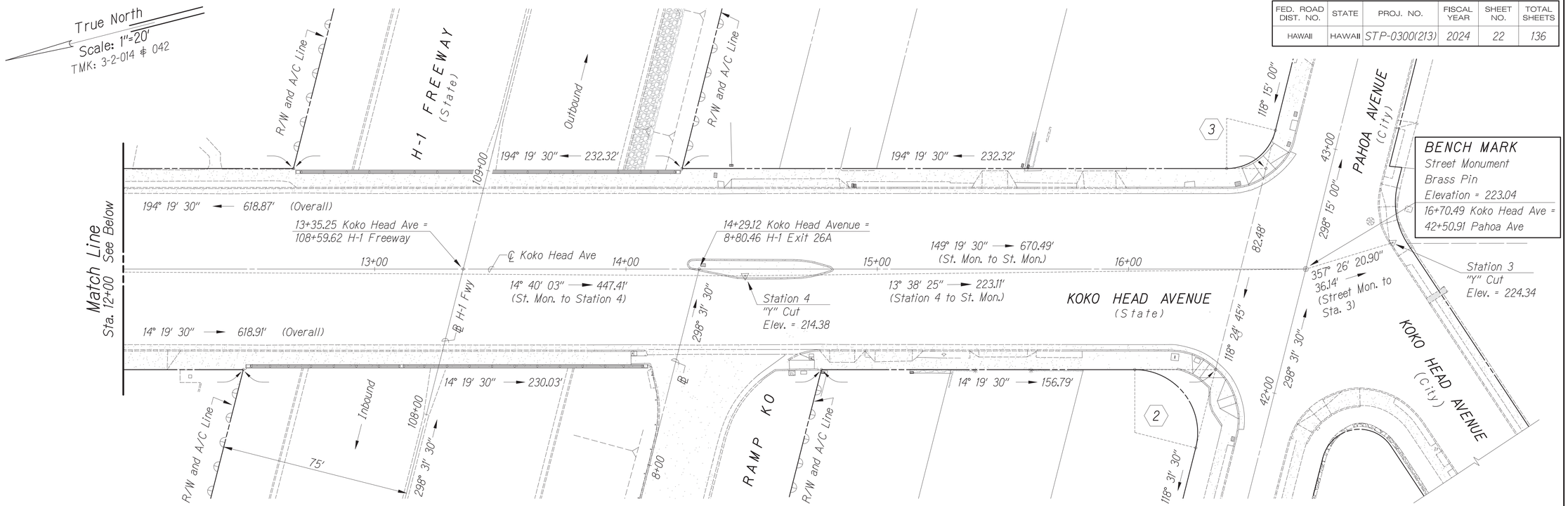
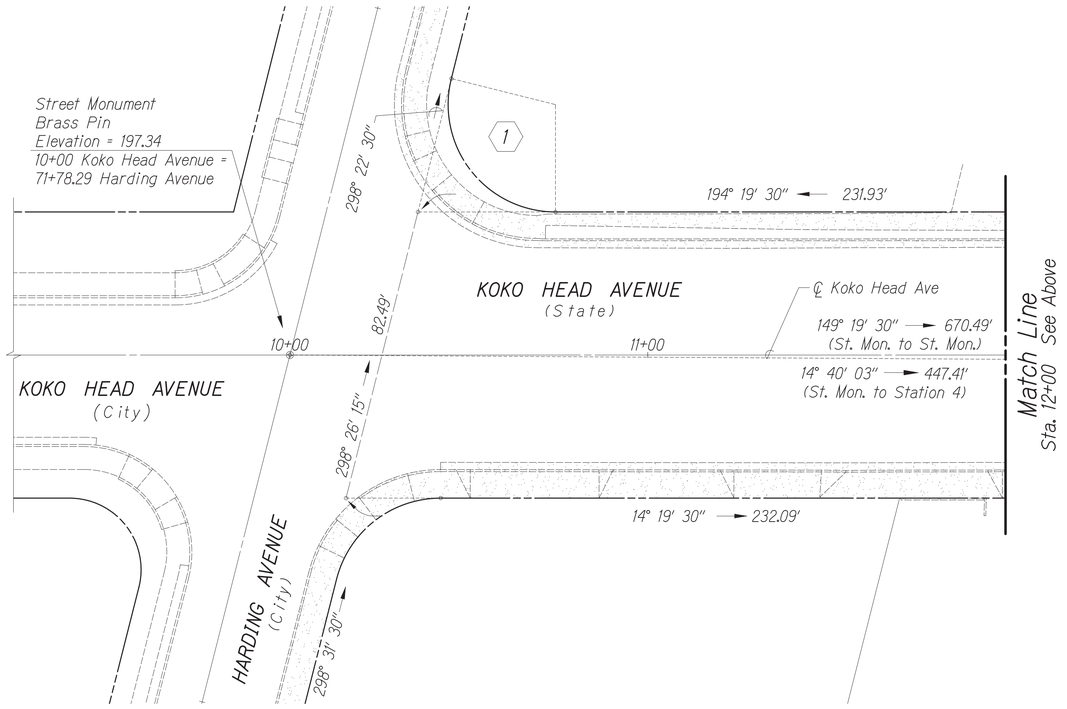
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	22	136





Curve Data			
	1	2	3
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△/2	49° 31' 30"	52° 06' 00"	38° 02' 15"
R	30.00'	25.00'	20.00'
T	38.43'	32.11'	15.65'
Ch	47.30'	39.45'	24.65'
Lc	54.48'	45.47'	26.56'

GRAPHIC SCALE

SCALE 1"=20'

20' 10' 0 20' 40'

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Conrad Higashionna

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SURVEY CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

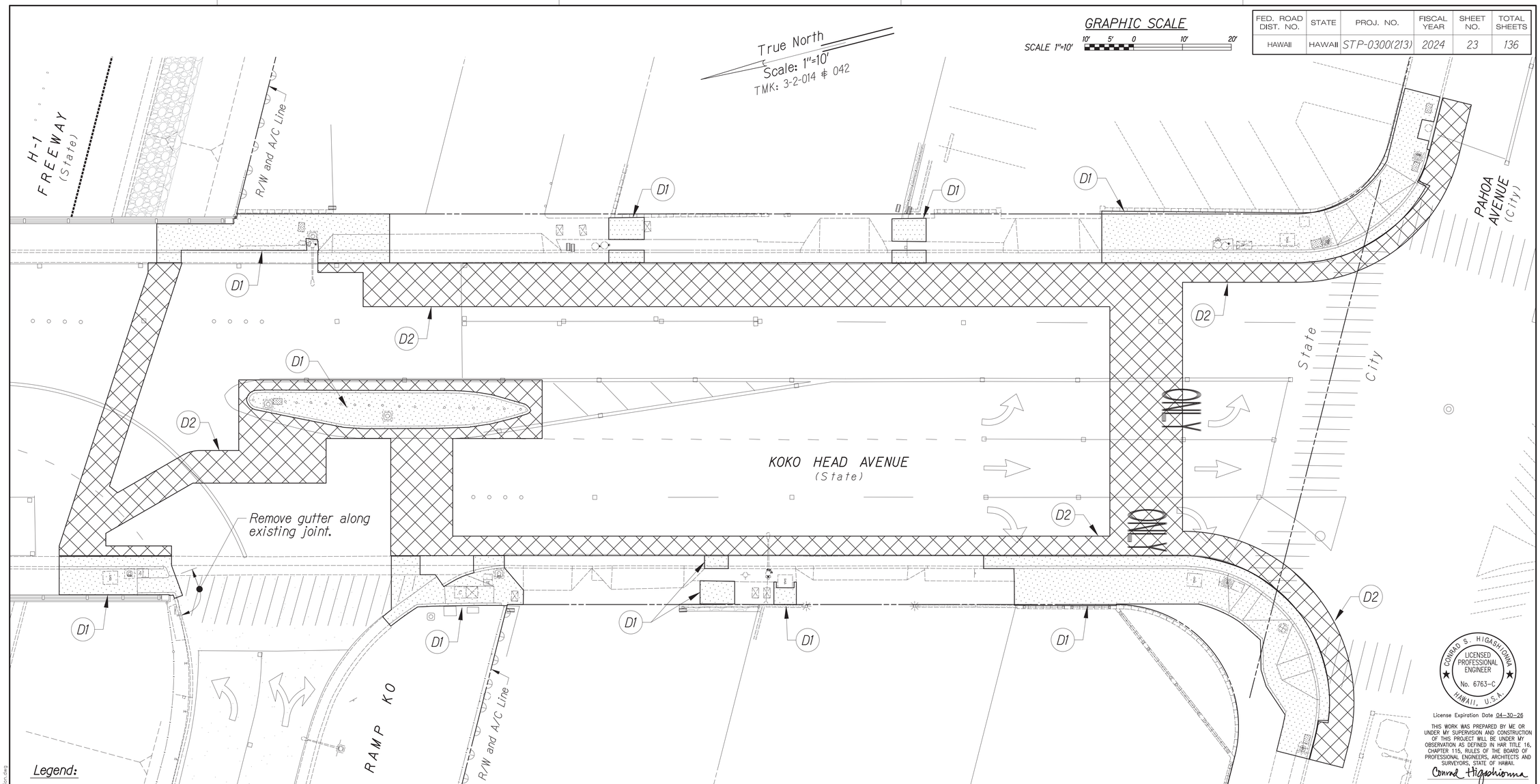
Scale: As noted Date: July 2024

SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	23	136

GRAPHIC SCALE

SCALE 1"=10' 10' 5' 0 10' 20'



Legend:

Remove and dispose of concrete sidewalk, ramps, driveway, curb, and gutter.

Remove and dispose of asphalt concrete pavement.

Demolition Callouts:

Prior to demolition work, the Contractor shall coordinate with the State Surveyor to locate existing street monuments. For removal of traffic signal equipment, see Traffic Signal demolition plans.

(D1) Approximate limits of demolition of concrete sidewalk, ramps, driveway, curb, and gutter.

(D2) Approximate limits of demolition of asphalt concrete pavement.

DEMOLITION PLAN

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 1 OF 26 SHEETS

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

Sep 29, 2024--11:12pm
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	24	136

GRAPHIC SCALES

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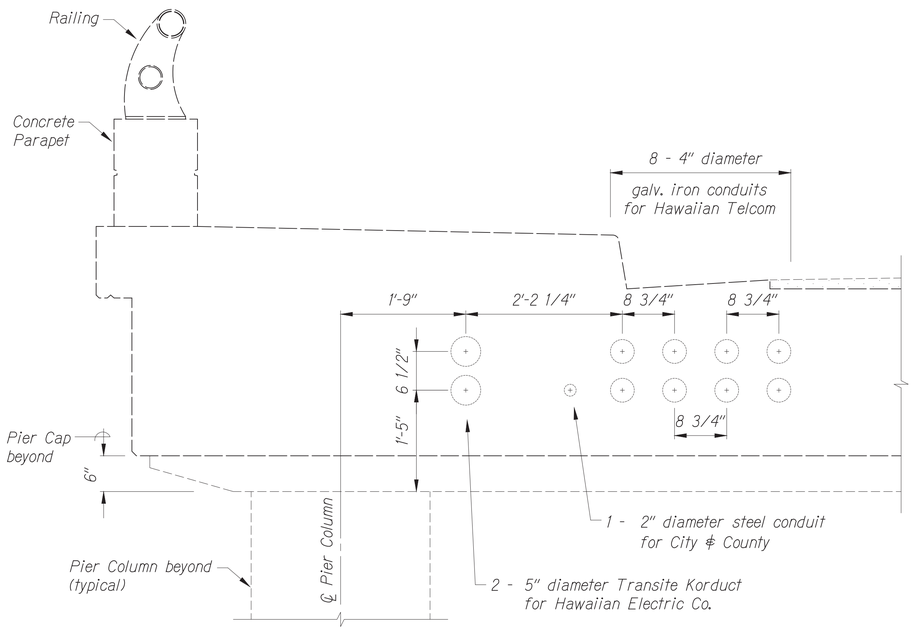
SCALE 1"=1' (1' 0 1' 2')



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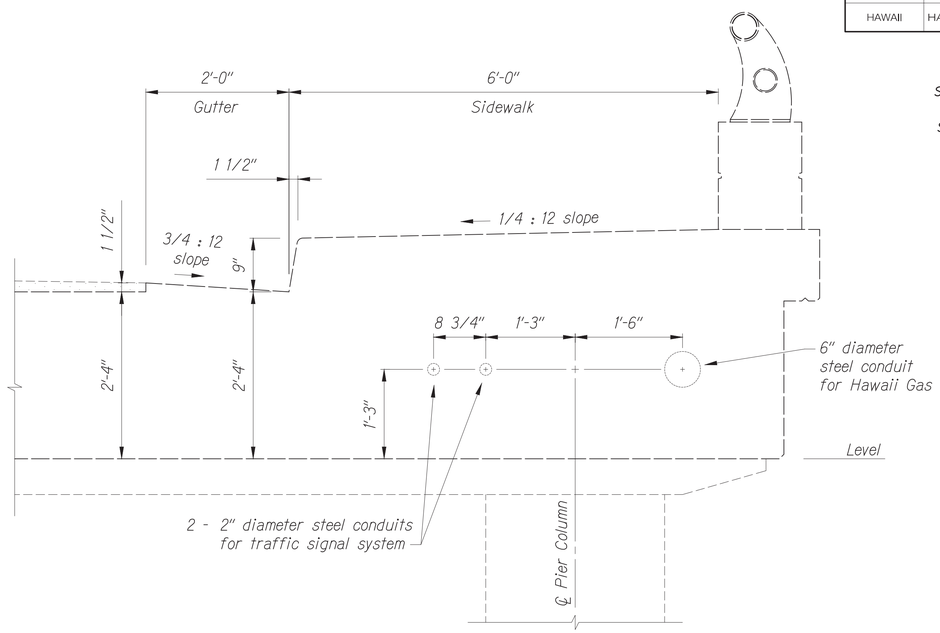

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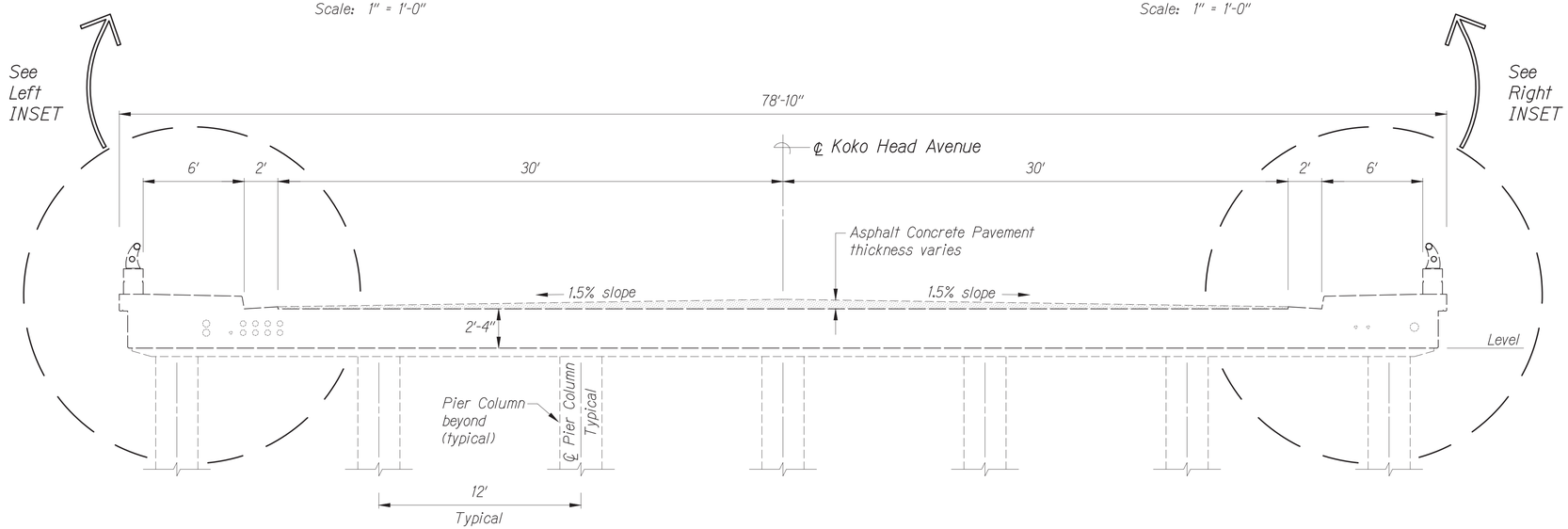

EXISTING

Station 12+81.61 to 13+88.89

Koko Head Avenue Separation

NORMAL SECTION - STRUCTURE NO. 13

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

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

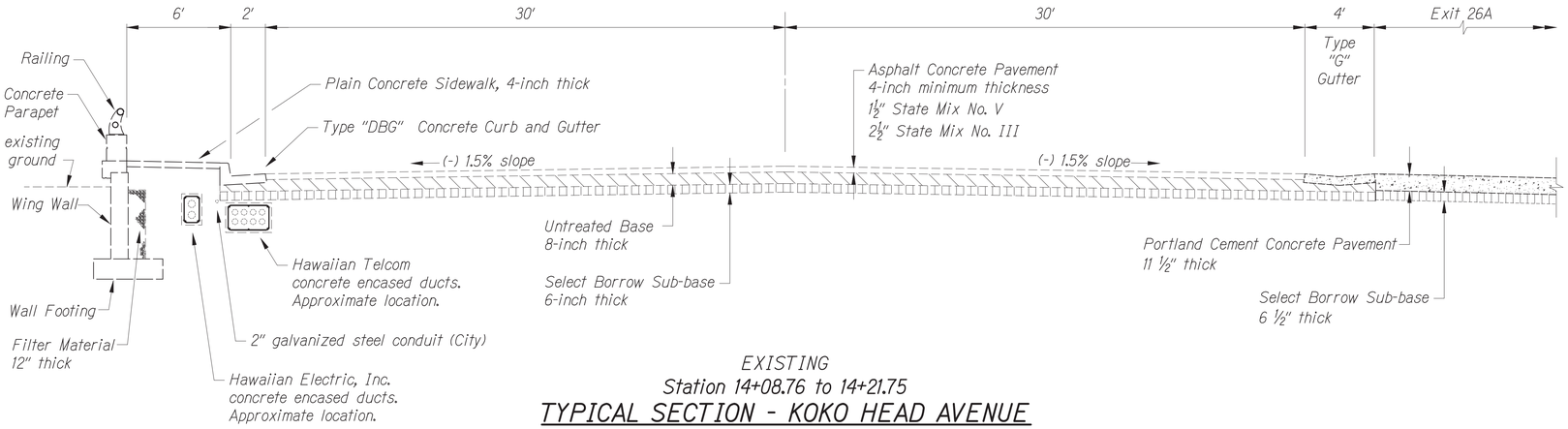
SHEET No. 2 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	25	136

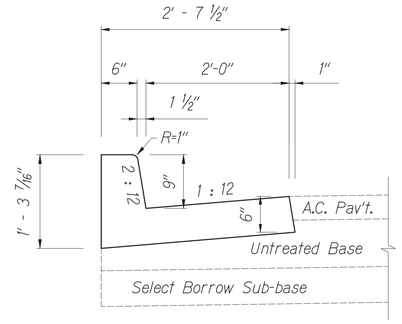
GRAPHIC SCALES

SCALE 1"=4' 4' 2' 0 4' 8'

SCALE 1"=1' 1' 0 1' 2'



EXISTING
Station 14+08.76 to 14+21.75
TYPICAL SECTION - KOKO HEAD AVENUE
Scale: 1/4" = 1'-0"



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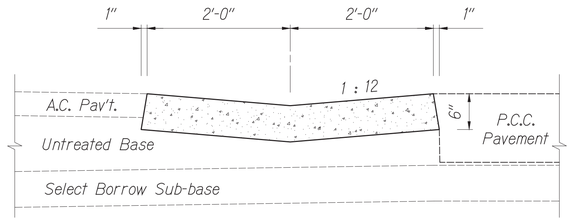

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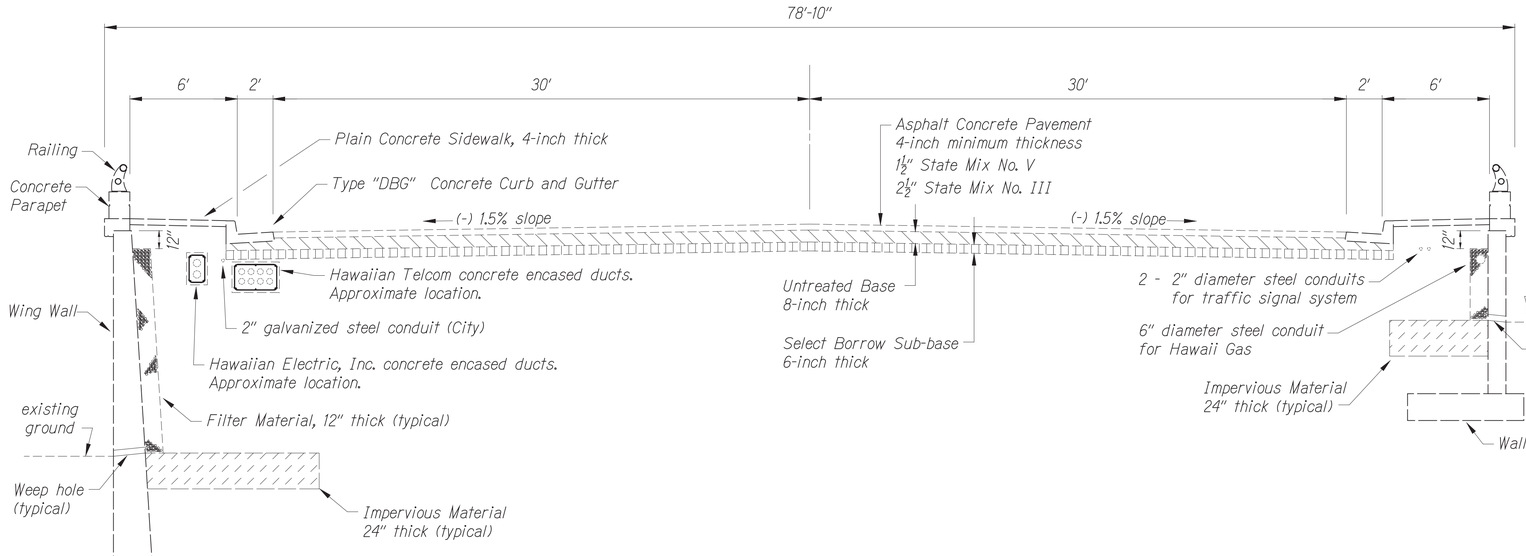

EXISTING
Station 13+88.89 to 14+08.76
TYPICAL SECTION - KOKO HEAD AVENUE
Scale: 1/4" = 1'-0"

CONRAD S. HIGASHIONNA
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

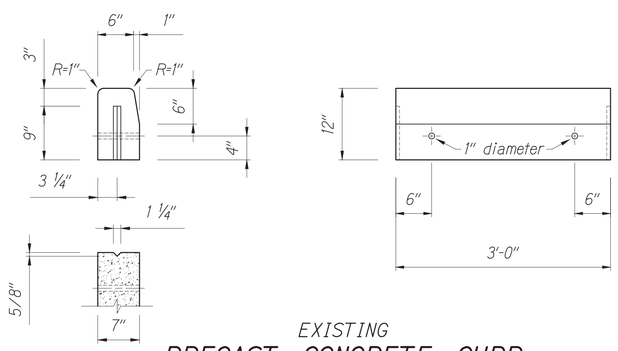
SHEET No. 3 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	26	136

GRAPHIC SCALES

SCALE 1"=4' 4' 2' 0 4' 8'

SCALE 1"=1' 1' 0 1' 2'



EXISTING

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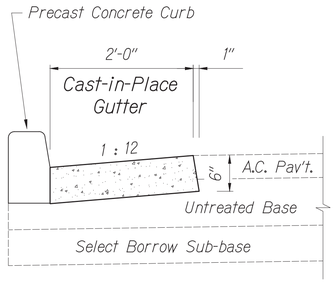

EXISTING CONCRETE
TYPE "H"

CAST-IN-PLACE GUTTER

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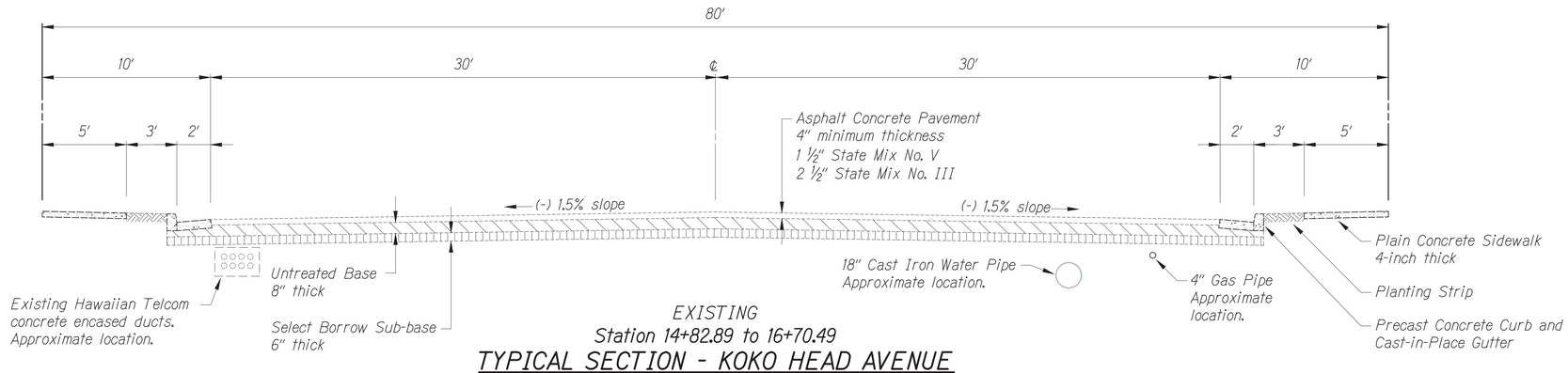
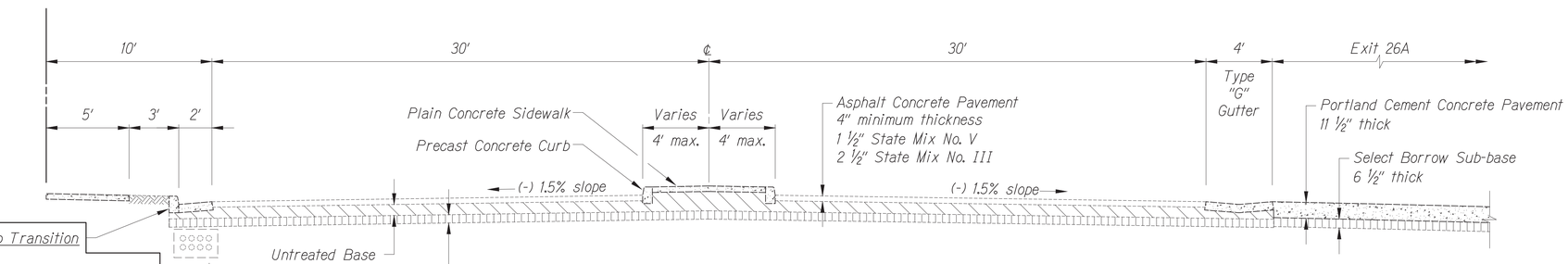


EXISTING
Station 14+82.89 to 16+70.49

TYPICAL SECTION - KOKO HEAD AVENUE

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



EXISTING
Station 14+21.75 to 14+82.89

TYPICAL SECTION - KOKO HEAD AVENUE

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

CONRAD S. HIGASHIONNA
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HAWAII, U.S.A.

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Conrad Higashionna

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

Sep 29, 2024 - 11:32pm
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

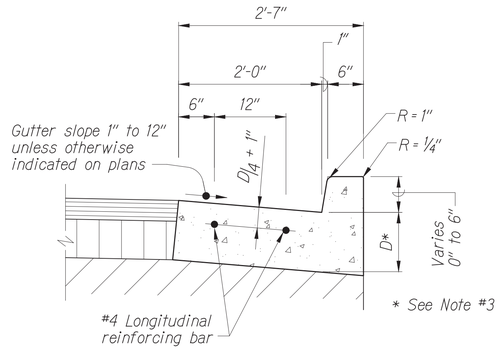
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 4 OF 26 SHEETS

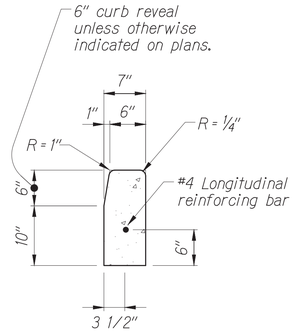
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	27	136



(For Work within City and State Right-of-Way)

CURB & GUTTER, TYPE 2DG MODIFIED

Scale: 1"= 1'



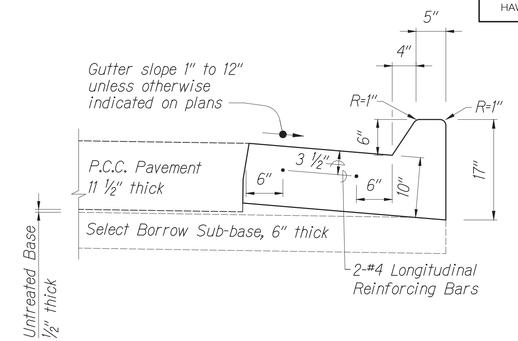
(For Work within City and State Right-of-Way)

CURB, TYPE 2D MODIFIED

Scale: 1"= 1'

NOTES:

1. Cast-In-Place P.C.C. gutters shall be longitudinally broom finished.
2. The top of all types of concrete curbs, including driveway curbs, shall be longitudinally broom finished.
3. For asphalt concrete pavement areas with no underdrain, D* equals thickness of A.C. plus A.C. base but not less than 10".
4. Concrete shall be Class A.
5. For construction and contraction joint details, see DOT Standard Plan D-05.
6. Drilling holes and installing dowel reinforcing bars shall be incidental to the various contract items and will not be paid for separately.
7. Longitudinal reinforcing bars for Curb & Gutter, Type 2DG Modified, and Curb, Type 2D Modified, shall be incidental to the various contract items and will not be paid for separately.



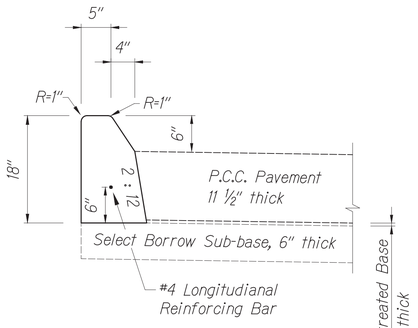
TYPE "A-2" CURB & GUTTER MODIFIED

Scale: 1" = 1'-0"

GRAPHIC SCALES

SCALE 1"=4' (4' 2' 0 4' 8')

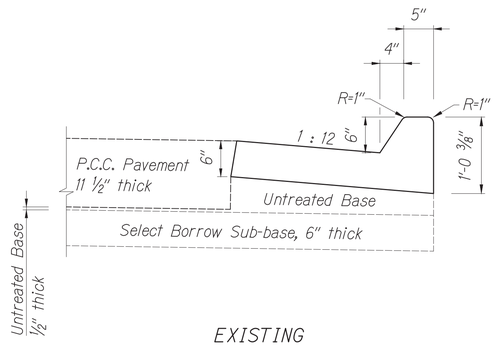
SCALE 1"=1' (1' 0 1' 2')



EXISTING

TYPE "A-1" CURB

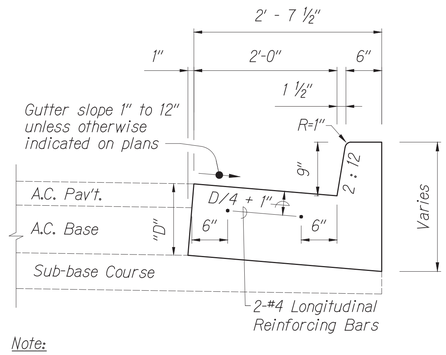
Scale: 1" = 1'-0"



EXISTING

TYPE "A-2" CURB & GUTTER

Scale: 1" = 1'-0"



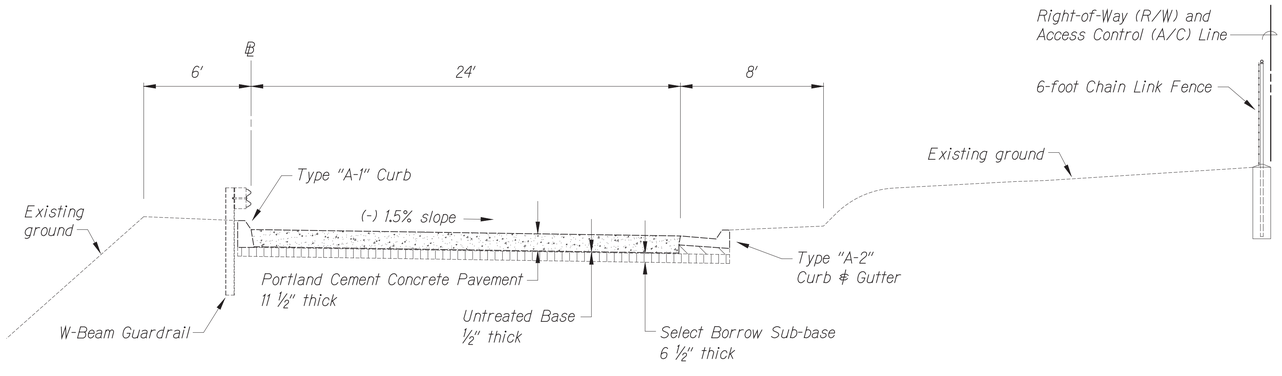
Note:

1. Cast-in-place Portland Cement Concrete (PCC) gutter shall be longitudinal broom finished.
2. The top of all types of concrete curbs shall be longitudinally broom finished.
3. For asphalt concrete pavement areas, gutter thickness "D" = A.C. thickness + A.C. Base but not less than 10".
4. Concrete shall be Class A.

CAST-IN-PLACE

CURB & GUTTER, TYPE "DBG" MODIFIED

Scale: 1" = 1'-0"



EXISTING

Station 6+28 to 8+10.04

TYPICAL SECTION - RAMP KO

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

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C:\Users\higashionna\Desktop\CAD\2317 TSM Phase 2\TNRA\027 R-05 Typical Sections.dwg

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

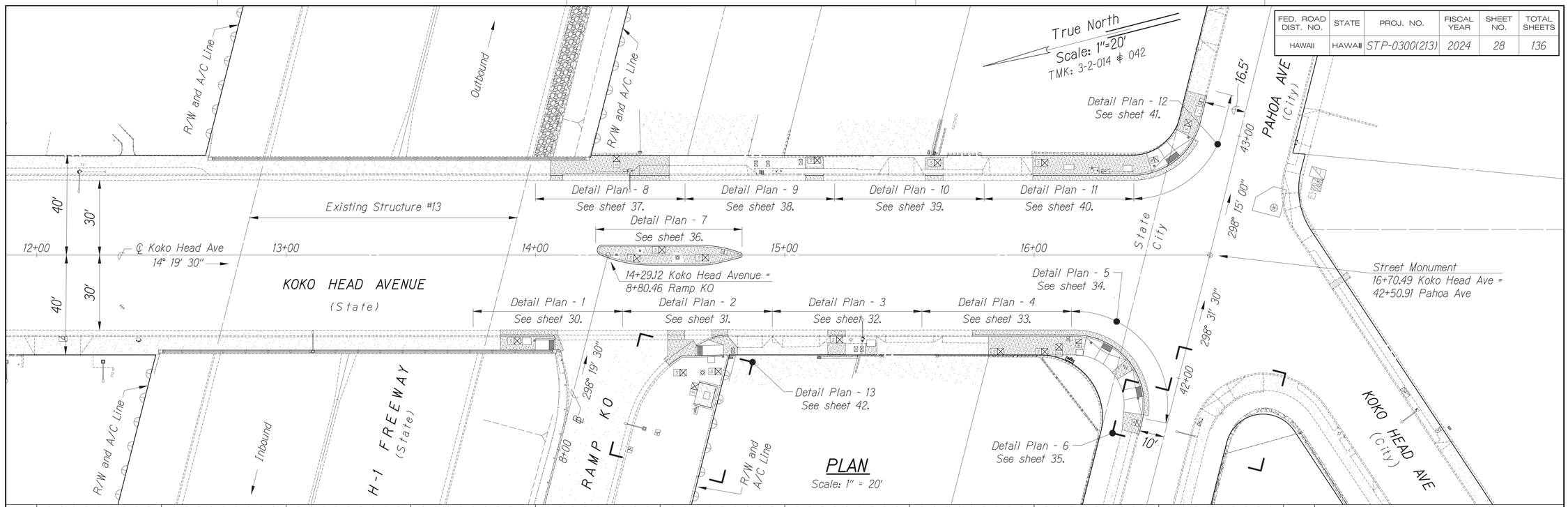
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

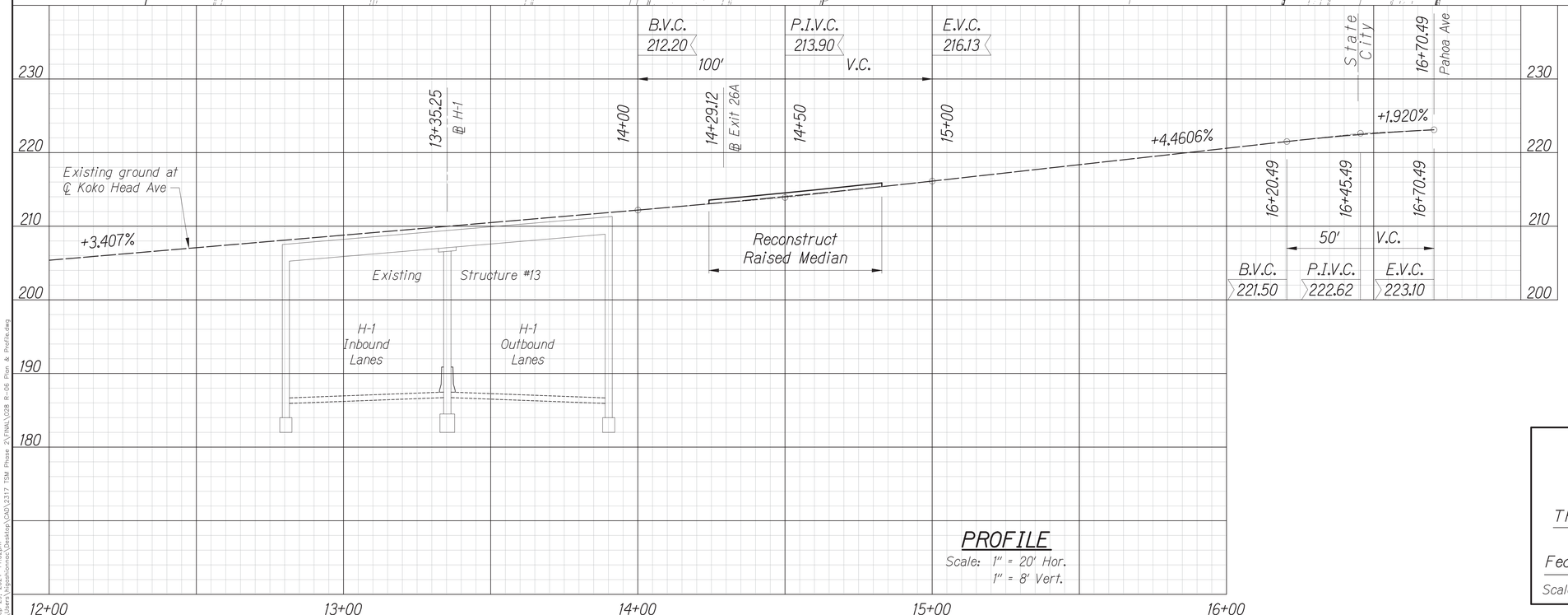
Scale: As noted | Date: July 2024

SHEET No. 5 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	28	136



PLAN
Scale: 1" = 20'



PROFILE
Scale: 1" = 20' Hor.
1" = 8' Vert.

GRAPHIC SCALES
SCALE 1"=20' 20' 10' 0 20' 40'
SCALE 1"=8' 8' 4' 0 8' 16'

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No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

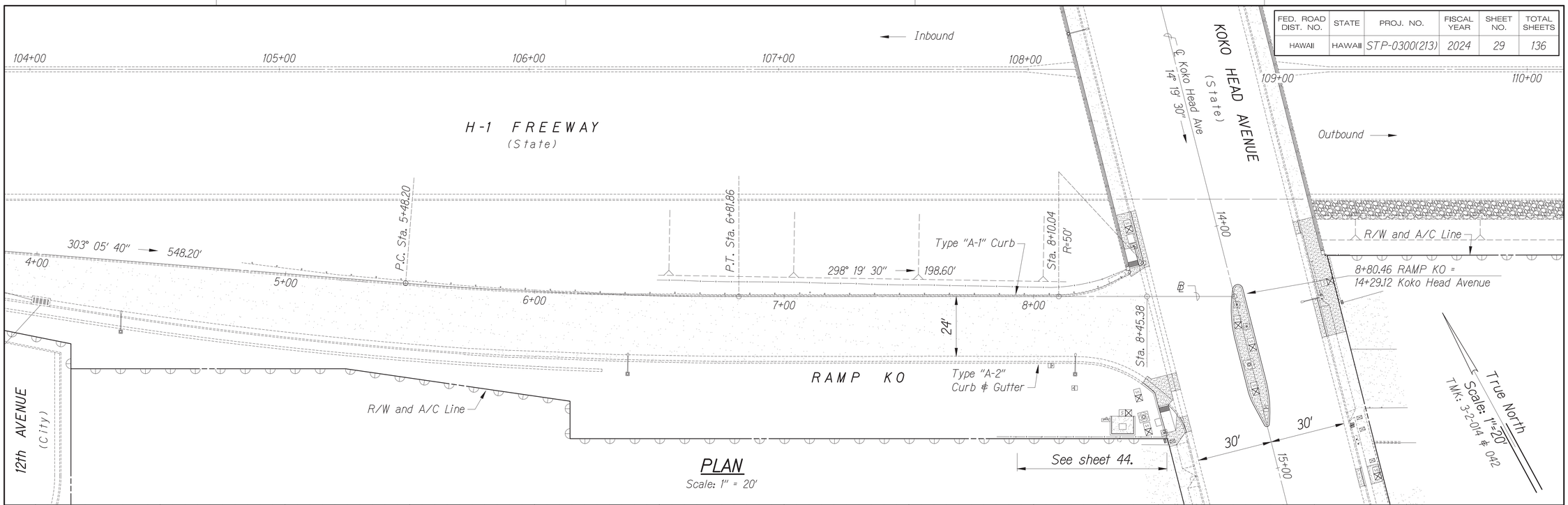
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 6 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	29	136



GRAPHIC SCALE

SCALE 1"=20' — 20' 10' 0 20' 40'

SCALE 1"=8' — 8' 4' 0 8' 16'

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

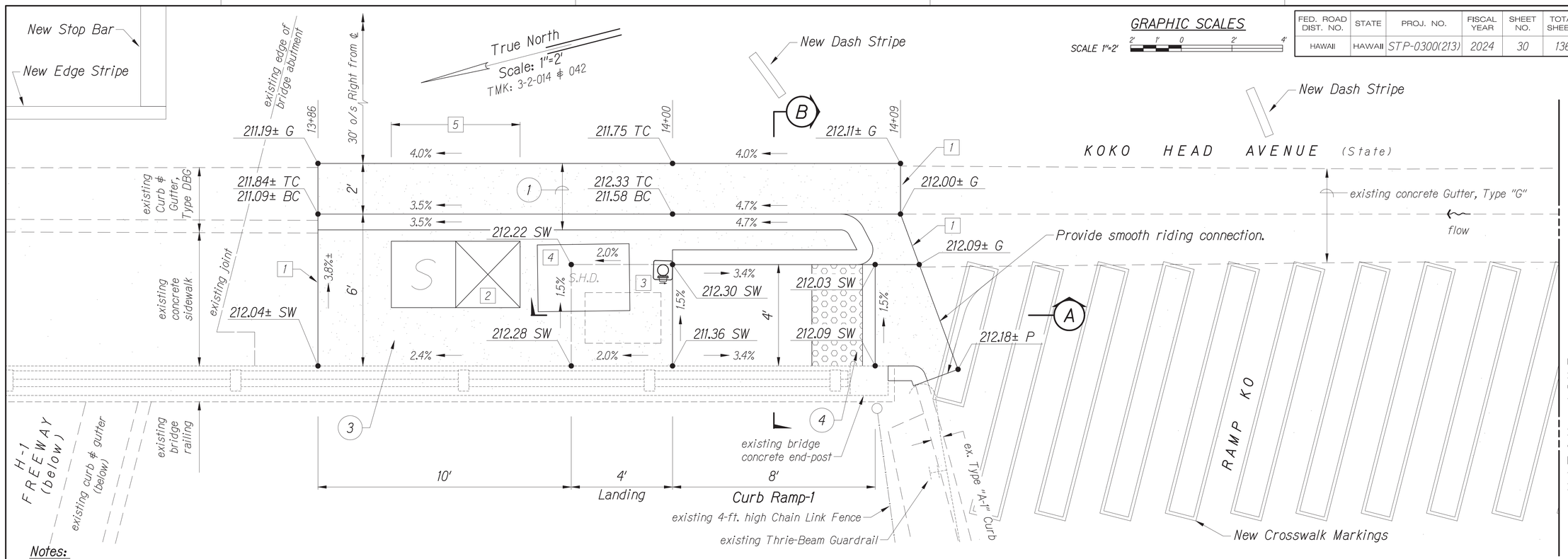
TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 7 OF 26 SHEETS



GRAPHIC SCALES

SCALE 1"=2' (2' 1' 0 2' 4')

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	30	136

Notes:

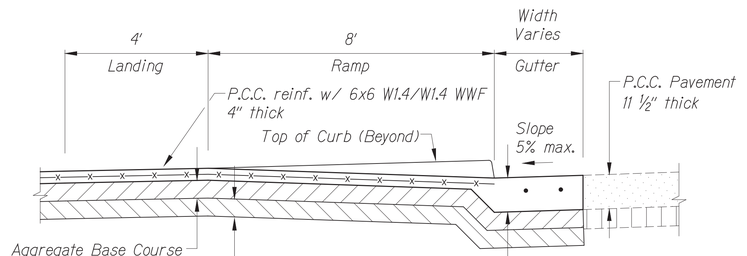
1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, ∮ gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.
3. New pedestrian push button B1 mounted on new Pole E (Type I traffic signal standard).
4. Adjust existing traffic signal pull box (labeled "S.H.D.") to finish grade. Provide smooth riding connection. For details, see sheet 109.
5. Curb ∮ Gutter, Type "DBG" Modified to fit curb over duct line. For details, see sheet 46.

New Construction Callouts:

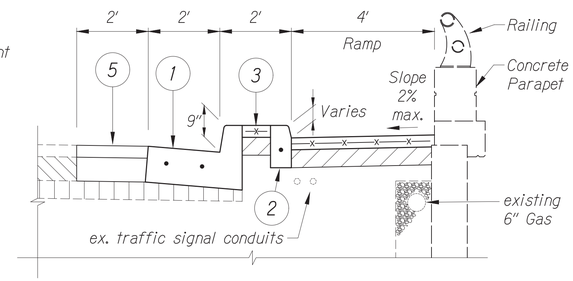
1. Curb ∮ Gutter, Type "DBG" Modified. For details, see sheets 27.
2. Curb, Type 2D Modified. For details, see sheet 27.
3. P.C.C. Sidewalk, per Standard Plan D-15.
4. Detectable Warning Mat. For Curb Ramp Notes and details, see sheet 44.
5. For pavement transition details, see sheet 47.

Legend:

120.67±	Existing Elev.
212.04	Finish Elev.
212.04±	Finish Elev. (Approx.)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk



SECTION A
Scale: 1" = 2'



SECTION B
Scale: 1" = 2'

DETAIL PLAN - 1
Scale: 1" = 2'

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP — Date (for construction in City ROW only)
Manager and Chief Engineer, BWS — Date (for work affecting BWS facilities in City/State R/W and BWS easements only)
Chief, Traffic Review Branch, DPP — Date (for work within City ROW)
Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 8 OF 26 SHEETS

30

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NOTE BOOK | No.

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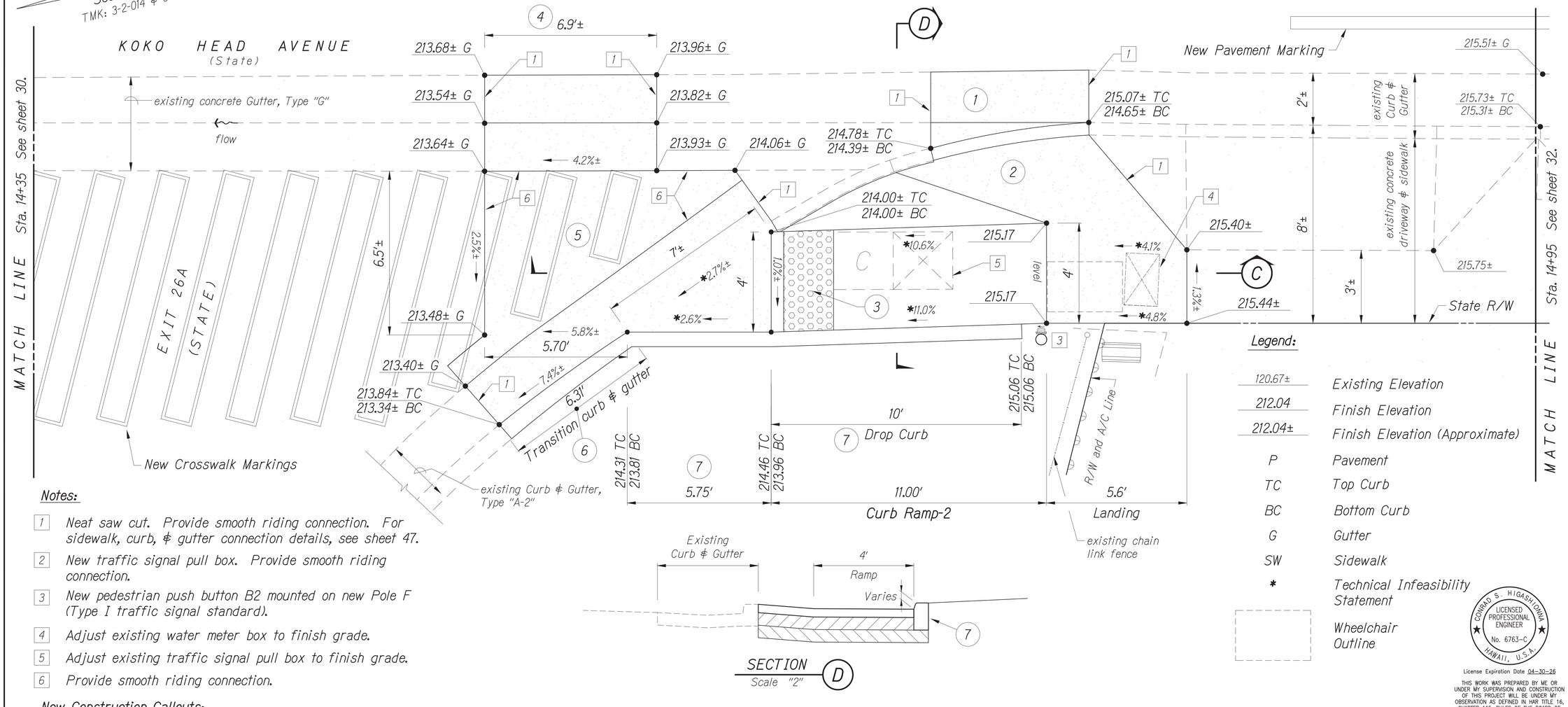
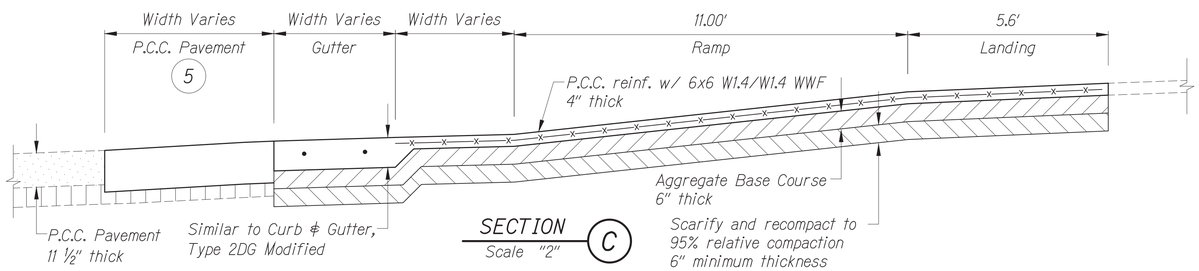
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	31	136

True North
Scale: 1"=2'
TMK: 3-2-014 & 042

GRAPHIC SCALES
SCALE 1"=2'
2' 1' 0 2' 4'





DETAIL PLAN - 2
Scale: 1" = 2'

Notes:

1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.
3. New pedestrian push button B2 mounted on new Pole F (Type I traffic signal standard).
4. Adjust existing water meter box to finish grade.
5. Adjust existing traffic signal pull box to finish grade.
6. Provide smooth riding connection.

New Construction Callouts:

1. Curb & Gutter, Type 2DG Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.
3. Detectable Warning Mat. For Curb Ramp Notes and details, see sheet 44.
4. Type "G" Gutter. For details, see sheet 25. For details to connect to existing gutter, see sheet 47.
5. Portland Cement Concrete Pavement. For restoration details, see sheet 53. For as-built plan, see sheet 106.
6. Transition from Type "A-2" Curb and Gutter Modified to Type 2D Curb Modified. For details, see sheet 27.
7. Type 2D Curb Modified. For details, see sheet 27.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk
*	Technical Infeasibility Statement
	Wheelchair Outline

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

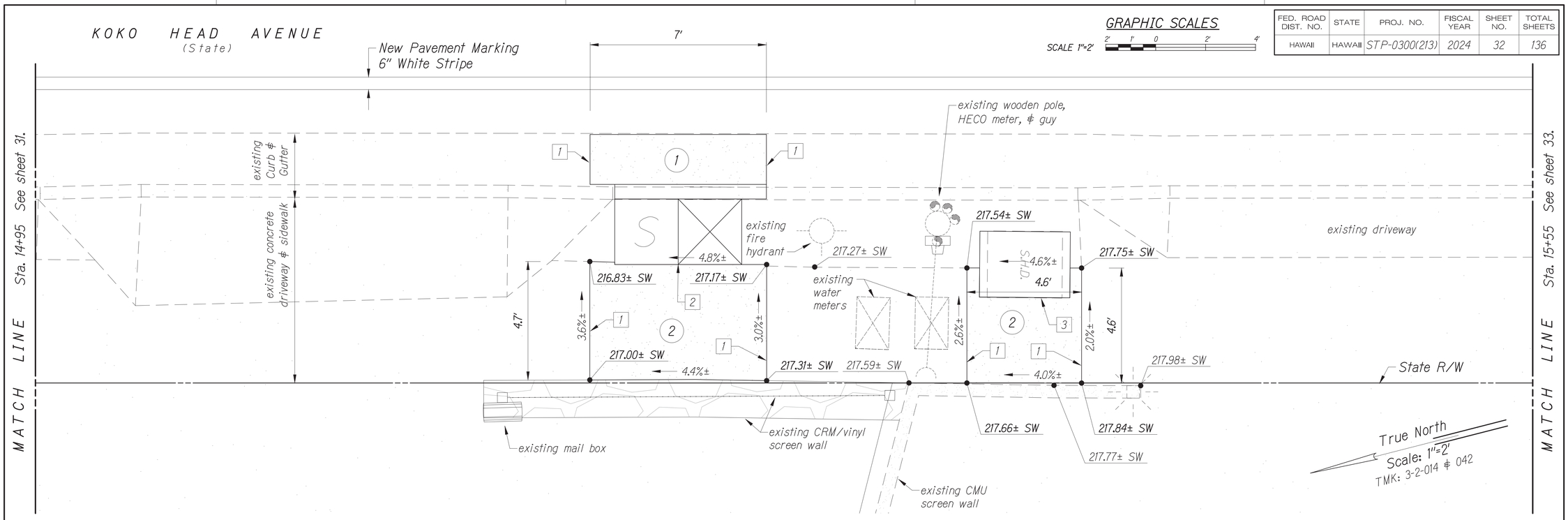
Scale: As noted Date: July 2024

SHEET No. 9 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	32	136

GRAPHIC SCALES

SCALE 1"=2' 2' 1' 0 2' 4'



Notes:

1. *Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.*
2. *New traffic signal pull box. Provide smooth riding connection.*
3. *Existing traffic signal pull box with new frame and covers. Provide smooth riding connection.*

New Construction Callouts:

1. *Curb & Gutter, Type 2DG Modified. For details, see sheet 27.*
2. *P.C.C. Sidewalk, per Standard Plan D-15.*

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

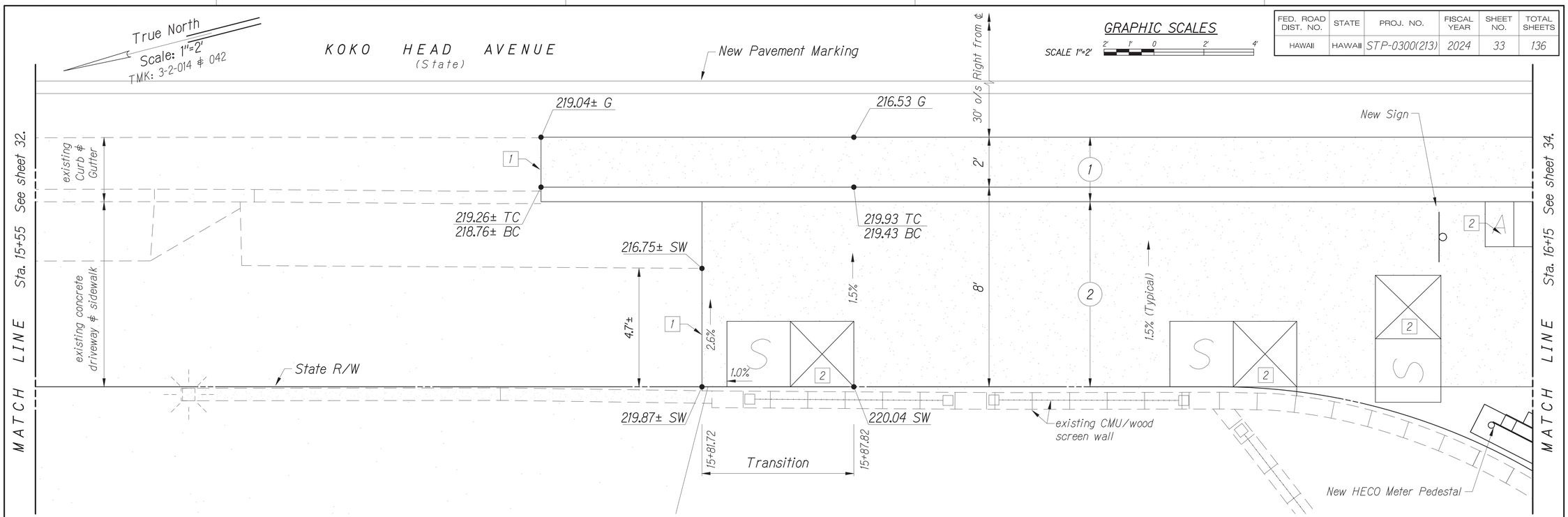
TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

DETAIL PLAN - 3

Scale: 1" = 2'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	33	136



Notes:

1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.

New Construction Callouts:

1. Curb & Gutter, Type 2DG Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk
*	Technical Infeasibility Statement

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LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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DETAIL PLAN - 4

Scale: 1" = 2'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 11 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	34	136

KOKO HEAD AVE. (State)

PAHOA AVENUE (City)

MATCH LINE — See sheet 33. Sta. 16+15

MATCH LINE — See sheet 35.

New Crosswalk Markings

Curb Ramp-3

Curb Ramp-4

Similar to Section "E"

Controller "B"

State ROW

existing CMU

P.C. 16+15

P.T. 41+79.40

284° 19' 30"

28° 31' 30"

True North

Scale: 1"=2'

TMK: 3-2-014 ∮ 042

DETAIL PLAN - 5

Scale: 1" = 2'

GRAPHIC SCALES

SCALE 1"=2'

Notes:

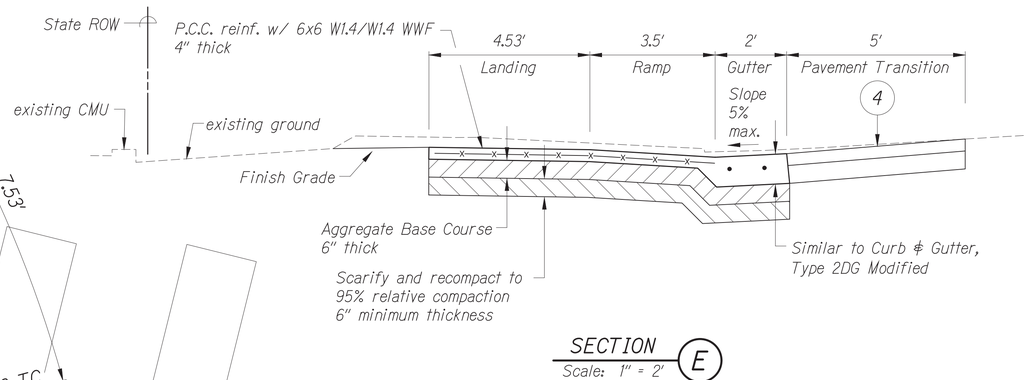
1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.
3. New pedestrian push button mounted on new Type I traffic signal standard.
4. New pedestrian push button mounted on new Type I traffic signal standard.

New Construction Callouts:

1. Curb & Gutter, Type 2DG Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.
3. Detectable Warning Mat. For Curb Ramp Notes and details, see sheet 44.
4. For pavement transition details, see sheet 47.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elev. (Approx.)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk



SECTION E

Scale: 1" = 2'

Curve Data	
Curve	1
△	104° 12' 00"
△/2	52° 06' 00"
R	28.00'
T	35.97'
Ch	44.19'
Lc	50.92'

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Conrad Higashionna

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 12 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	37	136

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk / Curb Ramp
*	Technical Infeasibility Statement
	Wheelchair Outline

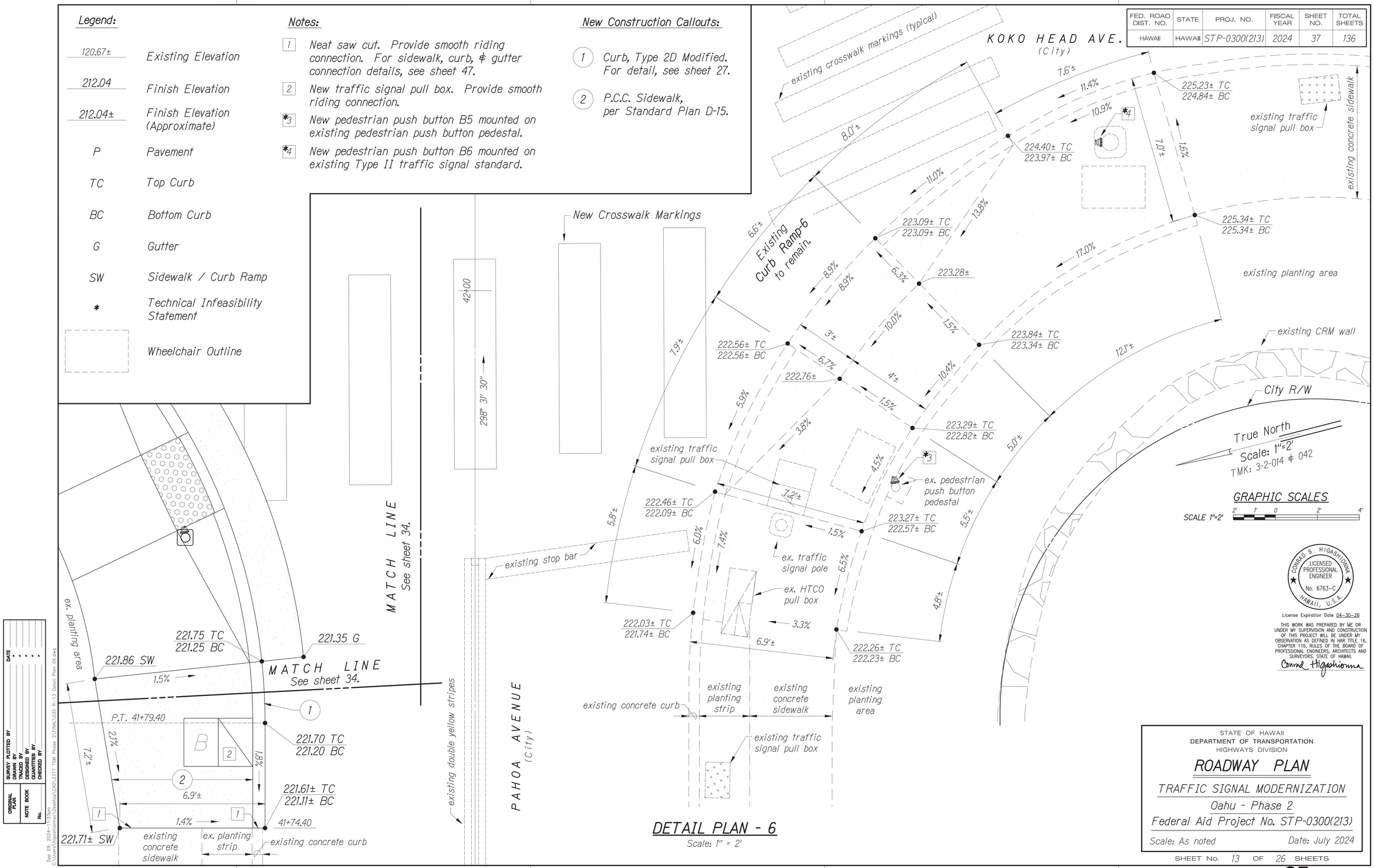
Notes:

1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.
*3. New pedestrian push button B5 mounted on existing pedestrian push button pedestal.
*4. New pedestrian push button B6 mounted on existing Type II traffic signal standard.

New Construction Callouts:

(1) Curb, Type 2D Modified. For detail, see sheet 27.

(2) P.C.C. Sidewalk, per Standard Plan D-15.



DETAIL PLAN - 6

Scale: 1" = 2'

GRAPHIC SCALES

SCALE 1"=2' — 2' 1' 0 2' 4'

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

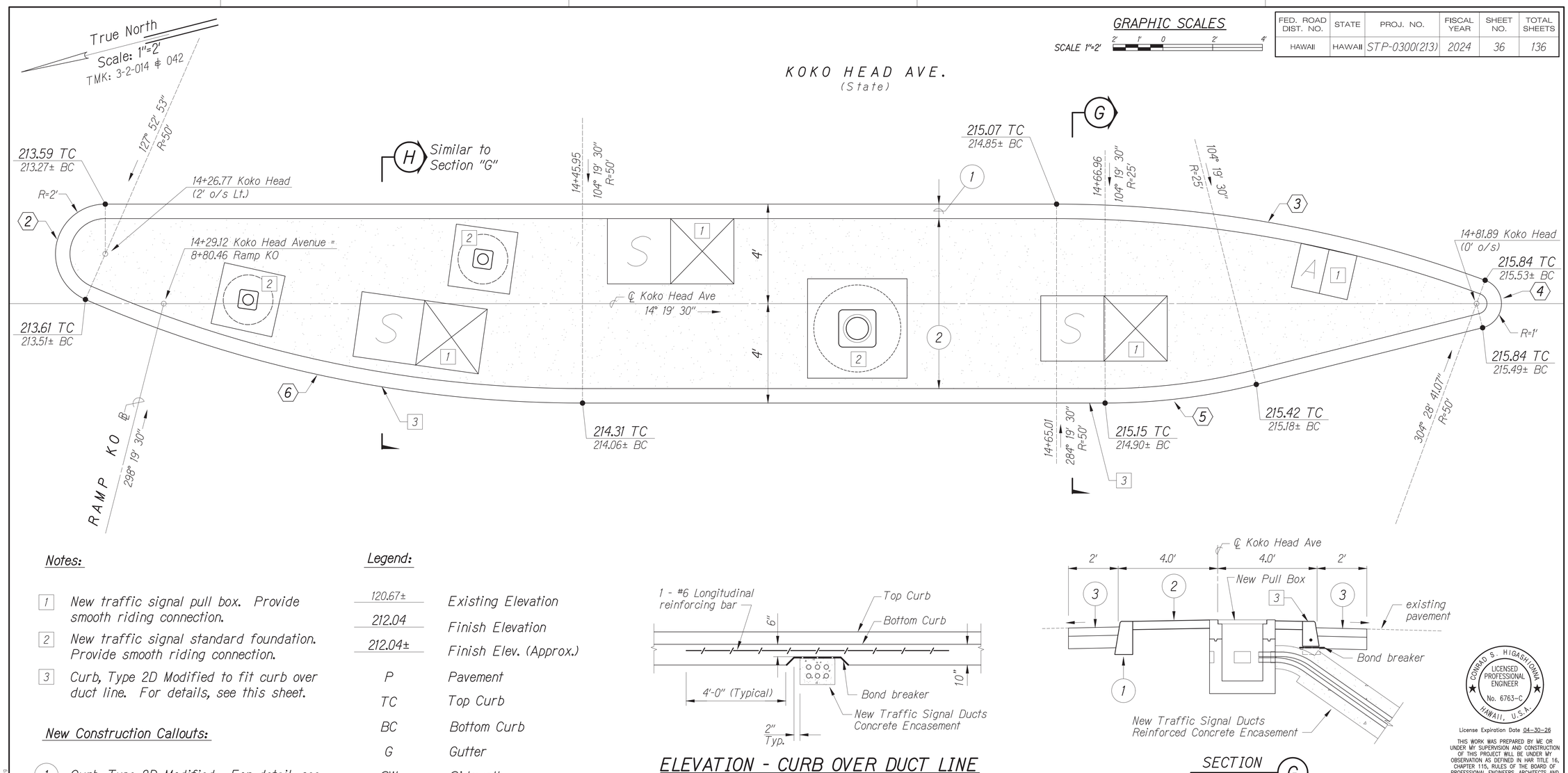
Scale: As noted — Date: July 2024

SHEET No. 13 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	36	136

GRAPHIC SCALES

SCALE 1"=2' 2' 1' 0 2' 4'



Notes:

1. New traffic signal pull box. Provide smooth riding connection.
2. New traffic signal standard foundation. Provide smooth riding connection.
3. Curb, Type 2D Modified to fit curb over duct line. For details, see this sheet.

New Construction Callouts:

1. Curb, Type 2D Modified. For detail, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.
3. For pavement transition details, see sheet 47.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elev. (Approx.)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

Curve Data					
Curve	2	3	4	5	6
△	156° 26' 53"	104° 12' 00"	165° 55' 49"	14° 04' 11"	23° 33' 23"
△/2	78° 13' 26.5"	52° 06' 00"	82° 57' 54.5"	7° 02' 05.5"	11° 46' 41.5"
R	2.00'	50.00'	1.00'	25.00'	50.00'
T	9.59'	8.89'	3.25'	3.09'	10.43'
Ch	3.92'	17.50'	1.91'	6.12'	20.41'
Lc	5.46'	17.59'	2.54'	6.14'	20.56'

ELEVATION - CURB OVER DUCT LINE

Scale: 1"= 2'

SECTION G

Scale: 1" = 2'

DETAIL PLAN - 7

Scale: 1" = 2'

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

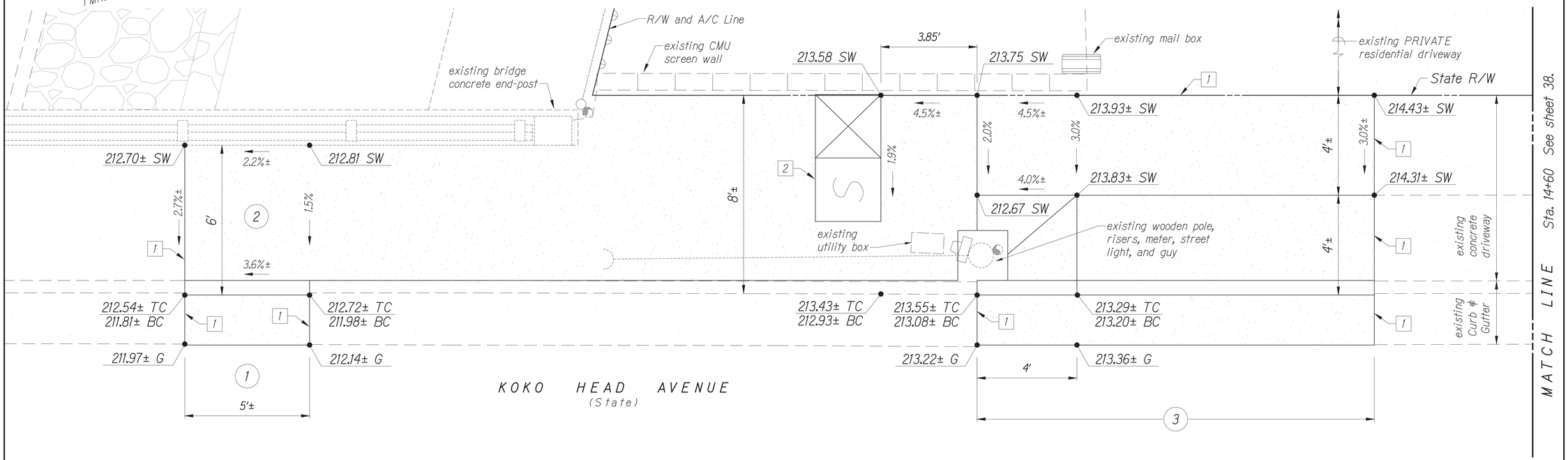
Scale: As noted Date: July 2024

SHEET No. 14 OF 26 SHEETS

True North
Scale: 1"=2'
TMK: 3-2-014 ∯ 042

GRAPHIC SCALES
SCALE 1"=2'
2' 1' 0 2' 4'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	37	136



Notes:

1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, ∯ gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.

New Construction Callouts:

1. Curb ∯ Gutter, Type "DBG" Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.
3. (6-inch) Reinforced Concrete Driveway, per Standard Plan D-06.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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DETAIL PLAN - 8

Scale: 1" = 2'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

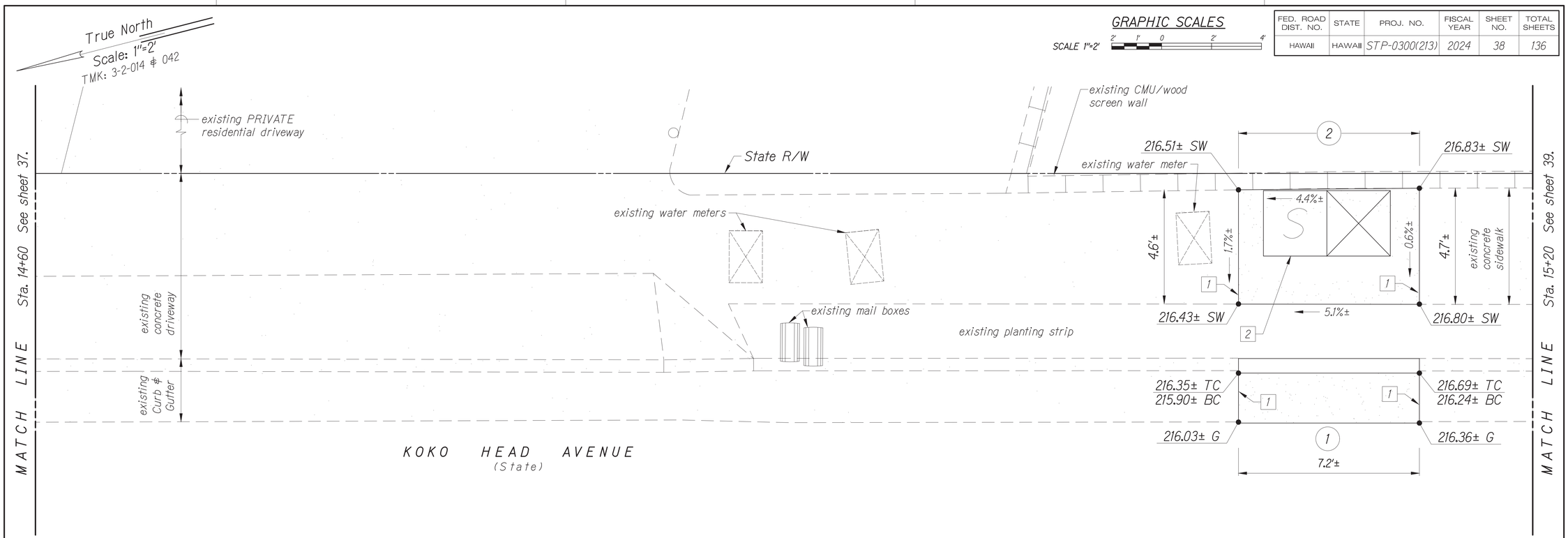
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 15 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	38	136



Notes:

1. *Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.*
2. *New traffic signal pull box. Provide smooth riding connection.*

New Construction Callouts:

1. *Curb & Gutter, Type 2DG Modified. For details, see sheet 27.*
2. *P.C.C. Sidewalk, per Standard Plan D-15.*

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

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LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

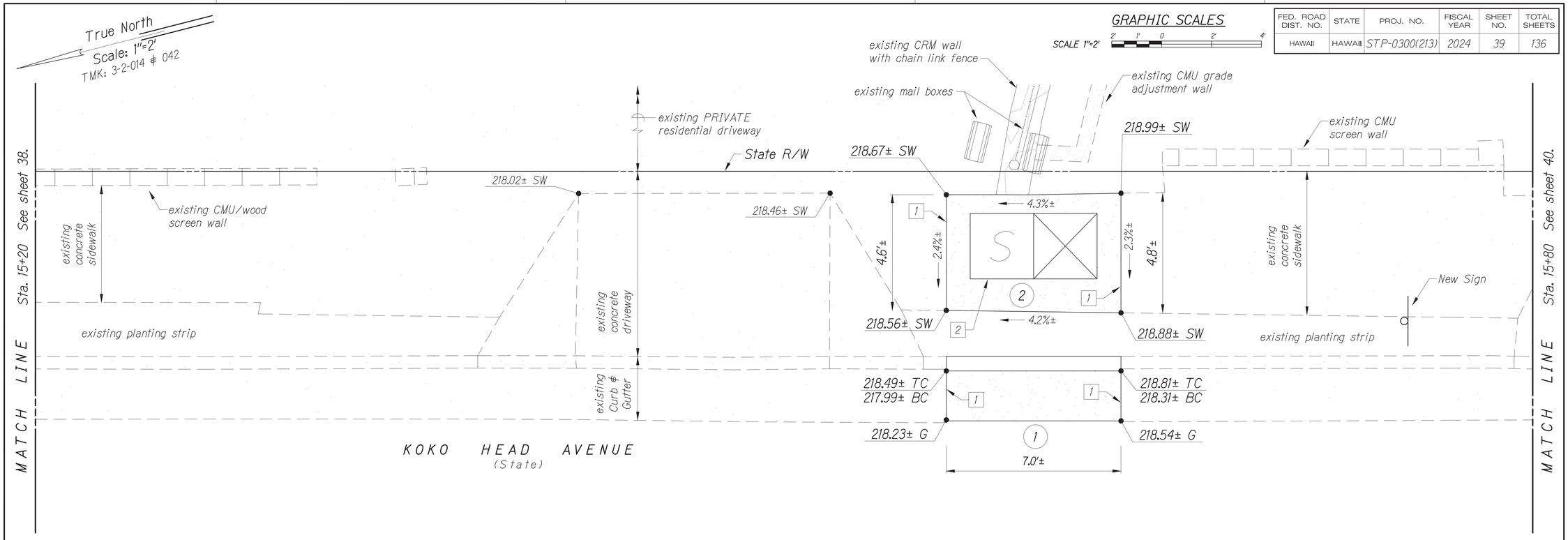
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

DETAIL PLAN - 9

Scale: 1" = 2'



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	39	136

Notes:

1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.

New Construction Callouts:

1. Curb & Gutter, Type 2DG Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

DETAIL PLAN - 9

Scale: 1" = 2'

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LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 17 OF 26 SHEETS

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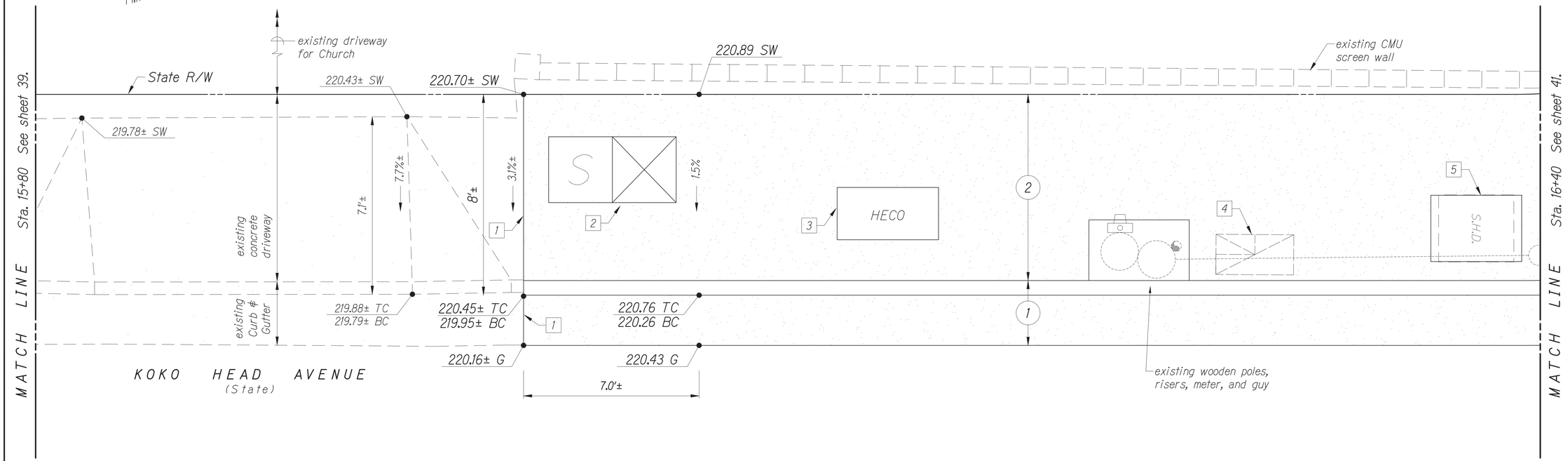
True North
Scale: 1"=2'
TMK: 3-2-014 & 042

GRAPHIC SCALES
SCALE 1"=2'
2' 1' 0 2' 4'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	40	136



Notes:

1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.
3. New Hawaiian Electric Company pull box. Provide smooth riding connection.
4. Existing Hawaiian Telcom pull box. Provide smooth riding connection.
5. Adjust existing traffic signal pull box (labeled "S.H.D.") to finish grade. Provide smooth riding connection. For details, see sheet 109.

New Construction Callouts:

(1) Curb & Gutter, Type 2DG Modified. For details, see sheet 27.

(2) P.C.C. Sidewalk, per Standard Plan D-15.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

DETAIL PLAN - 11

Scale: 1" = 2'

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No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 18 OF 26 SHEETS

ORIGINAL PLAN	NOTE BOOK	No.	DATE

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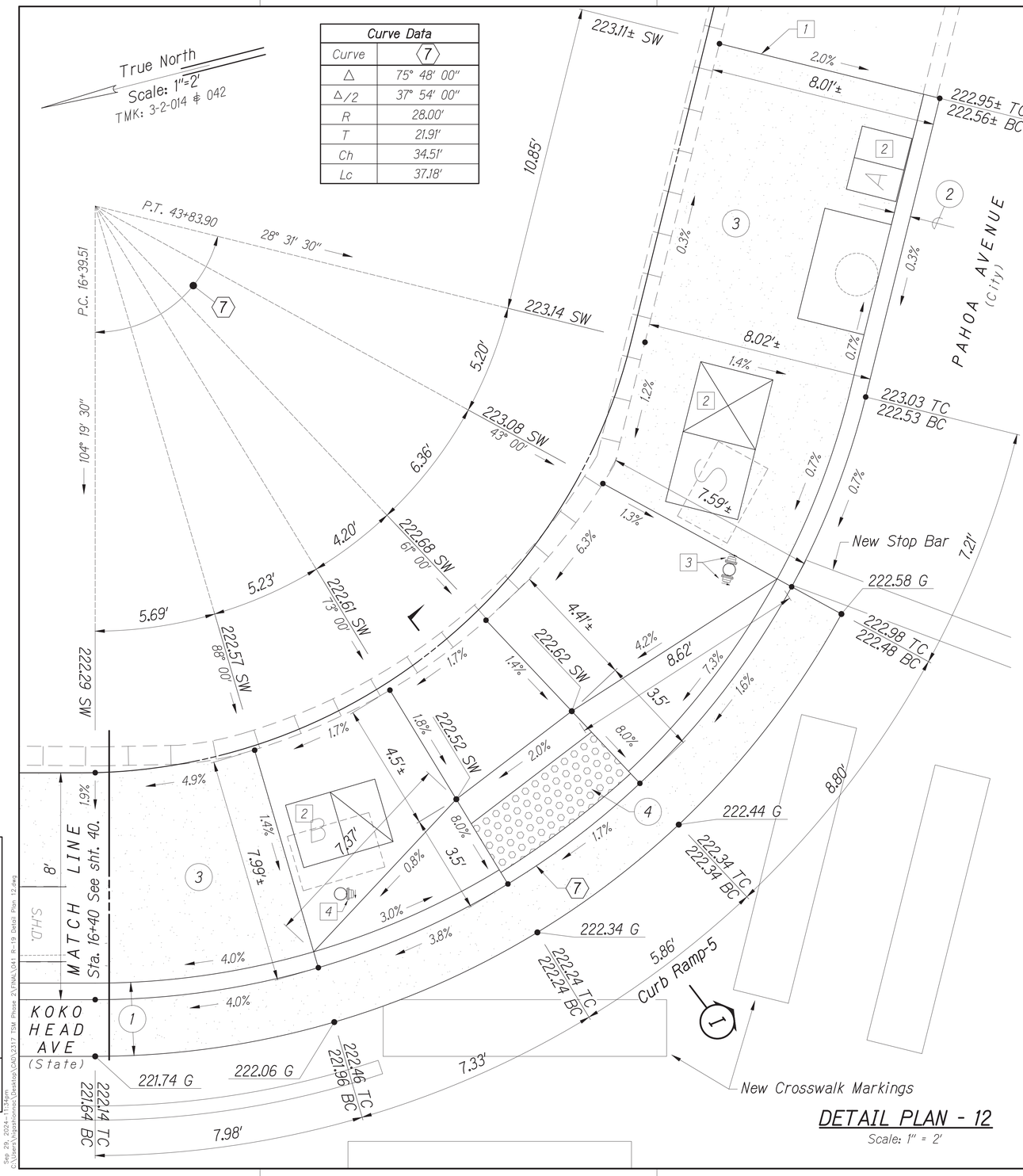
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	41	136



DETAIL PLAN - 12

Scale: 1" = 2'

GRAPHIC SCALES

SCALE 1"=2' (2' 1' 0 2' 4')

Notes:

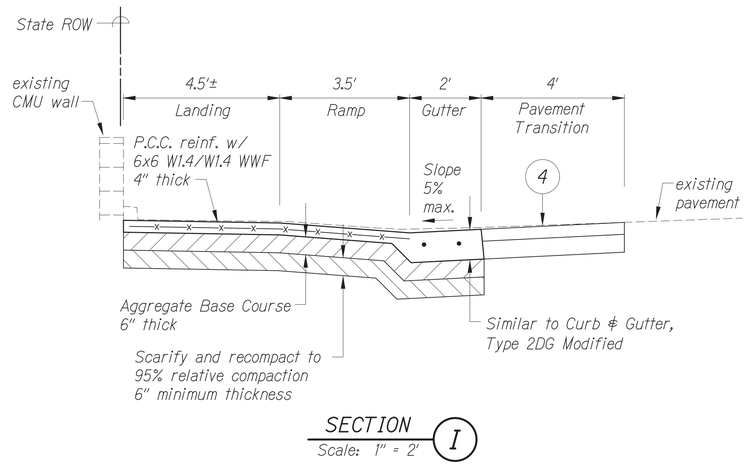
1. Neat saw cut. Provide smooth riding connection. For sidewalk, curb, & gutter connection details, see sheet 47.
2. New traffic signal pull box. Provide smooth riding connection.
3. New pedestrian push buttons B9 and B10 mounted on new Type I traffic signal standard.
4. New pedestrian push button B11 mounted on new Type I traffic signal standard.

New Construction Callouts:

1. Curb & Gutter, Type 2DG Modified. For details, see sheet 27.
2. Curb, Type 2D Modified. For detail, see sheet 27.
3. P.C.C. Sidewalk, per Standard Plan D-15.
4. Detectable Warning Mat. For Curb Ramp Notes and details, see sheet 44.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk / Curb Ramp
	Wheelchair Outline



SECTION I

Scale: 1" = 2'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

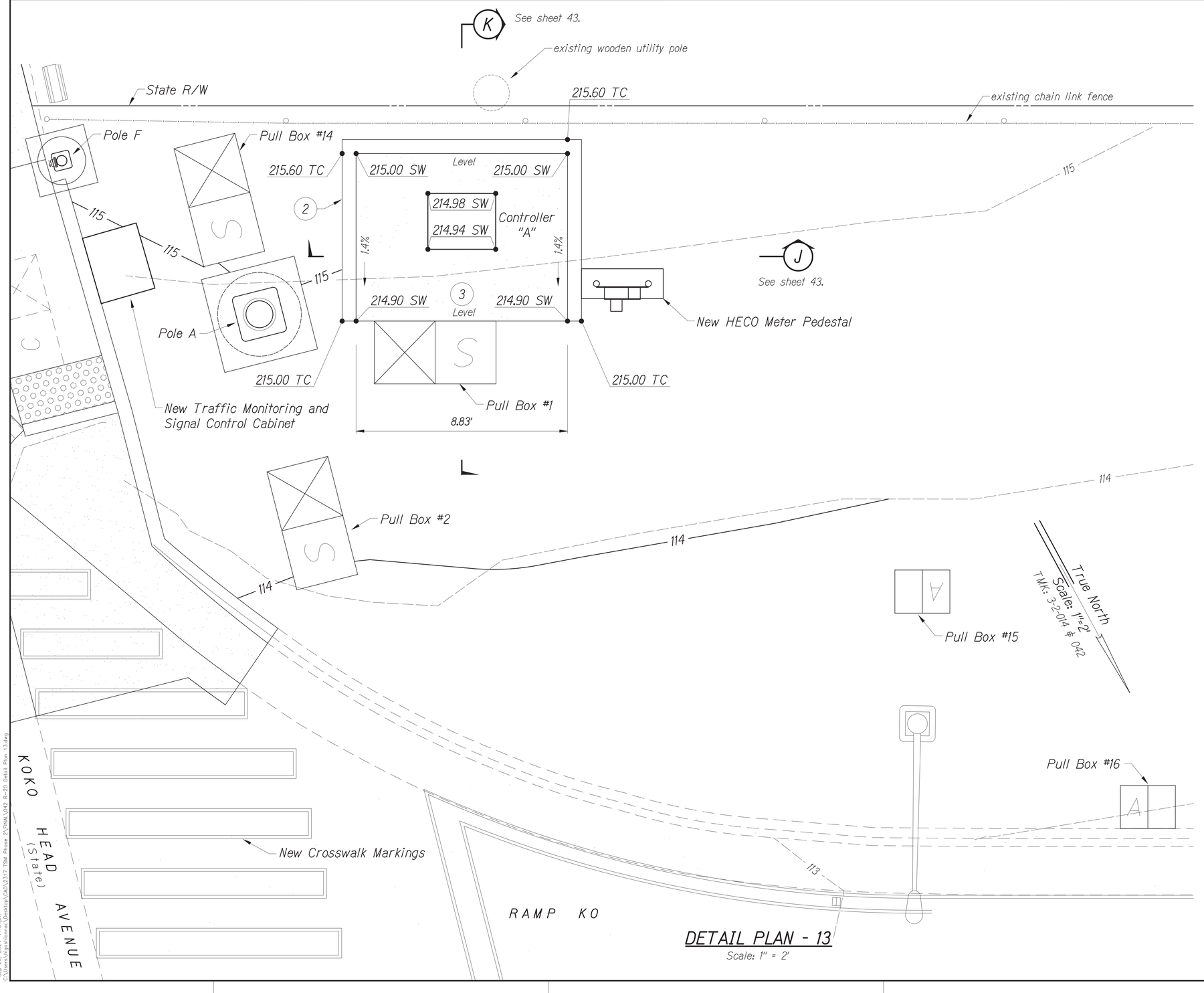
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 19 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	42	136



DETAIL PLAN - 13

Scale: 1" = 2'

GRAPHIC SCALES

SCALE 1"=2' (2' 1' 0 2' 4')

New Construction Callouts:

1. Curb, Type 2D Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.

Legend:

120.67±	Existing Elevation
212.04	Finish Elevation
212.04±	Finish Elevation (Approximate)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 20 OF 26 SHEETS

ORIGINAL PLAN | NOTE BOOK | No.

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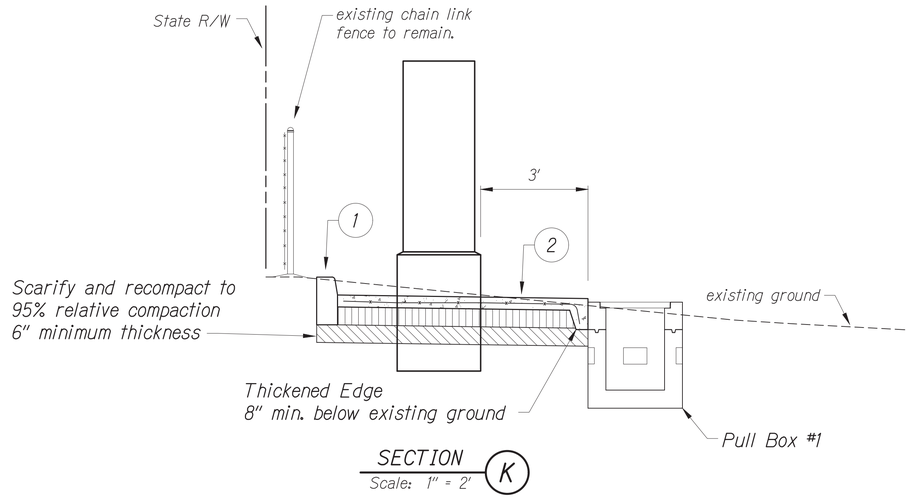
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	43	136

GRAPHIC SCALES

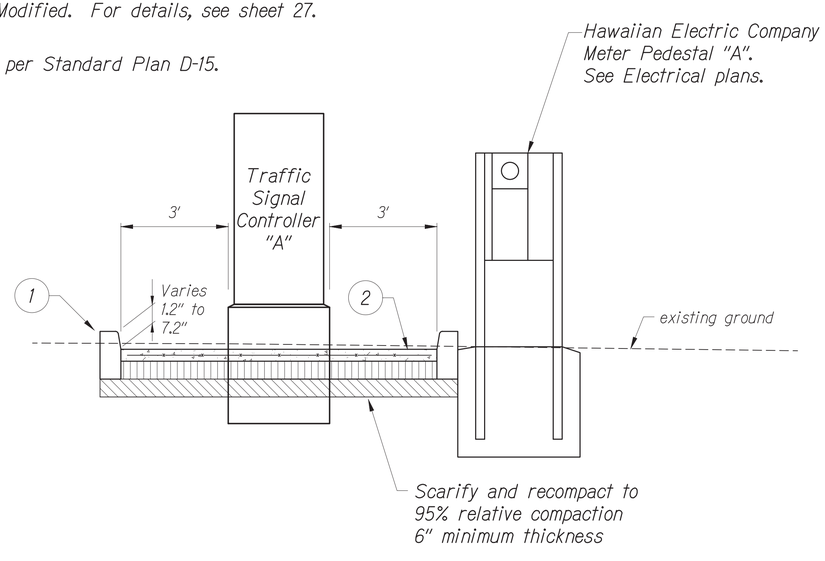
SCALE 1"=2' — 2' 1' 0 2' 4'



SECTION K
Scale: 1" = 2'

New Construction Callouts:

1. Curb, Type 2D Modified. For details, see sheet 27.
2. P.C.C. Sidewalk, per Standard Plan D-15.



SECTION J
Scale: 1" = 2'

ORIGINAL PLAN	DATE
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HAWAII, U.S.A.

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

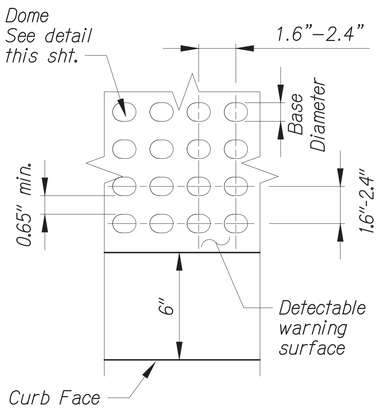
ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

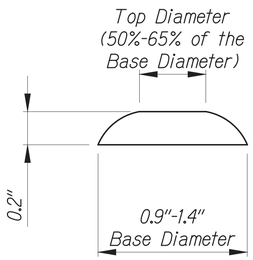
Scale: As noted — Date: July 2024

SHEET No. 21 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	44	136



DOME PLAN



DOME SECTION

DETECTABLE WARNING DETAILS

No Scale

DETECTABLE WARNING DETAIL

1. Detectable warnings shall be 24 inches in the direction of travel and extend the full width of the curb ramp or flush surface (does not include flares).
2. Truncated domes shall have a diameter of 0.9 to 1.4 inch at the bottom, a diameter of 50%-65% of the base diameter at the top, a height of 0.2 inch and a center-to-center spacing of 1.6 to 2.4 inches measured along one side of a square arrangement.
3. Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
4. There shall be a minimum of 70 percent contrast in light reflectance between the detectable warning and an adjoining surface, or the detectable warning shall be "safety yellow".
5. The material used to provide visual contrast shall be an integral part of the detectable warning surface.
6. The detectable warning shall be located so that the edge nearest the curb face or other potential hazard is 6 to 8 inches from curb face.
7. Detectable warnings shall be cast-in-place and replaceable. The Contractor shall submit the detectable warning material/product description to the Engineer for review and approval.

CURB RAMP NOTES

1. The Contractor shall not exceed a 2% maximum cross slope in the direction of pedestrian traffic, unless indicated otherwise.
2. Subject to field conditions, the Engineer shall determine the final location of curb ramps.
3. The Contractor shall adjust existing pullboxes, handholes, manholes, etc. to match curb ramp grade. Adjustments shall not be paid for separately but shall be considered incidental to the various curb ramp items, unless indicated otherwise.
4. Transitions from ramps to gutters and roadways shall be flush.
5. The Contractor shall install pedestrian push buttons to comply with operational and reach requirements of the American with Disability Act Accessibility Guidelines (ADAAG):
   a. Forward Reach. The maximum height for forward reach shall be 48".
   b. Side Reach. The maximum height for side reach shall be 48".
   c. Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
5. Construction joints are required to join curb ramps with sidewalks.
6. All curb ramps shall be reinforced with 6x6 W1.4/W1.4 welded wire fabric.
7. Surface of sidewalks and curb ramps shall be firm, stable, and slip-resistent. This includes the surfaces of pullboxes, valve covers, manhole covers, etc.
8. Objects protruding from utility poles and walls adjacent to the sidewalks (i.e., wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current Americans with Disabilities Act Accessibility Guidelines (ADAAG) and will be subject to the Engineer's approval.
9. If a curb ramp is not constructed according to the plans, the Contractor shall reconstruct the curb ramp at no cost to the State. Construction tolerance for Portland Cement Concrete shall be based on 1/4 inch per 10 feet (±0.2%). Remedial measures will not be accepted.
10. The Contractor shall comply with City & County Jointing Policy (Memorandum No. CEB 1-09) dated April 6, 2009 for new sidewalks within City right-of-way.
11. The Contractor shall construct curb ramps in accordance with City & County of Honolulu Standard Detail R-25A, unless indicated otherwise.

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

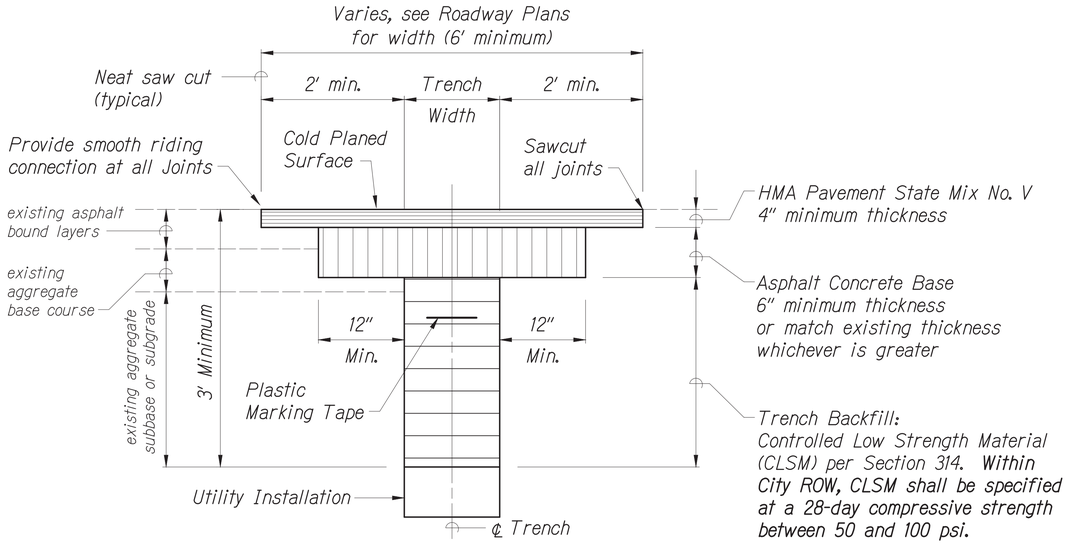
ROADWAY DETAILS

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 22 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	45	136



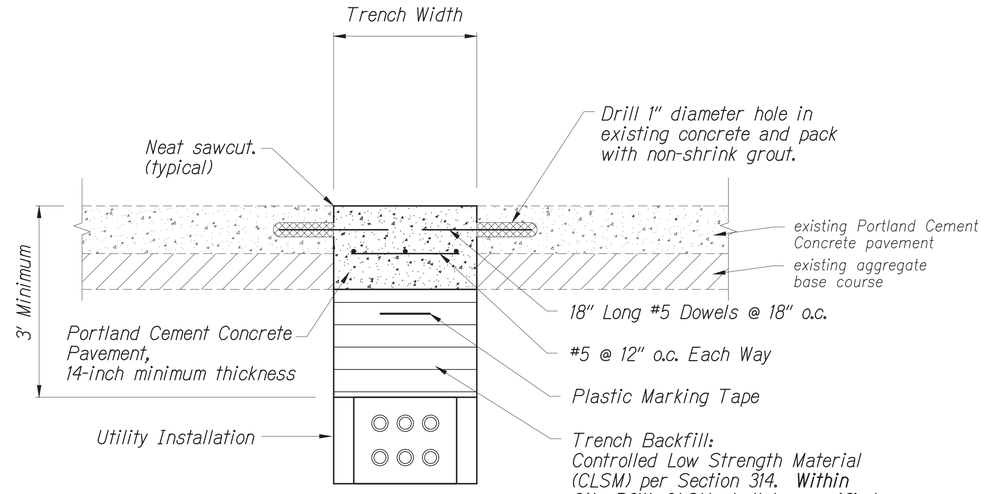
(for Work within State R/W)

ASPHALT PAVEMENT RESTORATION OVER TRENCH EXCAVATION

No Scale

NOTES

1. Tack coat faces of existing asphalt bound materials prior to filling excavation with new asphalt bound materials.
2. All work performed shall be subject to inspection by the State and shall be to the State's satisfaction.
3. Construct the trench restoration in accordance with the Hawaii Standard Specifications for Road and Bridge Construction, 2005, and its special provisions, and the specification of installation of miscellaneous improvements within State Highways.
4. Pavement Smoothness
   A. Obtain a profile of the existing roadway surface that is to have a new surface as a result of the restoration of the trench excavation and submit the profile to the district Engineer before any work for trench excavation begins.
   B. Obtain a profile of the roadway surface after the roadway surface has been repaved and submit the profile to the district Engineer. The profile of the roadway surface after repaving shall be equal to or smoother than the profile obtained before trench excavation began.
   C. The distance from the paved surface to the testing edge of ten-foot long straight edge between two points of contact shall not exceed inch.
5. Place all unbound materials in the trench as follows:
   A. Compaction by water jetting or ponding is not permitted.
   B. All unbound materials, expect the permeable base and ASTM C-33 size 67:
      •• Place material in accordance with subsection 206.03 (B) Structure and Trench Backfill of the Hawaii Standard Specifications for Road, Bridge, and Public Works Construction.
      •• Take one compaction test for 300 lineal feet of trench. Submit compaction test results to The District Engineer.
   C. Permeable Base:
      •• Place permeable material in uniform horizontal layer not exceeding 9 inches in compacted thickness.
      •• Compact each layer with at least 8 passes with a smooth drum vibratory compactor (Rammax) until compacted material is firm and unyielding. Use hand tamper if trench too narrow to accommodate the vibrating plate compactor.
   D. ASTM C-33, size 67:
      •• Material placed under water need not be compacted.
      •• Material placed above water:
         I. Place material in uniform horizontal layer not exceeding 9 inches in loose thickness.
         II. Compact each layer with at least 8 passes with a smooth drum vibratory compactor (Rammax) until compacted material is firm and unyielding. Use hand tamper if trench too narrow to accommodate the vibrating plate compactor.



NOTES

1. The cost for furnishing and installing reinforcing bars and dowels shall be incidental to the 14-inch thick Portland Cement Concrete Pavement and will not be paid for separately.

(for Work within State R/W)

ASPHALT/P.C.C. PAVEMENT RESTORATION OVER TRENCH EXCAVATION

No Scale

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY DETAILS

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 23 OF 26 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
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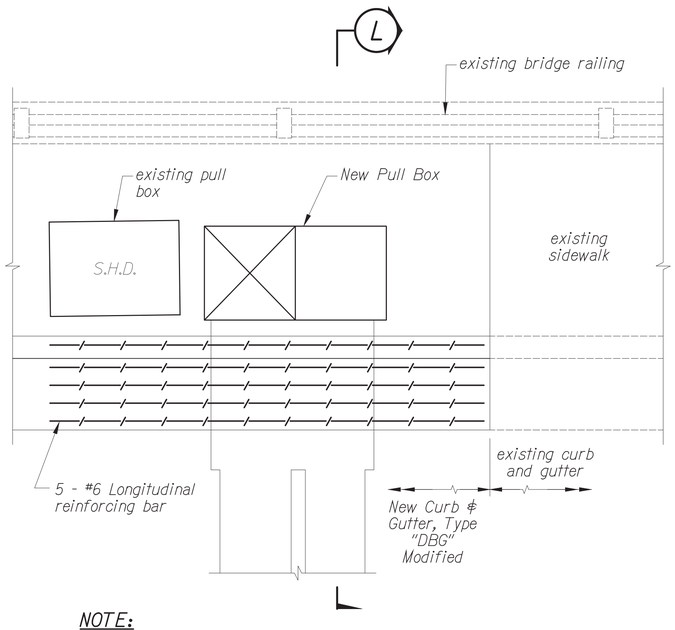
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	46	136

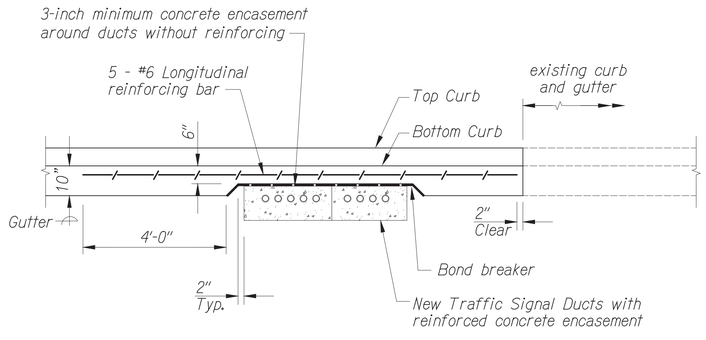


NOTE:

Longitudinal reinforcing bars shall be incidental to the various contract items and will not be paid for separately.

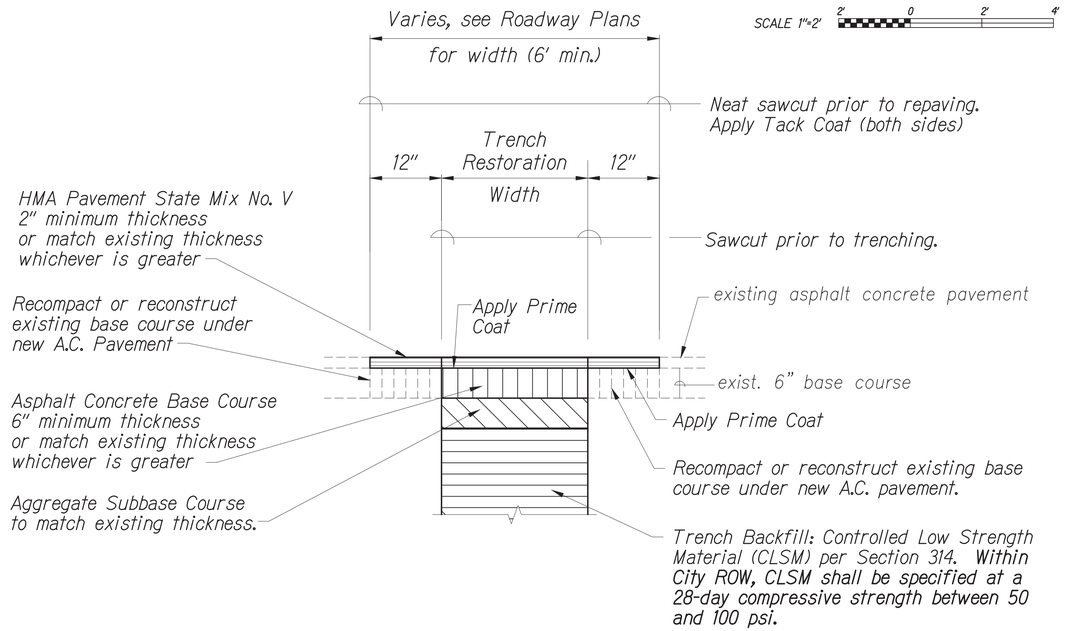
PLAN - CURB & GUTTER OVER DUCT LINE

Scale: 1"= 2'



ELEVATION - CURB & GUTTER OVER DUCT LINE

Scale: 1"= 2'



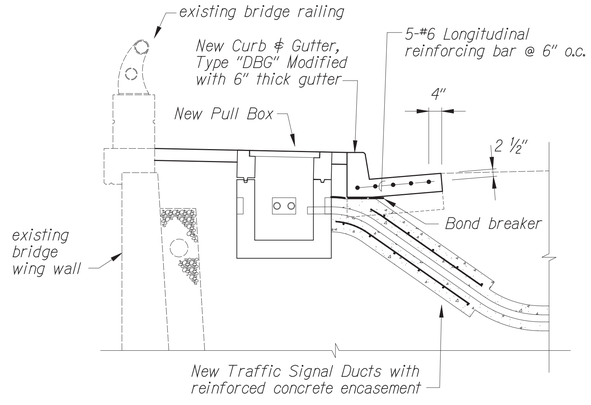
NOTE

Pavement shall be restored to equal or better than original condition in thickness and quality.

(for Work within City R/W)

TYPICAL PAVEMENT RESTORATION DETAIL

No Scale



SECTION L

Scale "2"

GRAPHIC SCALES

SCALE 1"=4' — 4' 2' 0 4' 8'

SCALE 1"=2' — 2' 0 2' 4'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY DETAILS

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 24 OF 26 SHEETS

ORIGINAL PLAN	DATE
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No.	QUANTITIES BY
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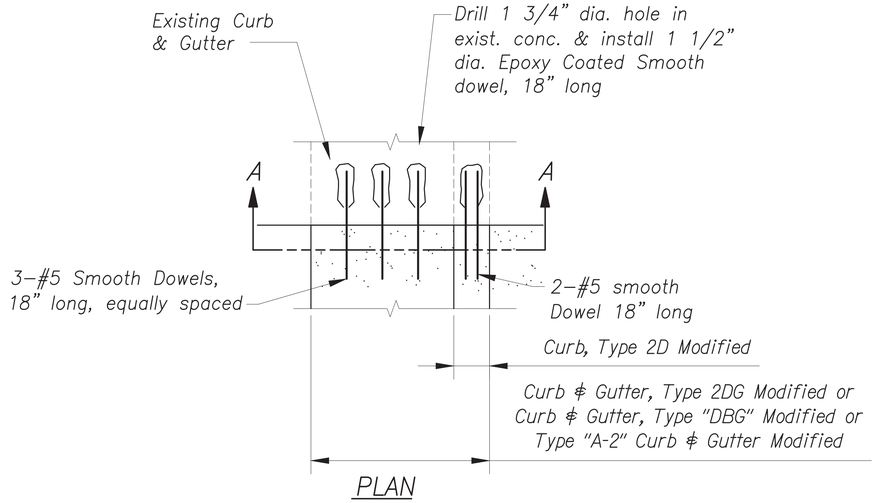
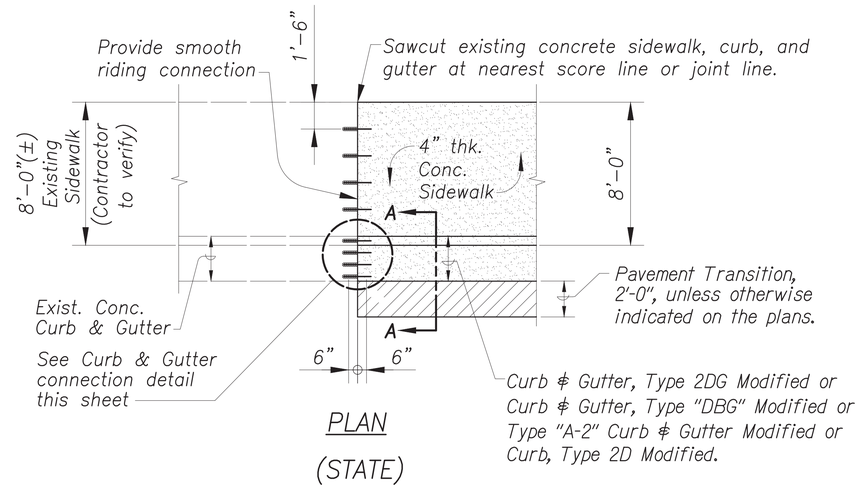
GRAPHIC SCALES

SCALE 1"=1' 1' 0 1' 2'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	47	136



PLAN

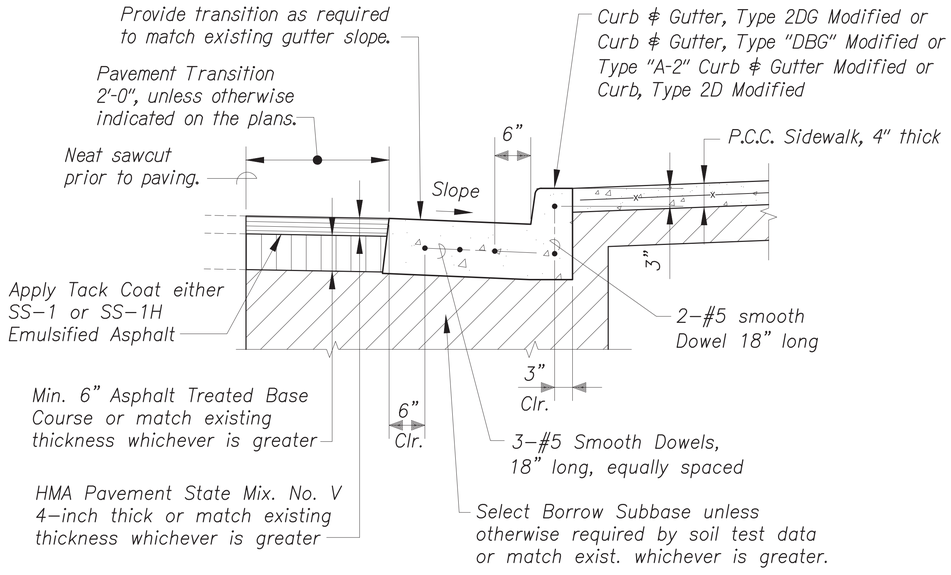


PLAN

(STATE)

CONNECTION TO EXISTING SIDEWALK, CURB & GUTTER

No Scale



SECTION AA

(STATE)

CURB & GUTTER CONNECTION DETAILS

No Scale

ORIGINAL PLAN

NOTE BOOK

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License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

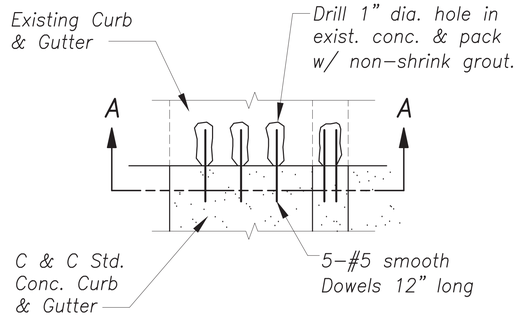
Scale: As noted Date: July 2024

SHEET No. 25 OF 26 SHEETS

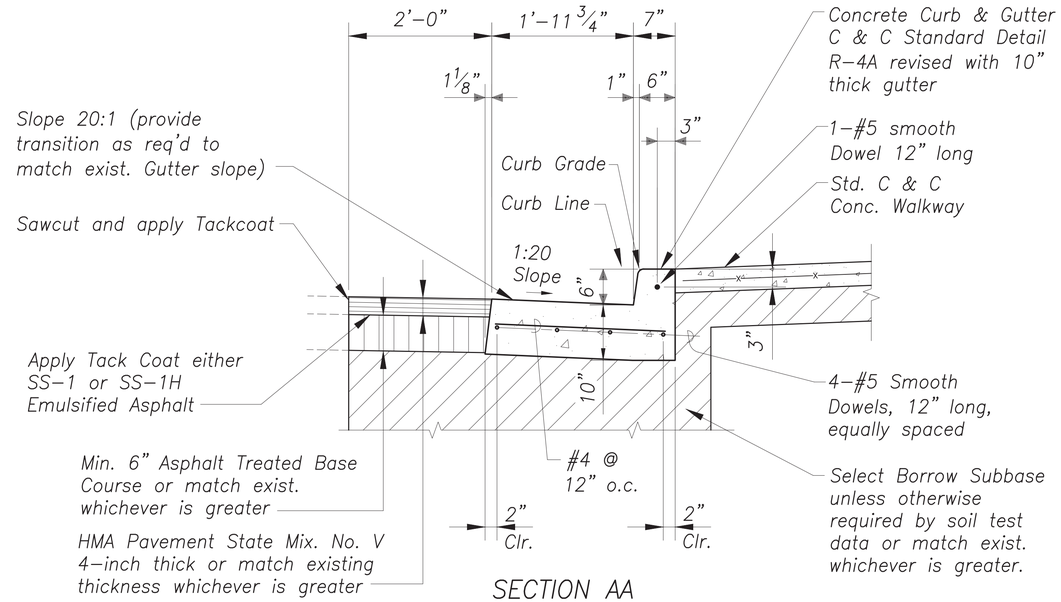
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	48	136

Notes:

1. For new Sidewalk, Contractor shall construct Sidewalk joints per City & County of Honolulu Engineering and Policy Memorandum No. CEB-1-09 (dated April 6, 2009).
2. For connection to existing concrete curb only, use 2-#5 smooth dowel, 12" long.
3. Drilling holes and installing dowel reinforcing bars shall be incidental to the various contract items and will not be paid for separately.



PLAN



SECTION AA

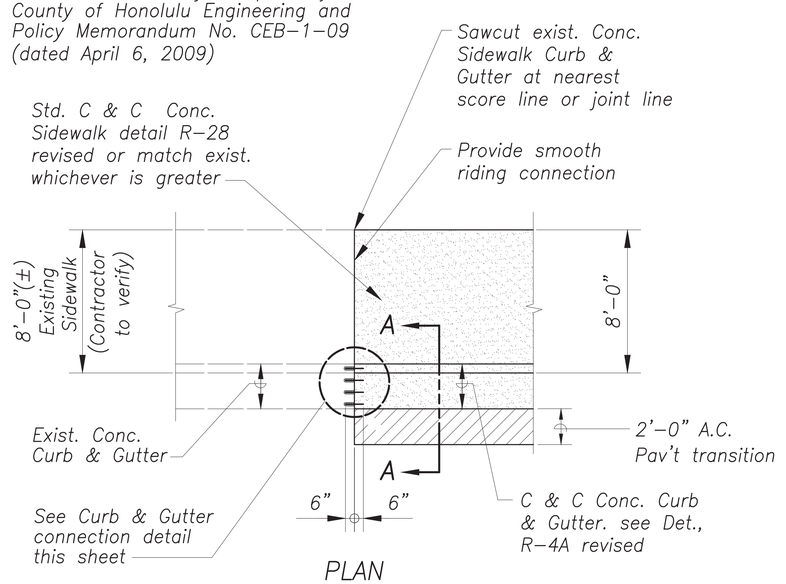
(CITY)

CURB & GUTTER CONNECTION DETAILS

No Scale

Notes:

For new Sidewalk, Contractor shall construct Sidewalk joints per City & County of Honolulu Engineering and Policy Memorandum No. CEB-1-09 (dated April 6, 2009)



PLAN

(CITY)

CONNECTION TO EXISTING SIDEWALK, CURB & GUTTER

No Scale

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

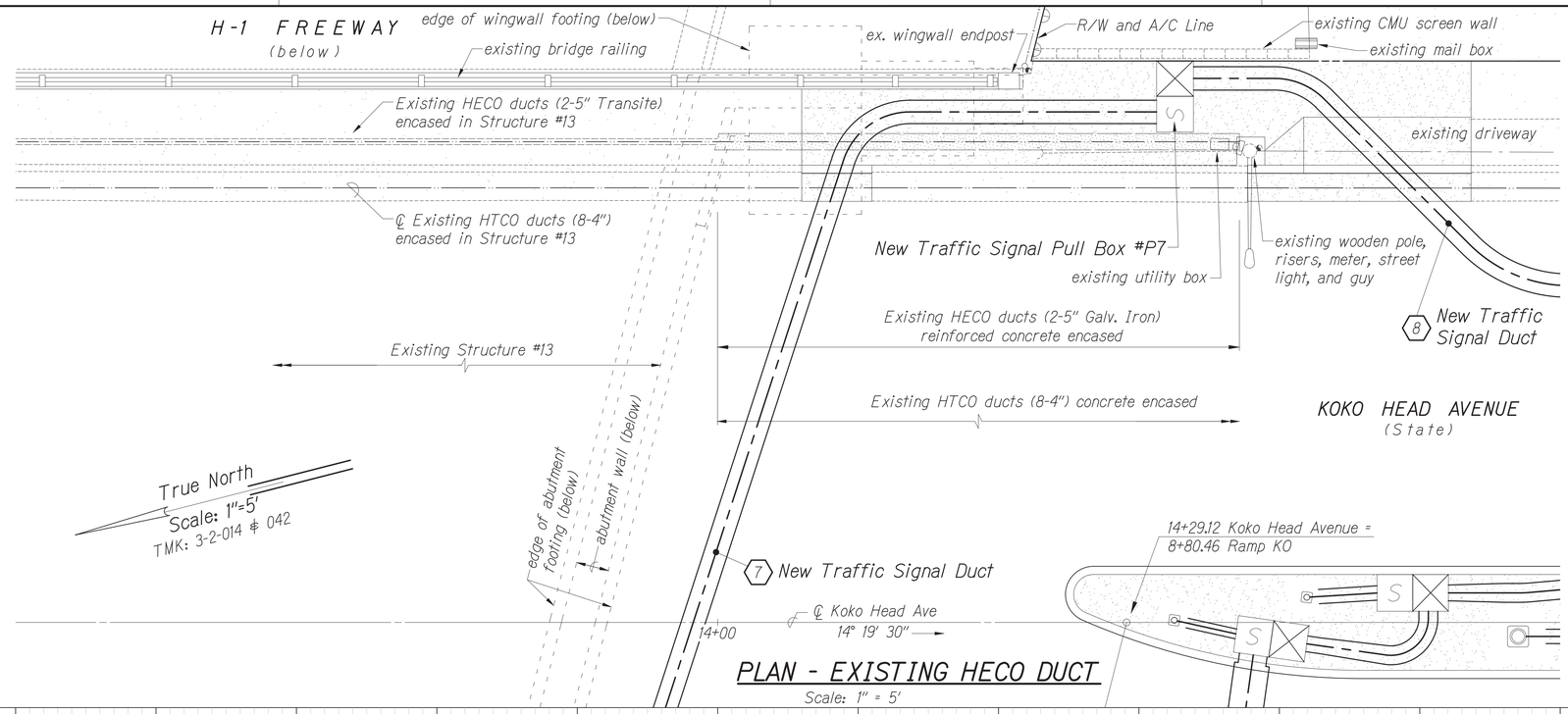
ROADWAY PLAN

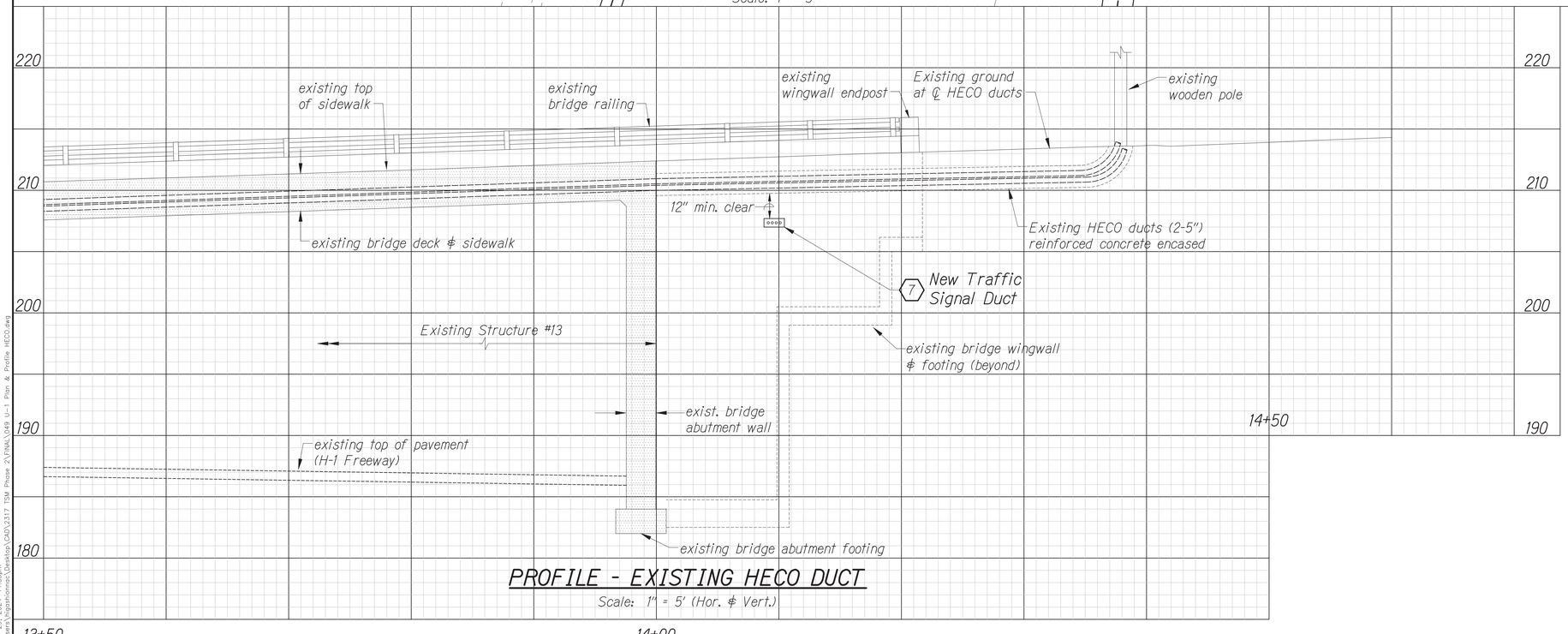
TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 26 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	49	136





GRAPHIC SCALE

SCALE 1"=5'

5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

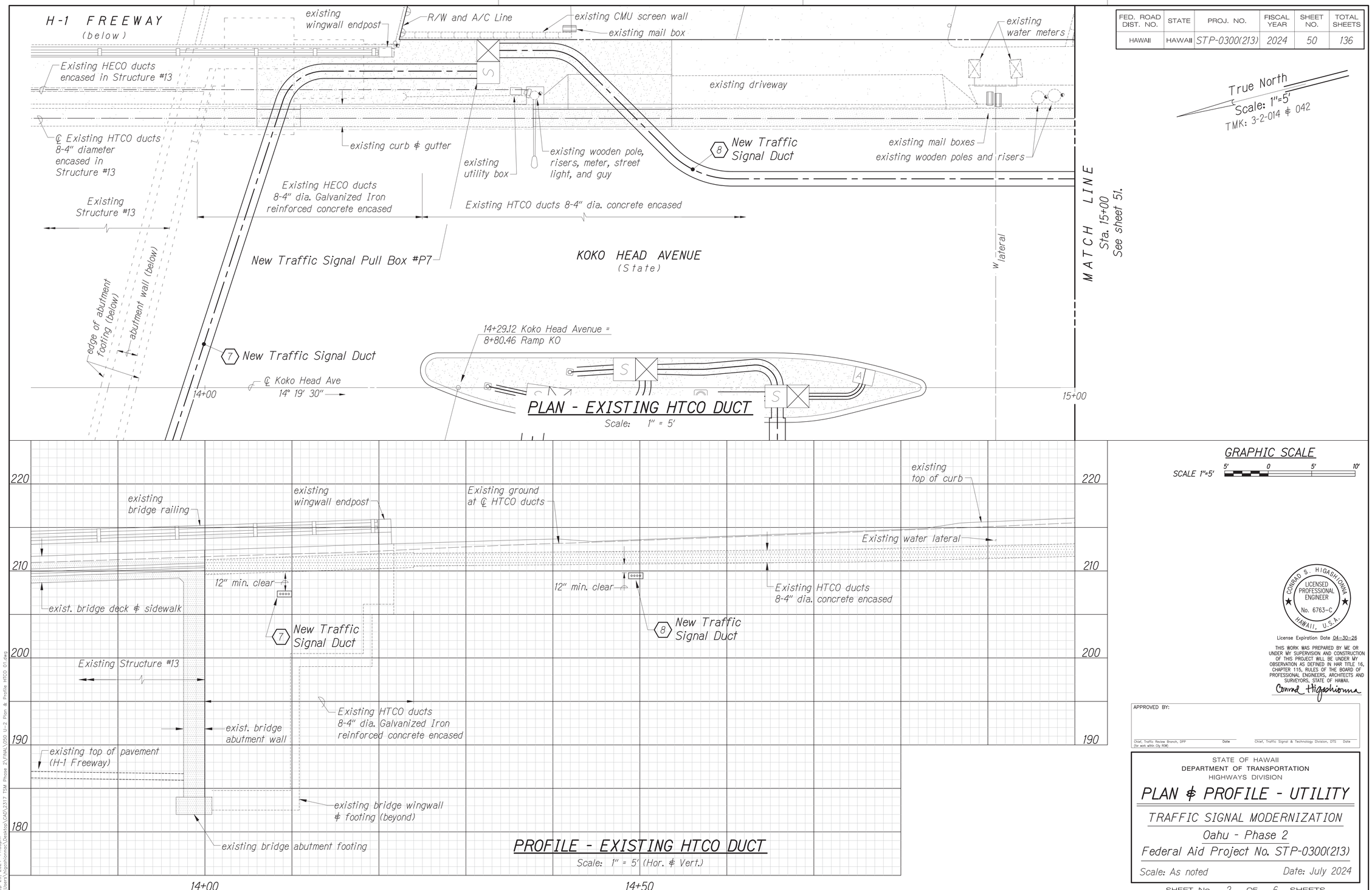
PLAN & PROFILE - UTILITY

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	50	136



True North
Scale: 1"=5'
TMK: 3-2-014 & 042

GRAPHIC SCALE
SCALE 1"=5'
5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & PROFILE - UTILITY

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 2 OF 6 SHEETS

ORIGINAL PLAN	DATE
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No.	QUANTITIES BY
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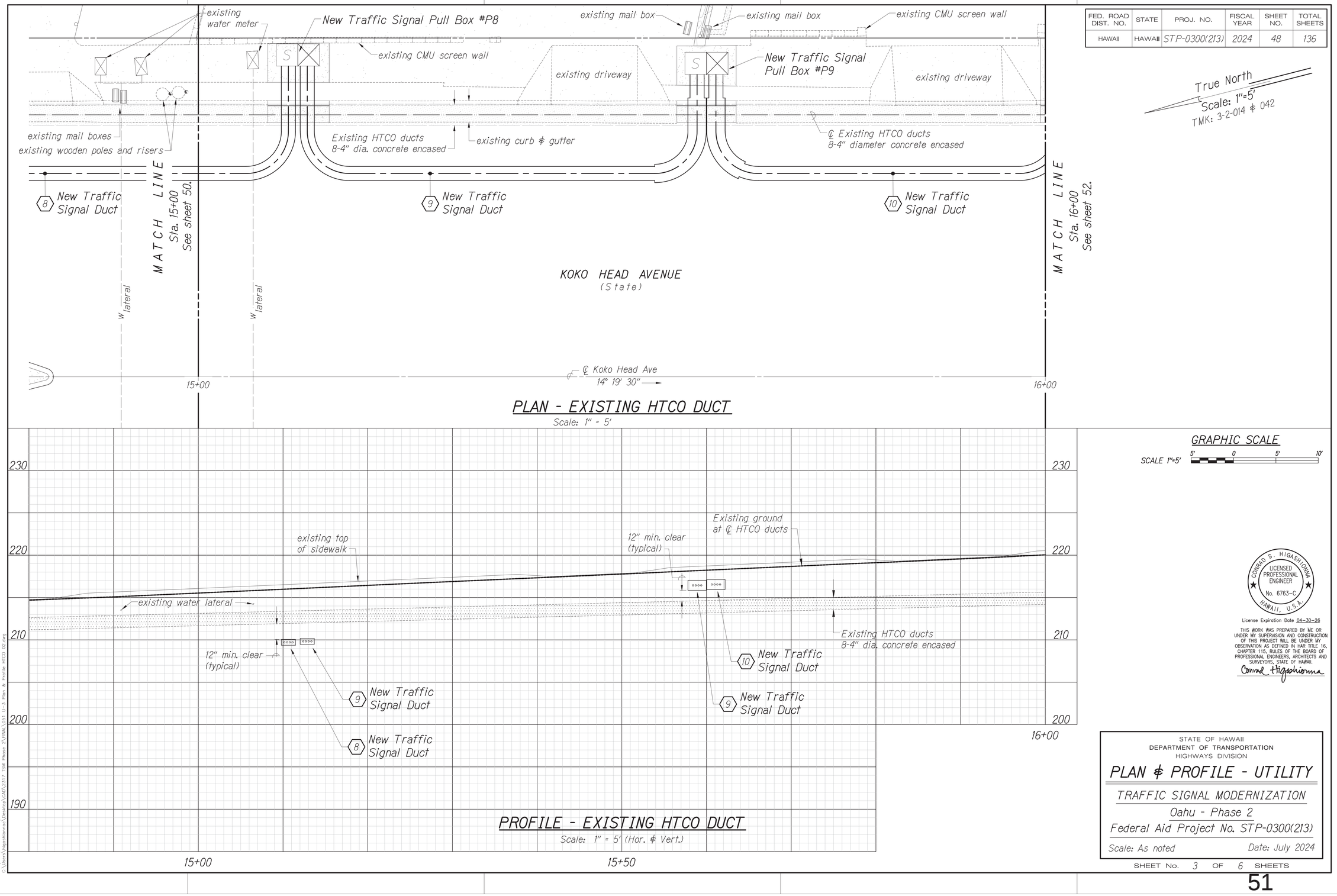
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	48	136



PLAN - EXISTING HTCO DUCT

Scale: 1" = 5'

True North
Scale: 1"=5'
TMK: 3-2-014 & 042

GRAPHIC SCALE
SCALE 1"=5'
5' 0 5' 10'

PROFILE - EXISTING HTCO DUCT

Scale: 1" = 5' (Hor. & Vert.)

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

ORIGINAL PLAN	NOTE BOOK	No.
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DATE		

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

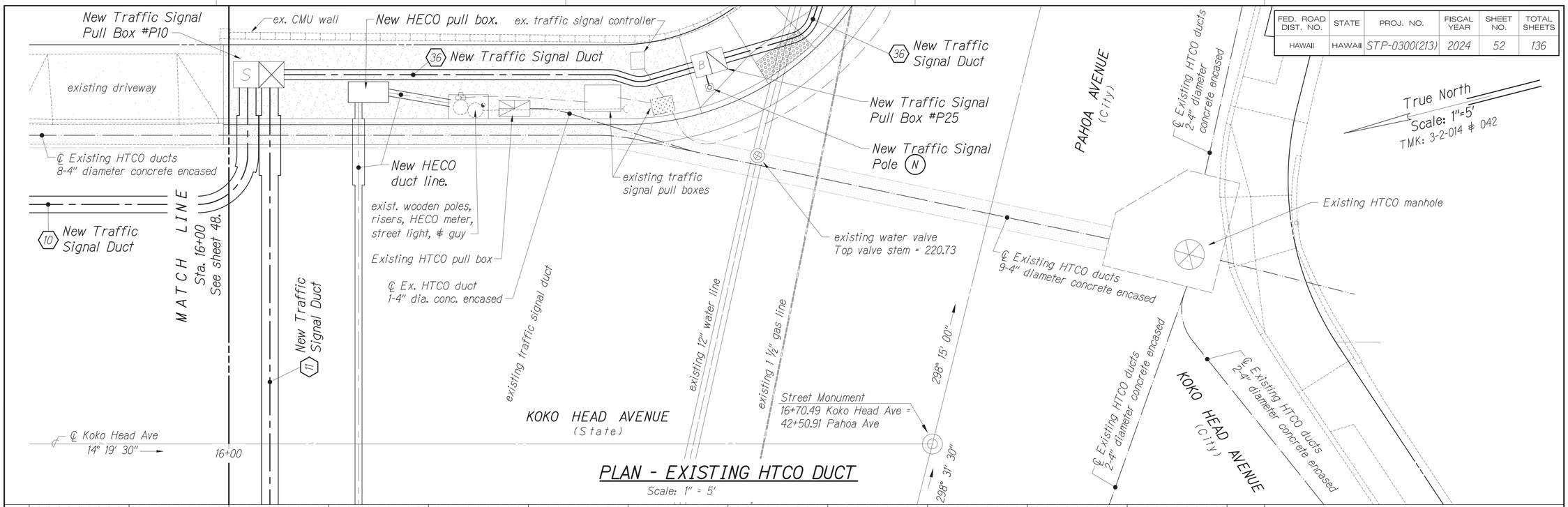
PLAN & PROFILE - UTILITY

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

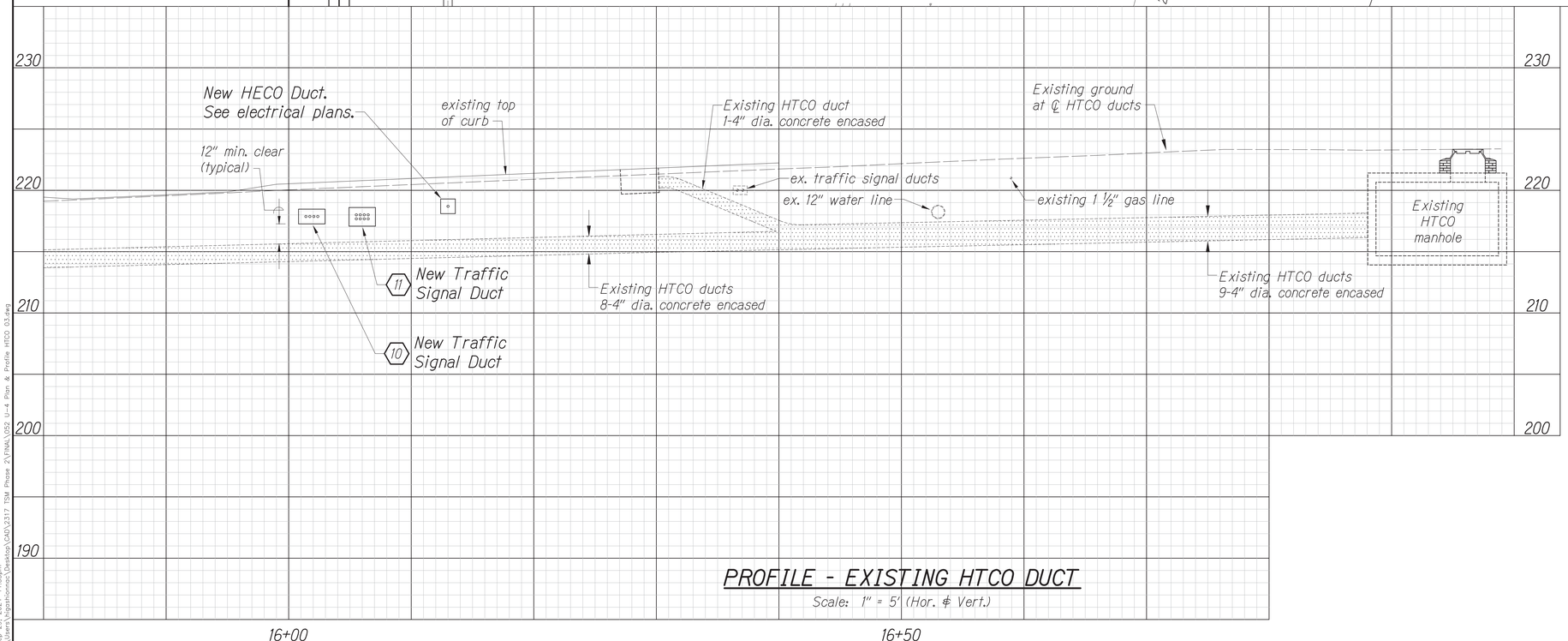
SHEET No. 3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	52	136



PLAN - EXISTING HTCO DUCT

Scale: 1" = 5'



PROFILE - EXISTING HTCO DUCT

Scale: 1" = 5' (Hor. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

ORIGINAL PLAN

NOTE BOOK

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & PROFILE - UTILITY

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	53	136

True North
Scale: 1"=20'
TMK: 3-2-014 & 042

R/W and A/C Line
H-1 FREEWAY (State)
Outbound
R/W and A/C Line
existing water meters
existing water valve
Top cover = 222.43
Top stem = 220.73
existing 12" cast iron water main
PAHOA AVE (City)
143+00
298° 15' 00"
Street Monument
16+70.49 Koko Head Ave =
42+50.91 Pahoa Ave
existing gas valve box (not found)
existing 1 ½" gas main
New HECO Duct Line
Existing Structure #13
14+29.12 Koko Head Ave =
8+80.46 Ramp KO
W lateral
W lateral
existing water valve
Top cover = 217.10
Top stem = 214.92
existing 18" cast iron water main
existing 4" gas main
12+00
℄ Koko Head Ave
14° 19' 30"
13+00
14+00
15+00
16+00
KOKO HEAD AVENUE
(State)
State
City
KOKO HEAD AVE (City)
42+00
298° 31' 30"
existing fire hydrant #1417
existing water meter
existing water meters
existing ¾" gas lateral
ex. water manhole
Top pipe = 218.72
existing 12" cast iron water main
existing 1" gas main
R/W and A/C Line
R/W and A/C Line
Inbound
RAMP KO
8+00
298° 19' 30"

PLAN - EXISTING WATER & GAS MAINS

Scale: 1" = 20'

GRAPHIC SCALE

SCALE 1"=20' 20' 10' 0 20' 40'

PROFILE - EXISTING WATER & GAS MAINS

Scales: 1" = 20' Hor.
1" = 8' Vert.

Existing ground at ℄ Koko Head Ave
13+35.25 @ H-1
Existing Structure #13
H-1 Inbound Lanes
H-1 Outbound Lanes
Existing 4" gas main
12" min. clear (typical)
New Traffic Signal Duct (3)
New Traffic Signal Duct (11)
12" min. clear (typical)
New HECO Duct Line
16+70.49 Pahoa Ave
ex. gas valve (not found)
exist. 1 ½" gas main
Invert of 12" and 18" water mains unknown at crossing.
Invert existing 18" cast iron water main
14+35
Ex. W18
209.0 18" ⅛ Bend
14+11
Ex. W18
208.0 18" ⅛ Bend
16+00
Ex. F.H.
213.2 6"
212.7 18"x6" Tee
16+00
Ex. W18
215.6
18" 1/16 Bend
16+26
Ex. W18
217.0
16+35
Ex. W18
217.5 18" 1/16 Bend
230
220
210
200
190
180
12+00
13+00
14+00
15+00
16+00

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-24

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Conrad Higashionna

APPROVED BY:

Manager and Chief Engineer, BWS Date
(for work affecting BWS facilities in City/State R/W and BWS easements only)

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & PROFILE - UTILITY

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

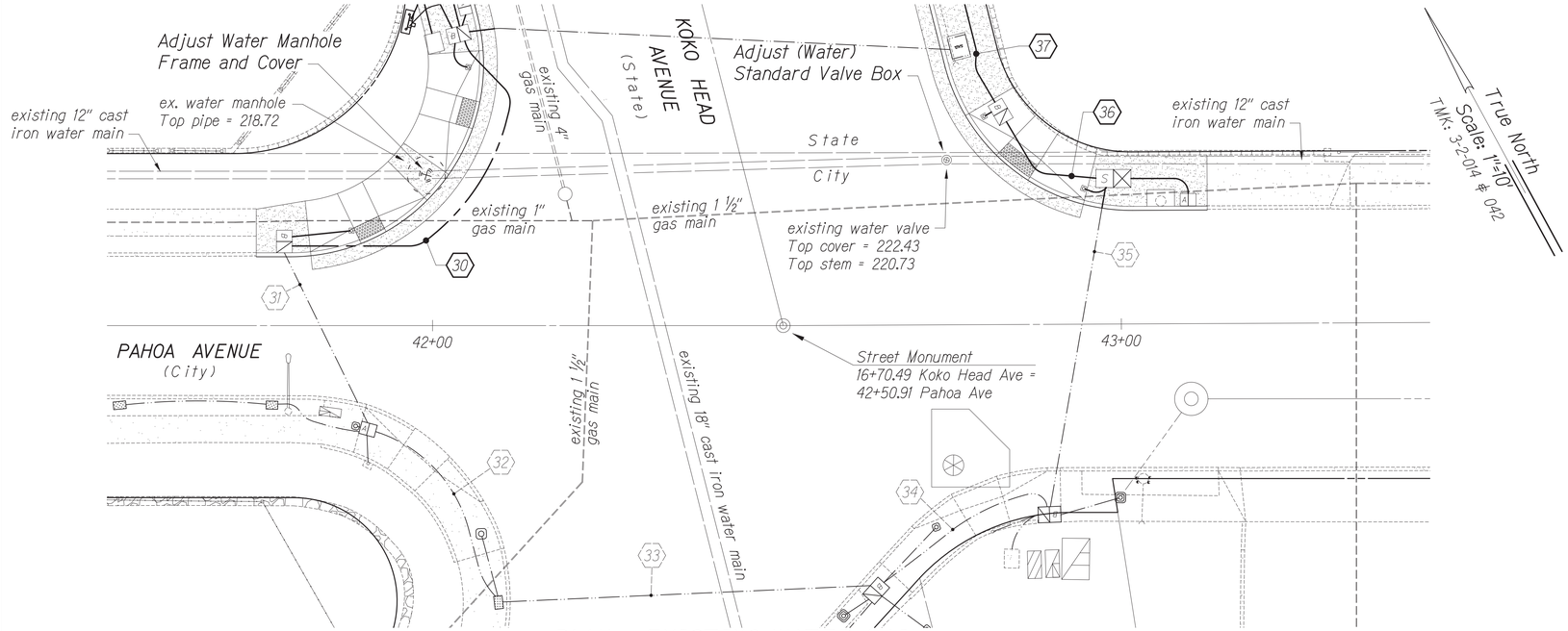
Scale: As noted Date: July 2024

SHEET No. 5 OF 6 SHEETS

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

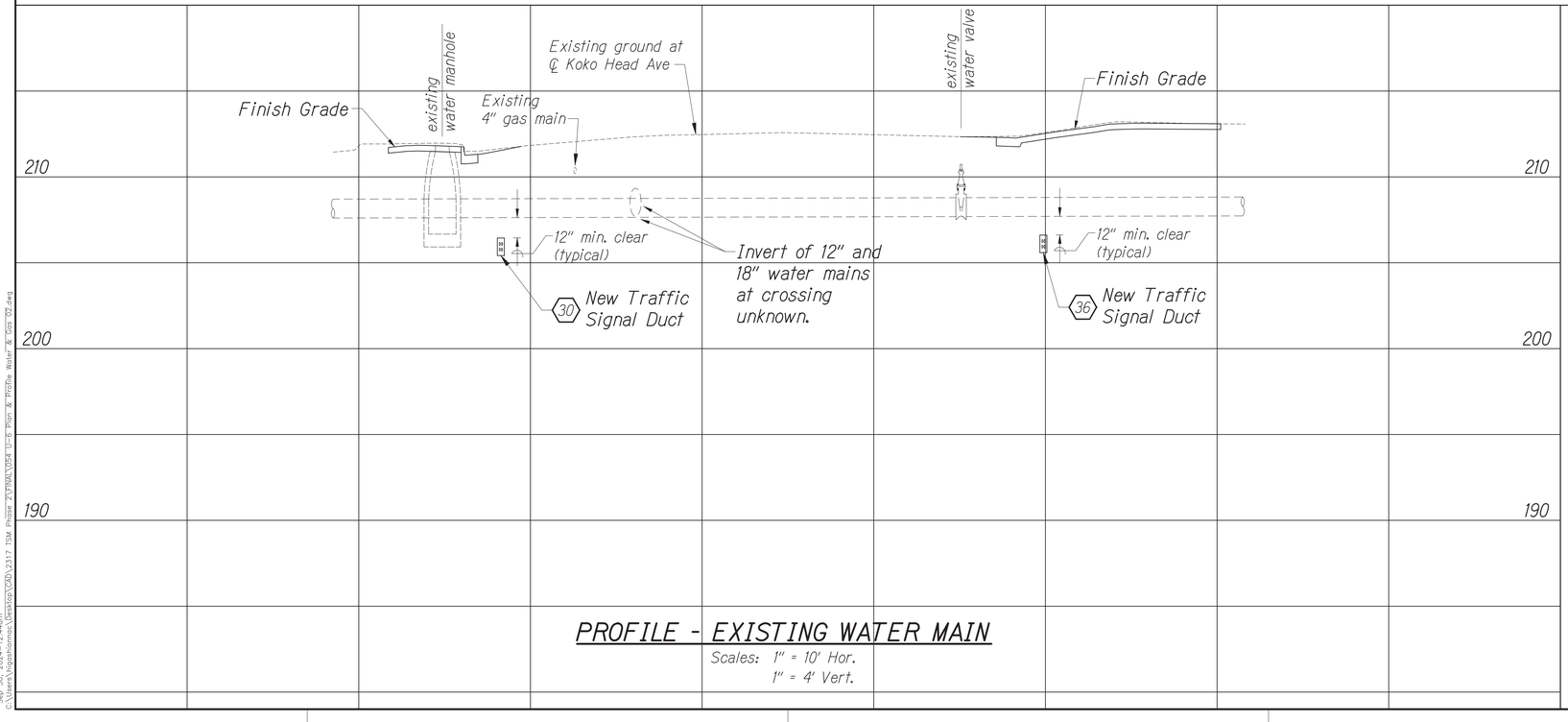
Sep 29, 2024--11:35pm
C:\Users\Vigashionna\Desktop\CAD\2317 TSM Phase 2\FINAL\053 U-5 Plan & Profile Water & Gas 01.dwg

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	54	132



PLAN - EXISTING WATER MAIN

Scale: 1" = 10'



PROFILE - EXISTING WATER MAIN

Scales: 1" = 10' Hor.
1" = 4' Vert.

GRAPHIC SCALE

SCALE 1"=10' 10' 5' 0 10' 20'

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(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & PROFILE - UTILITY

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 6 OF 6 SHEETS

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

Sep 30, 2024--12:44am
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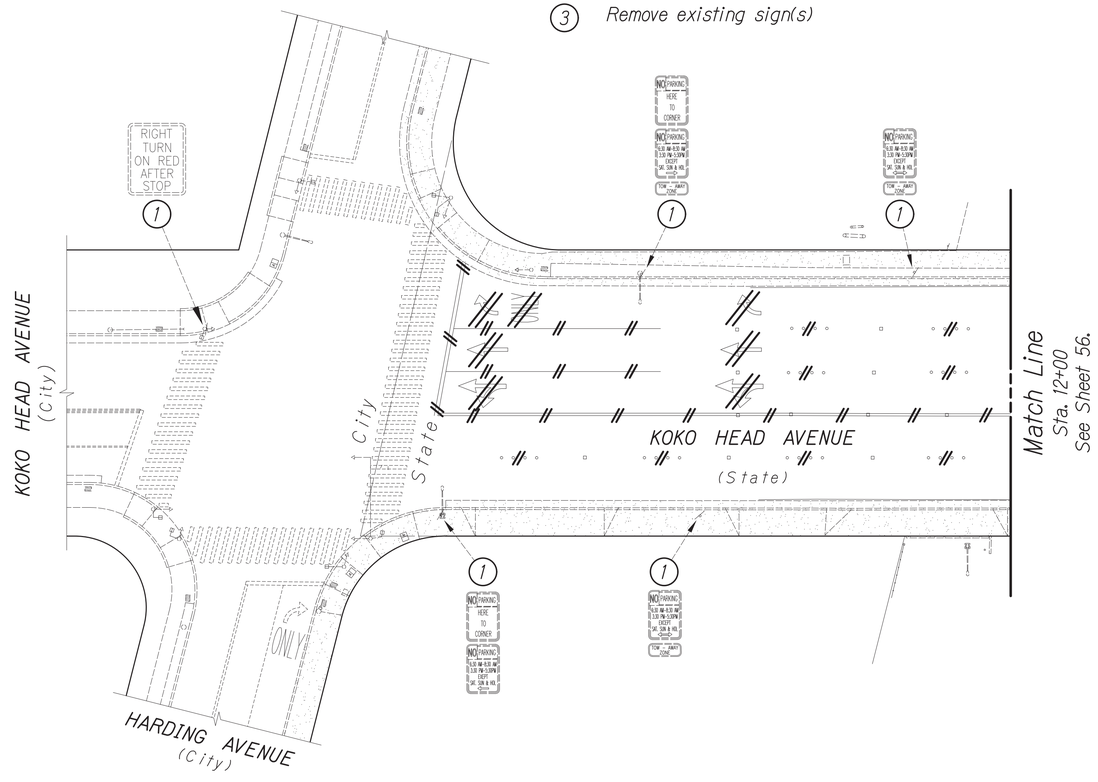
True North
Scale: 1"=20'
TMK: 3-2-014 & 042

Removal Callouts:

- Remove existing pavement striping
- (1) Existing sign(s) to remain
- (2) Remove existing sign(s) and post(s)
- (3) Remove existing sign(s)



GRAPHIC SCALE
SCALE 1"=20'
20' 10' 0 20' 40'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	55	136

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

Sep 29, 2024 - 1:35pm
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REMOVAL PLAN
Scale: 1" = 20'

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No. 6763-C
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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, OPP — Date
(for work within City ROW)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 1 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	56	136

True North
Scale: 1"=20'
TMK: 3-2-014 & 042

Removal Callouts:

- Remove existing pavement striping
- (1) Existing sign(s) to remain
- (2) Remove existing sign(s) and post(s)
- (3) Remove existing sign(s)

GRAPHIC SCALE
SCALE 1"=20' — 20' 10' 0 20' 40'

R/W and A/C Line
Outbound
R/W and A/C Line
PAHOA AVENUE (City)
SPEED LIMIT 25
NO LEFT TURN INTO PAHOA AV.
Match Line Sta. 12+00 See sheet 55.
KOKO HEAD AVENUE (State)
State
City
<1000' KOKO HEAD AV.
<1650' PAHOA AV.
LEFT TURN YIELD ON GREEN
ONLY
NO LEFT TURN INTO PAHOA AV.
KOKO HEAD AVENUE (City)
ONE WAY
ONE WAY
UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 HP, PEDESTRIANS KEEP OUT FREEWAY
DO NOT ENTER
WRONG WAY
ONE WAY
NO LEFT TURN INTO PAHOA AV.
3800 Pahoa Av
1000 Koko Head Av
R/W and A/C Line
Inbound
H-1 FREEWAY (State)
RAMP KO
ONLY
R/W and A/C Line

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 2 OF 13 SHEETS

REMOVAL PLAN

Scale: 1" = 20'

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

Sep 29, 2024--11:16pm
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	57	136

LEGEND

10' White Profiled Thermoplastic Stripe

Type "C" Raised Pavement Markers @ 40'-0" o.c.

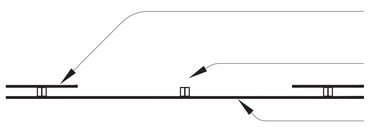
8" White Stripe with Type "C" Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

4" Double Solid Yellow with Type "D" Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

4" Double Solid Yellow with Type "H" Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

6" Yellow Edge Stripe with Type "H" Raised Pavement Markers @ 40'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

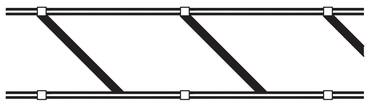
6" or 8" White Edge Stripe with Type "C" Raised Pavement Markers @ 40'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)



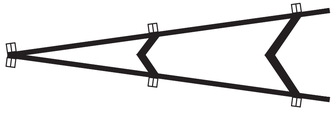
Lane Change Restriction Marking
10' White Profiled Thermoplastic Stripe

Type C Raised Pavement Markers @ 20' o.c.

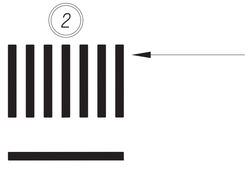
4" White Stripe (Tape, Type I or Thermoplastic Extrusion)



Transverse Median Marking (Tape, Type III or Thermoplastic Extrusion)

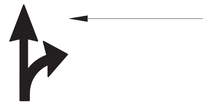


Channelizing Island or Deceleration Lane Gore (Tape, Type III or Thermoplastic Extrusion)



Crosswalk and Stop Line. All stop lines shall be 10'-0" from crosswalk unless otherwise noted. The number indicates the number of lanes for payment. (Tape, Type III or Preformed Thermoplastic)

LEGEND (continued)



Pavement Arrow (Tape, Type III or Preformed Thermoplastic)

Pavement Word (Tape, Type III or Preformed Thermoplastic)

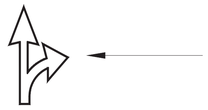
4" White or Yellow Guide Lines (Tape, Type I or Thermoplastic Extrusion)

8" White Guide Lines (Tape, Type I or Thermoplastic Extrusion)

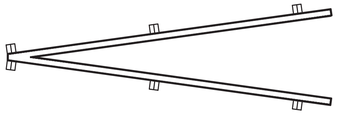
4" Double Yellow Stripe 10'-0" Long at 40' o.c. (Tape, Type I or Thermoplastic Extrusion) with Type "D" Raised Pavement Markers @ 20'-0" o.c.

8" White Stripe with 1-1/2" black border (Preformed Thermoplastic) on P.C.C. Pavement with Type "C" Raised Pavement Markers @ 20'-0" o.c.

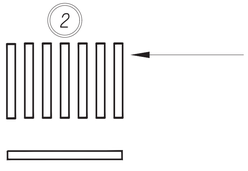
6" White Edge Stripe with 1-1/2" black border (Preformed Thermoplastic) on P.C.C. Pavement with Type "C" Raised Pavement Markers @ 40'-0" o.c.



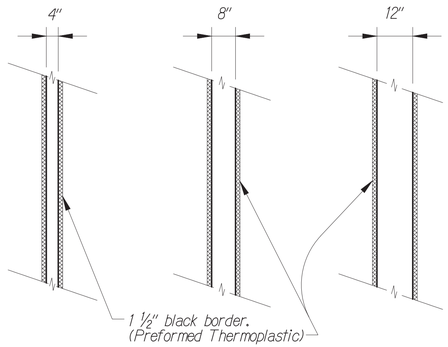
Pavement Arrow with 1-1/2" black border (Preformed Thermoplastic) on P.C.C. Pavement



Channelizing Island with 1-1/2" black border (Preformed Thermoplastic) on P.C.C. Pavement



Crosswalk and Stop Line with 1-1/2" black border (Preformed Thermoplastic). All stop lines shall be 10'-0" from crosswalk unless otherwise noted. The number indicates the number of lanes for payment.



4", 8" & 12" WHITE STRIPE ON P.C.C. PAVEMENT

Not to Scale

License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 3 OF 13 SHEETS

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

Sep 29, 2024 - 11:36pm
C:\Users\Vigashionna\Desktop\CAD\237 TSM Phase 2\FINAL\057 SPM-03 Striping Legend.dwg

True North
Scale: 1"=10'

KEY:

(1) Existing sign(s) to remain.

GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	58	136

(1) RIGHT TURN ON RED AFTER STOP

KOKO HEAD AVENUE
(City)

10+00

Install 4" White Guide Line

City

State

HARDING AVENUE
(City)

ONLY

(1) NO PARKING HERE TO CORNER

NO PARKING 6:30 AM-6:30 AM 3:30 PM-5:30 PM EXCEPT SAT, SUN & HOL

TOW-AWAY ZONE

Match Line
Sta. 12+00
See sheet 59.

ONLY

70'

11+00

ONLY

4' ±

11'

11'

6'

6'

11'

11'

℄ Koko Head Ave
14° 19' 30" →

KOKO HEAD AVENUE
(State)

4' ±

(1) NO PARKING

NO PARKING 6:30 AM-6:30 AM 3:30 PM-5:30 PM EXCEPT SAT, SUN & HOL

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

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

Sep 29, 2024 - 11:36pm
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION

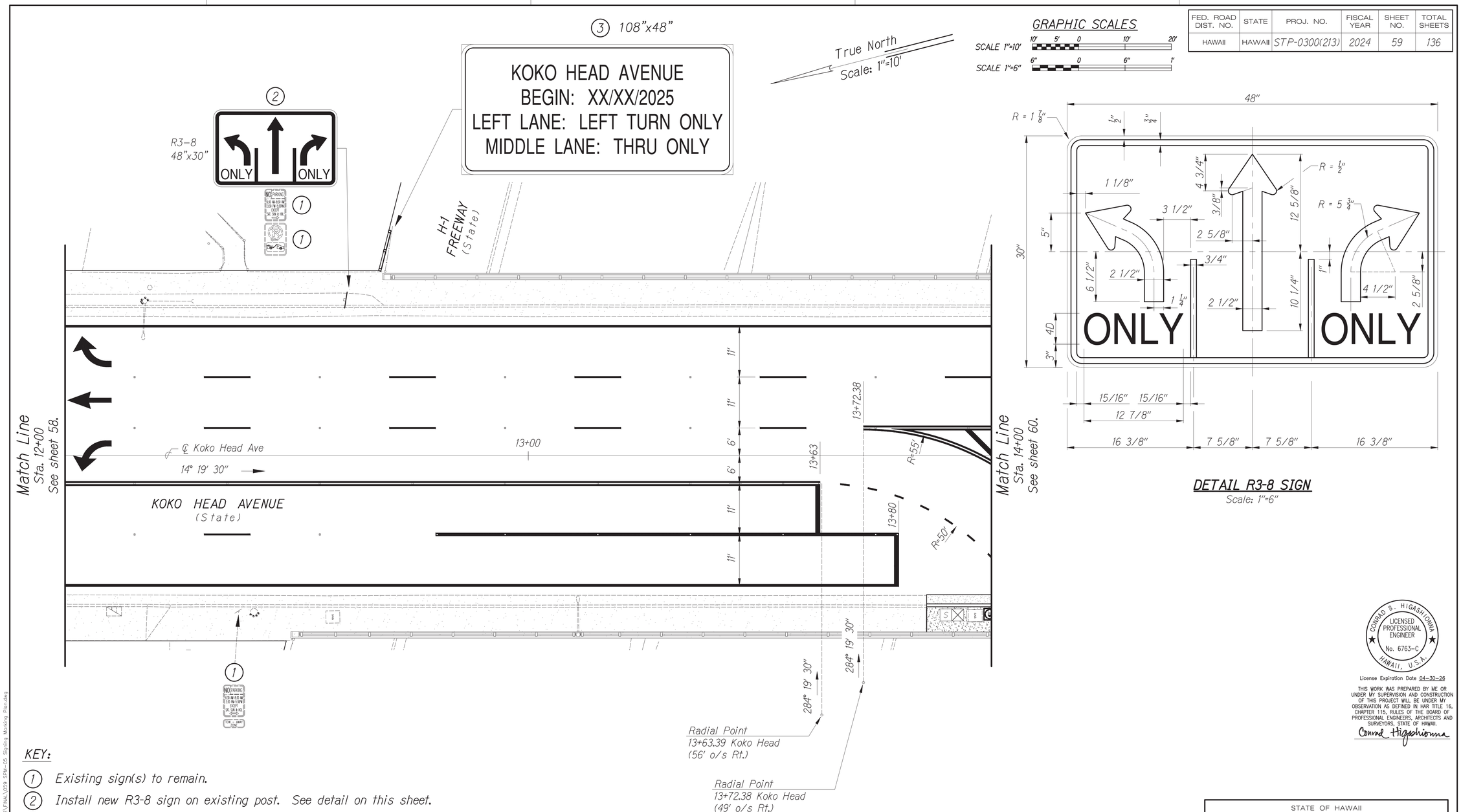
Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 4 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	59	136



DETAIL R3-8 SIGN
Scale: 1"-6"

KEY:

(1) Existing sign(s) to remain.

(2) Install new R3-8 sign on existing post. See detail on this sheet.

(3) Install temporary "Notice To Motorists" sign with posts. Install sign one week prior to effective date. Inform DIR-P at (808) 587-2160. Remove sign one week after effective date.

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Conrad Higashionna

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

Sep. 29, 2024 - 11:36pm
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 5 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	60	136

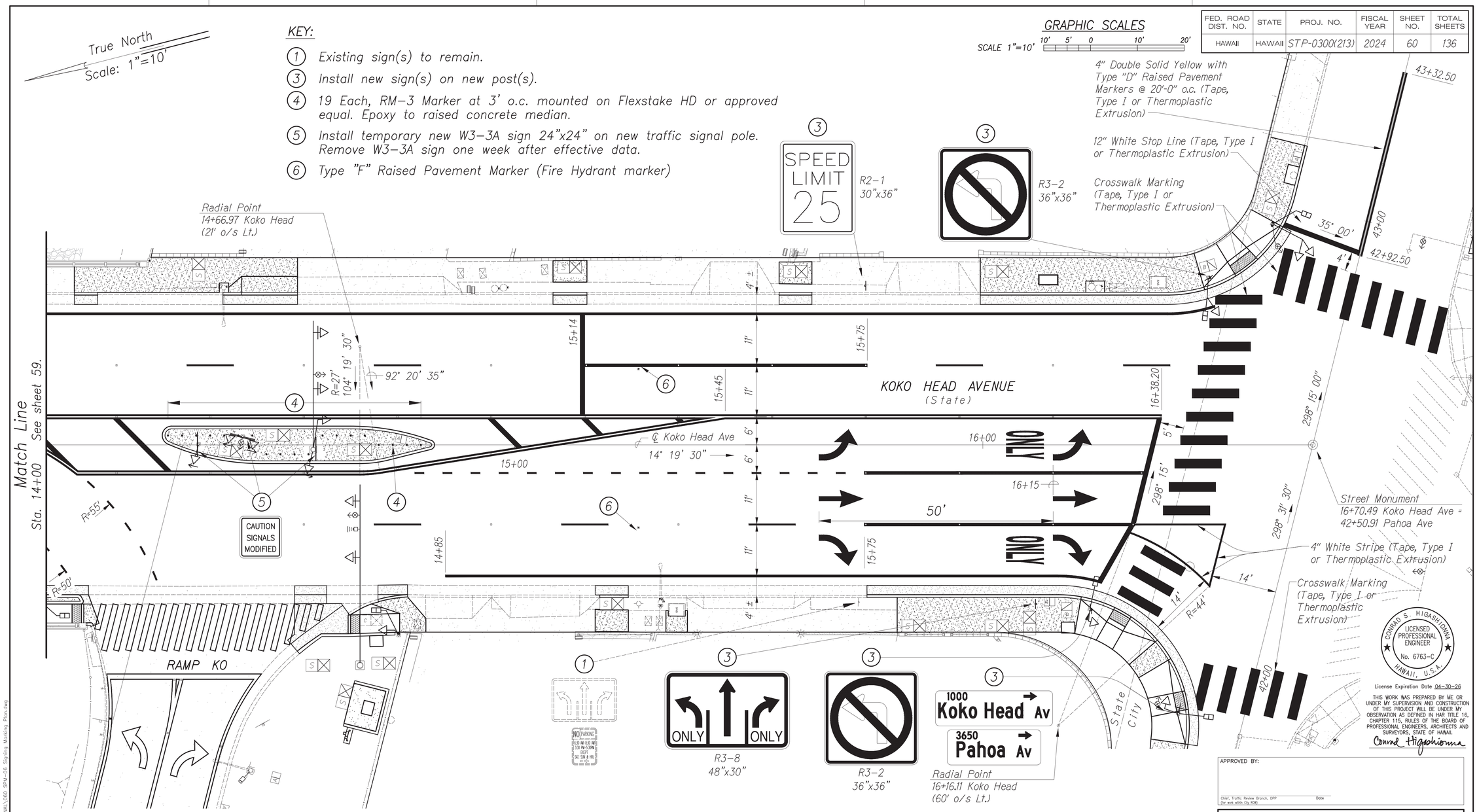
True North
Scale: 1"=10'

KEY:

1. Existing sign(s) to remain.
3. Install new sign(s) on new post(s).
4. 19 Each, RM-3 Marker at 3' o.c. mounted on Flexstake HD or approved equal. Epoxy to raised concrete median.
5. Install temporary new W3-3A sign 24"x24" on new traffic signal pole. Remove W3-3A sign one week after effective data.
6. Type "F" Raised Pavement Marker (Fire Hydrant marker)

GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'



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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 6 OF 13 SHEETS

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

Sep 29, 2024-11:36pm
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	61	136

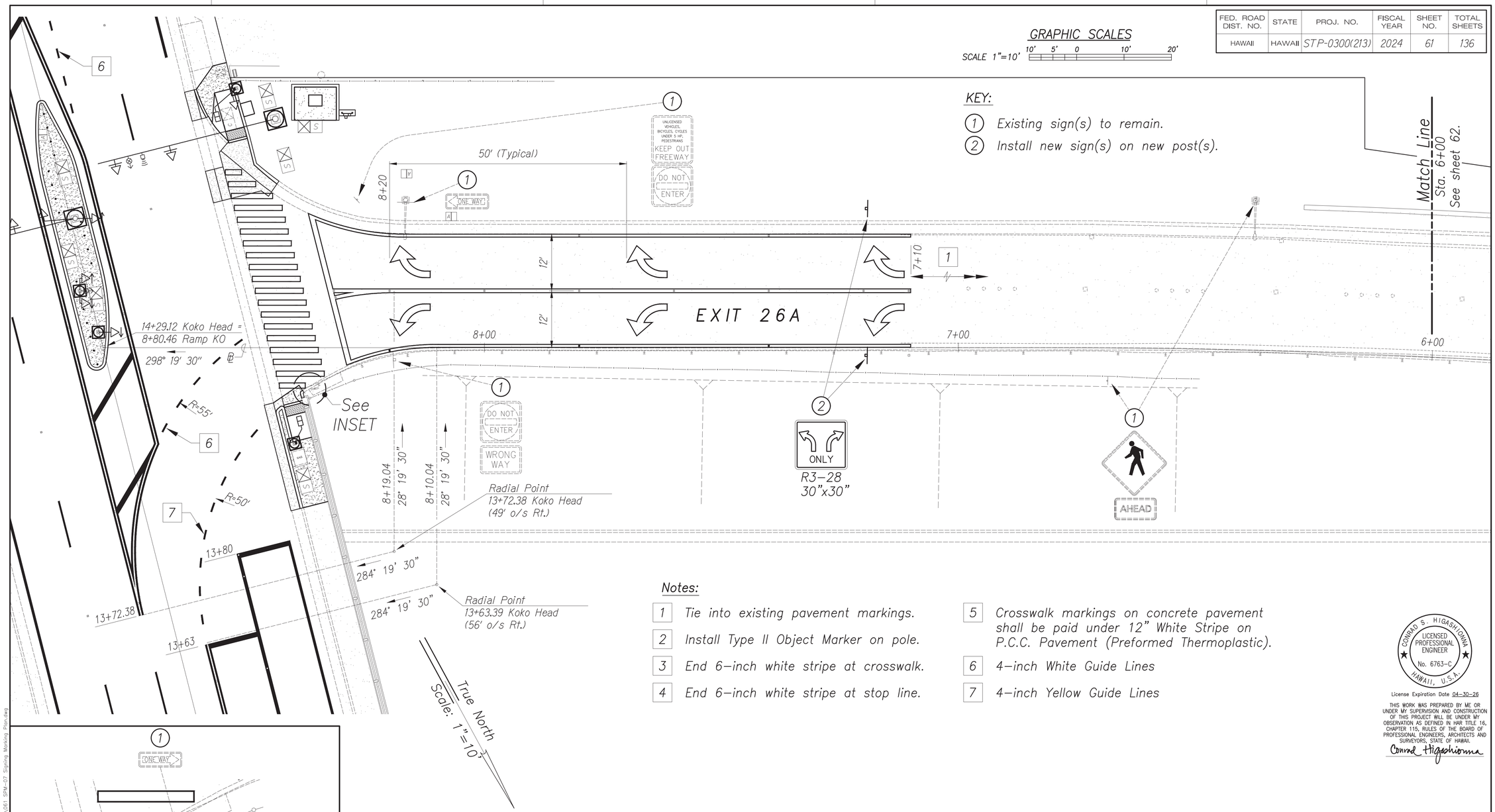
GRAPHIC SCALES

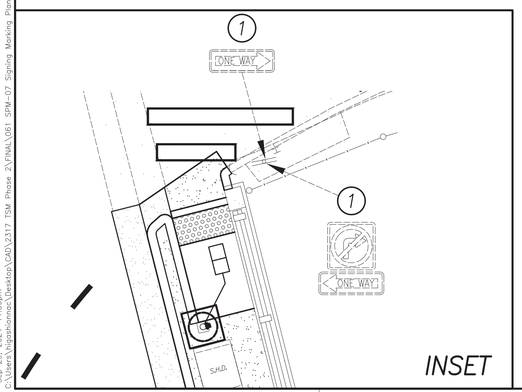
SCALE 1"=10' 10' 5' 0 10' 20'

KEY:

(1) Existing sign(s) to remain.

(2) Install new sign(s) on new post(s).





Notes:

1. Tie into existing pavement markings.
2. Install Type II Object Marker on pole.
3. End 6-inch white stripe at crosswalk.
4. End 6-inch white stripe at stop line.
5. Crosswalk markings on concrete pavement shall be paid under 12" White Stripe on P.C.C. Pavement (Preformed Thermoplastic).
6. 4-inch White Guide Lines
7. 4-inch Yellow Guide Lines

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ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY	
NOTE BOOK	TRACED BY	
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	QUANTITIES BY	
	CHECKED BY	

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 7 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	62	136

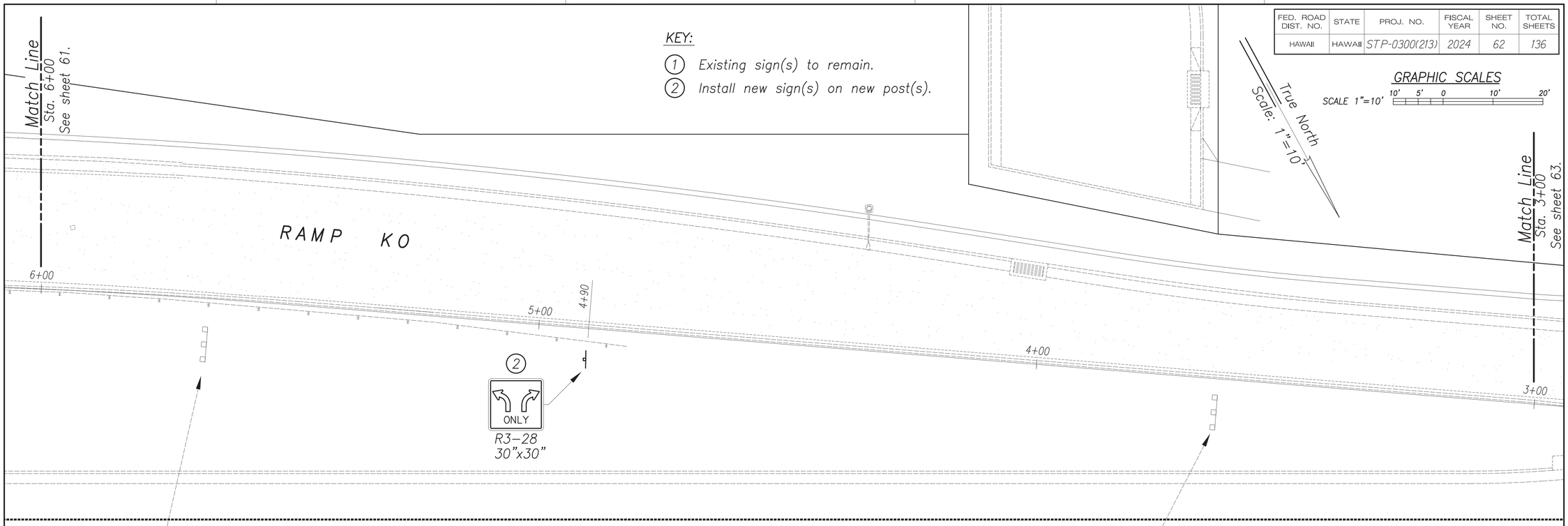
KEY:

(1) Existing sign(s) to remain.

(2) Install new sign(s) on new post(s).

GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'



CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 8 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	63	136

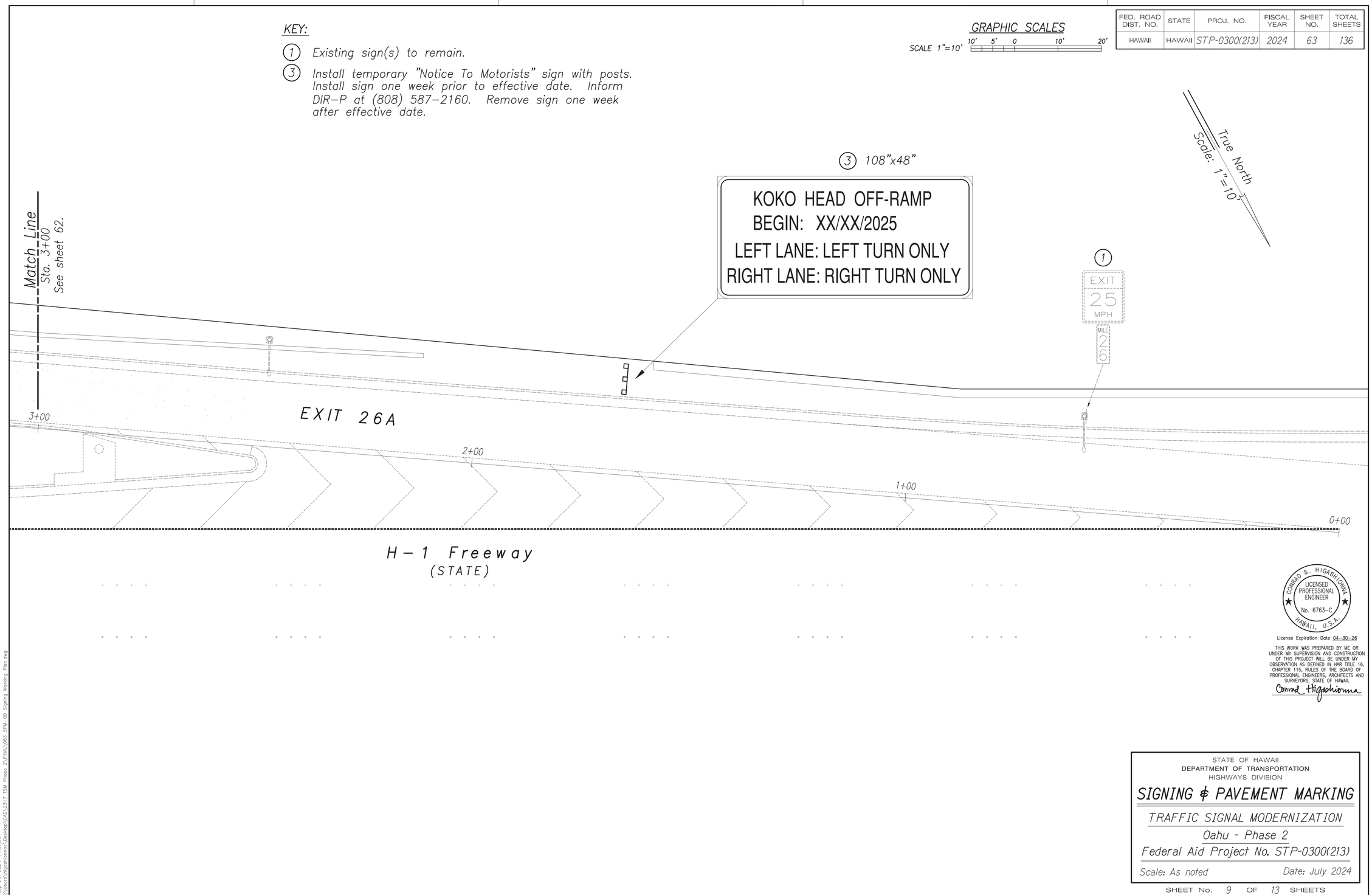
KEY:

(1) Existing sign(s) to remain.

(3) Install temporary "Notice To Motorists" sign with posts. Install sign one week prior to effective date. Inform DIR-P at (808) 587-2160. Remove sign one week after effective date.

GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'



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Conrad Higashionna

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

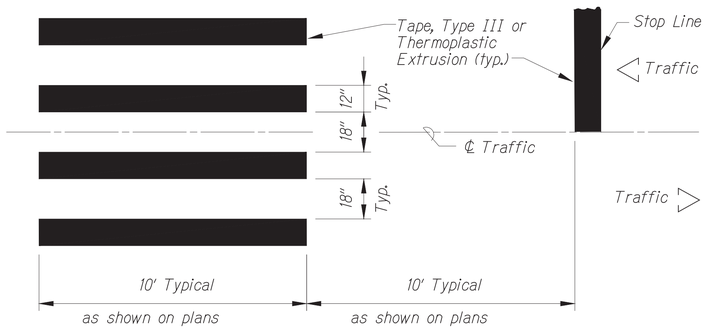
Scale: As noted Date: July 2024

SHEET No. 9 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	64	136

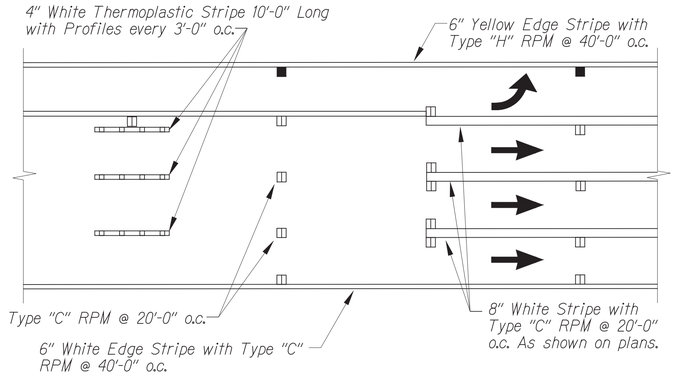
Notes:

1. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
2. Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
3. Raised pavement markers shall not be installed within crosswalks.
4. Final locations of all signs shall be approved by the Engineer prior to any installation work.
5. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
6. Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
7. All pavement striping shall be as noted on the legend or plans.
8. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape applications.
9. All pedestrian warning signs with supplemental sign shall be on a fluorescent yellow-green retroreflective background with a black legend and border.
10. The Contractor shall install preformed thermoplastic pavement markings with a black border on Portland Cement Concrete (PCC) pavement as shown on this sheet.
11. The Contractor shall install preformed thermoplastic pavement markings per the manufacturer's recommendations.



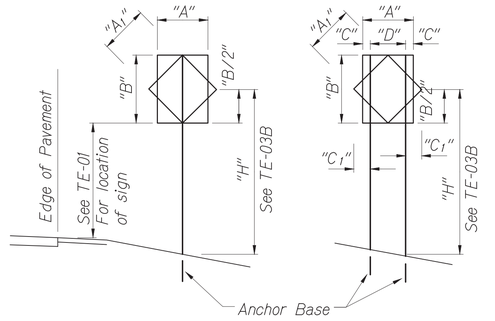
CROSSWALK STRIPING DETAIL

Not to Scale



LANE LINE PAVEMENT MARKINGS

No Scale



1 - POST

"A" or "A1" less than 36"

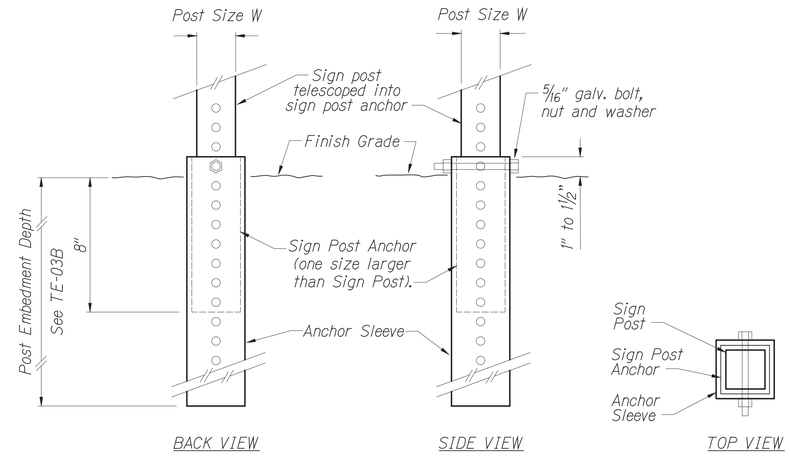
2 - POST

"A" or "A1" less than 60"

"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



SIGN POST INSTALLATION

ANCHOR BASE DETAIL

General Notes:

1. Design Specifications:
   - (A) Design shall conform w/ the latest AASHTO Standard Specifications for the Structural Supports for Highway Signs, Luminaires & Traffic Signals and its interim supplements and modifications by the Highways Division, Department of Transportation State of Hawaii.
   - (B) Latest HDOT Memorandum with subject title "Design Criteria for Bridges and Structures."
2. Loads:
   - (A) Basic Wind Speed: 105 mph.
   - (B) Recurrence Interval of 10 years.
3. Materials:
   - (A) Post shall conform to the Standard Specifications.
   - (B) All connection bolts shall be AASHTO M164 bolts and anchor bolts shall be AASHTO M314-105 bolt. (C) Lap splice nuts and bolts shall be M180, with an ultimate tensile strength of 180 ksi, min. (D) Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as approved by the Engineer.
4. General:
   - (A) See General Notes on B-01, TE-01, and TE-03B for additional information.
   - (B) All posts shall be 12 gage unless otherwise specified or shown on the plans.
   - (C) Square tube posts shall be perforated with 7/16 "ø holes, 1" o.c., 4 sides, along entire length of post.
   - (D) All accessories, fittings and stiffener details (as required) shall be submitted to the Engineer for approval 20 days prior to installation.
   - (E) 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.
   - (F) 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.
   - (G) The Contractor shall use templates while installing the anchor bolts. Anchor bolts shall be vertical.
   - (H) Excavation and backfill shall be considered incidental to the cost of the sign foundation.

GALVANIZED SQUARE TUBE SIGN POST MOUNTING

No Scale

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

ORIGINAL PLAN

No.	NOTE BOOK	DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

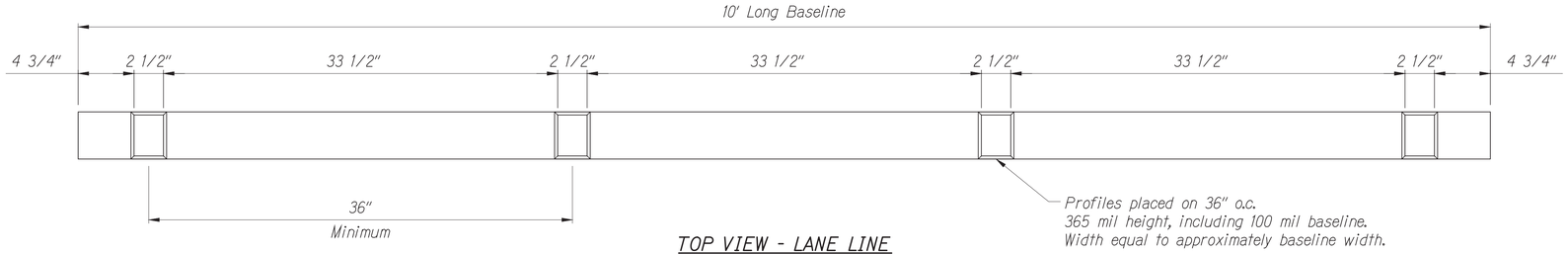
SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

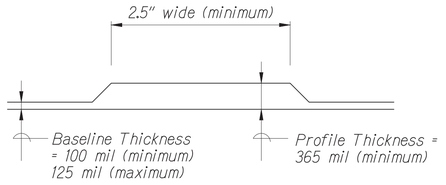
Scale: As noted Date: July 2024

SHEET No. 10 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	65	136



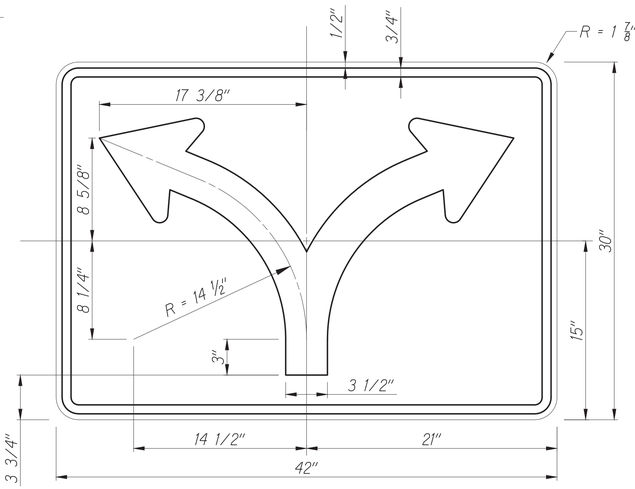
TOP VIEW - LANE LINE



PROFILES - SIDE VIEW

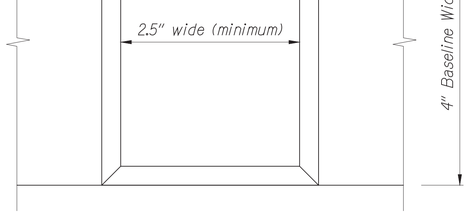
Notes:

1. The thermoplastic material shall be a alkyd-based compound formulated for profiled pavement marking. See specifications subsection 629.03 for additional requirements.
2. The Engineer will include the longitudinal gaps for skip striping, up to thirty (30) feet long, in the measurement for payment.
3. Install white profiled thermoplastic stripes as lane line.
4. Install yellow profiled thermoplastic stripes for centerline passing zone.
5. In areas with centerline milled rumble strips, install standard yellow thermoplastic stripes without raised profiles.

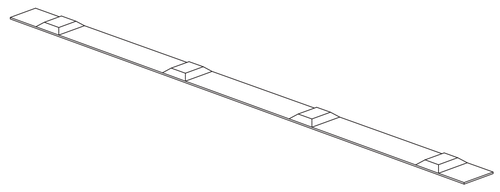


DETAIL R3-5 Left & Right

No Scale



PROFILES - TOP VIEW



PERSPECTIVE VIEW - LANE LINE

PROFILED THERMOPLASTIC STRIPING

No Scale

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
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Conrad Higashionna

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION

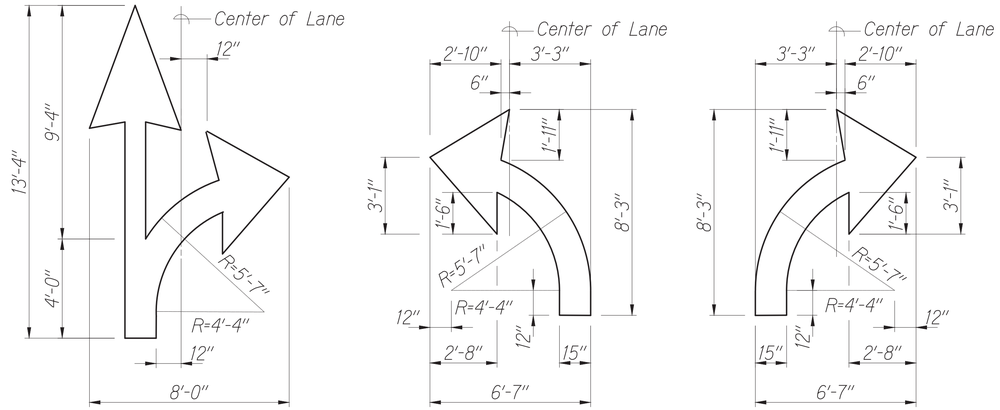
Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 11 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	66	136

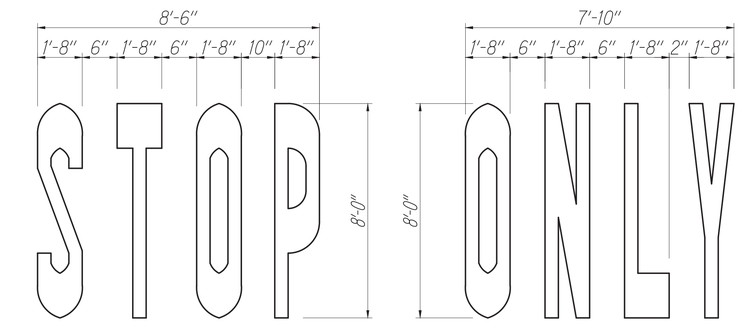


COMBINED ARROWS TURN ARROW TURN ARROW

(For Work in CITY Right-of-Way)

TYPICAL PAVEMENT ARROW

No Scale



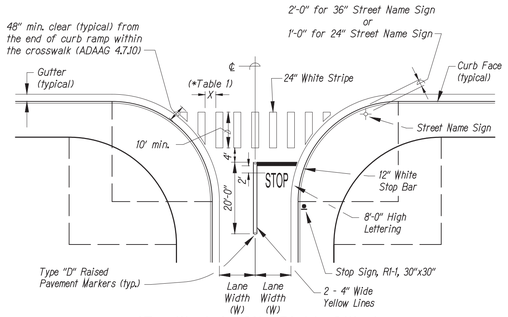
NOTE: When this marking is used, it shall be painted in each lane of traffic approaching the intersection.

(For Work in CITY Right-of-Way)

STANDARD DETAIL OF THE WORDS "STOP AND ONLY" 8'-0" SIZE

No Scale

*TABLE 1	
Lane Width (W)	X (Distance Between Crosswalk Bars)
< 12'	3'
12'-14'	4'
15'-17'	5'
> 17'	3'

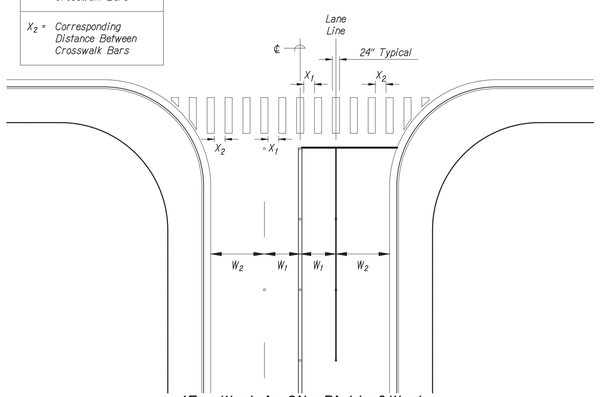


(For Work in City Right-of-Way)

TYPICAL CONTROLLED INTERSECTION CROSSWALK DETAIL

No Scale

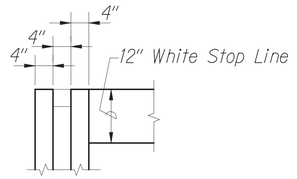
*TABLE 2
W_1 = Width of Lane 1
W_2 = Width of Lane 2
X_1 = Corresponding Distance Between Crosswalk Bars
X_2 = Corresponding Distance Between Crosswalk Bars



(For Work in City Right-of-Way)

TYPICAL NON-MEDIAN ℄ MULTI-LANE CROSSWALK DETAIL

No Scale



(For Work in CITY Right-of-Way)

CENTERLINE & STOP BAR

No Scale

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 12 OF 13 SHEETS

ORIGINAL PLAN	DATE
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	QUANTITIES BY
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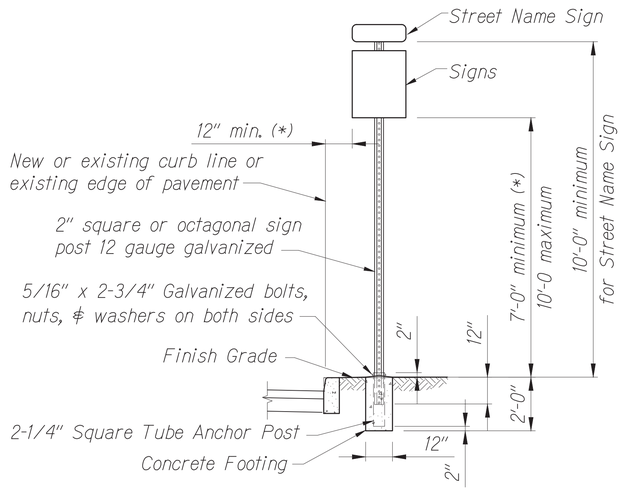
ANCHOR POSTS NOTES:

1. Keep inside of 2-1/4" anchor post free from impediments that may prevent proper seating of 2" sign post.
2. Square tubing sign post shall be telescoping type with 7/16" dia. Holes at 1" o.c. on four sides.
3. Octagon sign post shall be telescoping type with 7/16" dia. Holes at 1" o.c. on two sides.
4. Use 5/16" x 2-3/4" bolts to secure the octagonal and square tubing post onto the 2-1/4" square tube anchor post.
5. Minimum bury depth for the 2-1/4" anchor post shall be as follows:
   4'-0" minimum at poor soil conditions
   2'-6" minimum at rocky conditions

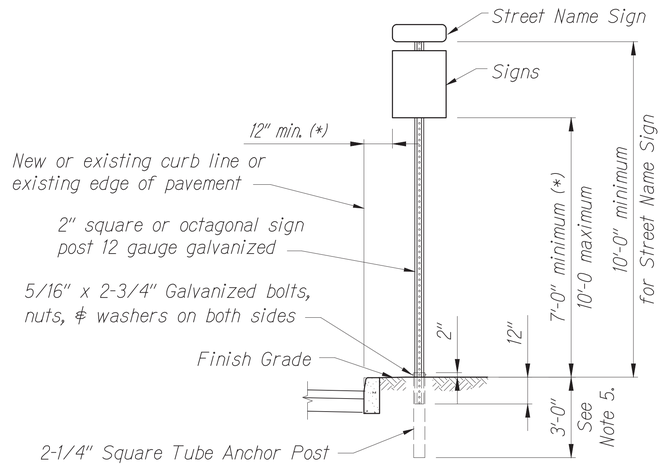
(*) All sign(s) installations must meet lateral and height clearances, including new signs that will be posted on to existing sign post. Extend, relocate or replace as required to meet clearance requirements.



(For Work in CITY Right-of-Way)

INSTALLATION OF NEW OR RELOCATED SIGN POST W/ CONCRETE FOOTING

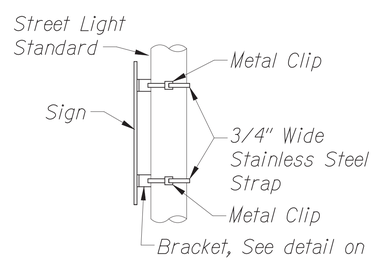
No Scale



(For Work in CITY Right-of-Way)

INSTALLATION OF NEW OR RELOCATED SIGN POST W/ ANCHOR POST, WITHOUT CONCRETE FOOTING

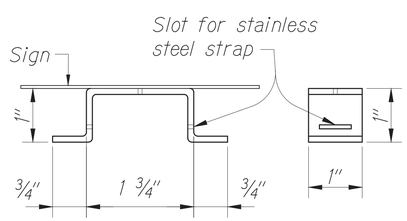
No Scale



(For Work in CITY Right-of-Way)

BRACKET STRAP

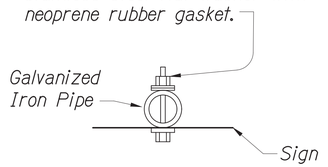
No Scale



(For Work in CITY Right-of-Way)

SIGN BRACKET

No Scale

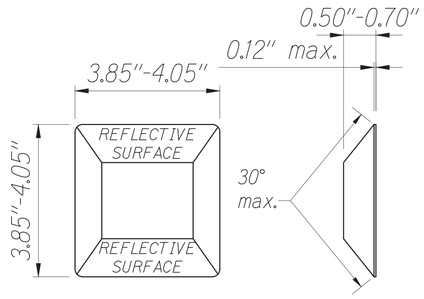


(For Work in CITY Right-of-Way)

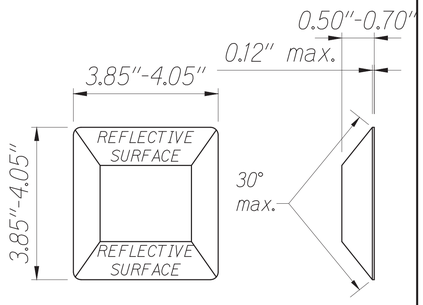
TYP. MOUNTING DETAIL

No Scale

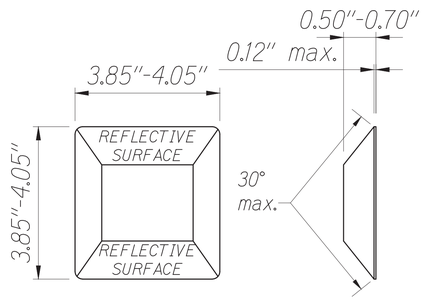
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	67	136



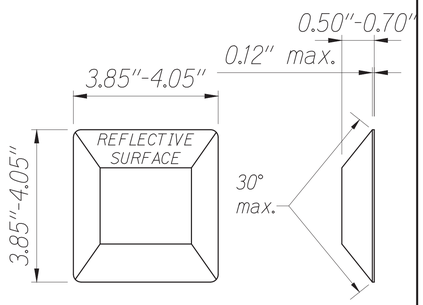
TYPE "DB"
TWO-WAY BLUE REFLECTIVE MARKER



TYPE "C"
RED-CLEAR REFLECTIVE MARKER



TYPE "D"
TWO-WAY YELLOW REFLECTIVE MARKER



TYPE "H"
ONE-WAY YELLOW REFLECTIVE MARKER

STANDARD RAISED PAVEMENT MARKERS

No Scale

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 13 OF 13 SHEETS

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
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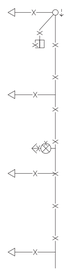
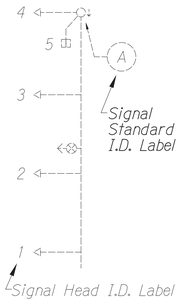
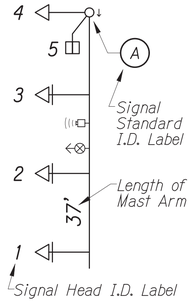
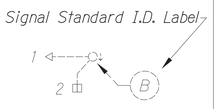
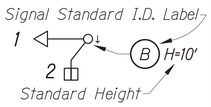
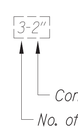
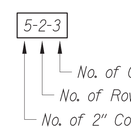
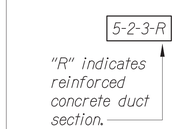
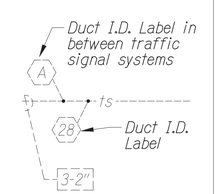
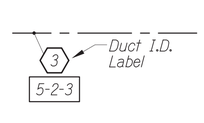
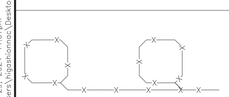
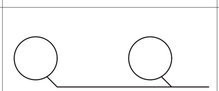
TRAFFIC SIGNAL LEGEND

Demolition	Existing	New	Description
C	C	C	Traffic Signal Controller Cabinet
M	M	M	Traffic Monitoring and Signal Control Cabinet
			Type II Traffic Signal Standard with Mast Arm, Traffic Signal Heads, Pedestrian Heads, EVP Optical Receiver, and Vehicle Detector (Video and Radar).
			Type I Traffic Signal Standard and Traffic Signal Heads
			12" RYG Traffic Signal Head
			12" RYG→ Traffic Signal Head (with Green Arrow)
			12" Programmable Visibility Traffic Signal Head
			Signal Head w/ Back Plate w/ Retroreflective Borders
			Pedestrian Signal Head
	B3	B3	Pedestrian Push Button & I.D. Number
			EVP Optical Receiver
			Vehicle Detector (Video and Radar)
S.H.D.	S.H.D.		Traffic Signal Pull Box (Metal Cover with label "S.H.D.")
			Traffic Signal Pull Box (Metal Cover with label "Traffic Signal")
A	A P3	A P3	Type A Pull Box (Polymer Concrete Cover) & I.D. Number
B	B P3	B P3	Type B Pull Box (Polymer Concrete Cover) & I.D. Number
C	C P3	C P3	Type C Pull Box (Polymer Concrete Cover) & I.D. Number
		S P3	Special Type C Pull Box (see Structural plans) & I.D. Number

Traffic Signal Ducts

Existing Duct Line	New Duct Line	New Duct Line (Reinf.)
		
		

			Loop Detectors Sensing Unit

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	68	136

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License Expiration Date 04-30-26

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Conrad Higashionna

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

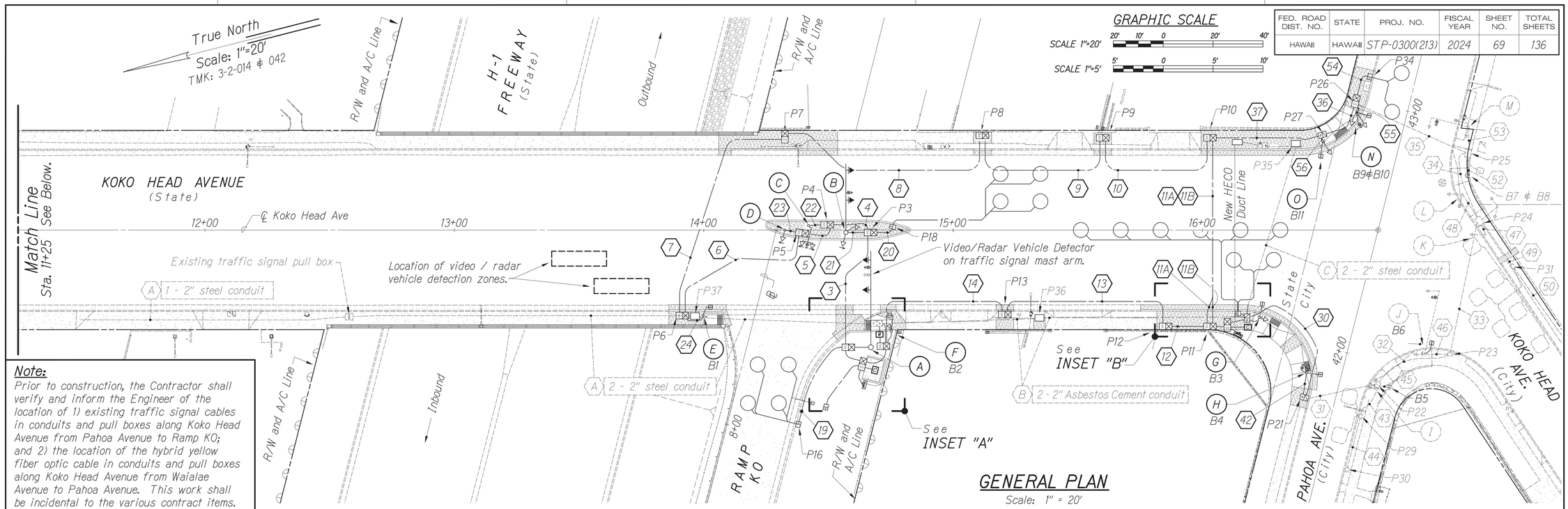
Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted | Date: July 2024

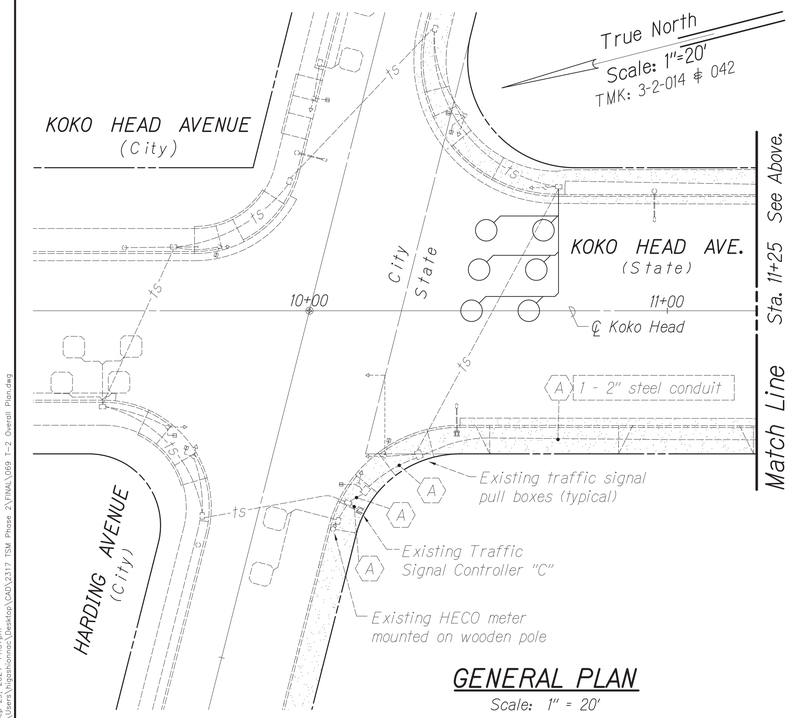
SHEET No. 1 OF 43 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	69	136

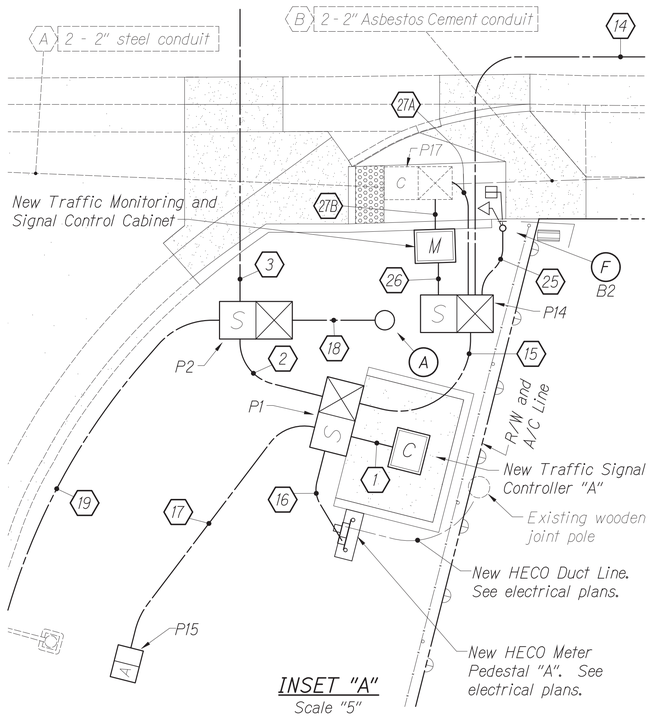


GENERAL PLAN
Scale: 1" = 20'

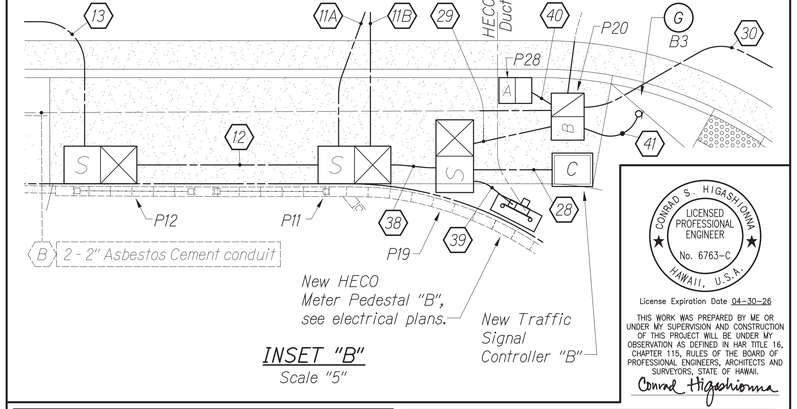
Note:
Prior to construction, the Contractor shall verify and inform the Engineer of the location of 1) existing traffic signal cables in conduits and pull boxes along Koko Head Avenue from Pahoa Avenue to Ramp KO; and 2) the location of the hybrid yellow fiber optic cable in conduits and pull boxes along Koko Head Avenue from Waialae Avenue to Pahoa Avenue. This work shall be incidental to the various contract items.



GENERAL PLAN
Scale: 1" = 20'



INSET "A"
Scale "5"



INSET "B"
Scale "5"

Notes:
1. For **LEGEND**, see sheet 68.
2. For signal demolition, see sheets 73 thru 75.

APPROVED BY:

Chief, Civil Engineering Branch, DPP — Date (for construction in City ROW only)
Manager and Chief Engineer, BWS — Date (for work affecting BWS facilities in City/State R/W and BWS easements only)
Chief, Traffic Review Branch, DPP — Date (for work within City ROW)
Chief, Traffic Signal & Technology Division, DTS — Date

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License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 2 OF 43 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

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TRAFFIC SIGNAL NOTES

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	70	136

1. The locations of the traffic signal standards, pedestrian push buttons, traffic controller, pull boxes, conduits and loop detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.

2. Any required splicing shall be done in the pull boxes.

3. Furnishing and installing controller barriers, risers on poles and conduit stub outs (pull boxes to the edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.

4. A solid #8 bare copper wire shall be pulled with the traffic signal control cable for equipment ground. Cost shall be incidental to the installation of the control cable.

5. All traffic signal controller equipment shall be completely wired in the cabinet and shall control traffic signals as called for on the plans.

6. The Contractor shall install the meter socket breaker as shown in the electrical drawings.

7. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.

8. Should any defect be encountered during the controller warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense whatsoever to the State. All repairs shall be done as soon as possible.

9. Existing traffic signal standards to be replaced shall be removed together with its respective footing. The Contractor may elect to remove only the top portion of the footing and shall ensure that the remaining footing is 2 feet below the existing or finish ground. Costs shall be considered incidental to the various contract items.

10. The existing traffic signal and CCTV systems shall remain in operation until the new traffic signal system is put into service. The Contractor shall arrange his work accordingly and shall provide temporary relocations and wiring, as necessary. Payment shall be considered incidental to the various contract items.

11. The Contractor shall clean and/or repair the existing traffic signal pull boxes to be used prior to installing conduits and cables. This work will not be paid for separately but shall considered incidental to the various contract items.

12. The Contractor shall clean all existing conduits prior to pulling cables. This work will not be paid for separately but shall be considered incidental to the various contract items.

13. The existing controller foundations and pull boxes not to be incorporated in the final signal system shall be removed in accordance with Section 202, "Removal of Structures and Obstruction" of the Standard Specifications. Pavement shall be constructed to match surrounding pavement.

14. The Contractor shall maintain a 36" clearance between the control duct line and loop detectors.

15. Restoration of existing pavements and improvements unavoidably damaged shall be incidental to the various contract items. Restoration shall be to the original or better condition.

16. Removing and disposing of existing power source equipment (i.e. meter, conduits, cables, etc.) shall not be paid for separately but considered incidental to the various contract items.

17. The Contractor shall verify and remove existing traffic signal heads, standards, foundations, pedestrian pushbuttons, pull box frame and covers, cables, and appurtenances, etc. which are called for removal in the plans, abandoned, or not incorporated into the new traffic signal system. The Engineer shall determine the salvageable equipment. All salvageable equipment shall become the property of the City Department of Transportation Services and the un-salvegeable equipment shall become the property of the Contractor for proper disposal. Removing and salvaging existing traffic signal equipment shall not be paid for separately but considered incidental to the various contract items.

18. The Contractor shall notify the Traffic Signal and Technology Division, Department of Transportation Services, three (3) days prior to commencing work of the Traffic Signal and CCTV system [Phone: (808) 768-8388].

19. Concrete encased conduits and Type 2 cables between the pedestrian push button and pull box shall be furnished and installed in sufficient numbers and lengths, as required. Cost shall be incidental to the installation of pedestrian push buttons.

20. Concrete encased conduits and signal drop cables between traffic signal standards and pull boxes shall be furnished and installed in sufficient numbers and lengths, as required. Cost shall be incidental to traffic signal foundation.

21. The Contractor shall verify all work in the field prior to submitting of bid, ordering of materials, fabrication of brackets, etc.

22. The Contractor shall not construct conduits, pull boxes, traffic signal standard foundations, etc. outside of State or County right-of-way unless shown otherwise on the plans.

23. Existing conduits not incorporated into the new traffic signal system shall be plugged with concrete and abandoned in place. This work shall be incidental to the various contract items.

24. The Contractor shall use a 5-foot length to transition from normal duct section to fit conduits within pullbox knockout unless otherwise noted. All conduits shall enter pullbox through knockouts.

25. The Contractor shall remove all temporary microwave detectors not incorporated in the final signal system after the new signal system is operational and prior to final acceptance unless otherwise notified by the State. Temporary microwave detectors shall be salvaged and delivered to the City and County Department of Transportation Services.

26. The Contractor shall provide 3'-0" minimum cover over top of concrete jacket for traffic signal ducts installed within the traveled way and shoulders, unless otherwise called for on the plans.

27. For new Type I Traffic Signal Standards, the Contractor shall provide new Type I Signal Standard and new footing per structural plans. The Contractor shall provide new traffic signal heads, pedestrian signal heads, ADA compliant pedestrian push button, and necessary new mounting equipment and accessories as required and as shown on the plans. The Contractor shall provide 2-inch Schedule 40 conduits concrete encased with cables required for traffic and pedestrian signal heads and pedestrian push buttons.

28. For new Type II Traffic Signal Standards, the Contractor shall provide new Type II Signal Standard and new drilled shaft foundation per structural plans. The Contractor shall provide new traffic signal heads, pedestrian signal heads, ADA compliant pedestrian push button, and necessary new mounting equipment and accessories as required and as shown on the plans. The Contractor shall provide 2-inch Schedule 40 conduits concrete encased with cables for traffic signal heads, pedestrian signal heads, pedestrian push buttons, and Opticom detector.

29. The Contractor shall ensure that traffic signal standards are designed and manufactured to be compatible with the drilled shaft design to avoid bolt circle-cage conflicts.

30. Existing traffic signal pullboxes, street light pullboxes, and traffic signal standards to remain shall be adjusted to finish grade. The cost shall be incidental to the various contract items.

31. Existing traffic signal systems shall remain operational at all times during construction; the Contractor shall provide temporary equipment or power as needed to facilitate construction. The cost shall be incidental to the various contract items.

32. Precast pull boxes shall be set on six (6) inches of level, 95% compacted crushed rock fill, 3/4 inch to one (1) inch size, extending twelve (12) inches beyond the pull box on each side. Granular fill shall be compacted by a minimum of four passes with a plate type vibrator.

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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) Date

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 3 OF 43 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	71	136

DESIGN REQUIREMENTS FOR TRAFFIC SIGNAL STANDARDS:

Manufacturer designed traffic signal standards and mast arms being furnished for this project shall conform with the new design requirements noted below:

New traffic signal standards shall use the ***AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 1st Edition (2015),*** *including all subsequent interim revisions and editions as its design reference.*

Changes to the Design Criteria for Bridges and Structures dated August 8, 2014 include:

1. *7th Paragraph on pages 5 - 6 shall now read:*

   "AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1st Edition (2015) including all subsequent interim revisions and editions. This shall govern design of structural supports for highway signs, luminaires, and traffic signals. This shall also govern of other support structures such as for variable message signs, traffic management cameras, transmission lines other than overhead electrical lines and communication equipment including those attached to bridge structures except as modified herein. Supports for overhead electrical supply and communication lines, at a minimum, shall be analyzed and designed in accordance with the National Electrical Safety Code per the Hawaii Administrative Rules (HAR), Chapter 6-73, Installation, Operation and Maintenance of Overhead and Underground Electrical Supply and Communication Lines."

2. *Section 4.0 on pages 14-16 shall be replaced with the following:*

"4.0 MODIFICATIONS TO AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

4.01 ***Wind Load*** *[Article 3.8]. For all State roadways other than those with a functional classification of local roads, all structural supports for highway signs, luminaires, and traffic signals are to be designed for a mean recurrence interval of 1700 years. Local roads under State jurisdiction shall be designed for a minimum recurrence interval of 700 years. Roadside sign supports located where failure would not impact the travel way can be designed for a 10-year mean recurrence interval. For unusual or differing exposure conditions [Article 3.8.3], the basic wind speed should be increased using rational procedures and sound engineering judgement. The wind maps for Effective Wind Speed, Topographic Effects and Exposure Category included in the State Building Code (HAR, Chapter 3-180) should be used for guidance.*

4.02 ***Height and Exposure Factor, K_z*** *[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 (HAR, Chapter 3-180) should also be used for guidance. If height and exposure factors are not considered, then the consultants shall provide reason(s) for not considering in the structural calculations for the project.*

4.03 ***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 year 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.*

4.04 ***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. See Figure C5.16-1 Typical Double-Nut Connection.*

A wire cloth screen shall be specified to be placed vertically between the base plate and the top of the foundation and wrapped horizontally around the base plate with a three (3) inch 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 (minimum of 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. In any case, the fabricator needs to be aware that the fabrication documents need to account for the wire cloth mesh.

4.05 ***Plumbness of Anchor Bolts*** *[Article 5.16]. The designer shall include this provision of the design specification in the construction plans and/or specifications.*

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.

4.06 ***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 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.

4.07 ***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 Hawaii Department of Transportation, mitigation devices may be installed after construction if vibration due galloping is identified. Responsible party for the mitigation devices shall be determined during design and included in the construction documents.*

4.08 ***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. For unusual or differing exposure conditions, the equivalent static natural wind gust pressure should be increased using references noted in the specifications.*

4.09 ***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."*

4.10 ***Square or Rectangular Steel Post Sections*** *[Sections 5 and 11].*
Not applicable

4.11 ***Traffic Signs on Light Poles and Traffic Signals.***
Not applicable.

4.12 ***Standard Plans.***
Not applicable.

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 4 OF 43 SHEETS

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	72	136

HAWAIIAN TELCOM 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 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 utililties 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 (808) 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 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 wherever 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 A.C. 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 Public Works, 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 notify Hawaiian Telcom's inspector 24 hours prior to the pouring of concrete or backfilling.

HAWAIIAN ELECTRIC COMPANY NOTES

1. Hawaiian Electric Company notes apply to new traffic signal system construction. For HECO notes, see electrical plans drawings E-2 thru E-4.

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

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CONRAD S. HIGASHIONNA
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HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 5 OF 43 SHEETS

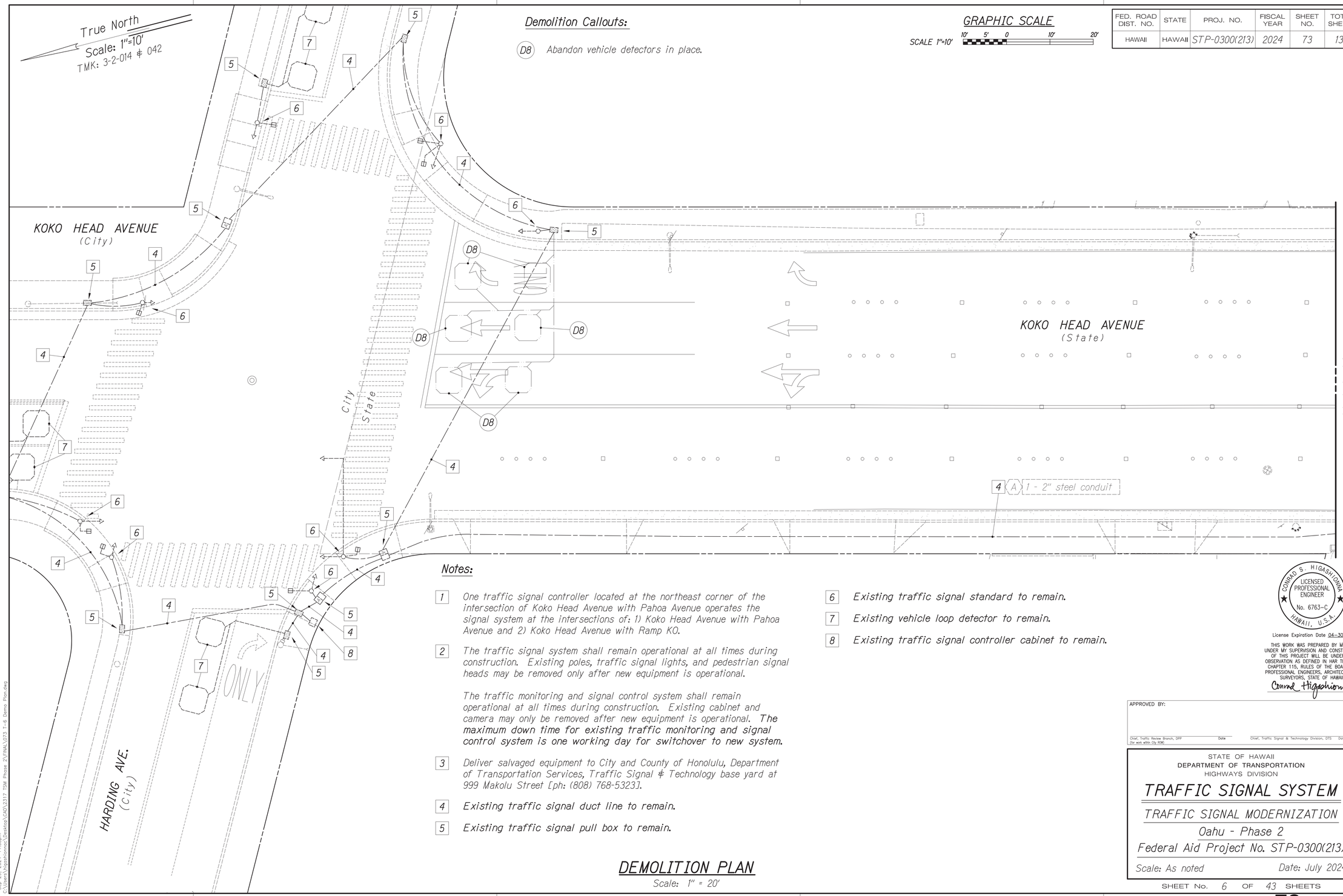
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	73	136

True North
Scale: 1"=10'
TMK: 3-2-014 & 042

Demolition Callouts:

(D8) Abandon vehicle detectors in place.

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



Notes:

1. One traffic signal controller located at the northeast corner of the intersection of Koko Head Avenue with Pahoa Avenue operates the signal system at the intersections of: 1) Koko Head Avenue with Pahoa Avenue and 2) Koko Head Avenue with Ramp KO.
2. The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after new equipment is operational.

   The traffic monitoring and signal control system shall remain operational at all times during construction. Existing cabinet and camera may only be removed after new equipment is operational. **The maximum down time for existing traffic monitoring and signal control system is one working day for switchover to new system.**
3. Deliver salvaged equipment to City and County of Honolulu, Department of Transportation Services, Traffic Signal & Technology base yard at 999 Makolu Street [ph: (808) 768-5323].
4. Existing traffic signal duct line to remain.
5. Existing traffic signal pull box to remain.
6. Existing traffic signal standard to remain.
7. Existing vehicle loop detector to remain.
8. Existing traffic signal controller cabinet to remain.

DEMOLITION PLAN

Scale: 1" = 20'

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

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

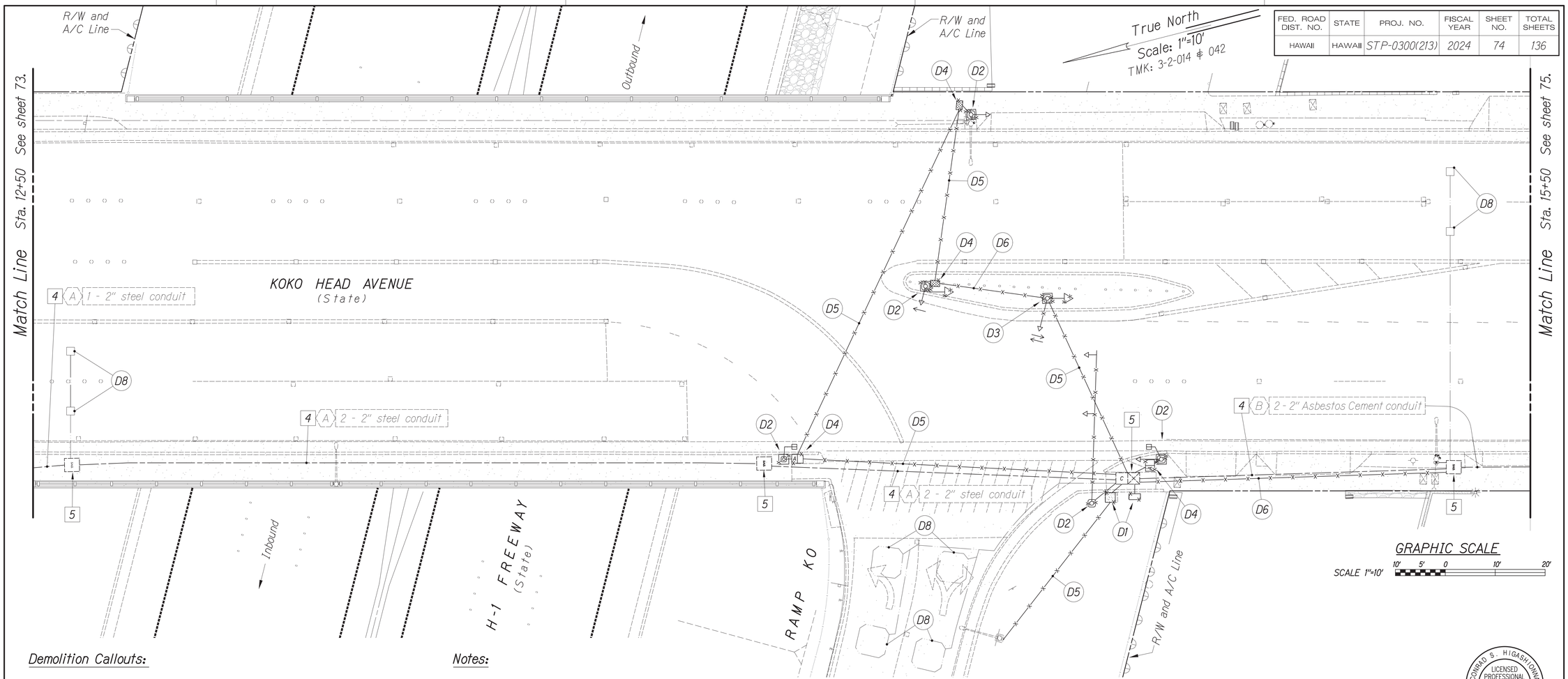
TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	74	136



Demolition Callouts:

- (D1) Remove and salvage cabinet. Salvage equipment in cabinet. Demolish and dispose of concrete foundation.
- (D2) Remove and salvage existing traffic signal standard. Demolish and dispose of concrete foundation two feet below finish grade. Remove and salvage traffic/ pedestrian signal heads.
- (D3) Remove and salvage traffic signal standard. Demolish and dispose of concrete foundation 4" below with finish grade. **Break asbestos cement ducts 4" below with finish grade and plug with lean concrete.**
- (D4) Demolish and dispose of traffic signal pullbox.
- (D5) Remove traffic signal cables. Abandon duct line within State right-of-way. Fill conduits with lean concrete.
- (D6) Remove traffic signal cables. The Contractor shall verify conduit material. **Remove asbestos-cement conduit, as needed. Abandon remaining conduit in place and fill with lean concrete.**
- (D7) Remove traffic signal cables. Remove entire ductline and concrete encasement within State right-of-way.
- (D8) Abandon vehicle detectors in place.
- (D9) Remove and salvage traffic signal controller and cabinet. Demolish and dispose of concrete base one foot below finish grade.

Notes:

1. One traffic signal controller located at the northeast corner of the intersection of Koko Head Avenue with Pahoa Avenue operates the signal system at the intersections of: 1) Koko Head Avenue with Pahoa Avenue and 2) Koko Head Avenue with Ramp KO.
2. The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after new equipment is operational.

   The traffic monitoring and signal control system shall remain operational at all times during construction. Existing cabinet and camera may only be removed after new equipment is operational. **The maximum down time for existing traffic monitoring and signal control system is one working day for switchover to new system.**
3. Deliver salvaged equipment to City and County of Honolulu, Department of Transportation Services, Traffic Signal & Technology base yard at 999 Makolu Street [ph: (808) 768-5323].
4. Existing traffic signal duct line to remain.
5. Existing traffic signal pull box to remain.

DEMOLITION PLAN

Scale: 1" = 20'

ORIGINAL PLAN	NOTE BOOK	No.	DATE
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DESIGNED BY			
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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (For work within City ROW) — Date

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

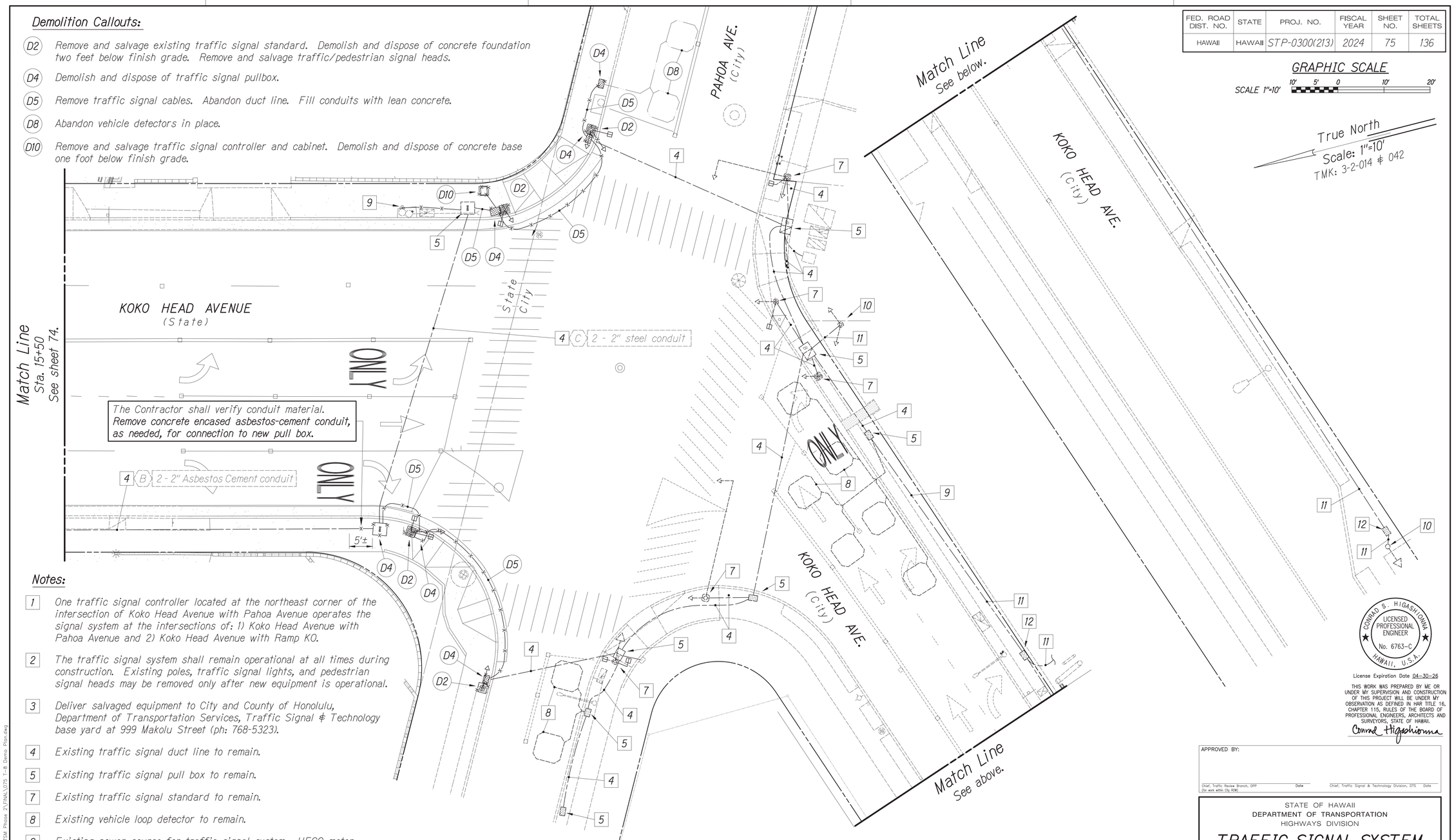
Scale: As noted — Date: July 2024

SHEET No. 7 OF 43 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	75	136

Demolition Callouts:

- (D2) Remove and salvage existing traffic signal standard. Demolish and dispose of concrete foundation two feet below finish grade. Remove and salvage traffic/pedestrian signal heads.
- (D4) Demolish and dispose of traffic signal pullbox.
- (D5) Remove traffic signal cables. Abandon duct line. Fill conduits with lean concrete.
- (D8) Abandon vehicle detectors in place.
- (D10) Remove and salvage traffic signal controller and cabinet. Demolish and dispose of concrete base one foot below finish grade.



Notes:

1. One traffic signal controller located at the northeast corner of the intersection of Koko Head Avenue with Pahoa Avenue operates the signal system at the intersections of: 1) Koko Head Avenue with Pahoa Avenue and 2) Koko Head Avenue with Ramp KO.
2. The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after new equipment is operational.
3. Deliver salvaged equipment to City and County of Honolulu, Department of Transportation Services, Traffic Signal & Technology base yard at 999 Makolu Street (ph: 768-5323).
4. Existing traffic signal duct line to remain.
5. Existing traffic signal pull box to remain.
7. Existing traffic signal standard to remain.
8. Existing vehicle loop detector to remain.
9. Existing power source for traffic signal system. HECO meter mounted on wooden joint pole. See Electrical plans.
10. Existing warning flasher/standard to remain. Fire station warning system shall remain operational at all times during construction.
11. Existing duct line to remain (for fire station warning system).
12. Existing pull box to remain (for fire station warning system).

DEMOLITION PLAN

Scale: 1" = 20'

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

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HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 8 OF 43 SHEETS

ORIGINAL PLAN	NOTE BOOK	No.	DATE

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	76	136

True North
Scale: 1"=10'
TMK: 3-2-014 & 042

New Work Callouts:

(N7) Install Loop Detector Sensing Unit (6 ft. x 6 ft.) 2 Loops centered in lane (asphalt concrete).

Notes:

4 Existing traffic signal duct line to remain.
5 Existing traffic signal pull box to remain.
6 Existing traffic signal standard to remain.
7 Existing vehicle loop detector to remain.
8 Existing traffic signal controller cabinet to remain.

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

KOKO HEAD AVENUE
(City)

10+00

City
State

11+00

12+00

14° 19' 30"
℄ "KH"

KOKO HEAD AVENUE
(State)

4" ±
11'
11'
6'
6'
11'
11'

4 A 1 - 2" steel conduit

Match Line Sta. 12+50 See sheet 74.

HARDING AVE.
(City)

ONLY

(Harding Ave. & Koko Head Ave.)
TRAFFIC SIGNAL PLAN
Scale: 1" = 10'

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 9 OF 43 SHEETS

ORIGINAL PLAN		DATE
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No.	QUANTITIES BY	
	CHECKED BY	

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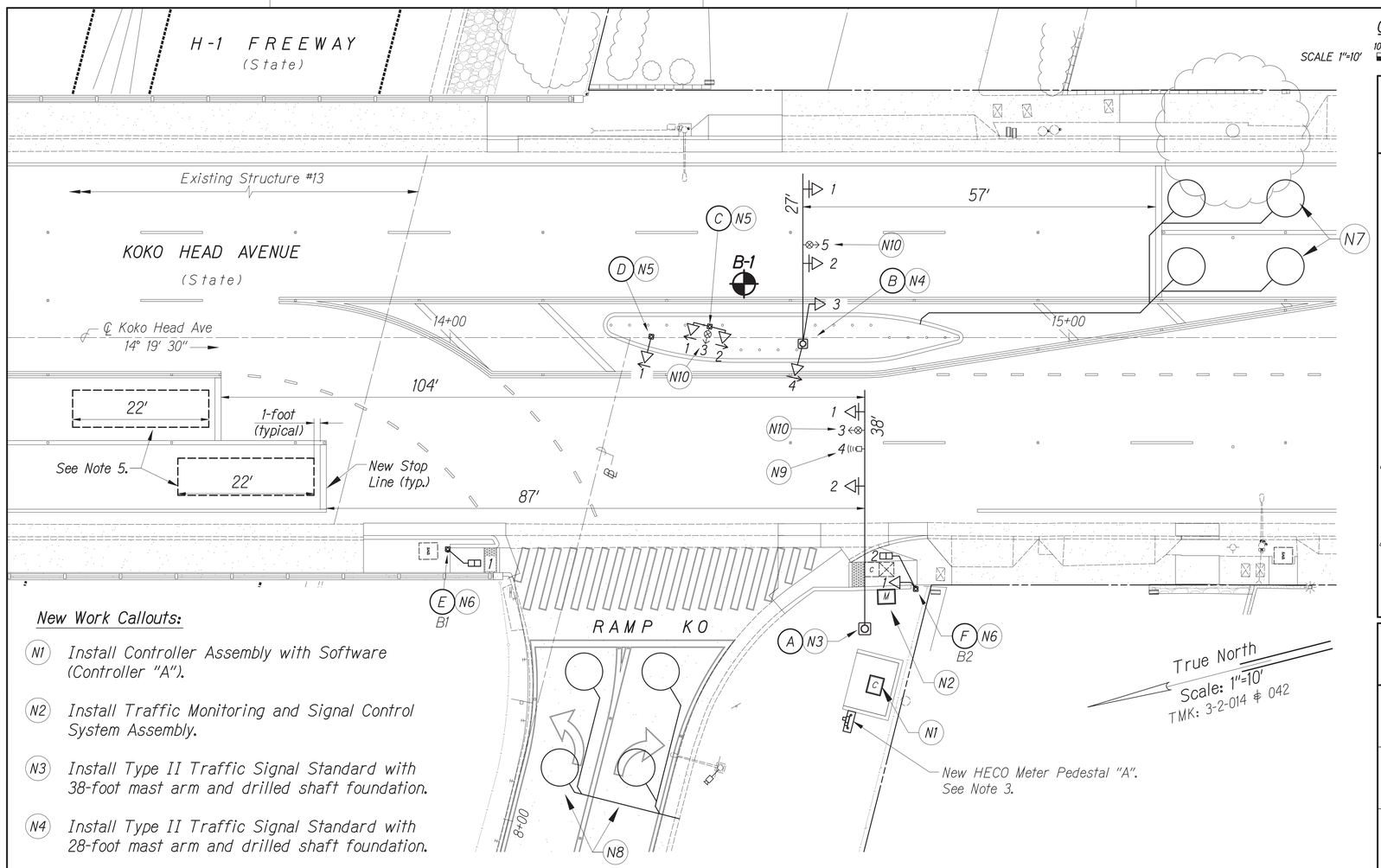

New Work Callouts:

- (N1) *Install Controller Assembly with Software (Controller "A").*
- (N2) *Install Traffic Monitoring and Signal Control System Assembly.*
- (N3) *Install Type II Traffic Signal Standard with 38-foot mast arm and drilled shaft foundation.*
- (N4) *Install Type II Traffic Signal Standard with 28-foot mast arm and drilled shaft foundation.*
- (N5) *Install Type I Traffic Signal Standard, 10-feet height, with drilled shaft foundation.*
- (N6) *Install Type I Traffic Signal Standard, 10-feet height, with drilled shaft foundation and pedestrian push button.*
- (N7) *Install Loop Detector Sensing Unit (6 ft. x 6 ft.) 2 Loops centered in lane (asphalt concrete).*
- (N8) *Install Loop Detector Sensing Unit (6 ft. x 6 ft.) 2 Loops centered in lane (PCC pavement). See details on sheet 107.*
- (N9) *Install Video / Radar Vehicle Detector Sensing Unit on traffic signal mast arm.*
- (N10) *Install Emergency Vehicle Detection unit.*

Notes:

1. *Tie-down of cabinets and standards is to center of cabinet and vertical pole, respectively.*
2. *For location of cabinets and standards, see duct line plan & profile sheets.*
3. *New power source. HECO meter, see electrical drawings E-1 thru E-10.*
4. *For new traffic signal head and pedestrian push button schedules, see sheet 78.*
5. *Location of video / radar vehicle detection zones. Minimum zone length = 22 feet, centered in lane.*

(Ramp KO & Koko Head Ave.)

TRAFFIC SIGNAL PLAN

Scale: 1" = 10'

GRAPHIC SCALE
10' 5' 0 10' 20'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	77	136

Log of Boring 1

Approximate Ground Surface Elevation (feet): 215

	Description
	9-inch ASPHALTIC CONCRETE
	Brownish gray SANDY SILT with a little gravel, stiff, dry (fill) grades to reddish brown
5	Brown with orangish motting SILTY SAND (BASALTIC) with some gravel (saprolitic) and a little clay, dense, moist (saprolite)
	Brownish gray vesicular WEATHERED BASALTIC, severely fractured, highly to moderately weathered, medium hard to hard (basalt formation)
10	
15	grades to severely to moderately fractured
	POSSIBLE VOID
20	Light gray vesicular BASALT, moderately to severely fractured, moderately weathered, hard (basalt formation)
25	
	Boring terminated at 26.5 feet

DRILLED SHAFT FOUNDATIONS

	Mast Arm Length (feet)	Drilled Shaft Diameter (inches)	Drilled Shaft Length (feet)
(A)	38	42	12
(B)	27	42	12
(C) (D) (E) (F)	not applicable	24	8

For drilled shaft foundations details, see structural plans.

Legend:

B-1 ⊕ Boring location

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) Date

Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) Date

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 10 OF 43 SHEETS

77

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	78	136

SIGNAL HEAD SCHEDULE
Ramp KO with Koko Head Ave

Head Type	Pole Letter - Signal Head Number
R Y G ← Green Arrow	C-1 D-1
R Y G → Green Arrow	B-4 C-2
R Y G	A-1* F-1 A-2* B-1* B-2* B-3
	E-1 F-2

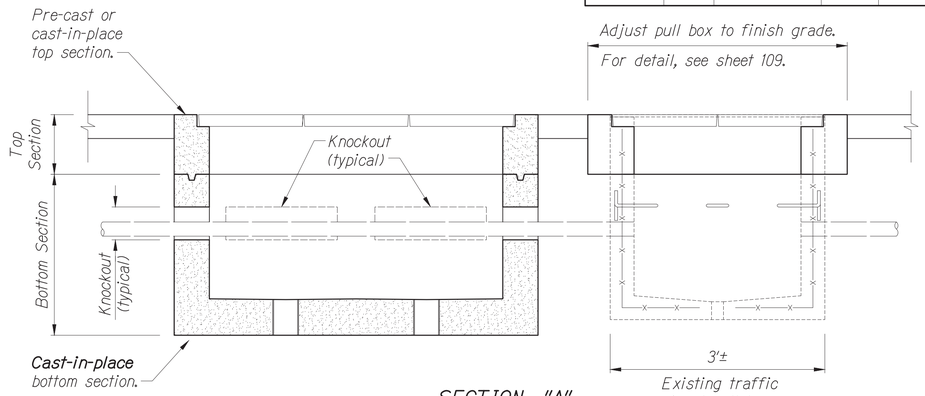
* Signal head with backplate

PEDESTRIAN PUSH BUTTON SCHEDULE
Ramp KO with Koko Head Ave

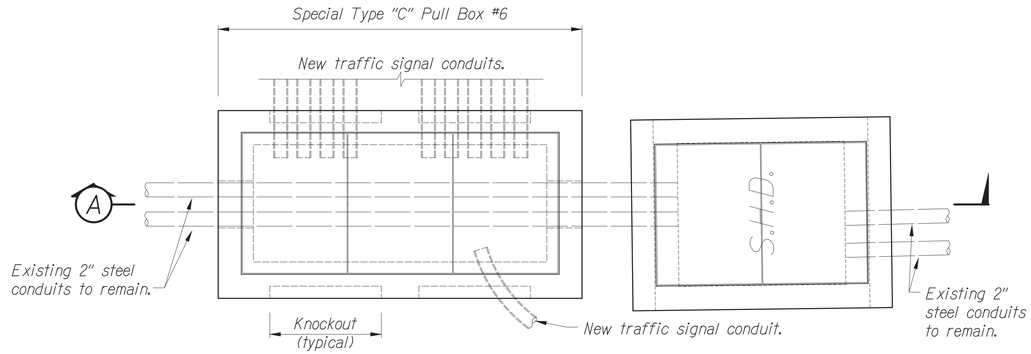
Description	Pole or Pedestal PPB-#
	(E) B1 (F) B2

OPTICOM SCHEDULE
Ramp KO with Koko Head Ave

Mounting Type	Pole Letter - Opticom Number
Mast Arm, One-Way	A-3 B-5
Slipfitter, One-Way	C-3



SECTION "A"



PLAN

Notes:

1. The Contractor shall cast-in-place the bottom section. See structural sheets S-5 and S-6.
2. The Contractor shall adjust the pull box location to fit the existing 2" steel conduits in the knockout locations.
3. Prior to construction, the Contractor shall verify the location of existing 2" steel conduits, determine whether the conduits can fit in the knockout locations, and inform the Engineer of the findings.

PULL BOX #6 DETAIL
Scale: 1" = 1'

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 11 OF 43 SHEETS

ORIGINAL PLAN
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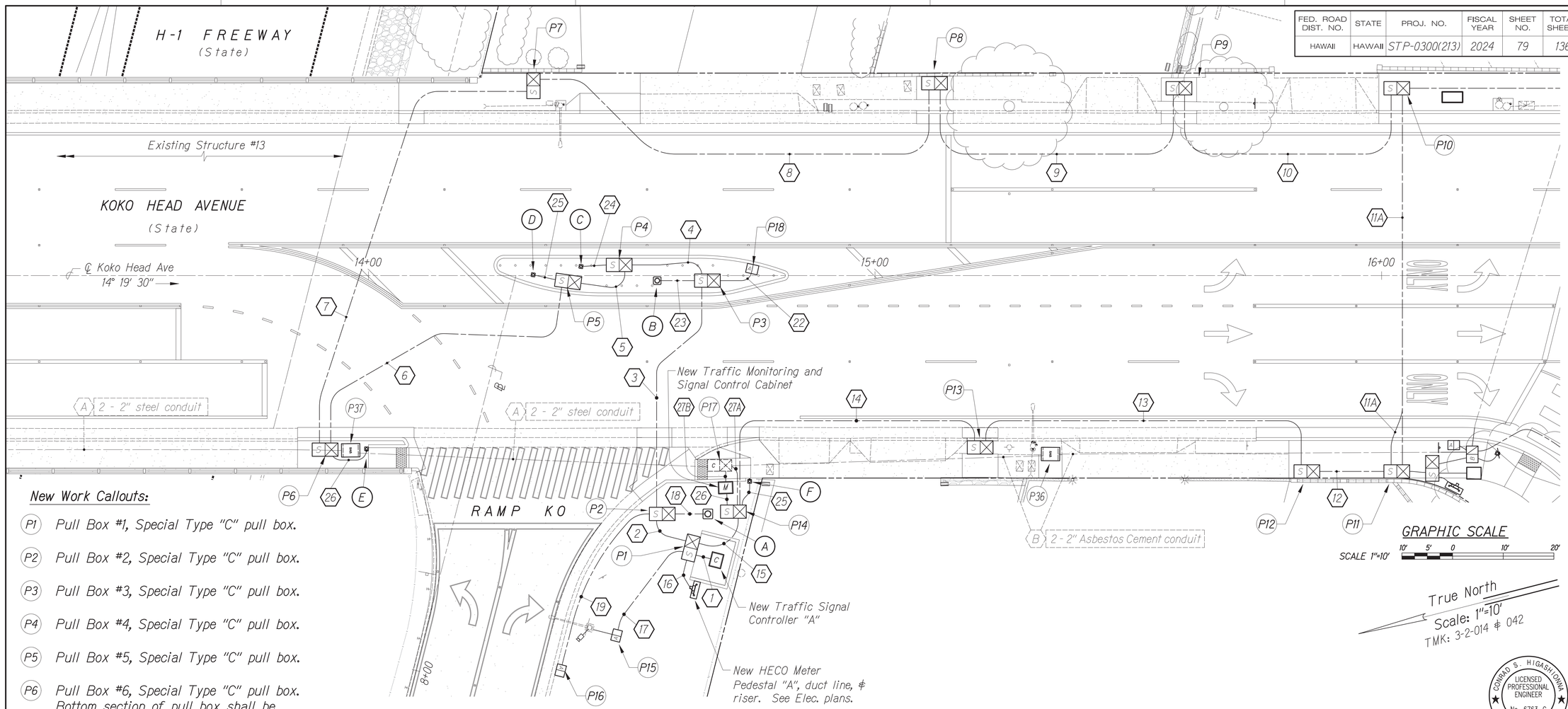
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	79	136



GRAPHIC SCALE

SCALE 1"=10'

10' 5' 0 10' 20'

True North
Scale: 1"=10'
TMK: 3-2-014 & 042

New Work Callouts:

(P1) Pull Box #1, Special Type "C" pull box.

(P2) Pull Box #2, Special Type "C" pull box.

(P3) Pull Box #3, Special Type "C" pull box.

(P4) Pull Box #4, Special Type "C" pull box.

(P5) Pull Box #5, Special Type "C" pull box.

(P6) Pull Box #6, Special Type "C" pull box. Bottom section of pull box shall be **cast-in-place**. Existing 2" steel conduits to remain shall extend through knock-outs. See detail on sheet 78.

(P7) Pull Box #7, Special Type "C" pull box.

(P8) Pull Box #8, Special Type "C" pull box.

(P9) Pull Box #9, Special Type "C" pull box.

(P10) Pull Box #10, Special Type "C" pull box.

(P11) Pull Box #11, Special Type "C" pull box.

(P12) Pull Box #12, Special Type "C" pull box.

(P13) Pull Box #13, Special Type "C" pull box.

(P14) Pull Box #14, Special Type "C" pull box.

New Work Callouts (continued):

(P15) Pull Box #15, Type "A" pull box.

(P16) Pull Box #16, Type "A" pull box.

(P17) Pull Box #17, Existing Type "C" pull box. Adjust top of pull box to finish grade, see detail on sheet 109.

(P18) Pull Box #18, Type "A" pull box.

(P36) Pull Box #36, Existing "S.H.D." pull box. Adjust top of pull box to finish grade, see detail on sheet 109.

(P37) Pull Box #37, Existing "S.H.D." pull box. Adjust top of pull box to finish grade, see detail on sheet 109.

Notes:

1. Tie-down of pull boxes is to center of pull box.
2. For location of pull boxes & duct lines, see duct line plan & profile sheets.
3. For conduit and cable schedules, see sheet 80.

(Ramp KO & Koko Head Ave.)

DUCT LINE & PULL BOX PLAN

Scale: 1" = 10'

ORIGINAL PLAN | NOTE BOOK | No. | DATE

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) — Date

Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Review Branch, DPP (for work within City ROW) — Date

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

CONDUIT-CABLE SCHEDULE

Ramp KO / Koko Head Ave Intersection

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	80	136

	From	To	Conduit Size	Cable Type	Cable Quantity
1	Traffic Signal Controller "A"	P1	2"	Type 1, Ground Wire	1
			2"	Type 1, Ground Wire	1
			2"	Type 2	3
			2"	Type 3 (existing)	1
			2"	Type 6	1
			2"	Type 7	3
			2"	Cat. 6 (Video/Radar Detect.) Cat. 6 (Signal Control)	1 1
			2"	Spare (pull cord)	1
2	P1	P2	2"	Type 1, Ground Wire	1
			2"	Type 2	4
			2"	Type 3	1
			2"	Type 7	3
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
3	P2	P3	2"	Type 1, Ground Wire	1
			2"	Type 2	2
			2"	Type 3	1
			2"	Type 7	2
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
4	P3	P4	2"	Type 1, Ground Wire	1
			2"	Type 2	1
			2"	Type 3	1
			2"	Type 7	1
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
5	P4	P5	2"	Type 1, Ground Wire	1
			2"	Type 2	1
			2"	Type 3	1
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
6	P5	P6	2"	Type 1, Ground Wire	1
			2"	Type 2	1
			2"	Type 3	1
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
7	P6	P7	2"	Type 1, Ground Wire	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
8	P7	P8	2"	Type 1, Ground Wire	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
9	P8	P9	2"	Type 1, Ground Wire	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
10	P9	P10	2"	Type 1, Ground Wire	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
11A	P10	P11	2"	Type 1, Ground Wire	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
11B			2"	See sheet 83 for Controller "B".	
			2"	See sheet 83 for Controller "B".	
			2"	See sheet 83 for Controller "B".	
			2"	See sheet 83 for Controller "B".	
12	P11	P12	2"	Type 1, Ground Wire	1
			2"	Type 3	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
13	P12	P13	2"	Type 1, Ground Wire	1
			2"	Type 3	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
14	P13	P14	2"	Type 1, Ground Wire	1
			2"	Type 3	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
15	PB-14	PB-1	2"	Type 1, Ground Wire	1
			2"	Type 3	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
16	PB-1	HECO Meter "A"	2"	Type 6	2
17	P1	P15	2"	Type 6	1
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
18	P15	Traffic Camera Cabinet	2"	Type 6	1
			2"	Fiber Optic	1
			2"	Traffic Camera Cable	1
			2"	Spare (pull cord)	1
19	P15	P16	2"	Traffic Camera Cable	1
20	P2	Pole "A"	2"	Type 2	1
			2"	Type 5	2
			2"	Type 7	1
21	P2	P17	2"	Type 2	1
22	P3	P18	2"	Type 2	1
23	P3	Pole "B"	2"	Type 5	4
			2"	Type 7	1
24	P4	Pole "C"	2"	Type 5	2
			2"	Type 7	1
25	P5	Pole "D"	2"	Type 5	1
26	P6	Pole "E"	2"	Type 2	1
			2"	Type 5	1
A	P6	Existing Traffic Signal Controller "C"	Existing 2"	Type 3	1
				Fiber Optic	1
			Existing 2"	Spare (pull cord)	1
27	P14	Pole "F"	2"	Type 2	1
			2"	Type 5	1

Cable Notes

Type 1 — Signal-loop cable for load circuits from cabinet looped to field pull boxes. Polyethylene insulated, stranded, 14 AWG copper; 26 conductor cable; polyethylene jacketed; color-coded; IMSA Specification No. 20-1 certified.

Type 2 — Home-run cable tie-in loop detector stubs or pedestrian push button to the cabinet. Polyethylene insulated, stranded-tinned-copper 14 AWG; two conductor cable; polyethylene jacketed; 600 volts rated; IMSA Specification No. 50-2 certified.

Type 3 — Inter-connect cable tie-in one signalized intersection to another. Polyethylene insulated, solid copper, 19 AWG; 24 Conductor (12 twisted pairs) cable.

Type 4 — Detector-loop sensor cable: Stranded No. 12, single conductor to IMSA Spec 51-5.

Type 5 — Signal-Drop Cable: Stranded No. 14, 4 Conductors.

Type 6 — Electric Service Cable: Solid, No. 6, 3 Conductors; No. 8, 1 Ground.

Type 7 — Optical Cable: Stranded, No. 20, 3 Conductors; No. 20, 1 Ground.

Fiber Optic — Traffic Camera Cable: 72-Strand, Single-Mode Fiber Optic Install in Fabric Inter-duct.

Ethernet — Category 6 Ethernet cable for outdoor use.

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 13 OF 43 SHEETS

ORIGINAL PLAN
NOTE BOOK
No.

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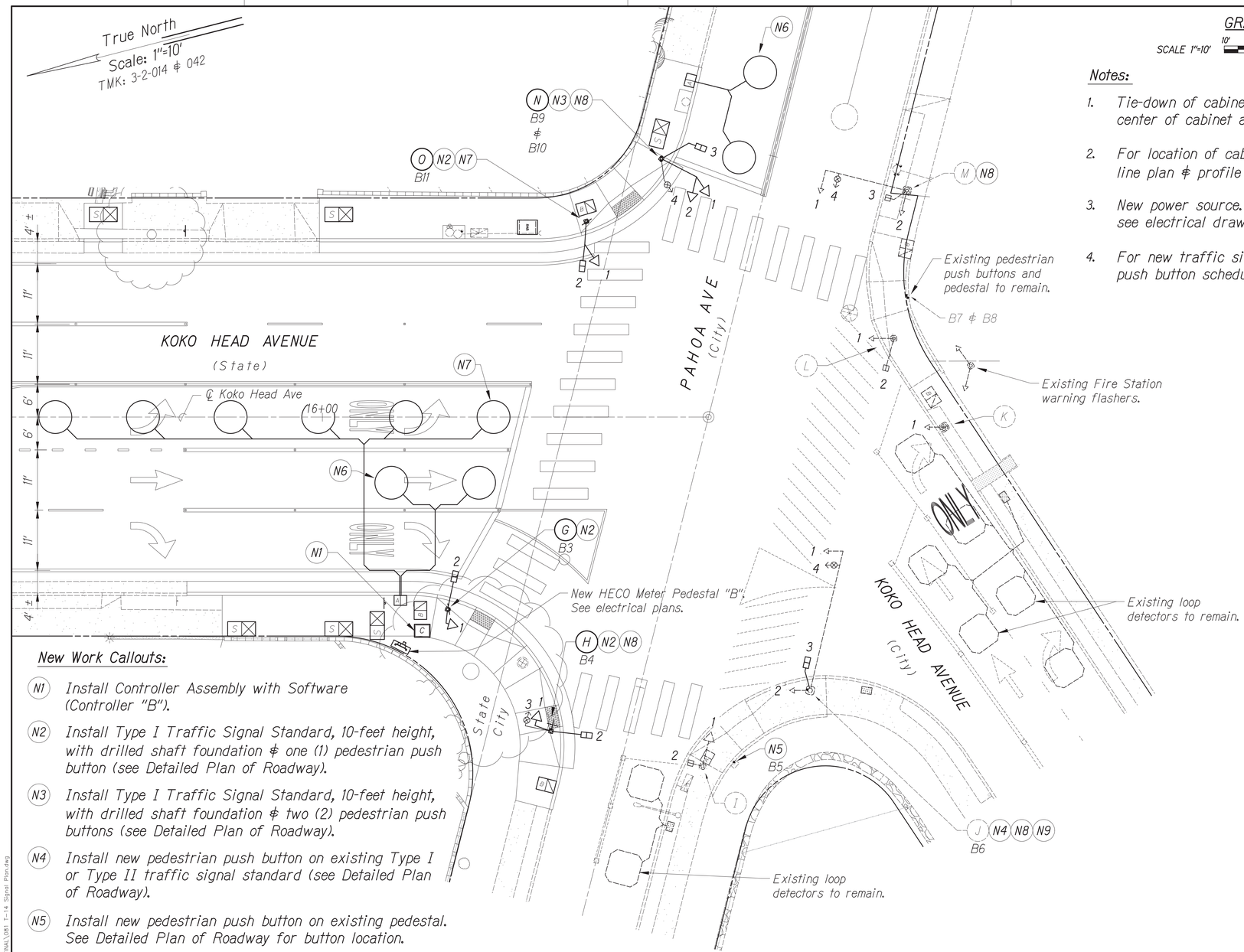

New Work Callouts:

(N1) *Install Controller Assembly with Software (Controller "B").*

(N2) *Install Type I Traffic Signal Standard, 10-feet height, with drilled shaft foundation & one (1) pedestrian push button (see Detailed Plan of Roadway).*

(N3) *Install Type I Traffic Signal Standard, 10-feet height, with drilled shaft foundation & two (2) pedestrian push buttons (see Detailed Plan of Roadway).*

(N4) *Install new pedestrian push button on existing Type I or Type II traffic signal standard (see Detailed Plan of Roadway).*

(N5) *Install new pedestrian push button on existing pedestal. See Detailed Plan of Roadway for button location.*

(N6) *Install Loop Detector Sensing Unit (6 ft. x 6 ft.) 2 Loops centered in lane.*

(N7) *Install Loop Detector Sensing Unit (6 ft. x 6 ft.) 6 Loops centered in lane.*

(N8) *Install Emergency Vehicle Detection unit.*

(N9) *Install pedestrian signal head on existing Type II traffic signal standard.*

(Pahoa Ave. & Koko Head Ave.)

TRAFFIC SIGNAL PLAN

Scale: 1" = 10'

GRAPHIC SCALE

SCALE 1"=10' 10' 5' 0 10' 20'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	81	136

Notes:

1. *Tie-down of cabinets and standards is to center of cabinet and vertical pole, respectively.*
2. *For location of cabinet and standards, see duct line plan & profile sheets.*
3. *New power source. HECO Meter Pedestal "B", see electrical drawings E-1 thru E-10.*
4. *For new traffic signal head and pedestrian push button schedules, see sheet 82.*

DRILLED SHAFT FOUNDATIONS

	Drilled Shaft Diameter (inches)	Drilled Shaft Length (feet)
(G) (H) (N) (O)	24	8

For drilled shaft foundations details, see structural plans.

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) Date

Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) Date

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 14 OF 43 SHEETS

ORIGINAL PLAN		DATE
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SIGNAL HEAD SCHEDULE
Pahoe Ave with Koko Head Ave

Head Type	Pole Letter - Signal Head Number
R Y G ← Green Arrow	K-1** L-1**
R Y G	G-1 M-1** H-1 M-2** I-1** N-1 J-1** N-2 J-2** O-1
	G-2 L-2** H-2 M-3** I-2** N-3 J-3 O-2

** Existing signal head.

PEDESTRIAN PUSH BUTTON SCHEDULE
Pahoa Ave with Koko Head Ave

Description	Pole B-#	Existing Pedestal B-#
	G B3 N B9	B5 B7**
	H B4 J B6 N B10 O B11	B8**

** Existing pedestrian push button.

OPTICOM SCHEDULE
Pahoa Ave with Koko Head Ave

Mounting Type	Pole Letter - Opticom Number
Mast Arm, One-Way	J-3 M-4
Slipfitter, One-Way	H-3 N-3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	82	136

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 15 OF 43 SHEETS

ORIGINAL PLAN

NOTE BOOK	No.	DATE

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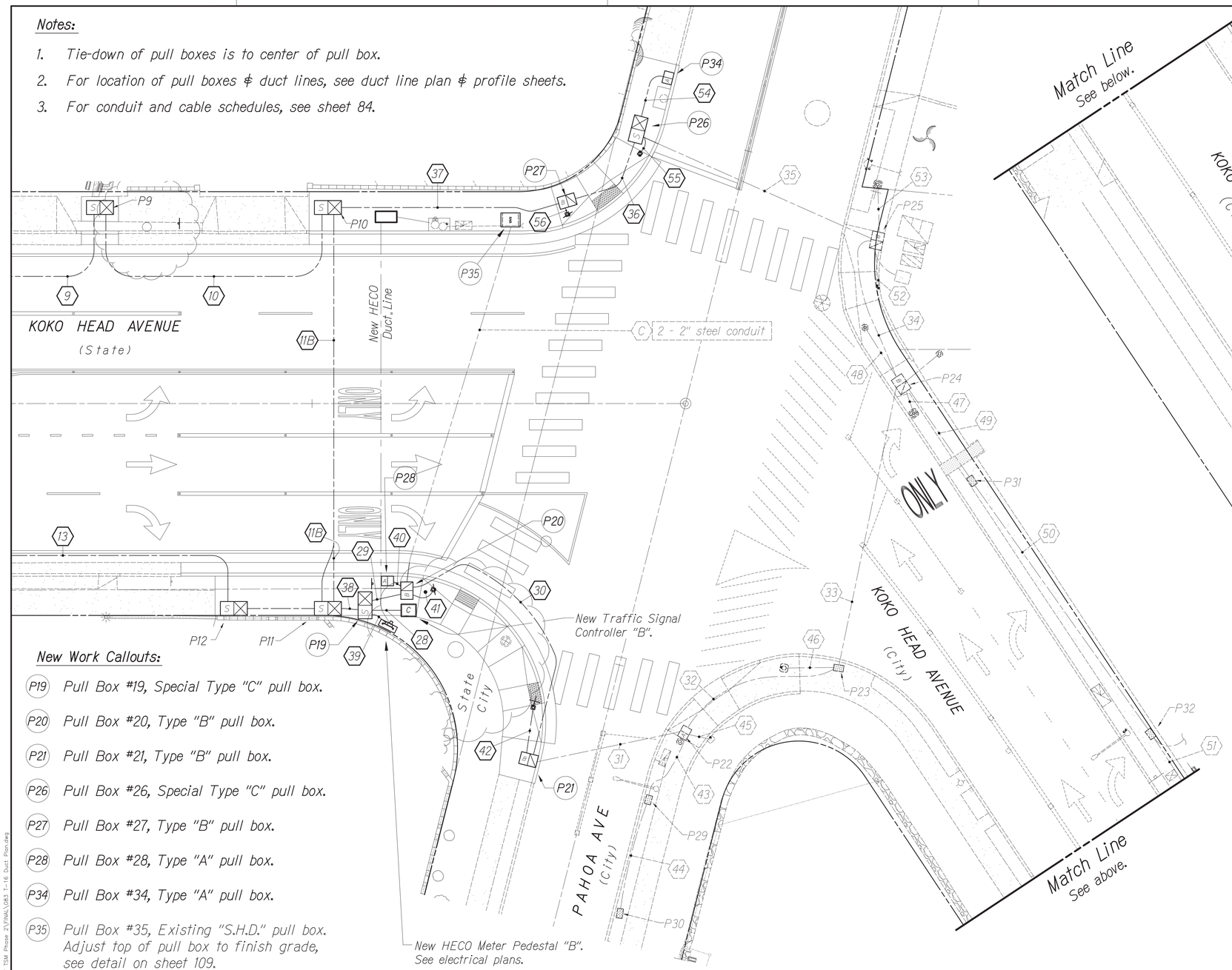
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	83	136

Notes:

1. Tie-down of pull boxes is to center of pull box.
2. For location of pull boxes & duct lines, see duct line plan & profile sheets.
3. For conduit and cable schedules, see sheet 84.



New Work Callouts:

- P19 Pull Box #19, Special Type "C" pull box.
- P20 Pull Box #20, Type "B" pull box.
- P21 Pull Box #21, Type "B" pull box.
- P26 Pull Box #26, Special Type "C" pull box.
- P27 Pull Box #27, Type "B" pull box.
- P28 Pull Box #28, Type "A" pull box.
- P34 Pull Box #34, Type "A" pull box.
- P35 Pull Box #35, Existing "S.H.D." pull box. Adjust top of pull box to finish grade, see detail on sheet 109.

(Pahoa Ave. & Koko Head Ave.)

DUCT LINE & PULL BOX PLAN

Scale: 1" = 10'

GRAPHIC SCALE

SCALE 1"=10' 10' 5' 0 10' 20'

True North
Scale: 1"=10'
TMK: 3-2-014 & 042

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP — Date (for construction in City ROW only)

Manager and Chief Engineer, BWS — Date (for work affecting BWS facilities in City/State R/W and BWS easements only)

Chief, Traffic Review Branch, DPP — Date (for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 16 OF 43 SHEETS

CONDUIT-CABLE SCHEDULE

Pahoa Ave / Koko Head Ave Intersection

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	84	136

	From	To	Conduit Size	Cable Type	Cable Quantity
28	Traffic Signal Controller "B"	P19	2"	Type 1, Ground Wire	1
			2"	Type 1, Ground Wire	1
			2"	Type 2	5
			2"	Type 2	5
			2"	Type 3	1
			2"	Type 6	1
			2"	Type 7	4
			2"	Spare (pull cord)	1
29	P19	P20	2"	Type 1, Ground Wire	1
			2"	Type 2	4
			2"	Type 7	1
			2"	Spare (pull cord)	1
30	P20	P21	2"	Type 1, Ground Wire	1
			2"	Type 2	2
			2"	Type 7	1
			2"	Spare (pull cord)	1
31	P21	existing P22	2"	Type 1, Ground Wire	1
			2"	Type 2	2
32	existing P22	existing P23	2"	Type 1, Ground Wire	1
			2"	Type 2	1
33	existing P23	existing P24	2"	Type 1, Ground Wire	1
			2"	Spare (pull cord)	1
34	existing P24	existing P25	2"	Type 1, Ground Wire	1
			2"	Type 2	1
			2"	Type 7	1
			2"	Spare (pull cord)	1
35	existing P25	P26	2"	Type 1, Ground Wire	1
			2"	Type 2	4
			2"	Type 7	2
			2"	Spare (pull cord)	1
36	P26	P37	2"	Type 1, Ground Wire	1
			2"	Type 2	5
			2"	Type 7	3
			2"	Spare (pull cord)	1
37	P37	P10	2"	Type 1, Ground Wire	1
			2"	Type 2	6
			2"	Type 7	3
			2"	Spare (pull cord)	1
11A	P10	P11	2"	See sheet 77 for Controller "A".	
			2"	See sheet 77 for Controller "A".	
			2"	See sheet 77 for Controller "A".	
			2"	See sheet 77 for Controller "A".	
11B			2"	Type 1, Ground Wire	1
			2"	Type 2	6
			2"	Type 7	3
			2"	Spare (pull cord)	1
38	P11	P19	2"	Type 1, Ground Wire	1
			2"	Type 2	6
			2"	Type 3	1
			2"	Type 7	3
39	P19	HECO Meter "B"	2"	Type 6	1
40	P20	P28	2"	Type 2	2
41	P20	Pole "G"	2"	Type 2	1
			2"	Type 5	2
42	P21	Pole "H"	2"	Type 2	1
				Type 5	2
			2"	Type 7	1
43	existing P22	existing P29	2"	Type 6	1
			2"	Fiber Optic	1
			2"	Spare (pull cord)	1
			2"	Spare (pull cord)	1
44	existing P29	existing P30	2"	Type 6	1
			2"	Fiber Optic	1
			2"	Traffic Camera Cable	1
			2"	Spare (pull cord)	1
45	existing P22	existing pedestrian push button pedestal	2"	Type 2	1
46	existing P23	Pole "J"	2"	Type 2	1
				Type 5	3
				Type 7	1
47	existing P24	Pole "K"	2"	Type 5	1
48	existing P24	Pole "L"	2"	Type 5	2
49	existing P24	existing P31	2"	Type 2	2
				Fire Station Warning Flasher cable	2
50	existing P31	existing P32	2"	Fire Station Warning Flasher cable	1
51	existing P32	existing P33	2"	Fire Station Warning Flasher cable	1
52	existing P25	existing pedestrian push button pedestal	2"	Type 2	2
53	existing P25	Pole "M"	2"	Type 5	3
				Type 7	1
54	P26	P34	2"	Type 2	1
55	PB-26	Pole "N"	2"	Type 2	2
				Type 7	1
			2"	Type 5	3
56	PB-27	Pole "O"	2"	Type 2	1
			2"	Type 5	2

Cable Notes

Type 1 Signal-loop cable for load circuits from cabinet looped to field pull boxes. Polyethylene insulated, stranded, 14 AWG copper; 26 conductor cable; polyethylene jacketed; color-coded; IMSA Specification No. 20-1 certified.

Type 2 Home-run cable tie-in loop detector stubs or pedestrian push button to the cabinet. Polyethylene insulated, stranded-tinned-copper 14 AWG; two conductor cable; polyethylene jacketed; 600 volts rated; IMSA Specification No. 50-2 certified.

Type 3 Inter-connect cable tie-in one signalized intersection to another. Polyethylene insulated, solid copper, 19 AWG; 24 Conductor (12 twisted pairs) cable.

Type 4 Detector-loop sensor cable: Stranded No. 12, single conductor to IMSA Spec 51-5.

Type 5 Signal-Drop Cable: Stranded No. 14, 4 Conductors.

Type 6 Electric Service Cable: Solid, No. 6, 3 Conductors; No. 8, 1 Ground.

Type 7 Optical Cable: Stranded, No. 20, 3 Conductors; No. 20, 1 Ground.

Fiber Optic Traffic Camera Cable: 72-Strand, Single-Mode Fiber Optic Install in Fabric Inter-duct.

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HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 17 OF 43 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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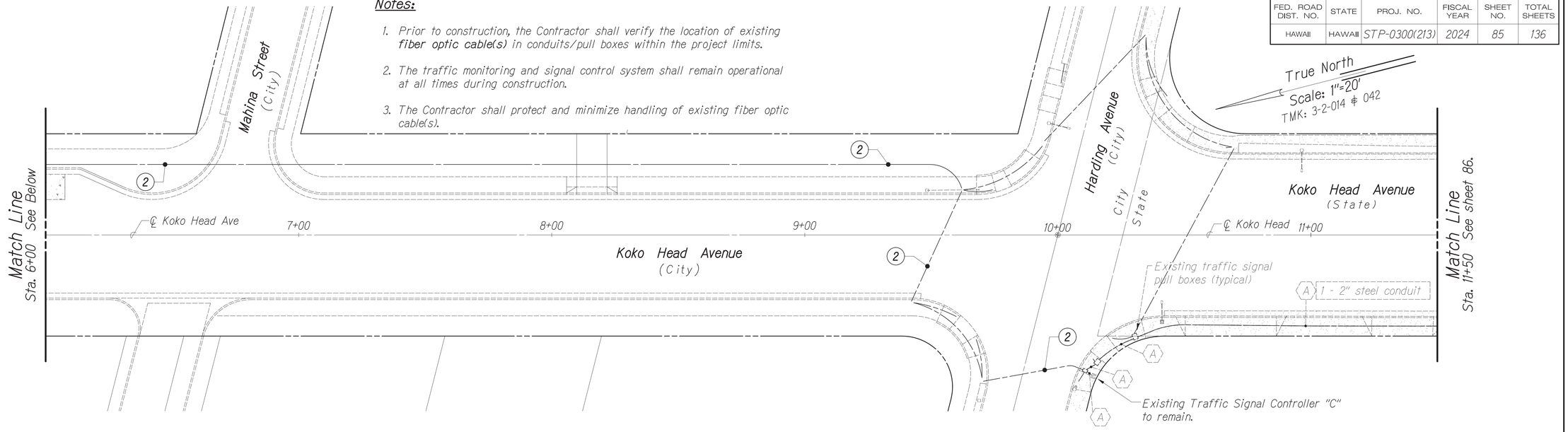
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	85	136

Notes:

1. Prior to construction, the Contractor shall verify the location of existing **fiber optic cable(s)** in conduits/pull boxes within the project limits.
2. The traffic monitoring and signal control system shall remain operational at all times during construction.
3. The Contractor shall protect and minimize handling of existing fiber optic cable(s).



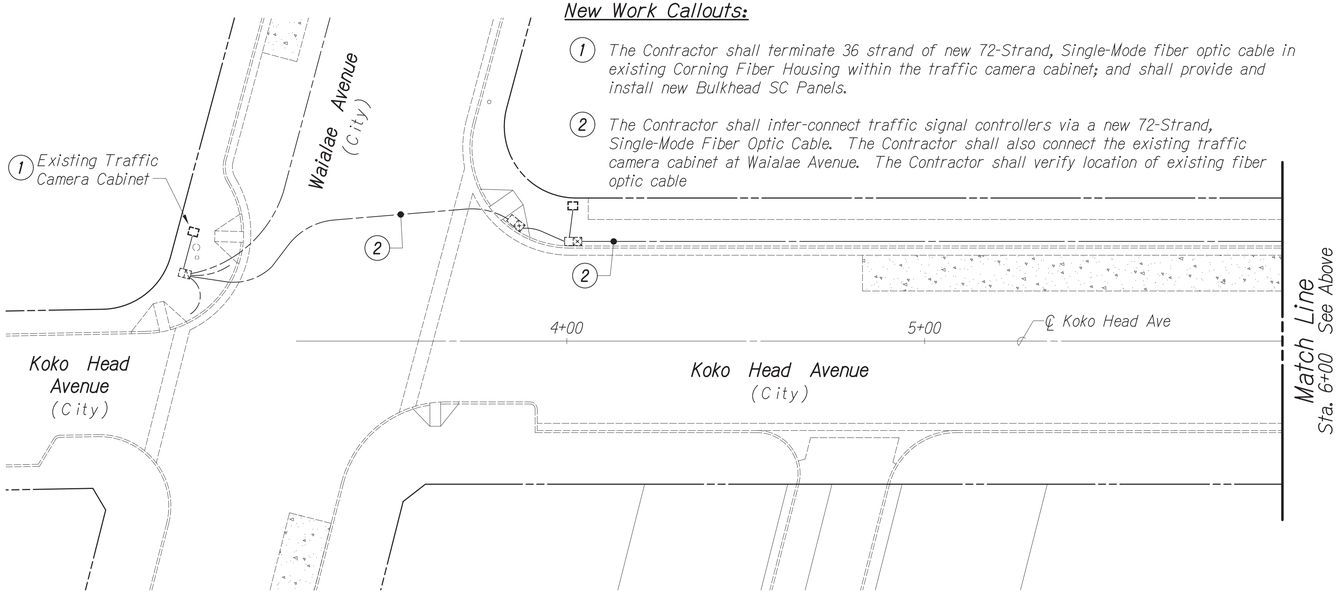
TRAFFIC MONITORING AND SIGNAL CONTROL PLAN

Scale: 1" = 20'

GRAPHIC SCALE
SCALE 1"=20' 20' 10' 0 20' 40'

New Work Callouts:

1. The Contractor shall terminate 36 strand of new 72-Strand, Single-Mode fiber optic cable in existing Corning Fiber Housing within the traffic camera cabinet; and shall provide and install new Bulkhead SC Panels.
2. The Contractor shall inter-connect traffic signal controllers via a new 72-Strand, Single-Mode Fiber Optic Cable. The Contractor shall also connect the existing traffic camera cabinet at Waialae Avenue. The Contractor shall verify location of existing fiber optic cable



TRAFFIC MONITORING AND SIGNAL CONTROL PLAN

Scale: 1" = 20'

ORIGINAL PLAN	DATE
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No.	CHECKED BY

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HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) — Date

Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Review Branch, DPP (for work within City ROW) — Date

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

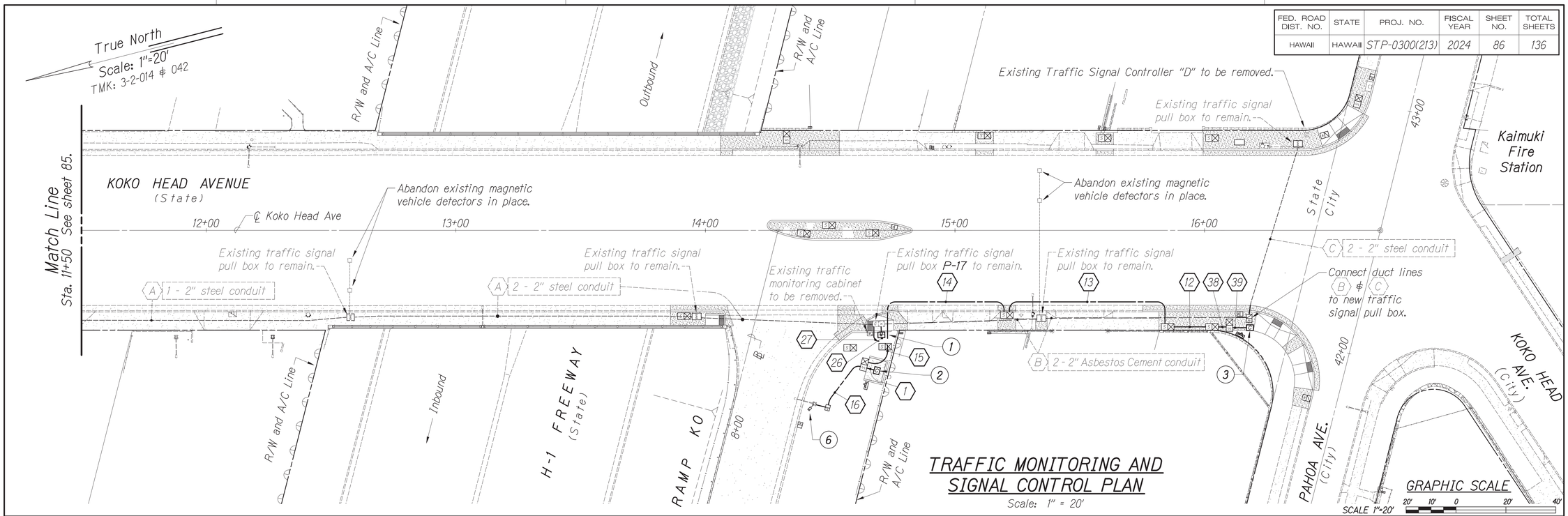
Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 18 OF 43 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	86	136



New Work Callouts:

(1) Install new **Traffic Monitoring and Signal Control (TMSC) Assembly** including fiber housing/patch panel with Bulkhead SC connectors, network switch, and Internet Protocol Encoder inside Model 332LS cabinet.

(2) Install a new Internet Protocol card inside new **Traffic Signal Controller "A"** cabinet.

(3) Install a new wall-mounted single panel housing with Bulkhead SC connectors and new network switch inside new **Traffic Signal Controller "B"** cabinet.

(4) Install Category 6 ethernet cable between the TMSC Assembly and Controller "A" to enable communication between controller and Joint Traffic Management Center. Install cable in Duct Lines ⟨26⟩, ⟨15⟩, and ⟨1⟩.

(5) Install 72-Strand, Single-Mode Fiber Optic Cable between TMSC Assembly and Controller "B". Install fiber optic cable in Duct Lines ⟨26⟩, ⟨14⟩, ⟨13⟩, ⟨12⟩, ⟨38⟩, and ⟨39⟩.

(6) Install CCTV Traffic Camera Assembly on existing highway light standard.

(7) Connect TMSC Assembly to new CCTV traffic camera thru Duct Lines ⟨26⟩, ⟨15⟩, and ⟨16⟩.

(8) At switchover, the Contractor shall disconnect existing fiber optic cable from existing traffic monitoring cabinet; and connect existing fiber optic cable to new TMSC Assembly.

Notes:

1. For clarity, only a portion of existing/new duct lines are shown.
2. The traffic monitoring and signal control system shall remain operational at all times during construction. Existing cabinet and camera may only be removed after new equipment is operational. **The maximum down time for existing traffic monitoring and signal control system is one working day for switchover to new system.**
3. The Contractor shall protect and minimize handling of existing fiber optic cable(s).

Notes: (continued)

4. Prior to construction, the Contractor shall verify:
   a. Location of existing **fiber optic cable(s)** in conduits/pull boxes within the project limits. Based on available information and observations, the fiber optic cable is present in Duct Line ⟨A⟩.
   b. Whether the existing **fiber optic cable** extends beyond the project limits (such as to the Kaimuki Fire Station).
   c. Location of existing **inter-connect cable** in conduits/pull boxes within the project limits. If existing Controllers "C" and "D" are connected with inter-connect (Type 3) cable, the cable may be present in Duct Lines ⟨A⟩, ⟨B⟩, and ⟨C⟩.

ORIGINAL PLAN	DATE
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	TRACED BY
NOTE BOOK	DESIGNED BY
	QUANTITIES BY
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CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Civil Engineering Branch, DPP (for construction in City ROW only) — Date

Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Review Branch, DPP (for work within City ROW) — Date

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

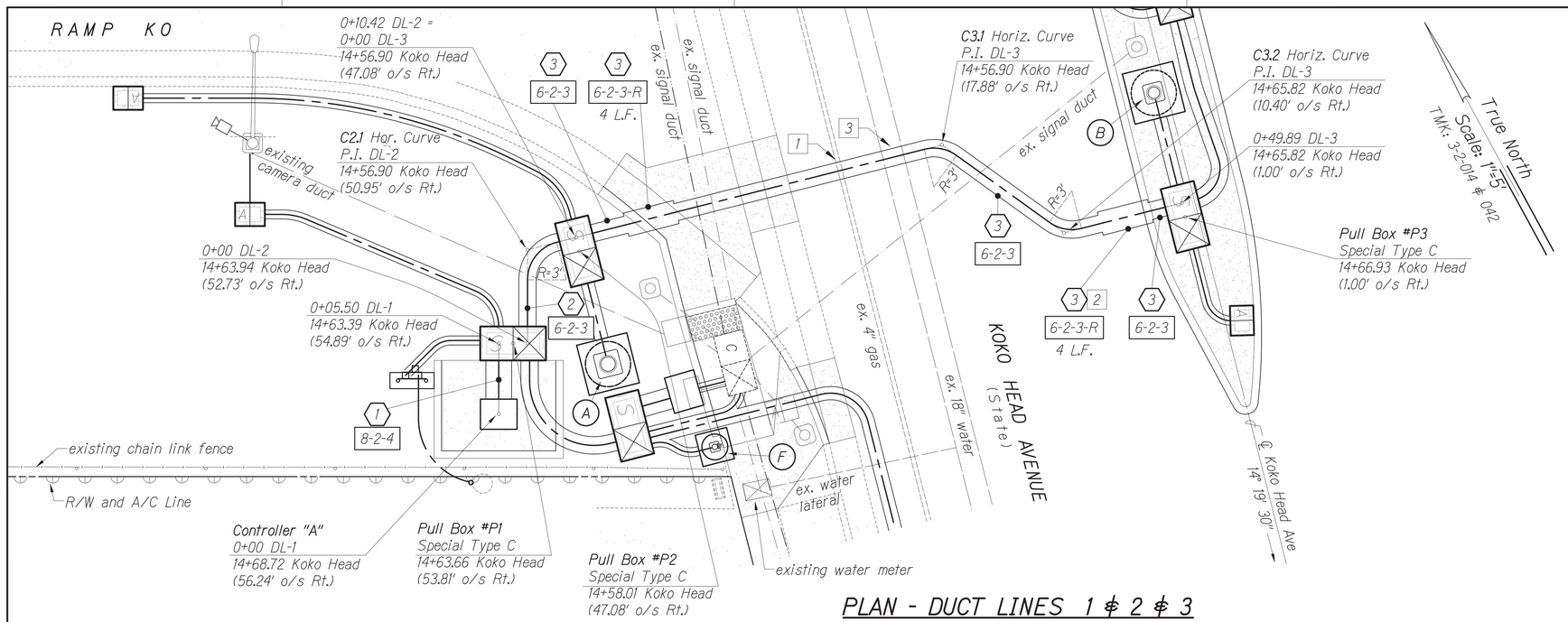
TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

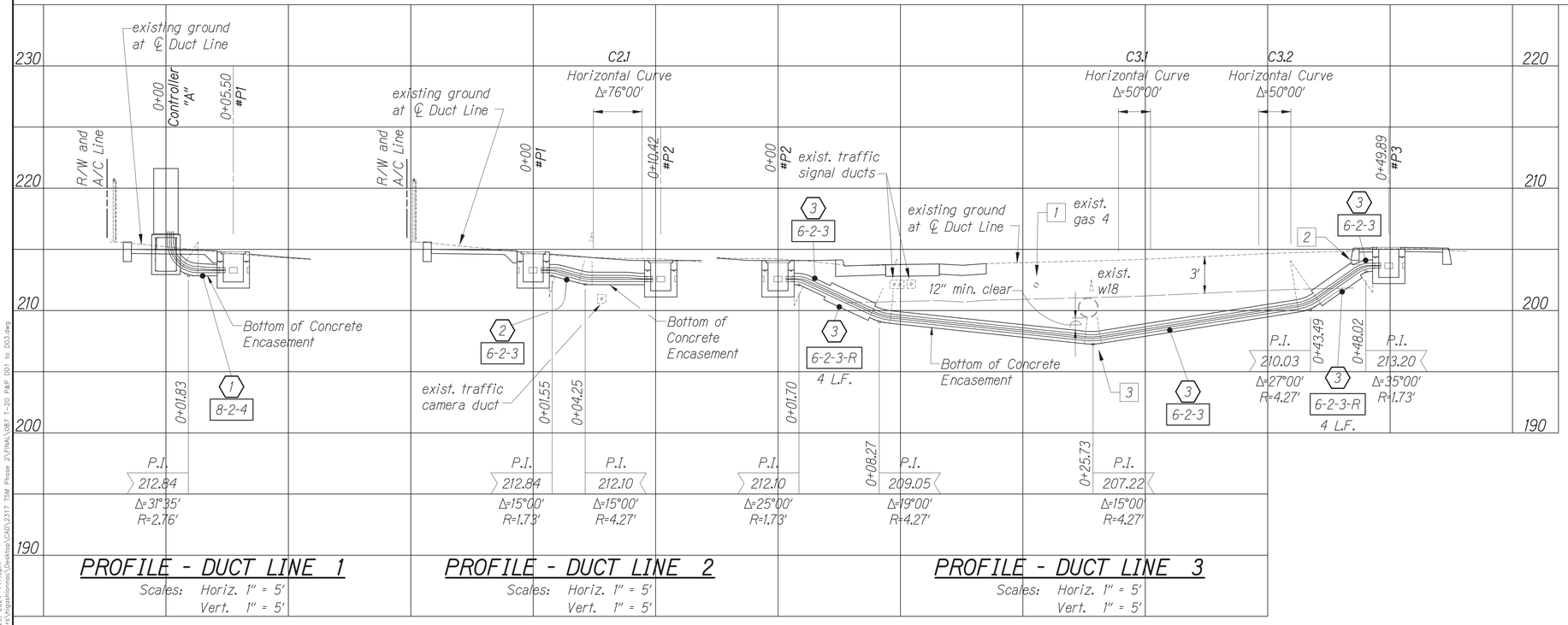
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024



PLAN - DUCT LINES 1 & 2 & 3

Scale: 1" = 5'



PROFILE - DUCT LINE 1

Scales: Horiz. 1" = 5'
Vert. 1" = 5'

PROFILE - DUCT LINE 2

Scales: Horiz. 1" = 5'
Vert. 1" = 5'

PROFILE - DUCT LINE 3

Scales: Horiz. 1" = 5'
Vert. 1" = 5'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	87	136

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
2. The Contractor shall install Curb, Type "2D" to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 36.
3. The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.

GRAPHIC SCALE
SCALE 1"=5'
5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Manager and Chief Engineer, BWS Date
(for work affecting BWS facilities in City/State R/W and BWS easements only)

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 20 OF 43 SHEETS

ORIGINAL PLAN
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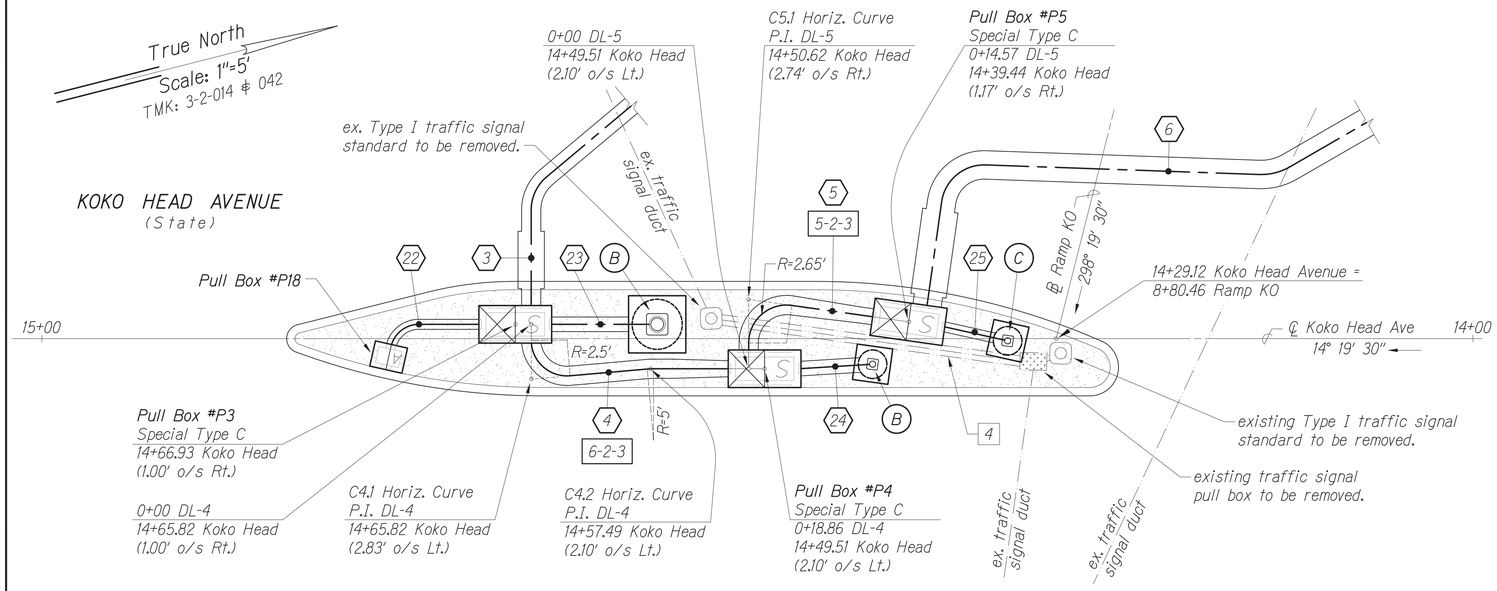
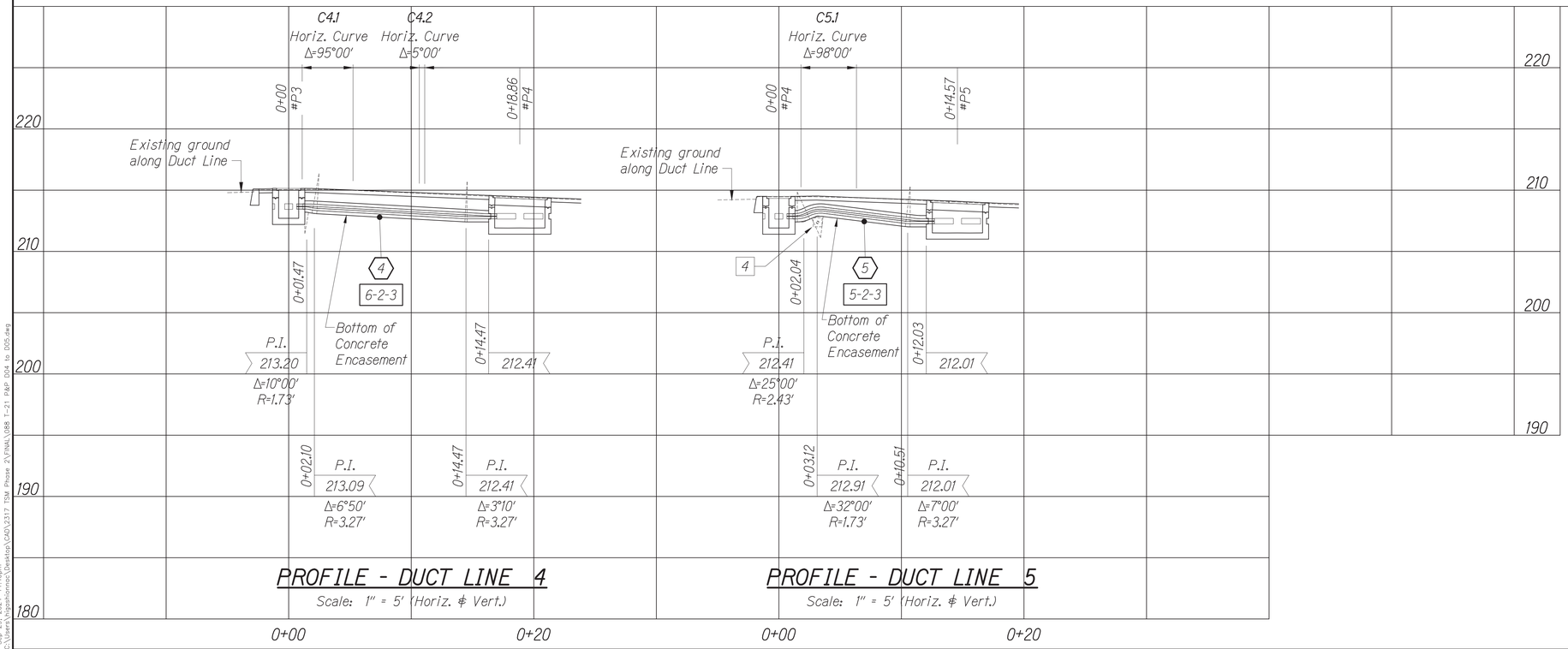
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	88	136



PLAN - DUCT LINES 4 & 5

Scale: 1" = 5'



PROFILE - DUCT LINE 4

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 5

Scale: 1" = 5' (Horiz. & Vert.)

Notes:

4 Existing concrete encased traffic signal duct (asbestos cement conduit) to removed, as needed, to facilitate construction.

GRAPHIC SCALE

SCALE 1"=5'

5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 21 OF 43 SHEETS

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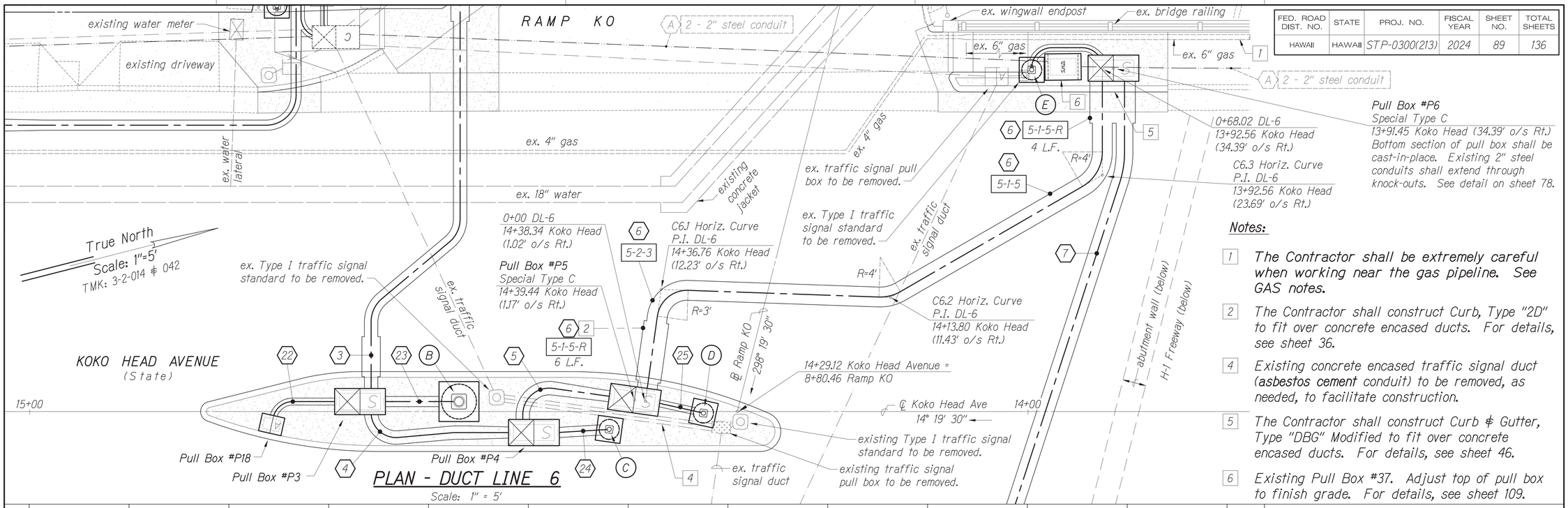
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	89	136

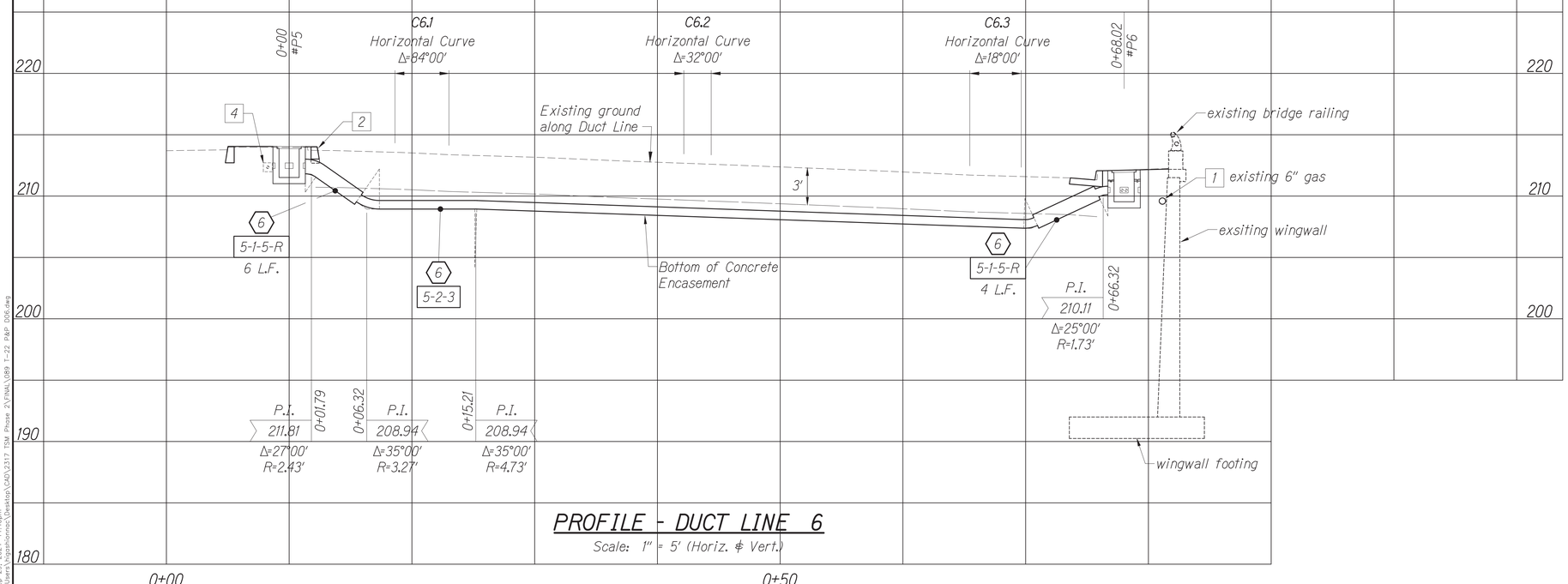


PLAN - DUCT LINE 6

Scale: 1" = 5'

Notes:

1. *The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.*
2. *The Contractor shall construct Curb, Type "2D" to fit over concrete encased ducts. For details, see sheet 36.*
4. *Existing concrete encased traffic signal duct (asbestos cement conduit) to be removed, as needed, to facilitate construction.*
5. *The Contractor shall construct Curb & Gutter, Type "DBG" Modified to fit over concrete encased ducts. For details, see sheet 46.*
6. *Existing Pull Box #37. Adjust top of pull box to finish grade. For details, see sheet 109.*



PROFILE - DUCT LINE 6

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5'

5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date

Chief, Traffic Signal & Technology Division, DTS Date
(For work within City ROW)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 22 OF 43 SHEETS

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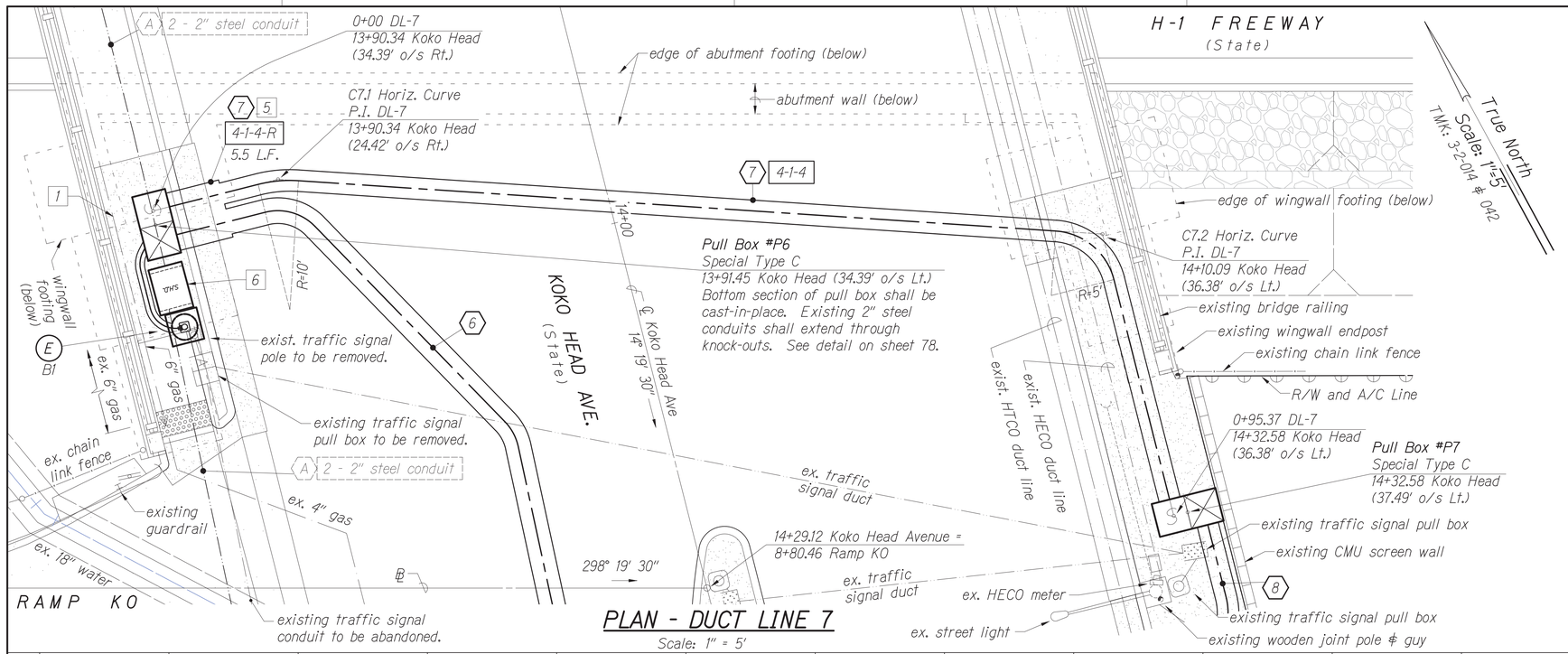
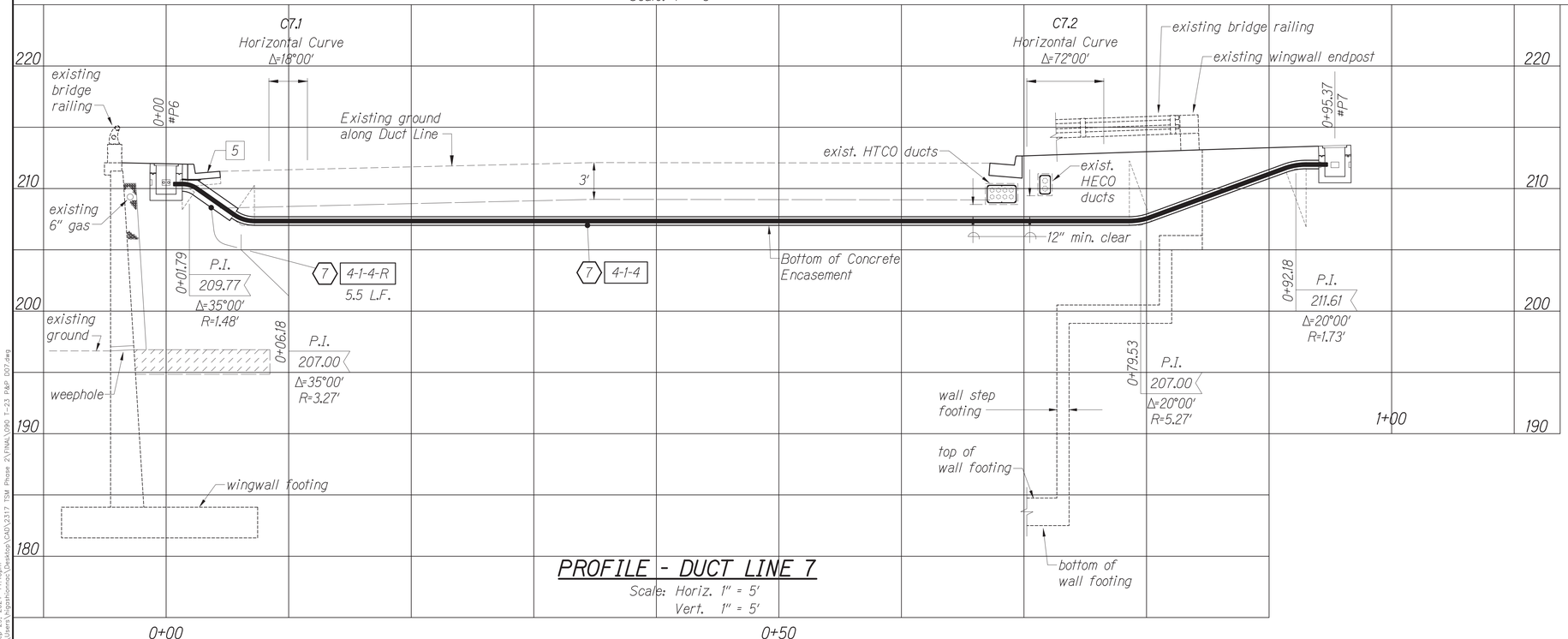


PLAN - DUCT LINE 7

Scale: 1" = 5'



PROFILE - DUCT LINE 7

Scale: Horiz. 1" = 5'
Vert. 1" = 5'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	90	136

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
5. The Contractor shall construct Curb ⊄ Gutter, Type "DBG" Modified to fit over concrete encased ducts. For details, see sheet 46.
6. Existing Pull Box #37. Adjust top of pull box to finish grade. For details, see sheet 109.

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 23 OF 43 SHEETS

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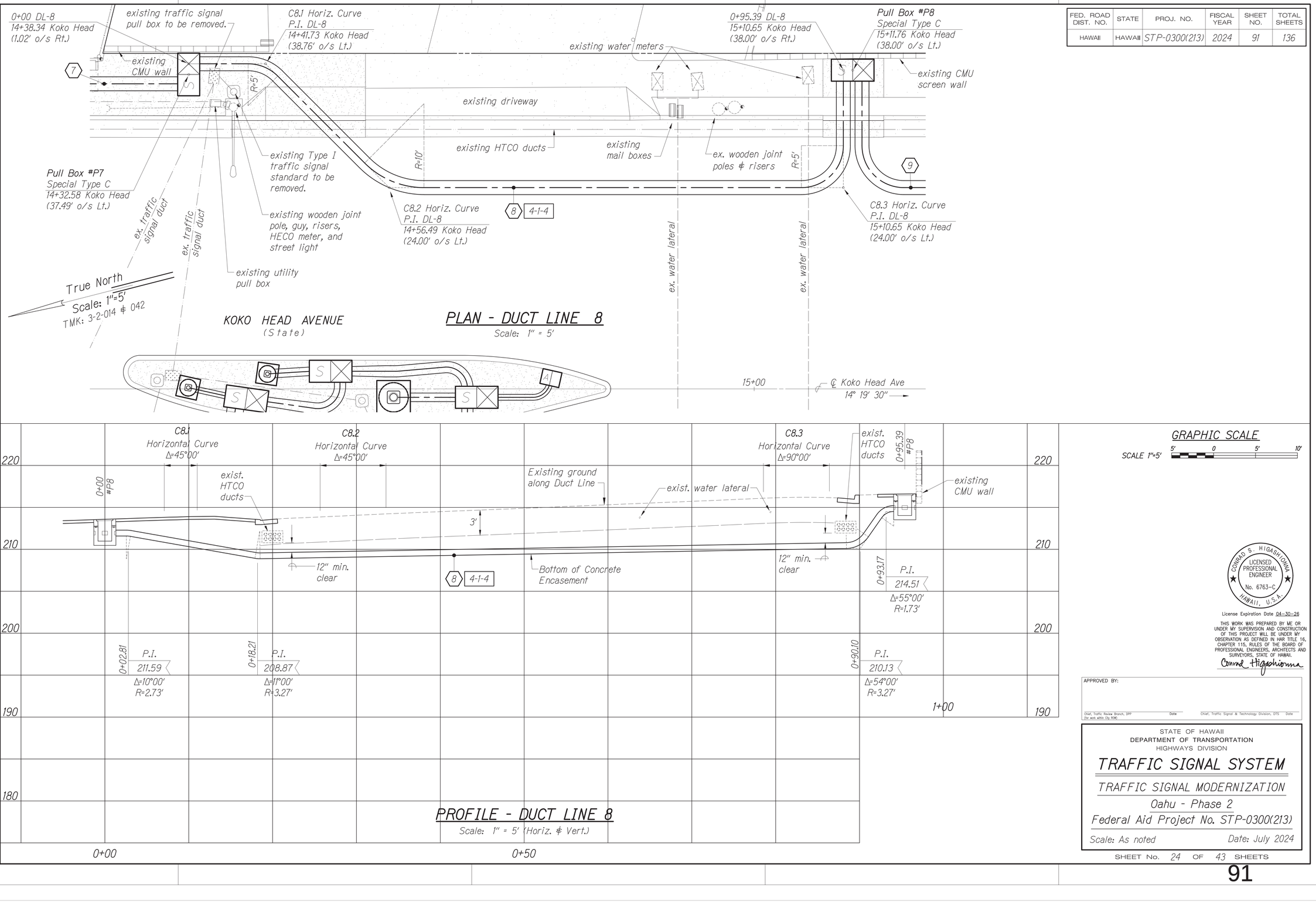
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	91	136



GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

CONRAD S. HIGASHIONNA
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No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 24 OF 43 SHEETS

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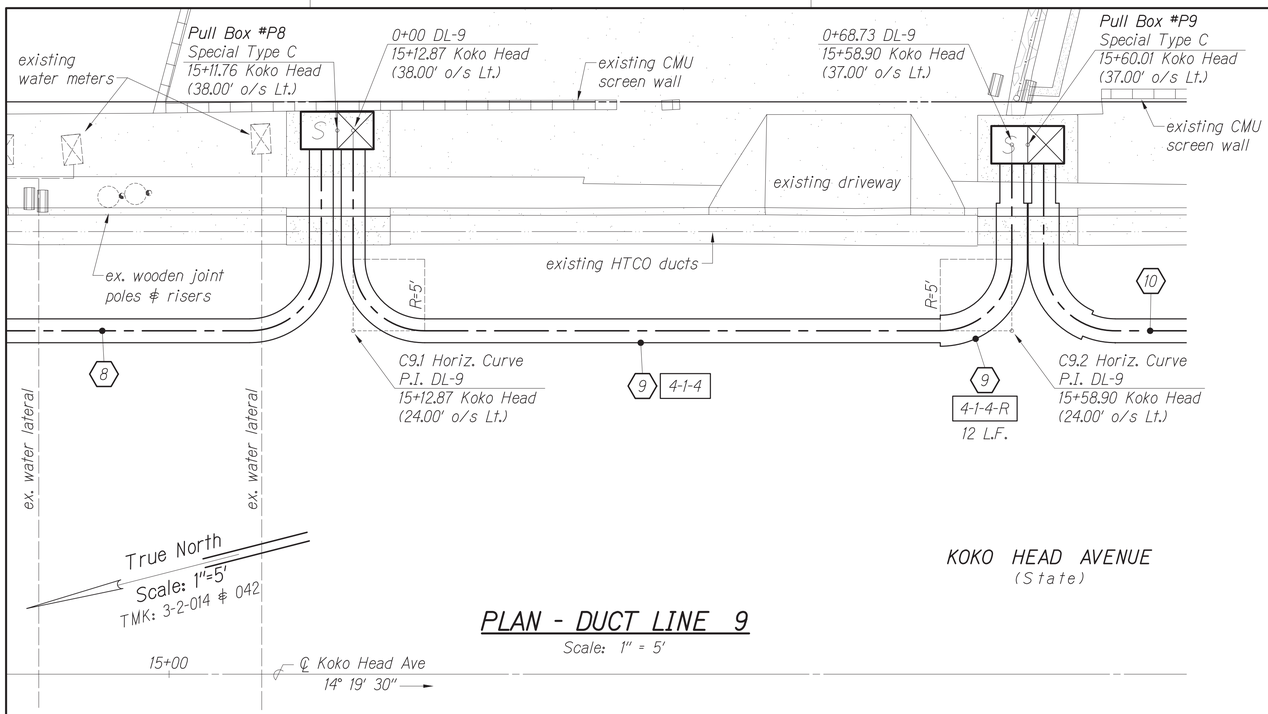
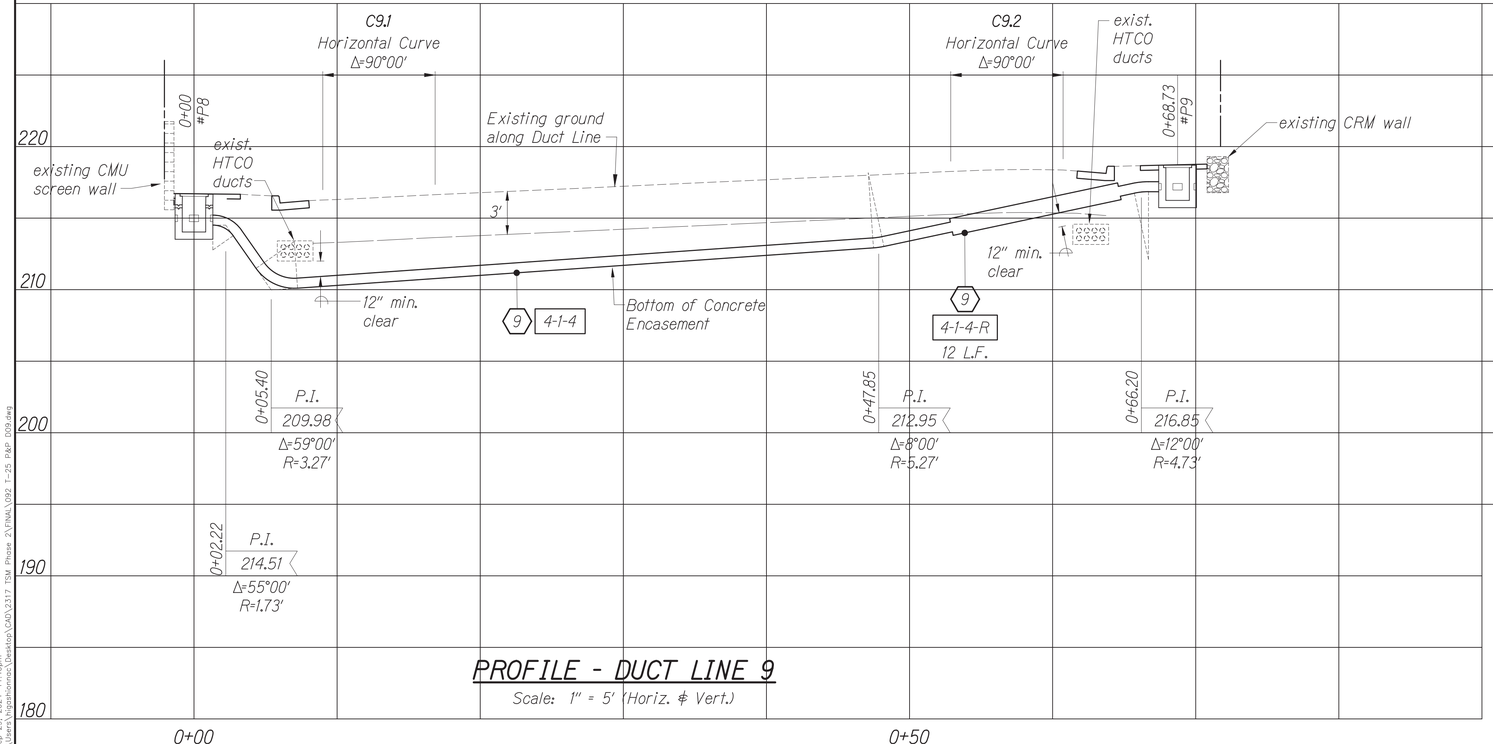
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	92	136



PLAN - DUCT LINE 9

Scale: 1" = 5'



PROFILE - DUCT LINE 9

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

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SHEET No. 25 OF 43 SHEETS

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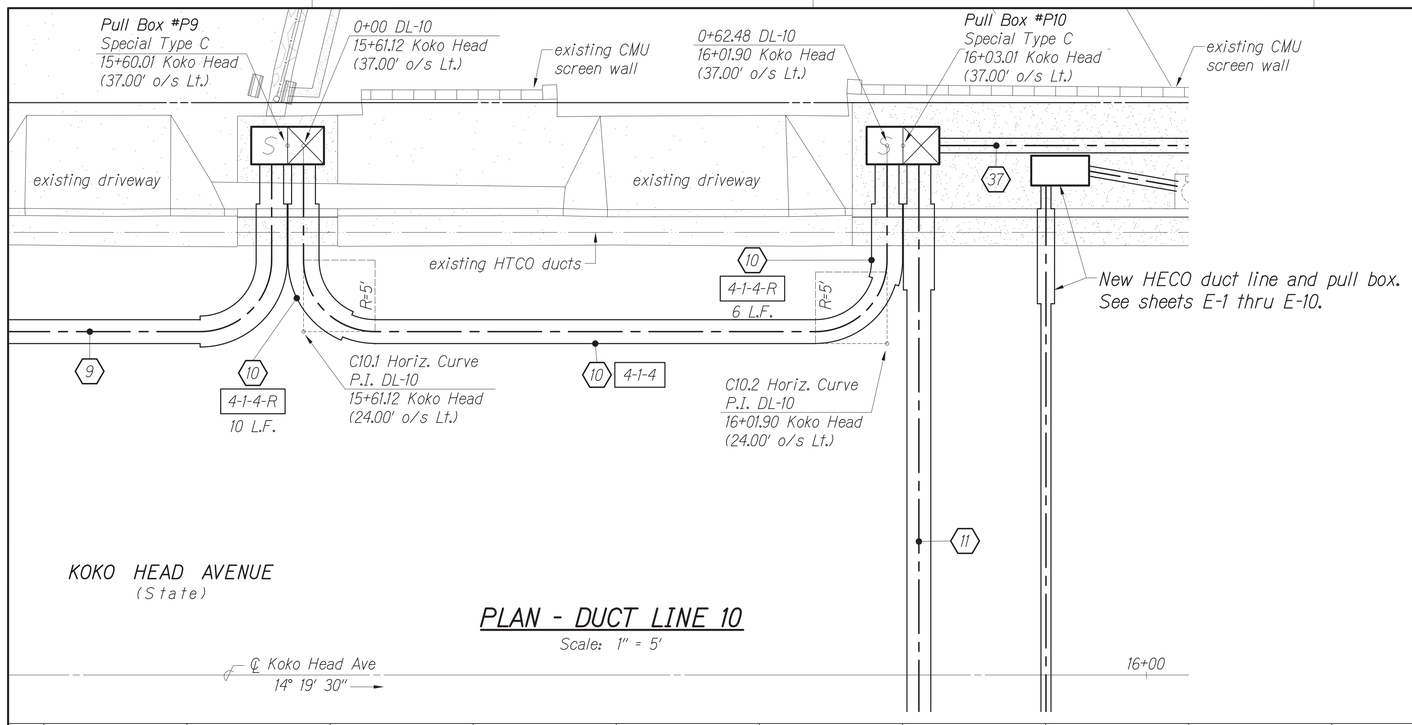

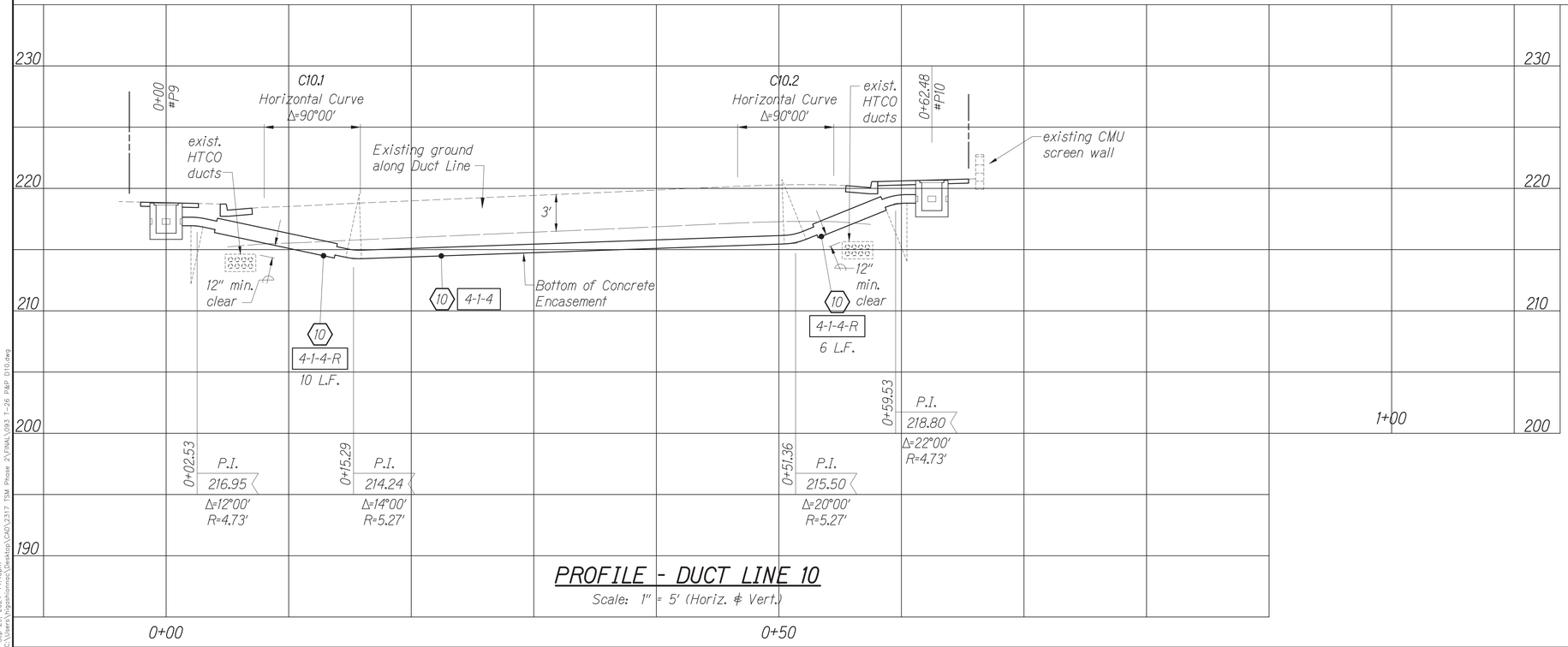

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	93	136

True North
Scale: 1"=5'
TMK: 3-2-014 & 042

GRAPHIC SCALE
SCALE 1"=5'
5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 26 OF 43 SHEETS

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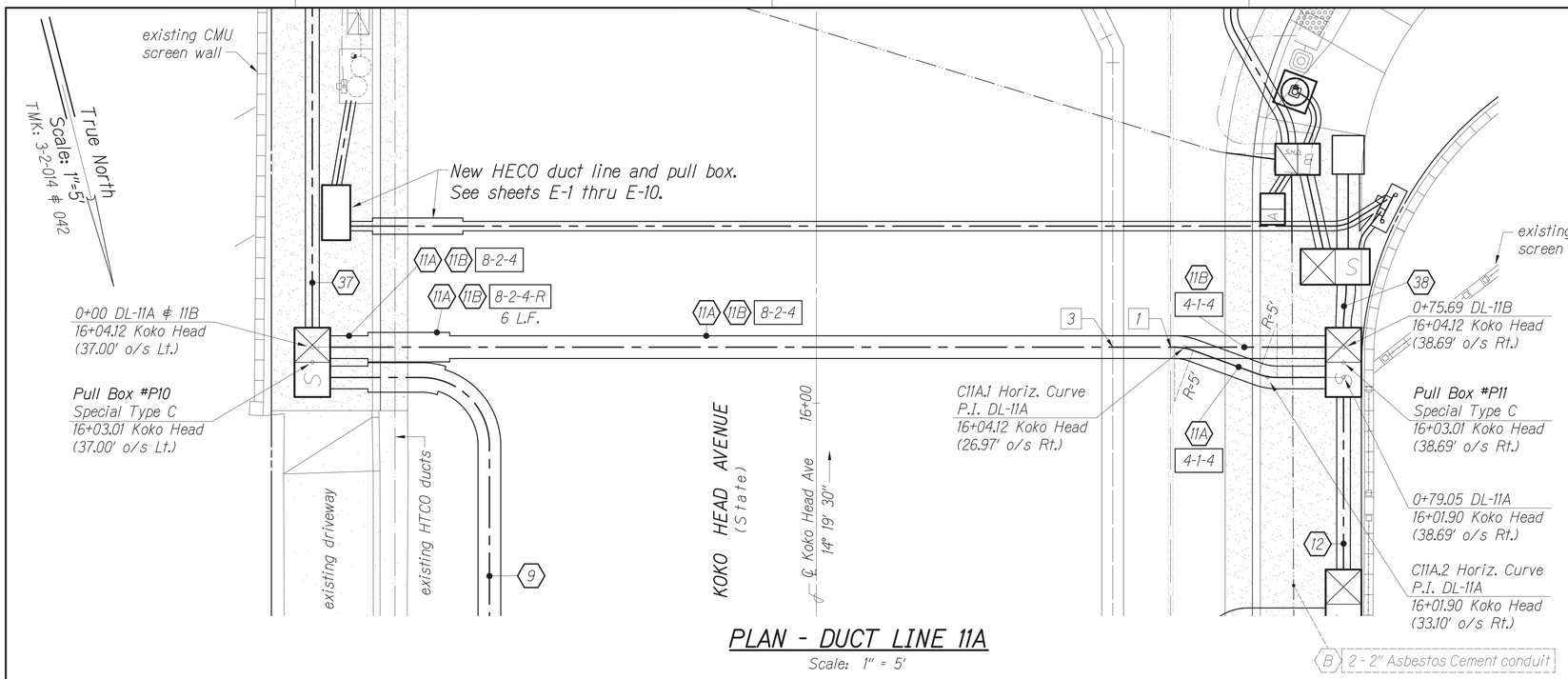
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	94	136

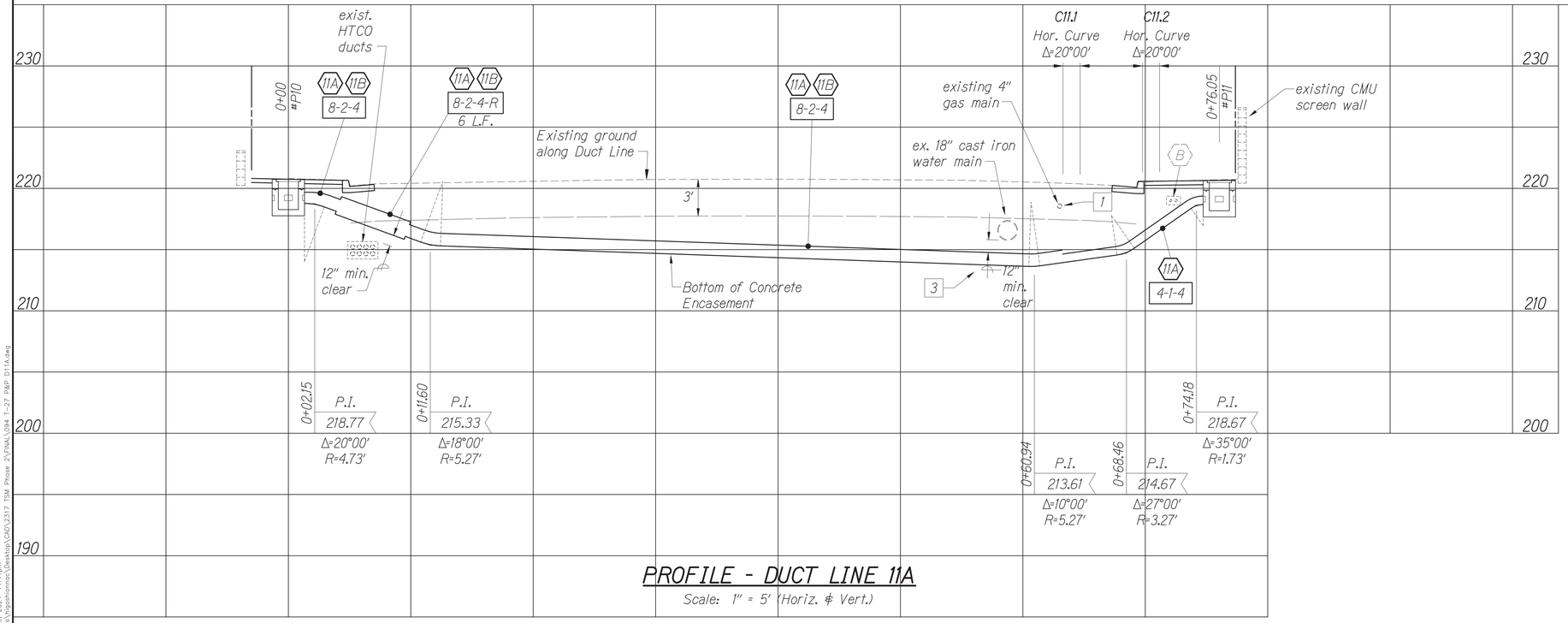


PLAN - DUCT LINE 11A

Scale: 1" = 5'

Notes:

1. *The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.*
3. *The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes.*



PROFILE - DUCT LINE 11A

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

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No. 6763-C
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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 27 OF 43 SHEETS

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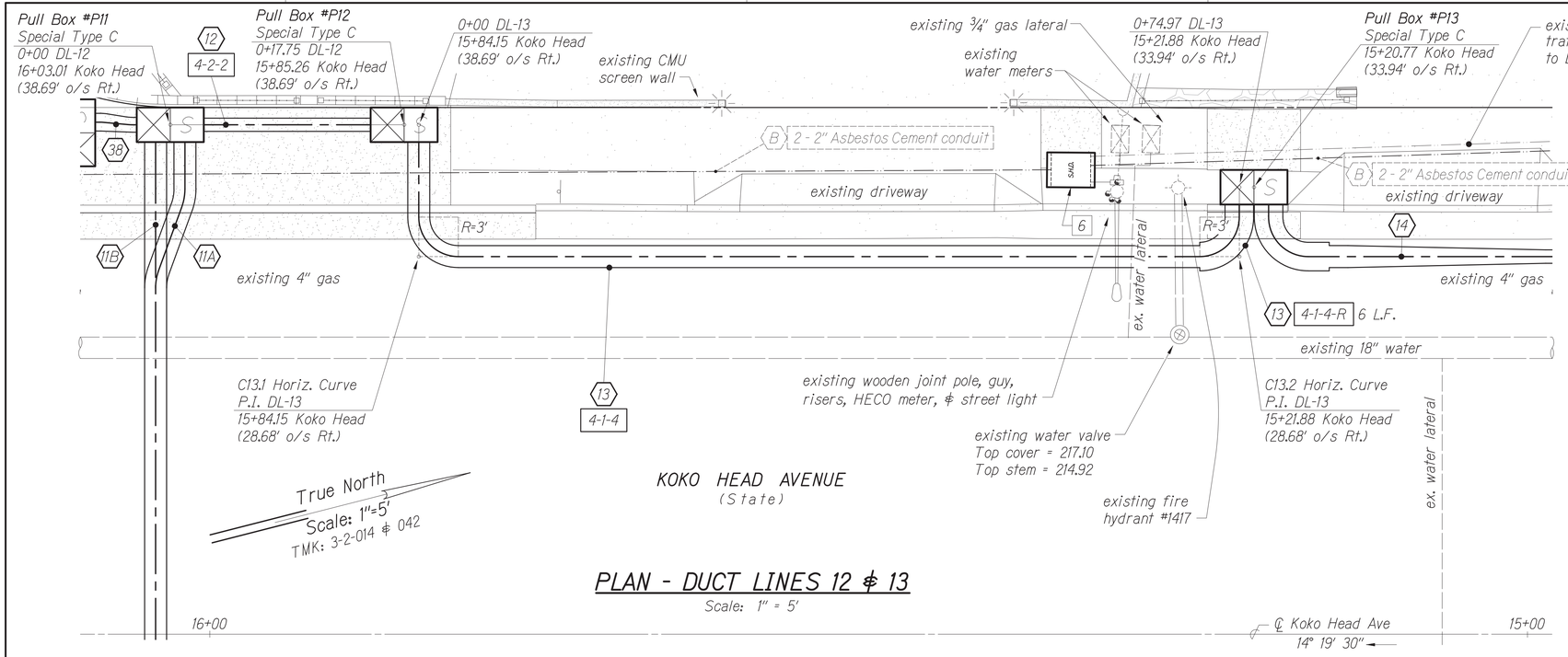
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	95	136

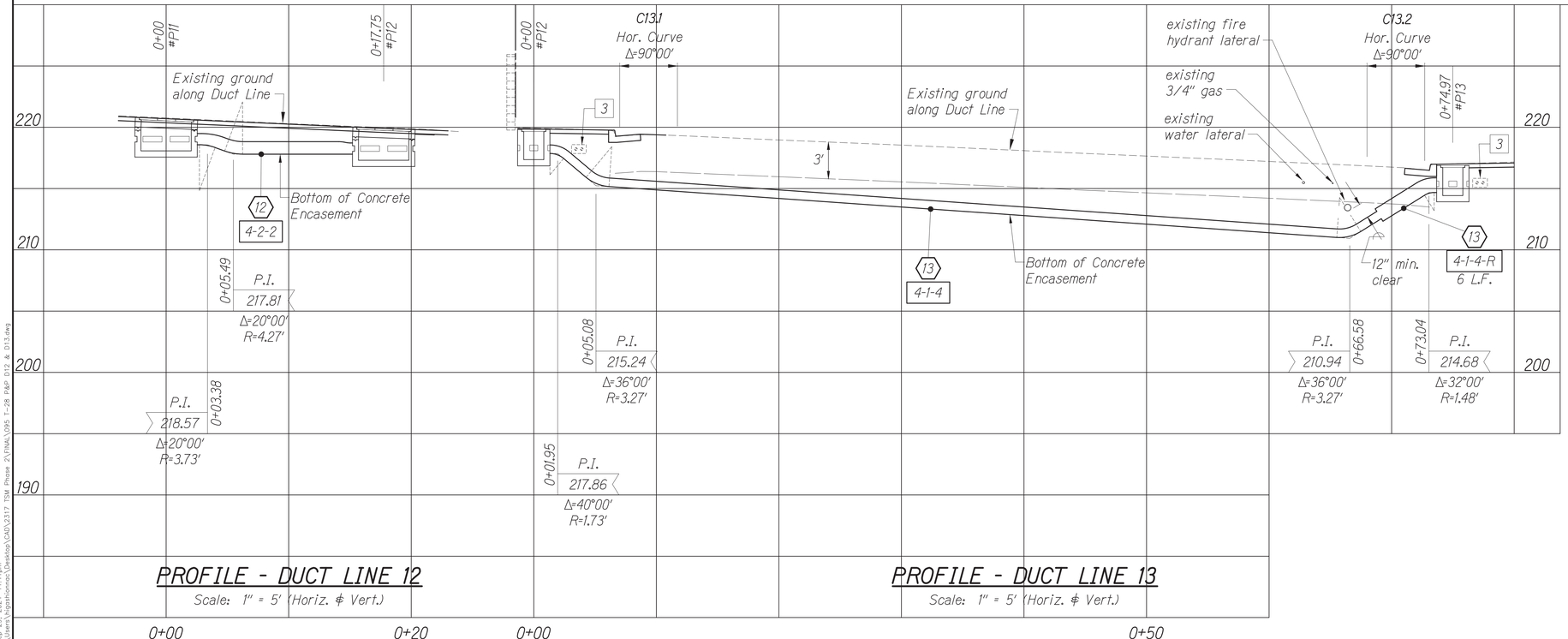


PLAN - DUCT LINES 12 & 13

Scale: 1" = 5'

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
6. Existing Pull Box #36. Adjust top of pull box to finish grade. For details, see sheet 109.



PROFILE - DUCT LINE 12

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 13

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 28 OF 43 SHEETS

ORIGINAL PLAN
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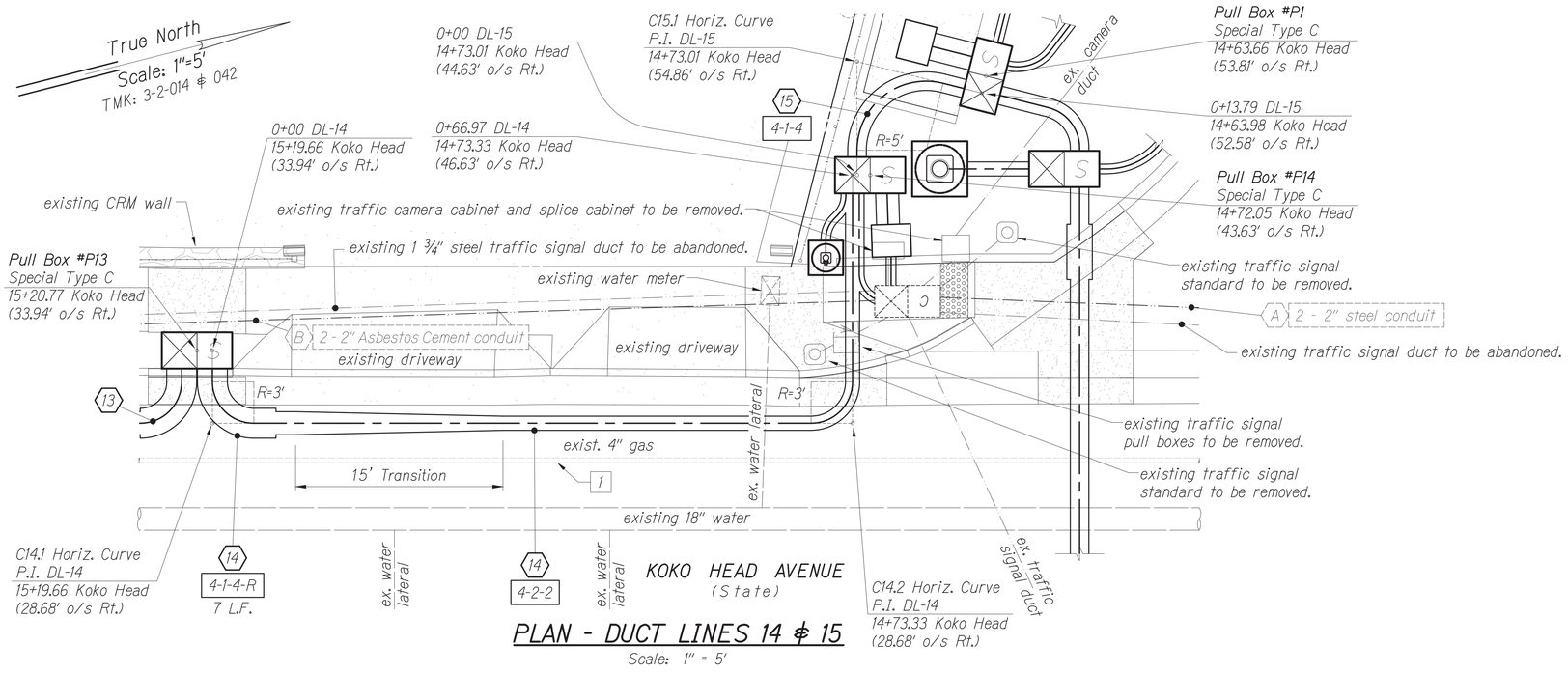
HAWAII	HAWAII	STP-0300(213)	2024	96	136

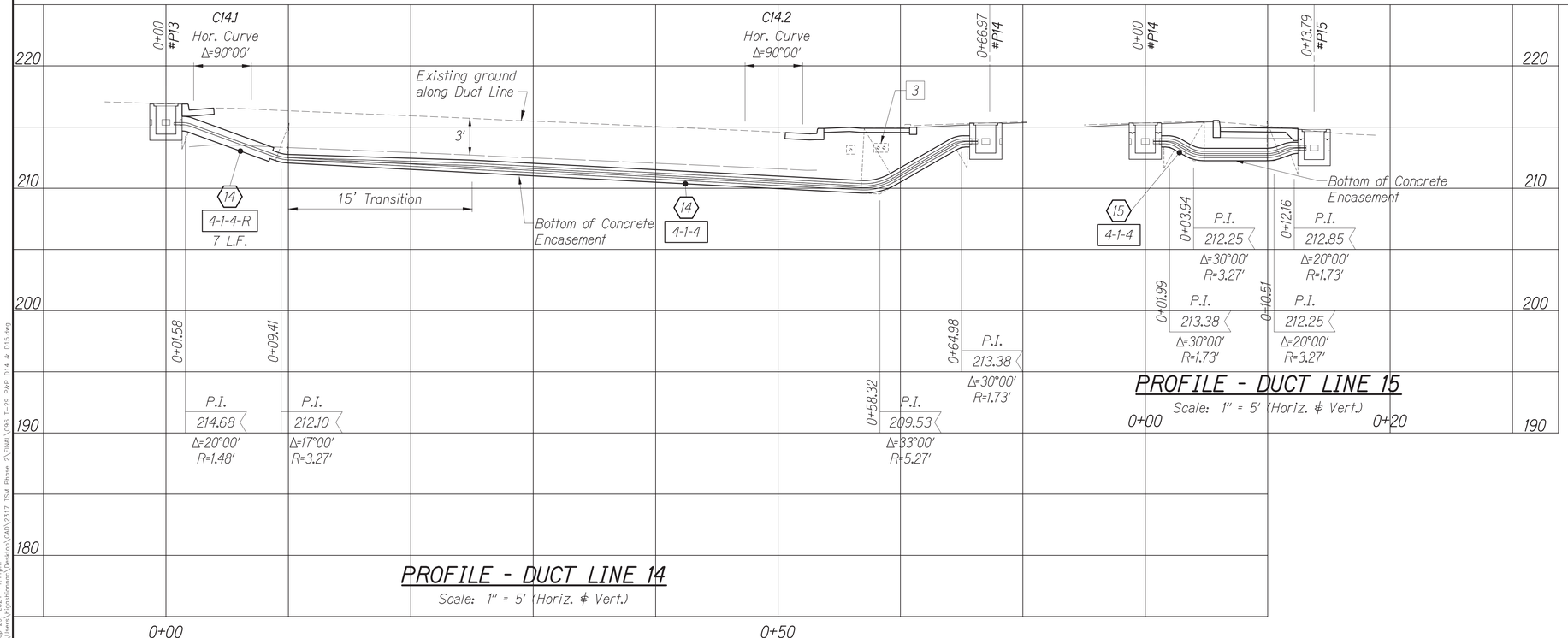


PLAN - DUCT LINES 14 & 15

Scale: 1" = 5'

Notes:

1 The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.



PROFILE - DUCT LINE 14

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 15

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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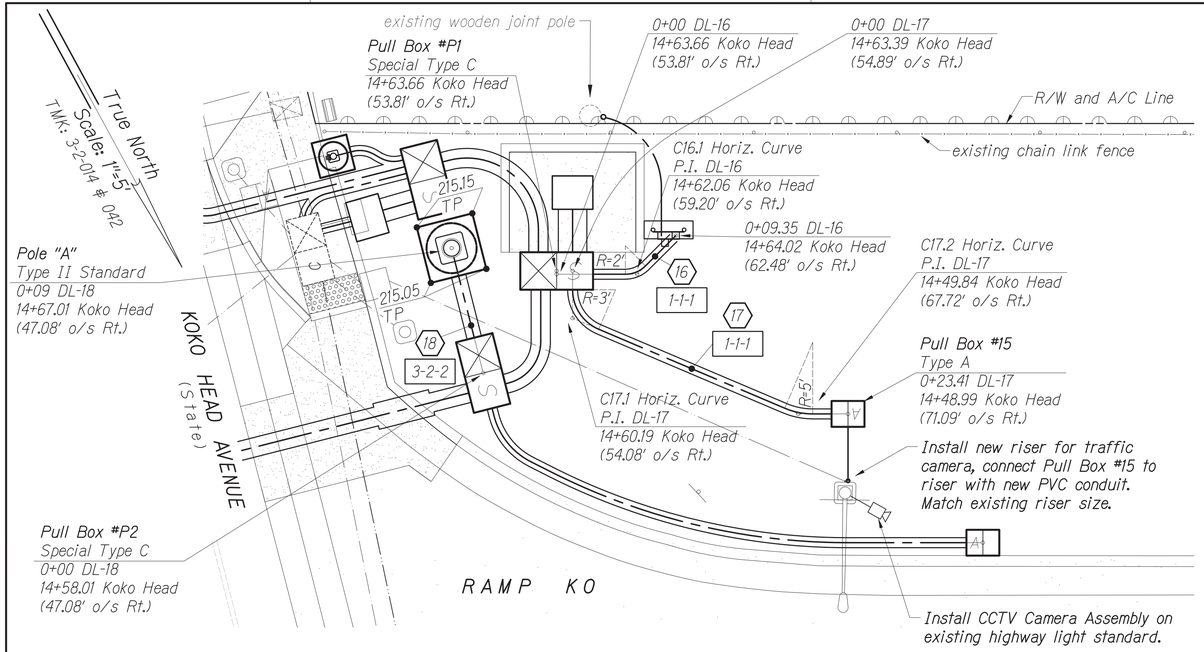
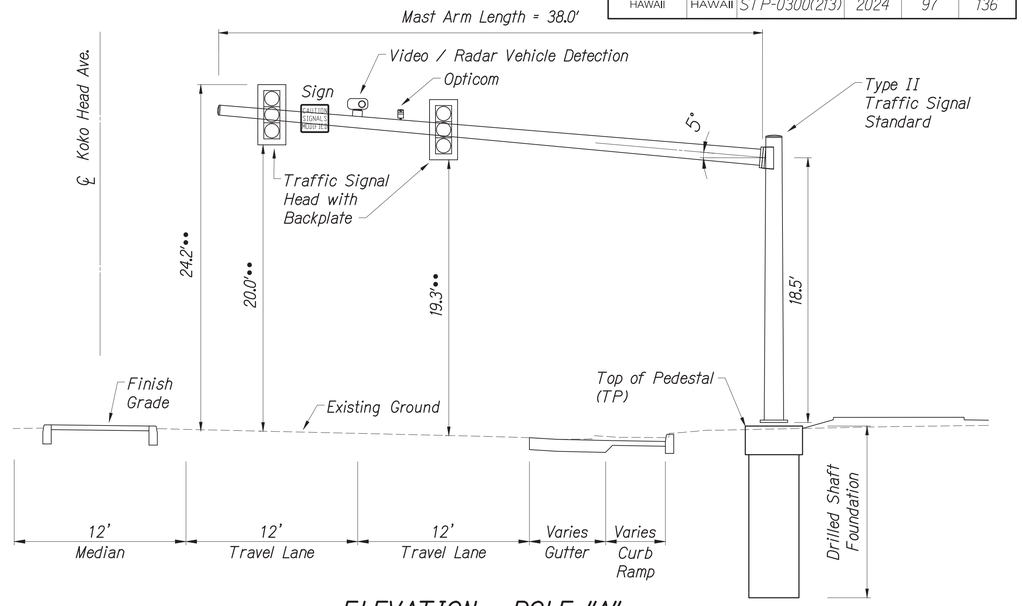
HAWAII	HAWAII	STP-0300(213)	2024	97	136



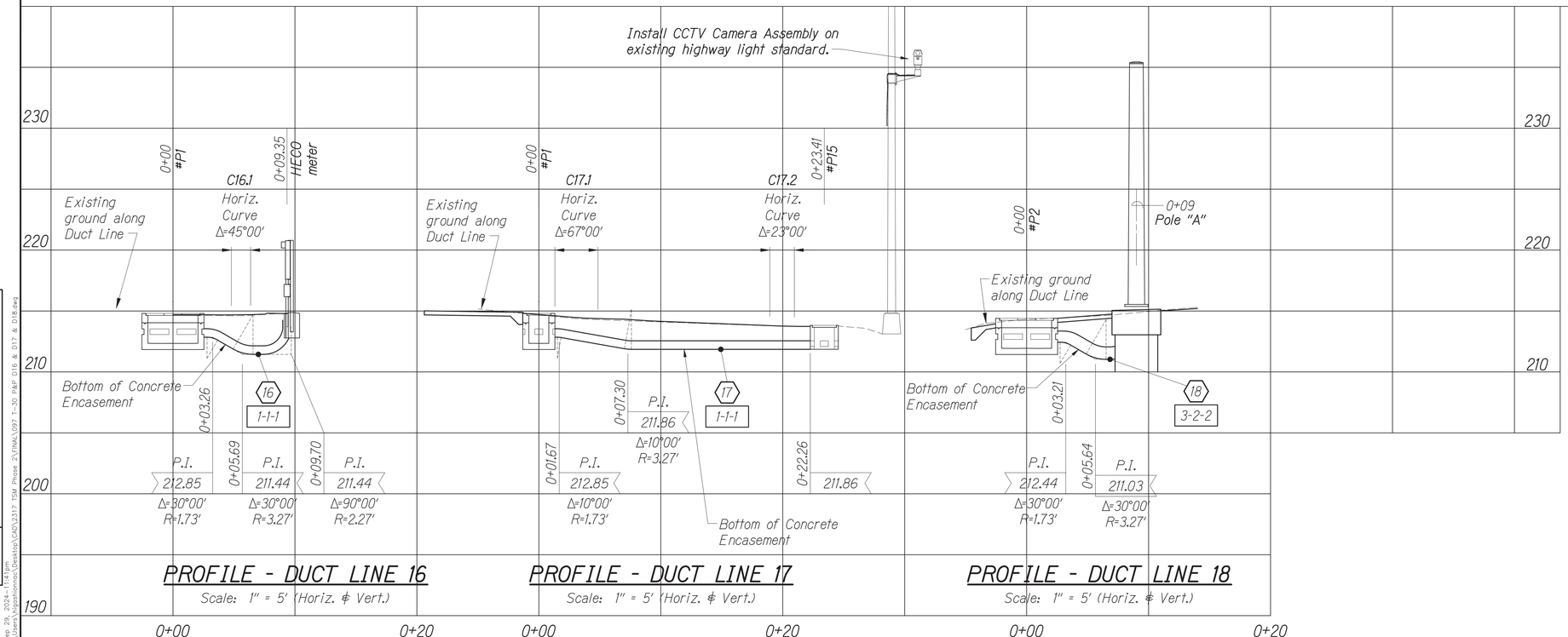
PLAN - DUCT LINES 16 & 17 & 18

Scale: 1" = 5'



ELEVATION - POLE "A"

Scale: 1" = 5'



PROFILE - DUCT LINE 16

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 17

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 18

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

CONRAD S. HIGASHIONNA
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No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
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Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 30 OF 43 SHEETS

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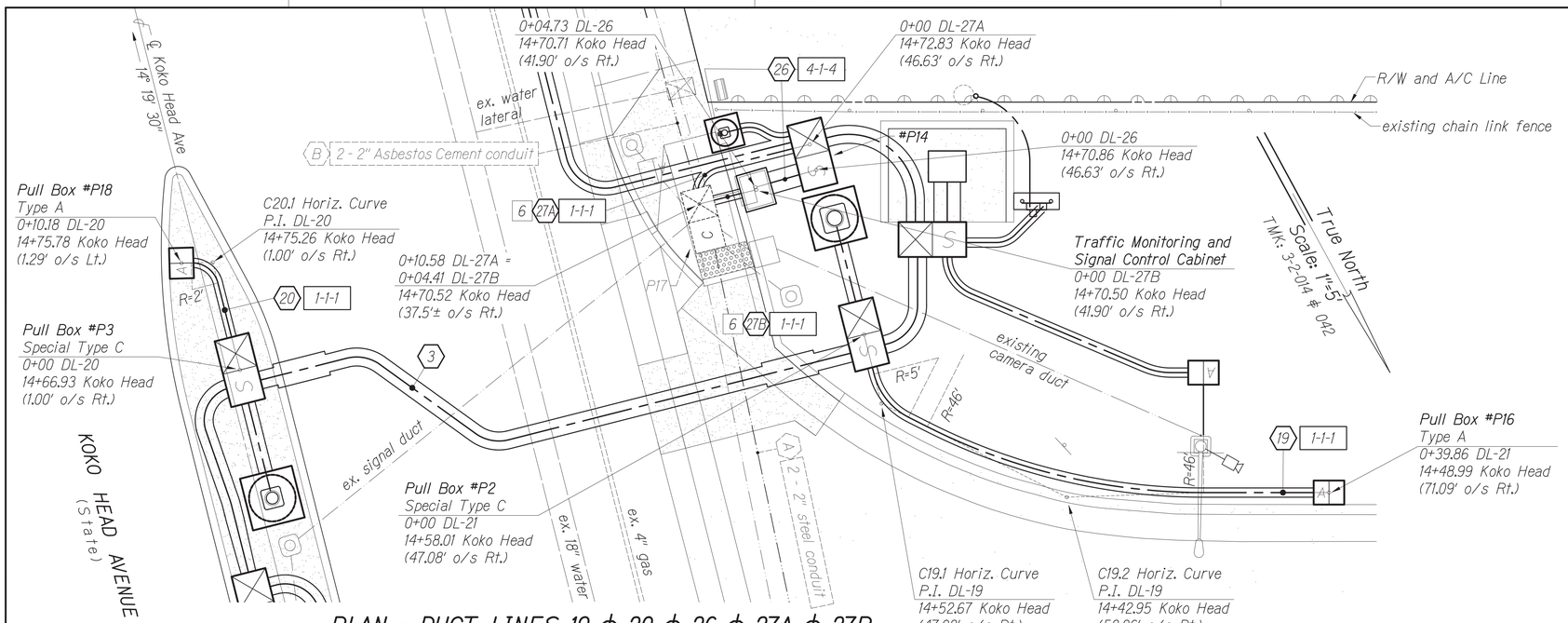
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	98	136



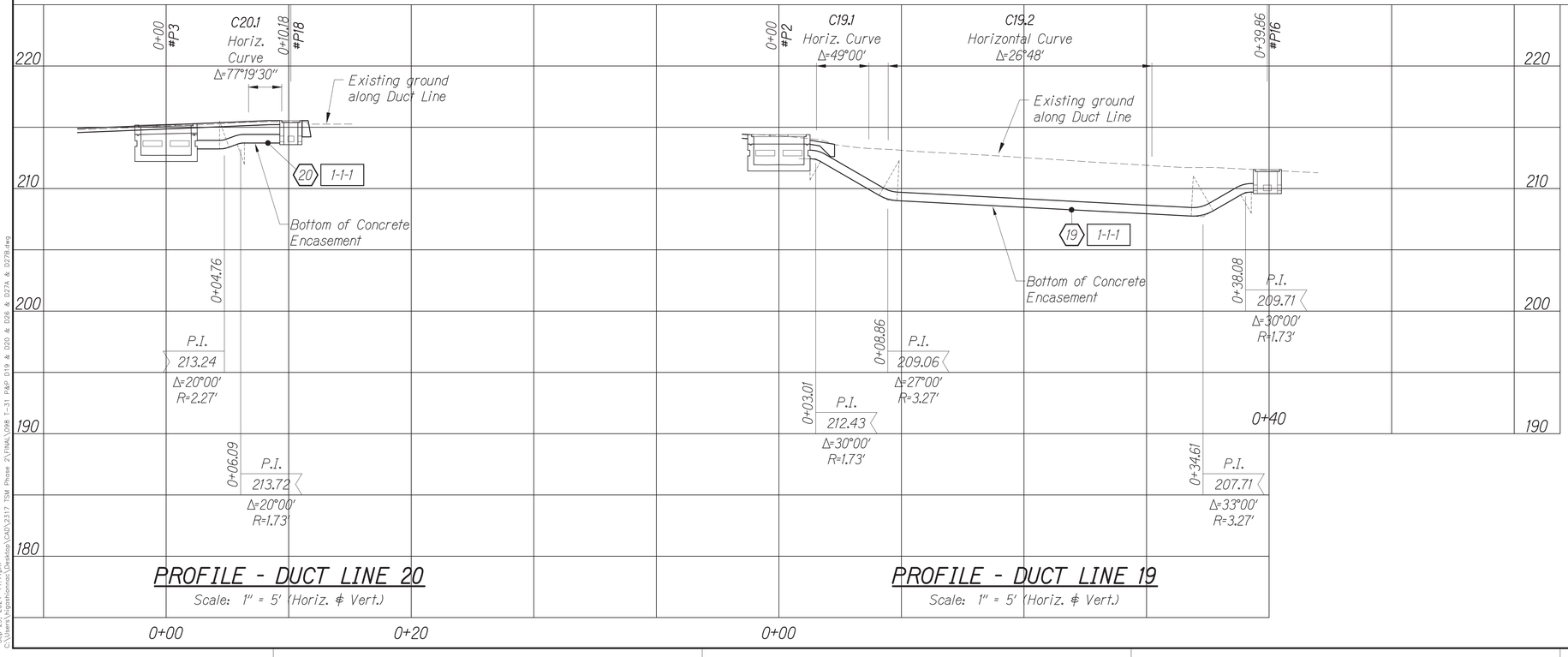
PLAN - DUCT LINES 19 & 20 & 26 & 27A & 27B

Scale: 1" = 5'

Notes:

6 Connect new conduits to existing traffic signal pull box P-17 at knockouts.

No duct line profiles are provided for duct lines 26, 27A, and 27B.



PROFILE - DUCT LINE 20

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 19

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

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Conrad Higashionna

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Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 31 OF 43 SHEETS

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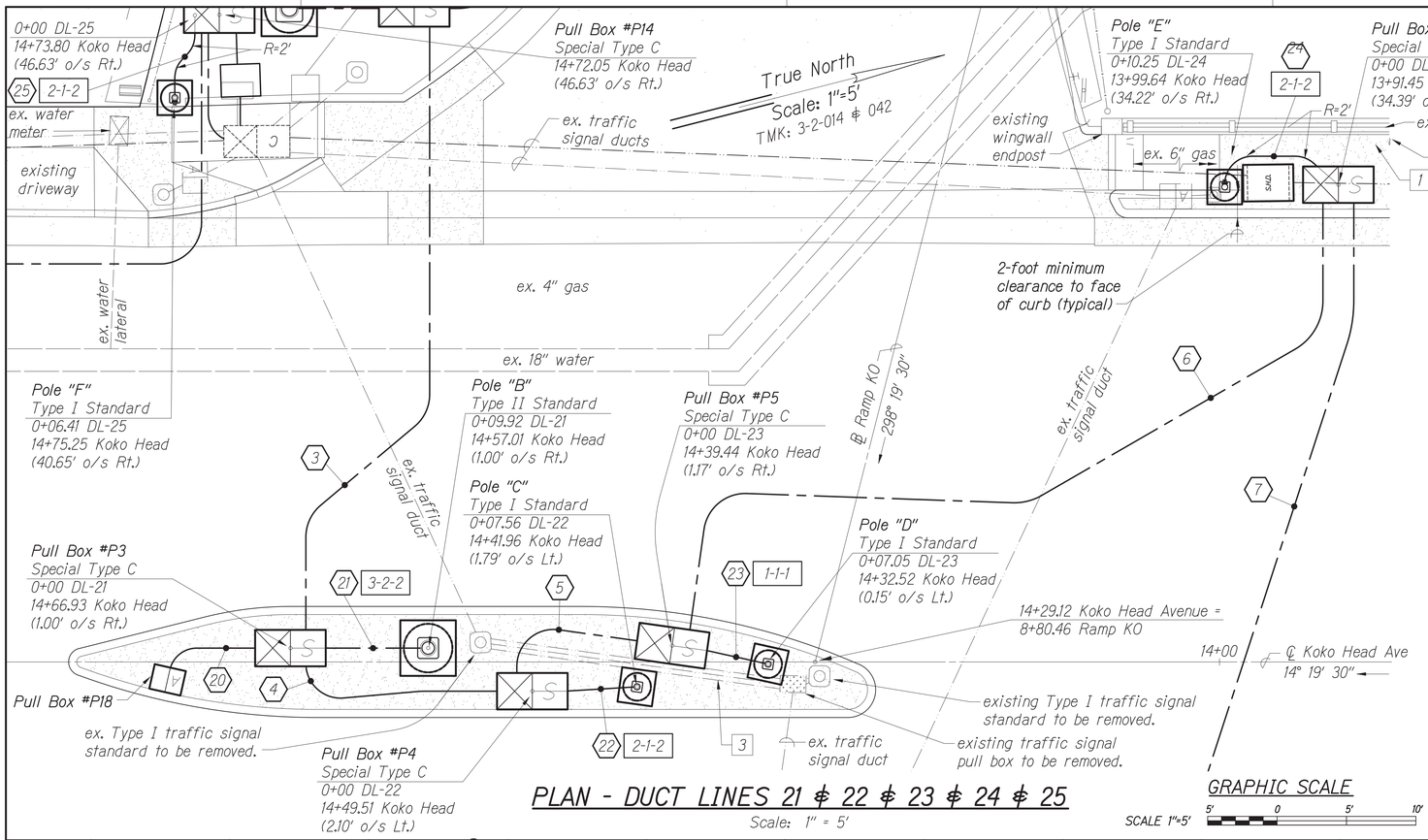
HAWAII	HAWAII	STP-0300(213)	2024	99	136

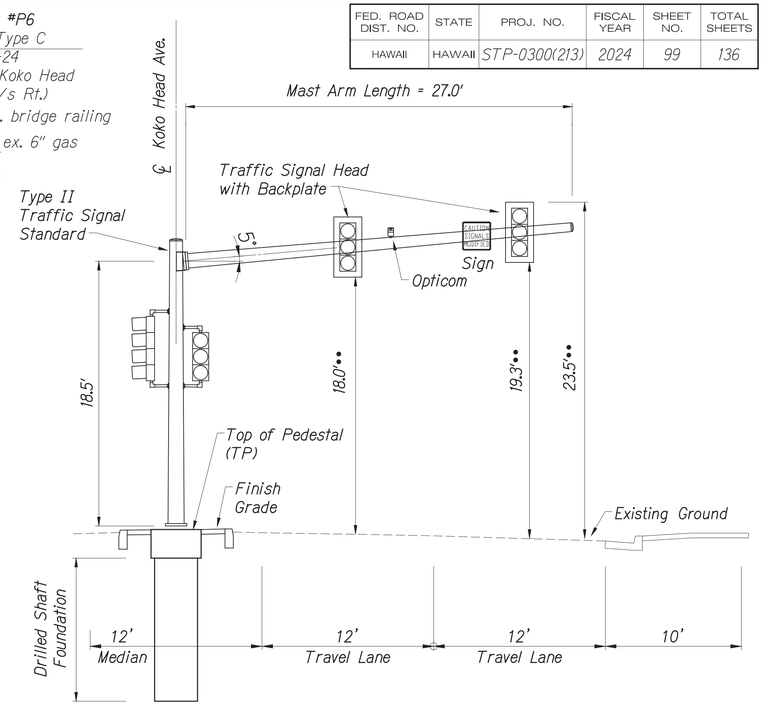


PLAN - DUCT LINES 21 & 22 & 23 & 24 & 25

Scale: 1" = 5'

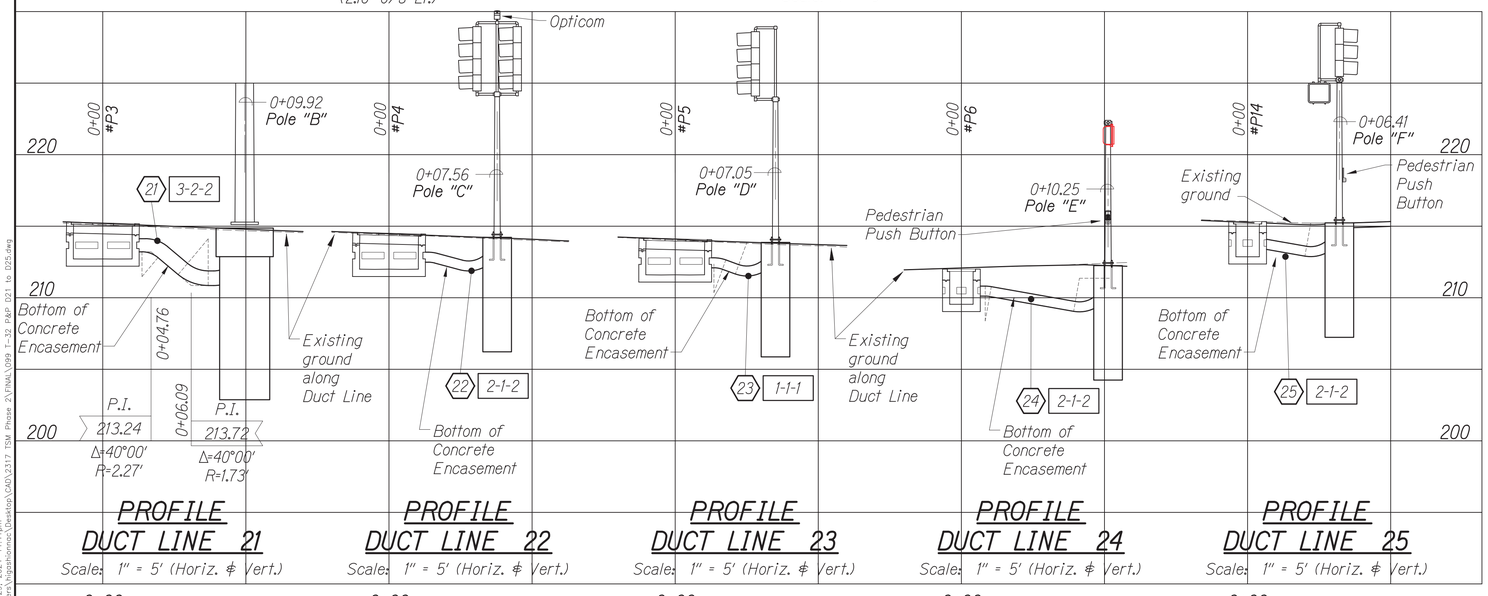
GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'



ELEVATION - POLE "B"

Scale: 1" = 5'



PROFILE DUCT LINE 21

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 22

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 23

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 24

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 25

Scale: 1" = 5' (Horiz. & Vert.)

Notes:

1 *The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.*

3 *Existing concrete encased traffic signal duct (**asbestos cement** conduit) to be abandoned in place. If needed, remove a portion of the existing concrete encasement to facilitate construction. Place a bond-break between existing and new poured-in-place concrete. This work shall not be paid for separately and shall be incidental to the various pay items.*

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 32 OF 43 SHEETS

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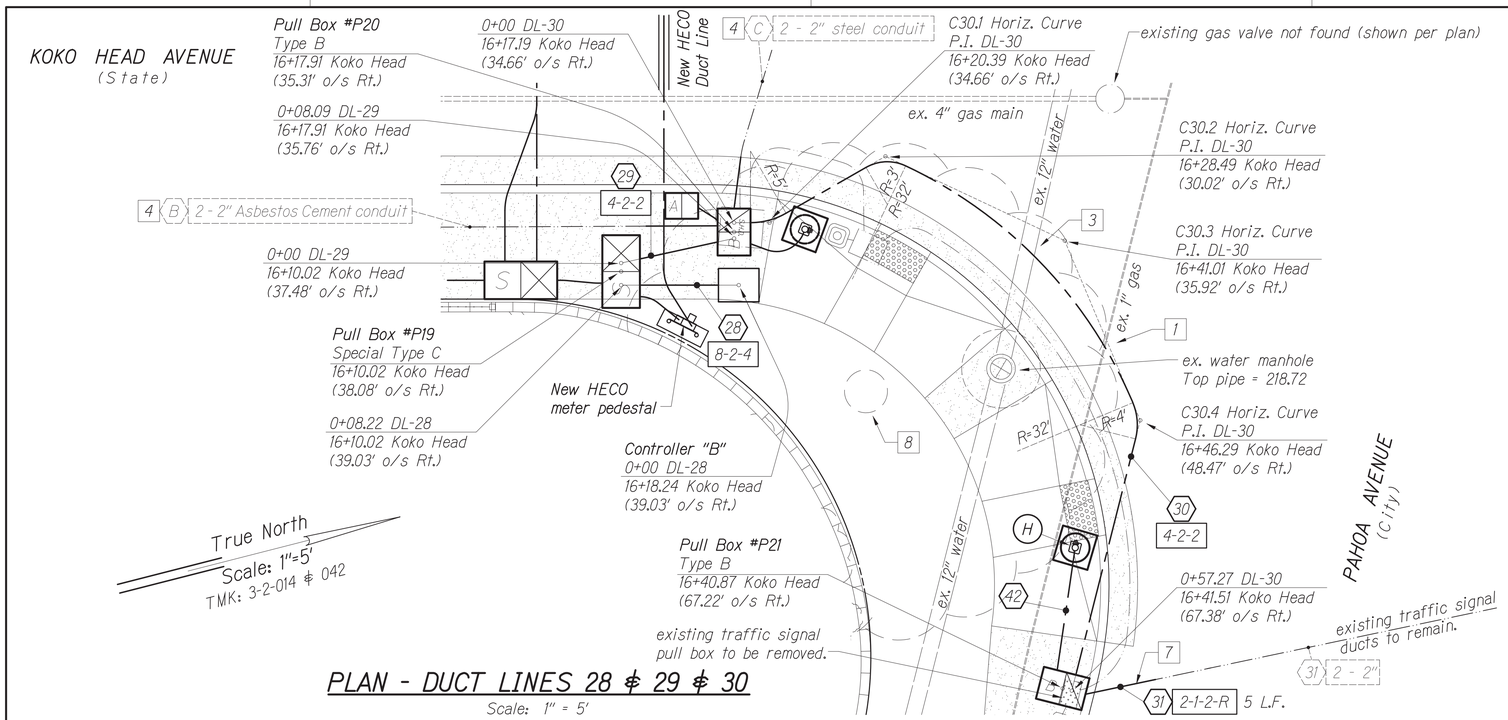
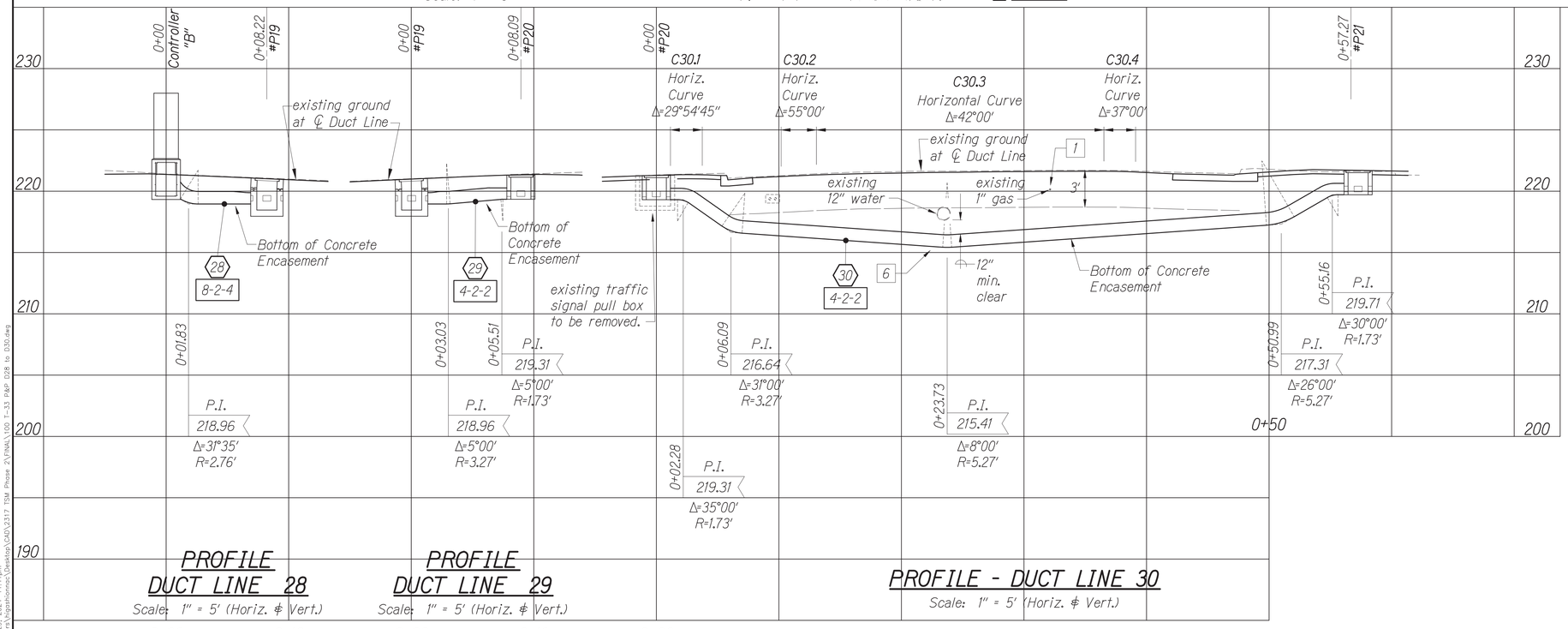


PLAN - DUCT LINES 28 & 29 & 30

Scale: 1" = 5'



PROFILE DUCT LINE 28

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 29

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 30

Scale: 1" = 5' (Horiz. & Vert.)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	100	136

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
3. The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
4. Intercept existing duct lines (B) and (C). Connect existing conduit(s) to new conduit(s). Connect new conduit(s) to Pull Box #P20 at knockouts. Estimated length of new duct line for each connection is 5 linear feet. Duct line profiles are not provided for these connections. The Contractor shall construct connections to fit existing conditions.
7. Intercept existing traffic signal duct line. Connect existing conduit(s) to new conduit(s). Connect new conduit(s) to new pullbox at knockout. See plan for estimated length of new duct line for connection. A duct line profile is not provided for this connection. The Contractor shall construct connection to fit existing conditions.
8. The Contractor shall protect tree from damage. In the event tree roots are uncovered during construction operations, the Contractor shall suspend work affecting the roots; obtain recommendations to minimize tree damage from an ISA Certified Arborist; and submit recommendations to the Engineer for review. The Contractor shall receive approval from Engineer, prior to restarting construction work affecting tree roots.

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

CONRAD S. HIGASHIONNA
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No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

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Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

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SHEET No. 33 OF 43 SHEETS

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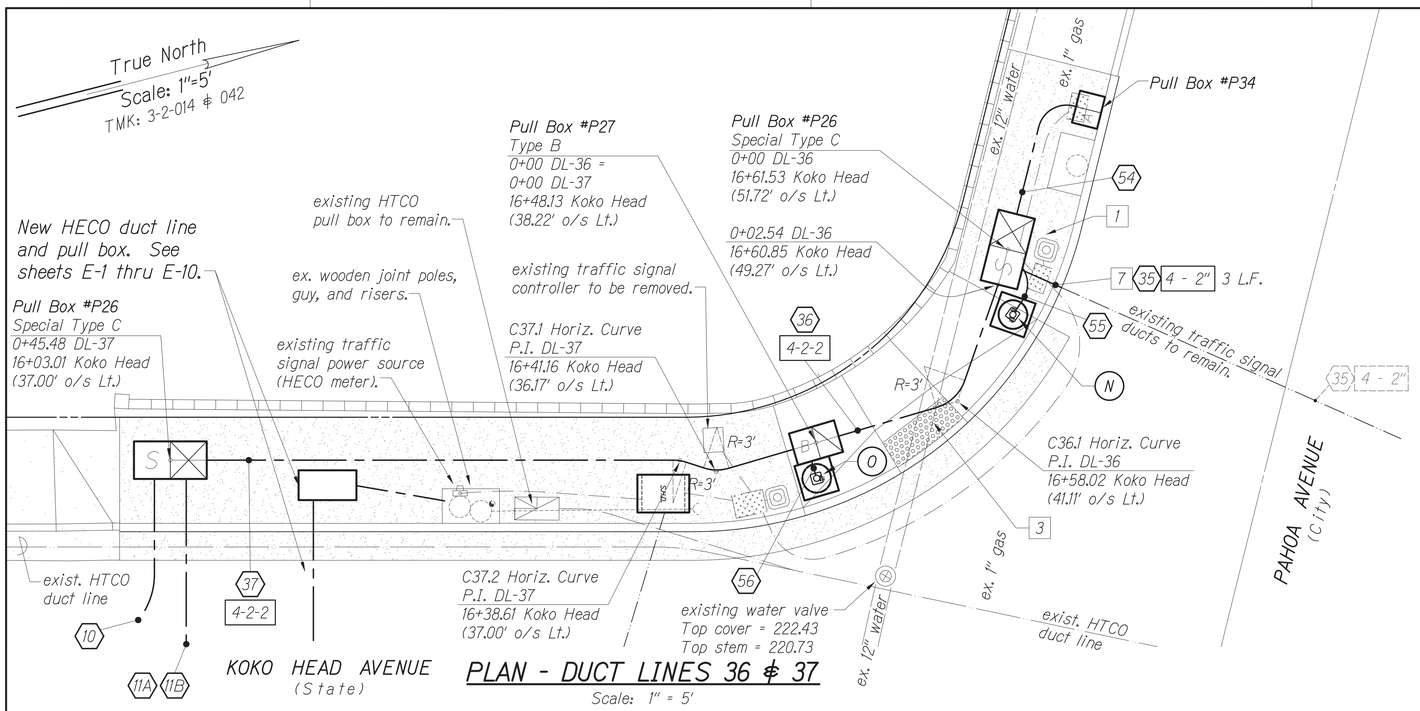
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	101	136

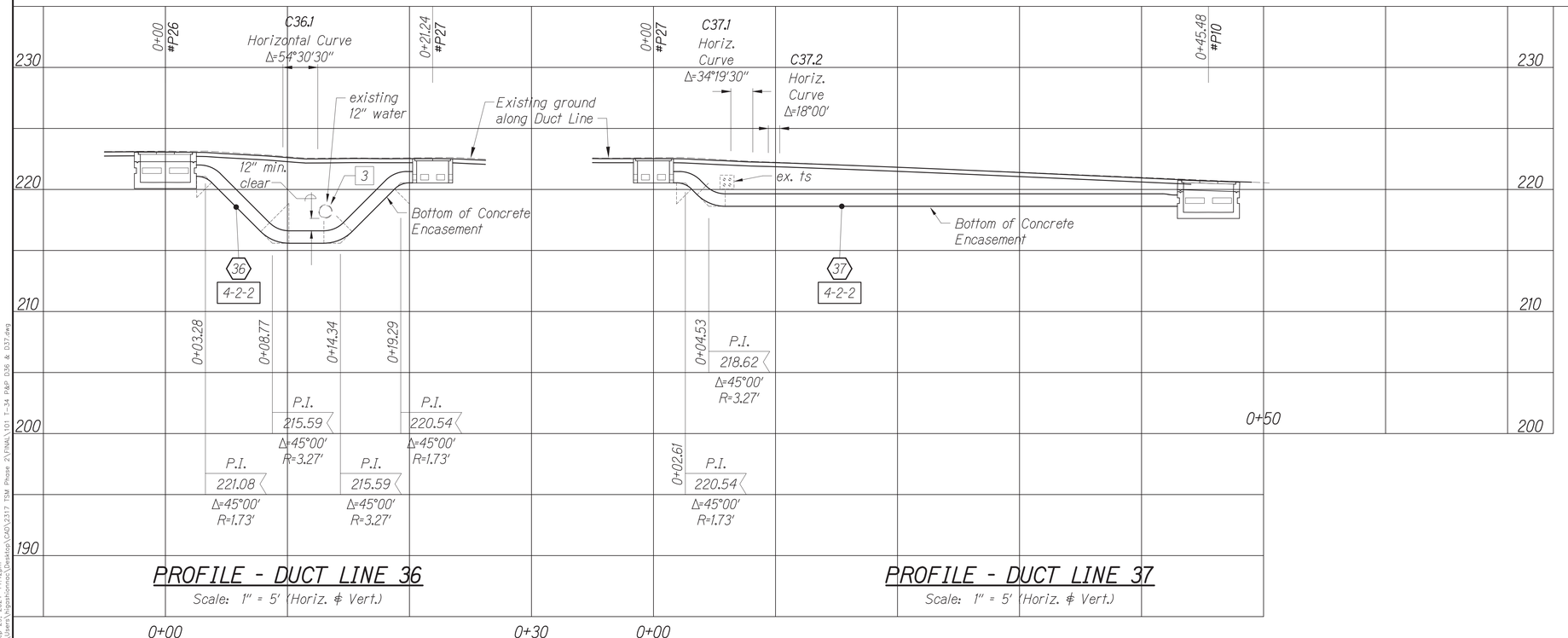


PLAN - DUCT LINES 36 & 37

Scale: 1" = 5'

Notes:

1. *The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.*
3. *The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.*
7. *Intercept existing traffic signal duct line. Connect existing conduit(s) to new conduit(s). Connect new conduit(s) to new pullbox at knockout. See plan for estimated length of new duct line for connection. A duct line profile is not provided for this connection. The Contractor shall construct connection to fit existing conditions.*



PROFILE - DUCT LINE 36

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE - DUCT LINE 37

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

CONRAD S. HIGASHIONNA
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HAWAII, U.S.A.

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Conrad Higashionna

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Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

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SHEET No. 34 OF 43 SHEETS

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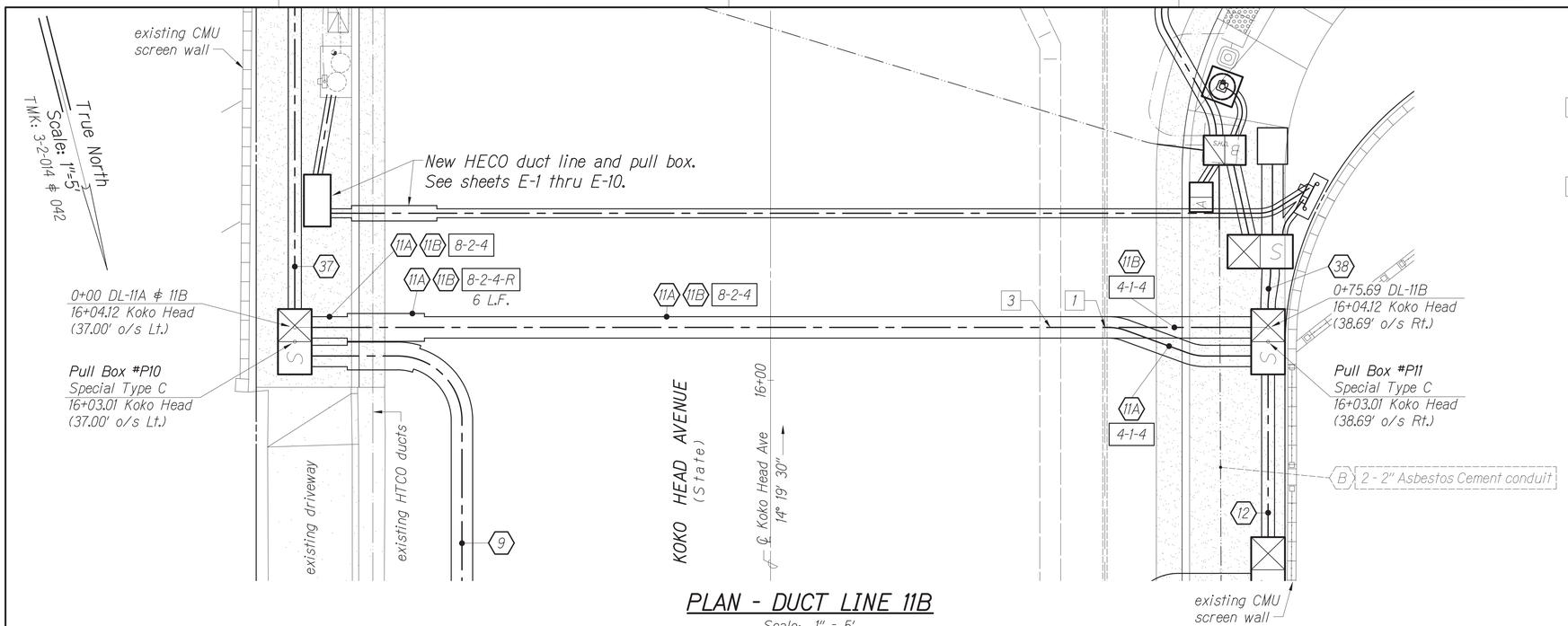
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	102	136

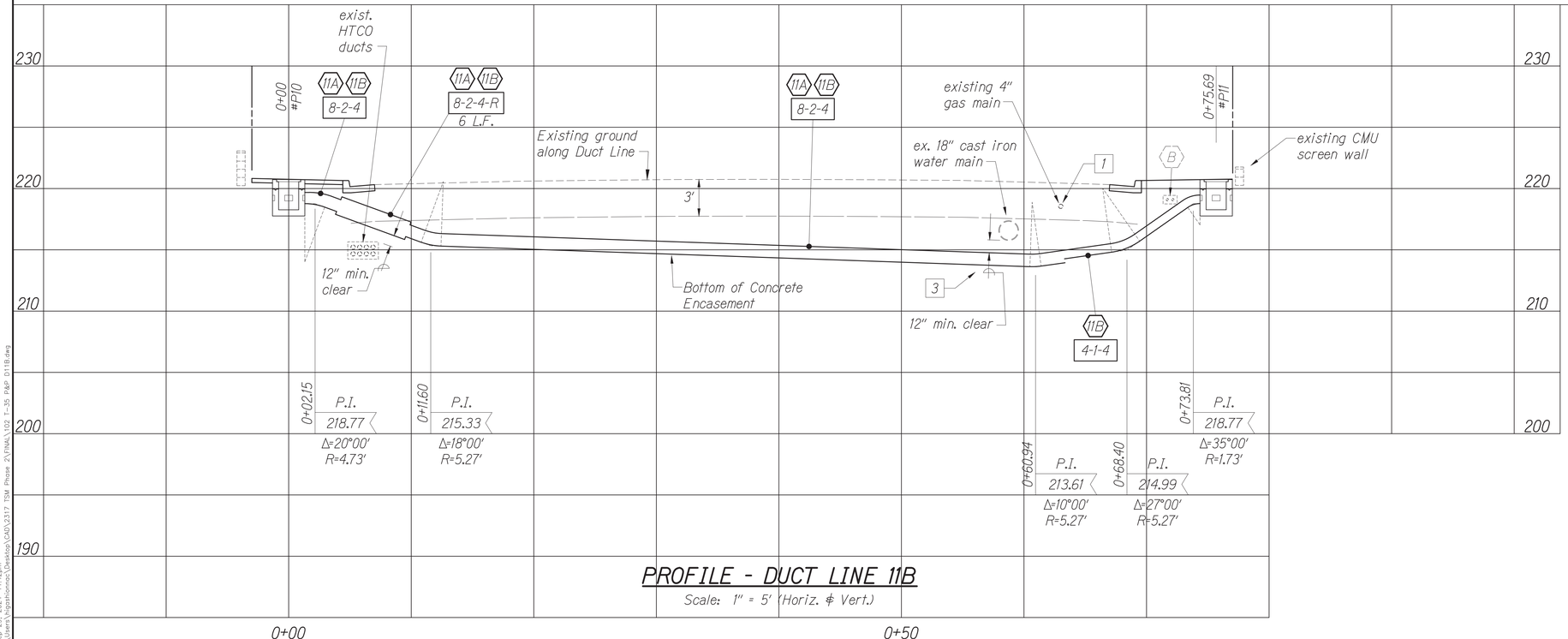


PLAN - DUCT LINE 11B

Scale: 1" = 5'

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
3. The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes.



PROFILE - DUCT LINE 11B

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5'

5' 0 5' 10'

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No. 6763-C
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STATE OF HAWAII
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TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

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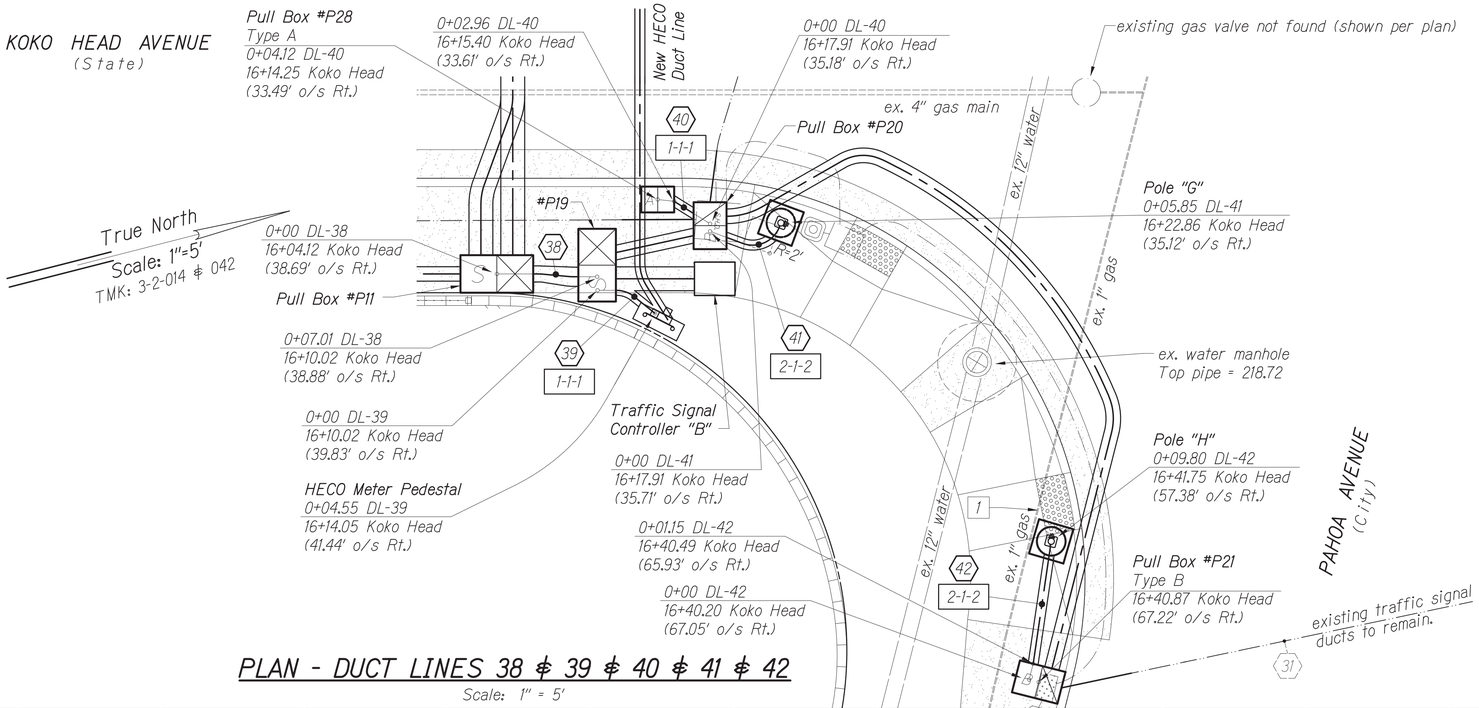
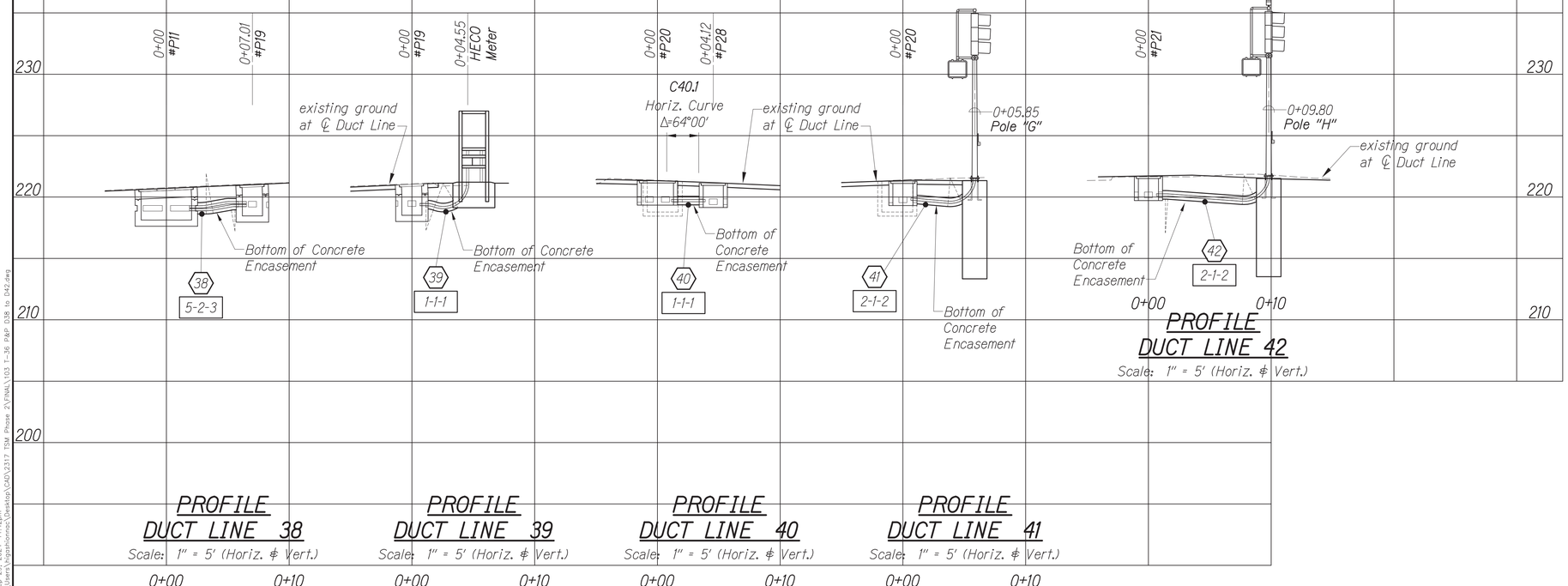
HAWAII	HAWAII	STP-0300(213)	2024	103	136



PLAN - DUCT LINES 38 & 39 & 40 & 41 & 42

Scale: 1" = 5'



PROFILE DUCT LINE 38

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 39

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 40

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 41

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 42

Scale: 1" = 5' (Horiz. & Vert.)

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.

GRAPHIC SCALE

SCALE 1"=5' — 5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

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Chief, Traffic Signal & Technology Division, DTS — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
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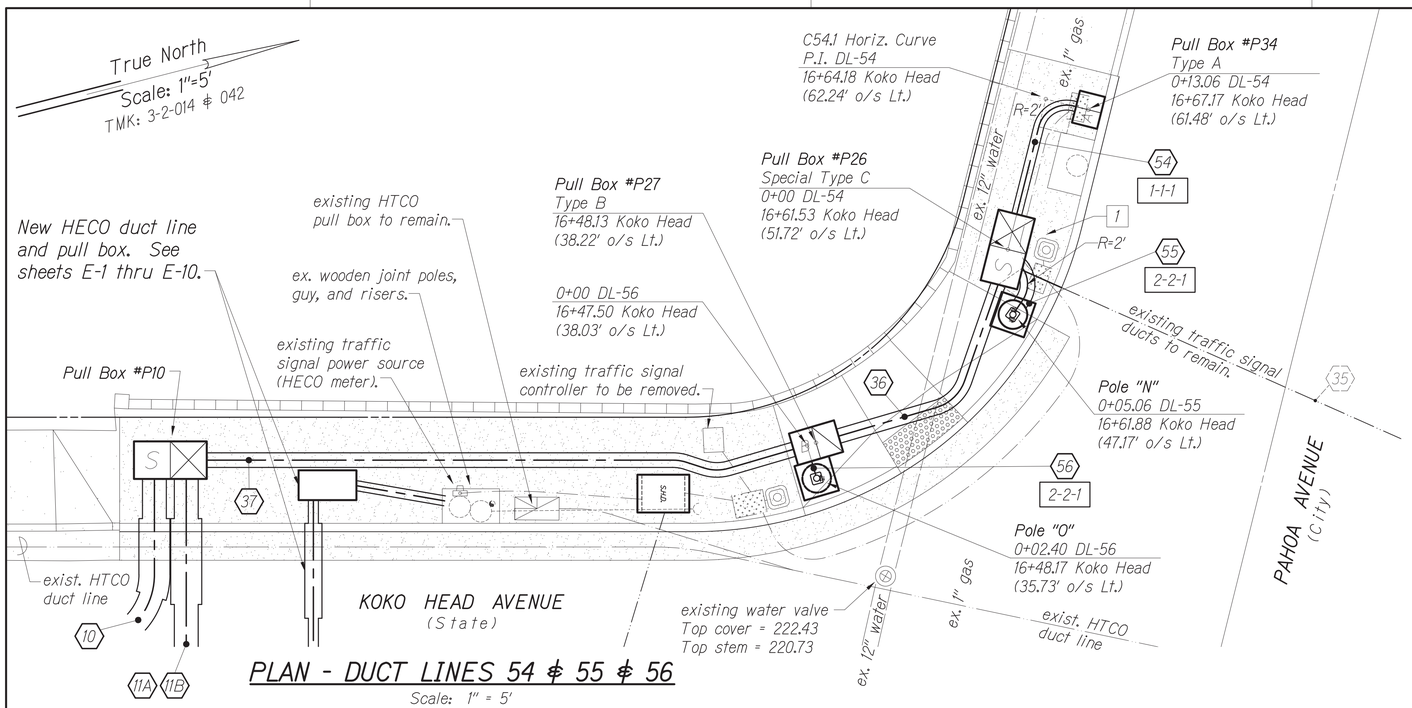
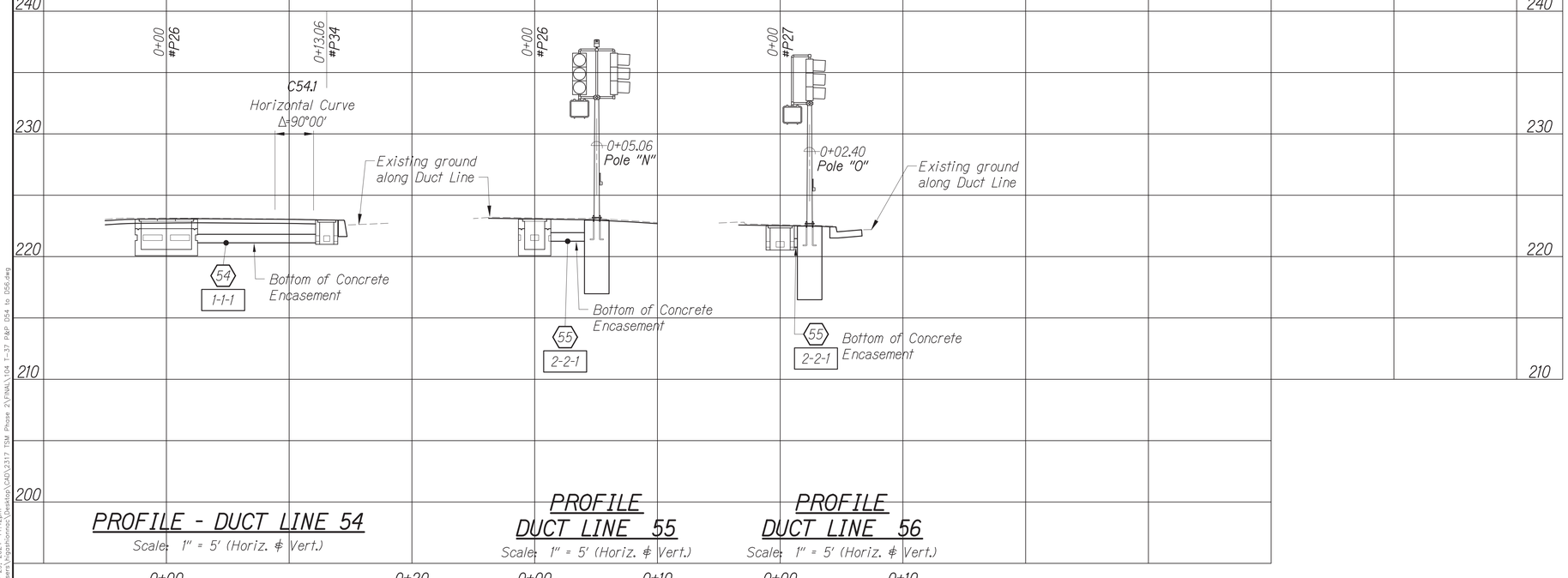
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	104	136



PLAN - DUCT LINES 54 & 55 & 56

Scale: 1" = 5'



PROFILE - DUCT LINE 54

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 55

Scale: 1" = 5' (Horiz. & Vert.)

PROFILE DUCT LINE 56

Scale: 1" = 5' (Horiz. & Vert.)

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.

GRAPHIC SCALE

SCALE 1"=5'

5' 0 5' 10'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP Date
(for work within City ROW)

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 37 OF 43 SHEETS

ORIGINAL PLAN		DATE
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	QUANTITIES BY	
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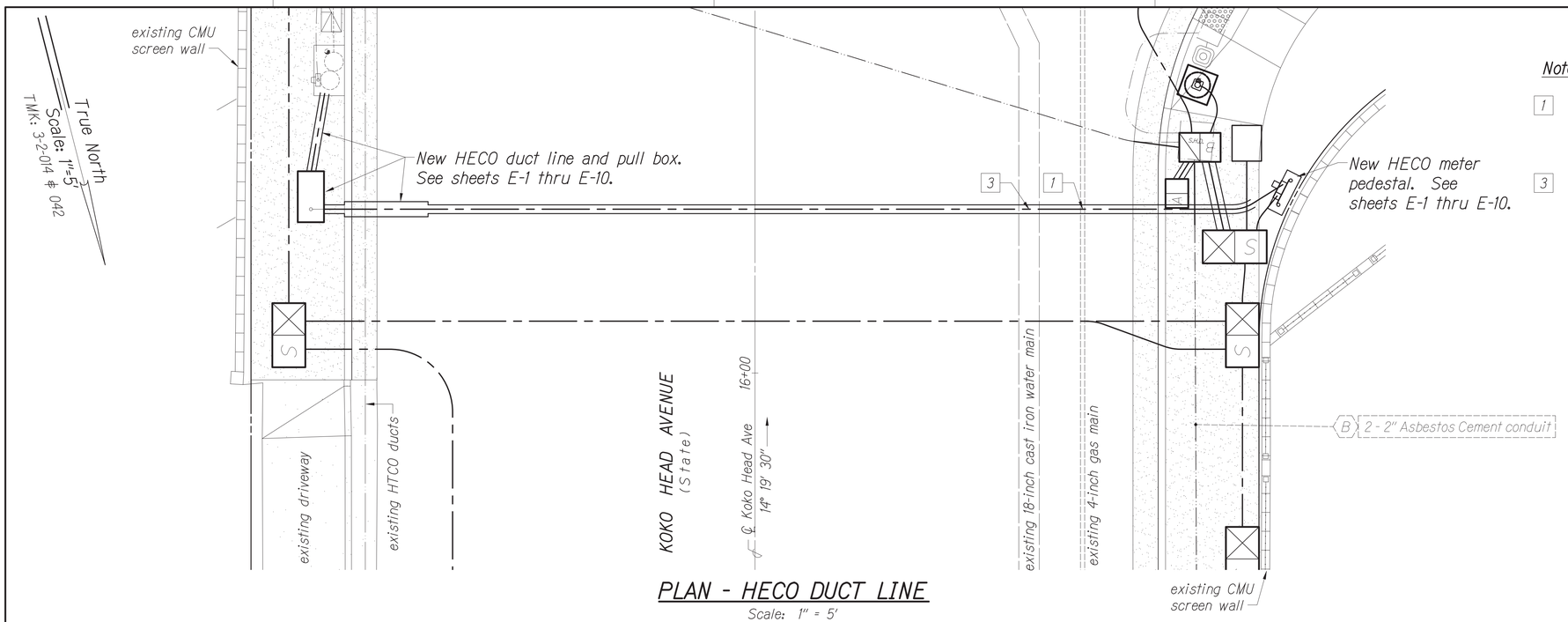
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	105	136

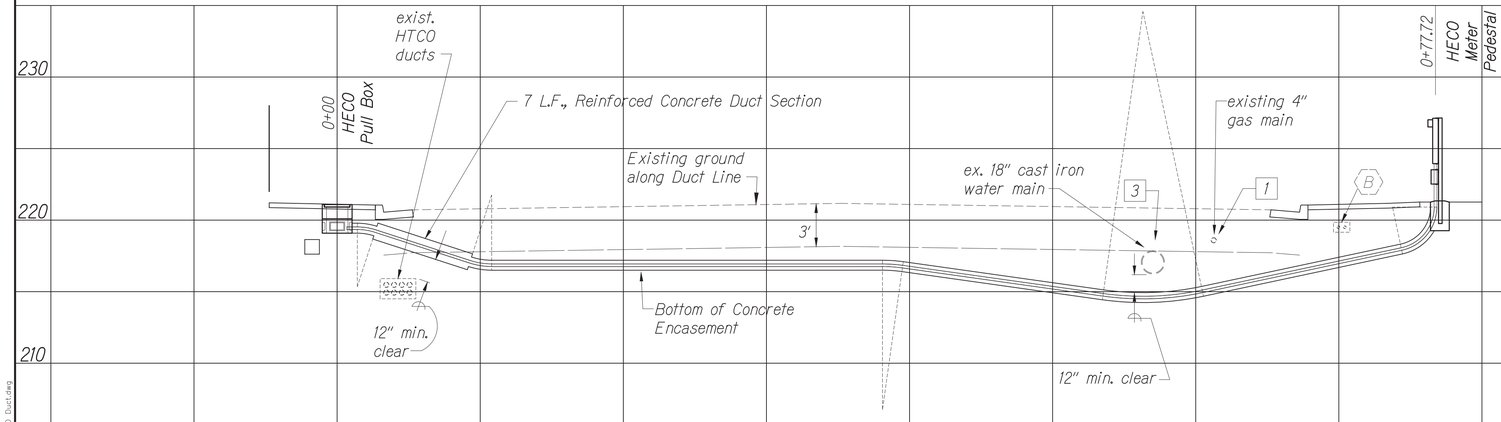


PLAN - HECO DUCT LINE

Scale: 1" = 5'

Notes:

1. The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
3. The Contractor shall construct the new HECO duct line crossing the existing cast iron water main in compliance with Water Note #36.



PROFILE - HECO DUCT LINE

Scale: 1" = 5' (Horiz. & Vert.)

GRAPHIC SCALE

SCALE 1"=5' 5' 0 5' 10'

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APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 38 OF 43 SHEETS

ORIGINAL PLAN		
NOTE BOOK		
No.	DATE	
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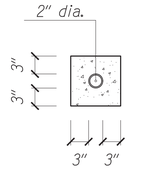
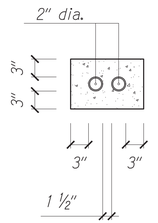


SECTION 1-1-1



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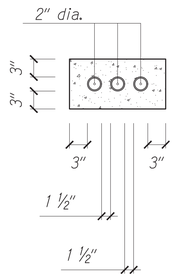
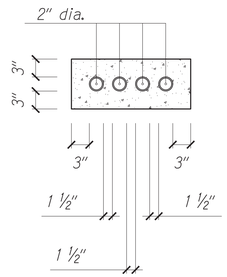


SECTION 3-1-3



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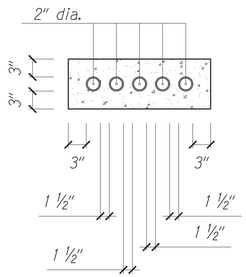

SECTION 5-1-5

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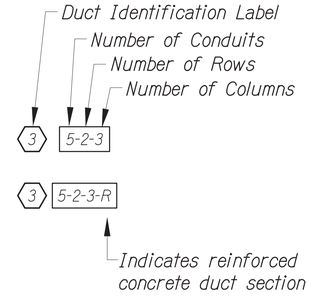

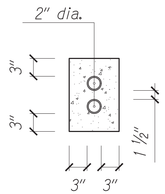

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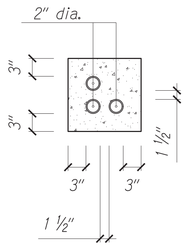

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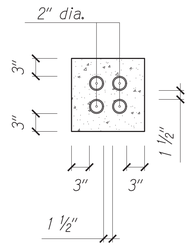

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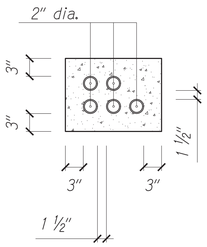

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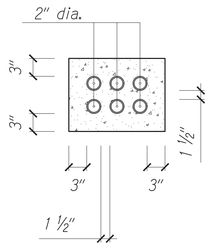

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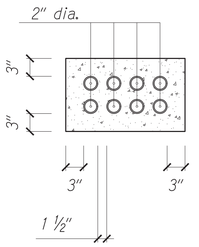
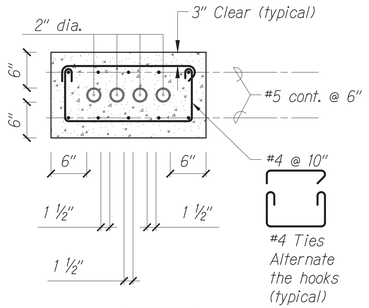
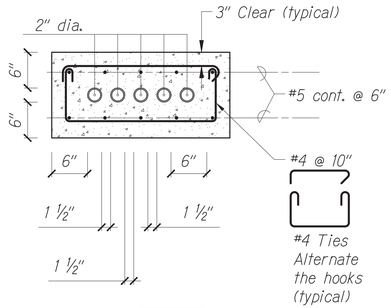


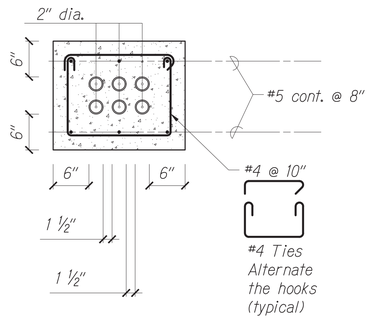
SECTION 8-2-4



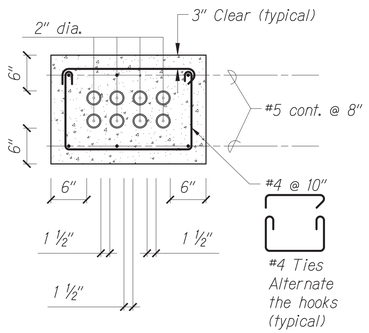
SECTION 4-1-4-R



SECTION 5-1-5-R



SECTION 6-2-3-R



SECTION 8-2-4-R

TRAFFIC SIGNAL DUCT SECTIONS

No Scale

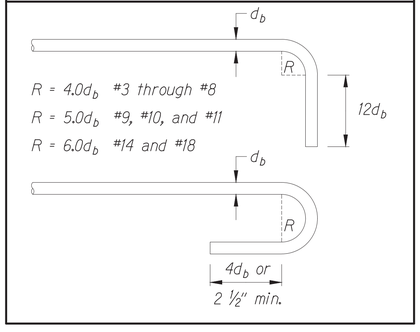
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	106	136

Minimum Diameters of Bend

Bar Size and Use	Minimum Diameter
No. 3 through No. 5 - General	$6.0d_b$
No. 3 through No. 5 - Stirrups and Ties	$4.0d_b$
No. 6 through No. 8 - General	$6.0d_b$
No. 9, No. 10, and No. 11	$8.0d_b$
No. 14 and No. 18	$10.0d_b$

Notes:

1. The diameter of a bar bend, measured on the inside of the bar, shall not be less than that specified in Table Minimum Diameters of Bend.
2. The inside diameter of bend for stirrups and ties in plain or deformed welded wire reinforcement shall not be less than $4.0d_b$ for deformed wire larger than D6 and $2.0d_b$ for all other wire sizes. Bends with inside diameters of less than $8.0d_b$ shall not be located less than $4.0d_b$ from the nearest welded intersection.



CONRAD S. HIGASHIONNA
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No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

ORIGINAL PLAN

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

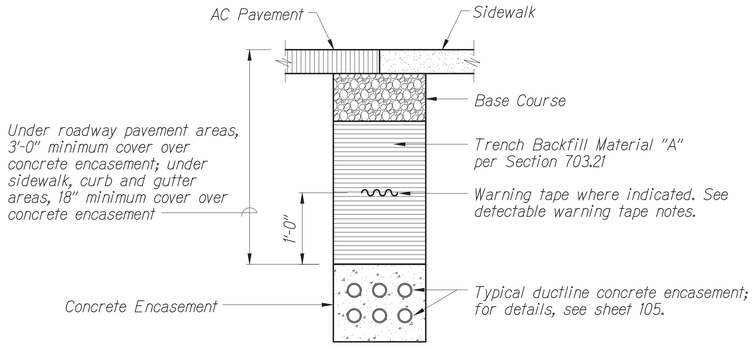
SHEET No. 39 OF 43 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	107	136

Legend

Trench Backfill Material "A"
When tested according to AASHTO T 176, the Sand Equivalent value shall be 20 or greater.

Concrete Encasement
3" encasement 3000 psi compressive strength at 28 Days.

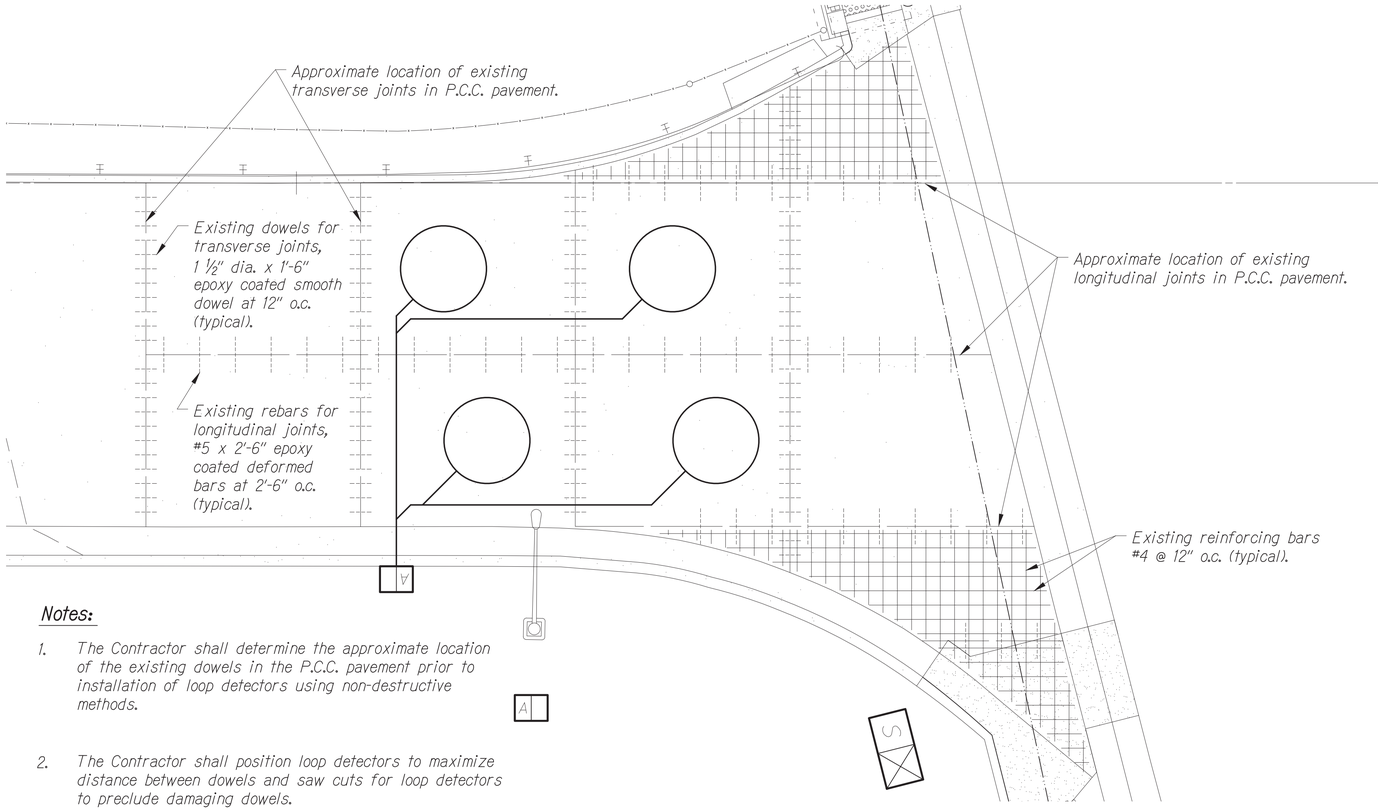


TYPICAL TRENCH RESTORATION DETAILS

No Scale

Trench Restoration Notes:

1. If trench is located an unpaved area, the Contractor shall replace A.C. base course and A.C. pavement with Type "A" backfill material.
2. The metal detectable red plastic warning tape shall be a minimum five (5) mils thick and 4 inches wide with a continuous metallic backing and corrosion resistant one (1) mil thick foil core. For the State DOT traffic signal and highway lighting ducts, the message on the tape shall read: "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY. LIGHTING BURIED BELOW." The warning tape message lettering shall be 1.5-inch tall Series "C" block lettering. The message shall be repeated with a 4.25-inch spacing between end of message and start of next repeat. The tape shall be incidental to the duct line cost.
3. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength after 3 days.
4. Maximum four (4) conduits per row for multiple conduit duct section, except as indicated on plans.
5. After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards, and traffic signal controller cabinet foundation. The duct seal material shall be approved by the traffic signal inspector/Engineer and shall not be paid for separately but considered incidental to the concrete encased conduits.
6. For concrete sidewalk, curb & gutter, P.C.C. pavement, and asphalt pavement restoration over trench excavation, see details on sheets 53, 54, 55, and 56.



Notes:

1. The Contractor shall determine the approximate location of the existing dowels in the P.C.C. pavement prior to installation of loop detectors using non-destructive methods.
2. The Contractor shall position loop detectors to maximize distance between dowels and saw cuts for loop detectors to preclude damaging dowels.

LOOP DETECTOR PLACEMENT IN P.C.C. PAVEMENT

Scale: "5"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 40 OF 43 SHEETS

ORIGINAL PLAN	NOTE BOOK	No.	DATE

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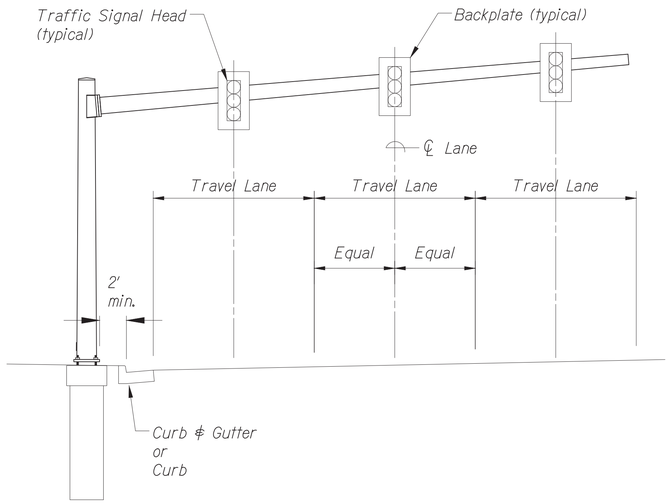
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	108	136

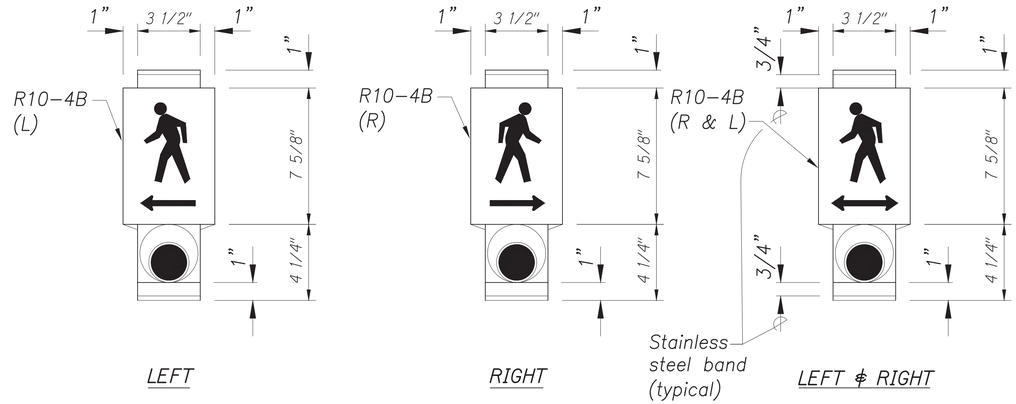


Notes:

1. The Contractor shall install traffic signal heads over center of travel lanes.
2. The Contractor shall submit shop drawings for Type I and II traffic signal standards for review and approval.

TYPE II TRAFFIC SIGNAL STANDARD

No Scale

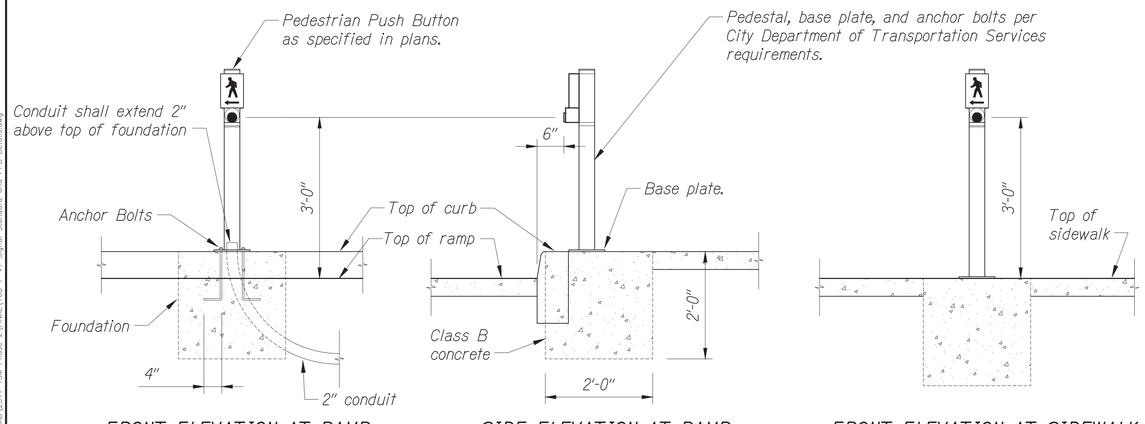


Notes:

1. The pedestrian push button unit shall consist of a one piece assembly with raised walking man, arrow indication, and push button.
2. The push button activator shall be ADA acceptable.
3. The raised man and arrows shall be directional and match the directional indication as shown on the plans.
4. The push button shall be tamper proof, weatherproof, and constructed so that electrical shocks are impossible.
5. The color scheme shall be:
   White - Man, Arrow, and Push Button
   Black - Background

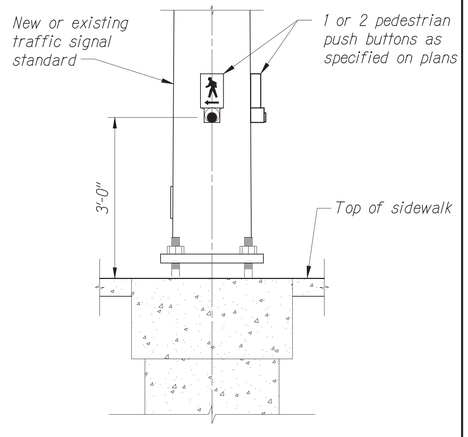
PEDESTRIAN PUSH BUTTON DETAILS

Scale: 3"=1'-0"



PEDESTRIAN PUSH BUTTON ON PEDESTAL DETAILS

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



PEDESTRIAN PUSH BUTTON ON TRAFFIC SIGNAL STANDARD

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

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LICENSED PROFESSIONAL ENGINEER
No. 6763-C
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 41 OF 43 SHEETS

ORIGINAL PLAN		DATE
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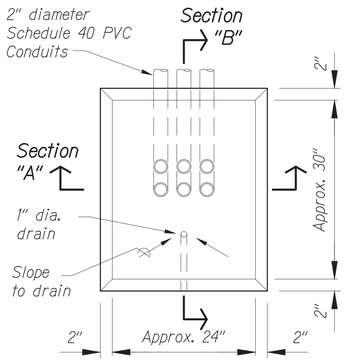
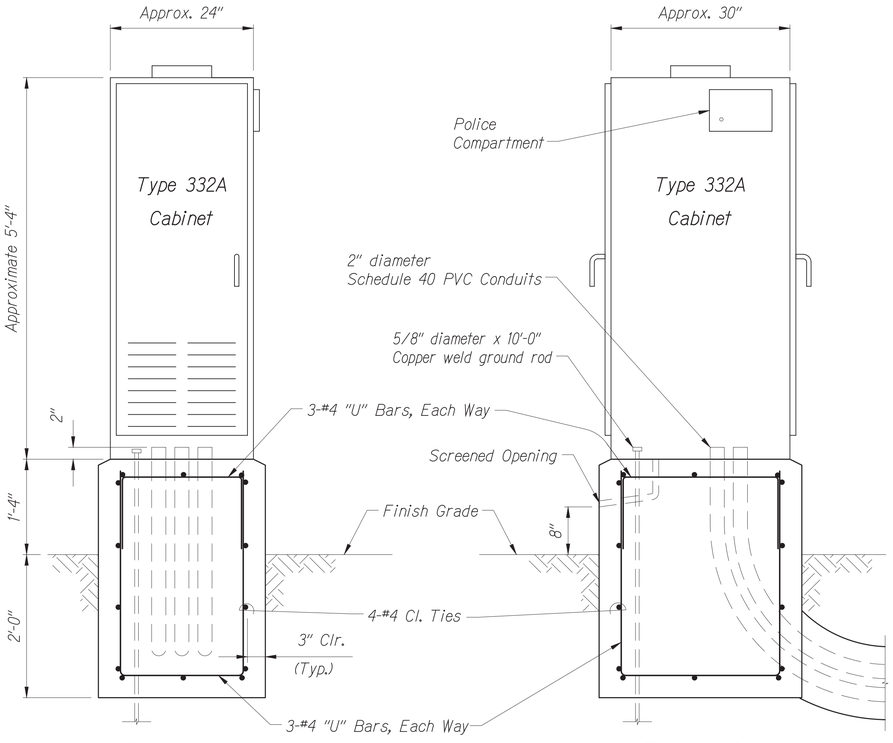
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	109	136



PLAN

Notes:

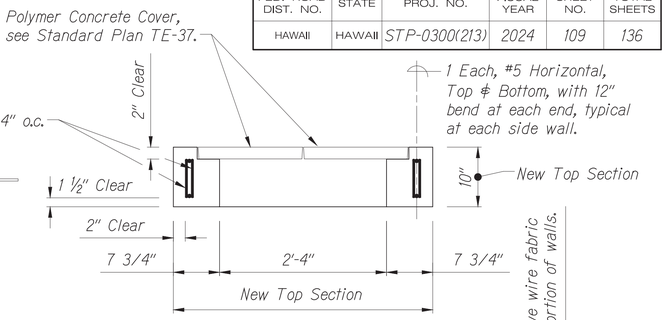
1. Concrete shall be Class "B".
2. Dimensions shall be altered to suit controller cabinet actually furnished.
3. Conduits, bends, and drain are incidental to concrete base.
4. Refer to cabinet manufacturer's specifications for details of anchor bolts and base settings.
5. All exposed surfaces of concrete base shall be given a Class 2, rubbed finish.
6. All conduits shall be PVC.
7. The Contractor shall provide a switch/jack and 15-foot switch cord assembly for each Police Compartment. The cost shall not be paid for separately, but shall be considered incidental to the controller.



Section A-A Section B-B

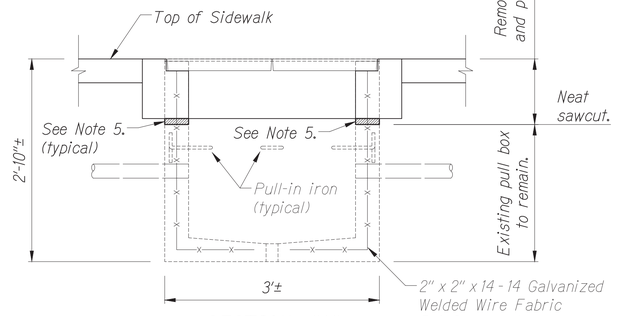
CONTROLLER CABINET & FOUNDATION DETAIL

No Scale

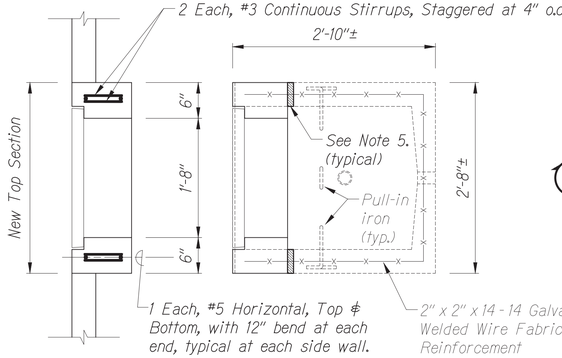


Notes:

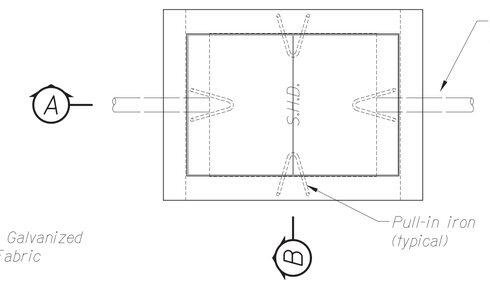
1. Unless otherwise noted, see General Notes on Standard Plan TE-37.
2. Concrete cover over reinforcing steel: 1 ½" minimum UON.
3. All precast concrete 5,000 psi at 28 days with ¾" maximum aggregate size.
4. All reinforcing steel: ASTM A615, Grade 60.
5. High-strength 4,000 psi mortar, 1" minimum thickness, at joint between existing walls and new top section.



SECTION "A"



SECTION "B"



PLAN

(Pull Box #35 & #36 & #37)

ADJUST TOP TO FINISH GRADE DETAIL

Scale: 1" = 1'

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No. 6763-C
HAWAII, U.S.A.

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) Date

Chief, Traffic Signal & Technology Division, DTS Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 42 OF 43 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	DESIGNED BY	
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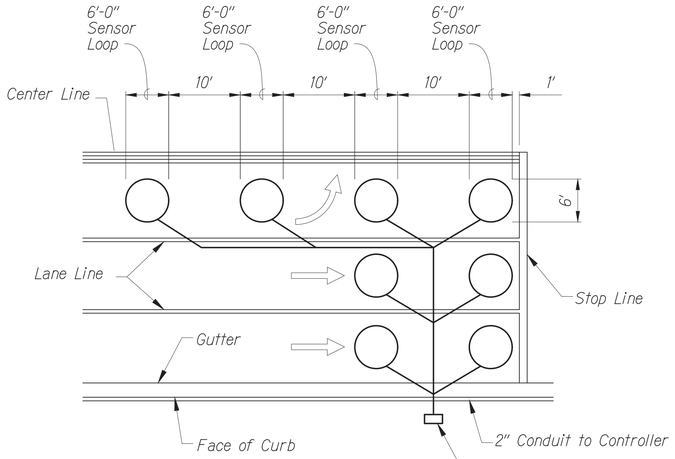
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	110	136

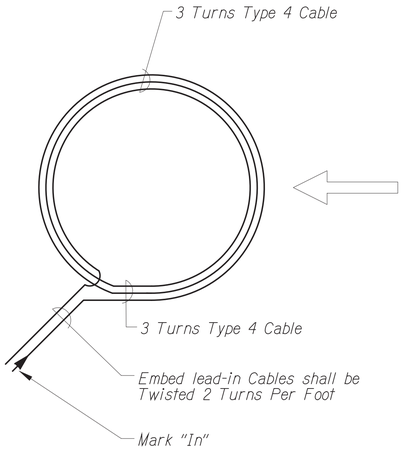


Notes:

1. Center sensor loops in lanes.
2. Collector cables shall be twisted 2 turns per foot.
3. Number of loops and location vary, see project plans.
4. Number and locations of collector sawcuts may be varied in the field to suit.

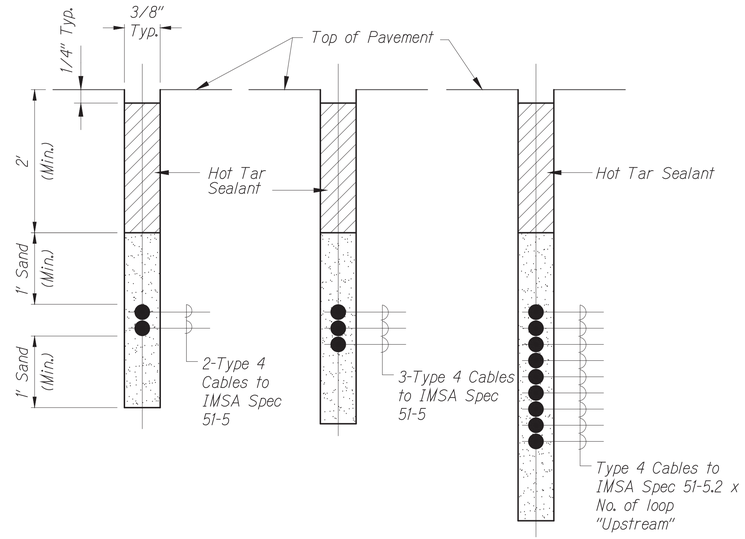
TYPICAL SENSOR LOOP LAYOUT

No Scale



TYPICAL SENSOR LOOP WIRING DIAGRAM

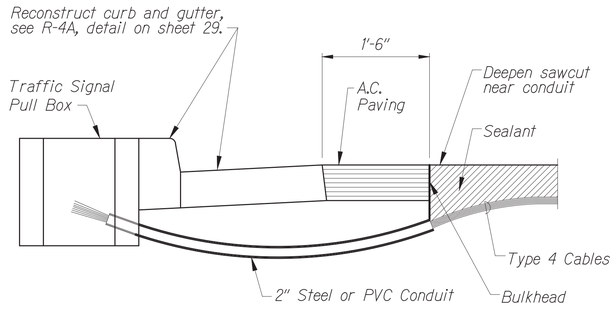
No Scale



Section A Section B Section C

TYPICAL SECTION THROUGH SENSOR LOOP

No Scale

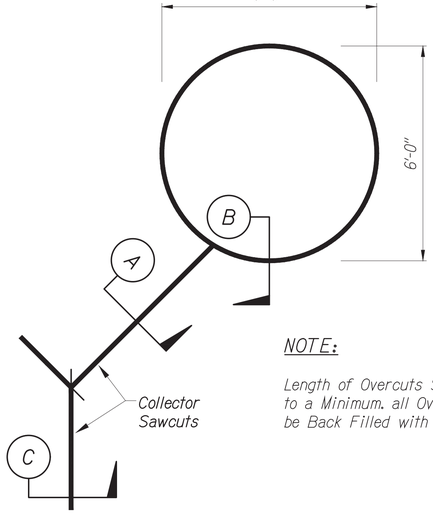


Notes on Construction at End of Sawcut

1. Seal roadway end of conduit after installation of conductors.
2. Install bulkhead across conduit trench.
3. Place hot tar or approved sealant in sawcut.
4. Backfill over conduit with new asphalt concrete.
5. Reconstruct curb and gutter, as required, see Detail R-4A on sheet 29.

DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY

No Scale



NOTE:

Length of Overcuts Shall be kept to a Minimum. all Overcuts shall be Back Filled with Hot Tar.

TYPICAL SENSOR LOOP SAWCUT DETAIL

No Scale

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 43 OF 43 SHEETS

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FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	111	136

GENERAL NOTES

1. All materials shall conform to the drawings, Hawaii Standard Specifications for Road and Bridge Construction (2005 Edition).

2. The Contractor shall verify the location of all existing underground utility lines and notify the respective owners before commencing with work. See Civil drawings for additional information. Immediately notify the Engineer of any conflicts.

3. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to, bracing, shoring for loads due to construction equipment, winds, seismic, etc.

4. The Contractor shall be solely responsible for all excavation and dewatering procedures including lagging, shoring and protection of streets and utilities, including treatment and discharge of pumped water.

5. The Contractor shall be solely responsible for coordinating the work of all trades and shall check all dimensions. All discrepancies shall be called to the attention of the Engineer and be resolved before proceeding with the work.

6. Shop drawings required by the standard specifications and special provisions shall be submitted to the Engineer for review prior to fabrication or ordering of materials. Shop drawings shall not be reproduction of contract drawings.

7. Notes and details on drawings shall take precedence over General Notes unless stricter requirements are noted in General Notes. Special provisions shall take precedence over Standard Specifications.

8. Except as otherwise noted, all vertical dimensions are measured plumb.

9. Design Criteria for Traffic Signal Pole With Mast Arm Foundation:

   A. Codes:
   AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 1st Edition, 2015 with all subsequent interim revisions

   AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017.

   Design Criteria for Bridges and Structures, January 8, 2018 State of Hawaii Department of Transportation Highways Division, with all subsequent memorandum changes.

   B. Wind:
   Basic Wind Speed = 180 MPH
   Gust Effect Factor = 1.3
   MRI = 1700 Years
   Posted Speed Limit = 25 MPH (Max)

   C. Grout shall not be used under base plates for all Traffic Signal Poles. Pole manufacturer shall design anchor bolts with leveling nuts to transfer all loads from pole structure to concrete foundation.

   D. Soil Design Data For Deep Foundations:
   1. Traffic Signal Pole Foundation Design is based on a geotechnical investigation report by Geolabs, Inc. "Traffic Signal Modernization Project H-1 Exit 26A and Koko Head Avenue Intersection, Honolulu, Oahu Hawaii", dated December 19, 2023.

      a. Anticipated subsurface soil condition at site consists of near surface fills over clayey residual and saprolitic soils.

      b. Bottom of foundations assumed to occur above groundwater table.

   2. Assumed cohesionless soil angle of internal friction = 35°

CONCRETE

1. Schedule of Structural Concrete 28-Day strength and water cement ratio:

   Drilled Shafts and Pile Caps = 5,500 psi (W/C = 0.40)

   Maximum Nominal Size of Coarse Aggregate = 3/4"

2. Concrete mix design shall be submitted to the Engineer for review.

3. Minimum clear cover of concrete over outer reinforcing bars or ties shall be as follows, unless otherwise noted. See Standard Specification Table 602.03-2 for additional information.

   Pile Caps and Drilled Shafts = 3"
   Concrete cast directly against Earth = 3"
   All other concrete = 2"

4. Concrete admixtures containing chloride salts shall not be used.

5. All roughened surfaces in concrete shall be made with a minimum amplitude of 1/4".

6. Unless otherwise noted on drawings, all exterior corners and re-entrant angles 90 degrees or less in concrete work shall be chamfered 3/4"x3/4".

REINFORCING STEEL

1. Reinforcing steel bars shall be AASHTO M31 (ASTM A615) Grade 60, unless otherwise noted. Dimensions refer to the centerline of reinforcing steel unless otherwise noted on the plans. All reinforcing shall be incidental to concrete.

2. Reinforcing steel bars shall be uncoated, unless otherwise noted.

3. Splices in reinforcing steel shall not be permitted.

4. All reinforcing steel bars, anchor bolts, dowels and other embedded items shall be securely tied in place before concrete pour.

5. All reinforcing steel bar bends shall be made cold.

6. Welding of reinforcing steel shall not be permitted.

INSPECTION REQUIREMENTS

1. All special inspections shall be done per 2018 international building code special inspection provisions of section 1704 of the 2018 international building code governing portions of structural work shown in the structural drawings.

2. Special inspection does not relieve the general contractor of his resposibilities to complete the project in accordance with the plans and specifications and to provide safety on the job site.

3. Owner shall hire and pay for special inspection services. Contractor shall hire and pay for third party testing services.

4. The work items that will require inspection by the special inspector shall be, but not be limited to, the following items:

   A. Reinforcing steel
   B. Concrete
   C. Anchor bolts

   Contractor shall notify the engineer at least 72 hours prior to the above inspections.

ABBREVIATIONS

CL	Centerline	Manuf	Manufacturer
Clr	Clear	Max	Maximum
Conc	Concrete	Min	Minimum
Const	Construction	MPH	Miles Per Hour
Cont	Continuous	O.C.	On Center
Dia	Diameter	Pl	Plate
Dwgs	Drawings	Reinf	Reinforcing
Ea	Each	Sht	Sheet
Elec	Electrical	Sq	Square
EQ	Equal	Stl	Steel
E.W.	Each Way	TS	Traffic Signal
Ft	Foot/Feet	Typ	Typical
Galv	Galvanized	UON	Unless Otherwise Noted
Horiz	Horizontal	Vert	Vertical
Jt	Joint	W/	With

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HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

H-1 Exit 26A & Koko Head Avenue

Traffic Signal Modernization, Oahu,-Phase 2
Federal-Aid Project No. STP-0300 (213)
Scale: As Shown Date: JULY 2024
SHEET No. S-1 OF SHEETS

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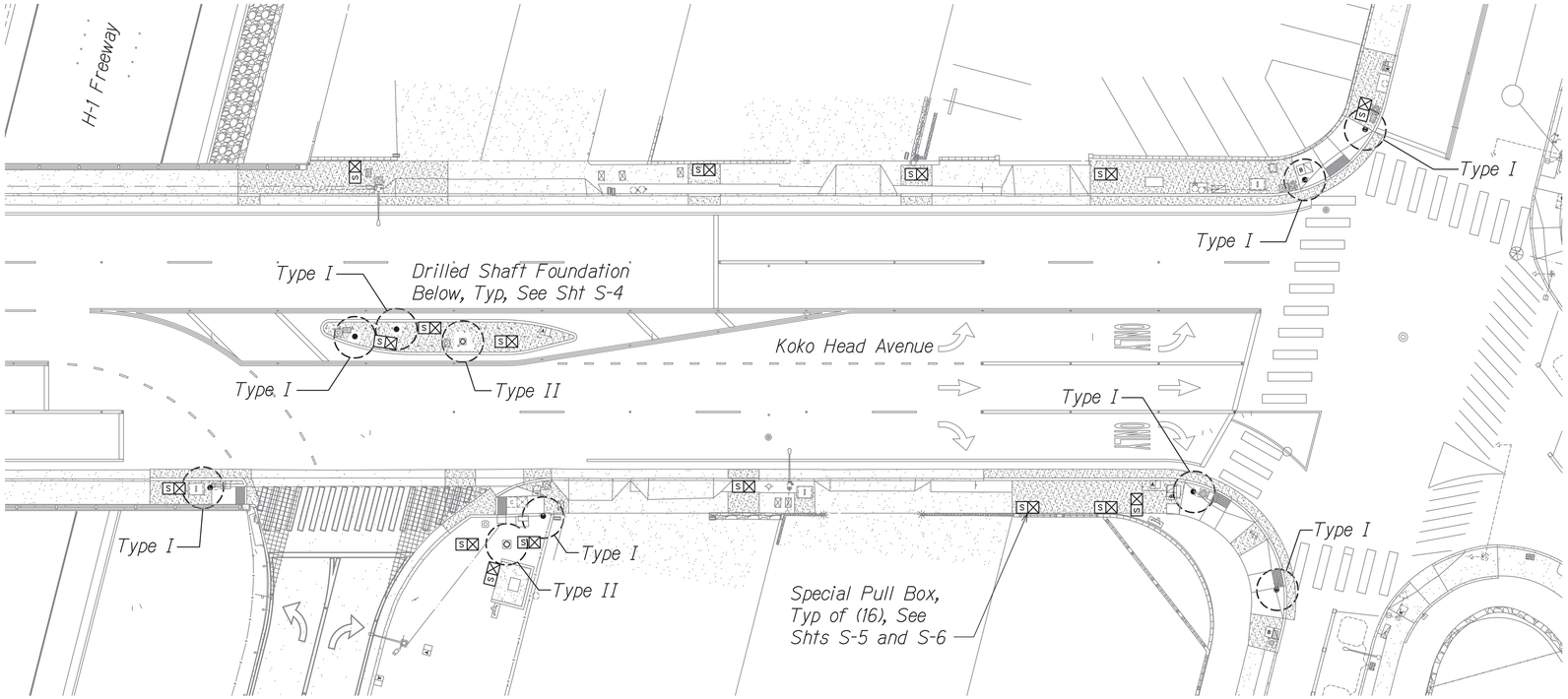
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	112	136



Legend

S Special Pull Box

KEY PLAN
Not To Scale

NORTH

TRAFFIC SIGNAL POLE FOUNDATION

1. Anchor bolts designed by pole manufacturer shall be ASTM F1554, refer to pole manufacturer's shop drawings for number, grade and diameter. Provide a top hex nut, bottom leveling nut, and 2 hardened flat washers for each bolt at base plate. Bolts, nuts, and washers shall be hot dip galvanized after fabrication.
2. Anchor bolt embedment length shall be determined by pole manufacturer. Contractor shall coordinate this with their pole manufacturer.
3. Contractor shall use rigid templates to install anchor bolts (see Special Provisions). Anchor bolts shall be vertical.
4. 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.
5. Excavation and backfill shall be considered incidental to the cost of the traffic signal foundation. If sides of pile cap are formed, backfill material around pile cap shall be granular fill compacted to 95% compaction (see specs Section 204).
6. Provide 2x2 galvanized steel mesh with 0.063" diameter wires.

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TRAFFIC SIGNAL POLE FOUNDATION NOTES

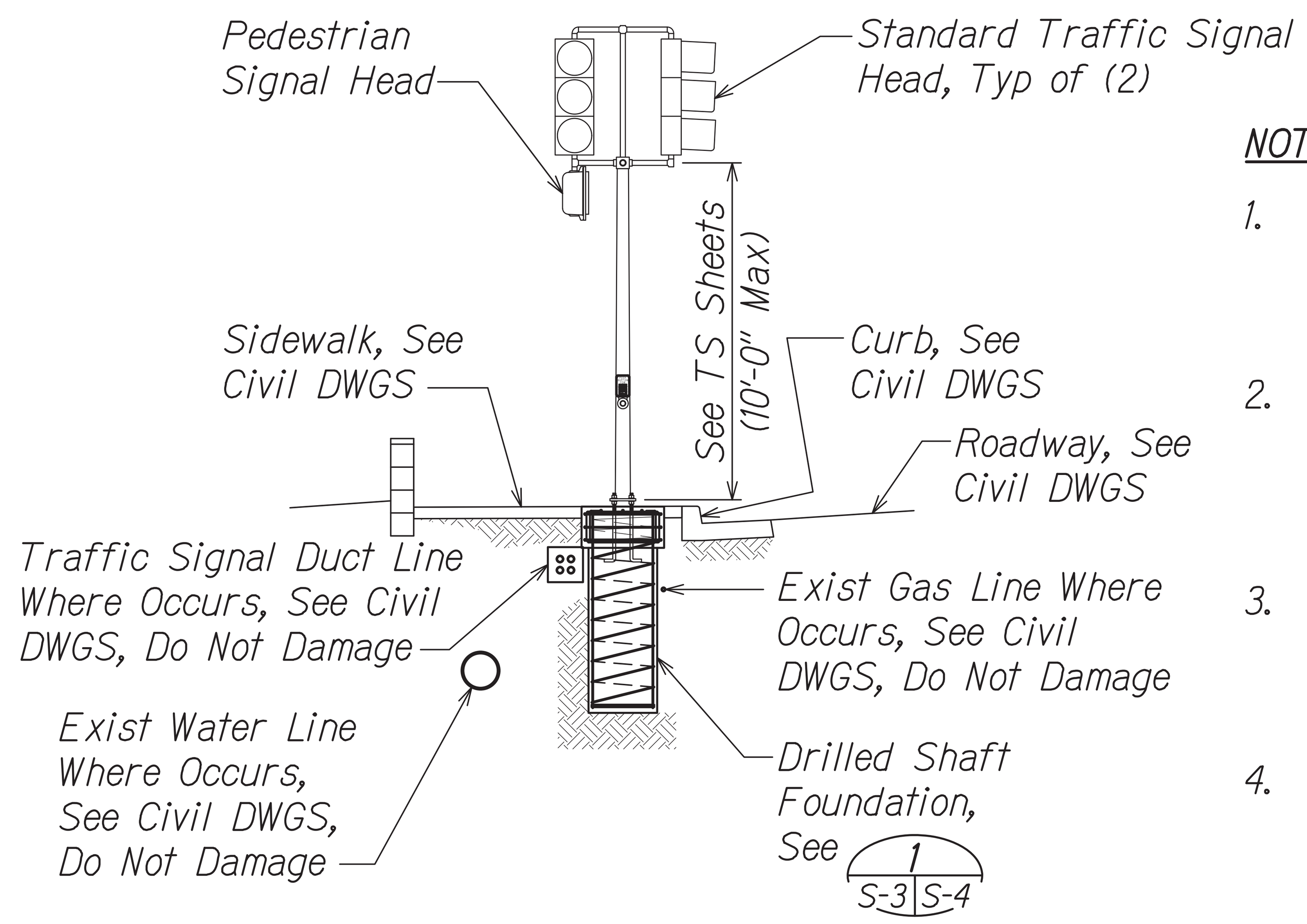
H-1 Exit 26A & Koko Head Avenue

Traffic Signal Modernization, Oahu,-Phase 2
Federal-Aid Project No. STP-0300 (213)

Scale: As Shown Date: JULY 2024

SHEET No. S-2 OF SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	113	136

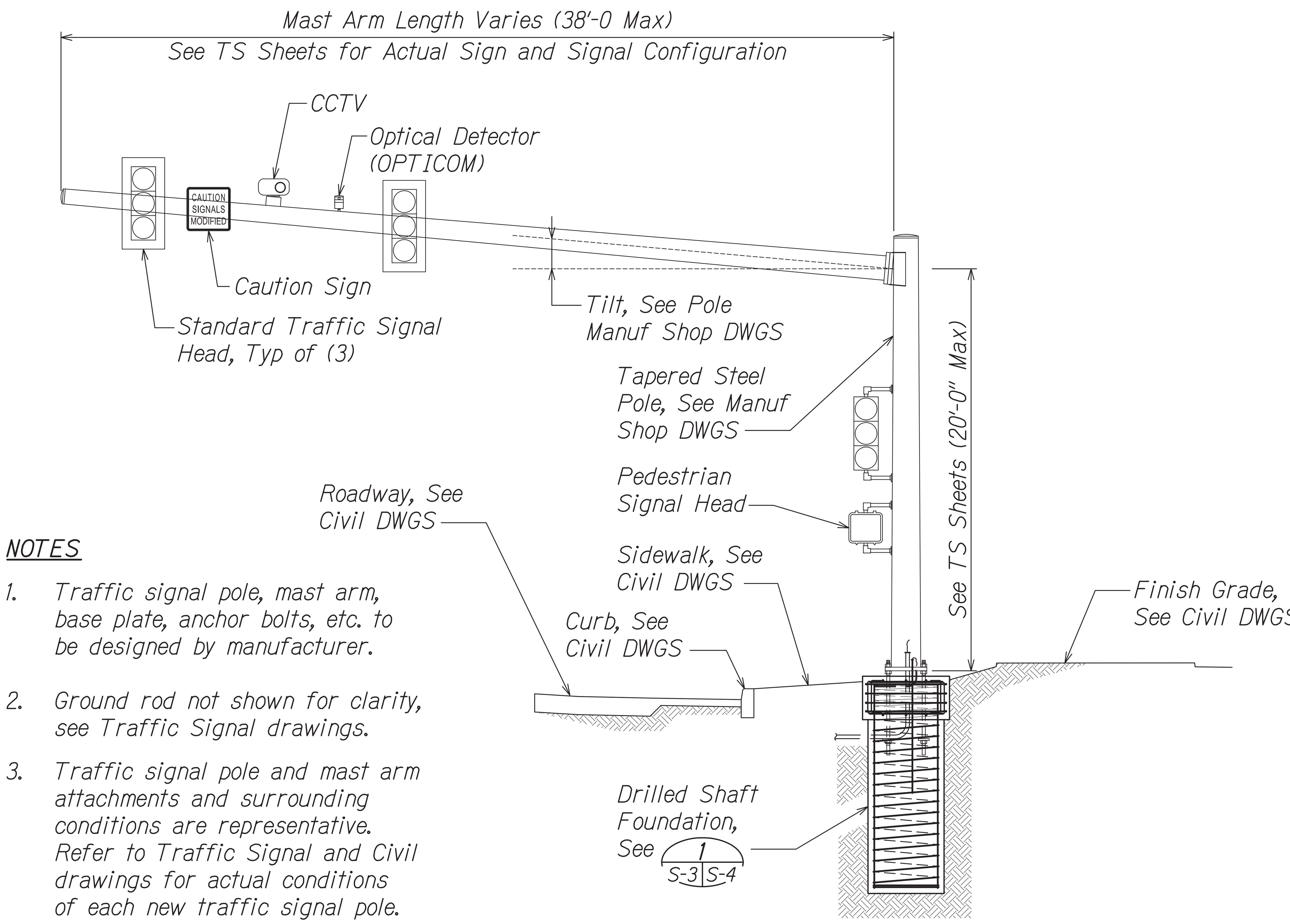


NOTES

1. Refer to general notes on sheet S-1 and S-2 for additional information.
2. Refer to traffic signal drawings for dimensions, locations poles and existing information not shown on structural drawings.
3. Refer to electrical drawings for locations of all pipes, conduits, equipment, etc
4. Contractor shall field verify all existing dimensions and any discrepancies shall be brought to the attention of the Contracting Officer prior to fabrication.

1 S-3 | S-3 TYPE I - TRAFFIC SIGNAL POLE

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



NOTES

1. Traffic signal pole, mast arm, base plate, anchor bolts, etc. to be designed by manufacturer.
2. Ground rod not shown for clarity, see Traffic Signal drawings.
3. Traffic signal pole and mast arm attachments and surrounding conditions are representative. Refer to Traffic Signal and Civil drawings for actual conditions of each new traffic signal pole.

2 S-3 | S-3 TYPE II - TRAFFIC SIGNAL POLE WITH MAST ARM

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

Graphic Scale:

0 1' 2' 4' 8' 12'
1/4"=1'-0"

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TRAFFIC SIGNAL POLE DETAIL

H-1 Exit 26A & Koko Head Avenue

Traffic Signal Modernization, Oahu,-Phase 2
Federal-Aid Project No. STP-0300 (213)

Scale: As Shown   Date: JULY 2024

SHEET No. S-3 OF SHEETS

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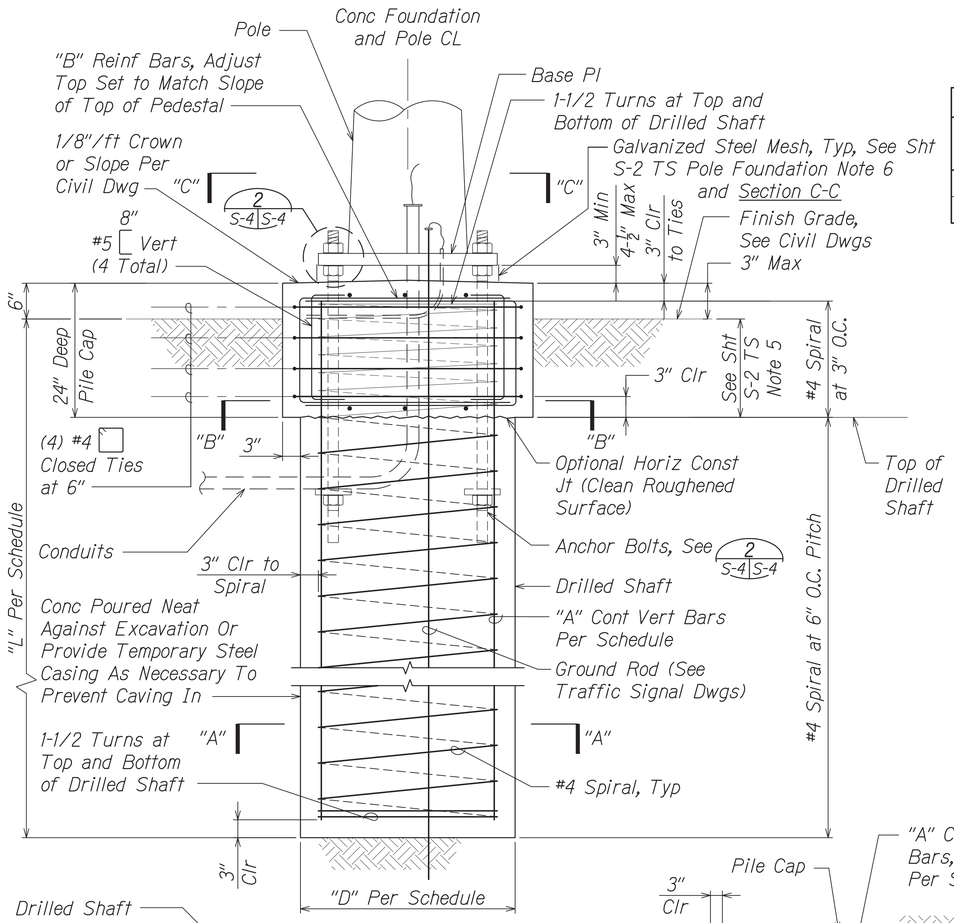
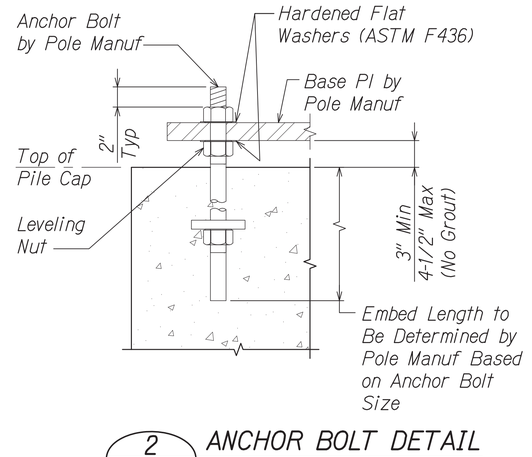
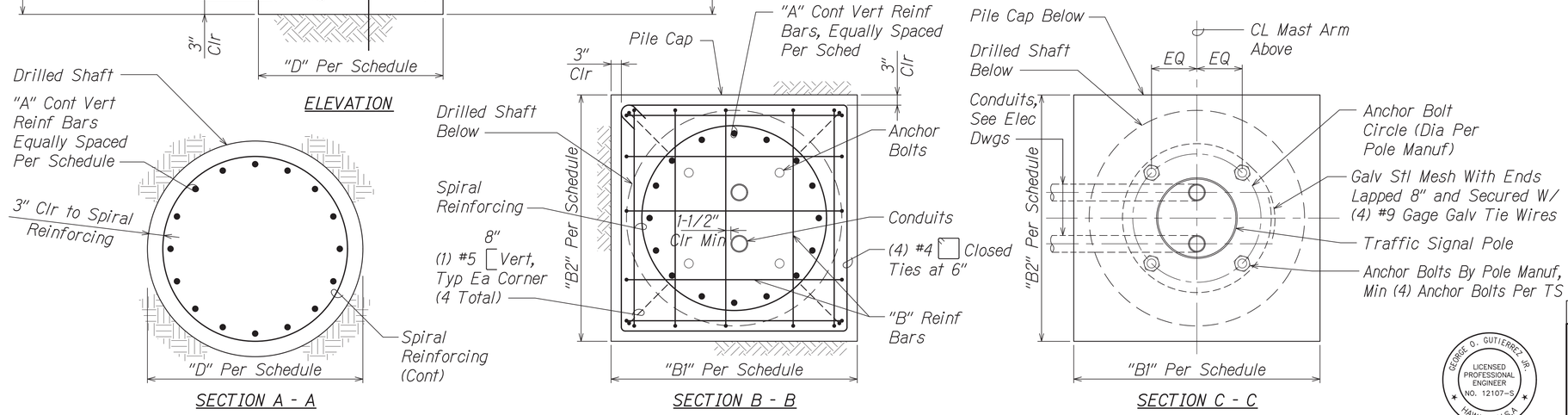


DRILLED SHAFT FOUNDATION TABLE						
TYPE	DRILLED SHAFT DIMENSIONS		PILE CAP DIMENSIONS		DRILLED SHAFT REINF	
	LENGTH "L"	DIAMETER "D"	WIDTH 1 "B1"	WIDTH 2 "B2"	"A" BARS	"B" BARS
I	8'-0"	2'-0"	2'-6"	2'-6"	(6) #8	(3) SETS #5 ▭ E.W.
II	12'-0"	3'-6"	4'-0"	4'-0"	(14) #8	(5) SETS #5 ▭ E.W.



2 S-4 S-4 ANCHOR BOLT DETAIL
Not To Scale



1 S-3 S-4 DETAIL - TYPICAL DRILLED SHAFT FOUNDATION FOR TRAFFIC SIGNAL POLE
Not To Scale

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HIGHWAYS DIVISION

FOUNDATION DETAILS

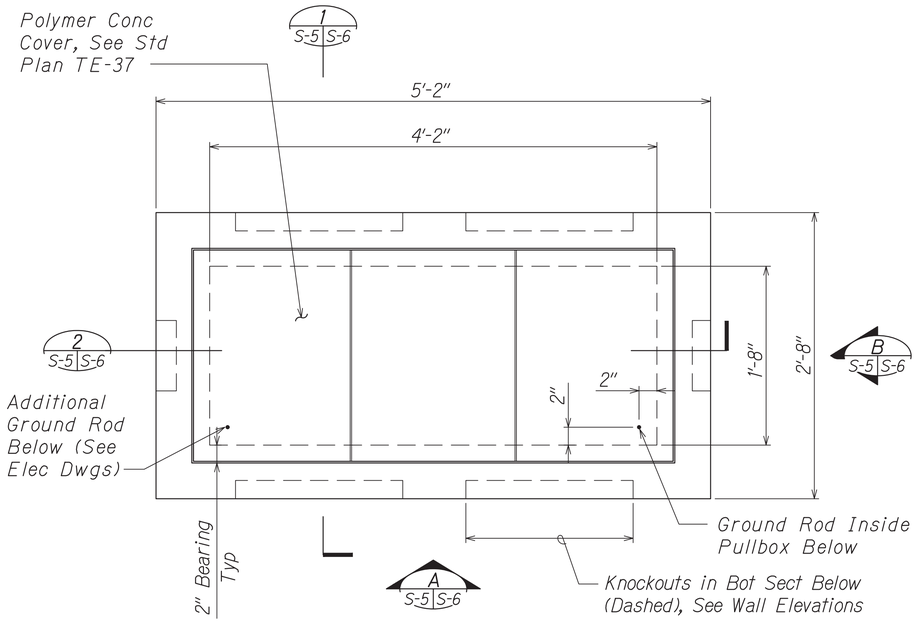
H-1 Exit 26A & Koko Head Avenue

Traffic Signal Modernization, Oahu,-Phase 2
Federal-Aid Project No. STP-0300 (213)

Scale: As Shown Date: JULY 2024

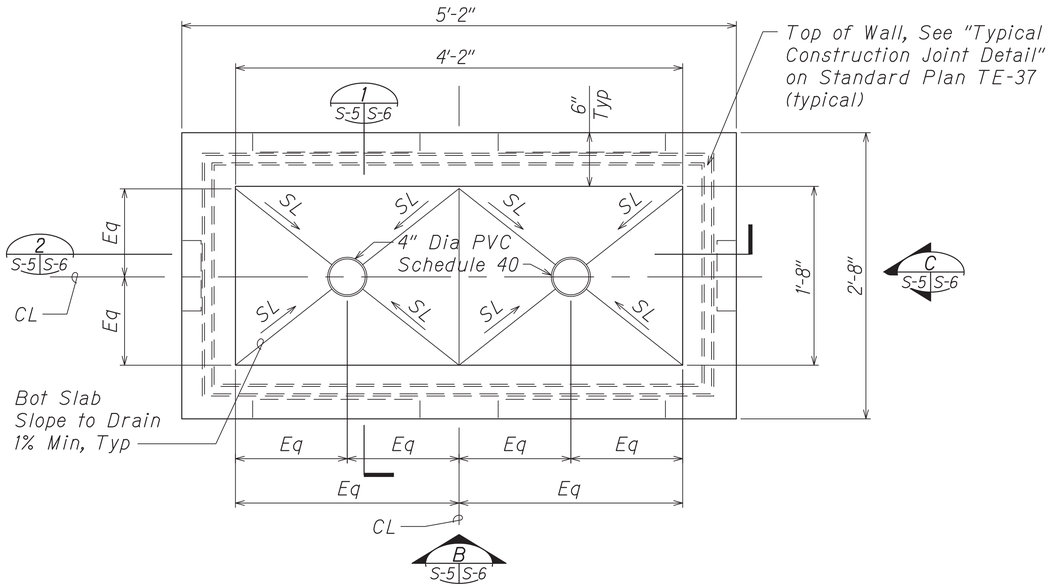
SHEET No. S-4 OF SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	115	136



A S-2 S-5 **PLAN - SPECIAL TRAFFIC SIGNAL PULLBOX (TOP SECTION)**

SCALE: 1-1/2" = 1'-0"



B S-2 S-5 **PLAN - SPECIAL PULLBOX BOTTOM SECTION**

SCALE: 1-1/2" = 1'-0"

Notes:

1. Unless otherwise noted, see General Notes on Standard Plan TE-37, State of Hawaii Department of Transportation Highways Division.
2. Concrete cover over reinforcing steel: 1-1/2" (min), UON.
3. Design Live Load: Pullbox located in raised sidewalks: 16,000 lbs concentrated load.
4. Design soil bearing pressure: 1,500 psf (allowable)
5. All precast concrete 5,000 psi at 28 days with 3/4" max aggregate.
6. All reinforcing steel: ASTM A615, Grade 60.
7. For dimensions not shown, see sheet S-6.
8. For Installation of ground rods, refer to Elec Dwgs.

Graphic Scale:

0 3" 6" 1' 2'

1-1/2"=1'-0"

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HIGHWAYS DIVISION

TS PULLBOX DETAILS

H-1 Exit 26A & Koko Head Avenue

Traffic Signal Modernization, Oahu,-Phase 2
Federal-Aid Project No. STP-0300 (213)

Scale: As Shown Date: JULY 2024

SHEET No. S-5 OF SHEETS

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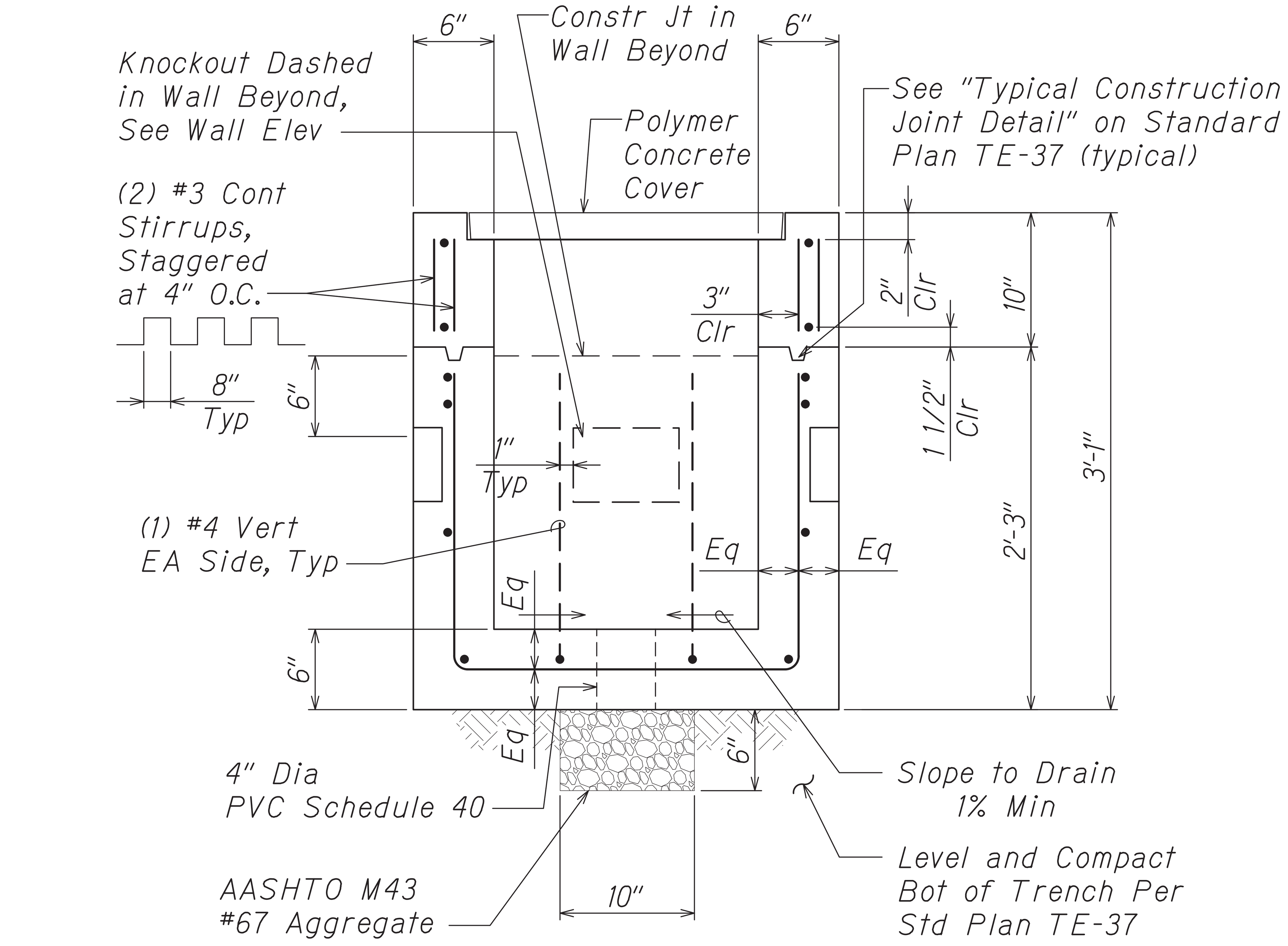
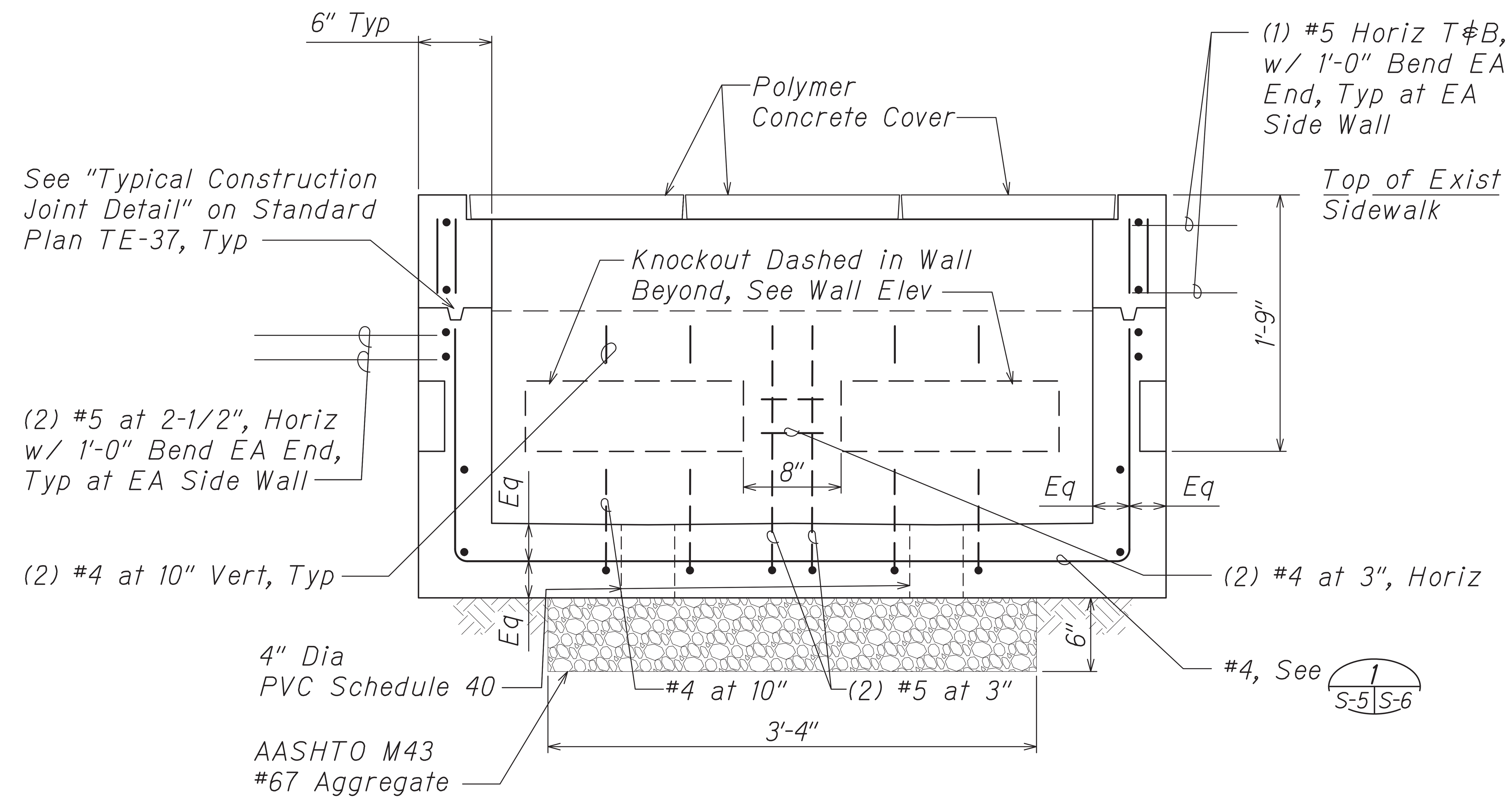


1 SECTION (S-5 | S-6)

SCALE: 1-1/2" = 1'-0"

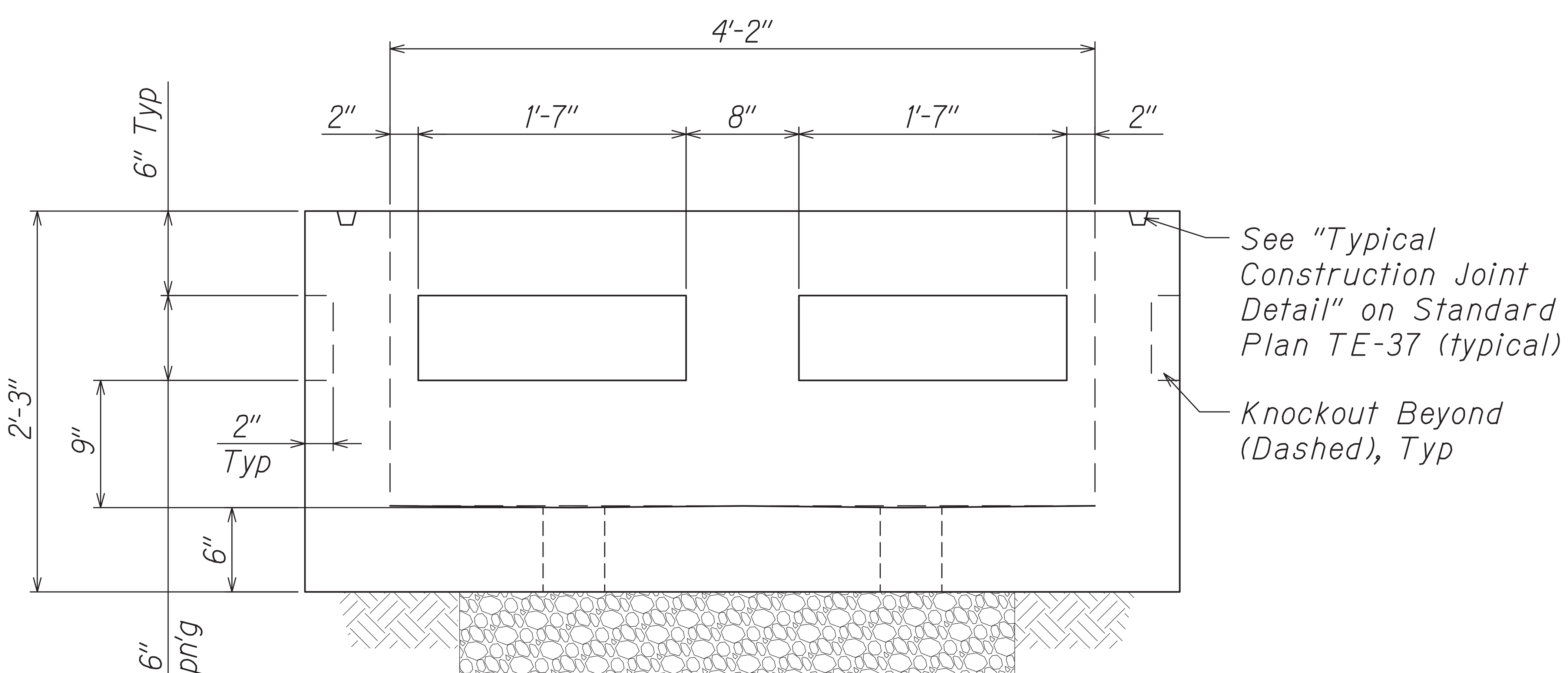


2 SECTION (S-5 | S-6)

SCALE: 1-1/2" = 1'-0"

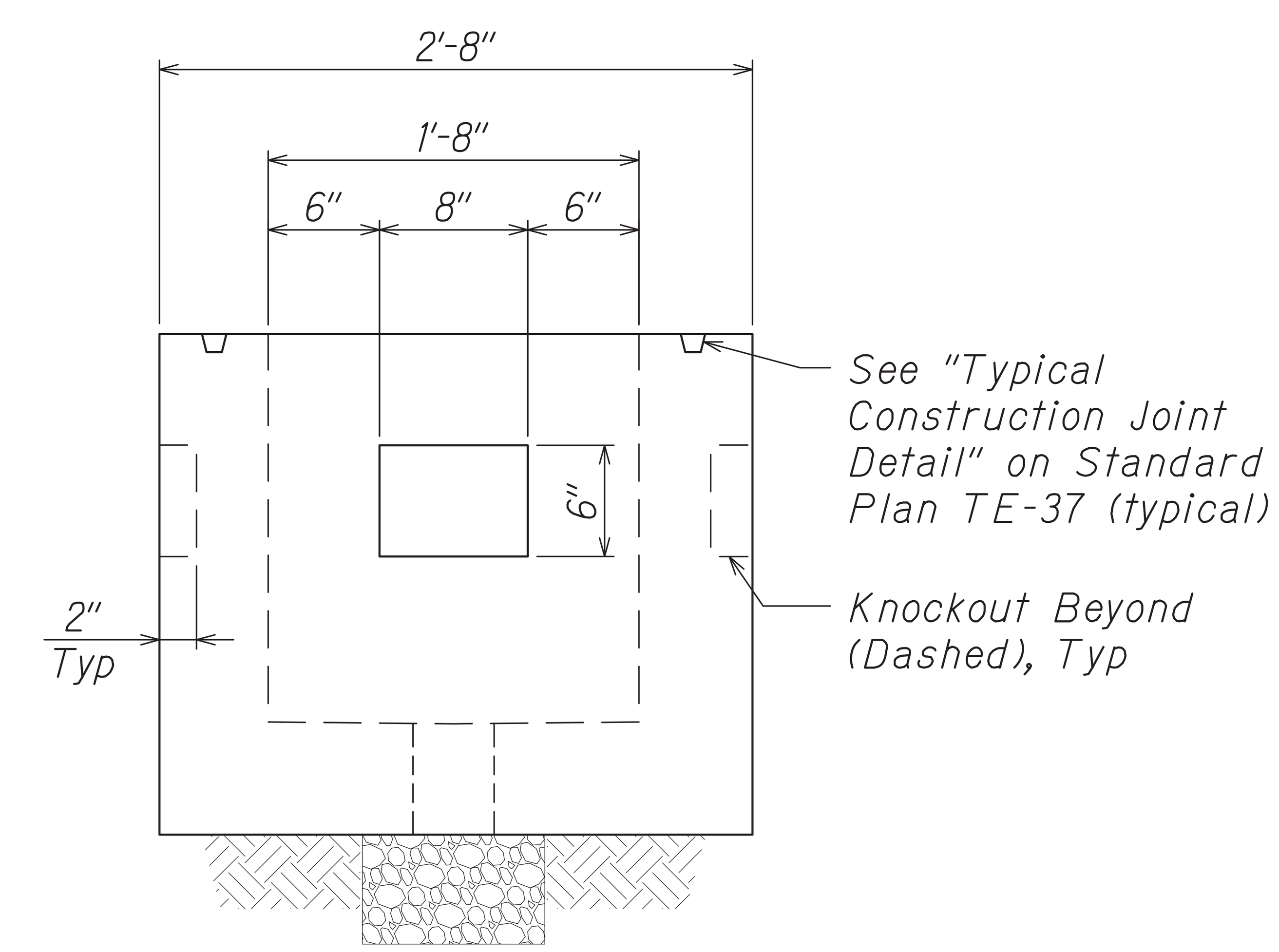
Notes:

1. For info not shown, see sheet S-5.



A ELEVATION - BOTH LONG SIDES (BOTTOM SECTION) (S-5 | S-6)

SCALE: 1-1/2" = 1'-0"



B ELEVATION - BOTH SHORT SIDES (BOTTOM SECTION) (S-5 | S-6)

SCALE: 1-1/2" = 1'-0"

Graphic Scale:

0 3" 6" 1' 2'
1-1/2"=1'-0"

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TS PULLBOX DETAILS

H-1 Exit 26A & Koko Head Avenue

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NOTE BOOK | No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	117	136

GENERAL CONSTRUCTION NOTES

1. Contractor Shall Coordinate All Work With Heco.

2. Provide Polyolefin 200lb Test Pullcord In All Empty Conduits, Unless Otherwise Noted.

3. All Electrical Equipment Enclosures And Equipment Mounting Hardware For Outdoor Installation Shall Be Type 316 Stainless Steel, Unless Otherwise Noted.

ELECTRICAL SYMBOLS

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

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

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

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-26

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES AND ELECTRICAL SYMBOLS

Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-1 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	118	136

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

1. Location of Hawaiian Electric Facilities

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

2. Compliance with Hawaii Occupational Safety and Health Laws

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

3. Excavation Clearance

The Contractor Shall Obtain an Excavation Clearance from Hawaiian Electric's Planning and Design Section of the Transmission & Distribution Engineering Department (808-543-5654) Located at 820 Ward Avenue, 4th Floor, a Minimum of Ten (10) Working Days Prior to Starting Construction.

4. Caution!!! Electrical Hazard!!!

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

5. Overhead Lines

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

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

Contact Hawaiian Electric's Customer Relations at 808-543-7070 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 that 12 Inches Deep by 12 Inches Wide, and Closer Than 10 Feet From a Utility Pole or its Anchor System, Except When Excavating for Risers in a Single Trench Not Wider Than 12 Inches and Not Deeper Than 3 Feet, Contractor Will Be Responsible for Protecting, Supporting, Securing and Taking All Precautions to Prevent Damage to or Leaning Of Existing Poles. Before Commencing Such Excavation, Contractor Must Notify Hawaiian Electric Which May Lead to Implementing Pole Bracing Requirements. Hawaiian Electric Requires A Minimum of Ten (10) Working Days to Conduct the Review of Contractor's Submittal. Contractor Shall Submit Its Bracing Calculations and Drawings, Prepared and Stamped By A Licensed Structural Engineer, to Hawaiian Electric's Customer Relations (808-543-7070) 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 808-543-7070 a Minimum of Ten (10) Working Days in Advance.

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

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

8. Underground Fuel Pipelines

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

9. Excavations

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

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

10. Relocation of Hawaiian Electric Facilities

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

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

11. Conflicts

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

12. Damage to Hawaiian Electric Facilities

The Contractor Shall Be Responsible for the Protection of All Hawaiian Electric Surface and Subsurface Utilities and Shall Be Responsible for Any Damages to Hawaiian Electric's Facilities as a Result of His Operations. The Contractor Shall Immediately Report Such Damages or Any Hazardous Conditions Related to Hawaiian Electric's Lines to Hawaiian Electric's Trouble Dispatcher at 808-548-7961. 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.

DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only

Req# ________ By ________________ Date ________

Customer Installations Department
Hawaiian Electric

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

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

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

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO UTILITY NOTES I

Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-2 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	119	136

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

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 808-543-7685 (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 808-543-7070 a Minimum of Three (3) Months in Advance to Arrange for Hawaiian Electric Stand-By Personnel.

14. Clearances

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

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

15. Indemnity

The Contractor Shall Indemnify, Defend and Hold Harmless Hawaiian Electric from and Against All Losses, Damages, Claims, and Actions, Including But Not Limited to Reasonable Attorney's Fees and Costs Based Upon or Arising Out of Damage to Property or Injuries to Persons, or Other Tortious Acts Caused or Contributed to by Contractor or Anyone Acting Under its Direction or Control or on its Behalf; Provided Contractor's Indemnity Shall Not Be Applicable to Any Liability Based Upon the Sole Negligence of Hawaiian Electric.

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 808-543-2567 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 808-543-2567 at Least Ten (10) Working Days in Advance.

20. Stakeout

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

21. Ductlines

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

22. Joint Pole Removal

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

23. As-Built Plans

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

DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only

Req# ________ By ______________ Date ________

Customer Installations Department
Hawaiian Electric

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

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

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

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Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO UTILITY NOTES II

Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-3 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	120	136

Guidelines for Minimum Horizontal (parallel) Clearances Between Hawaiian Electric and Other Underground Utilities

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

Notes:

1. Where Space is Available, Parallel Clearance to Other Utilities, or Foreign Structures Other Than Communication or Traffic Signal Shall Be 36"
2. If 36" Clearance Cannot Be Met:
   - If Clearance is Less Than 12", Jacket Sewer Line with Reinforced Concrete (Per HECO's Std. 30-1030) for a Distance of 5' Plus Pipe Diameter.
   - If Clearance is Between 12" and 36", Jacket Sewer Line with Plain Concrete.
3. All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
4. 5 Feet Clear to Water Mains 16" or Larger.
5. For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
6. Clearances Measured from Outer Edges or Diameters of Utilities. Whenever Concrete Jackets are Involved, Clearances Shall Be Total Clear Distance Between the Concrete Jacket and Utility Concerned.

Guidelines for Minimum Vertical (Crossing) Clearances Hawaiian Electric and Other Underground Utilities

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

Notes:

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

DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only

Req# ________ By ________________ Date ________

Customer Installations Department
Hawaiian Electric

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Electrical Engineers

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Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO UTILITY NOTES III

Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-4 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	121	136

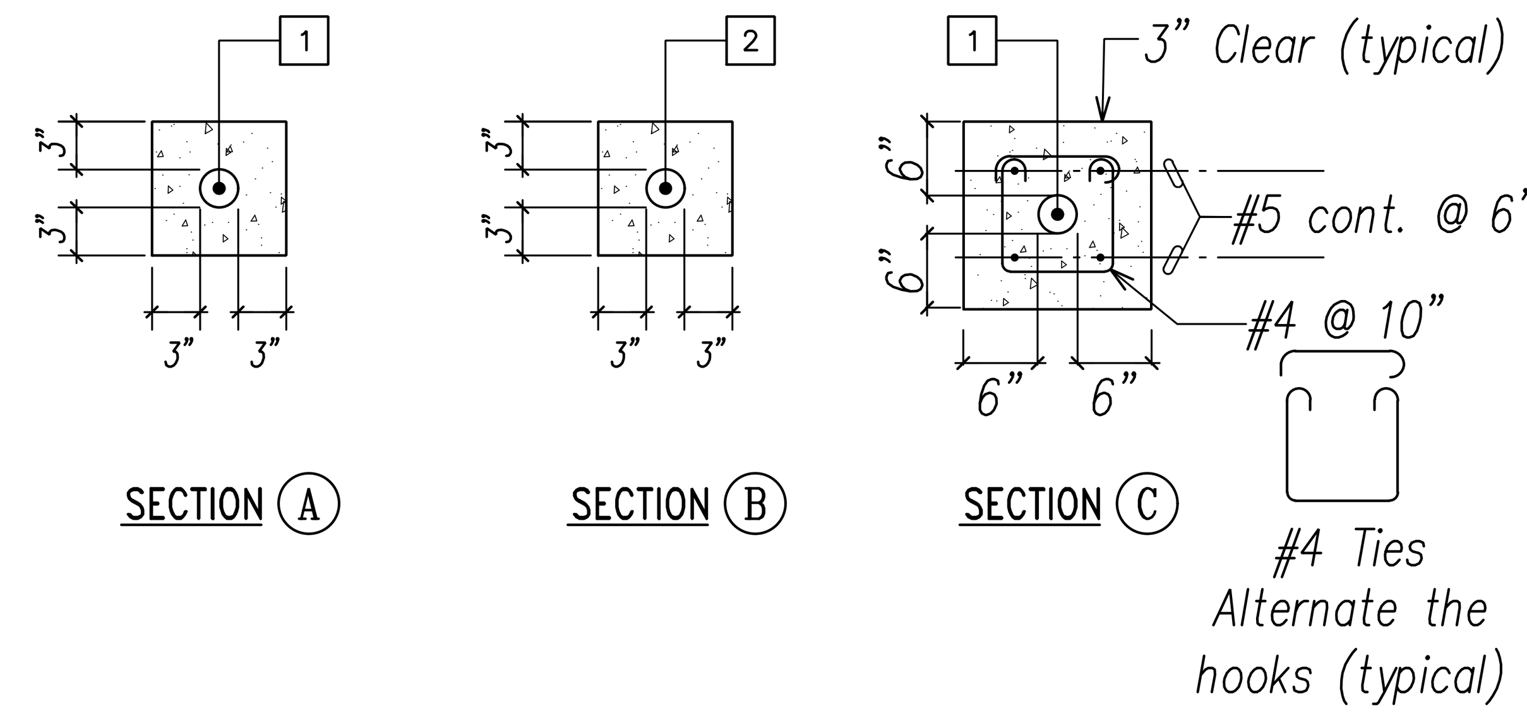
DUCT SECTION BACKFILL NOTES:

Type "A" Backfill – Earth & Gravel. Rock Size To Be 1" Max. & The Mixture To Contain Not More Than 50% By Volume Of Rock Particles. 95% Compaction.

Type "B" Backfill – Earth & Gravel. Mixture Must Pass A 1/2" Mesh Screen & Contain Not More Than 20% By Volume Of Rock Particles. 95% Compaction.

Note – If Normal Material At Bottom Of Trench Is Not Type "B", An Additional 3" Shall Be Excavated & Type "b" Backfill Provided.

Concrete – 3" Encasement, 3000 Psi Compressive Strength @ 28 Days.



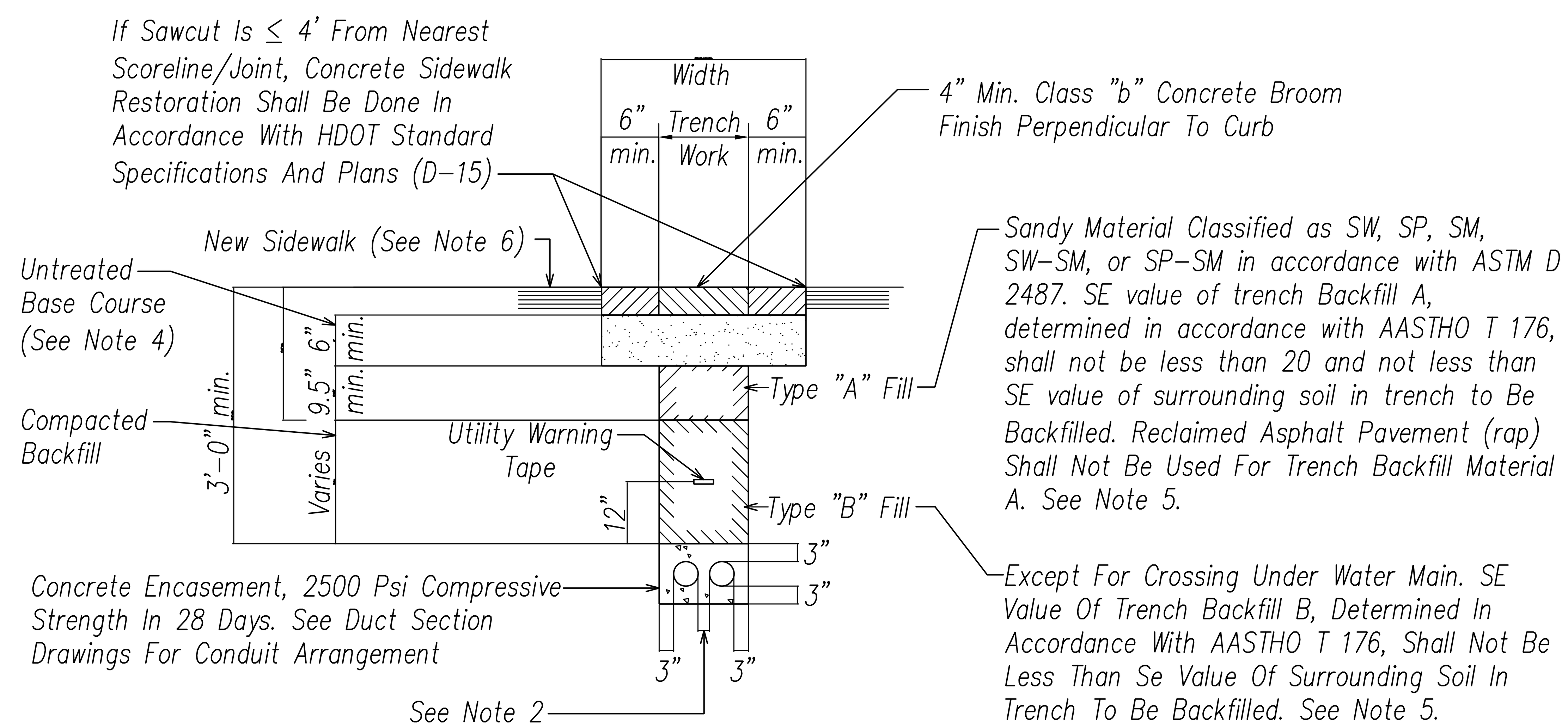
Duct And Wire Schedule

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

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

Duct Section Details And Requirements

NOT TO SCALE



Typical Concrete And Backfill Restoration Detail

Notes:

1. Electrical and communication ducts similar.
2. Provide 2" Separation between ducts of same system and 3" between ducts of
3. different systems. Provide 6" separation between HECO ducts and other systems.

   See Duct Section Details for conduit arrangement.
4. Compact to 95% relative compaction.
5. Compact to 90% Relative Compaction.
6. Duct Section Will Also Cross Under Existing Asphalt Concrete Pavement. For Pavement Restoration Details, See Civil Drawings Sheet 45.

Designation Descriptions

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

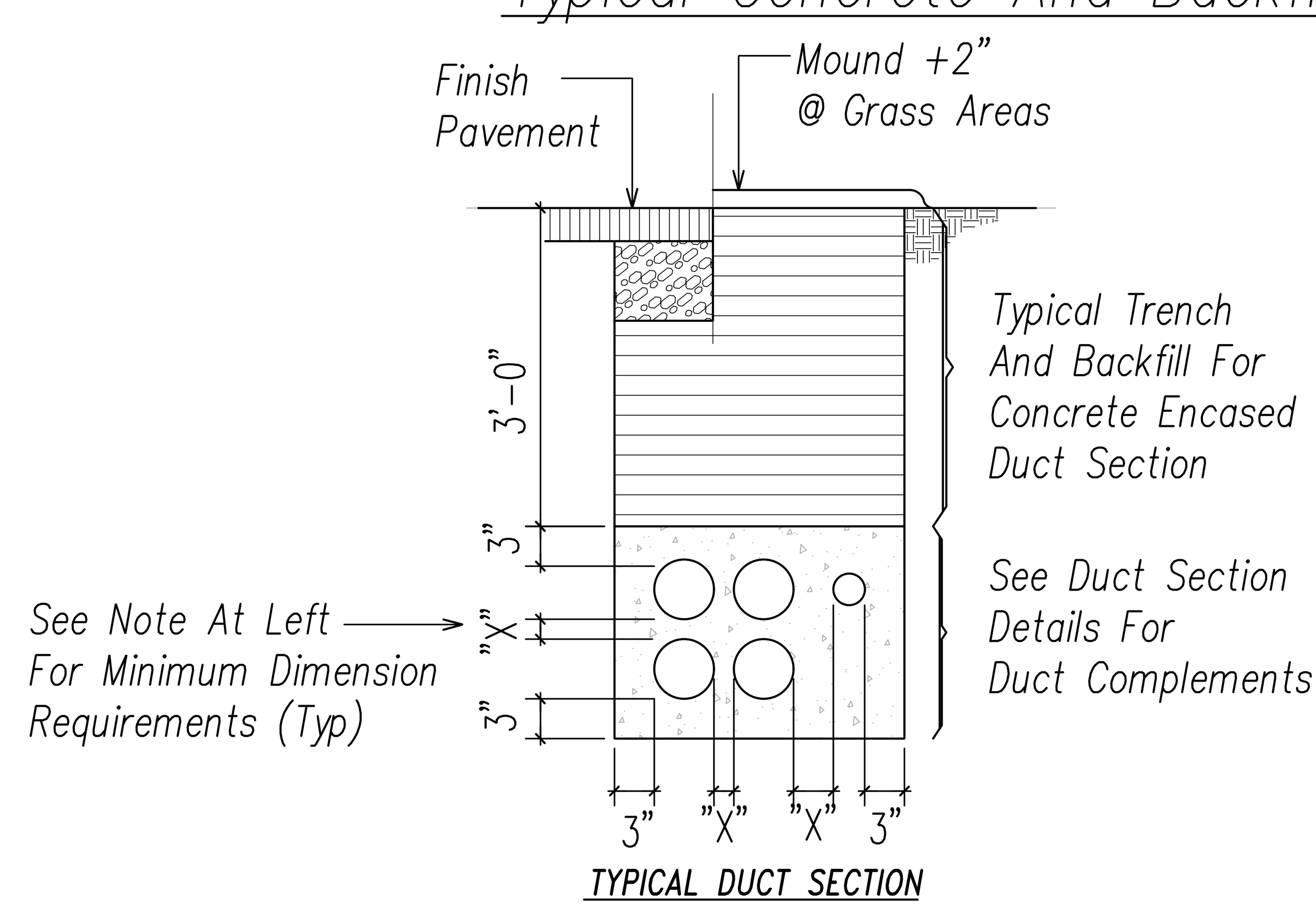
Minimum "x" Dimension
Duct Separation Requirements

Elec – Elec = 1 1/2"
Elec – Tel = 3"
Tel – Tel = 1 1/2"
Elec – Ctl/sig = 3"
Tel – Ctl/sig = 1 1/2"
Pwr – Ctl/sig = 3"
Elec – Pwr = 1 1/2"
Tel – Pwr = 3"
Pwr – Pwr = 1 1/2"
Ctl/sig – Ctl/sig = 1 1/2"

Minimum Of 3" Concrete Encasement Around Ductbank

Where Electrical Ductline Crosses Water Lines, Provide The Following:

1. 12" Minimum Separation Between Ductlines And Water Line.
2. Where Duct Lines Cross Under Water Mains, CLSM Shall Be Installed Around Water Main. See Water Note 36 on Sheet 14



TYPICAL DUCT SECTION

APPROVED BY

CHIEF, CIVIL ENGINEERING BRANCH DEPT. OF PLANNING & PERMITTING CITY & COUNTY OF HONOLULU (For work in City ROW only) DATE

MANAGER AND CHIEF ENGINEER BOARD OF WATER SUPPLY DATE

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

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

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Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT SECTION DETAILS AND REQUIREMENTS

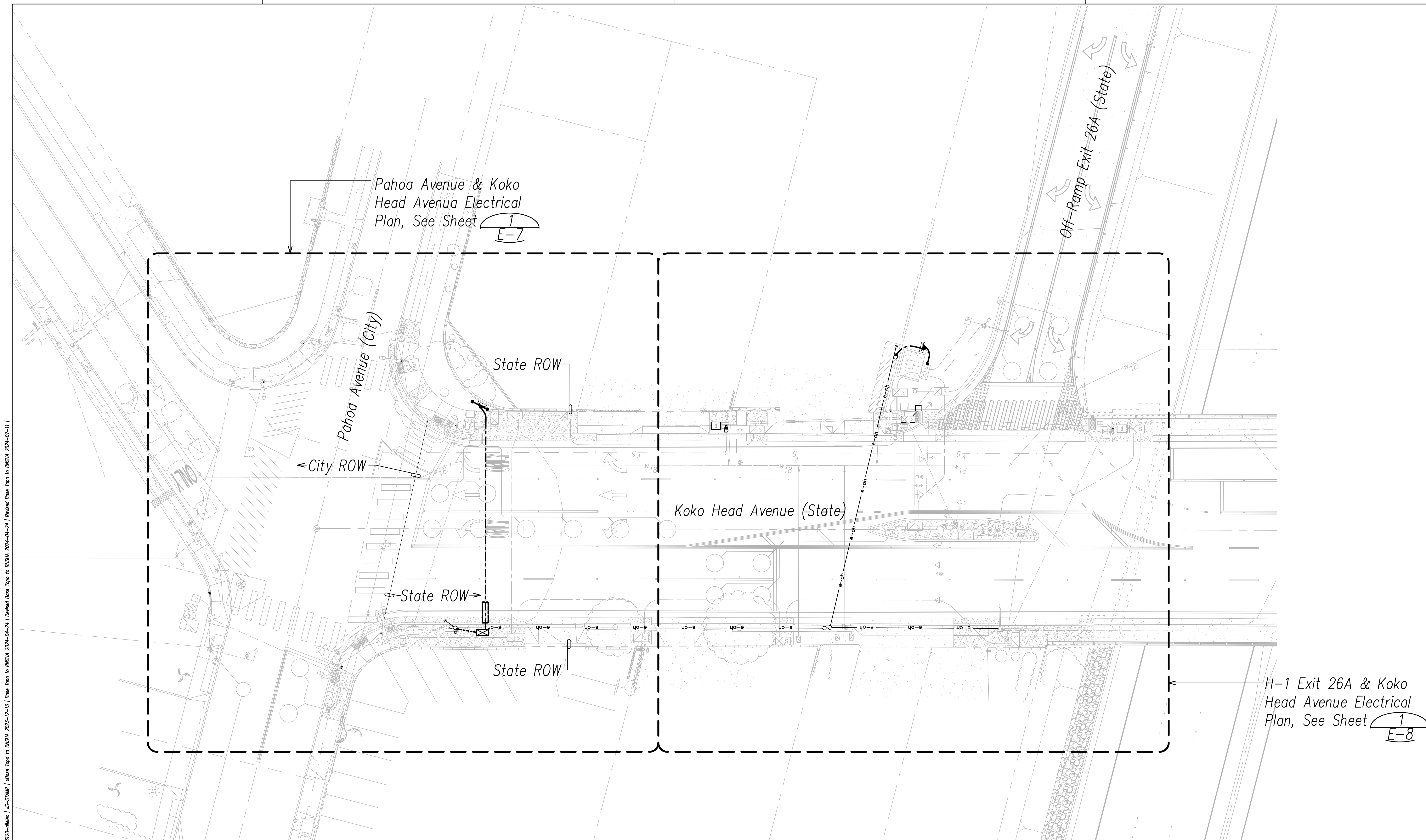
Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-5 OF 10 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	122	136



KOKO HEAD AVENUE OVERALL ELECTRICAL SITE PLAN

SCALE: 1"=20'

NORTH

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

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

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

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Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

OVERALL ELECTRICAL SITE PLAN
KOKO HEAD AVENUE

Traffic Signal Modernization, Oahu - Phase 2

Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-6 OF 10 SHEETS

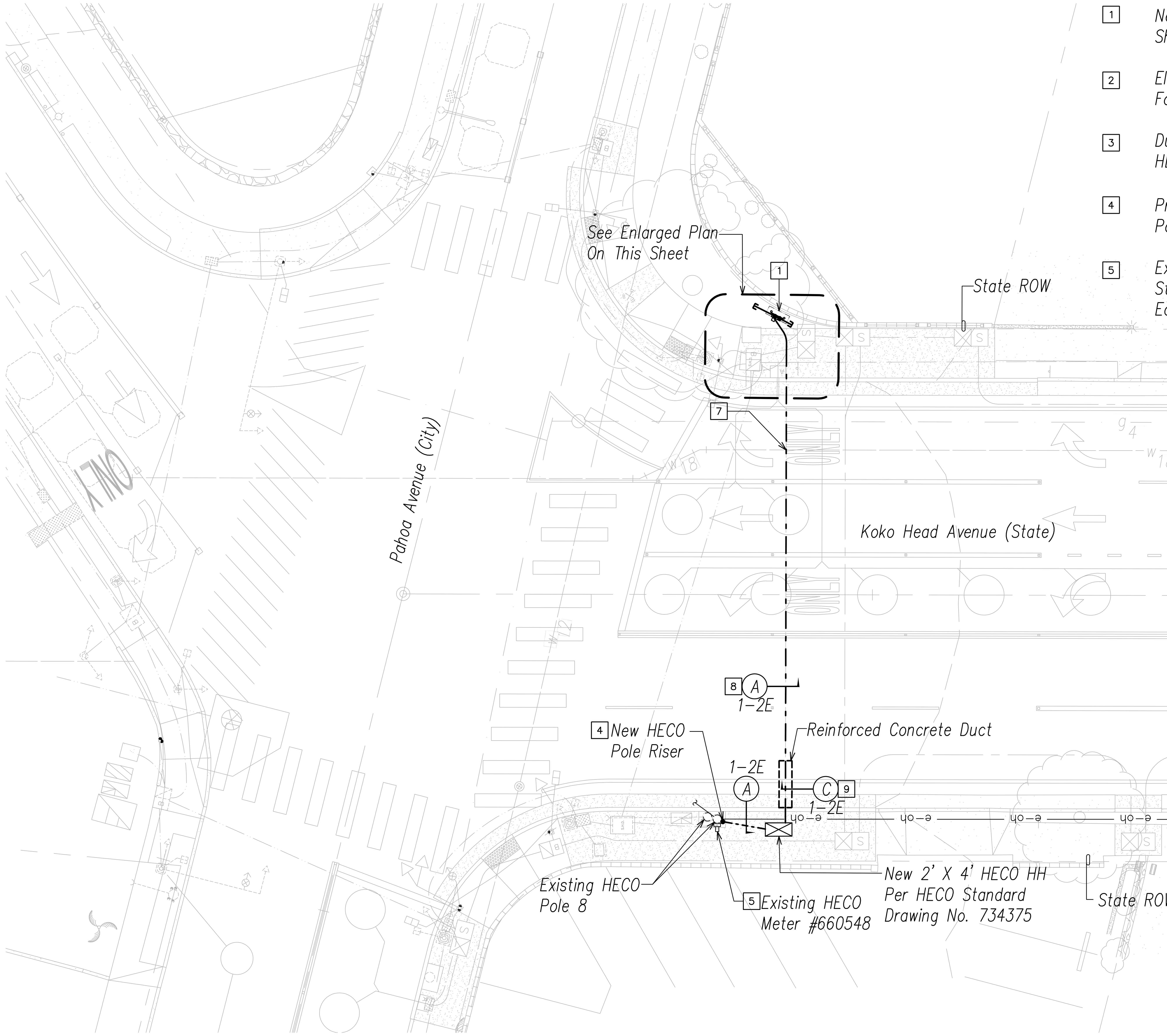
ORIGINAL PLAN | NOTE BOOK | No.

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

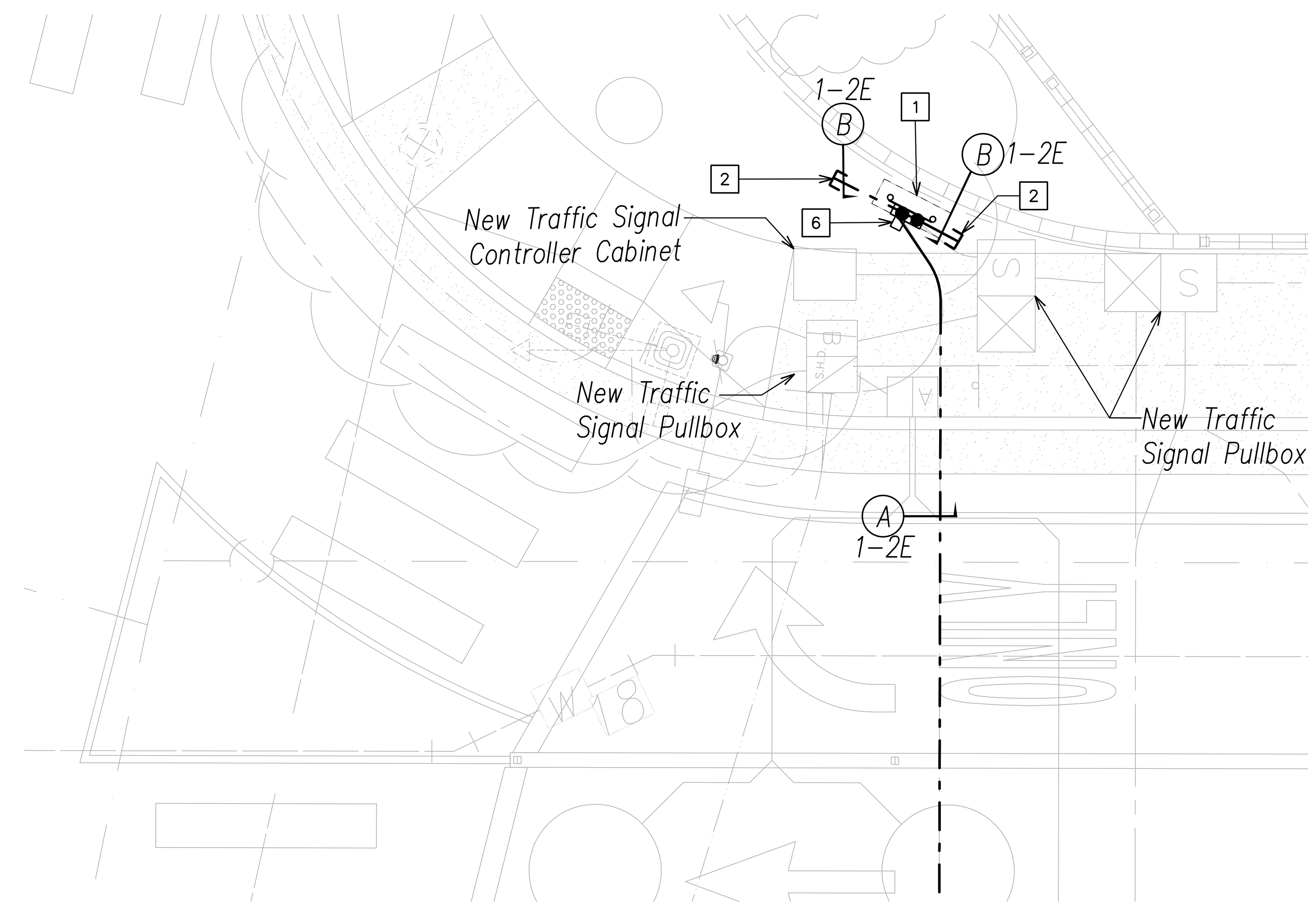
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	123	136

NOTES:

1. New Traffic Signal Electrical Equipment, See Detail On Sheet E-9.
2. Electrical Conduit Stub Out; See Traffic Signal Sheets For Continuation.
3. Duct Run And Riser Location To Be Determined By HECO Underground Inspector.
4. Provide A Riser Stub 12" Minimum up Existing HECO Pole 8.
5. Existing Meter #660548 To Be Relocated Across The Street And Placed With New Traffic Signal Electrical Equipment.
6. Relocated HECO Meter #660548
7. New HECO Ductline To Cross Under Existing 18-inch Water Line. See HECO Ductline Profile On Civil Drawing Sheet 105.
8. Sawcut AC Pavement To Trench And Install New Ductline. Restore Pavement Per HDOT Requirements. See Pavement Restoration Details on Civil Drawings Sheet 45.
9. Provide Reinforced Concrete Duct In Vehicular Areas Where There Is Less Than 3 Feet Cover. See Ductline Profile on Civil Drawing Sheet 105.



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



ENLARGED PLAN
N.T.S.
NORTH

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

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

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

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
PAHOA AVE & KOKO HEAD AVE

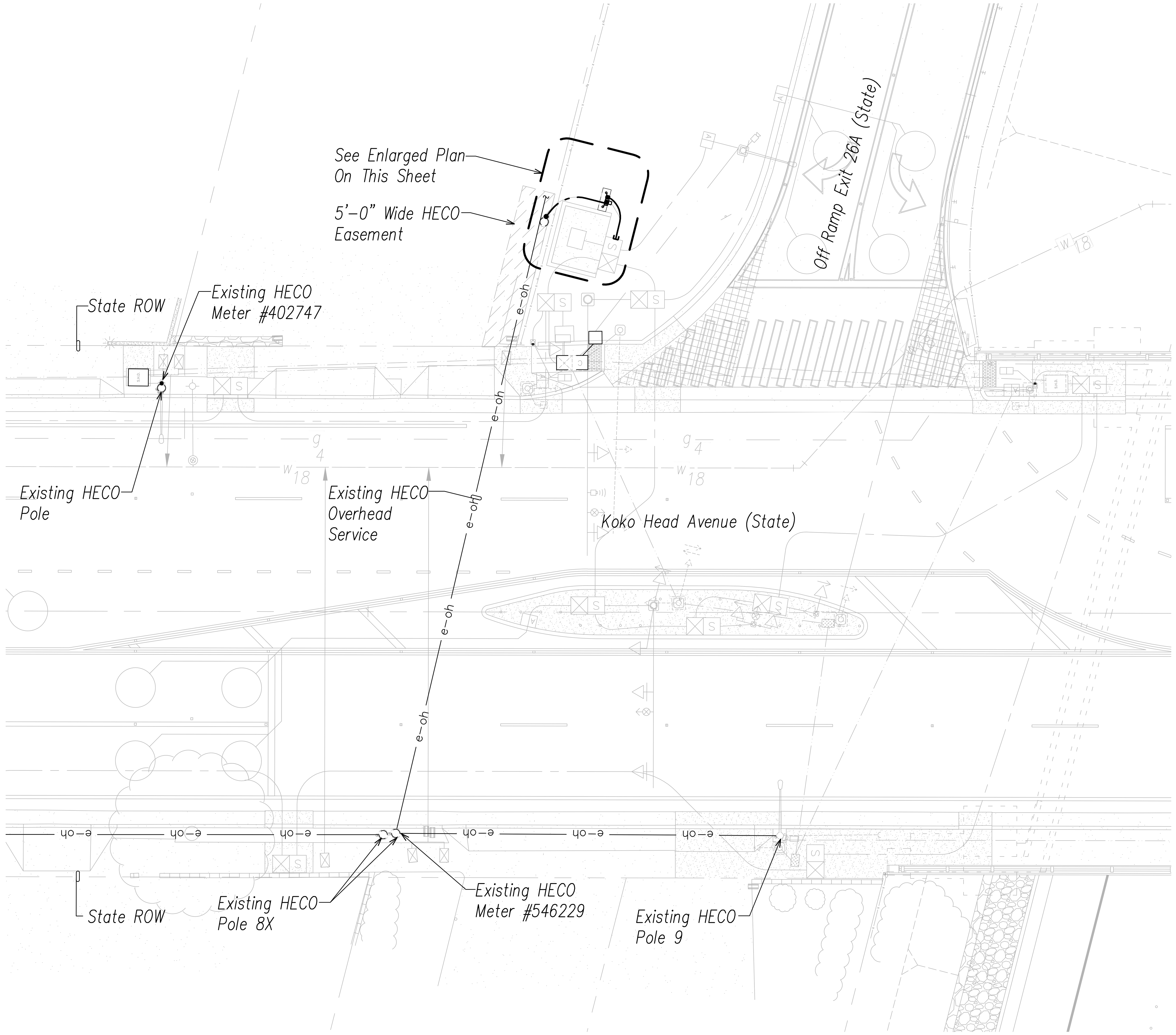
Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted   Date: July 2024

SHEET No. E-7 OF 10 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	124	136



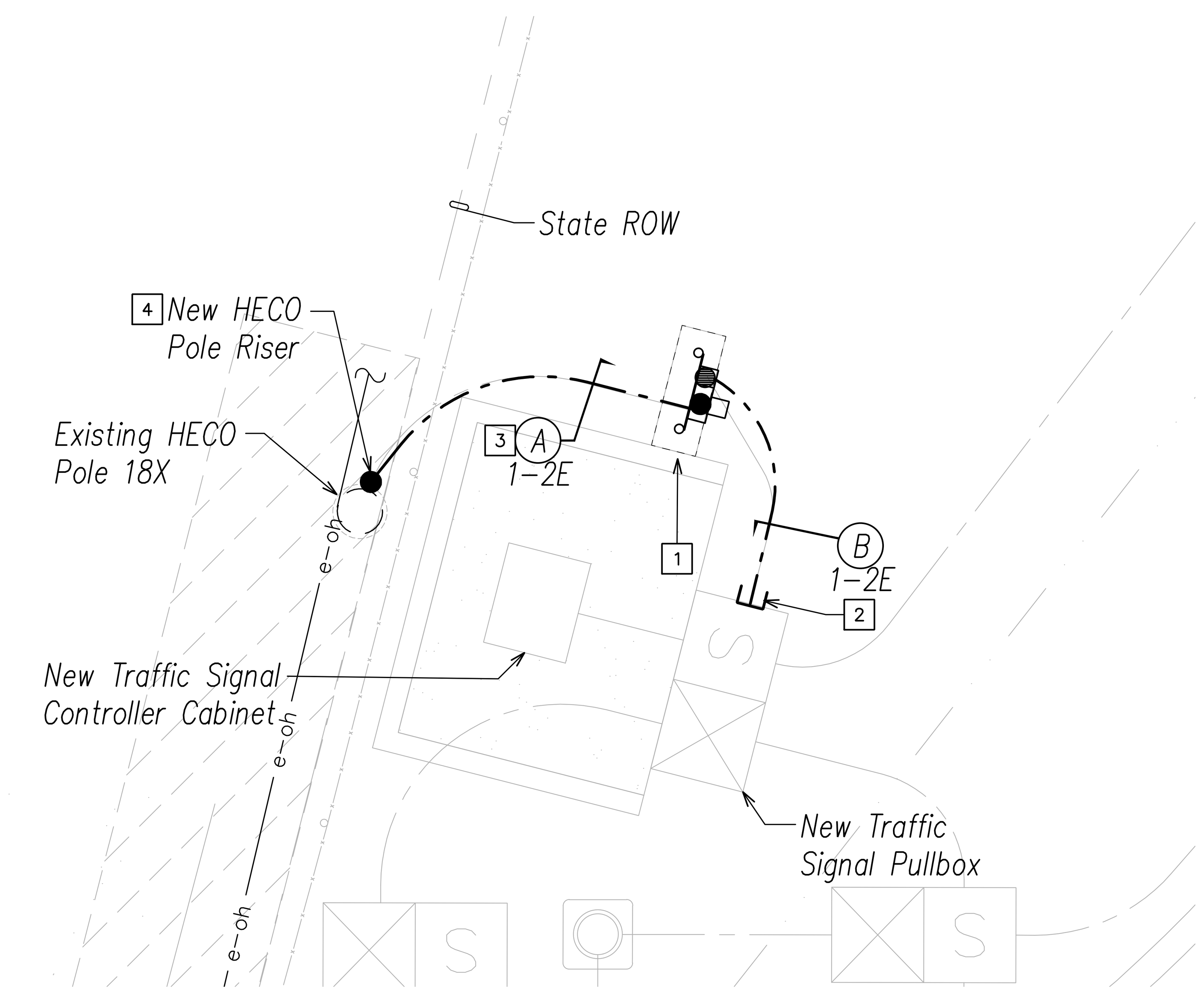
KOKO HEAD AVENUE & EXIT 26A ELECTRICAL PLAN

SCALE: 1"=10'

NORTH

NOTES:

1. New Traffic Signal Electrical Equipment, See Detail On Sheet E-9
2. Electrical Conduit Stub Out; See Traffic Signal Sheets For Continuation
3. Duct Run And Riser Location To Be Determined By HECO Underground Inspector.
4. Provide A Riser Stub 12" Minimum up Pole 18X.



ENLARGED PLAN

N.T.S.

NORTH

10' 5' 0 10' 20' 30'

SCALE: 1"=10'

GRAPHIC SCALE

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

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

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Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

H-1 EXIT 26A & KOKO HEAD AVE

Traffic Signal Modernization, Oahu - Phase 2

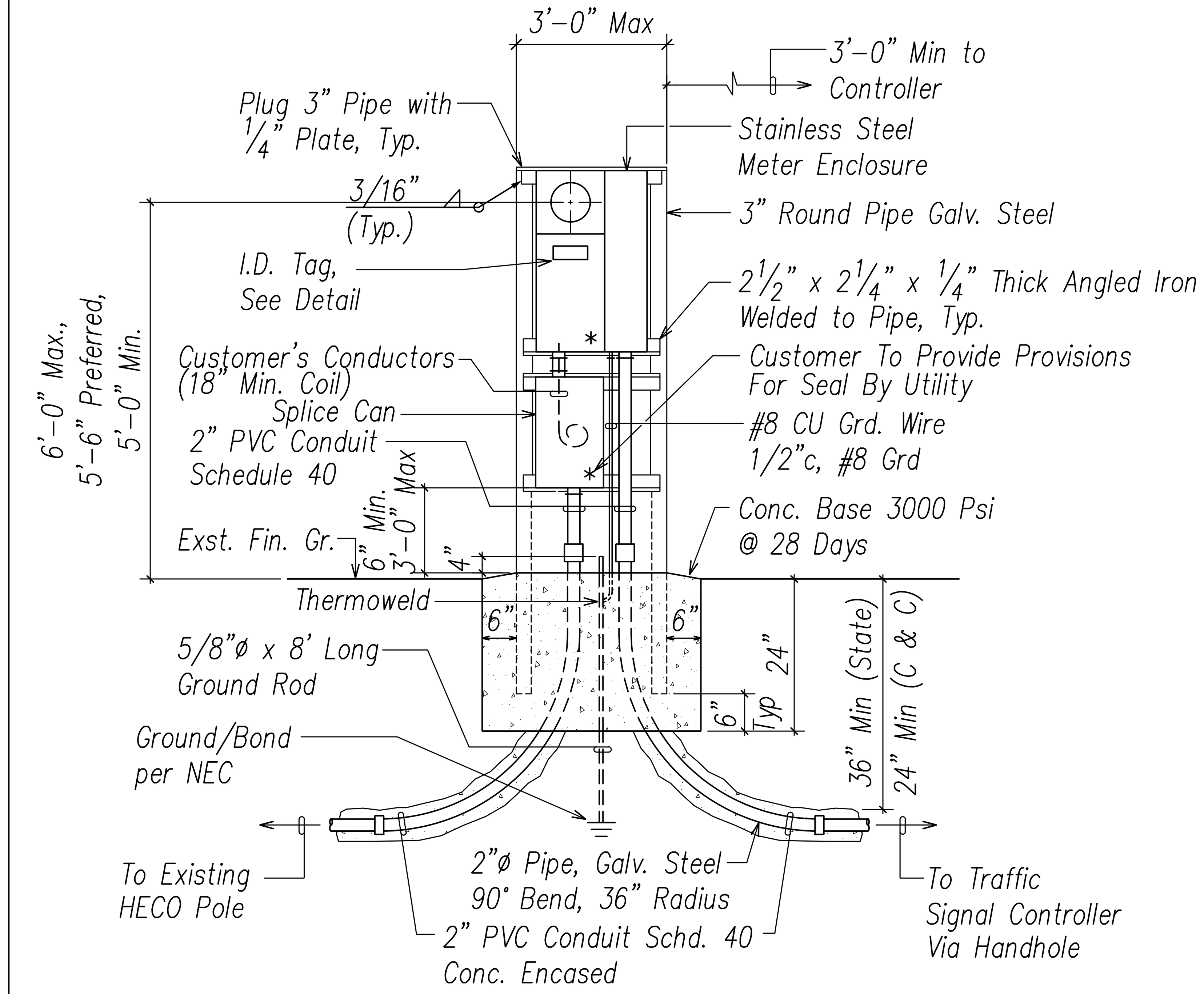
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

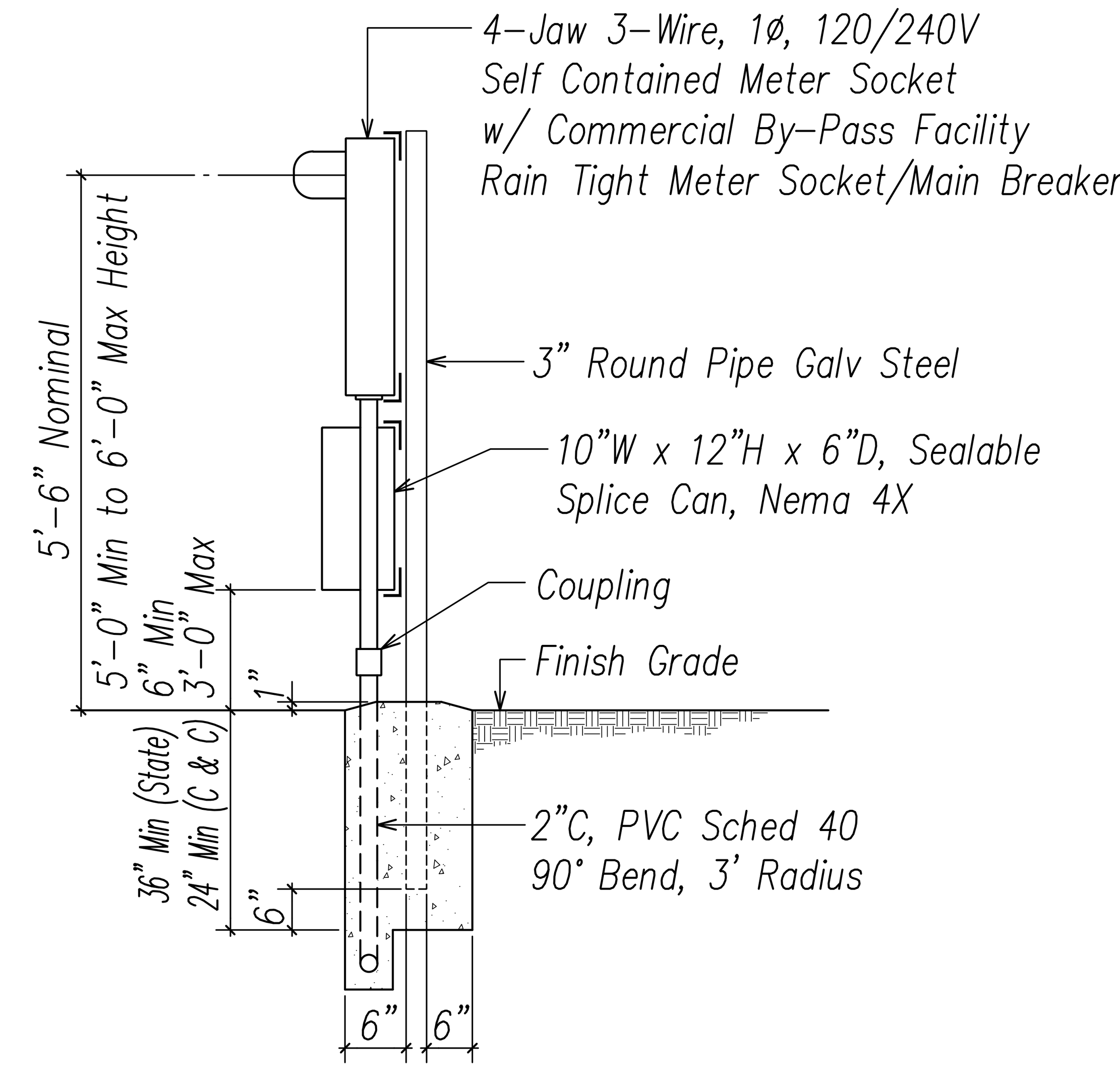
SHEET No. E-8 OF 10 SHEETS

ORIGINAL PLAN | NOTE BOOK | No.

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



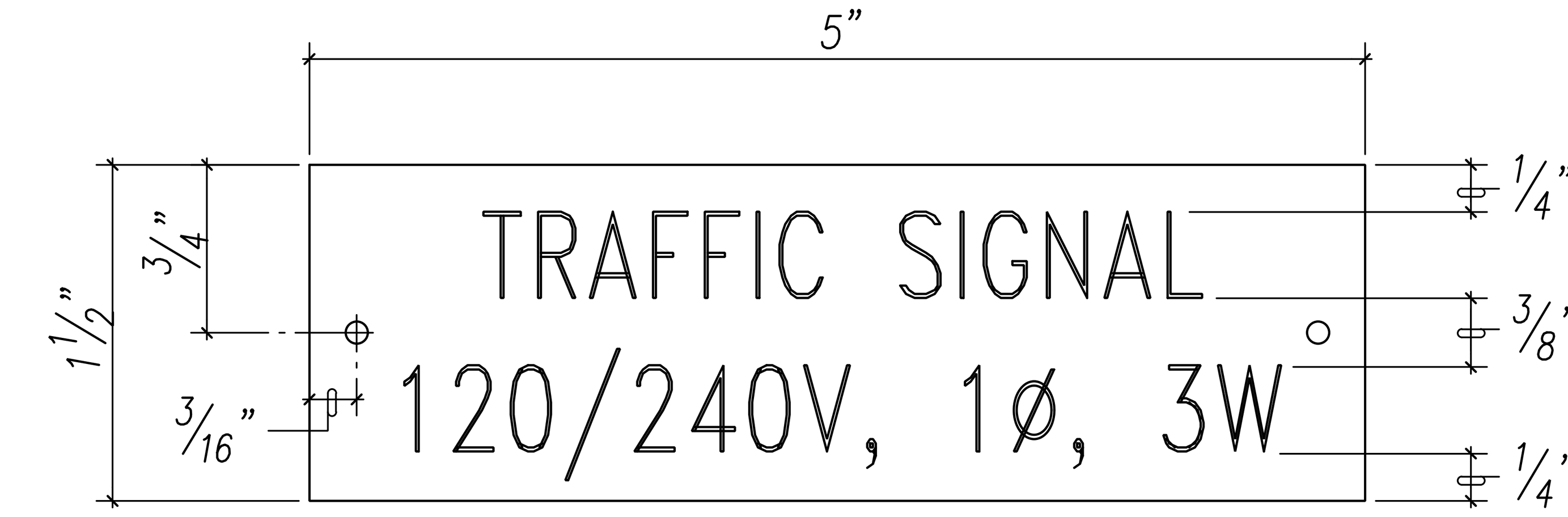
FRONT ELEVATION



SIDE ELEVATION

TYPICAL TRAFFIC SIGNAL METER INSTALLATION ON STEEL FRAME

NOT TO SCALE



NOTES:

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

METER SOCKET I.D. TAG DETAIL

NOT TO SCALE

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

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SERVICE EQUIPMENT DETAILS

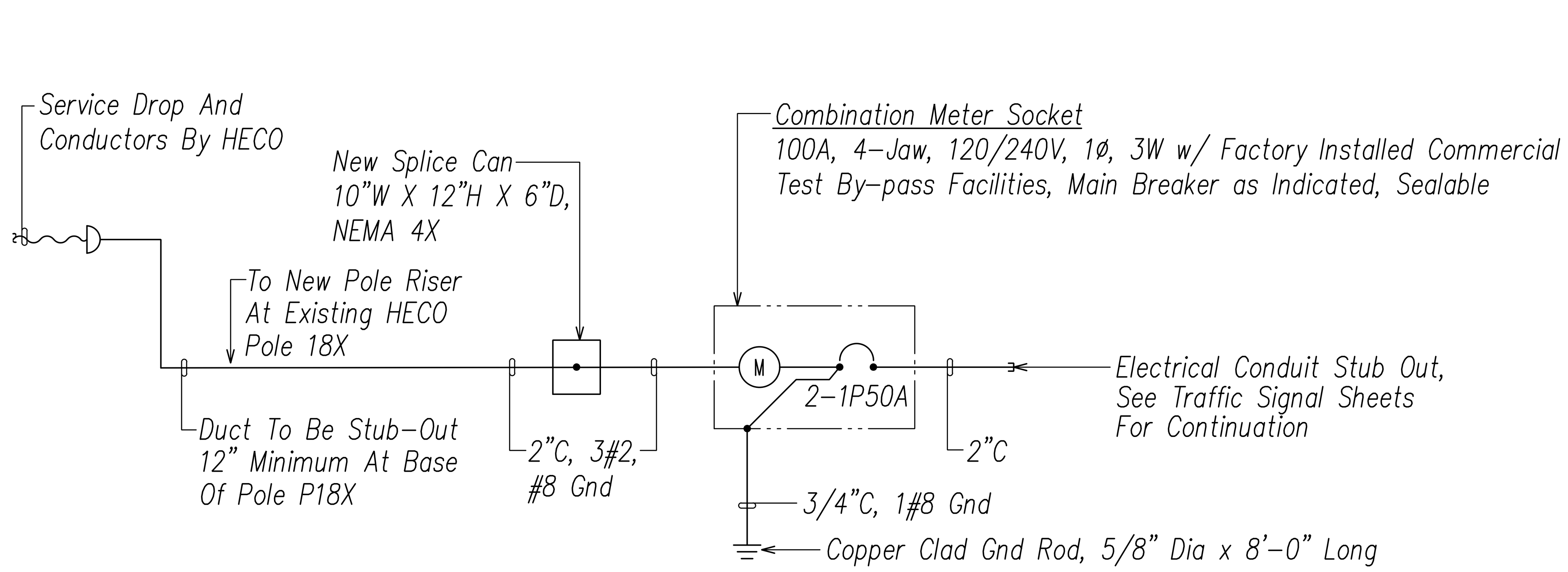
Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

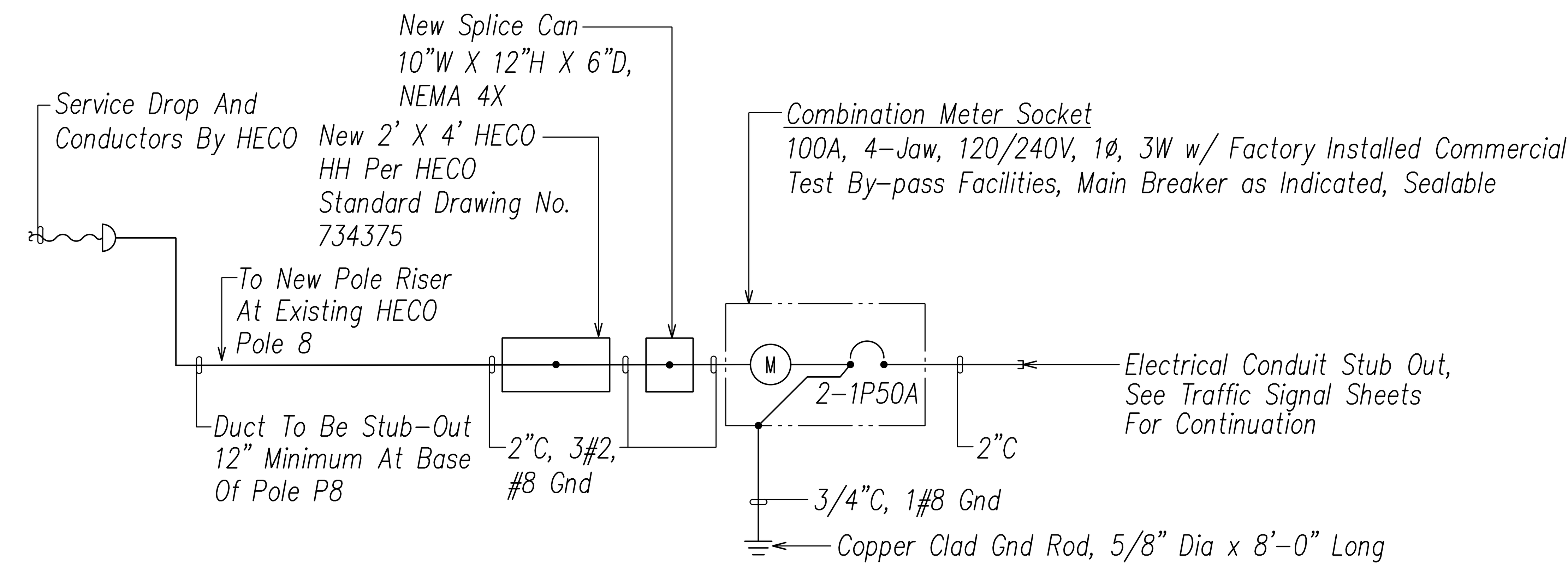
SHEET No. E-9 OF 10 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	126	136



T.S. ELECTRICAL SERVICE KOKO HEAD AVE. / H-1 EXIT 26A ONE-LINE DIAGRAM



T.S. ELECTRICAL SERVICE PAHOA AVE. / KOKO HEAD AVE. ONE-LINE DIAGRAM

NOTES:

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

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

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

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

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Exp. 04-30-26

Signature 2024.07.11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ONE-LINE DIAGRAM

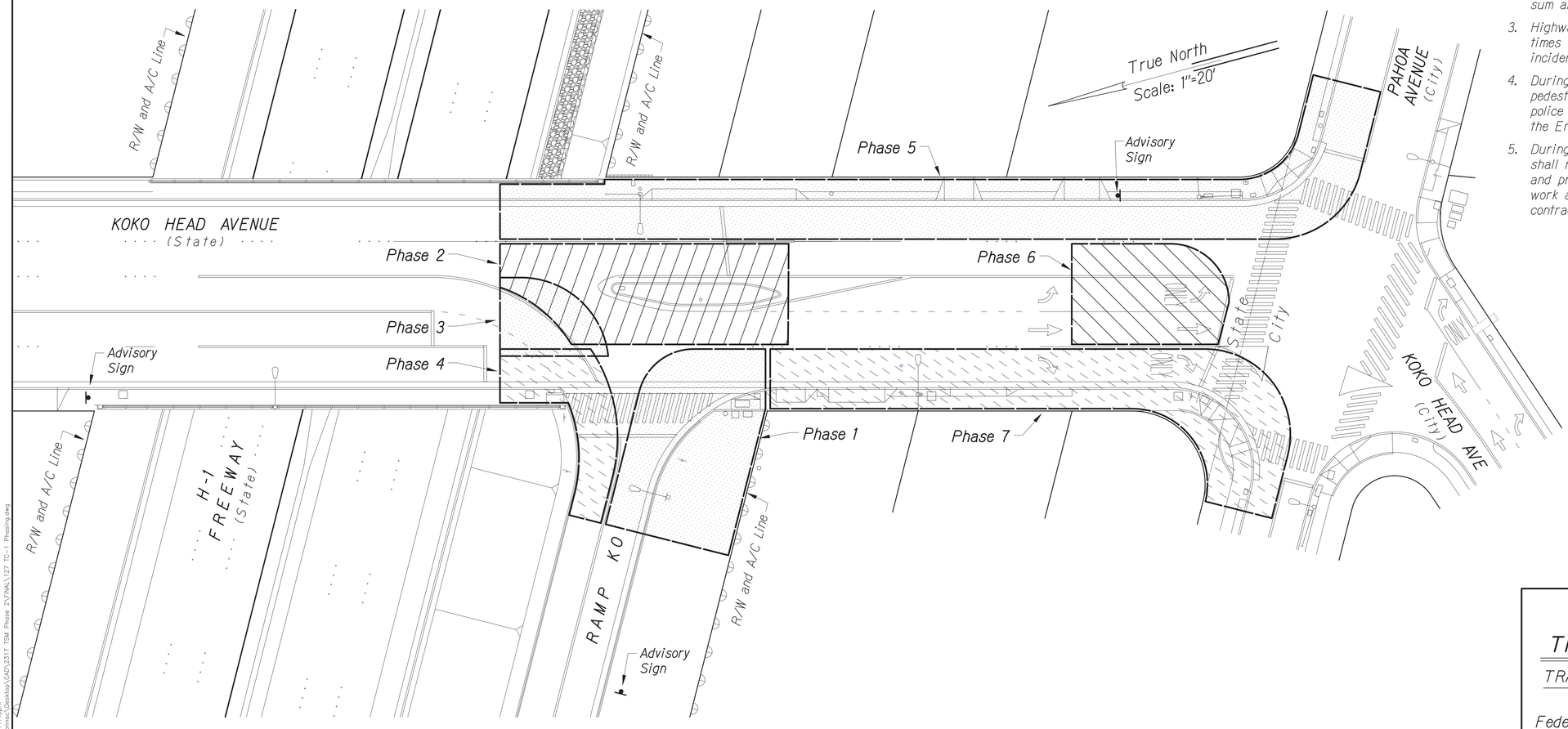
Traffic Signal Modernization, Oahu - Phase 2
Federal-Aid Project No. STP-0300(213)

Scale: As Noted Date: July 2024

SHEET No. E-10 OF 10 SHEETS

DESCRIPTION OF WORK IN TRAFFIC CONTROL PLAN WORK AREAS

Phase	Work Description	Days of the Week	Lane Closure Hours	Approx. Number of Working Days	Traffic Control Plan # (sheet #) / Detour Plan (sheet #)
1	Install temporary erosion and sediment control measures. Install traffic signal equipment, traffic camera equipment, and HECO meter pedestal. Demolish concrete walkway, curb, gutter, and curb ramp. Construct curb, gutter, sidewalk, and curb ramp.	Monday to Friday	8:30 am to 3:00 pm	20	1 (128) / "A" (135)
2	Install traffic signal equipment. Demolish raised median island and curb. Construct curb and raised median island.	Monday to Friday	8:30 am to 3:00 pm	20	2 (129) / "A" (135)
3	Install traffic signal duct lines.	Monday to Friday	8:30 am to 3:00 pm	5	3 (130) / "A" (135)
4	Install traffic signal equipment. Demolish concrete sidewalk, curb, and gutter. Construct curb, gutter, sidewalk, and curb ramp.	Monday to Friday	8:30 am to 3:00 pm	20	4 (131) / "A" (135)
5	Install traffic signal equipment. Demolish concrete sidewalk, curb, and gutter. Construct curb, gutter, sidewalk, and curb ramp.	Monday to Friday	8:30 am to 3:00 pm	20	5 (132) / Not Applicable
6	Install traffic signal duct lines and HECO duct line.	Monday to Friday	8:30 am to 3:00 pm	5	6 (133) / "A" (135) & "B" (136)
7	Install traffic signal equipment and HECO meter/pedestal. Demolish concrete sidewalk, curb, gutter, and curb ramps. Construct curb, gutter, sidewalk, and curb ramps.	Monday to Friday	8:30 am to 3:00 pm	20	7 (134) / "A" (135)



PHASING PLAN
Scale "20"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	127	136

CONSTRUCTION PHASING NOTES:

1. The Contractor shall install three (3) advisory signs (as specified in Subsection 645.03(G) Advisory Signs) at the locations shown the Phasing Plan on this sheet. The Contractor shall make advisory signs as needed to facilitate construction. The final location of all advisory signs shall be designated by the Engineer. The advisory signs shall include a phone number, starting date and hours of construction in sign message. This work shall be incidental to traffic control lump sum and will not be paid for separately.
2. The Contractor shall provide three (3) mobile variable message boards for the duration of the project starting one week prior to start of construction to inform the public of lane closures. The location of all message boards shall be designated by the Engineer. Message boards shall be incidental to traffic control lump sum and will not be paid for separately.
3. Highway drainage shall be maintained at all times during construction. This work shall be incidental to the contract items.
4. During construction, the Contractor shall escort pedestrians through construction work area with police men or with other personnel approved by the Engineer.
5. During NON-construction periods, the Contractor shall render the work area safe for pedestrians and provide ADA accessible routes through the work area. This work shall be incidental to the contract items.

GRAPHIC SCALE
SCALE 1"=20'
20' 10' 0 20' 40'

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

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

Sep 29, 2024 - 11:43pm
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 1 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	128	136

Warning Sign Callouts:

W1 — ROAD WORK AHEAD
CW20-1Ad 48"x48"

W2R — RIGHT LANE CLOSED AHEAD
CW20-5(R) 48"x48"

W3R
CW4-2(R)-A 48"x48"

W4 — END ROAD WORK
CG20-2A 36"x18"

W5
R3-5 Left & Right (42"x30")
For sign detail, see sheet 65.

Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

GRAPHIC SCALE

SCALE 1"=50' 50' 0 50' 100'

EXIT 26 A

Business District

R9-11 (24"x12") SIDEWALK CLOSED AHEAD / CROSS HERE — Mounted on Type II Barricade

R9-10 (24"x12") CROSSWALK CLOSED / USE OTHER SIDE — Mounted on Type II Barricade

KOKO HEAD AVE (City)

HARDING AVENUE (City)

KOKO HEAD AVENUE (State)

PAHOA AVENUE (City)

12th Ave. (City)

ROUTE H-1 (State)

RAMP KO

Match Line See below.

Match Line See above.

To Ewa

To Hawaii Kai

RIGHT TURN ON RED AFTER STOP

100' Taper Cones @ 20' o.c.

55' Buffer Cones @ 10' o.c.

250' Taper Cones @ 20' o.c.

55' Buffer Cones @ 20' o.c.

100' Taper Cones @ 20' o.c.

R-20'

10' min.

1000'

1500'

500'

370'

250'

100'

EXIT 25 MPH — MILE 26

AHEAD

ONLY

DO NOT ENTER

WRONG WAY

ONE WAY

SPEED LIMIT 25

UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 HP, PEDESTRIANS KEEP OUT FREEWAY

NO LEFT TURN INTO PAHOA AV.

LEFT TURN YIELD ON GREEN

Pahoa Av

Koko Head Av

1000' KOKO HEAD AV.

1650' PAHOA AV.

ROAD WORK 2500 FT. — CW20-5(2500)(R) 48"x48"

ON RAMP — CW13-1(25)-A 24"x24"

RAMP NARROWS — CW5-4 48"x48"

25 MPH — CW13-1(25)-A 24"x24"

TRAFFIC CONTROL PLAN - 1

Scale "50"

NOTE:

Implement Detour Plan "A" (see sheet 135) with this traffic control plan.

CONRAD S. HIGASHIONNA — LICENSED PROFESSIONAL ENGINEER — No. 6763-C — HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 2 OF 10 SHEETS

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

Sep 29, 2024 - 1:43pm
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	129	136

Warning Sign Callouts:

W1 — ROAD WORK AHEAD — CW20-1Ad 48"x48"

W2L — LEFT LANE CLOSED AHEAD — CW20-5(L) 48"x48"

W3L — CW4-2(L)-A 48"x48"

W4 — END ROAD WORK — CG20-2A 36"x18"

W5 — R3-5 Left & Right (42"x30") For sign detail, see sheet 65.

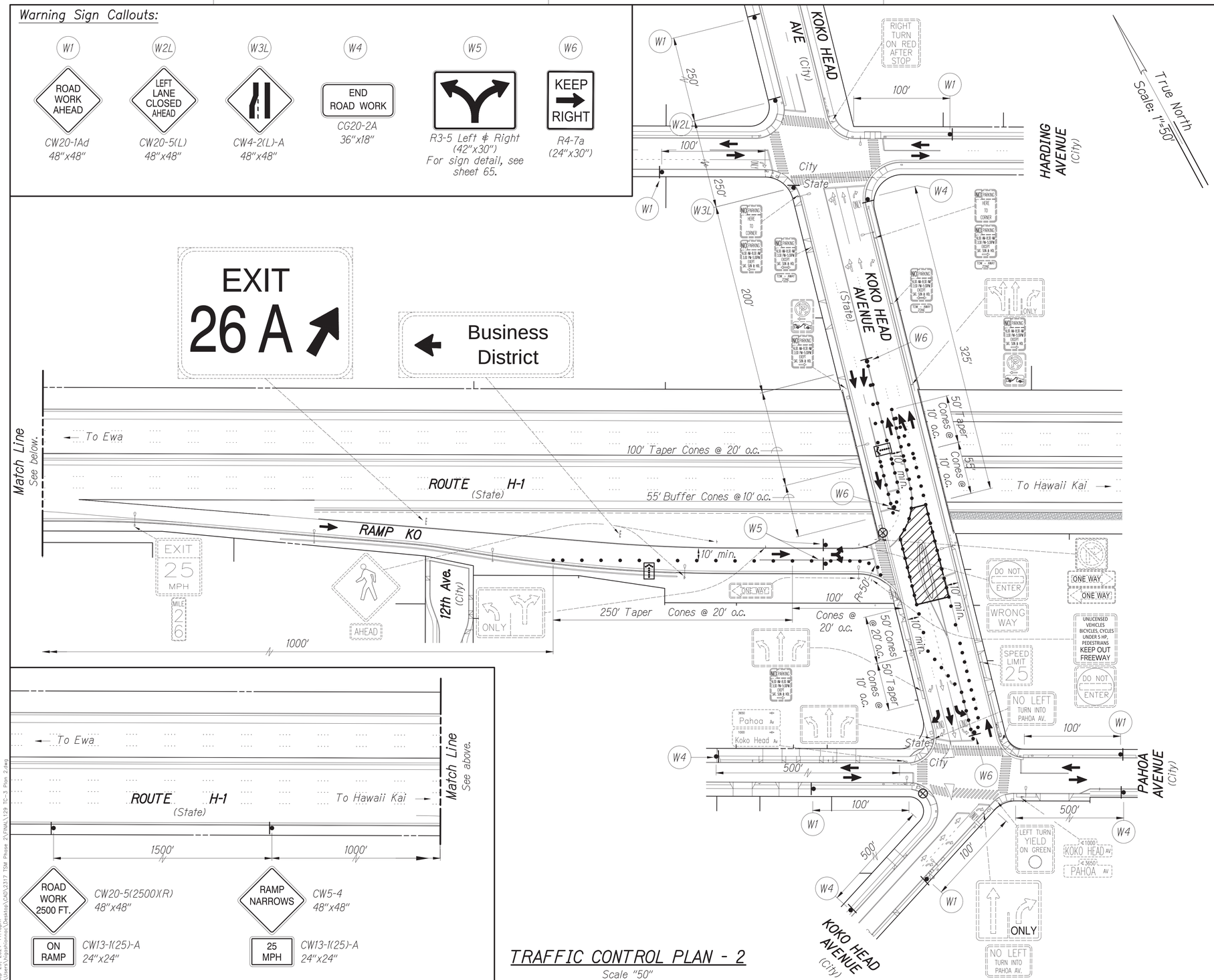
W6 — KEEP RIGHT — R4-7a (24"x30")

Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

GRAPHIC SCALE

SCALE 1"=50' 50' 0 50' 100'



TRAFFIC CONTROL PLAN - 2

Scale "50"

NOTE:

Implement Detour Plan "A" (see sheet 135) with this traffic control plan.

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date

For work within City ROW

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 3 OF 10 SHEETS

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

Sep 29, 2024-1:43pm
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	130	136

Warning Sign Callouts:

W1 — ROAD WORK AHEAD — CW20-1Ad 48"x48"

W2L — LEFT LANE CLOSED AHEAD — CW20-5(L) 48"x48"

W3L — CW4-2(L)-A 48"x48"

W4 — END ROAD WORK — CG20-2A 36"x18"

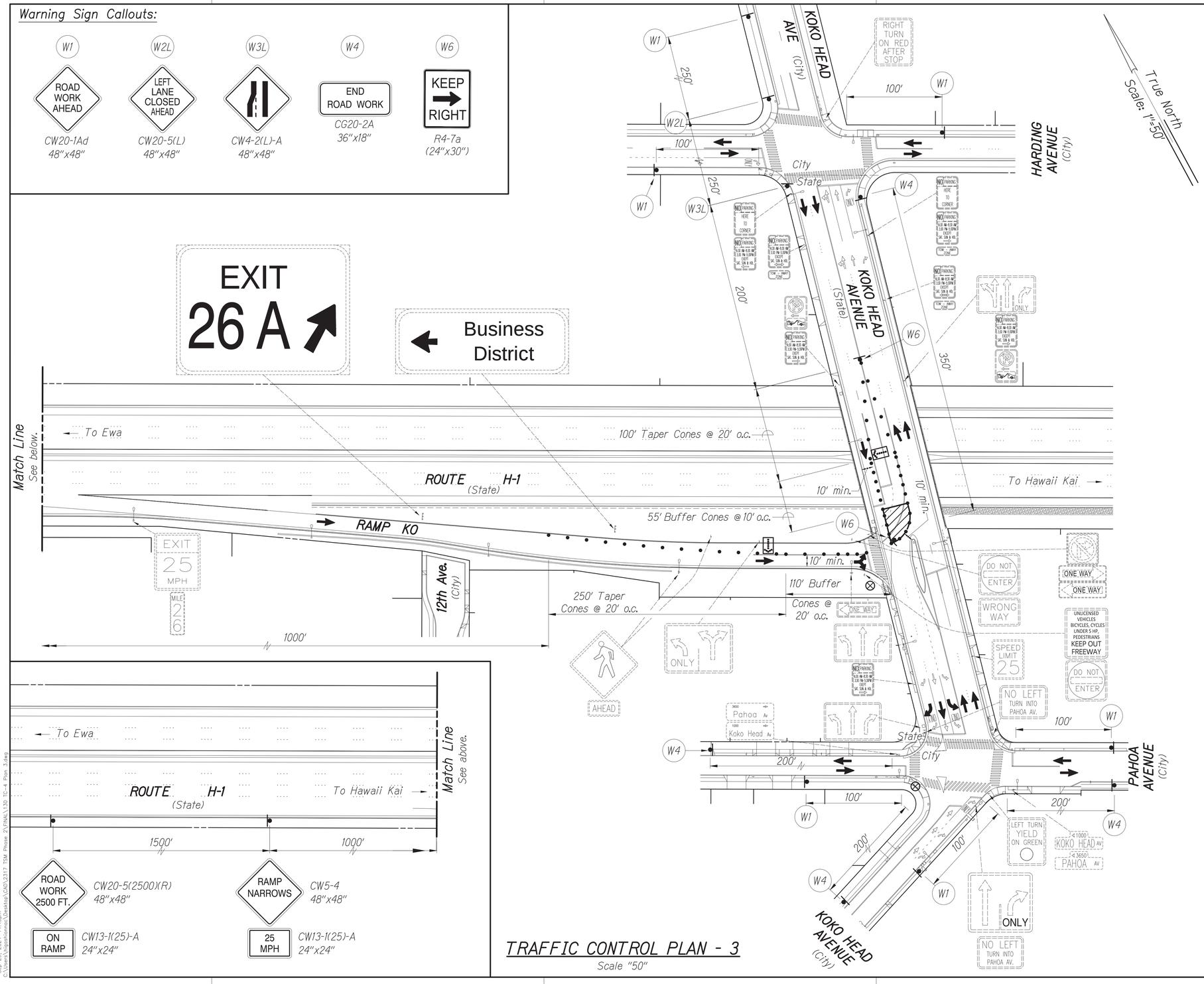
W6 — KEEP RIGHT — R4-7a (24"x30")

Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

GRAPHIC SCALE

SCALE 1"=50' (50' 0 50' 100')



TRAFFIC CONTROL PLAN - 3

Scale "50"

NOTE:

Implement Detour Plan "A" (see sheet 135) with this traffic control plan.

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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP — Date
(for work within City ROW)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 4 OF 10 SHEETS

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

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	131	136

Warning Sign Callouts:

W1 — ROAD WORK AHEAD — CW20-1Ad 48"x48"

W2R — RIGHT LANE CLOSED AHEAD — CW20-5(R) 48"x48"

W3R — CW4-2(R)-A 48"x48"

W4 — END ROAD WORK — CG20-2A 36"x18"

Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

GRAPHIC SCALE

SCALE 1"=50' 50' 0 50' 100'

True North
Scale: 1"=50'

EXIT 26 A

Business District

SIDEWALK CLOSED AHEAD / CROSS HERE — R9-11 (24"x12") — Mounted on Type II Barricade

CROSSWALK CLOSED / USE OTHER SIDE — R9-10 (24"x12") — Mounted on Type II Barricade

KOKO HEAD AVE (City)

HARDING AVENUE (City)

KOKO HEAD AVENUE (State)

PAHOA AVENUE (City)

12th Ave. (City)

ROUTE H-1 (State)

RAMP KO

EXIT 25 MPH — MILE 2 6

Match Line See below.

Match Line See above.

To Ewa

To Hawaii Kai

100' Taper Cones @ 20' o.c.

55' Buffer Cones @ 10' o.c.

250' Taper Cones @ 20' o.c.

55' Buffer

Cones @ 20' o.c.

10' min.

1000'

1500'

RIGHT TURN ON RED AFTER STOP

DO NOT ENTER

WRONG WAY

ONE WAY

R9-9 (24"x12") CROSSWALK CLOSED — Mounted on Type II Barricade

UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 HP, PEDESTRIANS KEEP OUT FREEWAY

SPEED LIMIT 25

NO LEFT TURN INTO PAHOA AV.

LEFT TURN YIELD ON GREEN

ONLY

AHEAD

Pahoa Av 3650 / Koko Head Av 1000

W1 W2R W3R W4

ROAD WORK 2500 FT. — CW20-5(2500)(R) 48"x48"

ON RAMP — CW13-1(25)-A 24"x24"

RAMP NARROWS — CW5-4 48"x48"

25 MPH — CW13-1(25)-A 24"x24"

TRAFFIC CONTROL PLAN - 4

Scale "50"

NOTE:

Implement Detour Plan "A" (see sheet 135) with this traffic control plan.

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License Expiration Date 04-30-26

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Conrad Higashionna

APPROVED BY:

Chief, Traffic Review Branch, DPP (for work within City ROW) — Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 5 OF 10 SHEETS

131

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

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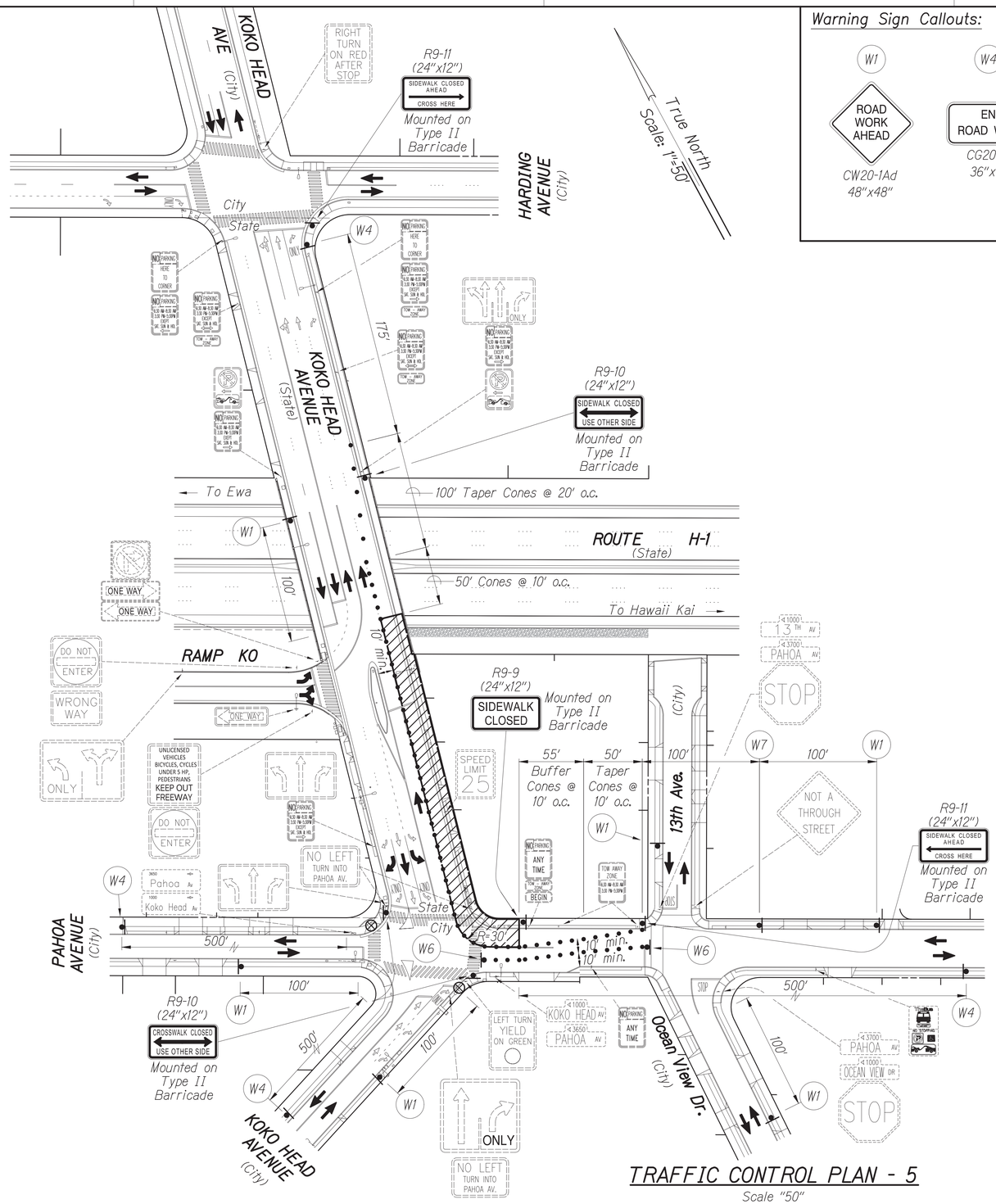

Warning Sign Callouts:

W1	W4	W6	W7
ROAD WORK AHEAD	END ROAD WORK	KEEP RIGHT	
CW20-1Ad 48"x48"	CG20-2A 36"x18"	R4-7a (24"x30")	W1-3L 36"x36"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	132	136

Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

GRAPHIC SCALE

SCALE 1"=50' 50' 0 50' 100'

TRAFFIC CONTROL PLAN - 5

Scale "50"

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

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CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-26

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 6 OF 10 SHEETS

Warning Sign Callouts:

W1 — ROAD WORK AHEAD — CW20-1Ad 48"x48"

W2R — RIGHT LANE CLOSED AHEAD — CW20-5(R) 48"x48"

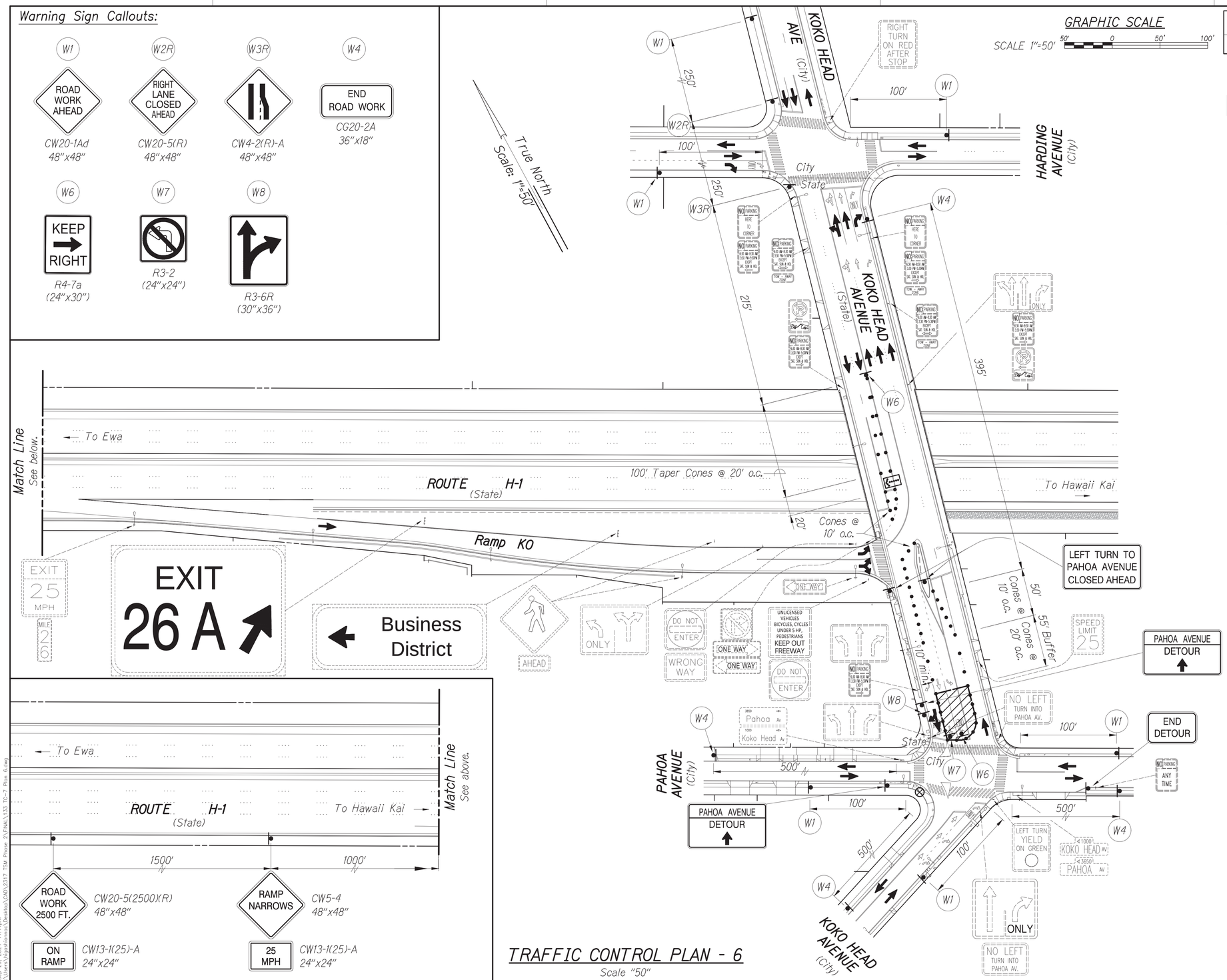
W3R — CW4-2(R)-A 48"x48"

W4 — END ROAD WORK — CG20-2A 36"x18"

W6 — KEEP RIGHT — R4-7a (24"x30")

W7 — R3-2 (24"x24")

W8 — R3-6R (30"x36")



GRAPHIC SCALE

SCALE 1"=50' — 50' 0 50' 100'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	133	136

Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

NOTE:

Implement Detour Plans "A" and "B" (see sheets 135 & 136) with this traffic control plan.

Note:

1. Prior to closure of thru and left turn lane, the Contractor shall install Loop Detector Sensing Unit (6 ft. x 6 ft.) 2 Loops centered in the right-turn only lane.
2. The temporary loop detectors shall be used only during lane closure hours for Traffic Control Plan - Phase 6.

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Conrad Higashionna

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TRAFFIC CONTROL PLAN - 6

Scale "50"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

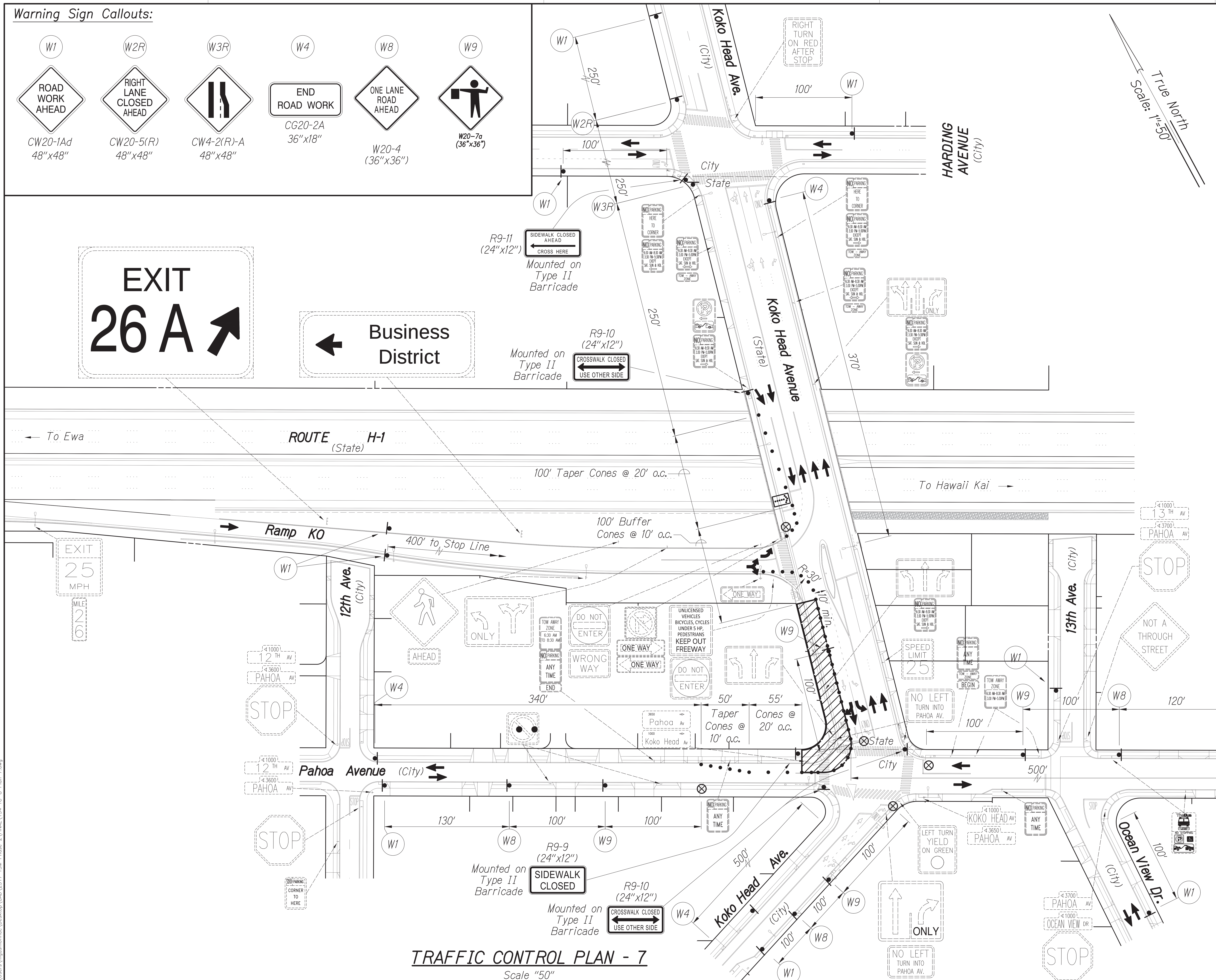
TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted — Date: July 2024

SHEET No. 7 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	134	136



Legend:

- Arrow Panel
- Arrow Panel Support or Trailer
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area - Cones @ 10' o.c.
- Direction of traffic
- Existing Sign

GRAPHIC SCALE

SCALE 1"=50'

True North

Scale: 1"=50'

NOTE:

Implement Detour Plan "A" (see sheet 135) with this traffic control plan.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2

Federal Aid Project No. STP-0300(213)

Scale: As noted | Date: July 2024

SHEET No. 8 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	135	136

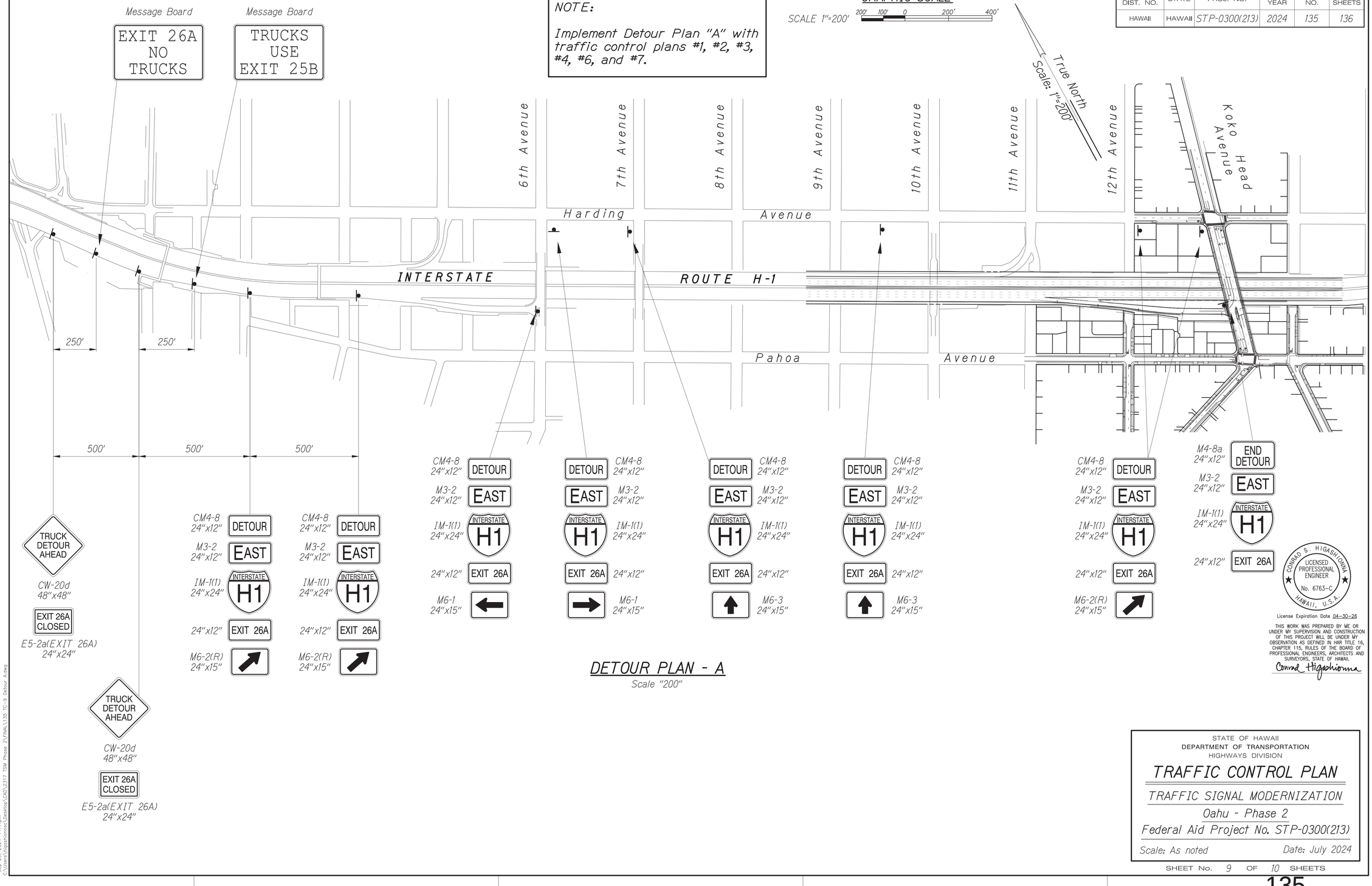
NOTE:

Implement Detour Plan "A" with traffic control plans #1, #2, #3, #4, #6, and #7.

GRAPHIC SCALE

SCALE 1"=200' 200' 100' 0 200' 400'

True North
Scale: 1"=200'



DETOUR PLAN - A

Scale "200"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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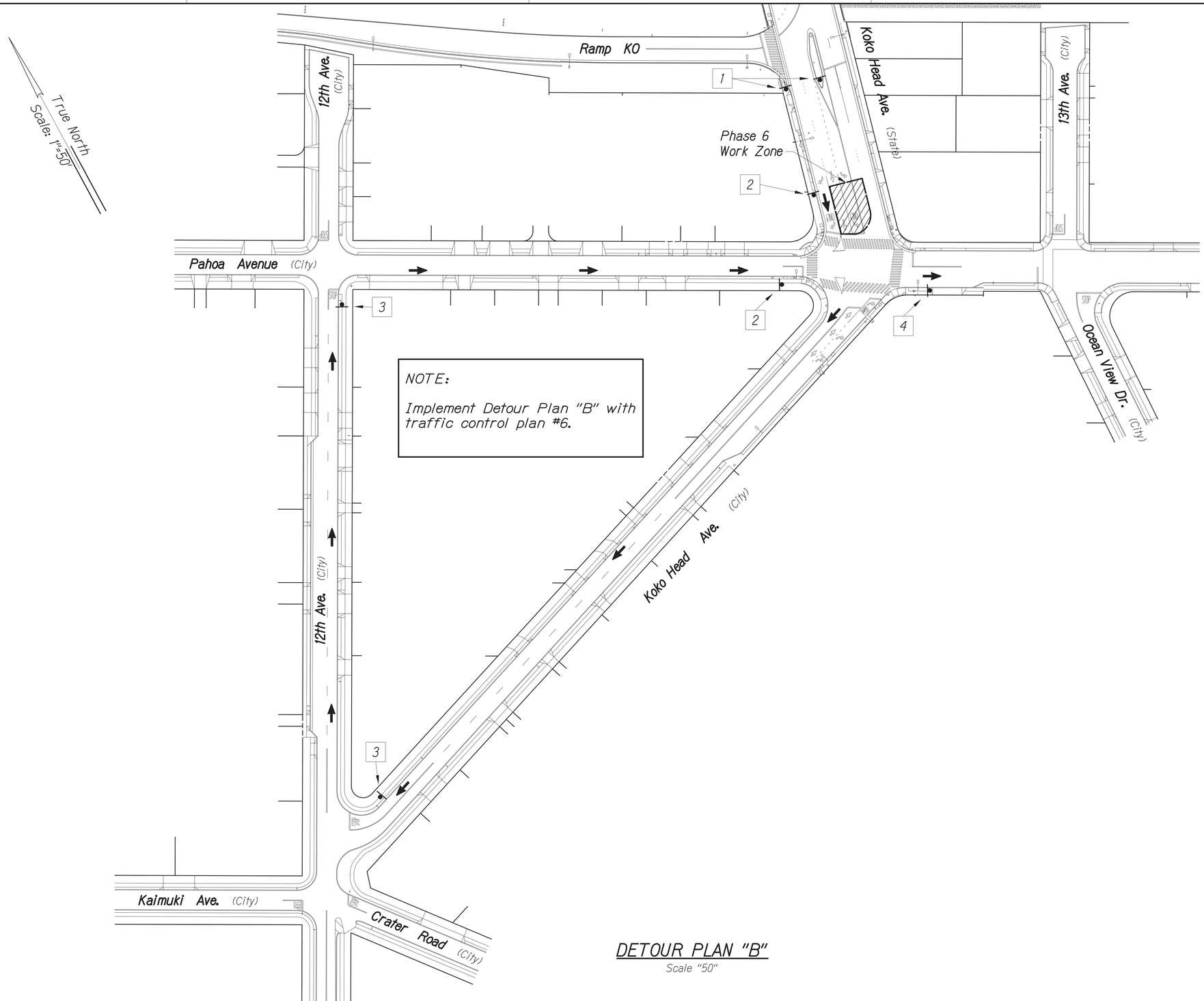
TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 9 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(213)	2024	136	136



DETOUR PLAN "B"
Scale "50"

Legend:

- ← Detour Path
- ⊗ Police Officer

1 — LEFT TURN TO PAHOA AVENUE CLOSED AHEAD

2 — PAHOA AVENUE DETOUR ↑

3 — PAHOA AVENUE DETOUR →

4 — END DETOUR (M4-8 24"x18")

GRAPHIC SCALE
SCALE 1"=50' 50' 0 50' 100'

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HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

TRAFFIC SIGNAL MODERNIZATION
Oahu - Phase 2
Federal Aid Project No. STP-0300(213)

Scale: As noted Date: July 2024

SHEET No. 10 OF 10 SHEETS

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