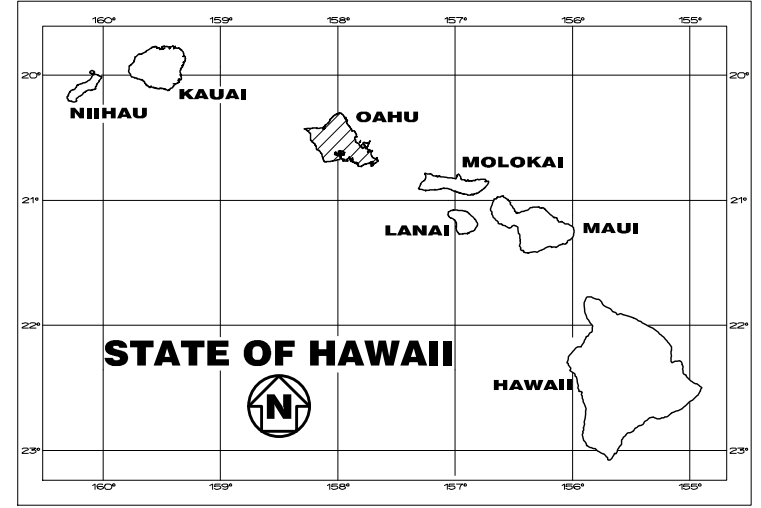


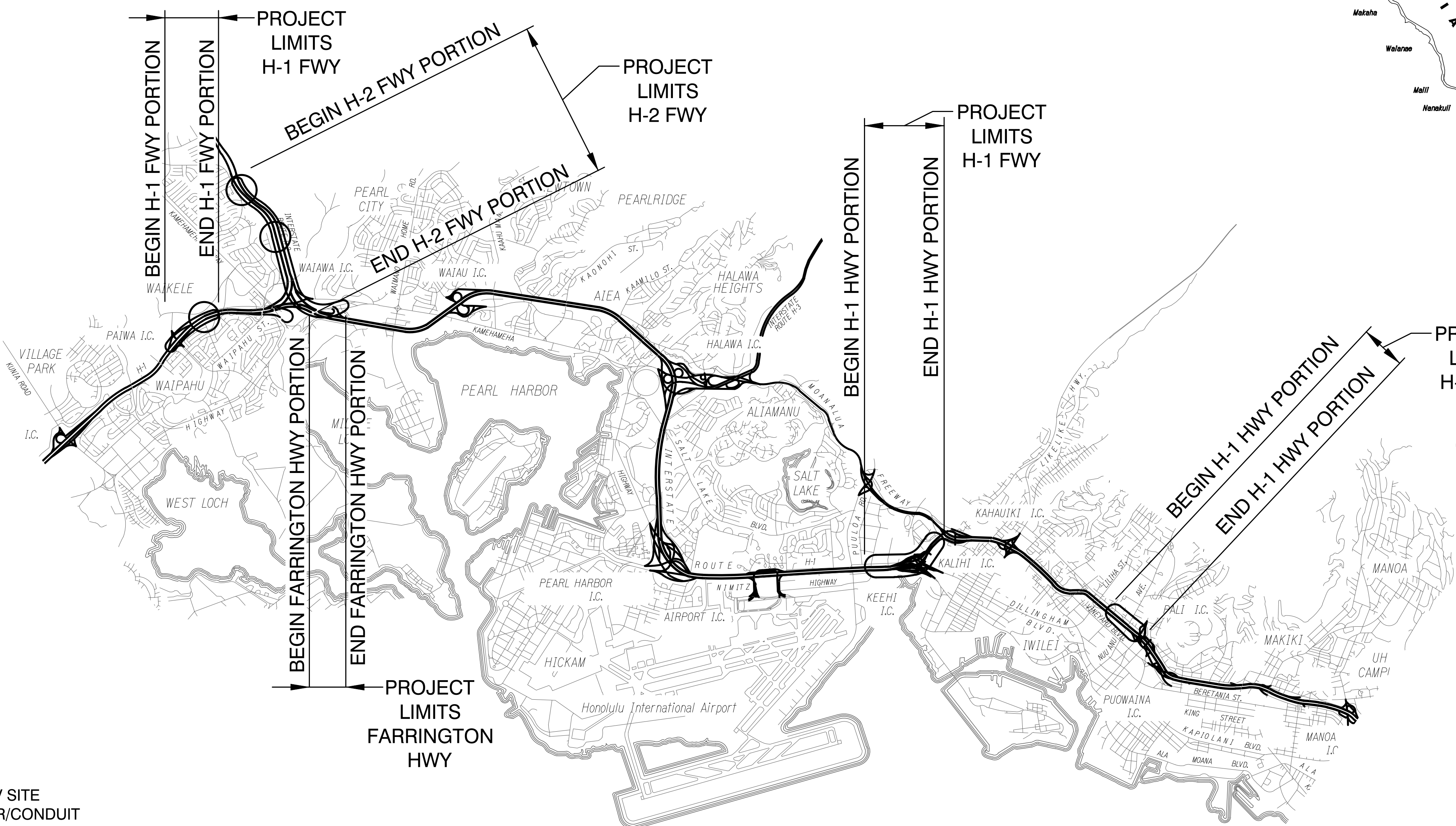
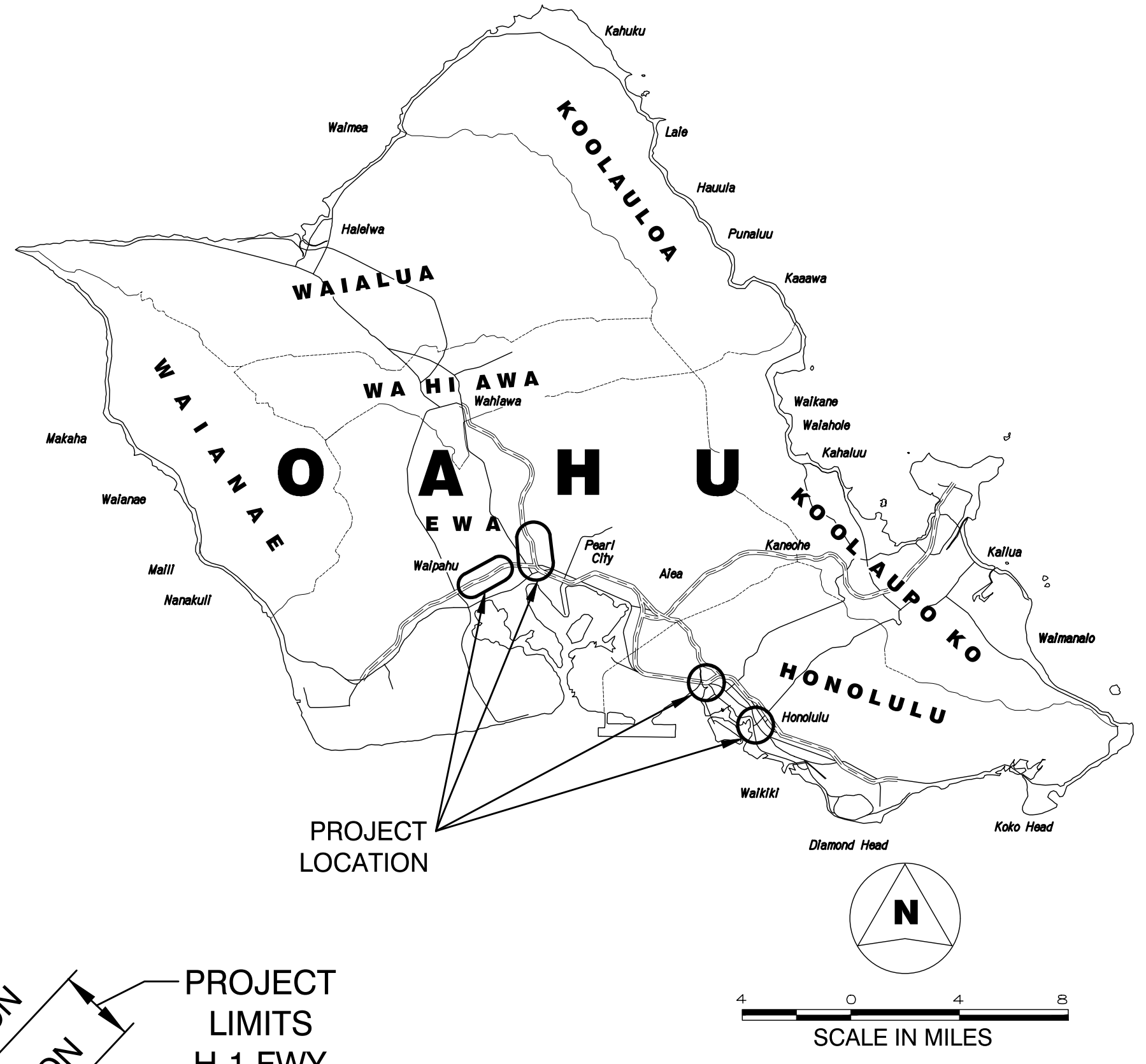
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	1	170

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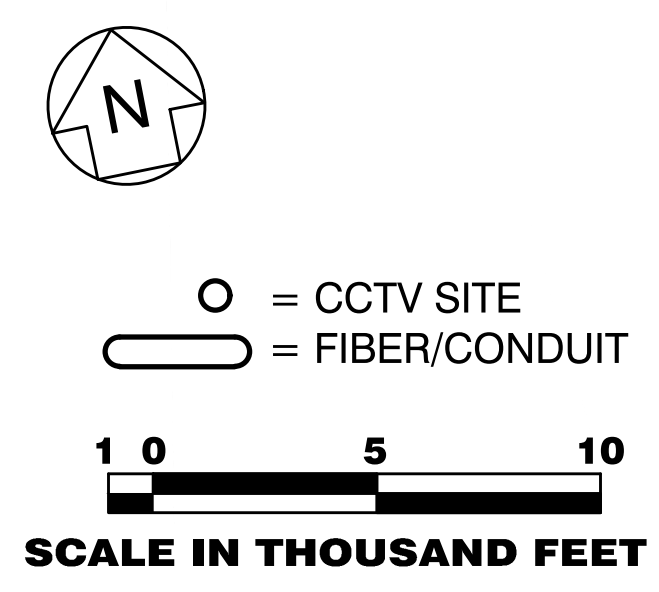
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU, HAWAII



FREEWAY MANAGEMENT SYSTEM
PHASE 3, UNIT 1
FEDERAL-AID PROJECT NO. NH-0300(152)
DISTRICTS OF HONOLULU & EWA
ISLAND OF OAHU



FEDERAL AID PROJECTS PREVIOUSLY CONSTRUCTED OR UNDER CONSTRUCTION		
H-1	MILE POST 7.07 TO MILE POST 7.67	
	MILE POST 17.94 TO MILE POST 18.85	
	MILE POST 21.04 TO MILE POST 21.41	
H-2	MILE POST 0.00 TO MILE POST 1.72	
FARRINGTON HWY (RTE 99)	MILE POST 17.66 TO MILE POST 17.89	



LAYOUT PLAN

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII
APPROVED: Jul 21, 2021
DIR. OF TRANSPORTATION DATE

ORIGINAL PLAN	DATE
NO.	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
TRACED BY	
DRAWN BY	
DATE	

DESIGNED BY Austin Tsutsumi and Associates, Inc. HWY-TO MANAGED BY DATE JUNE 2021
PHONE 692-7675

FN\A\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\1-1_TITLE_SHT.DWG Jul 16, 2021 9:41 AM

STANDARD PLANS SUMMARY

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	2	170

STANDARD PLAN NO.	TITLE	DATE
B-01	Notes and Miscellaneous Details	05/31/07
B-03	Backfill Details at Earth Retaining Structures	05/31/07
B-12	Prestressed Concrete Piles and Compression Splice Can Details	05/31/07
B-12A	Prestressed Concrete Piles, Pile and Compression Splice Can Details and Notes	05/31/07
B-12B	Pile Interaction Diagram	05/31/07
B-13	Prestressed Concrete Pile Build-Up Details	05/31/07

STANDARD PLAN NO.	TITLE	DATE
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

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 AI Catch Basin	05/31/07
H-02B	Type BI Catch Basin	05/31/07
H-02C	Type CI Catch Basin	05/31/07
H-02D	Type DI Catch Basin	05/31/07
H-02E	Catch Basin Sections	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 IA-9 and IA-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 Frame and Grates	05/31/07
H-16	Type 61614, 61614P, 61616, 61616P Steel Frame and Grates	05/31/07
H-17	Type 61214 Steel Frame and Grates	05/31/07
H-18	Type 61214P Steel Grates	05/31/07

STANDARD PLAN NO.	TITLE	DATE
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 (18" TO 24")	05/31/07
H-23	Inlet/Outlet Structure (48" TO 180")	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 and 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

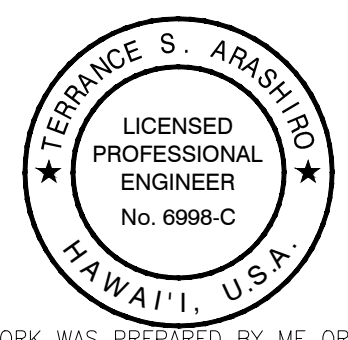
STANDARD PLAN NO.	TITLE	DATE
L-01	Tree Planting	05/31/07
L-02	Tree Planting	05/31/07
L-03	Tree Transplanting	05/31/07
L-04	Palm Planting	05/31/07
L-05	Shrub Planting	05/31/07
L-06	Landscape Details	05/31/07
L-07	Landscape Details	05/31/07
L-08	Landscape Details	05/31/07
L-09	Landscape Details	05/31/07
L-10	Landscape Details	05/31/07
L-11	Planting Notes	05/31/07
L-12	Irrigation Details	05/31/07
L-13	Irrigation Details	05/31/07
L-14	Irrigation Details	05/31/07
L-15	Irrigation Details	05/31/07
L-16	Irrigation Details	05/31/07
L-17	Irrigation Details	05/31/07
L-18	Irrigation Details	05/31/07
L-19	Irrigation Details	05/31/07
L-20	Irrigation Details	05/31/07
L-21	Irrigation Details	05/31/07
L-22	Irrigation Details	05/31/07
L-23	Irrigation Details	05/31/07
L-24	Irrigation Notes	05/31/07

STANDARD PLAN NO.	TITLE	DATE
TE-01	Sign Height and Location	05/31/07
TE-1A	Sign Installation	05/31/07
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	05/31/07
TE-05	Warning Signs	05/31/07
TE-06	Miscellaneous Signs	05/31/07
TE-07	Construction Signs	05/31/07
TE-08	Miscellaneous Intersection Signs	05/31/07
TE-09	Bike Route Sign & Supplementary Plates	05/31/07
TE-10	Interstate Route Marker	05/31/07
TE-11	State Route Marker and Auxiliary Markers	05/31/07
TE-12	State Route Marker and Border Detail for Guide Signs	05/31/07
TE-12A	Route Sign Assemblies	05/31/07

STANDARD PLAN NO.	TITLE	DATE
TE-13	Street name Sign on Mast Arm	05/31/07
TE-14	Miscellaneous Reflector Markers	05/31/07
TE-15	Object Markers	05/31/07
TE-16	Mile Posts	05/31/07
TE-17A	Cantilever Overhead Sign Elevation & Details	05/31/07
TE-17B	Cantilever Sign Frame Detail and Sections	05/31/07
TE-17C	Cantilever Sign Frame Detail	05/31/07
TE-17D	Cantilever Sign Frame Sections	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)	05/31/07
TE-24	Solid Aluminum Extruded Sign Panel and Accessory Details	05/31/07
TE-25	Guide Signs Luminaire Mountings	05/31/07
TE-26	Raised Pavement Markers and Striping	05/31/07
TE-27	Raised Pavement Markers and Striping	05/31/07
TE-28	Entrance and Exit Pavement Markings	05/31/07
TE-28A	Miscellaneous Pavement Markings	05/31/07
TE-29	Pavement Arrows and Symbols	05/31/07
TE-30	Pavement Alphabets, Numbers & Symbols	05/31/07
TE-31	Pavement Alphabets, Numbers & Symbols	05/31/07
TE-32	Type I & II Traffic Signal System Miscellaneous Details	05/31/07

STANDARD PLAN NO.	TITLE	DATE
TE-33	Type II Traffic Signal System	05/31/07
TE-33A1	Type II Traffic Signal Standard	05/31/07
TE-33A2	Type II Traffic Signal Standard	05/31/07
TE-34	Loop Detector Details	05/31/07
TE-35	Loop Detectors & Duct Details	05/31/07
TE-36	Traffic Signal Details	05/31/07
TE-37	Pullbox & Cover Details	05/31/07
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-38A1	Type III Traffic Signal Standard	05/31/07
TE-38A2	Type III Traffic Signal Standard	05/31/07
TE-39	Metal Guardrail Connection to Concrete Barrier	05/31/07
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	05/31/07
TE-45	Barricades	05/31/07
TE-46	Delineation & Pavement Markings at Narrow Bridges	05/31/07
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 ●)



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

Terrence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

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LINE IS 2 INCHES AT FULL SIZE (if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLANS SUMMARY

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-1 OF 9 SHEETS

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

PNV\2019-19-201-EMS-PHASE-3\UNIT-1\DWG-G-1-STANDARD-PLANS-SUMMARY.DWG Jul 22, 2021-9:07 AM

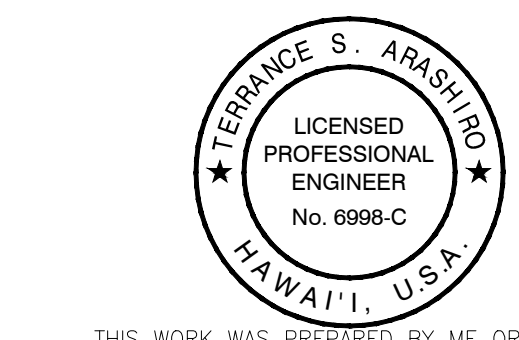
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	3	170

GENERAL NOTES

1. The project includes the installation of CCTV cameras, poles, footings and associated power and communication infrastructure on the H-1 Freeway and H-2 Freeway on the Island of Oahu and includes connecting the system to existing City and State fiber optic lines to provide communication to the H-3 Traffic Operations Center and City & County of Honolulu Traffic Management Center.
2. The Contractor's attention is directed to the following Sections of the Special Provisions : Subsection 107.06 - Contractor Duty Regarding Public Convenience; Subsection 107.11 - Safety: Accident Prevention; Subsection 107.12 - Protection of Persons and Property; Subsection 104.11 - Utilities and Services; and Section 645 - Work Zone Traffic Control.
3. The Contractor shall comply with utility coordination requirements per Standard Specification Section 104.11. As part of coordination requirements, the Contractor shall carbon copy the Engineer in all correspondences with utilities.
4. 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 make an independent check on the ground by probing and/or checking with the various utility companies of government agencies to verify the exact locations and depths of the existing utilities and obstructions. The contractor shall exercise proper care in excavating the area. Whenever connections of the new utilities are shown in the plans, the contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavating. The contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations. All damaged portions shall be replaced or repaired and shall include all upgrades and betterments to the standards of the utility or agency.
5. The Contractor shall verify the presence of existing utilities which may conflict with activities and shall coordinate with the utility company for temporary relocation, as necessary. All costs associated with the temporary relocation shall be borne by the Contractor and shall be incidental to the various pay items.
6. The Contractor shall indemnify and be solely responsible for the protection of adjacent properties, utilities, and existing structures from damages due to construction. Repairing any damages shall be at the Contractor's own expense, to the satisfaction of the Engineer.
7. The Contractor shall independently tone areas of excavation not more than 30 days prior to excavation. Provide written notice of scheduled toning and specific locations to the Engineer at least one week ahead of toning. The Contractor shall obtain DOT as-builts at the DOT Kapolei Kakuhihewa Building to locate potential conflicts with utilities prior to excavation. If there is a potential conflict, contractor shall inform DOT within 24 hours of discovery. Contractor shall probe around area and take precautions to not damage utilities. This work shall be incidental to various contract items and shall not be paid for separately.
8. The exact locations and limits of areas to be excavated or cleared shall be located in the field by the Contractor and accepted by the Engineer. The Contractor shall not begin any work until the Engineer verifies and accepts the location and limits of the area. Any area that is not accepted by the Engineer will be considered unauthorized work and shall not be paid for.
9. Minimum vertical and horizontal clearance between existing drainage facilities and other utilities shall be one foot and two feet, respectively.
10. The exact locations and limits or areas to be filled with leveling course, reconstructed and cold planed shall be determined in the field by the Engineer.
11. The Contractor shall notify in writing, the Oahu Transit Services, Inc. Roads Supervision Office, 811 Middle St., Hon., HI 96819 (ph. #848-4571) seven (7) days prior to any paving operations.
12. The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.
13. The Contractor shall remove and dispose of all existing raised pavement markers and traffic tapes prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to the various contract items.
14. All holes, depressions and wheel ruts shall be filled and compacted with Asphalt Concrete Pavement, Mix No. V prior to resurfacing. This shall be considered incidental to the various contract items.
15. Smooth riding connections shall be constructed at all limits of resurfacing, including the beginning and end of project, connecting approaches, side streets and driveways as shown on the plans and/or as directed by the Engineer.
16. Dressing of shoulder, sidewalk and bus turnout shall consist of clearing, grubbing, grading, reshaping and compacting the unpaved shoulders with suitable material as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to the various contract items.
17. Existing drainage system will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.
18. Earth swale shall be graded to drain. This work shall be considered incidental to the various contract items.
19. The contractor shall provide for access to and from all existing side streets at all times.
20. The Contractor shall provide for quality control of work. The contractor shall submit copies of all measurements and test results to the Engineer once obtained.
21. All materials shall be new and free of 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.
22. Contractor shall obtain a construction permit from the State's Highway District Engineer at 727 Koko Street, Honolulu, phone no. 831-6712, prior to commencement of work within State right-of-way.
23. Approval of State permit construction plans shall be valid for a period of one year thereof from the date of notification of approval to the applicant. In the event construction does not commence within this one-year period, the applicant will be required to submit his construction plans for division's review and approval.
24. The Permit to Perform Work Upon State Highway may be suspended or revoked due to non-compliance with of any of the following, but not limited to, conditions:
 - 24.a. Work or lane closures performed before or after permitted hours.
 - 24.b. Failure to maintain roadway surfaces in a smooth and safe condition.
 - 24.c. Failure to clean up construction debris generated from project work.
 - 24.d. Failure to provide proper traffic control.
 - 24.e. Failure to replace damaged pavement markings and signs.
 - 24.f. Failure to maintain highway lights and/or traffic signal systems.
 - 24.g. Failure to maintain or install traffic control devices.
 - 24.h. Failure to address public complaints to the satisfaction of the engineer.
 - 24.i. Unauthorized lane closures
25. Contractor shall inform the State Permit Office at least 2 days prior to closing any lanes. See phone numbers under note No. 22.
26. The Contractor shall notify the Highway Lighting and Traffic Signal Supervisor, Department of Transportation (State) three (3) working days prior to commencing work in this area. See phone number under note No. 22.
27. 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 contractor or subcontractor's base yards, manufacturer yard, production plant, separate storage areas). The Engineer reserves the right to reject any material for which access or inspection is not allowed.
28. All public notices and advertisements shall be incidental to the various lump sum traffic control pay items.
29. 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 and for the 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 for Streets and Highways, 2009 Edition, Part 6 Temporary Traffic Control". If lane closures are required during construction, a traffic control plan shall be incorporated into the construction plans and must be approved by the division prior to the issuance of the permit.
30. 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.
31. All work specified in the contract documents but not itemized in the proposal including all that is needed to complete the work shall be considered incidental to the various contract items and shall not be paid for separately.
32. Contractor to coordinate lane closures and work with adjacent projects and zipper barrier operations.

DATE	____/____/____
DESIGNED BY	____
CHECKED BY	____
DATE	____/____/____
DESIGNED BY	____
CHECKED BY	____

PWA\2019-19-201-EMS PHASE 3A_PHASE 3_UNIT 1\DWG-2 CONSTRUCTION NOTES.DWG, Jul 22, 2021 - 9:07 AM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

CONSTRUCTION NOTES

*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-2 OF 9 SHEETS

**WATER POLLUTION AND
EROSION CONTROL NOTES**

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	4	170

A. GENERAL:

- Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute a complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based upon means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Costs shall be included in lump sum Pay Item No. 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP and shall not be paid for separately.
- See Section 209 - Temporary 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.
- 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.
- Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
- 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, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- 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.
- 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.
- Submit Site-Specific BMP Plan to the Engineer along

with a completed Site-Specific BMP Review Checklist within 30 calendar days of contract execution. The Site-Specific BMP Review Checklist may be obtained from <http://www.stormwaterhawaii.com>.

B. WASTE DISPOSAL:

- 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 for Construction Sites to the Engineer within 30 calendar days of contract execution. 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.
- 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.
- 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:

- For projects with an NPDES Permit for Construction Activities, inspect construction BMPs weekly and within 24 hours of any rainfall event of 0.25 inches or greater in a 24 hour period if drainage system discharges into impaired waters. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.
- Construction BMPs shall be inspected weekly, and within 24 hours of any rainfall event of 0.25 inches or greater in a 24 hour period if drainage system discharges into impaired waters. The Contractor shall submit a copy of the SWPPP Inspection and Maintenance Report Form to the Engineer within 24 hours of the inspection.
- Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
- Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.

- 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.
- 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.
- 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.
- 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 material 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.
- Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.
- Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
- 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.

- 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.
- For projects with an 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.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

- Materials Pollution Prevention Plan**
 - 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
Paints (enamel and latex)
Metal Studs
Tar
Fertilizers
Petroleum Based Products
Cleaning Solvents
Wood
Masonry Block
Herbicides and Pesticides
Curing Compounds
Adhesives



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Terence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-3 OF 9 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
No.	

FWA/2019-19-201 - FMS PHASE 3 - UNIT 1 (WVG)-3 CONSTRUCTION NOTES.DWG, Jul 22, 2021 - 9:07 AM

**WATER POLLUTION AND
EROSION CONTROL NOTES (CONT'D)**

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	5	170

b. Use 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 labels and Safety 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.

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 the 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 586-4309, and the Hawaii State Hospital Operator at 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. A National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities of one acre or more of disturbed area is required for this project. If the Contractor requires extra land disturbance, including staging and storage areas, that is not covered by the NPDES Permit obtained by the State, the Contractor shall be responsible for obtaining the required NPDES Construction Activities Permit to cover this additional disturbed area. See Hawaii Administrative Rules Chapter 11-55, Appendix C for definition of land disturbance. The Contractor's attention is directed to the applicable NPDES Permit documents and SWPPP on the bid package compact disc.

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

- a. NPDES Permit for Construction Activities

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-2).
2. Contain on-site runoff using Perimeter Sediment Controls
 - a. SC-1 Silt Fence
 - b. SC-5 Vegetated Filter Strips and Buffers
 - c. SC-8 Compost Filter Berm
 - d. SC-13 Sandbag Barrier
 - e. SC-14 Brush or Rock Filter
3. Control offsite runoff from entering construction area
 - a. EC-8 Run-On Diversion
 - b. SC-6 Earth Dike
 - c. SC-7 Temporary Drains and Swales

4. Incorporate applicable Site Management BMP
 - a. SM-1 Employee Training
 - b. SM-2 Material Delivery and Storage
 - c. SM-3 Material Use
 - d. SM-4 Protection of Stockpiles
 - e. SM-6 Solid Waste Management
 - f. SM-7 Sanitary/Septic Waste Management
 - g. SM-9 Hazardous Waste Management
 - h. SM-10 Spill Prevention and Control
 - i. SM-11 Vehicle and Equipment Cleaning
 - j. SM-12 Vehicle and Equipment Maintenance
 - k. SM-13 Vehicle and Equipment Refueling
 - l. SM-14 Scheduling
 - m. SM-15 Location of Potential Sources of Sediment
 - n. SM-16 Preservation of Existing Vegetation
 - o. SM-18 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 (EC-2) 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-5) 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.

TREE TRIMMING NOTES

1. Trim trees or remove as required, costs shall be incidental to the various contract items. Notify HDOT at least forty eight (48) hours in advance in order to contact the State landscape architect.



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Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-4 OF 9 SHEETS

ORIGINAL PLAN	DATE
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NOTE BOOK	
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CHECKED BY	
No.	

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	6	170

TRAFFIC NOTES FOR WORK ON CITY AND COUNTY 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 Transportation Services and/or the Department of Planning and Permitting must be approved 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 Administration 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 VI - Traffic Controls for Street and Highway Construction and Maintenance Operations."
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 safe non-skid bridging material and all lanes shall be open to 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 signs, posts and pavement markings disturbed by his activities.
9. The Contractor shall notify the Department of Planning and Permitting at 768-8084 one (1) week prior to any work to be done on signs, posts and pavement markings.
10. No equipment shall be stored within street rights-of-way except at locations designated with writing and approved by the Department of Transportation Services.
11. The department of Design and Construction shall ensure that the Contractor installs the construction traffic control devices in accordance with the MUTCD and the Hawaii Administration Rules as specified in the traffic note #2.

FISH AND WILDLIFE NOTES

1. Minimize impacts to seabirds.
 - a. Fully shield all outdoor lights so the bulb can only be seen from below bulb height and only use when necessary.
 - b. Install automatic motion sensor switches and timer controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
 - c. Avoid nighttime construction during the seabird fledging period, September 15 through December 15.
2. Minimize the impacts to Hawaiian hoary bat.
 - a. Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season, June 1 through September 15.
 - b. Do not use barbed wire for fencing.

HAWAIIAN ELECTRIC COMPANY NOTES

1. LOCATION OF HECO FACILITIES

The location of HECO'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 HECO'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 PERMIT

The Contractor shall obtain an excavation clearance from Hawaiian Electric's Planning and Design Section of the Customer Installations Department (543-5654) located at 820 Ward Avenue, 4th floor, a minimum of ten (10) working days prior to starting construction.

4. CAUTION!!! ELECTRICAL HAZARD!!!

Existing HECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECO. only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. the Contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities, which can result in electrocution.

5. OVERHEAD LINES

State law (OSHA 1910.269(k)(2b)) 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 any revisions or amendments to 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 HECO at least three (3) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocate or de-energize HECO lines) can be investigated. HECO may also be able to blanket its distribution (12kv and below) lines to provide a visual aid in preventing accidental contact. HECO's cost of safeguarding or identifying its lines will be charged to the Contractor.

Contact HECO's Customer Installations Department at 543-7846 for assistance in identifying and safeguarding overhead power lines.

6. POLE BRACING

Contractor shall not excavate within 10 feet from HECO's utility poles or any anchor system supporting the utility pole. If the Contractor must excavate closer than 10 feet from a utility pole or its anchor system, Contractor will be responsible for protecting, supporting, securing and taking all precautions to prevent damage to or leaning of existing poles. Before commencing such excavation, Contractor must submit its bracing calculations and drawings, prepared and stamped by a licensed structural engineer, to HECO's Customer Installations Department (543-7846) for review. HECO requires a minimum of ten (10) working days to conduct the review of the Contractor's submittal. Contractor shall be responsible for the design, installation, and removal of the temporary pole bracing system, as well as all costs incurred by HECO to review Contractor's drawings and to repair or straighten poles impacted by Contractor's activities, including response and restoration costs incurred by HECO arising out of or related to outages caused by Contractor's failure to meet the foregoing requirements. HECO's review and approval of any Contractor submittals including its work procedure shall not relieve Contractor from any liability resulting from Contractor's excavation near or around HECO's utility poles.

7. UNDERGROUND LINES

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to break into existing HECO facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECO'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 HECO's Customer Installation Department at 543-7846 a minimum of ten (10) working days in advance.

Special precautions are required when excavating near HECO's 138kv or 46kv underground lines (see HECO instructions to consultants/contractors on "excavation near HECO's underground 138kv 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 HECO's underground fuel oil pipelines. special precautions are required when excavating near HECO's underground fuel oil pipelines (see HECO's specific fuel pipeline "guidelines" to consultants/contractors on excavation near HECO's underground fuel pipelines for detailed requirements).



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 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

CONSTRUCTION NOTES

*Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)*

Scale: As Shown Date: June 25, 2021

SHEET No. G-5 OF 9 SHEETS

ORIGINAL PLAN	DATE
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CHECKED BY	
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HAWAIIAN ELECTRIC COMPANY NOTES (CONT'D)

9. EXCAVATIONS

When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:

- Arranging for HECO standby personnel to observe work at contractor's cost
- Sheeting, bracing, or otherwise supporting the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.
- Properly supporting existing structures or facilities with beams, struts, or under-pinnings or other necessary methods to fully protect it from damage.
- Backfilling with proper backfill material including special thermal backfill where existing (refer to engineering department for thermal backfill specifications).

The Contractor shall notify the construction manager \neq HECO of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing.

10. RELOCATION OF HECO FACILITIES

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. the Contractor shall be responsible for all coordination, and shall provide necessary support for HECO'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 HECO's facilities not shown on the plans may be cause for lengthy delays. the Contractor acknowledges that HECO 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 HECO'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, HECO should be notified immediately upon discovery or identification of such conflict.

12. DAMAGE TO HECO FACILITIES

The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. the Contractor shall immediately report such damages or any hazardous conditions related to HECO's line to HECO's trouble dispatcher at 548-7961. Repair work shall be done by HECO or by the Contractor under HECO's supervision. costs for damages to HECO's facilities shall be borne by the Contractor.

In case of damage or suspected damage to HECO's fuel pipeline, the Contractor shall immediately notify HECO's Security Command Center at 543-7685 (a 24-hour number) so HECO personnel can

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES VERTICAL (CROSSINGS)

UTILITY BEING INSTALLED	EXIST. DIRECT BURIED CABLE	EXIST. DIRECT BURIED IN CONDUIT (NO CONC. ENCASEMENT)	EXIST. 3" CONC. ENCASEMENT	APPLICABLE NOTES:
HECO DB CONDUITS	6"	3"	0"	
HECO 3" ENCASEMENT	0"	0"	0"	
TELEPHONE/CATV DB	12"		6"	
TELEPHONE/CATV DB DUCTS	12"	12"	6"	
TELEPHONE/CATV 3" ENCASEMENT	0"	0"	0"	5
TRAFFIC SIGNAL	12"	12"	6"	
WATER DB	6"	6"	6"	2
WATER SERVICE LATERALS	6"	6"	6"	
WATER (CONCRETE JACKETED)	6"	6"	6"	2
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"	12"	
FUEL PIPELINES	48"	48"	48"	3

- NOTES:
- 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 24", JACKET SEWER LINE WITH PLAIN CONCRETE.
 - 12" VERTICAL CLEARANCE FOR PIPE DIAMETERS GREATER THAN 16".
 - ELECTRICAL CONDUIT CROSSINGS OF FUEL LINES SHOULD BE KEPT A MINIMUM OF 48" CLEAR BELOW FUEL LINE FOR THE FULL EASEMENT WIDTH. IF THE 48" CLEARANCE CANNOT BE MET BUT THERE IS A MINIMUM 24", THE FUEL LINE MUST BE ENCASED WITH 6" OF CONCRETE.
 - 5 FEET CLEAR TO WATER MAINS 16" AND LARGER.
 - FOR SITUATIONS WITH 0" MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
 - CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITIES.

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. HECO STAND-BY PERSONNEL

The Contractor may request HECO to provide an inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

The Contractor shall call the HECO's customer installations department at 543-7846 a minimum of two (2) months in advance to arrange for HECO stand-by personnel.

14. INDEMNITY

The Contractor shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions, including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortuous acts caused or contributed to by contractor or anyone acting under its direction or control or on its behalf; provided contractor's indemnity shall not be applicable to any liability based upon the sole negligence of HECO.

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES HORIZONTAL (PARALLEL)

UTILITY BEING INSTALLED	EXIST. DIRECT BURIED CABLE	EXIST. DIRECT BURIED IN CONDUIT (NO CONC. ENCASEMENT)	EXIST. 3" CONC. ENCASEMENT	APPLICABLE NOTES:
HECO DB CONDUITS	12"	3"	0"	
HECO 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	36"	36"	36"	1, 4
WATER SERVICE LATERALS	12"	12"	12"	
WATER (CONCRETE JACKETED)	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	48"	48"	48"	3

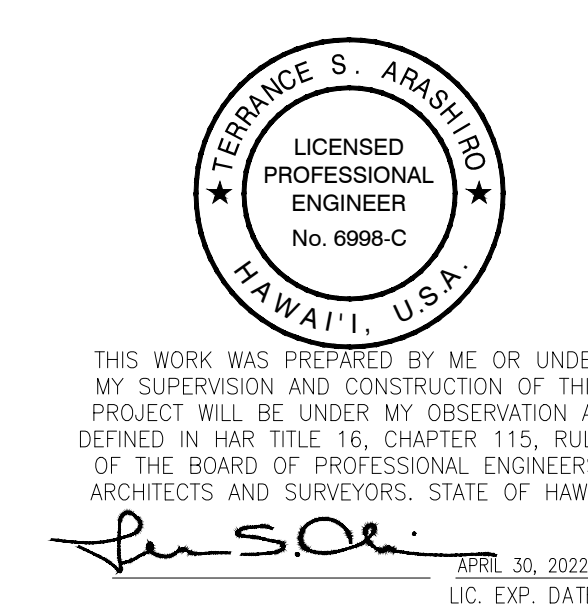
- NOTES:
- WHERE SPACE IS AVAILABLE, PARALLEL CLEARANCE TO OTHER UTILITIES, OR FOREIGN STRUCTURES OTHER THAN COMMUNICATION OR TRAFFIC SIGNAL SHALL BE 36".
 - IF 36" CLEARANCE CANNOT BE MET:
 - IF CLEARANCE IS LESS THAN 12", JACKET SEWER LINE WITH REINFORCED CONCRETE (PER HECO'S STD. 30-1030) FOR A DISTANCE OF 5' PLUS PIPE DIAMETER.
 - IF CLEARANCE IS BETWEEN 12" AND 36", JACKET SEWER LINE WITH PLAIN CONCRETE.
 - ELECTRICAL CONDUIT CROSSINGS OF FUEL LINES SHOULD BE KEPT A MINIMUM OF 48" CLEAR BELOW FUEL LINE FOR THE FULL EASEMENT WIDTH. IF THE 48" CLEARANCE CANNOT BE MET BUT THERE IS A MINIMUM OF 24", THE FUEL LINE MUST BE ENCASED WITH 6" OF CONCRETE.
 - 5 FEET CLEAR TO WATER MAINS 16" AND LARGER.
 - FOR SITUATIONS WITH 0" MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
 - CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITIES.

15. CLEARANCES

The clearances shown on this sheet shall be maintained between HECO's ductline and all adjacent structures (charted and uncharted) in the trench.

DATE	____
DESIGNED BY	____
CHECKED BY	____
NO.	____

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-6 OF 9 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	8	170

WATER NOTES

- 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" dated 2002, the "Water System External Corrosion Control Standards," volume 3, dated 1991, and all subsequent amendments and additions.
- All plans approved by the Board of Water Supply's are based solely on the adequacy of the water supply. All other features on the water system, such as lines, grades, fittings, drainage, etc., and other features of improvements shall not be the responsibility of the Board of Water Supply.
- The Contractor shall notify Capital Projects Division, Construction Section in writing or call (808) 748-5730 and submit six (6) sets of 24"x36" approved construction plans one week prior to commencing construction activities.
- 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 of encountering of other obstacles during the course of the work. The Contractor shall be responsible and pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.
- Re-approval shall be required if this project is not under construction within a period of two (2) years.
- 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 measures necessary to protect the water lines, such as constructing special reaction blocks (with the Board of Water Supply approval) and/or modifying his construction method.
- Prior to any excavating, the Contractor shall verify in the field the location of existing water mains and appurtenances.
- The Contractor shall adjust all manhole frames/valve boxes/meter boxes within the project limits. The Contractor shall be responsible for "referencing" these manholes/valve boxes/meter boxes to facilitate the adjustments.
- At the electrical/signal ductline water crossings, adjust all electrical/signal ductline elevations to maintain 12" vertical clear separation from all waterlines at no cost to the Board of Water Supply.

- Maintain 3'-0" min. horizontal clear separation between all waterline systems and nearest electrical/signal ductlines paralleling the water system at no cost of to the Board of Water Supply.
- Maintain a 3'-0" horizontal clear separation between street light/traffic signal, standards (including any modular units) and the nearest water system. Contractor shall field verify for any conflicts at each street/traffic signal standard location. Where conflicts occur, the Contractor shall coordinate with the project engineer to revise the street light/traffic signal standard to provide the required clearances at no cost to the Board of Water Supply.
- Trenchless Installation Work:
 - For trenchless utility work (micro-tunneling, directional drilling, pipe ramming/jacking of new utilities such as electrical duct lines, sewer lines, or drain lines) crossing or paralleling existing waterlines, provide 3' minimum horizontal and vertical clearance to existing waterlines. The utility owner or contractor shall make adjustments to meet the minimum clearances should the utility be installed closer to the existing waterlines, at no cost to BWS. The contractor shall submit plans of the new utility lines after inspection of the project.
- The Contractor shall verify all existing service lateral locations whether shown or not shown on plans prior to commencing with any of the work and shall not assume that where no services are shown none exist.
- No deviation to the Board of Water Supply 2002 Water System Standards shall be allowed without the Manager and Chief Engineer's approval.
- All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply and/or if work is to be done on/or near the water system.
- Any adjustments to the existing water system required during construction, to meet the requirements of the BWS Standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board.
- 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.
- Fiber Optic ductlines shall be installed at a minimum of 5' horizontal clearance to any waterlines or appurtenances.

- Where 5' horizontal clearance is not feasible, Fiber Optic ductlines shall be at least 3' clear, horizontally, and shall be jacketed in concrete, or grouted in concrete and encased in a carrier pipe.
- For Fiber Optic ductlines crossing waterlines, the Fiber Optic ductlines shall be concrete jacketed or concrete grouted and encased, and shall be a minimum of 18" below the waterline (for open trench installations), or a minimum of 3' below the waterline (for micro-tunneling, directional drilling installations).
- The contractor will provide adequate support for the waterline when the Fiber Optic line is installed under our main. Fiber Optic lines will be allowed to cross under a waterline, only on a straight portion of pipe, without the presence of any bends or supports.
- CLSM mixture is to meet a 28-Day unconfined compressive strength between 50 and 150 psi.
- Prior to start of construction, contractor shall submit material specifications for approval of the CLSM.

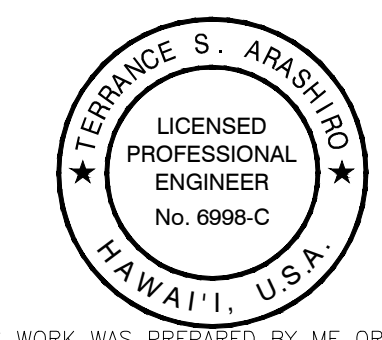
CATV NOTES

- 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. The Contractor shall obtain excavation permit clearance from Oceanic Cable/Time Warner's Engineering Section located at 200 Akamainui St., Mililani Tech Park. Any work required to relocate CATV facilities shall be done by Oceanic Cable/Time Warner and the Contractor shall be responsible for all coordination requirements and associated costs.
- The Contractor shall take necessary precaution not to damage existing cables or ducts. Any work involving existing cables or ducts shall be done in the presence of the Oceanic Cable/Time Warner inspector or his representative. The Contractor shall notify the Oceanic Cable/Time Warner inspector 48 hours prior to the start of pullbox adjustments. For underground cable locating and parking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative. Any damage to Oceanic Cable/Time Warner's facilities shall be reported to OCI's Repair Dispatch Department at 625-8282 or 625-8666.
- Contractor shall provide all materials and furnish all labor and equipment necessary to re-adjust the pullbox height. The location of CATV facilities shown on plans are from existing records with varying degrees of accuracy as to its actual fixed location. The Contractor shall use extreme caution when working in close proximity of CATV facilities.
- At no time shall cement mortar, wood, or any other material be used between precast sections. Leveling or raising of boxes to grade must be done by brickwork section using cement mortar. The permanent installation of wooden wedges to accomplish this purpose will not be accepted.

HAWAIIAN TELCOM NOTES

- The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incidental to the due and lawful prosecution of the work.
- 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 AM. to 11:00 AM. and 12:00 AM. to 3:00 PM. Monday through Friday, except holidays.
- 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.
- The locations of existing utilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom facilities. The Contractor shall verify their locations and shall be liable for any damages to Hawaiian Telcom facilities. Any damages shall be reported immediately to Hawaiian Telcom's Repair Section at #611 (24 hours) or to the Excavation Permit Section at 546-7746 (normal working hours, Monday through Friday, except holidays). As a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.
- The Contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contains Hawaiian Telcom facilities. Temporary cable and duct supports shall be provided wherever necessary.

Manager and Chief Engineer, BWS _____ Date
 (For Work Affecting BWS
 Facilities in City/State R/W and
 BWS Easements only)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

CONSTRUCTION NOTES

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-7 OF 9 SHEETS

DATE	BY
DESIGNED BY	DATE
CHECKED BY	DATE
QUANTITIES BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
QUANTITIES BY	DATE

PKVA\2019\19-201-FMS PHASE 3_1 UNIT 1\DWG-G-7 CONSTRUCTION NOTES.DWG Sep 07, 2021 1:34:44 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	9	170

HAWAIIAN TELCOM NOTES (CONT'D)

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 Underground Telephone Systems" dated January 2007 and all subsequent amendments and additions, and all other pertinent standards for telephone construction. The 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 Design and Construction, City and County of Honolulu, concerning the replacement of concrete sidewalks after excavation work.
12. The underground pipes, cables, or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
13. Wherever connections to existing utilities are shown on the plans, the contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.
14. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the City and County, shall be borne by the Contractor.
15. The Contractor shall pump all manholes dry during final inspection.

16. The Contractor shall notify Hawaiian Telcom inspector 24 hours prior to the pouring of concrete or backfilling.
17. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Ducts shall be adjusted in the field in order to clear reinforcing.
18. The Contractor shall be responsible for laying out all required lines and grades and shall preserve all bench marks and working points necessary to lay out the work correctly. The new ductline shall be adjusted by the Contractor to suit the existing conditions and the details as described in the plans.
19. Minimum concrete strength shall be: For ductline 2500 PSI at 28 days For manhole 3000PSI at 28 days or as specified in design notes.
20. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 25 feet. All 90 degree c-bends at a pole or at the building floor slab penetration, shall have a bend radius of ten times the diameter of the duct or greater.
21. After ductline has been completed, a mandrel with a square front not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.
22. All ducts and conduits shall have an 1800# polyester mule-tape (neptco, wpi800p, Hawaiian Telcom material code no. 571154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.

CONTRACTOR'S RESPONSIBILITY FOR EXISTING UTILITY LINES, PIPES AND SERVICES

1. The Contractor shall contact Hawaii One Call Center to have respective utility companies and agencies mark where their underground utilities are located. The Contractor shall comply with all requirements of Hawaii One Call Law. The Contractor shall be liable for any damages if Hawaii One Call requirements are not strictly adhered to. 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.

2. The Contractor shall notify the Hawaii One Call Center (HOCC) at 1-866-423-7287 for excavation or drilling at least five (5) working days, but not more than twenty-eight (28) calendar days prior to commencing excavation or drilling work, in accordance with Hawaii Revised Statutes Chapter 269e. The Contractor shall provide the HOCC, a description of the site, that includes the county and address or description of where the excavation or drilling will take place, including but not limited to the nearest intersecting street, side street, or other tie-in measurements as needed. The Contractor shall not begin excavation or drilling operations without prior clearances from the HOCC.
3. Information regarding the site of the work given on the drawings or specifications has been obtained by the Engineer and is believed to be reasonably correct; however, it is the responsibility of the Contractor to verify all such information. The Contractor shall tone the area to be excavated to ascertain the location of uncharted utilities.
4. Any utilities that the Contractor encounters during the progress of the work, such as telephone ducts, electric ducts, water lines, sewer lines, electric lines and drainage pipes, whether shown or not on the contract plans, shall not be disturbed or damaged unless otherwise instructed in the plans and specifications.
5. In the event the utilities are damaged or disturbed by the Contractor, the Contractor shall be held liable for the damaged or disturbed utilities.
6. The Contractor shall repair the damaged or disturbed utilities to the existing condition at no cost to the owner. Any damage claims due to the disruption of service caused by the utilities being damaged shall be paid by the Contractor, who shall save harmless the owner and on account of such damages.
7. In the event utilities which were not shown on the plans and specifications are damaged or disturbed by the Contractor, the Contractor shall be held liable. The Contractor shall contact all utility companies and expose all utility lines prior to any excavation and/or installation of lines.

CONSTRUCTION NOTES FOR GAS FACILITIES

1. The Gas Company gas pipelines 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 the Gas Company, 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 1-866-423-7287.
4. The contractor shall excavate and backfill around gas pipelines in the presence of a representative of the gas company. All backfill within six inches of any gas pipeline shall be select cushion material approved by the Gas Company.
5. For relocation of any gas pipeline, the Contractor shall notify the Gas Company five (5) working days before starting work. The telephone number is 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 the Gas Company and paid for by the Contractor.
6. The Contractor shall notify the Gas Company immediately after any damage has been caused to existing gas pipelines, coatings, or its cathodic protection devices. The telephone number is 535-5933, 24 hours a day. The Contractor shall be liable for any damage to the Gas Company facilities. Repair work on such damage shall be done by the Gas Company 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 the Gas company.
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.

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

PWA\2019\19-201-FMS PHASE 3\1-UNIT 1\DWG-G-8 CONSTRUCTION NOTES.DWG, Jul 22, 2021 - 9:08 AM

TERENCE S. ARASHIRO
 LICENSED PROFESSIONAL ENGINEER
 No. 6998-C
 HAWAII, U.S.A.

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

Terence S. Arashiro
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

CONSTRUCTION NOTES

*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. G-8 OF 9 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	10	170

PUBLIC HEALTH, SAFETY AND CONVENIENCE

- The Contractor shall observe and comply with all Federal, State and Local laws required for the protection of public health and safety and environmental quality.
- The Contractor, at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the Air Pollution Standards and Regulations of the State Department of Health.
- The Contractor shall be responsible for the cleaning and removal of all silt and debris generated by his work and deposited and accumulated within downstream waterways, ditches and drain pipes and on public and private roadways. The Contractor agrees to reimburse the State or City and County of Honolulu, the costs expended in performance of the above work if required for public health and safety, or made necessary by non-performance by the Contractor.
- The Contractor shall submit a noise pollution control plan when applying for a construction permit.

GENERAL NOTES FOR TRAFFIC CONTROL PLANS

- Traffic control plans shown in the Contract Documents are minimum requirements and do not constitute a complete traffic control plan. The Contractor shall provide any traffic control plan (not shown in the plans) that is needed to accomplish the work based on contractor's means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable Manual Uniform Traffic Control Devices (MUTCD) requirements. All lane closures and traffic pattern changes (detours) not shown on the plan shall be submitted to the Engineer for approval in accordance with Specifications Section 645 - Work Zone Traffic Control. For restrictions on lane closures, detours, construction work during peak hours, and other requirements regarding maintaining vehicular and pedestrian traffic, see Section 107.06 - Contractor Duty Regarding Public Convenience, and Section 645 - Work Zone Traffic Control. All traffic control related costs shall be included in the various lump sum traffic control pay items and shall not be paid for separately.
- The Contractor shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
- Cones or delineators shall be extended to a point where they are visible to approaching traffic.
- 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.

- Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered.
- The Contractor shall install a flashing arrow signal as shown on the traffic control plans.
- All traffic lanes shall be a minimum of 10 feet wide.
- All construction warning signs shall be promptly removed or covered whenever the message is applicable or not in use.
- 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 messages on both faces).
- Submit requests for detours, ramp, and lane closures in accordance with Hawaii Standard Specification Subsection 645.03(F). Refer to minimum timeframes required for implementation.
- 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 contractor 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.
- Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
- Permanent pavement markings and traffic signs shall be replaced upon completion of each phase of work.
- Cones and delineators shall be spaced at a maximum distance of 20 feet apart. A minimum of six channelizing devices shall be used for each taper length.
- "No Parking" signs shall be posted within any work area and for the buffer and taper areas approaching the work area. Contractor shall notify and coordinate restricted parking with roadway owner.
- See Section 645 of the Special Provisions for allowable closure times and other requirements.
- Driveways shall be kept open unless the owners of the property using the right-of-way are otherwise provided for satisfactorily. Further, the contractor shall control traffic going in and out of driveways.
- Buffer and taper areas on approach to any work area shall be kept clear of vehicles and equipment.
- A high level warning device (flag tree) shall be installed on approach to all work areas.
- Traffic control plans shall be approved for work on any city street area requiring 24 hour closure.

- All traffic control devices shall be MASH Compliant.
- Steel plates are only allowed for non-work hour protection where posted speed limit is 35 mph or less. For speed limits greater than 35 mph, the Contractor shall use temporary barriers and layout in State Standard Plans TE-42 and TE-43 or accepted equal. The cost shall be incidental to the various contract items.
- If the traffic control plan or any traffic control device is not installed per plan, specification, or is deemed unsafe, the Engineer reserves the right to shut down the work at no additional cost/time or withhold payment.

SOLID WASTE CONTRUCTION NOTES

- All material generated by the project and taken off-site shall be considered solid waste. The Contractor shall dispose of all removed material at an approved Department of Health waste management facility. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer by the last day of the month. Provide documentation from any intermediary facility where solid waste is handled or processed, haul tags, or any documentation as requested by the Engineer. If the Contractor elects to reclassify material as inert fill, DOH HEER testing guidance shall be followed. No material generated from this project shall be classified as inert fill material for reuse without testing, obtaining required approvals/permits, providing disposal locations/quantities, and obtaining prior written approval from the Engineer. Failure to comply with these requirements will result in fines/liquidated damages in accordance with Special Provisions Section 209 and HDOT's Enforcement Response Plan.
- Any material brought to the City and County landfills will be subjected to the instituted tipping fee system, with no exceptions or exemptions.

ABBREVIATIONS

ABUT	Abutment
∅	Approximate
∕	And
@	At
AC	Asphalt Concrete
Ⓡ	Baseline
BMP	Best Management Practices
CATV	Cable Television
CB	Catch Basin
CCTV	Closed Circuit Television
Ⓢ	Centerline
CLR.	Clear
CONC	Concrete
CONT	Continuation or Continuous
DET.	Detail
D.I.	Drain Inlet
D/L	Drain Line
DMS	Dynamic Message Sign

DMH	Drain Manhole
DWY. OR D/W	Driveway
EA	Each
EHH	Electric Handhole
ELEC.	Electric
ELEV.	or EL Elevation
EX.	or EXIST. Existing
EP	Edge Pavement
ETW	Edge Travel Way
FH	Fire Hydrant
FOC	Fiber Optic Cable
FT	Feet
GA	Guy Anchor
GE	Gigabit Ethernet
GFE	Government Furnished Equipment
GV	Gate Valve
HELCO	Hawaiian Electric Light Co.
HECO	Hawaiian Electric Co.
HT/HTCO	Hawaiian Telcom
IRR	Irrigation
LAT	Lateral
LP	Light Pole
MH	Manhole
MON	Monument
MIN	Minimum
NIC	Not In Contract
PAV'T	Pavement
P	Property Line
PL	Place
PP	Power Pole
RD.	Road
ROW	Right-Of-Way
SDMH	Storm Drain Manhole
SFP	Small Form Factor Pluggable
SHT.	Sheet
ST.	Street
STA.	Station
STD	Standard
SW	Switch (ethernet)
S/W	Sidewalk
TBOX	Telephone Box
TCP	Traffic Control Plan
TMH	Telephone Manhole
TRANS	Transformer
TYP.	Typical
UP	Utility Pole
VMS	Variable Message Sign
WM	Water Meter
WV	Water Valve



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

Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

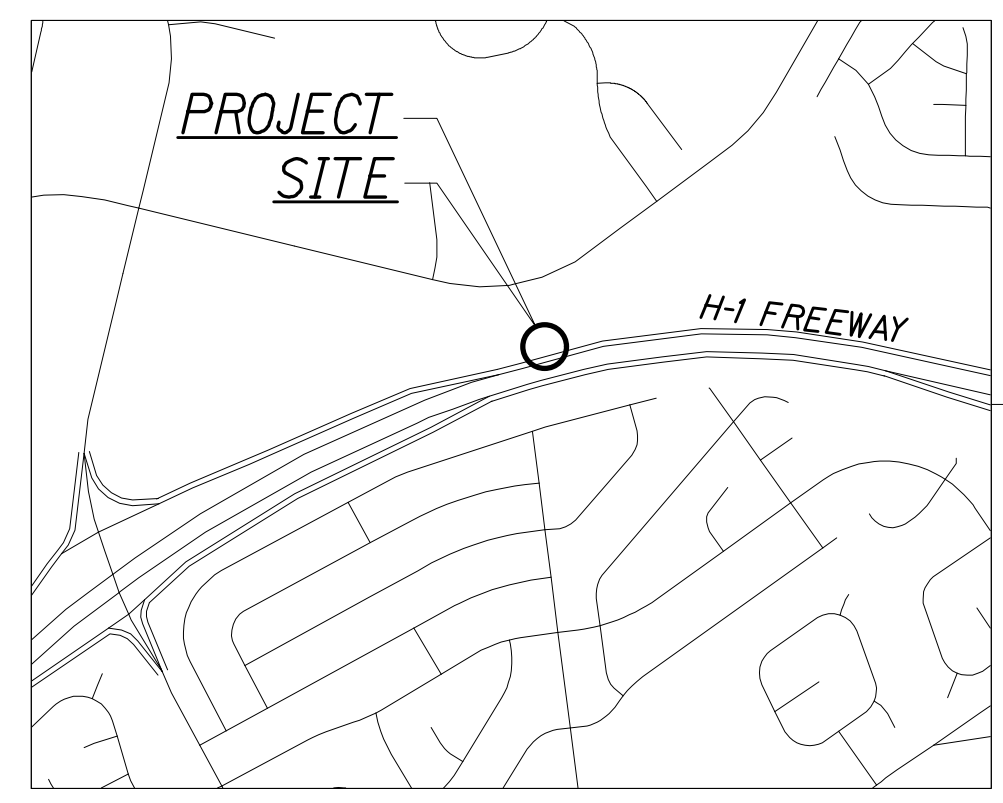
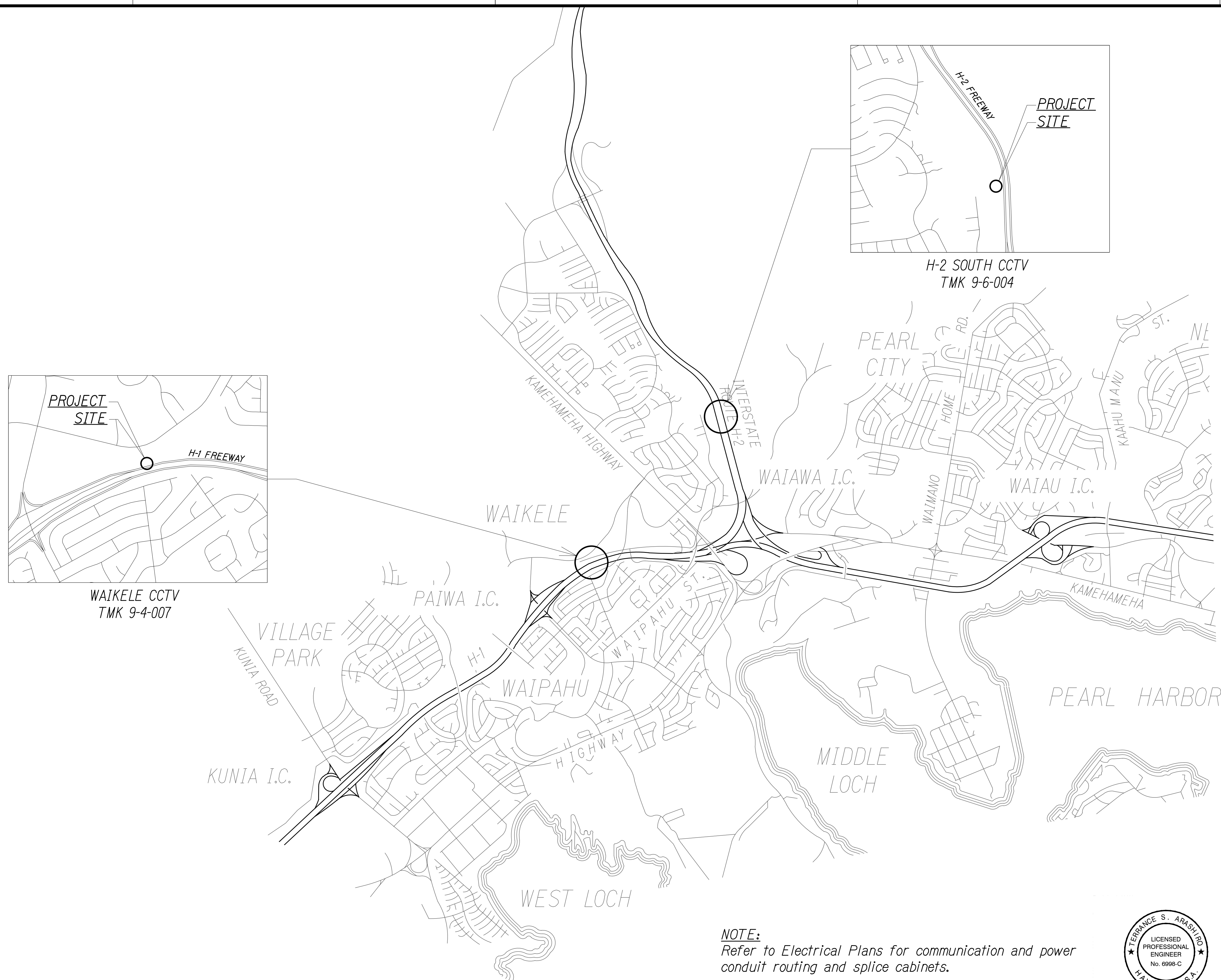
Scale: As Shown Date: June 25, 2021

SHEET No. G-9 OF 9 SHEETS

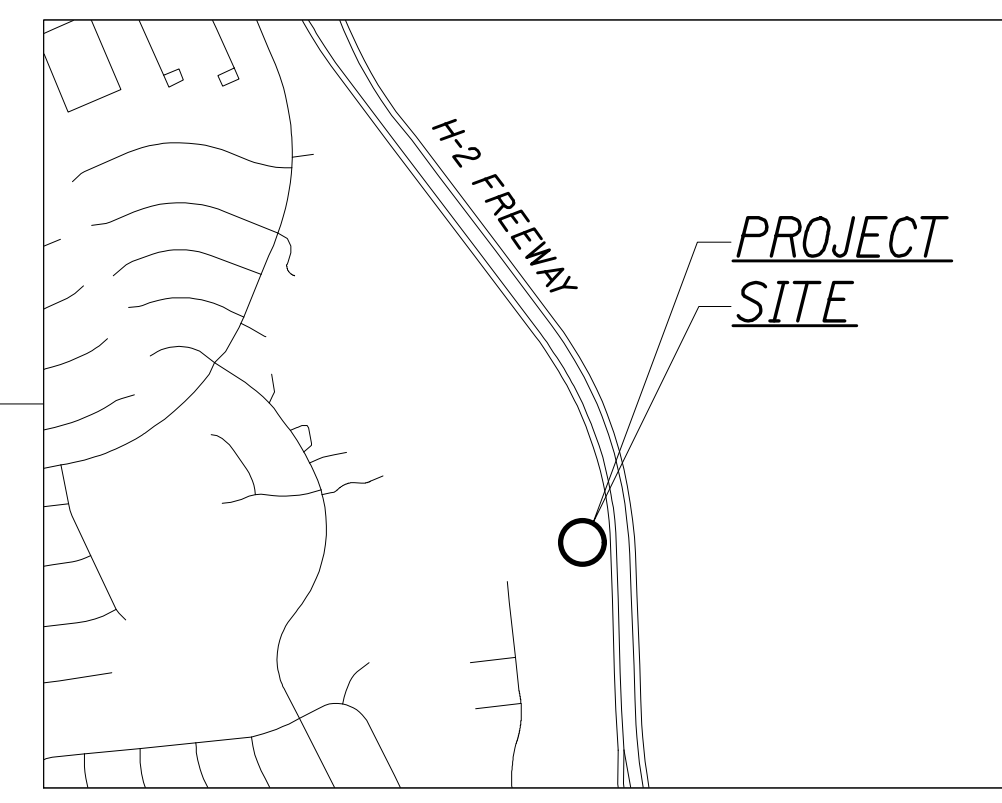
DATE	DATE
DESIGNED BY	DESIGNED BY
CHECKED BY	CHECKED BY
QUANTITIES BY	QUANTITIES BY
NO.	NO.

FWA/2019-19-201-FMS PHASE 3, UNIT 1 (WVG)-9 CONSTRUCTION NOTES.DWG, Jul 22, 2021-9:08 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	11	170

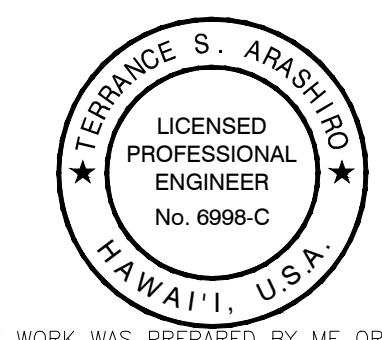


WAIKĒLE CCTV
TMK 9-4-007



H-2 SOUTH CCTV
TMK 9-6-004

NOTE:
Refer to Electrical Plans for communication and power conduit routing and splice cabinets.



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Terence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV SITE PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. C-1 OF 5 SHEETS

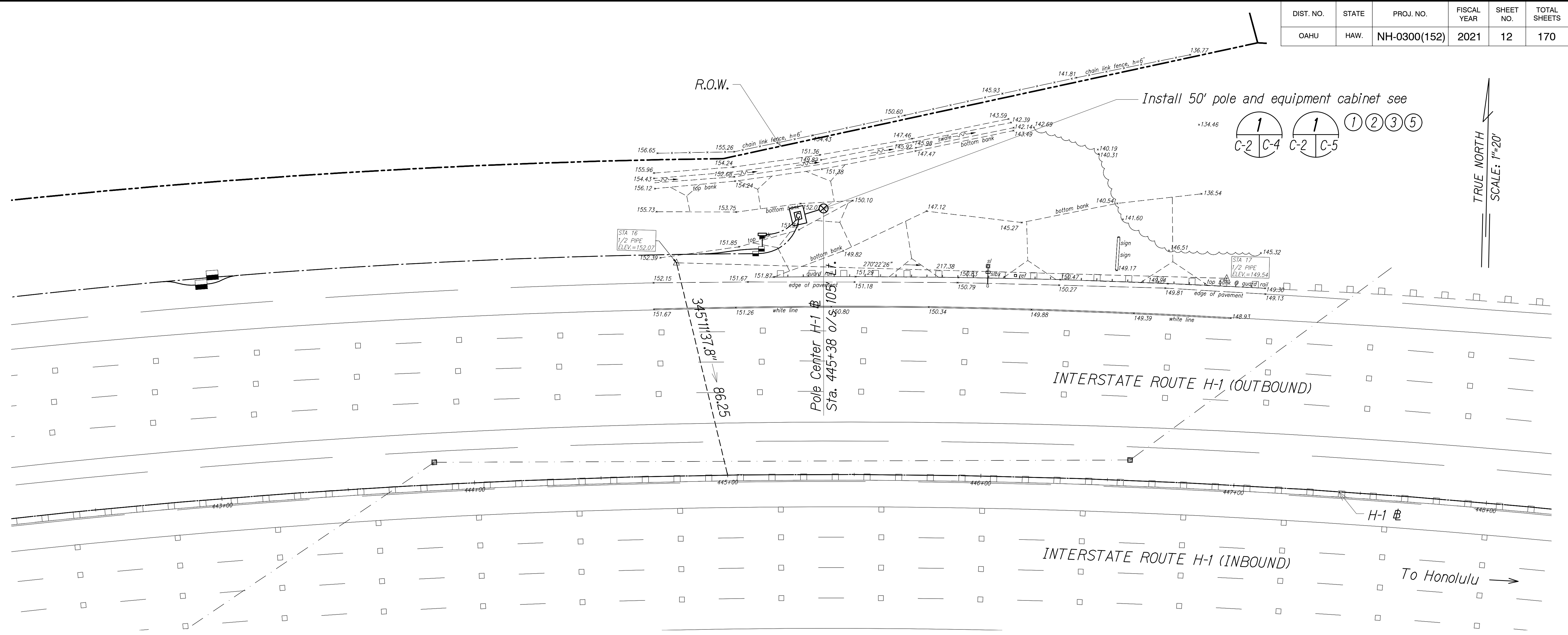
LOCATION MAP
Not To Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

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

F:\A\14-HNL-ENG\2020\PROJECTS\2019\19-201 FMS PHASE 3\1 VIEW\03-C-1 CCTV SITE PLAN.DWG Aug 04, 2021-10:13 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	12	170

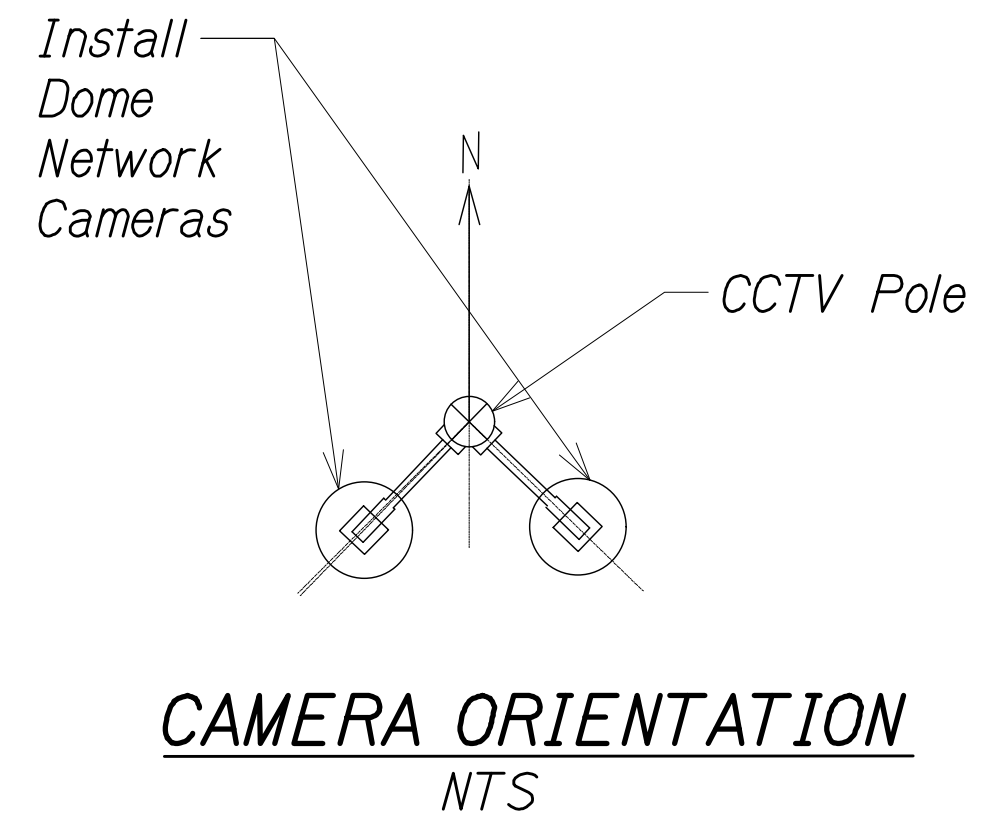


TRUE NORTH
SCALE: 1"=20'

WAIKELE
Scale: 1"=20'

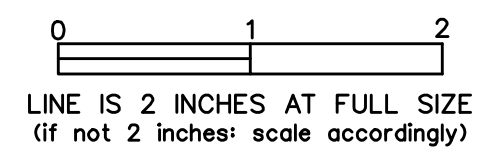
- Notes:**
- ① See Electrical Plans for electrical and communication service connections.
 - ② For Best Management Practices see Sheet B-9
 - ③ Avoid exist. irrigation systems.
 - ④ See Structural Plans for details.
 - ⑤ Contractor to verify existing topography elevations prior to construction.

- LEGEND:**
- ⊗ CCTV Pole
 - ⓐ Equipment Cabinet



DATE	____
DESIGNED BY	____
CHECKED BY	____
NO.	____

SURVEY PLOTTED BY: _____ DATE: _____
 ORIGINAL PLAN DRAWN BY: _____
 NOTE BOOK DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____
 P:\A\174-HNL-ENG\2020\PROJECTS\2019\19-201 FMS PHASE 3\UNIT 1\DWG\C-2 CCTV SITE PLAN.DWG Aug 04, 2021-10:41 AM



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV SITE PLAN

*Freeway Management System, Phase 3,
Unit 1*

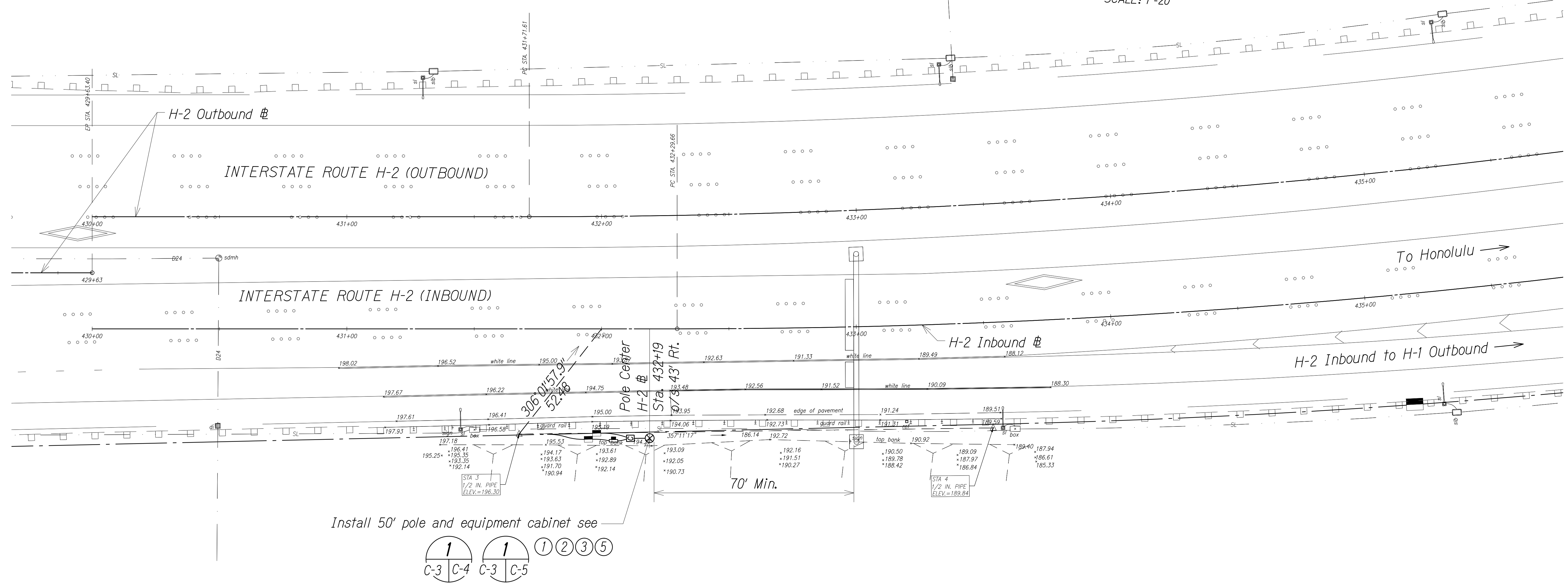
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

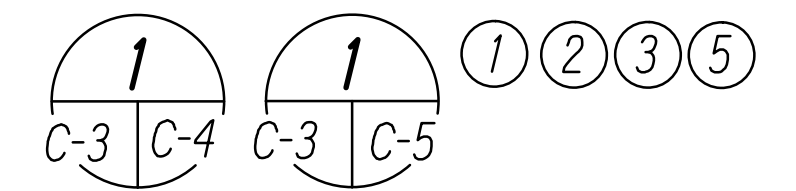
SHEET No. C-2 OF 5 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	13	170

TRUE NORTH
SCALE: 1"=20'



Install 50' pole and equipment cabinet see



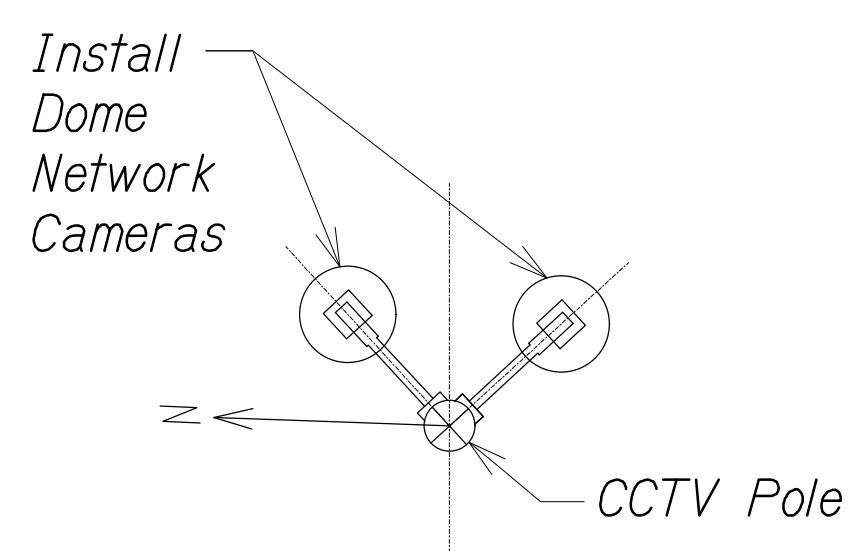
H-2 SOUTH
Scale: 1"=20'

Notes:

- ① See Electrical Plans for electrical and communication service connections.
- ② For Best Management Practices see Sheet B-1
- ③ Avoid exist. irrigation systems.
- ④ See Structural Plans for details.
- ⑤ Contractor to verify existing topography elevations prior to construction.

LEGEND:

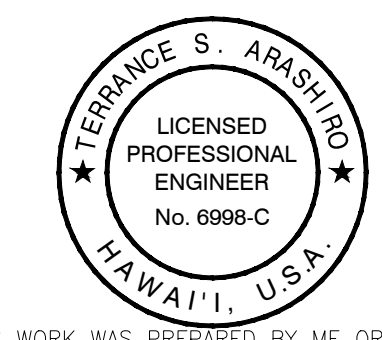
- ⊗ CCTV Pole
- Equipment Cabinet without Apron



CAMERA ORIENTATION
NTS

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\C-3 CCTV SITE PLAN.DWG, Jul 22, 2021 9:11 AM
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____



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

0 1 2
LINE IS 2 INCHES AT FULL SIZE (if not 2 inches scale accordingly)

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

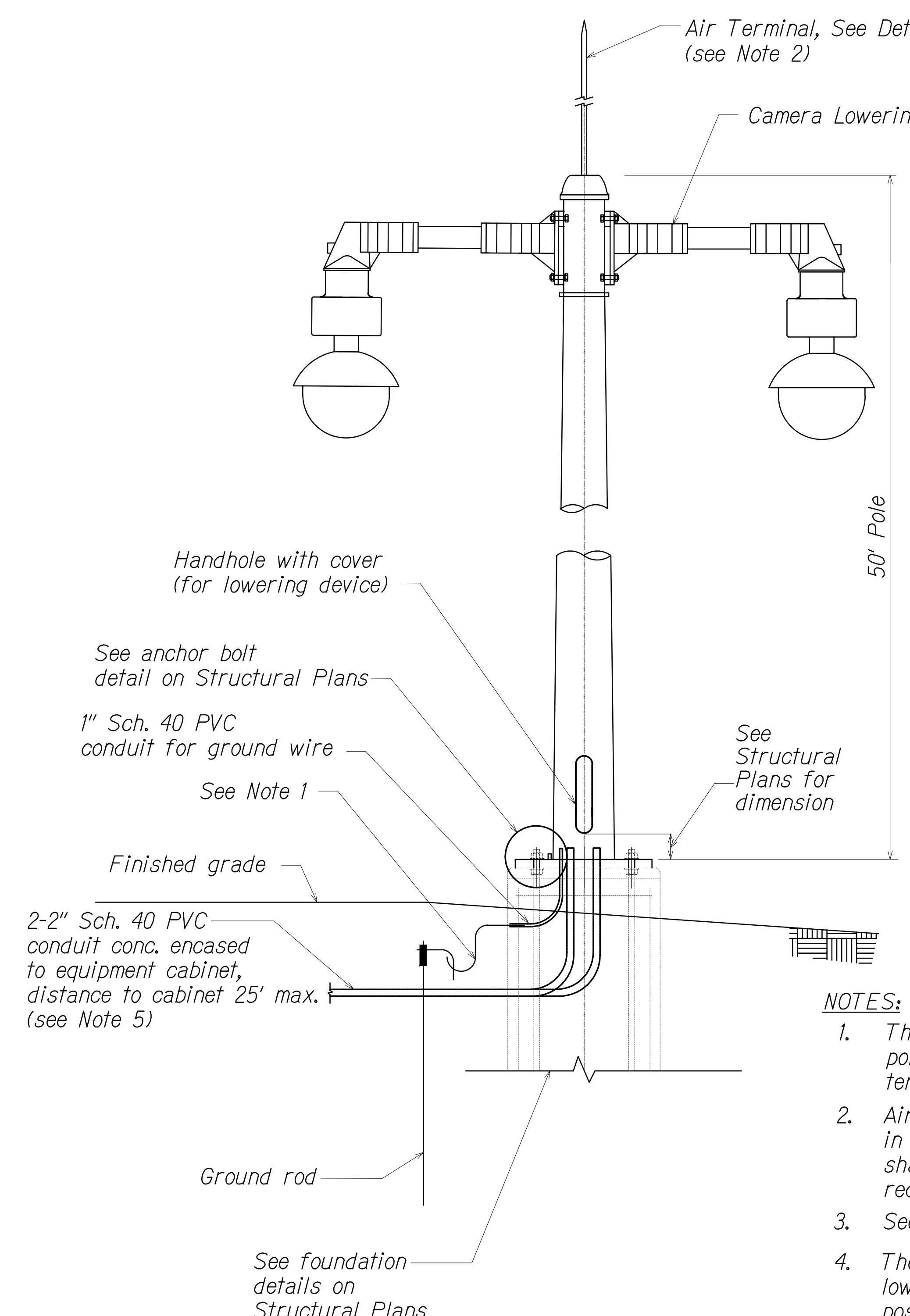
CCTV SITE PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

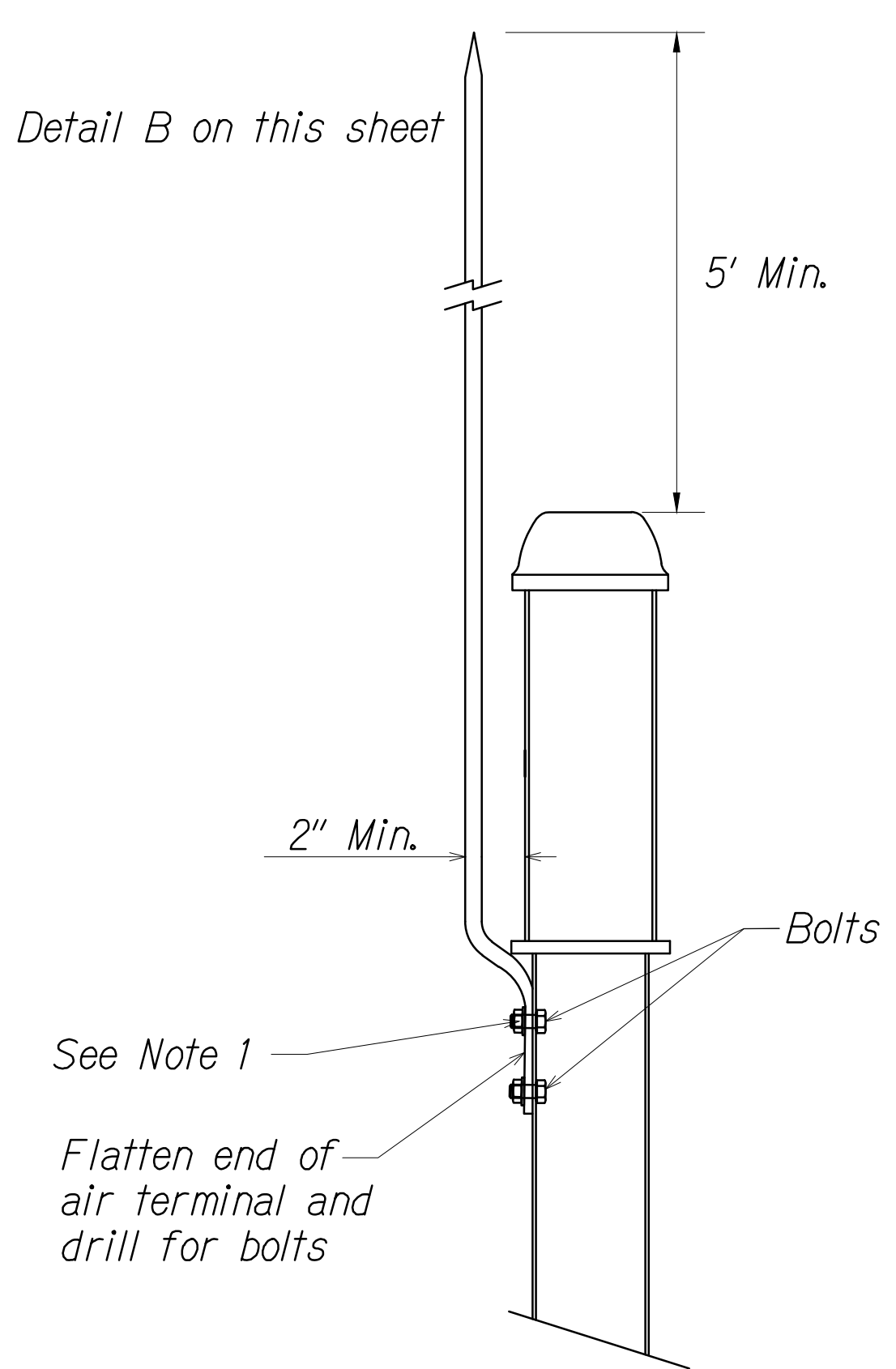
Scale: As Shown Date: June 25, 2021

SHEET No. C-3 OF 5 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	14	170



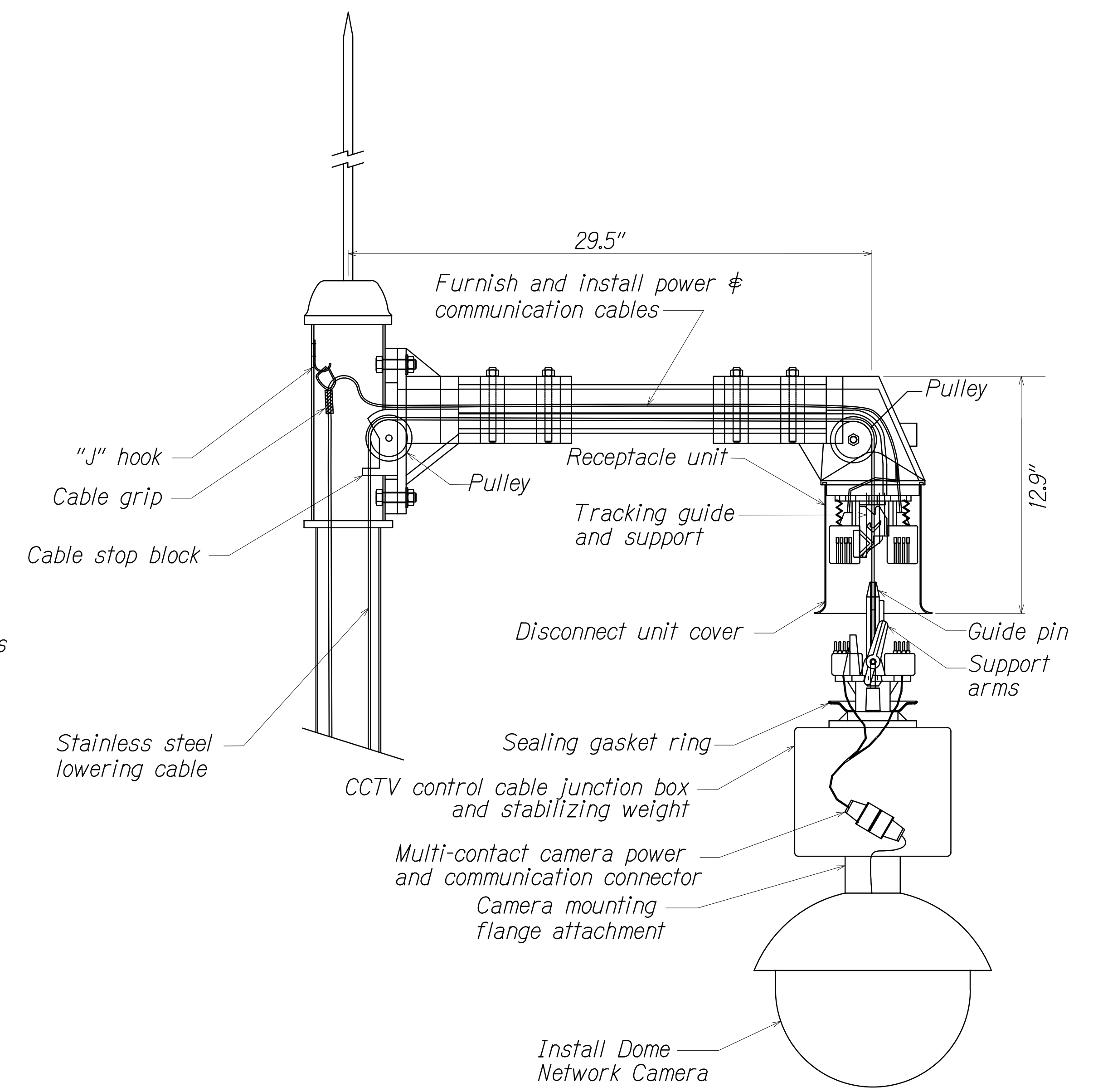
1 CCTV POLE DETAIL
C-2-C-3/C-4 Not To Scale



DETAIL A
AIR TERMINAL
Not To Scale

NOTES:

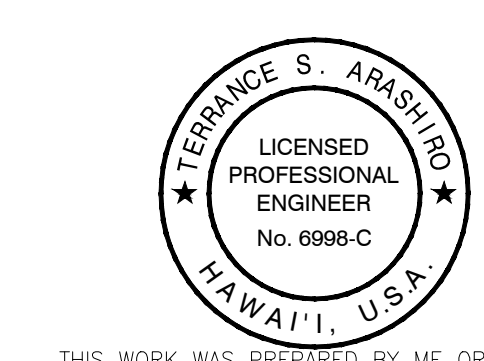
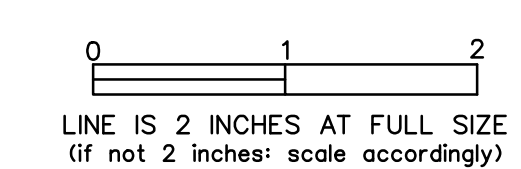
1. The Contractor shall use an AWG #6 solid, bare copper wire to bond the pole to the ground rod(s), and AWG #2 solid, bare copper wire from air terminal to ground.
2. Air terminal as required to provide lightning protection shall be included in all shop drawings submitted for approval. The tip of the air terminal shall be ground to a point. See Special Provisions for additional requirements.
3. See Special Provisions for cabling requirements.
4. The Contractor shall ensure that the orientation of the camera lowering device is aligned with that of the bolt circle pattern to be positioned to match the orientation detail on the site plans. This shall be approved by the Engineer prior to installation.
5. Refer to State of Hawaii, Department of Transportation, Highways Division, Standard Plans 2008, TE-36 for trench details.



DETAIL B
CAMERA LOWERING DEVICE AND CCTV CAMERA
Not To Scale

DATE	BY
DESIGNED BY	TERENCE S. ARASHIRO
CHECKED BY	TERENCE S. ARASHIRO
DATE	BY
DESIGNED BY	TERENCE S. ARASHIRO
CHECKED BY	TERENCE S. ARASHIRO

F:\A\2019\19-201-FMS PHASE 3\1-DRWG-C-4 CCTV DETAILS.DWG Jul 22, 2021-9:12 AM
 ORIGINAL PLAN
 NOTE BOOK
 No.



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 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV DETAILS

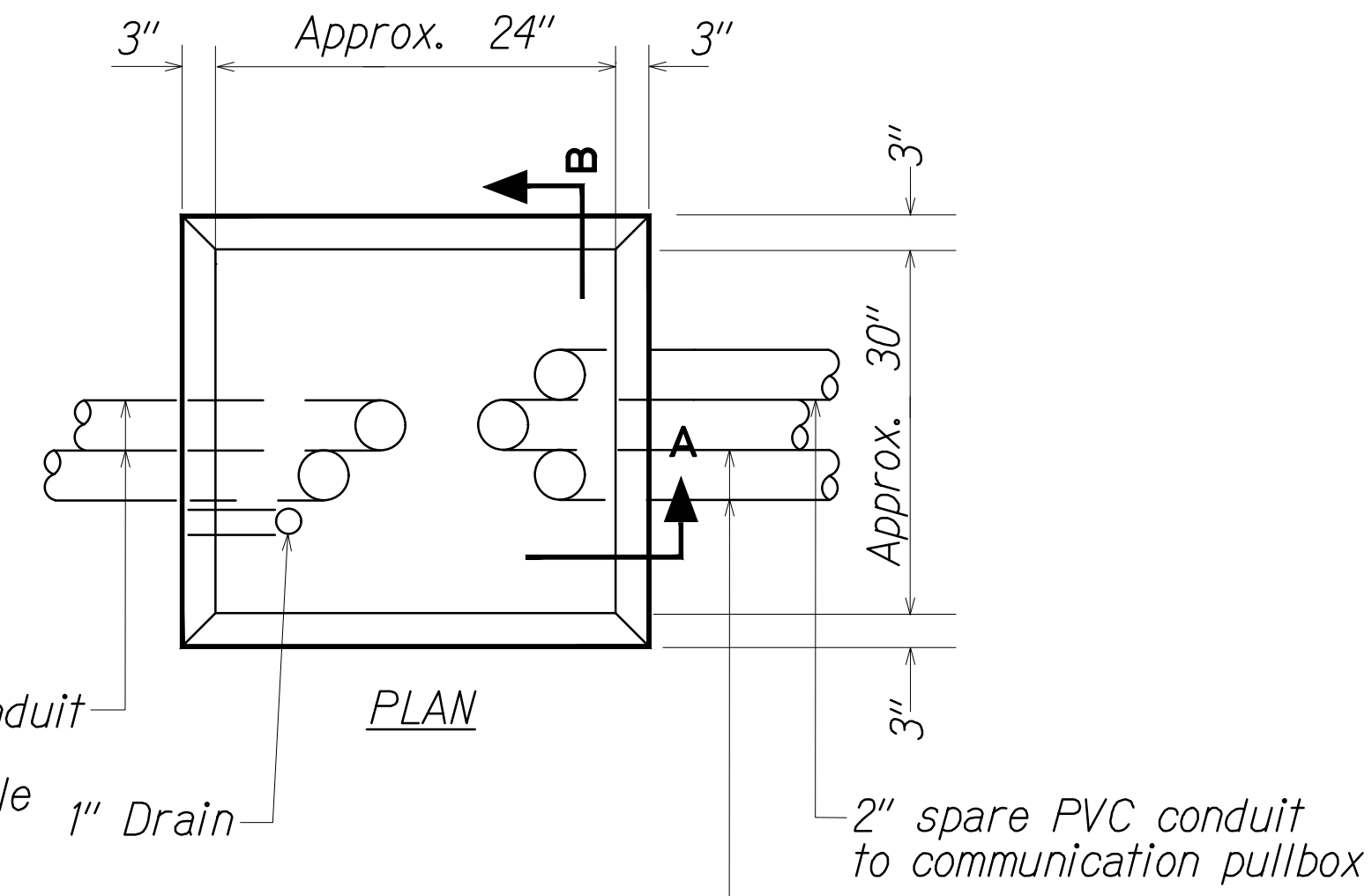
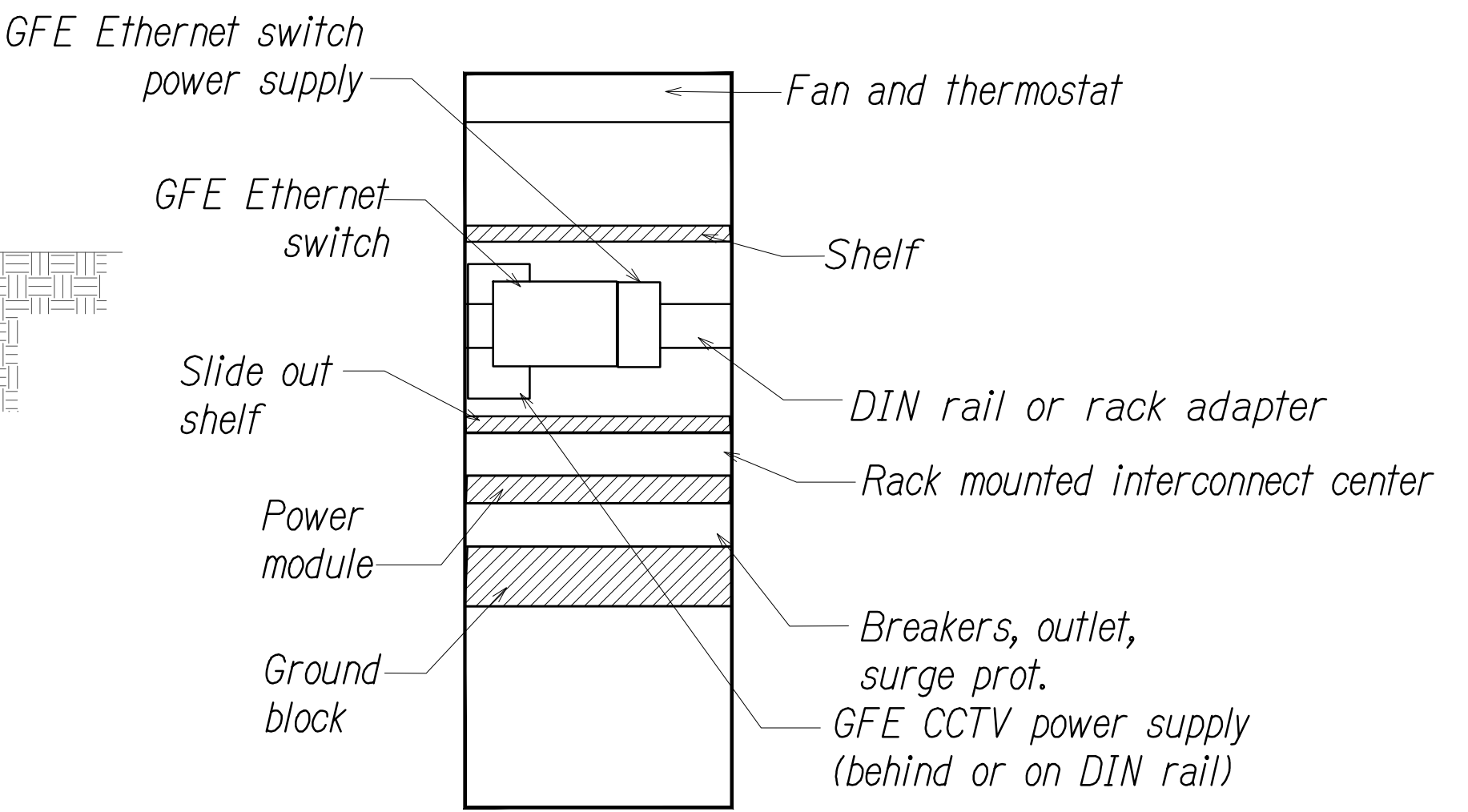
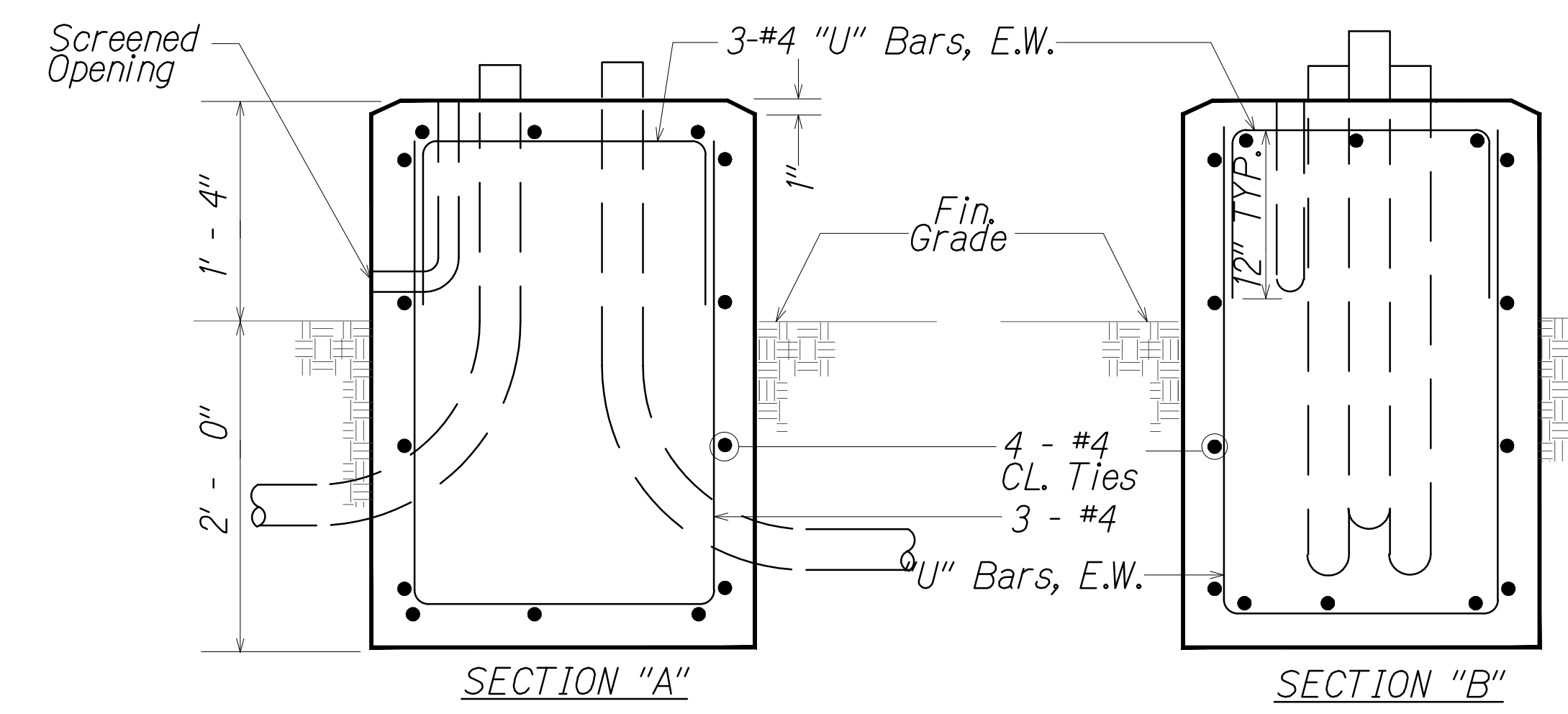
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

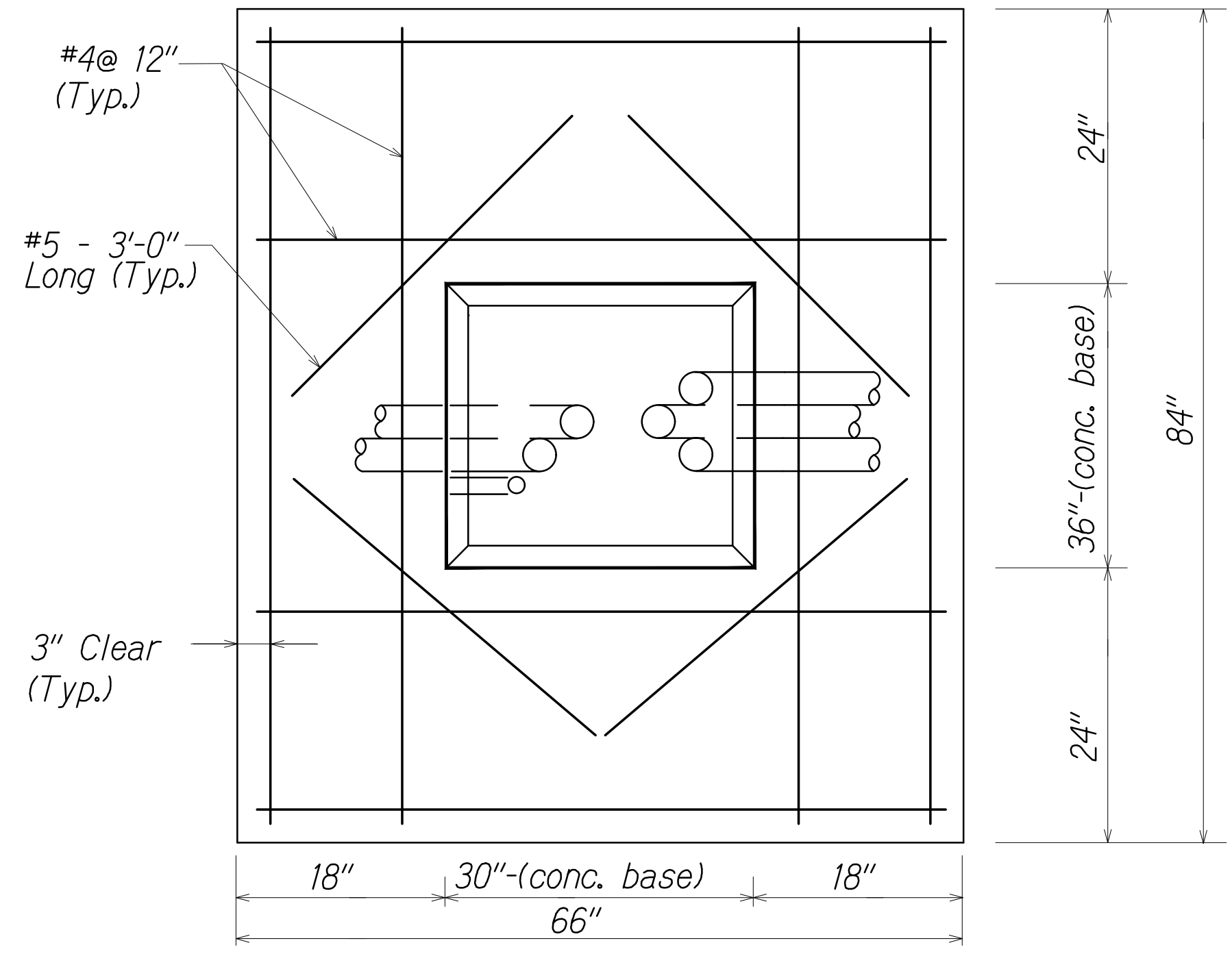
SHEET No. C-4 OF 5 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	15	170

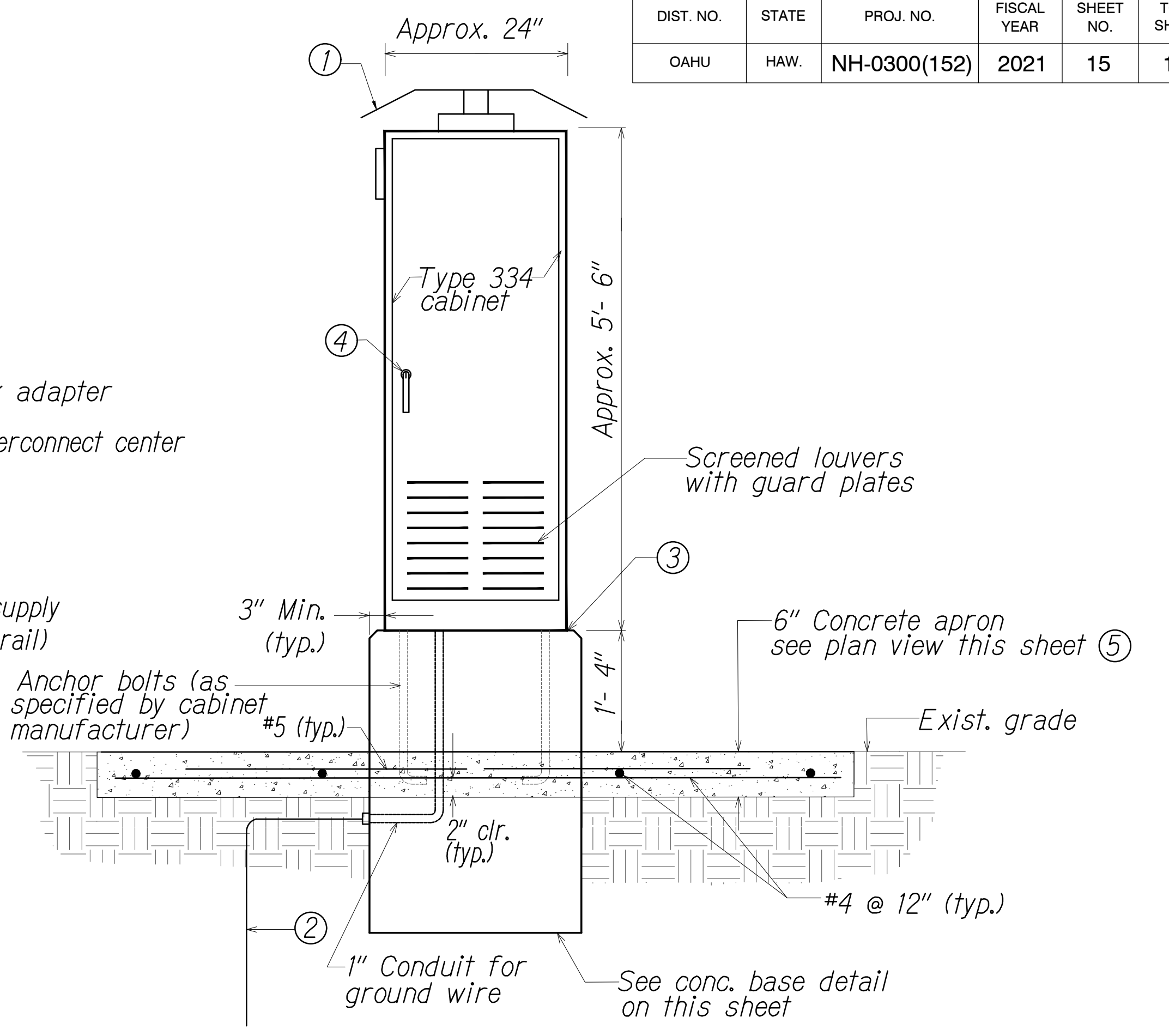


CONCRETE BASE FOR EQUIPMENT CABINET
Not To Scale

- NOTES:**
- Concrete shall be Class "B" (2500 psi).
 - Dimensions shall be altered to suit controller cabinet actually furnished.
 - Conduit bends and drain are incidental to concrete base.
 - Refer to cabinet manufacturer's specifications for details of anchor bolts and base setting.
 - All exposed surfaces of concrete base shall have a Class 2, rubbed finish.



PLAN VIEW OF CONCRETE APRON FOR EQUIPMENT CABINET
Not To Scale



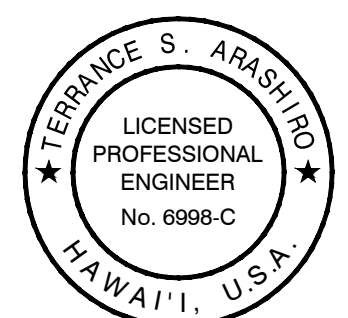
1 EQUIPMENT CABINET
C-2-C-3 | C-5 Not To Scale

- NOTES:**
- Sunshields on top and all sides of cabinet.
 - Ground rod, 3/4" dia. x 8' min. if subsurface conditions exist which prohibit the placement of the ground rod in a vertical position, at the direction of the Engineer, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30" deep. connection to ground rod shall be cadwelded.
 - Silicone caulk between cabinet and base and apron and base
 - Door lock on each door
 - Conc. apron shall be Class "B"

DATE	____
DESIGNED BY	____
CHECKED BY	____
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F:\A\2019\19-201_FMS_PHASE_3\1\DWG\C-5 CCTV DETAILS.DWG Jul 22, 2021-9:12 AM

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

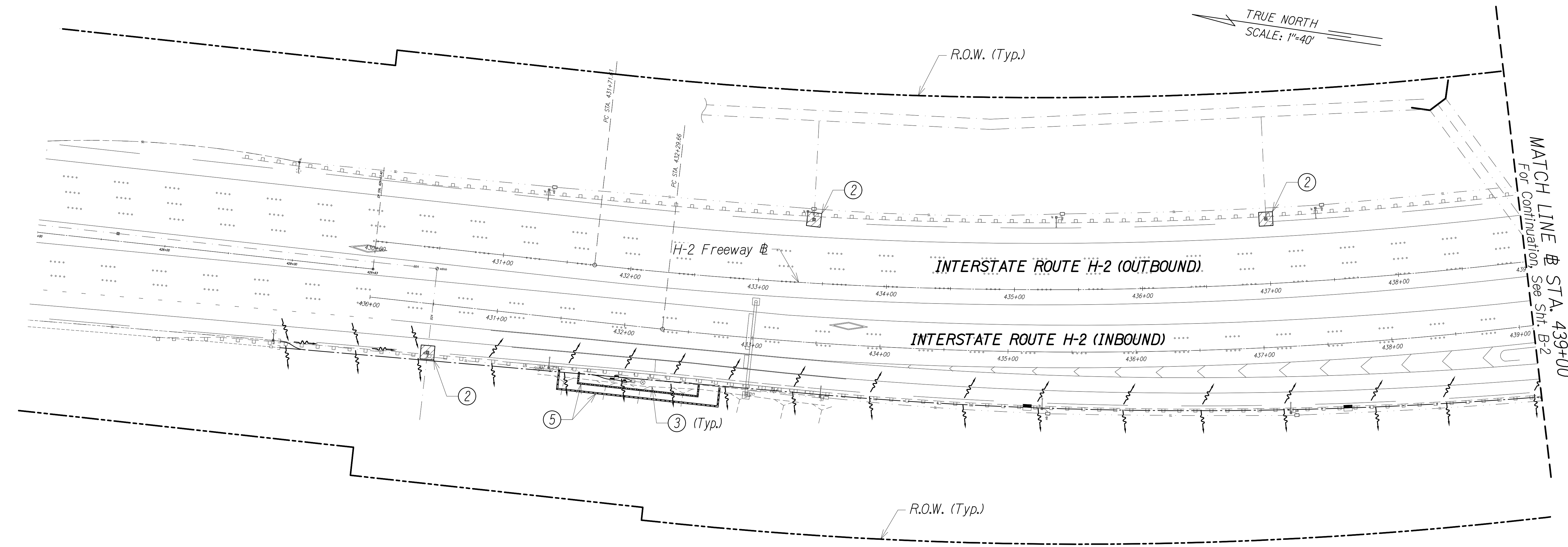
CCTV DETAILS

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. C-5 OF 5 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	16	170



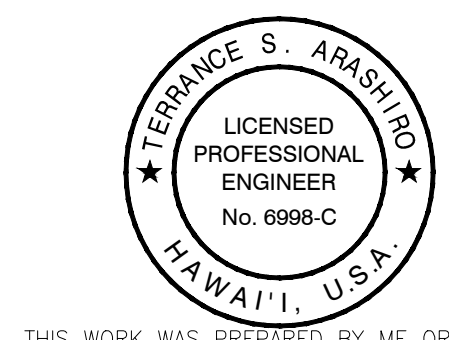
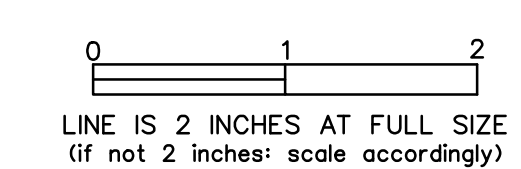
NOTES:

- ① See Electrical Plans for electrical and communication service connections.
- ② Exist. storm drain inlet or catch basin. Contractor to observe Best Management Practices and take measures required. Protect exist. storm drain inlets and catch basins located downstream of the project site with Best Management Practices. See details on Sheet B-12.
- ③ Exist. grassed area or landscaping, Contractor to observe Best Management Practices and clear & grub as required. See detail on Sheet B-12.
- ④ Avoid exist. irrigation systems.
- ⑤ Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMPs 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.

LEGEND:

- Temporary Sediment Control Filter
- Flow Direction
- Temporary Fiber Roll

H-2 STA. 427+00 TO STA. 439+00
Scale: 1"=40'



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

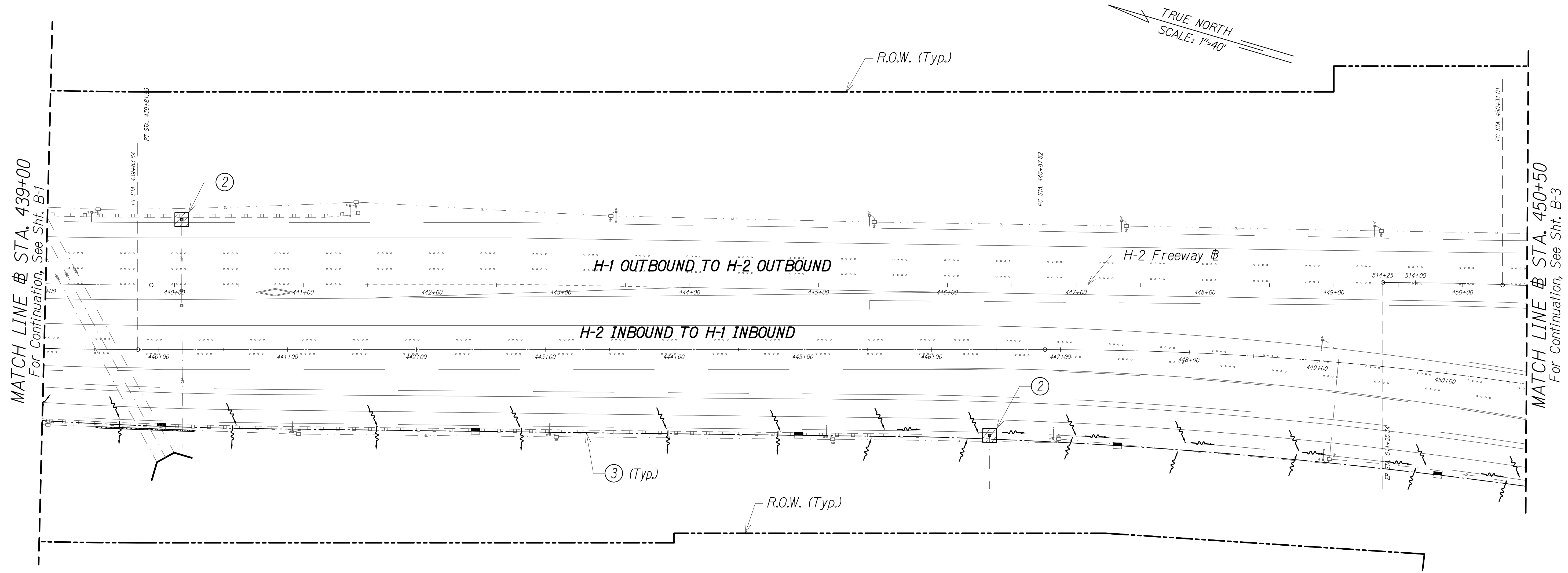
Scale: As Shown Date: June 25, 2021

SHEET No. B-1 OF 12 SHEETS

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
NOTE BOOK	____
NO.	____

PKA\2019-19-201_FMS_PHASE_3\UNIT_1\DWG\B-1_BMP_PLAN.DWG Jul 22, 2021 9:13 AM

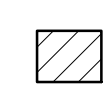

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	17	170



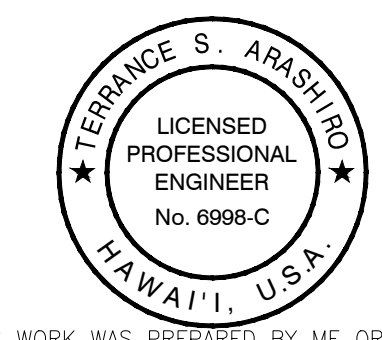
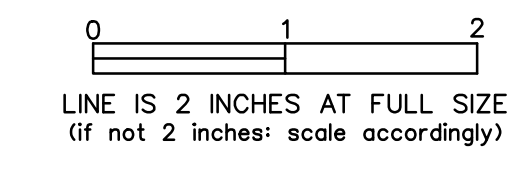
NOTES:

- ① See Electrical Plans for electrical and communication service connections.
- ② Exist. storm drain inlet or catch basin. Contractor to observe Best Management Practices and take measures required. Protect exist. storm drain inlets and catch basins located downstream of the project site with Best Management Practices. See details on Sheet B-12.
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LEGEND:

-  Temporary Sediment Control Filter
-  Flow Direction

H-2 STA. 439+00 TO STA. 450+50
Scale: 1"=40'



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

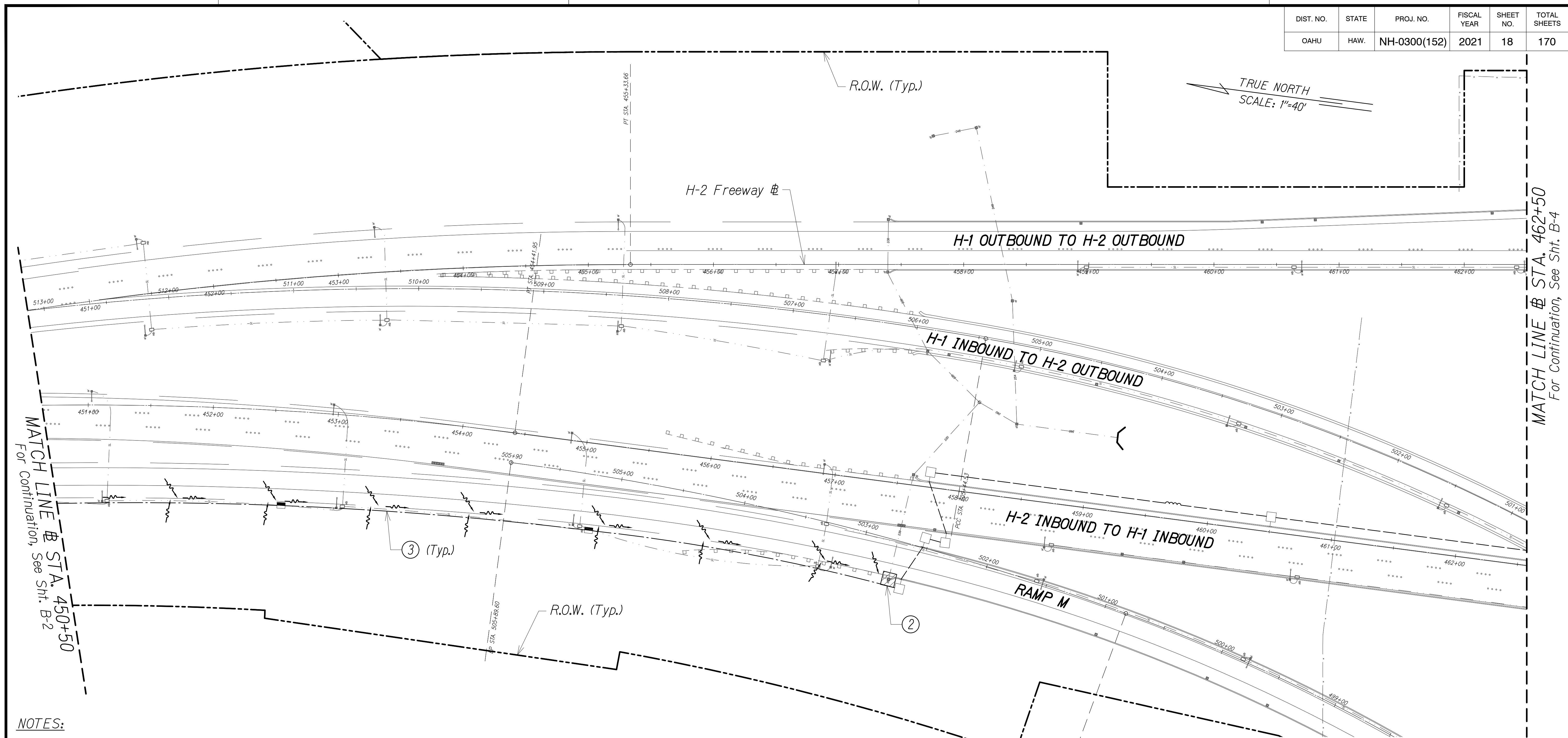
Scale: As Shown Date: June 25, 2021

SHEET No. B-2 OF 12 SHEETS

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

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	18	170



NOTES:

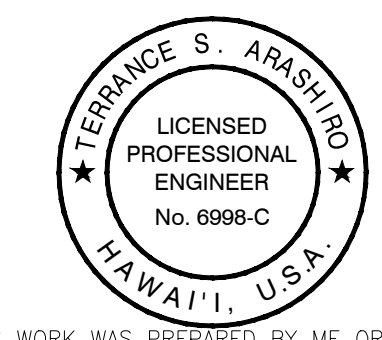
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LEGEND:

- Temporary Sediment Control Filter
- Flow Direction

H-2 STA. 450+50 TO STA. 462+50
Scale: 1"=40'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. B-3 OF 12 SHEETS

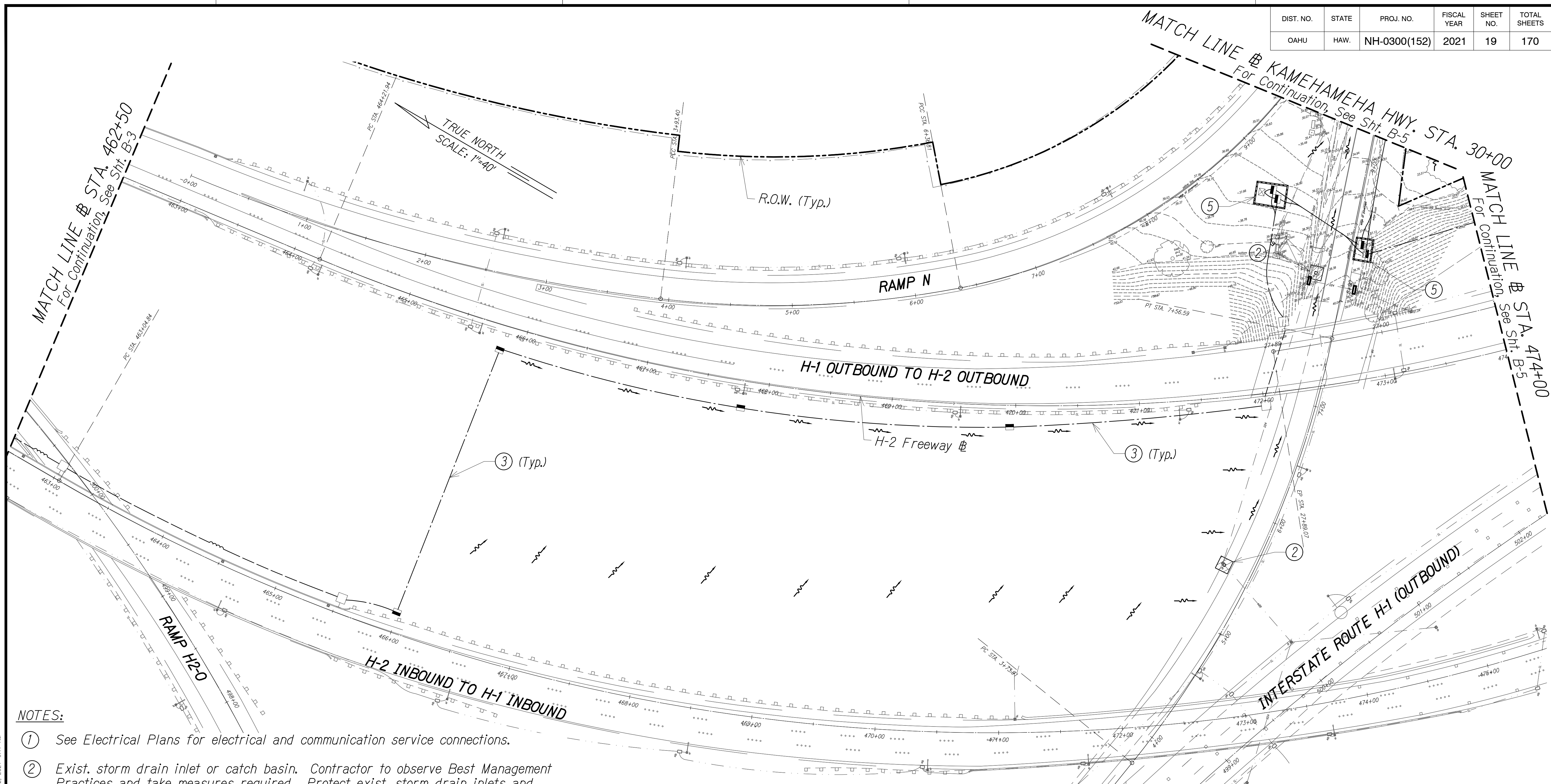
DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____
DESIGNED BY	____
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QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____

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 ORIGINAL PLAN
 NOTE BOOK
 No.

MATCH LINE @ STA. 462+50
 For Continuation, See Sht. B-4

MATCH LINE @ STA. 450+50
 For Continuation, See Sht. B-2

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	19	170



NOTES:

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LEGEND:

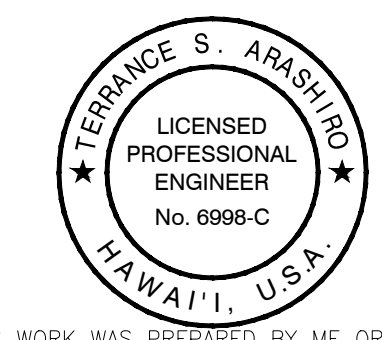
- Temporary Sediment Control Filter
- Flow Direction
- Temporary Fiber Roll

H-2 STA. 462+50 TO STA. 474+00
Scale: 1"=40'

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

F:\NA\2019\19-201 EMS PHASE 3\1_PHASE 3\UNIT 1\DWG\B-4 BMP PLANDWG.dwg, 22, 2021-09-17 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

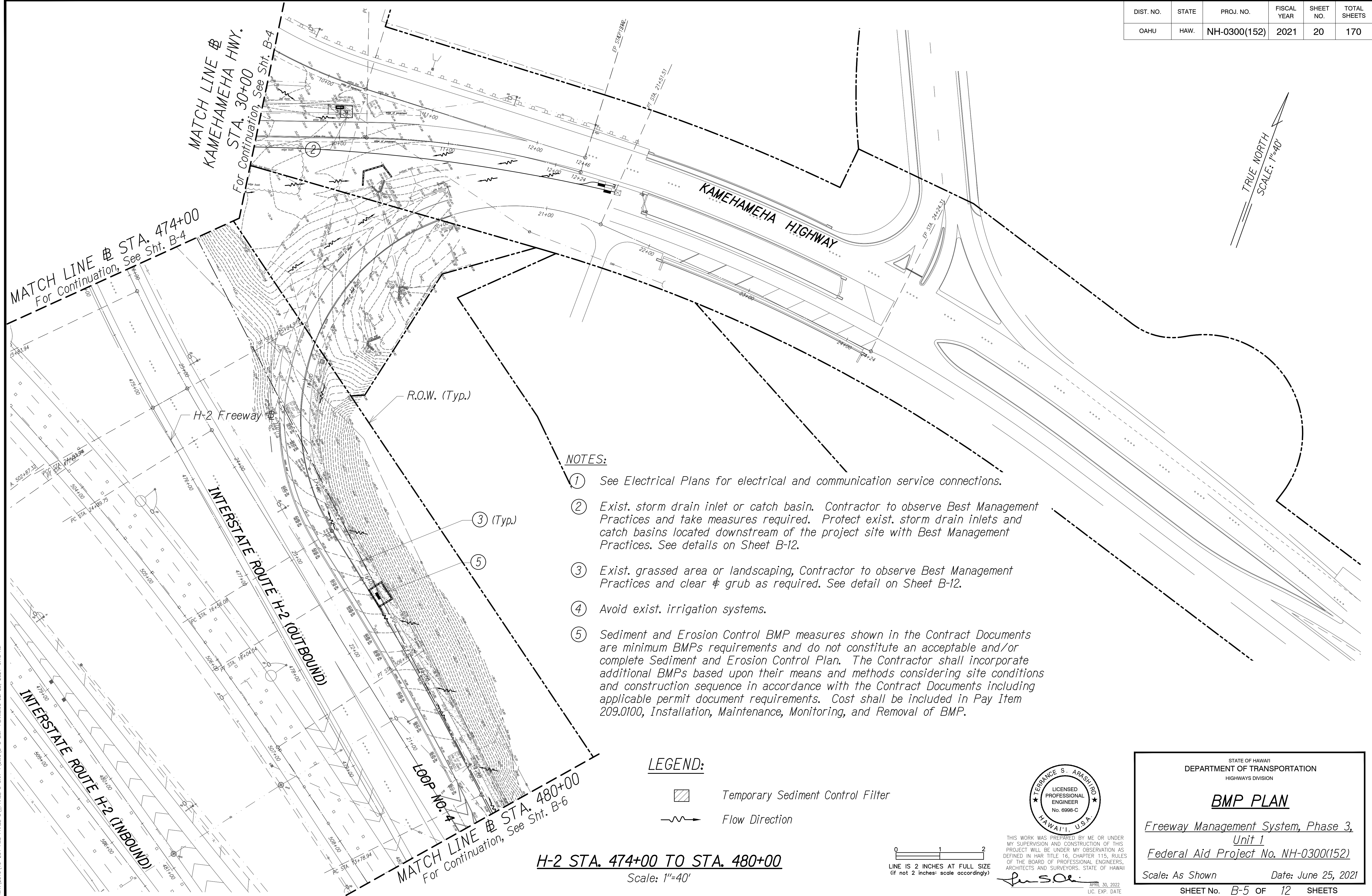
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. B-4 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	20	170



NOTES:

- ① See Electrical Plans for electrical and communication service connections.
- ② Exist. storm drain inlet or catch basin. Contractor to observe Best Management Practices and take measures required. Protect exist. storm drain inlets and catch basins located downstream of the project site with Best Management Practices. See details on Sheet B-12.
- ③ Exist. grassed area or landscaping, Contractor to observe Best Management Practices and clear & grub as required. See detail on Sheet B-12.
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- ⑤ Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMPs 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.

LEGEND:

- Temporary Sediment Control Filter
- Flow Direction

H-2 STA. 474+00 TO STA. 480+00
Scale: 1"=40'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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Terrence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

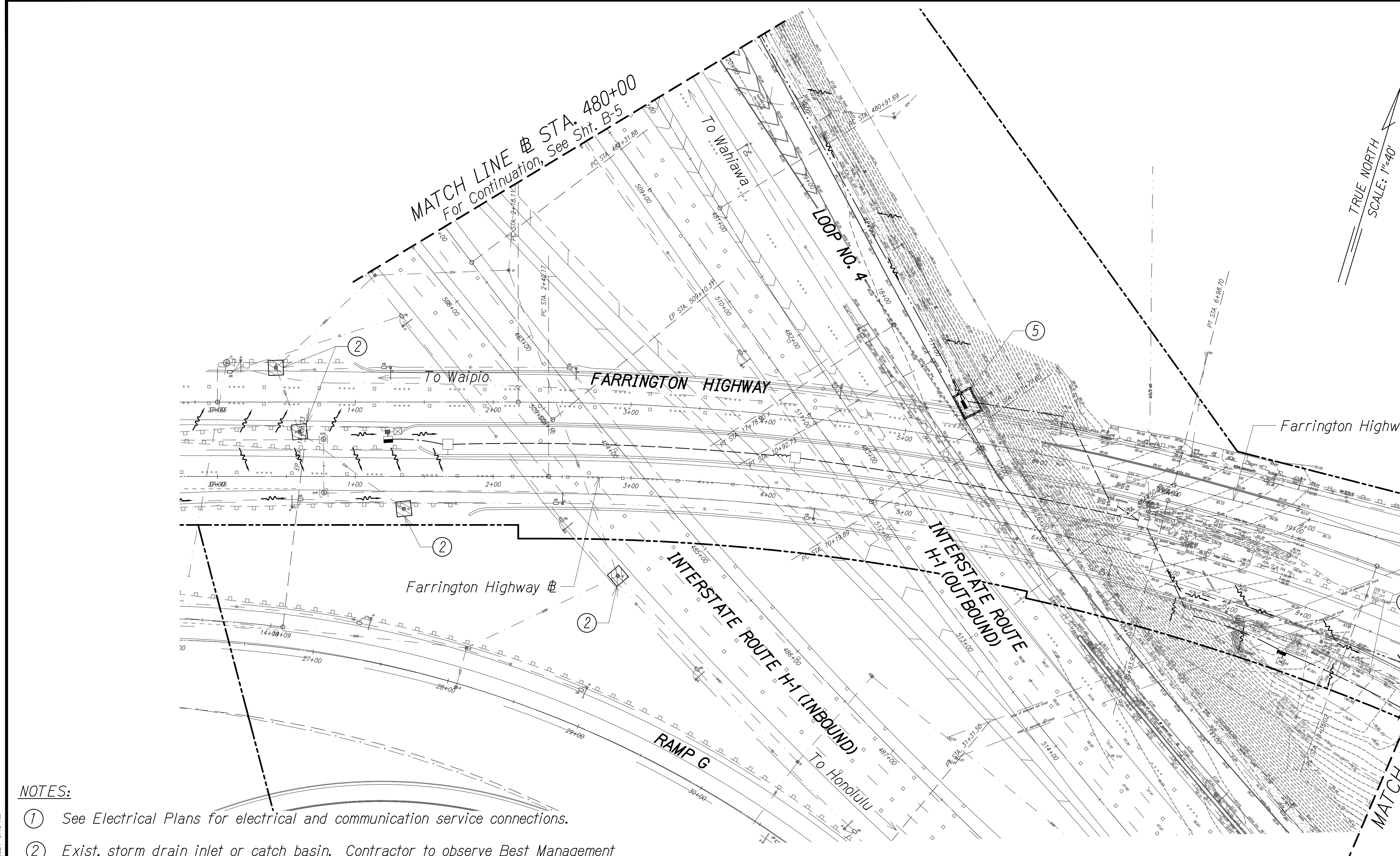
Scale: As Shown Date: June 25, 2021

SHEET No. B-5 OF 12 SHEETS

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

PNV\2019\19-201_FMS PHASE 3\UNIT 1\DWG\B-5 BMP PLAN.DWG Jul 22, 2021-9:18 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	21	170



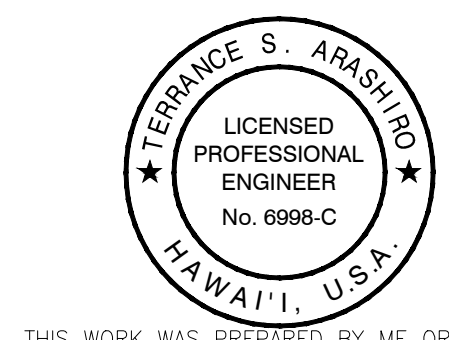
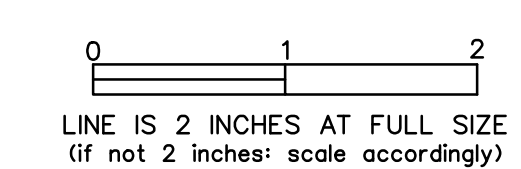
NOTES:

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LEGEND:

- Temporary Sediment Control Filter
- Flow Direction

FARRINGTON HIGHWAY
STA. 1+00 TO STA. 9+00
 Scale: 1"=40'



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 APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

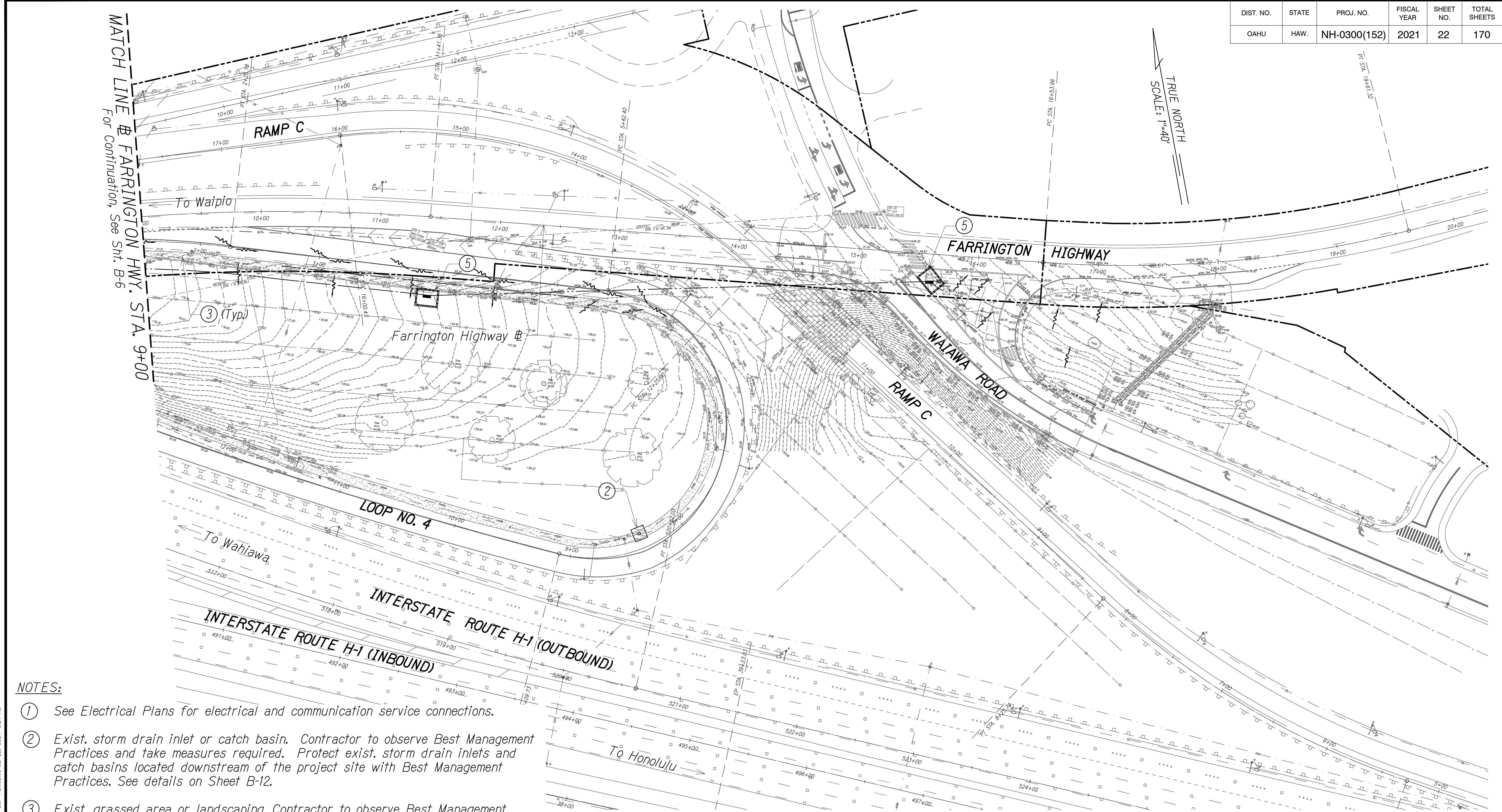
Scale: As Shown Date: June 25, 2021

SHEET No. B-6 OF 12 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

SURVEY PLOTTED BY _____
 ORIGINAL PLAN _____
 TRACED BY _____
 NOTE BOOK _____
 DESIGNED BY _____
 QUANTITIES BY _____
 CHECKED BY _____
 No. _____
 F:\NA\2019-19-201-FMS-PHASE-3\1_PHASE-3\UNIT-1\DWG\B-6_BMP_PLAN.DWG Jul 22, 2021-9:19 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	22	170



NOTES:

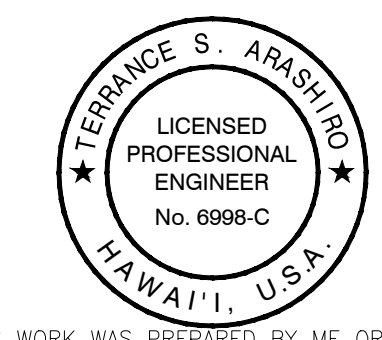
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LEGEND:

- Temporary Sediment Control Filter
- Flow Direction

FARRINGTON HIGHWAY
STA. 9+00 TO STA. 20+00
 Scale: 1"=40'

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches: scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

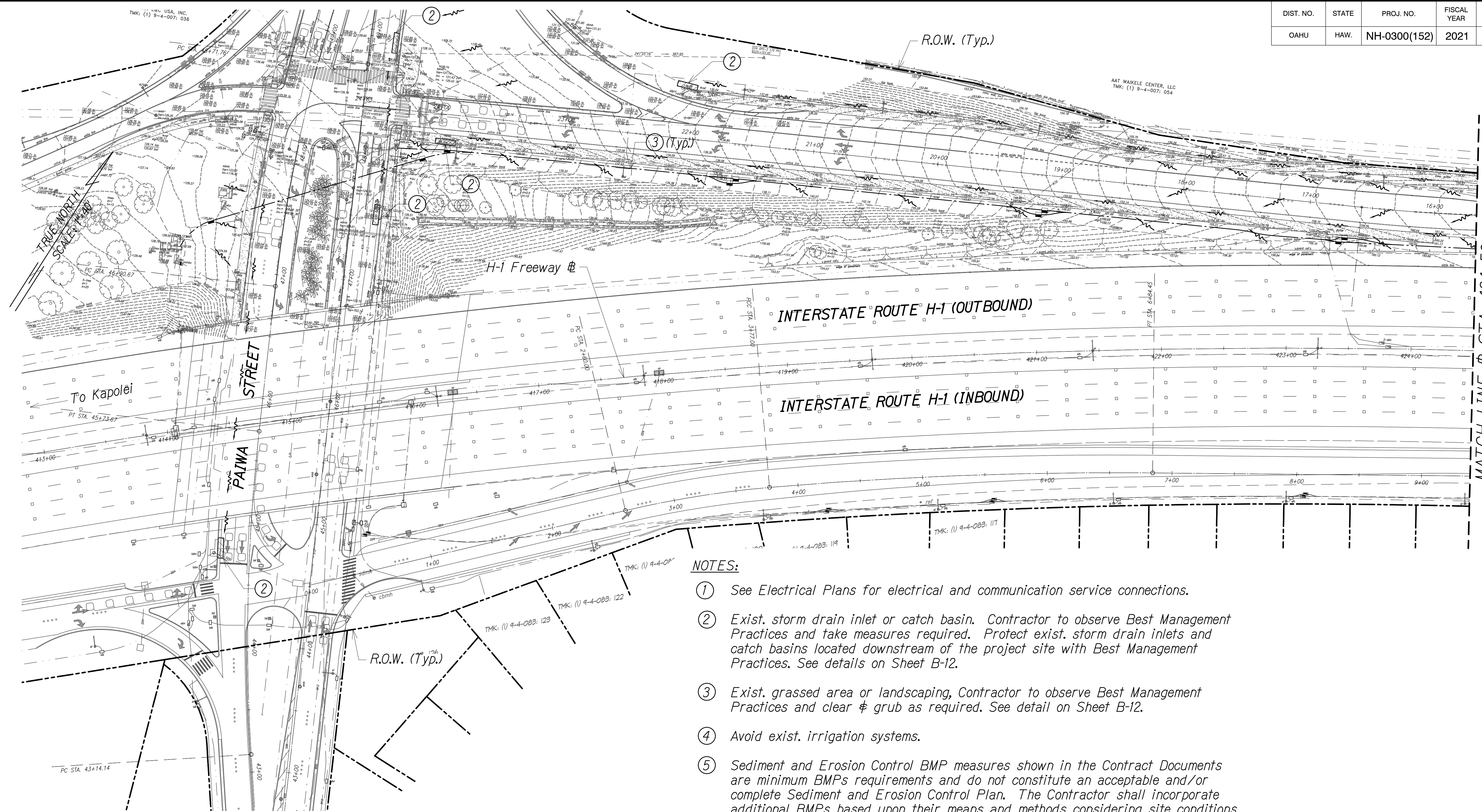
Scale: As Shown Date: June 25, 2021

SHEET No. B-7 OF 12 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
No.	_____

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	23	170



MATCH LINE @ STA. 424+50
For Continuation, See Sht. B-9

NOTES:

- ① See Electrical Plans for electrical and communication service connections.
- ② Exist. storm drain inlet or catch basin. Contractor to observe Best Management Practices and take measures required. Protect exist. storm drain inlets and catch basins located downstream of the project site with Best Management Practices. See details on Sheet B-12.
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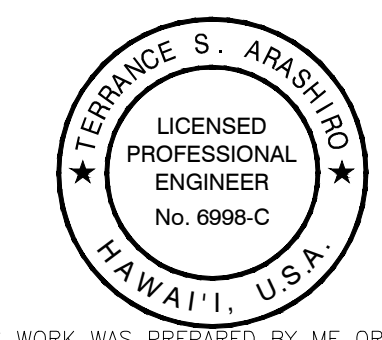
LEGEND:

- Temporary Sediment Control Filter
- Flow Direction

H-1 STA. 413+50 TO STA. 424+50
Scale: 1"=40'

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

F:\A\A14-HNL-ENG\2020\PROJECTS\19-19-201 FMS PHASE 3\UNIT 1\DWG\B-8 BMP PLAN.DWG Aug 04, 2021-10:47 AM



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

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

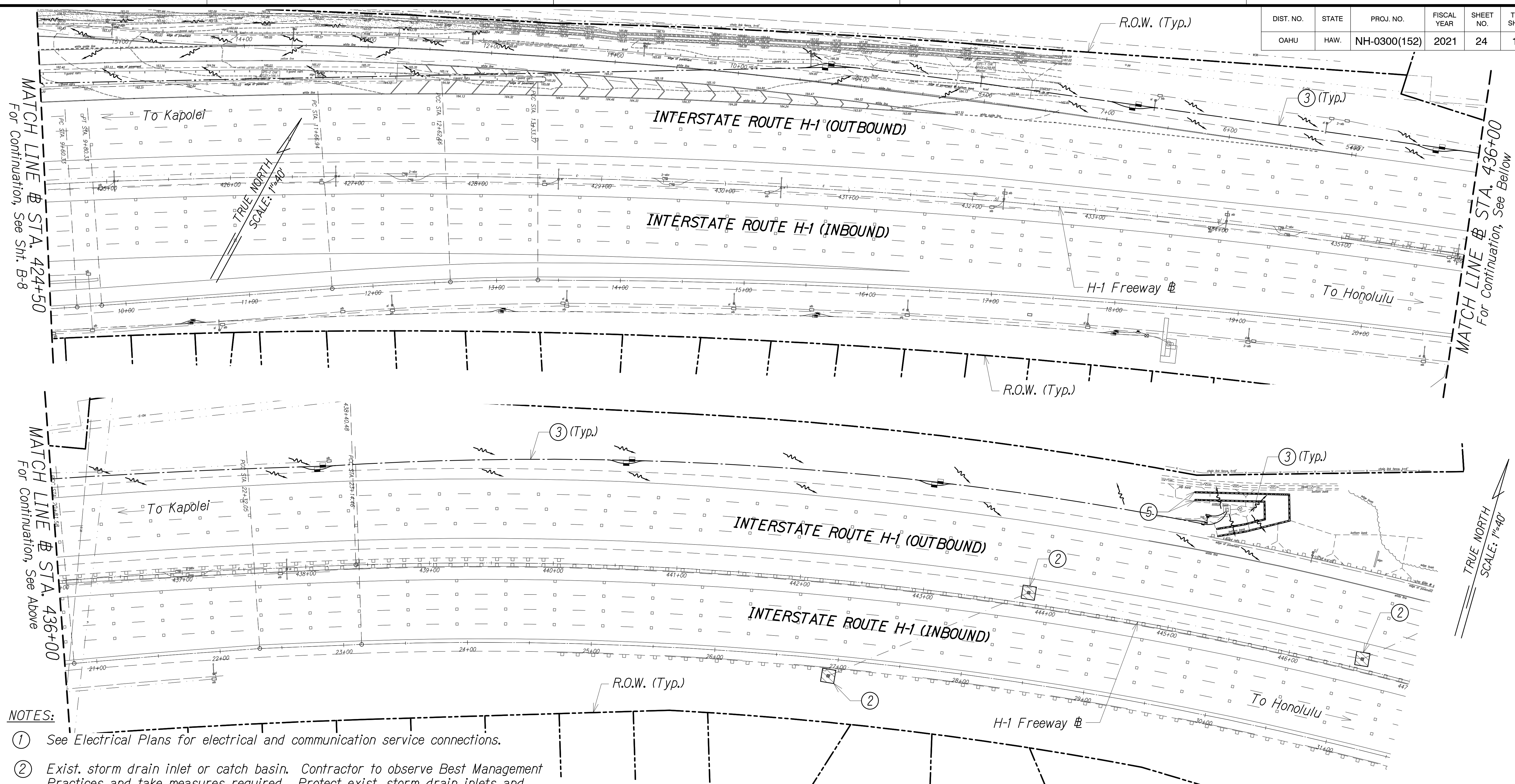
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. B-8 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	24	170

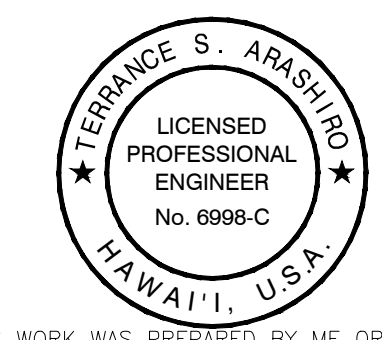


- NOTES:**
- ① See Electrical Plans for electrical and communication service connections.
 - ② Exist. storm drain inlet or catch basin. Contractor to observe Best Management Practices and take measures required. Protect exist. storm drain inlets and catch basins located downstream of the project site with Best Management Practices. See details on Sheet B-12.
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H-1 STA. 424+50 TO STA. 446+50
Scale: 1"=40'

- LEGEND:**
- Temporary Sediment Control Filter
 - Flow Direction
 - Temporary Fiber Roll

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

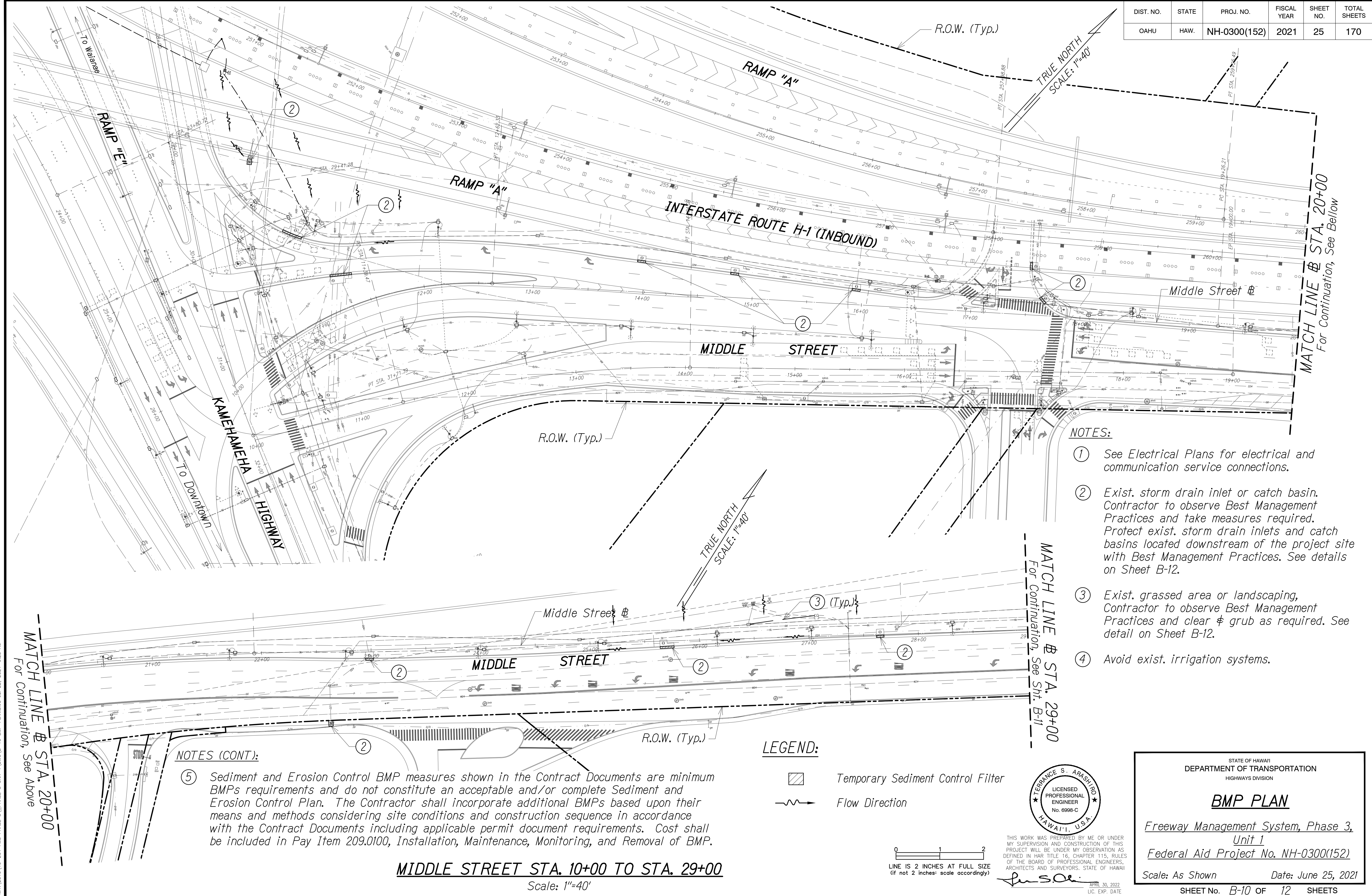
Scale: As Shown Date: June 25, 2021

SHEET No. B-9 OF 12 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
No.	_____

F:\A\174-HNL-ENG\2020\PROJECTS\2019-2021_FMS_PHASE_3\UNIT_1\DWG\B-9_BMP_PLAN.DWG Aug 04, 2021-10:50 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	25	170



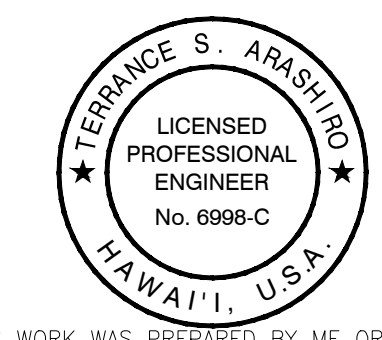
- NOTES:**
- See Electrical Plans for electrical and communication service connections.
 - Exist. storm drain inlet or catch basin. Contractor to observe Best Management Practices and take measures required. Protect exist. storm drain inlets and catch basins located downstream of the project site with Best Management Practices. See details on Sheet B-12.
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MATCH LINE @ STA. 20+00
For Continuation, See Above

MATCH LINE @ STA. 29+00
For Continuation, See Sht. B-11

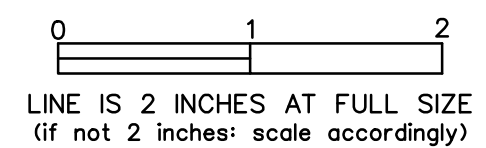
- NOTES (CONT):**
- Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMPs requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering 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.

- LEGEND:**
- Temporary Sediment Control Filter
 - Flow Direction



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Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE



MIDDLE STREET STA. 10+00 TO STA. 29+00
Scale: 1"=40'

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

FNVA\2019\19-201_FMS_PHASE_3\1_UNIT\DWG\B-10_BMP_PLAN.DWG - Jul 22, 2021 - 9:25 AM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

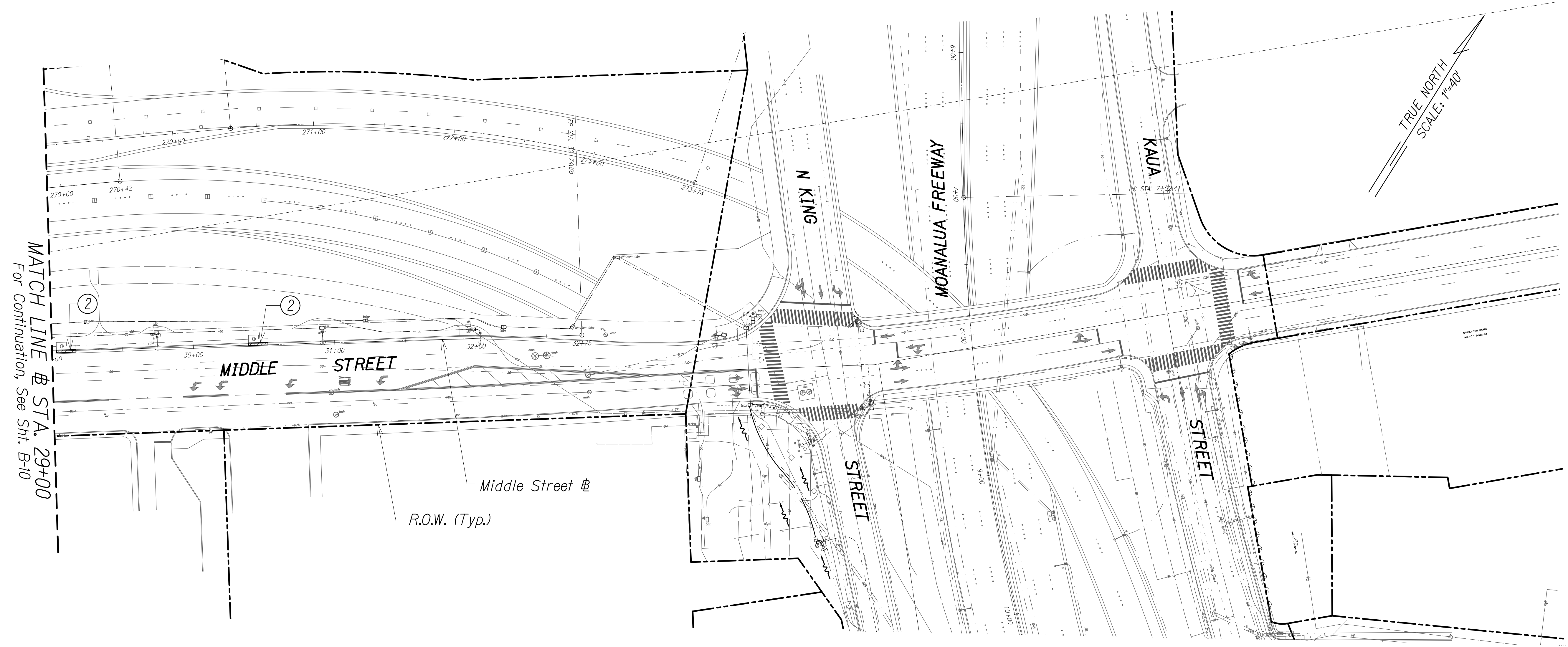
BMP PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. B-10 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	26	170



MATCH LINE @ STA. 29+00
For Continuation, See Sht. B-10

LEGEND:

-  Temporary Sediment Control Filter
-  Flow Direction

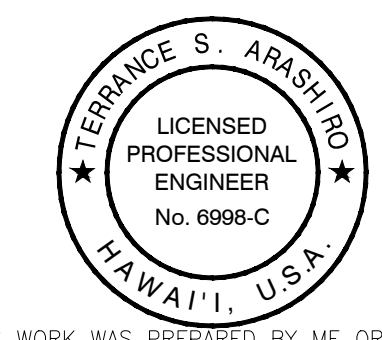
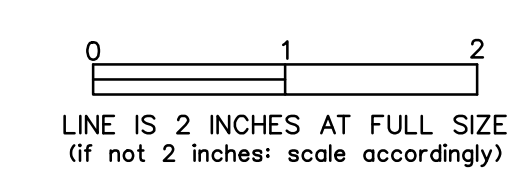
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MIDDLE STREET STA. 29+00 TO STA. 32+50
Scale: 1"=40'

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____

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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BMP PLAN

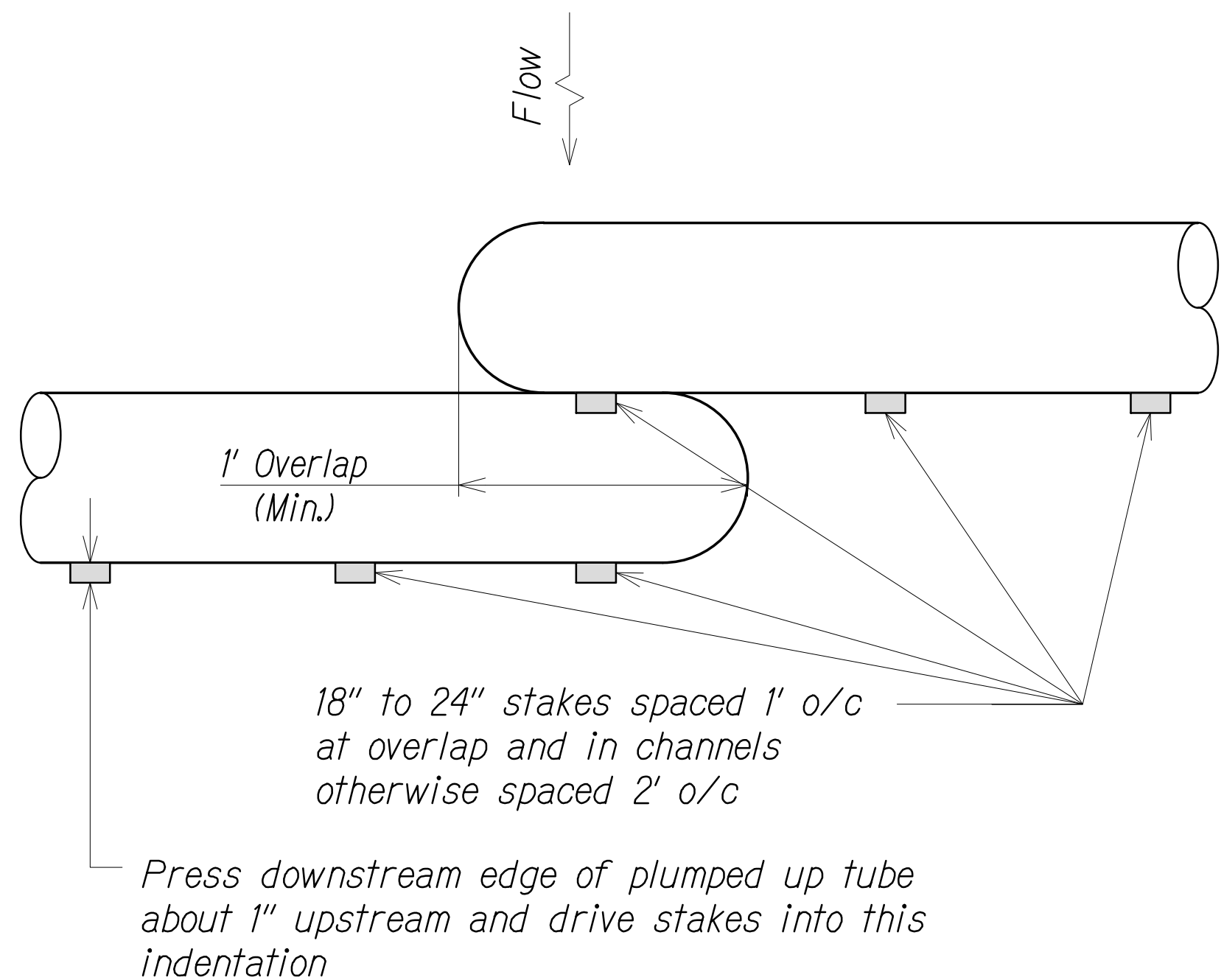
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

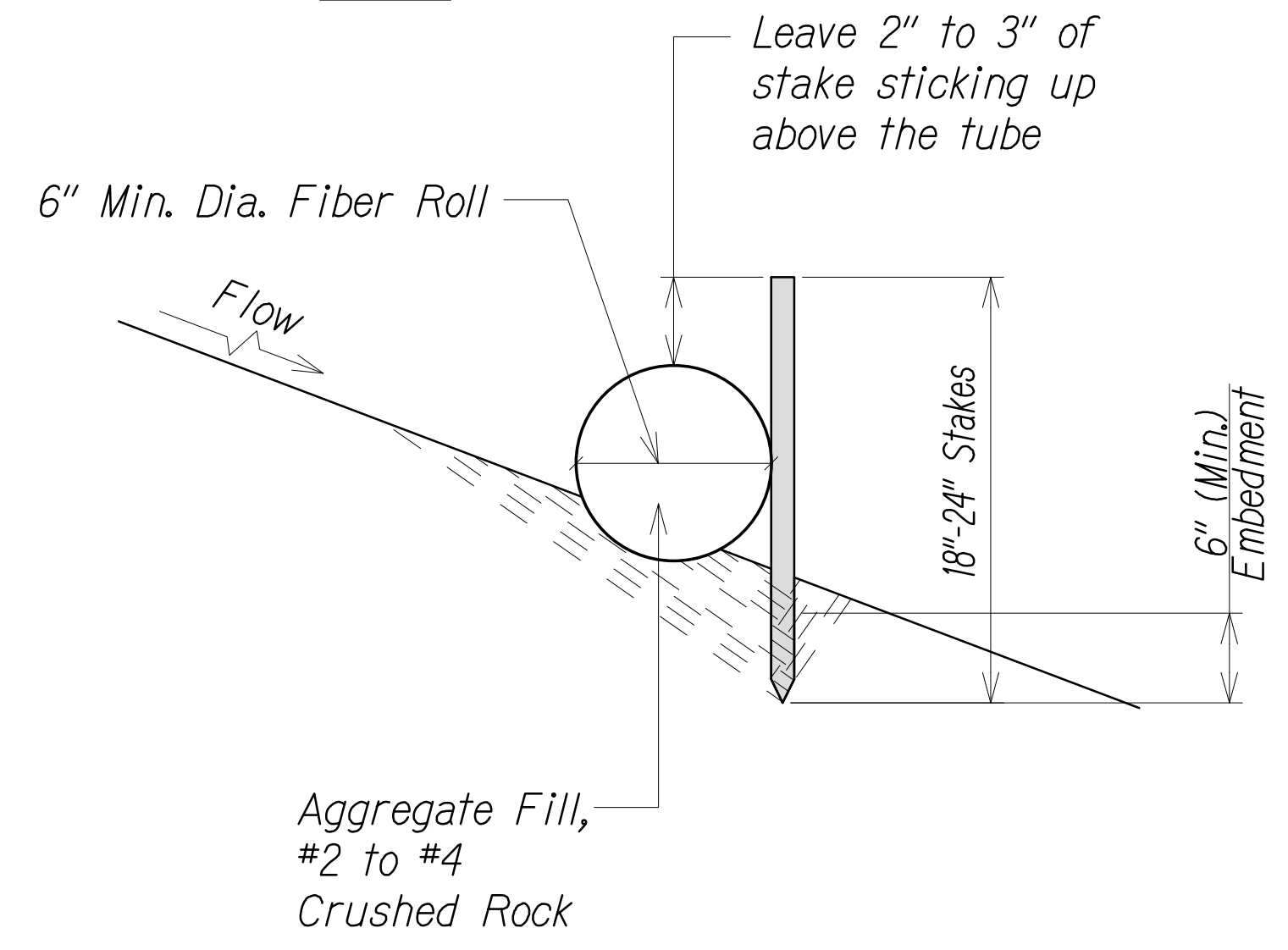
Scale: As Shown Date: June 25, 2021

SHEET No. B-11 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	27	170



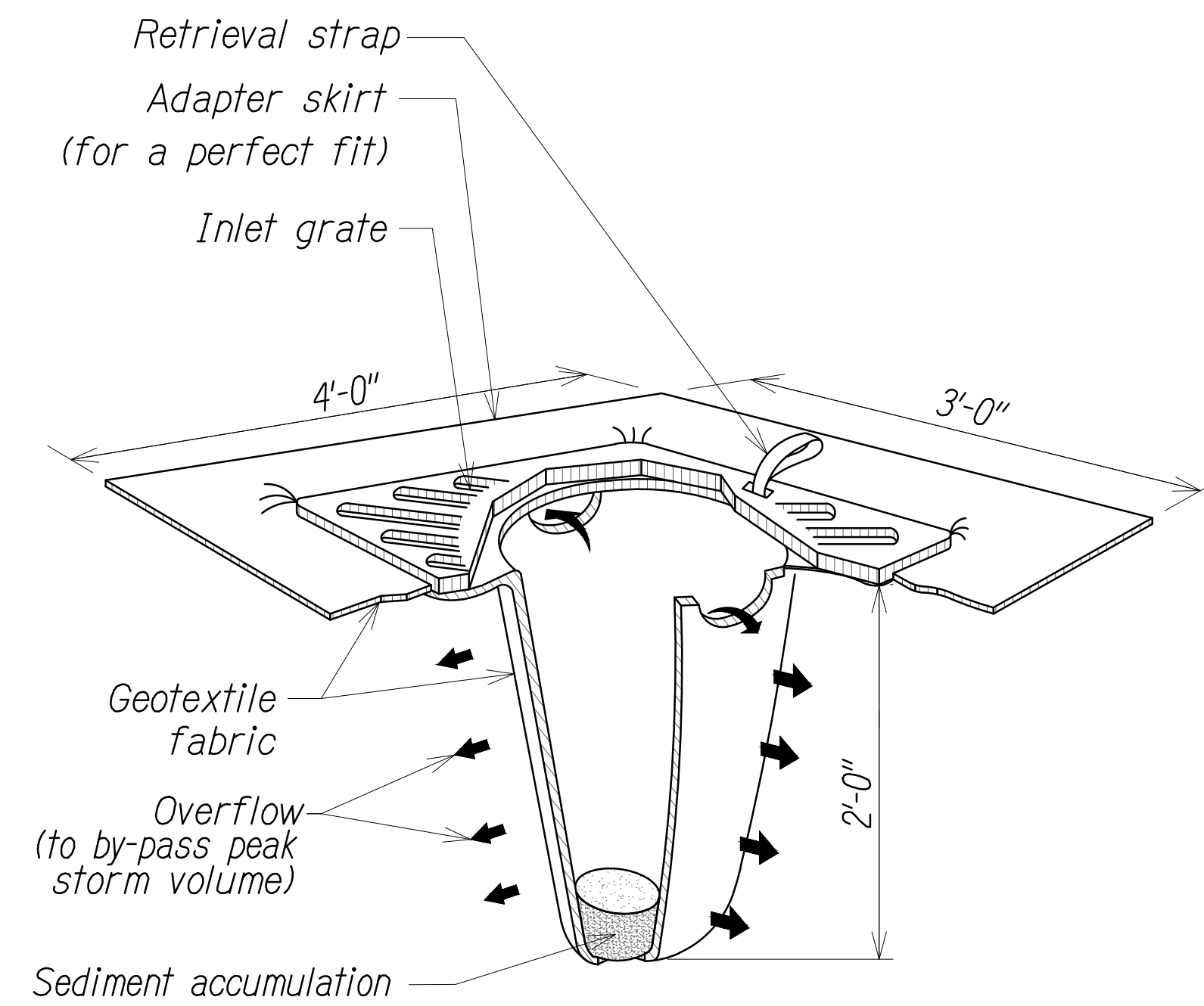
PLAN



SECTION

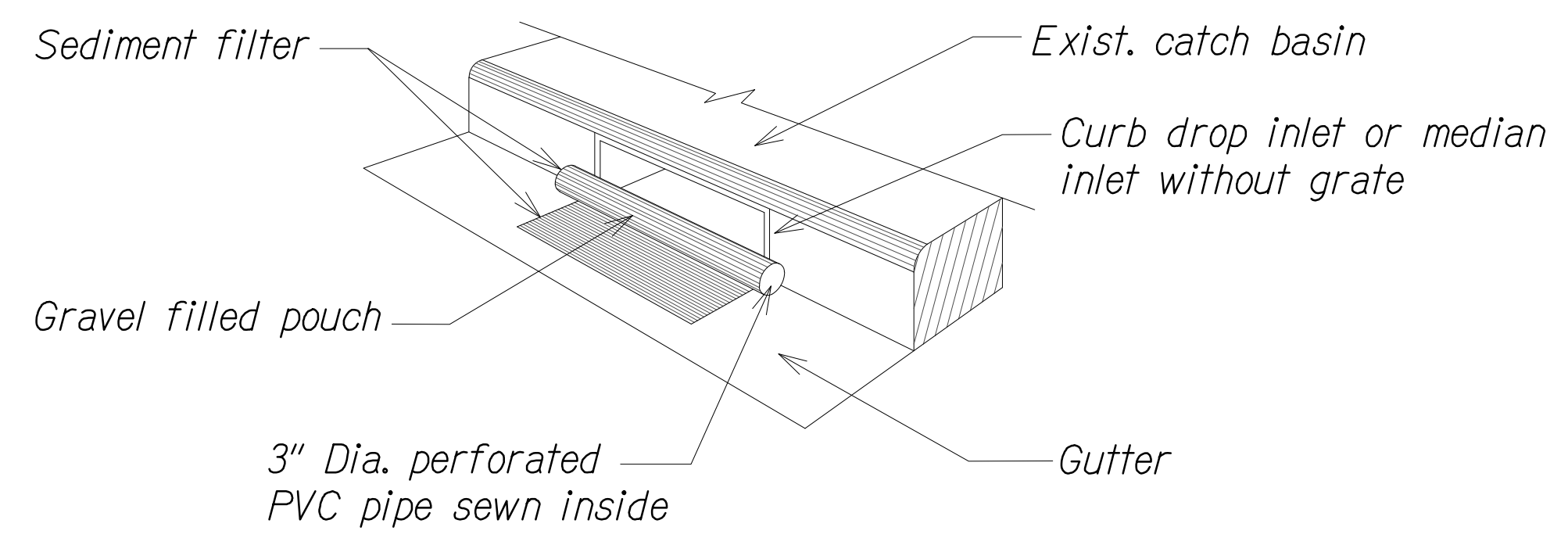
- NOTES:**
- 1) Contractor to install at all existing catch basins or drain inlets adjacent to and immediately down stream of all work areas.
 - 2) Remove accumulated sediment when depth reaches 1/3 the barrier height.
 - 3) At completion of the project, filter socks material including the compost shall be removed from site and disposed of properly.

TEMPORARY FIBER ROLL DETAIL
Not To Scale



- NOTES:**
1. All inlet protection on road shoulders shall be protected from damage by vehicular traffic with Type II barricades with amber flashers.
 2. Contractor shall check the condition of the filter at the beginning and ending of each work day and repair/clean as necessary.

TEMPORARY SEDIMENT BARRIER AT DRAIN INLET
Not To Scale



TEMPORARY STORM DRAIN PROTECTION
Not To Scale

EROSION CONTROL/BEST MANAGEMENT PRACTICES NOTES:

1. Erosion control measures to be installed prior to start of work, and be maintained until completion of project.
2. Construction BMPs shall be inspected weekly, and within 24 hours of any rainfall event of 0.25 inches or greater in a 24 hour period if drainage system discharges into impaired waters. The Contractor shall submit a copy of the SWPPP Inspection and Maintenance Report Form to the Engineer within 24 hours of the inspection.
3. Remove filter at times of above normal rainfall events and replace them when the event has passed.
4. The final lift of each day's work shall be compacted to prevent erosion of fill material.
5. Good housekeeping shall be utilized to ensure protection of roadways from mud, dirt, and debris.
6. The Contractor shall ensure that all tires of construction vehicles are sufficiently cleaned off so that dirt or debris is not tracked off the construction site. Washing off tires with water will not be acceptable unless the runoff is contained and does not enter the storm drain system.
7. Any dirt or grassed area disturbed shall be restored by seeded hydromulch.
8. At the end of construction operations and at the completion of the project, Contractor shall inspect all catch basin, drain inlet and drain manhole surrounding the project site. Any accumulated sediment and debris found in storm drain structures shall be removed. Please note that flushing into the drain structures is prohibited.
9. Contractor shall submit proposed storm drain and sediment barrier for acceptance prior to installation.

DATE	DESIGNED BY	DESIGNED BY	DESIGNED BY
	TRACED BY	TRACED BY	TRACED BY
	QUANTITIES BY	QUANTITIES BY	QUANTITIES BY
	CHECKED BY	CHECKED BY	CHECKED BY
	NO.	NO.	NO.

F:\A\2019\19-001-FMS-PHASE-3\UNIT-1\DWG-B-12-BMP-DETAILS.DWG Jul 22, 2021-9:26 AM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TERENCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

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

Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

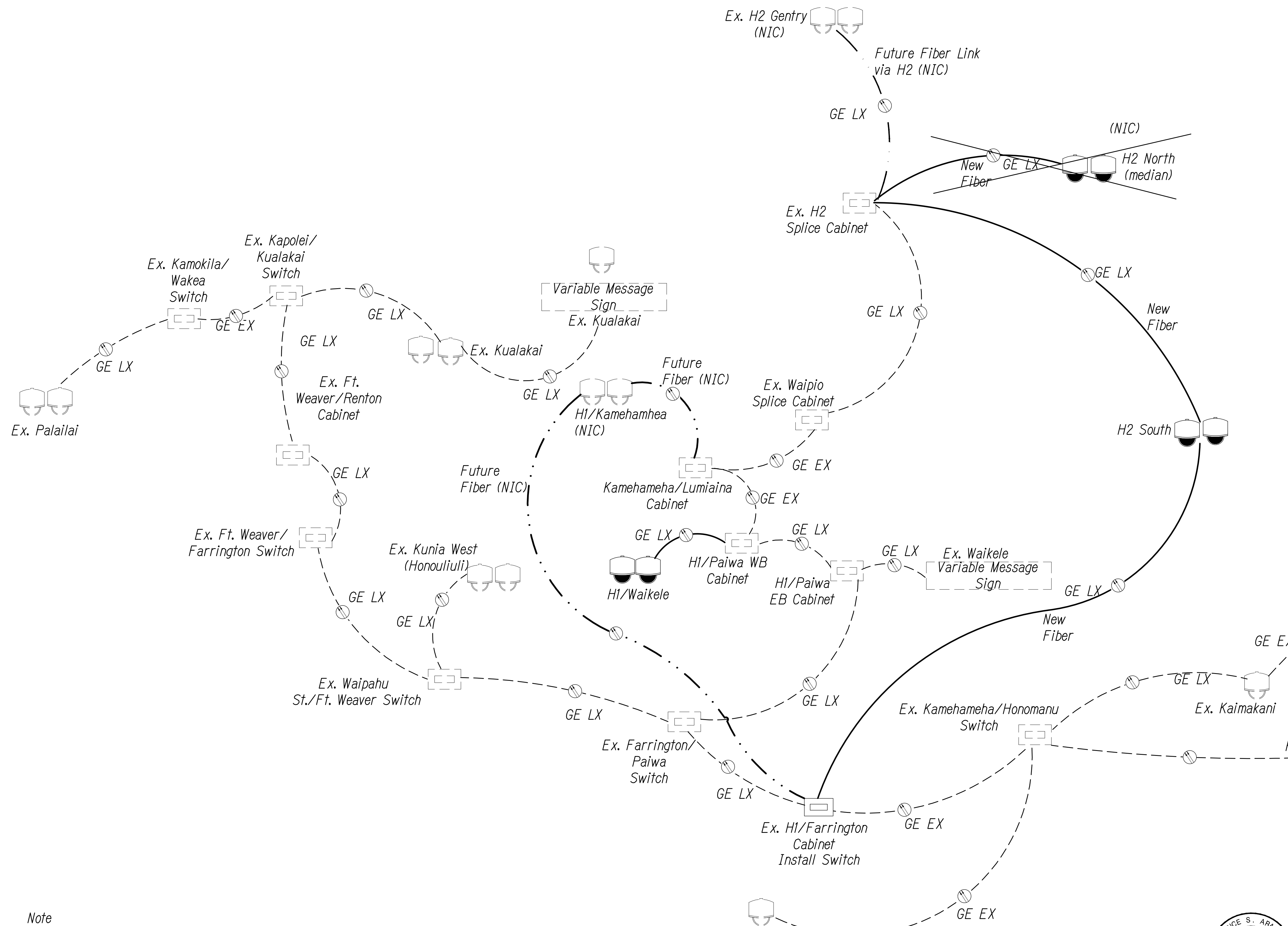
BMP DETAILS

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. B-12 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	28	170



Key

- CCTV Camera
- Variable Message Sign VMS
- Fiber
- Existing Fiber
- Future Fiber
- Ethernet Switch In Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

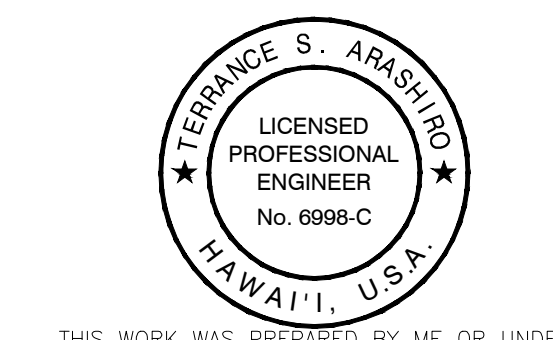
Note
1. See Block Diagrams for location of splice cabinets.

SCHEMATIC COMMUNICATION PLAN
Not to Scale

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

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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

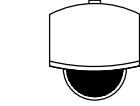

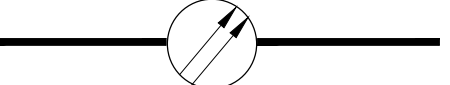
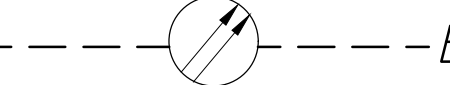


COMMUNICATIONS PLAN
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-1 OF 30 SHEETS

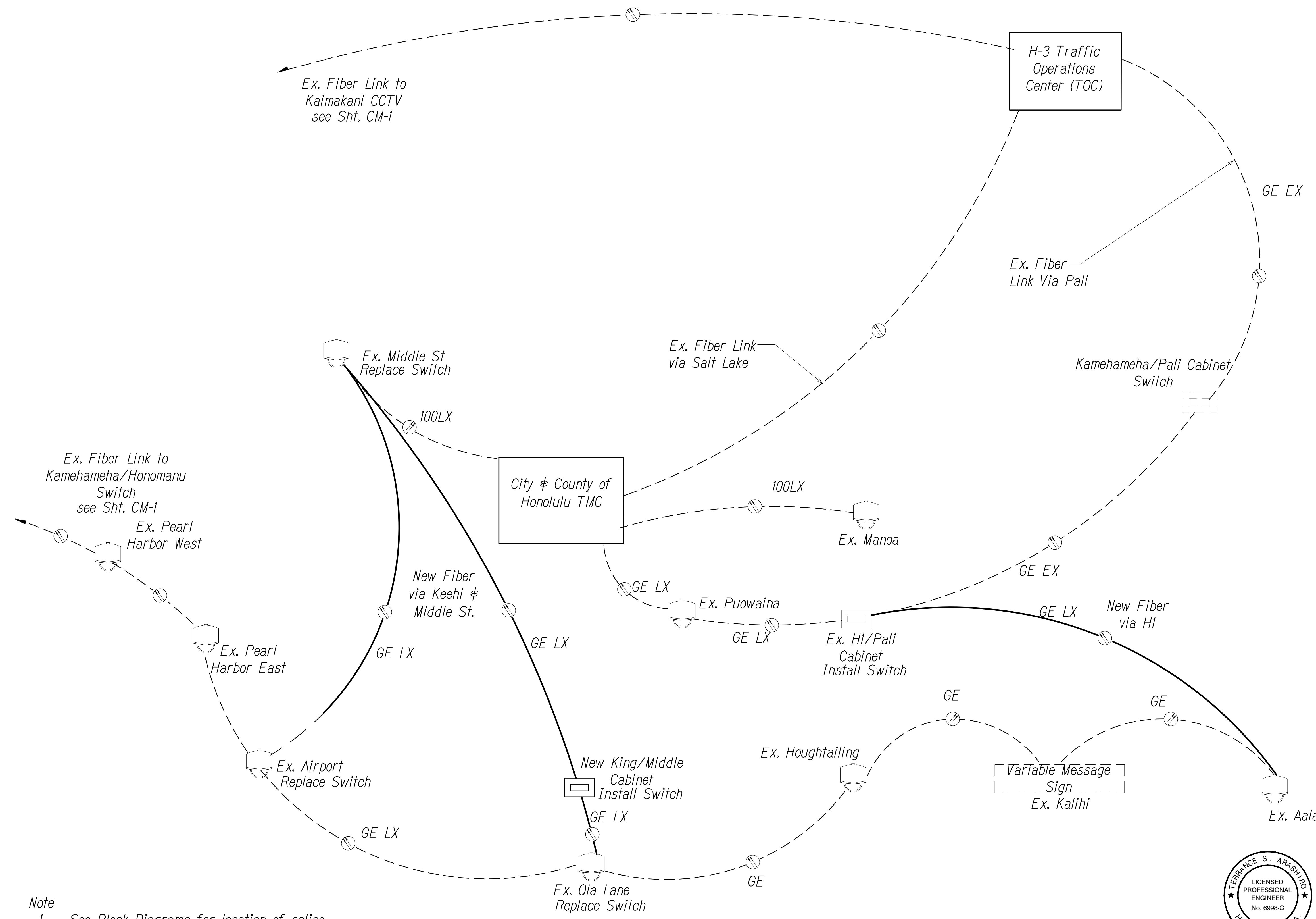
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	29	170

Key

-  CCTV Camera
-  Variable Message Sign VMS
-  Fiber
-  Existing Fiber
-  Future Fiber
-  Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

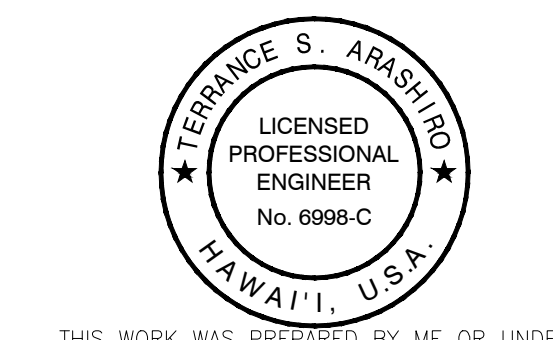
GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base



Note
 1. See Block Diagrams for location of splice cabinets.

SCHMATIC COMMUNICATION PLAN
 Not to Scale

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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Terrence S. Arashi
 APRIL 30, 2022
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-2 OF 30 SHEETS

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

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	30	170

Key

CCTV Camera

Variable Message Sign VMS

Fiber
2 = Number of Fibers Used

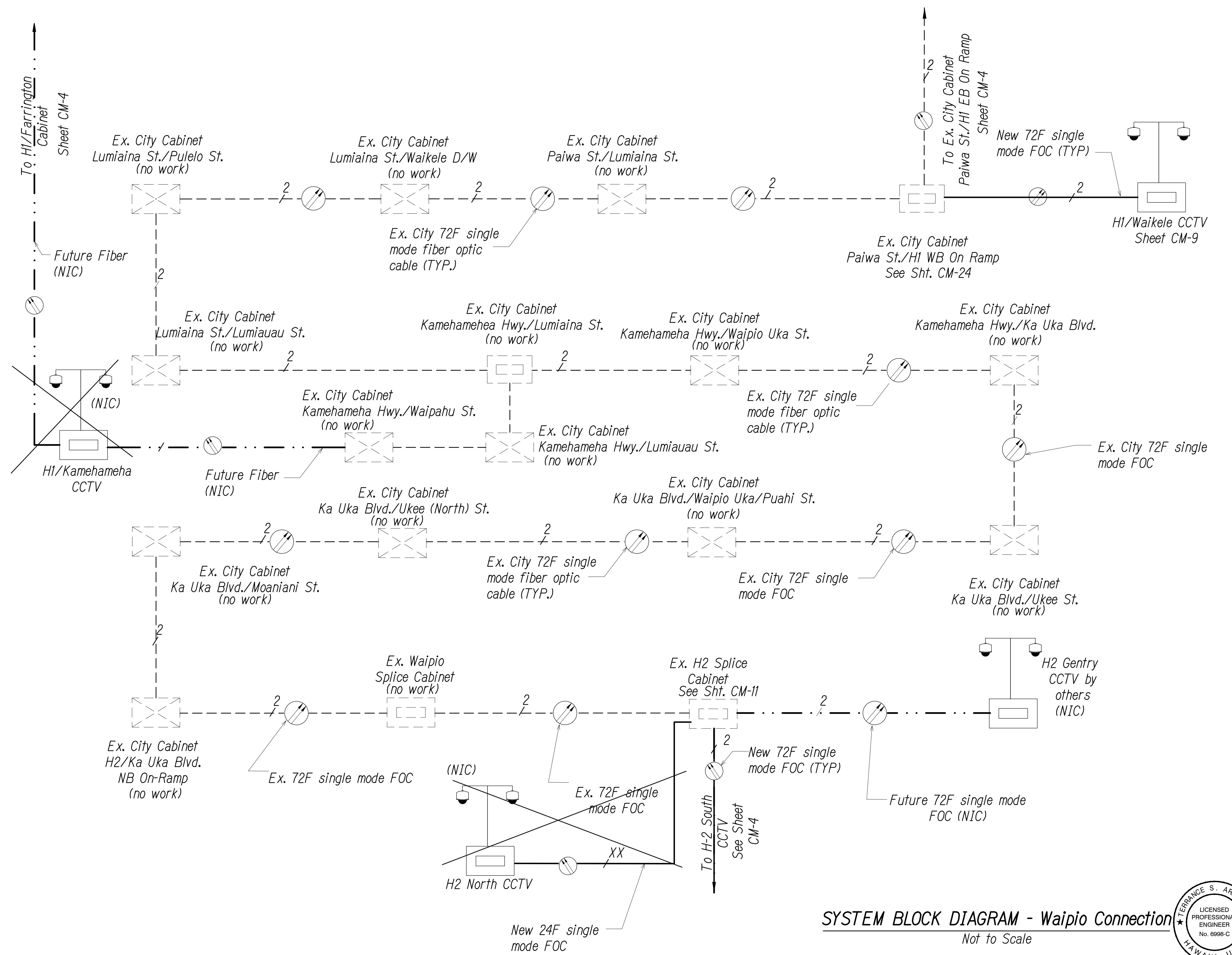
Existing Fiber

Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

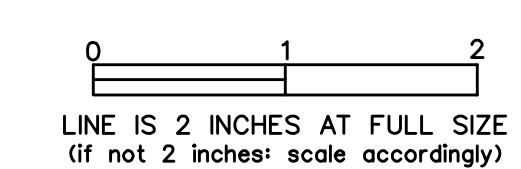


- Note
1. Coordinate and verify with City DTS & Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 100Base SFP in each new switch connection unless noted otherwise.

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

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SYSTEM BLOCK DIAGRAM - Waipio Connection
Not to Scale



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

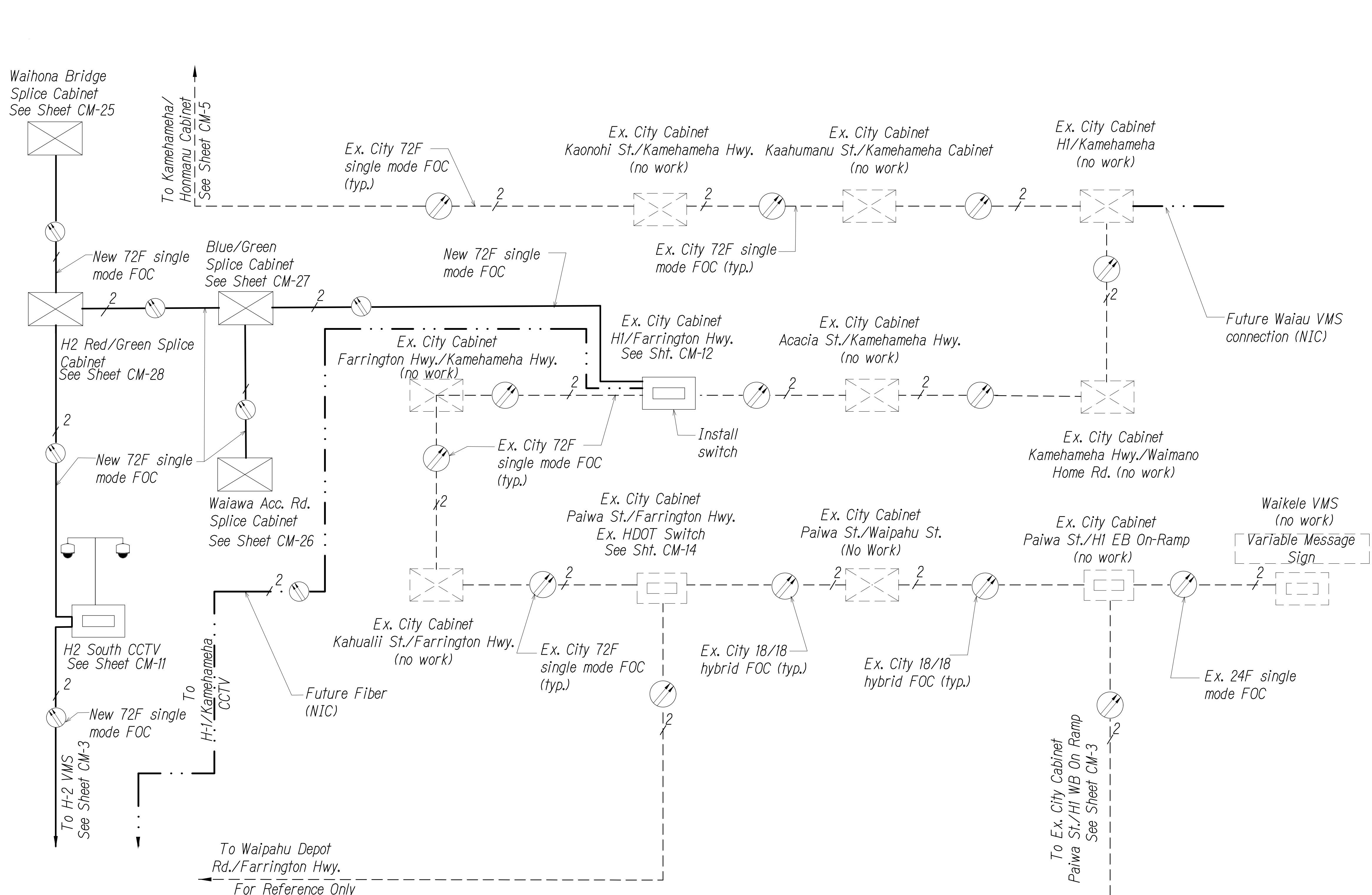
SHEET No. CM-3 OF 30 SHEETS

APRIL 30, 2022
LIC. EXP. DATE

TERENCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	31	170



Key

- CCTV Camera
- Variable Message Sign VMS
- Fiber
- = Number of Fibers Used
- Existing Fiber
- Future Fiber
- Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base

- Note**
1. Coordinate and verify with City DTS & Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 1000Base SFP in each new switch connection unless noted otherwise.

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

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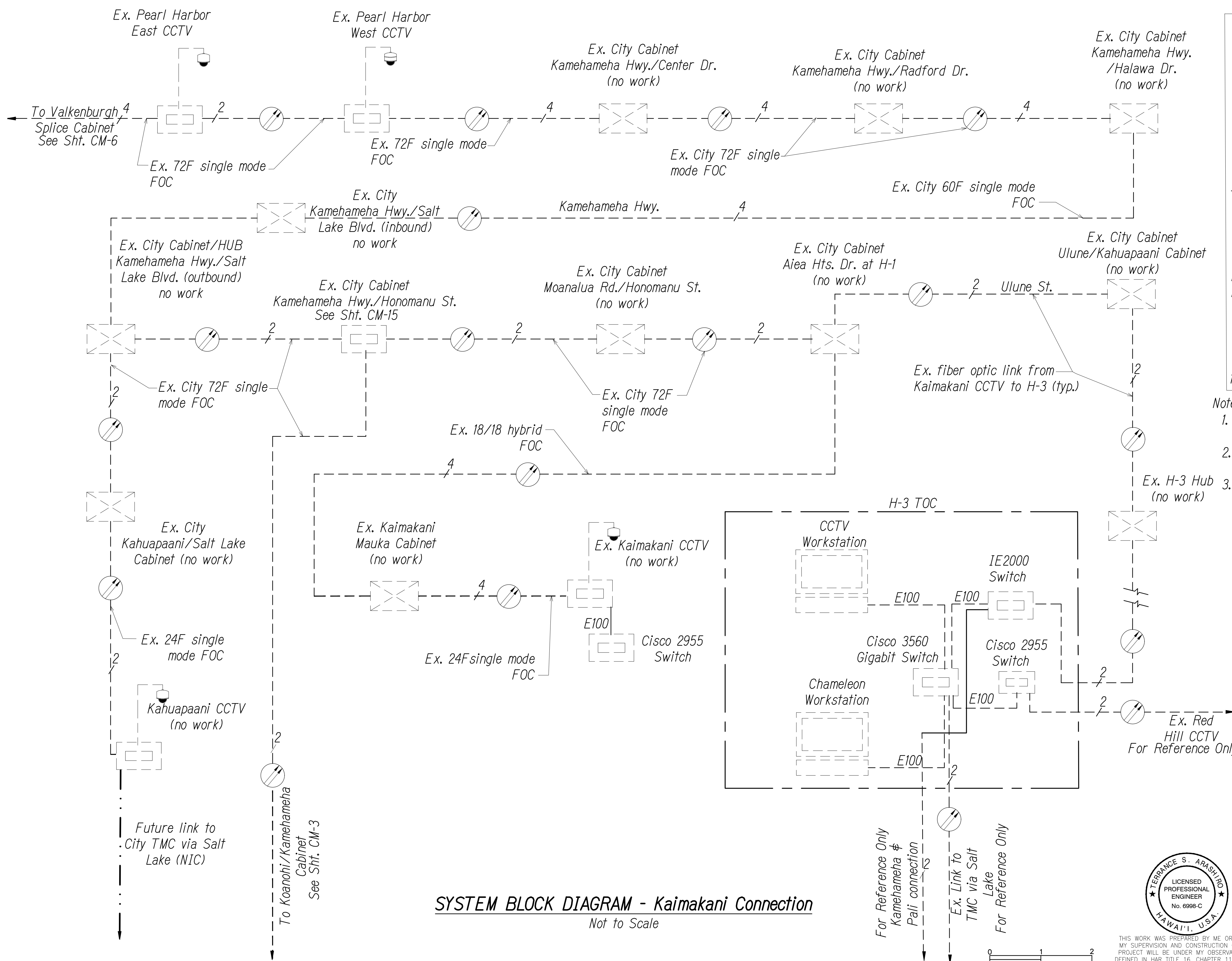
SYSTEM BLOCK DIAGRAM - Waikele Connection
 Not to Scale

LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
COMMUNICATIONS PLAN
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. CM-4 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	32	170



Key

- CCTV Camera
- Variable Message Sign VMS
- Fiber
- = Number of Fibers Used
- Existing Fiber
- Future Fiber
- Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base

- Note**
- Coordinate and verify with City DTS & Engineer before performing any splices.
 - Contractor shall document all splices and assignments used.
 - Install LX 1000Base SFP in each new switch connection unless noted otherwise.

SYSTEM BLOCK DIAGRAM - Kaimakani Connection
 Not to Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
NO.	

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Terrence S. Arashiro
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-5 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	33	170

Key

CCTV Camera

Variable Message Sign VMS

Fiber

= Number of Fibers Used

Existing Fiber

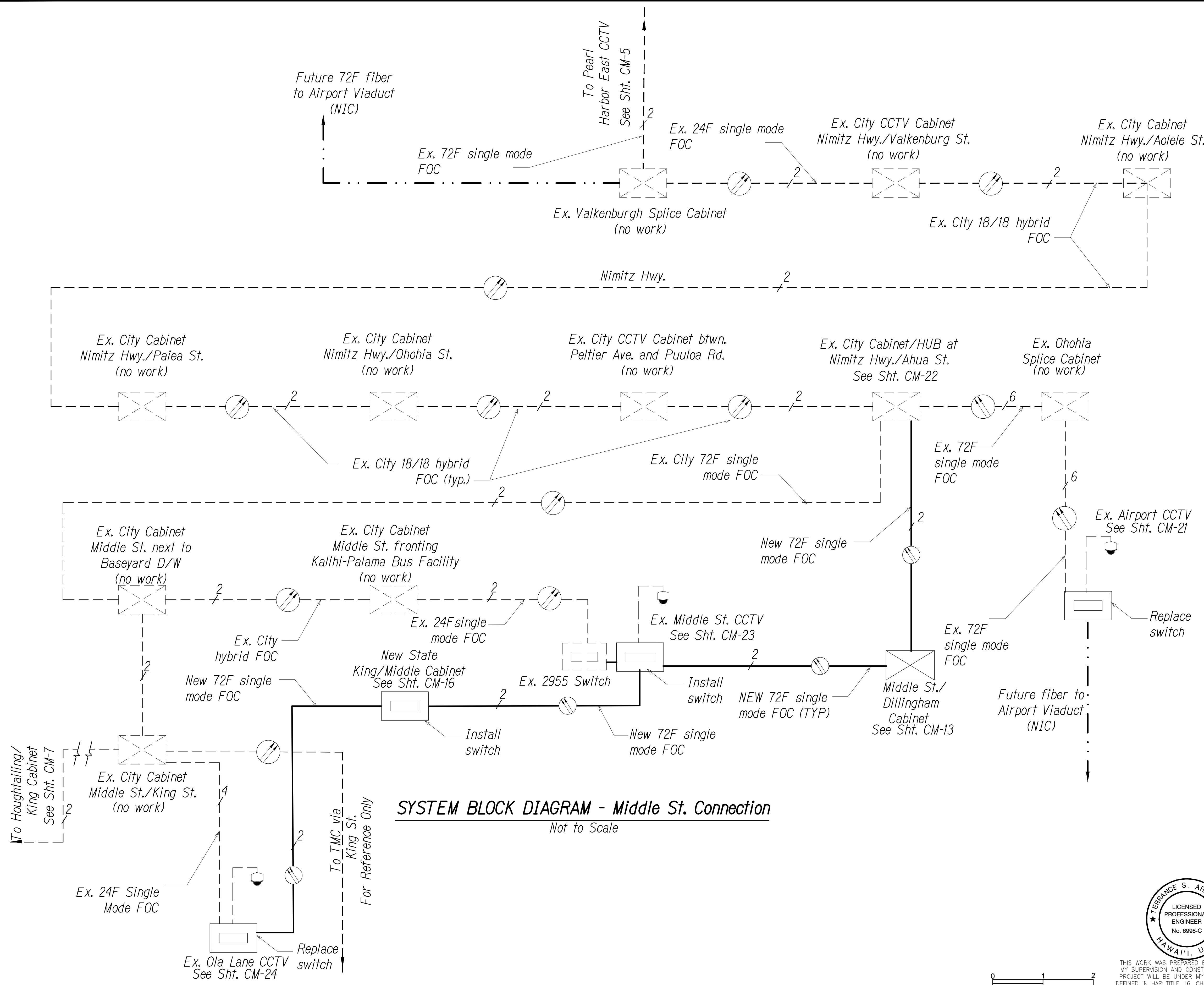
Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base

- Note
1. Coordinate and verify with City DTS # Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 1000Base SFP in each new switch connection unless noted otherwise.



SYSTEM BLOCK DIAGRAM - Middle St. Connection
 Not to Scale

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

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LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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Terrence S. Arashi
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

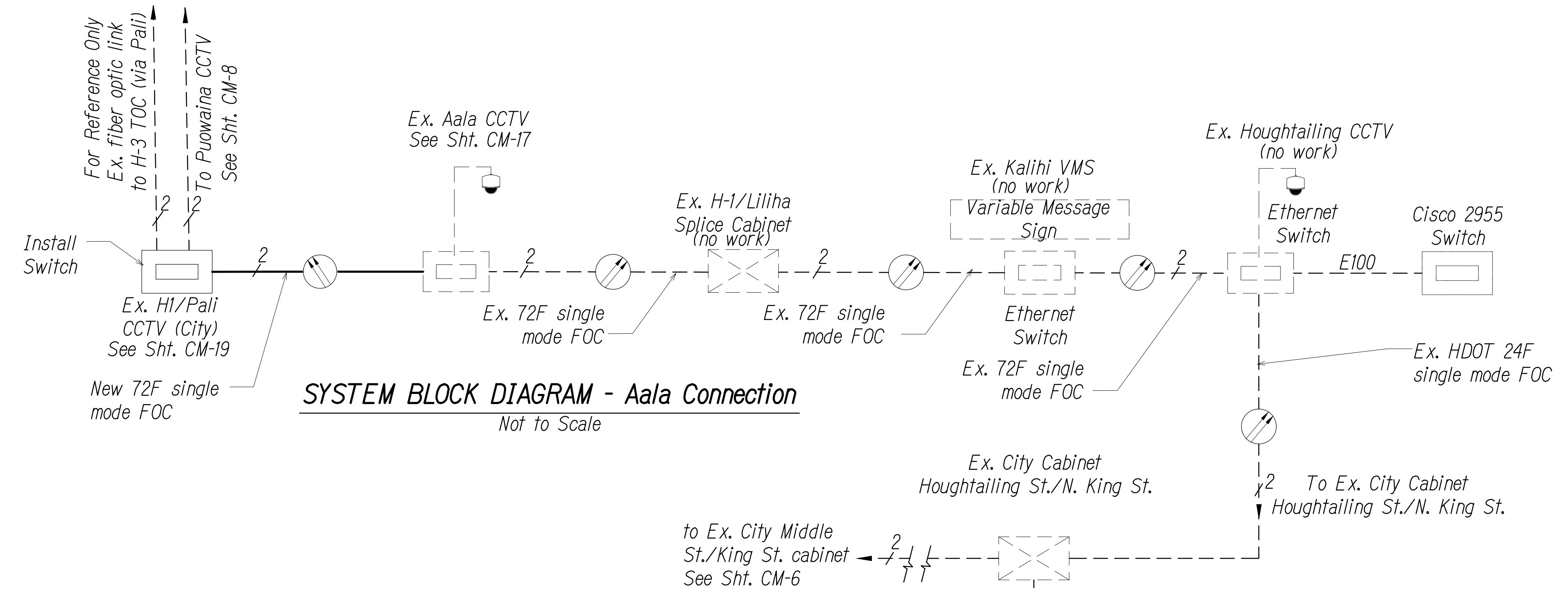
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-6 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	34	170



Key

- CCTV Camera
- Variable Message Sign VMS
- Fiber
- = Number of Fibers Used
- Existing Fiber
- Future Fiber
- Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base

- Note
1. Coordinate and verify with City DTS # Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 100Base SFP in each new switch connection unless noted otherwise.

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

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0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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Terrence S. Arashi
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

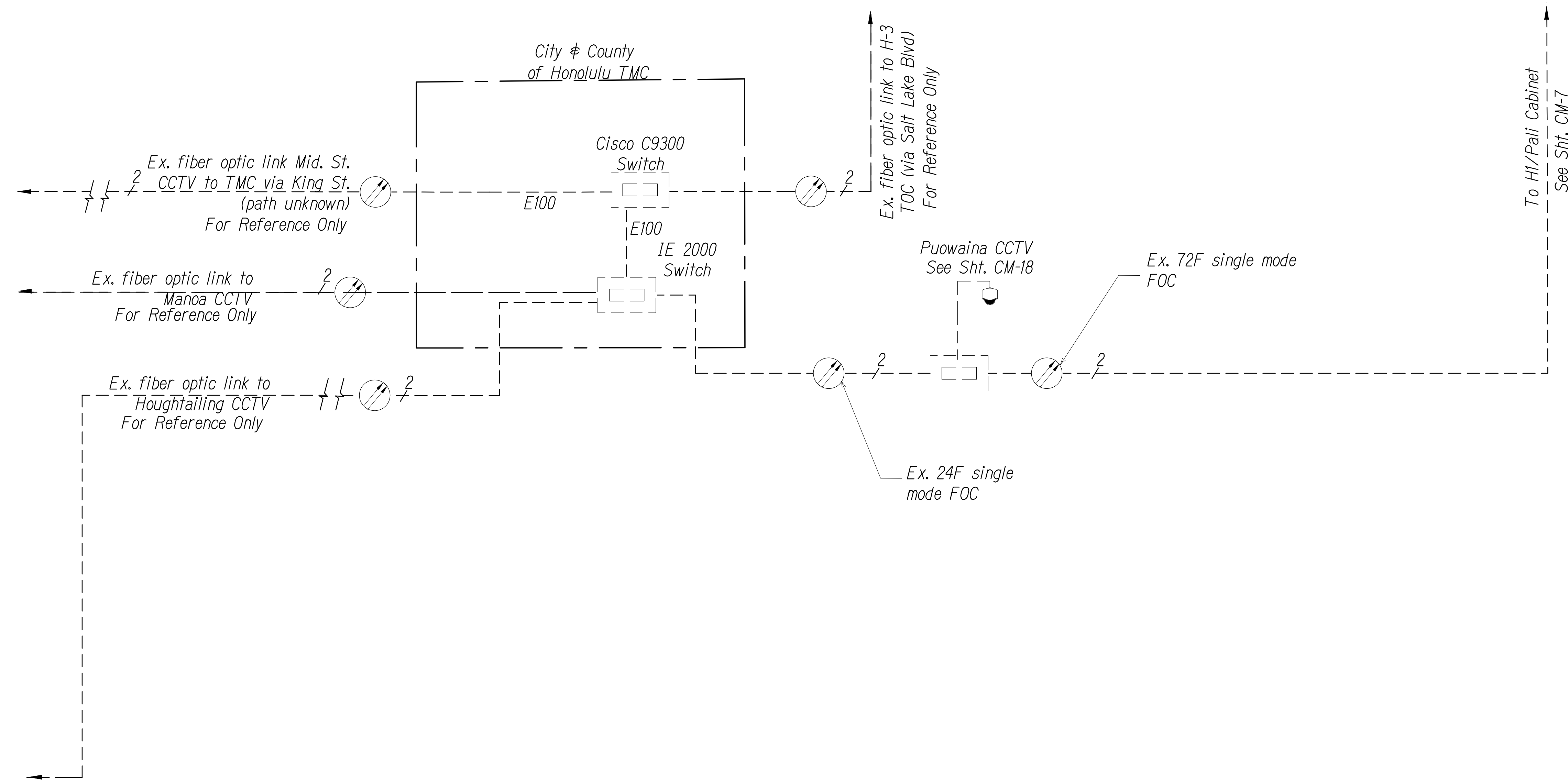
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-7 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	35	170



Key

CCTV Camera

Variable Message Sign VMS

Fiber

= Number of Fibers Used

Existing Fiber

Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base

- Note**
1. Coordinate and verify with City DTS & Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 1000Base SFP in each new switch connection unless noted otherwise.

SYSTEM BLOCK DIAGRAM - City TMC Connection
 Not to Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	

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0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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Terrence S. Arashi
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

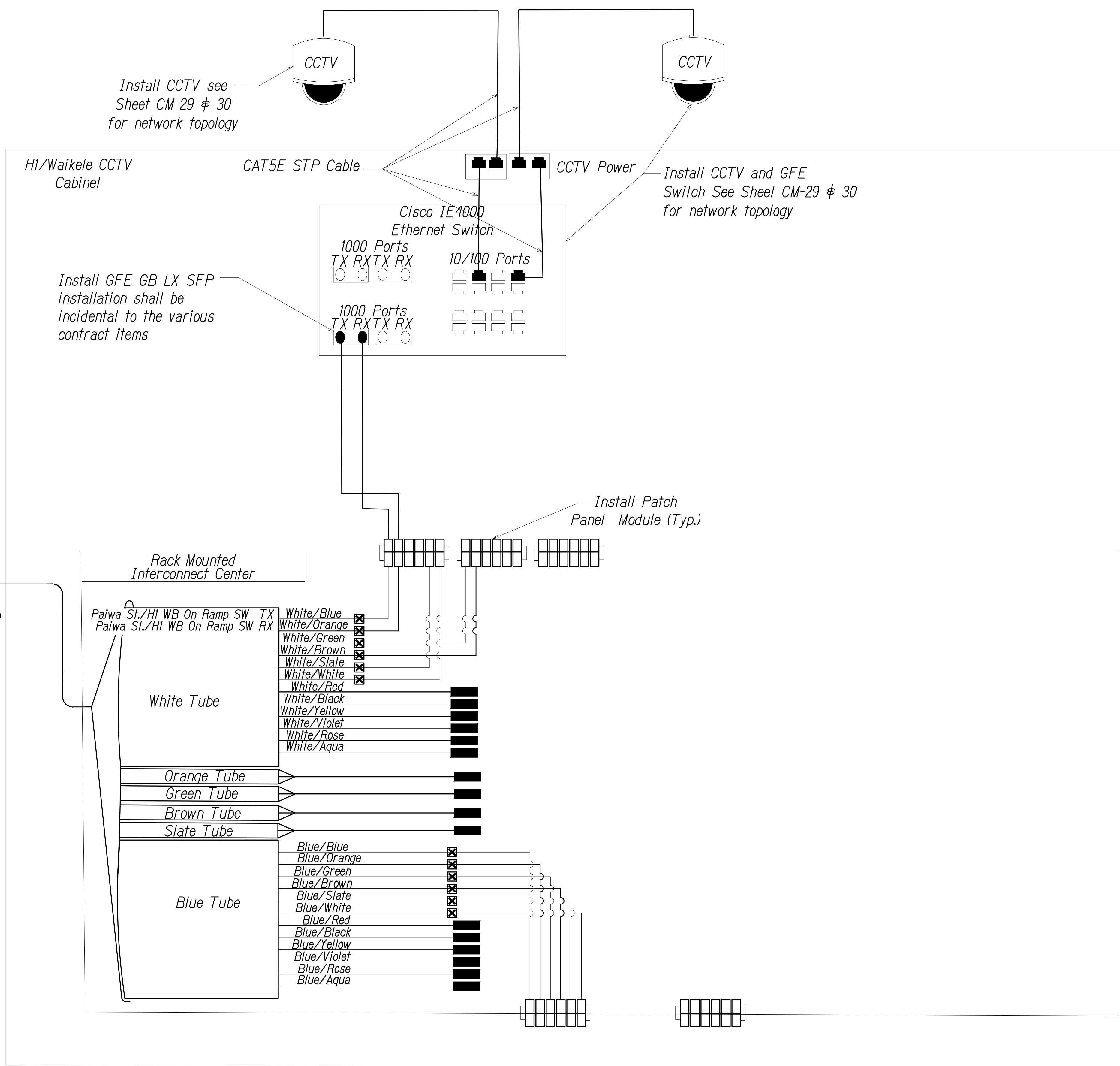
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-8 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	36	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- ✕—□— Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- ✕ Existing Splice
- ✕ Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

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

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SPLICING AND CONNECTION DETAIL - H1/Waikale CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

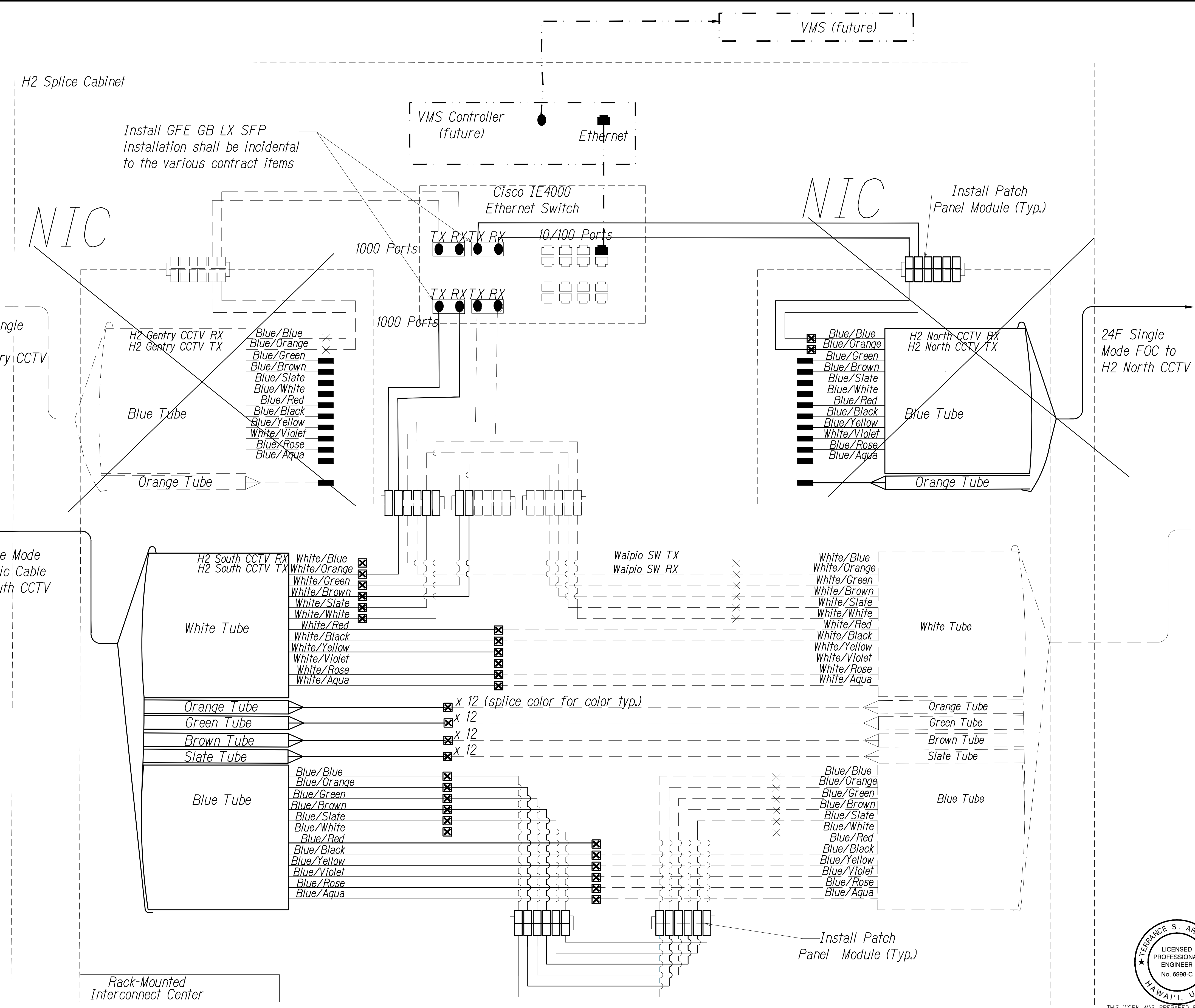
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-9 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	37	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

H2 Splice Cabinet

Install GFE GB LX SFP installation shall be incidental to the various contract items

24F Ex. Single Mode FOC to H2 Gentry CCTV

Blue Tube

Orange Tube

72F Single Mode Fiber Optic Cable to H2 South CCTV

White Tube

Orange Tube

Green Tube

Brown Tube

Slate Tube

Blue Tube

Rack-Mounted Interconnect Center

VMS (future)

VMS Controller (future)

Ethernet

Cisco IE4000 Ethernet Switch

10/100 Ports

1000 Ports

1000 Ports

NIC

Install Patch Panel Module (Typ.)

Blue Tube

Orange Tube

24F Single Mode FOC to H2 North CCTV

H2 North CCTV RX

H2 North CCTV TX

Blue/Blue

Blue/Orange

Blue/Green

Blue/Brown

Blue/Slate

Blue/White

Blue/Red

Blue/Black

Blue/Yellow

White/Violet

Blue/Rose

Blue/Aqua

White/Blue

White/Orange

White/Green

White/Brown

White/Slate

White/White

White/Red

White/Black

White/Yellow

White/Violet

White/Rose

White/Aqua

Waipio SW TX

Waipio SW RX

White Tube

Orange Tube

Green Tube

Brown Tube

Slate Tube

Blue Tube

Blue/Blue

Blue/Orange

Blue/Green

Blue/Brown

Blue/Slate

Blue/White

Blue/Red

Blue/Black

Blue/Yellow

Blue/Violet

Blue/Rose

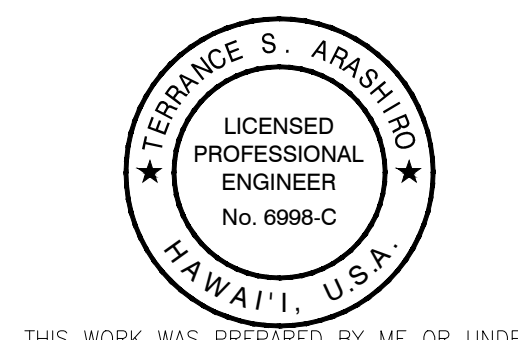
Blue/Aqua

Install Patch Panel Module (Typ.)

72F Single Mode Fiber Optic Cable to Waipio Cabinet

SPLICING AND CONNECTION DETAIL - H2 Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

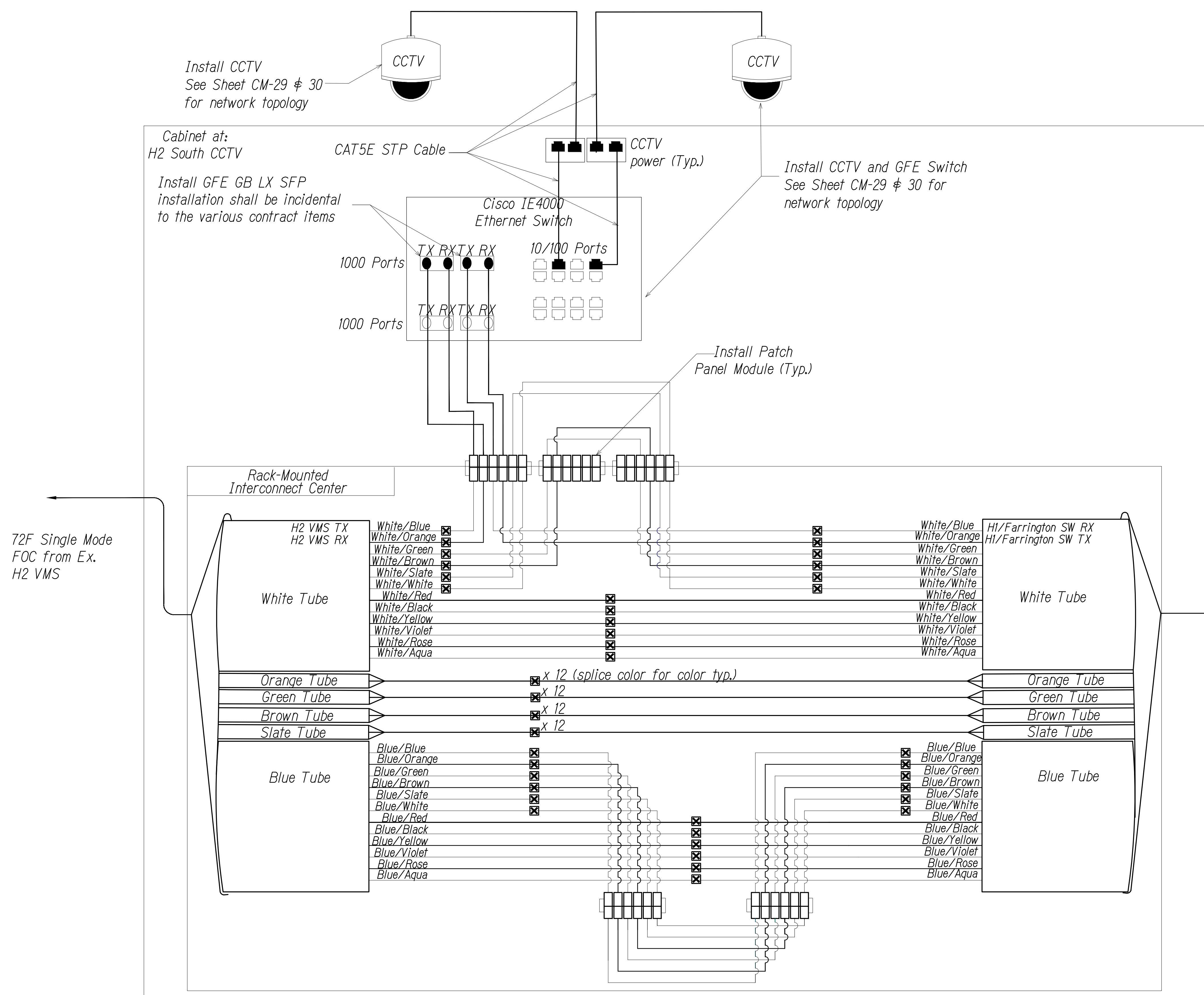
Scale: As Shown Date: June 25, 2021

SHEET No. CM-10 OF 30 SHEETS

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
TRACED BY	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
TRACED BY	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
TRACED BY	____

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	38	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

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

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SPlicing AND CONNECTION DETAIL - H2 South CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

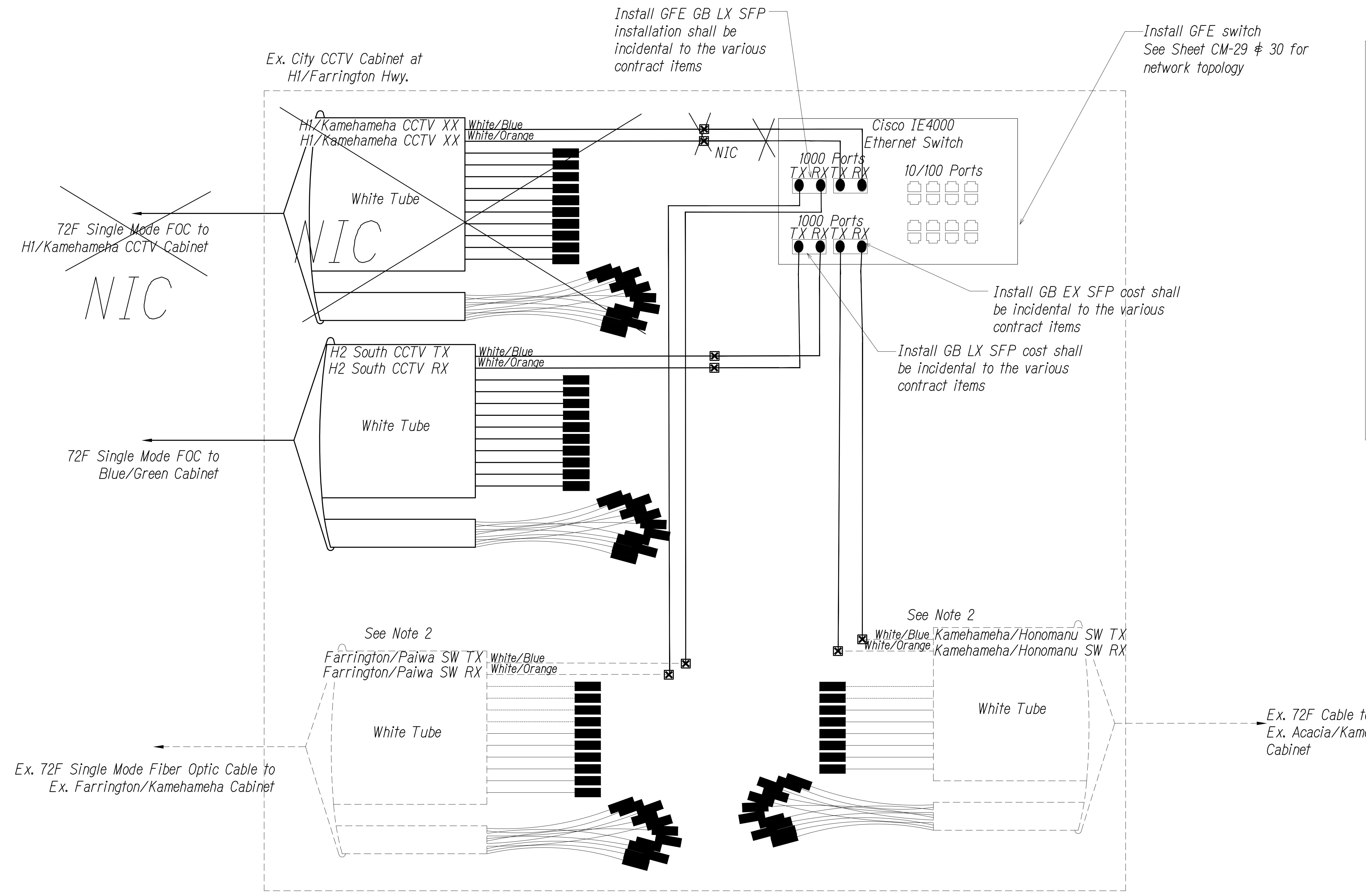
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-11 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	39	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

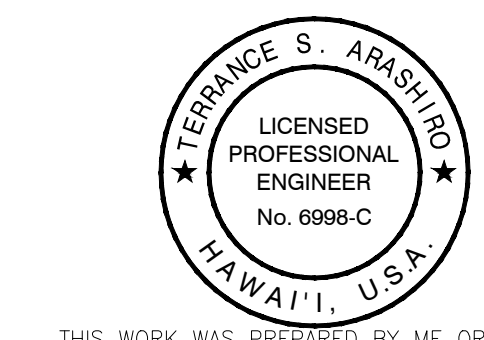
- Notes:**
1. Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.
 2. Fiber assignment to be verified, tested and documented by Contractor, to enable communication shown, cost shall be incidental to the various contract items.

SPLICING AND CONNECTION DETAIL - Ex. City H1/Farrington Cabinet
Not to Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FNA\2019\19-201-EMS PHASE 3\UNIT 1\DWG\COMM PLANS\CM-12 COMMUNICATIONS PLANDWG Jul 22, 2021-9:28 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

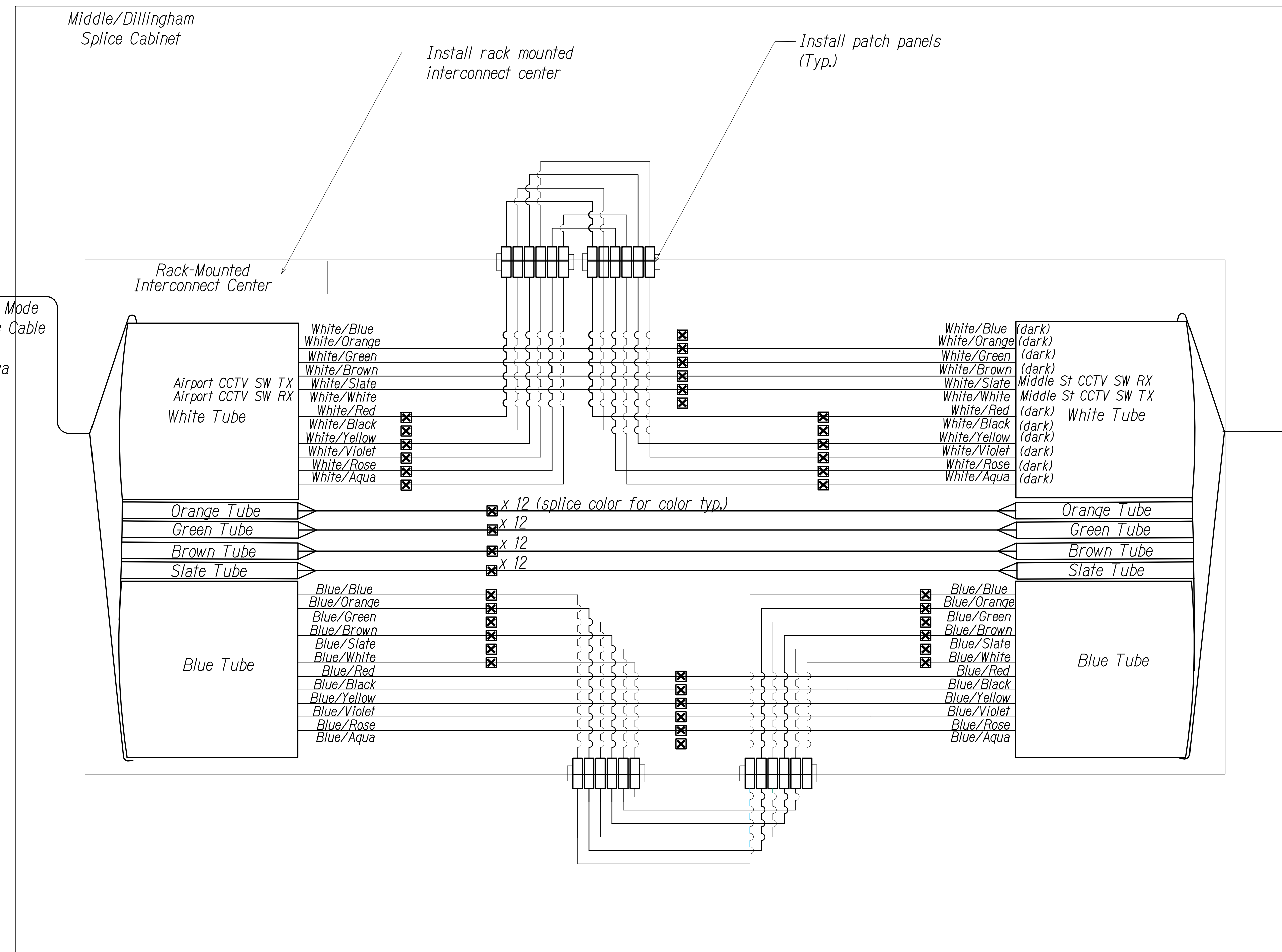
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-12 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	40	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

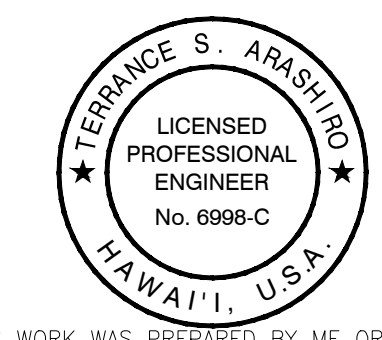
Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

SPLICING AND CONNECTION DETAIL - Middle St./Dillingham Blvd. Cabinet
Not to Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
NO.	

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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

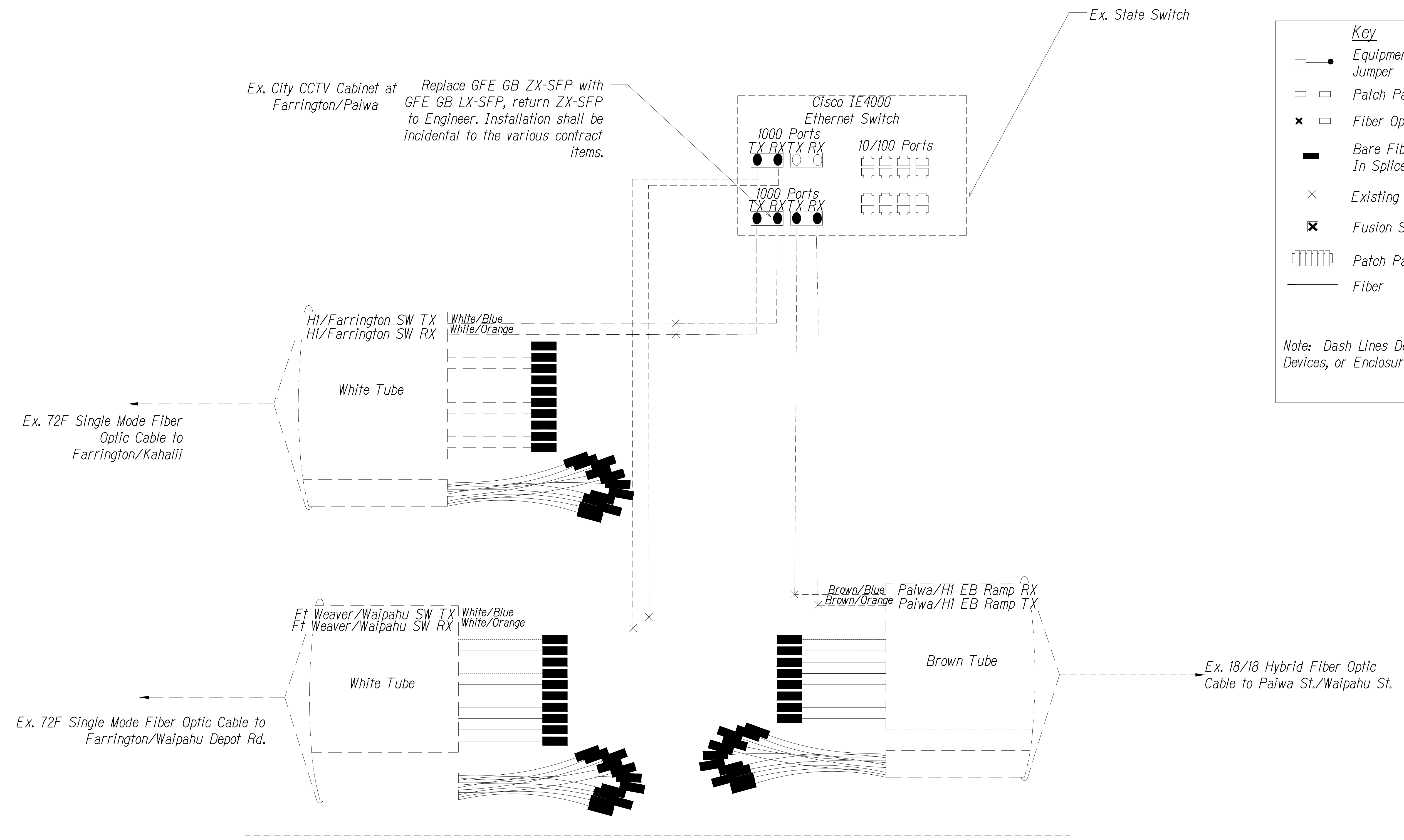
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-13 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	41	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

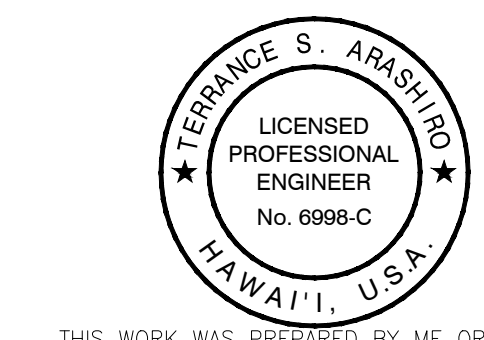
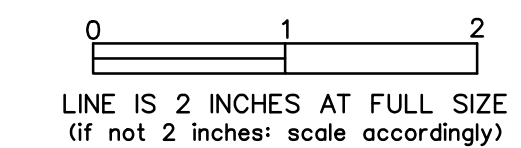
Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

SPLICING AND CONNECTION DETAIL - Ex. Farrington/Paiwa
Not to Scale

- Notes:**
1. Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NO.	

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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

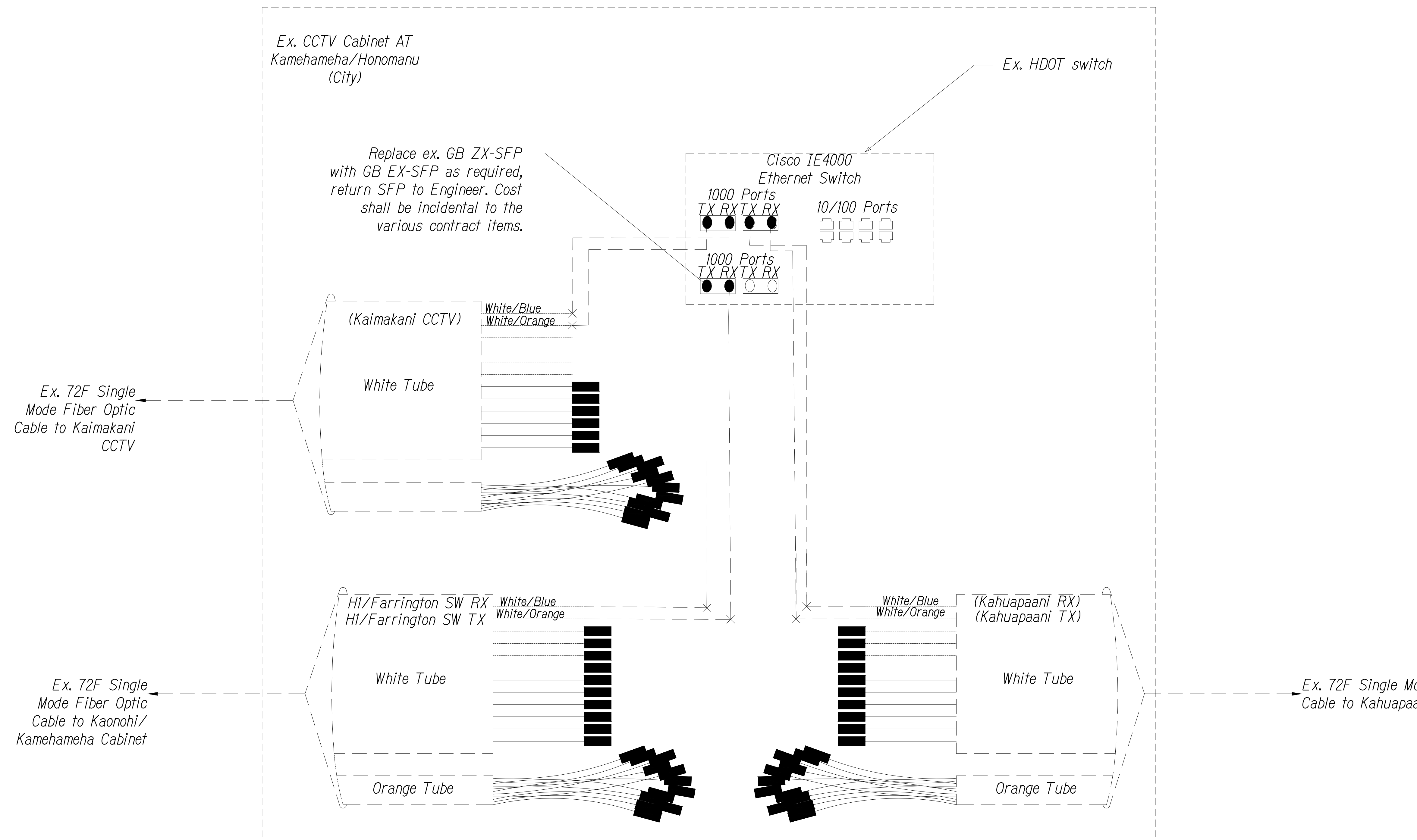
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-14 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	42	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

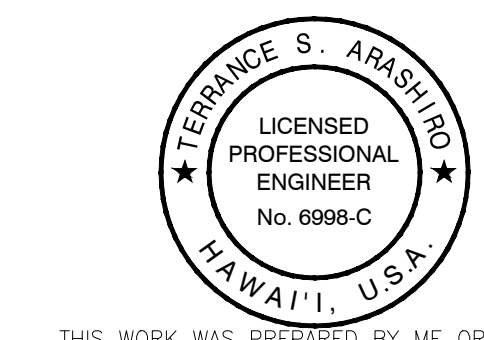
Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

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

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SPLICING AND CONNECTION DETAIL - Ex. Kamehameha/Honomanu City Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

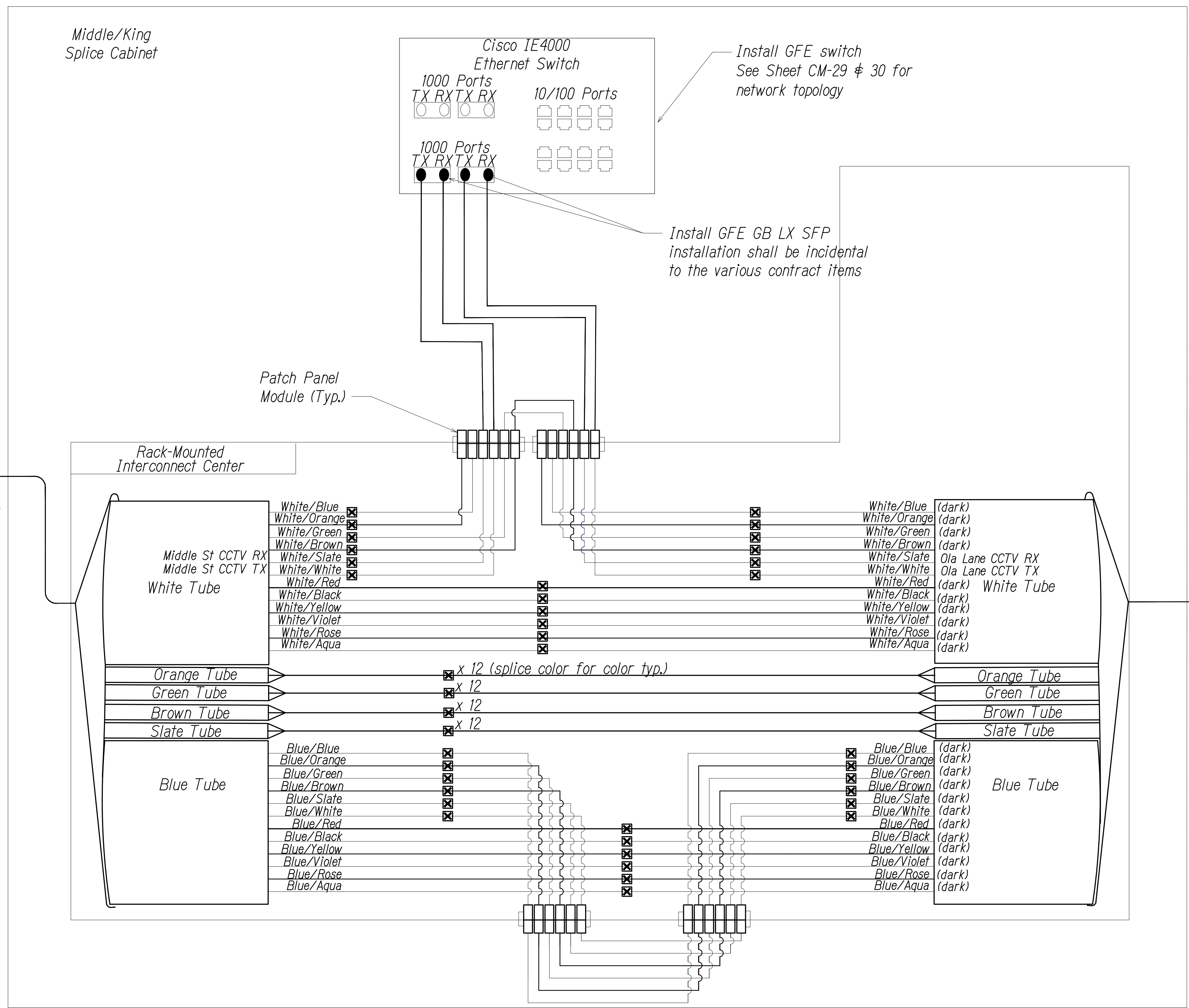
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-15 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	43	170



Key

- ◻● Equipment Connection Fiber Optic Jumper
- ◻◻ Patch Panel Fiber Optic Jumper
- ✕◻ Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- × Existing Splice
- ✕ Fusion Splice
- ◻◻◻◻ Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

72F Single Mode Fiber Optic Cable from Ex. HDOT Middle St. CCTV

72F Single Mode Fiber Optic Cable from Ex. Ola Lane CCTV

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
DESIGNED BY	
CHECKED BY	
DATE	

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SPLICING AND CONNECTION DETAIL - Middle/King Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

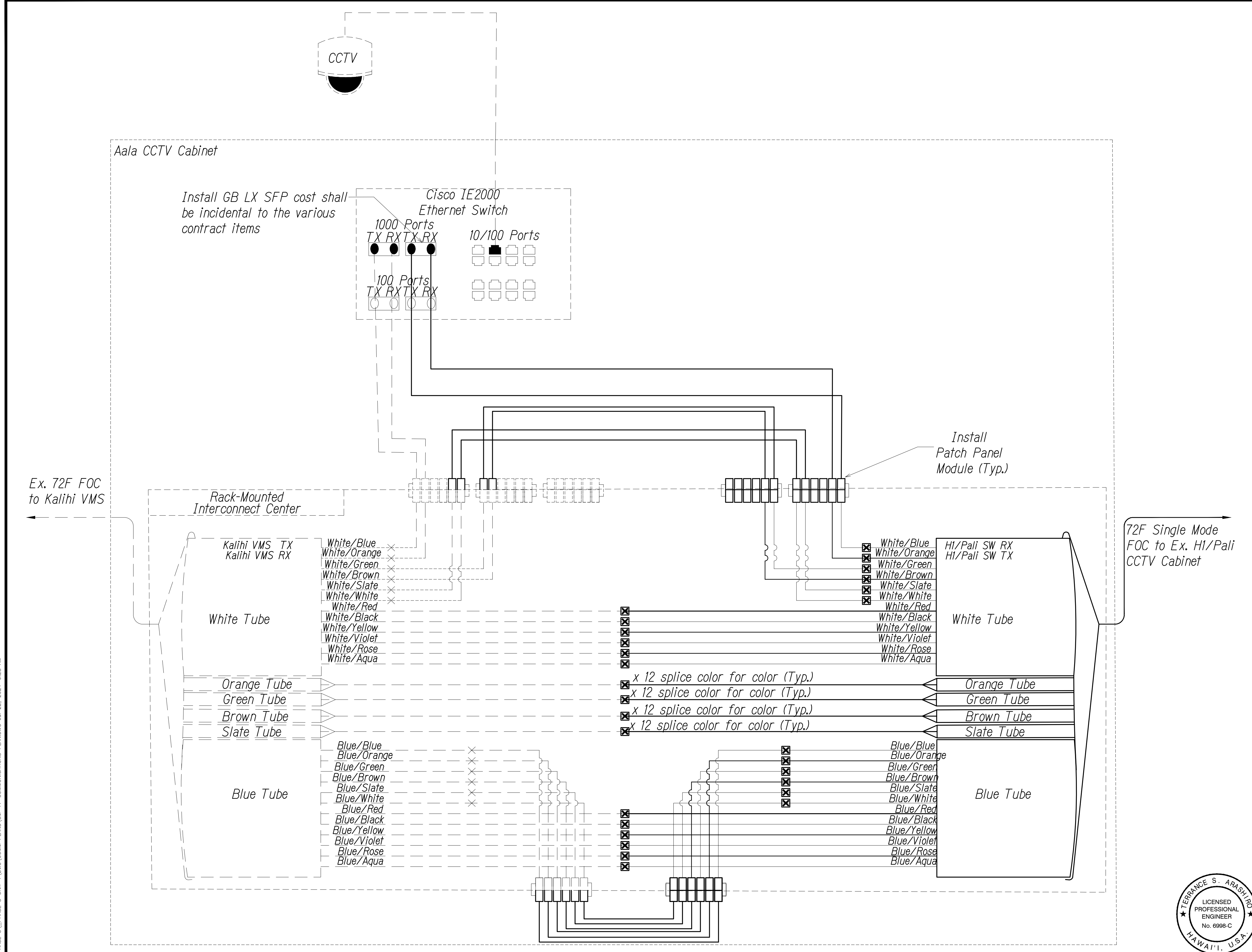
SHEET No. CM-16 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	44	170

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

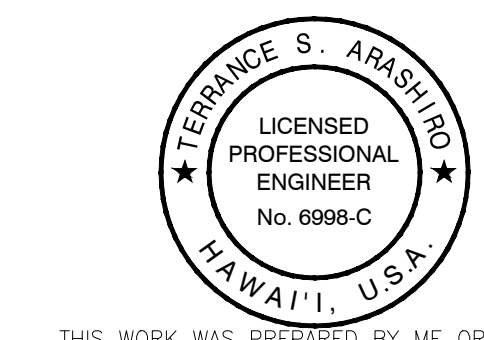


SURVEY PLOTTED BY: DATE: _____
 DRAWN BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____
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ORIGINAL PLAN	DATE
NOTE BOOK	

SPLICING AND CONNECTION DETAIL - Ex. Aala CCTV
 Not to Scale

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
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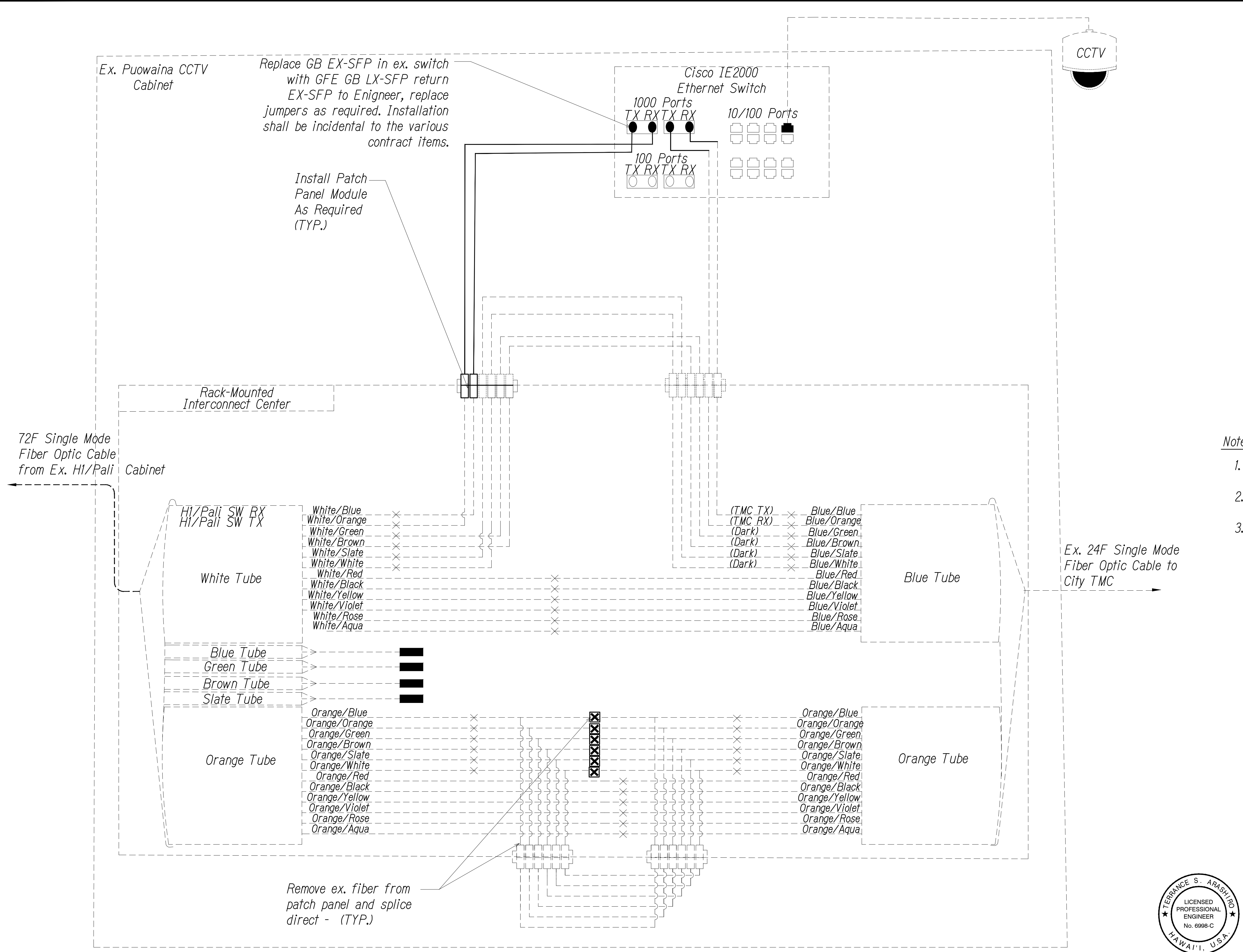
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-17 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	45	170



Key

- Equipment Connection Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

- Notes:**
1. Coordinate with Engineer before performing any splicing or work.
 2. Contractor shall document fiber assignments for splices made.
 3. Replace or reconnect cables and jumpers as required

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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SPLICING AND CONNECTION DETAIL - Ex. Puowaina CCTV Cabinet
Not to Scale

LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
COMMUNICATIONS PLAN
*Freeway Management System, Phase 3,
 Unit 1*
Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. CM-18 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	46	170

Notes:

1. Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.

Install GB LX SFP cost shall be incidental to the various contract items

Install Patch Panel Module (Typ.)

Ex. City Pali Hwy. Splice Cabinet at HI/Pali

Install GFE switch see sht. CM-29 & 30 for network topology

Install GB EX SFP cost shall be incidental to the various contract items

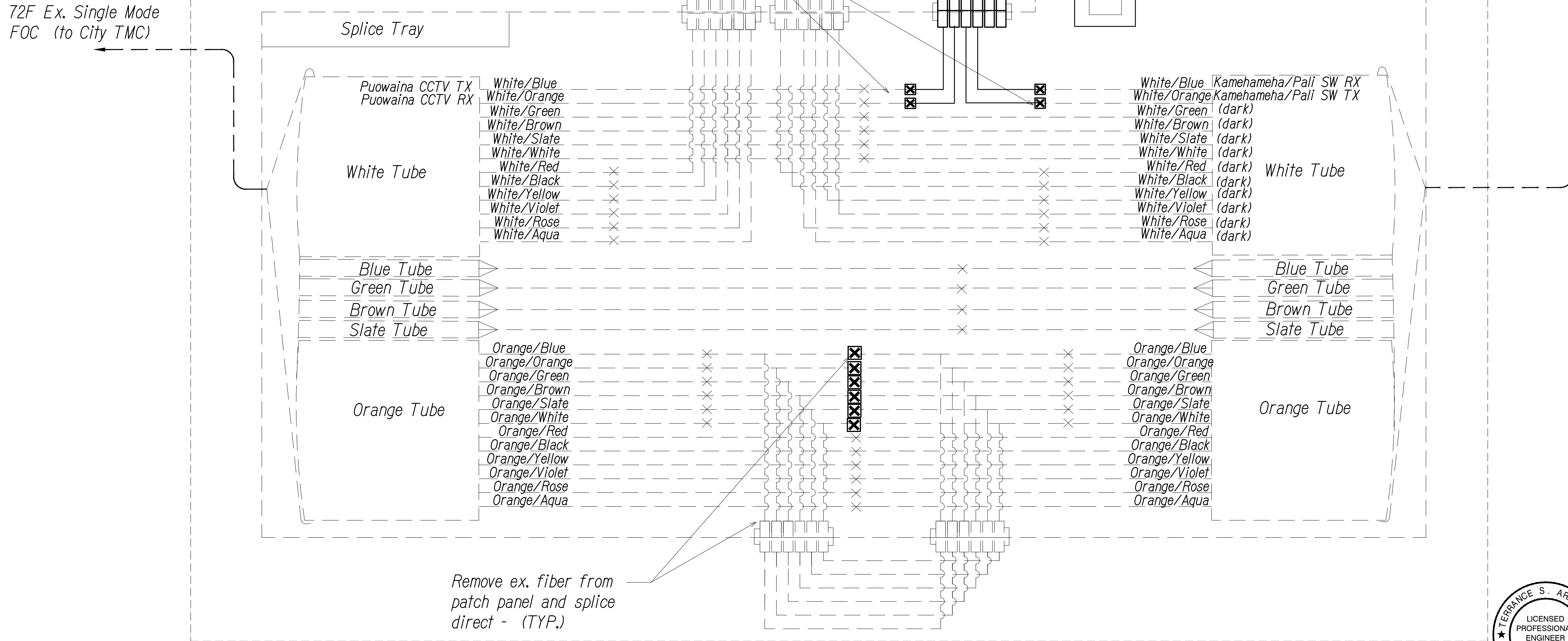
Break ex. splice, splice pigtails on each end and connect to patch panel (typ.)

72F Ex. Single Mode FOC (to City TMC)

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.



Remove ex. fiber from patch panel and splice direct - (TYP.)

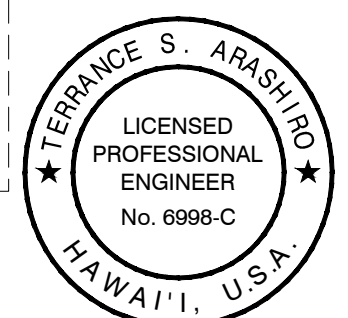
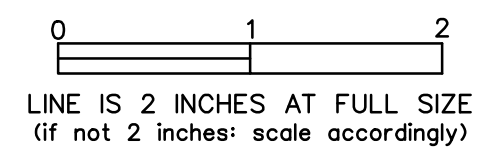
72F Ex. Single Mode FOC (to H3 TOC)

SPLICING AND CONNECTION DETAIL - Ex. H1/Pali Cabinet

Not to Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	

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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

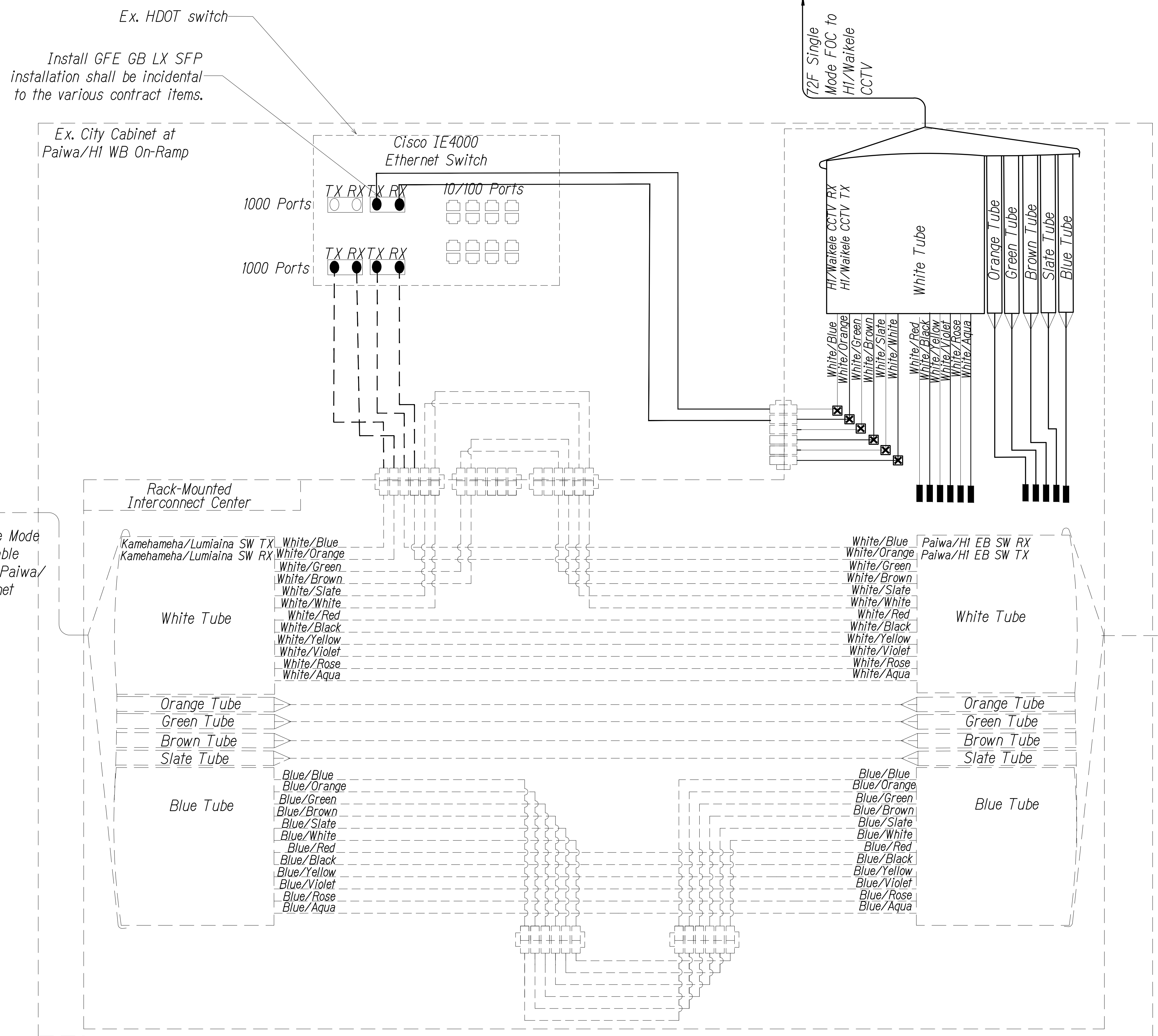
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-19 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	47	170



Key

- ● Equipment Connection Fiber Optic Jumper
- □ Patch Panel Fiber Optic Jumper
- ✕ □ Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- × Existing Splice
- ✕ Fusion Splice
- ▭ Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

Ex. 72F Single Mode Fiber Optic Cable from Ex. City Paiwa/Lumiaina Cabinet

Ex. 72F Single Mode Fiber Optic Cable to Ex. City Paiwa/HI EB On-Ramp Cabinet

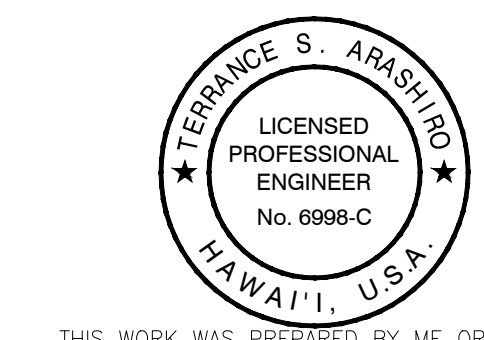
- Notes:**
- Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.

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

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SPLICING AND CONNECTION DETAIL - Ex. City Paiwa/HI Westbound On-Ramp Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

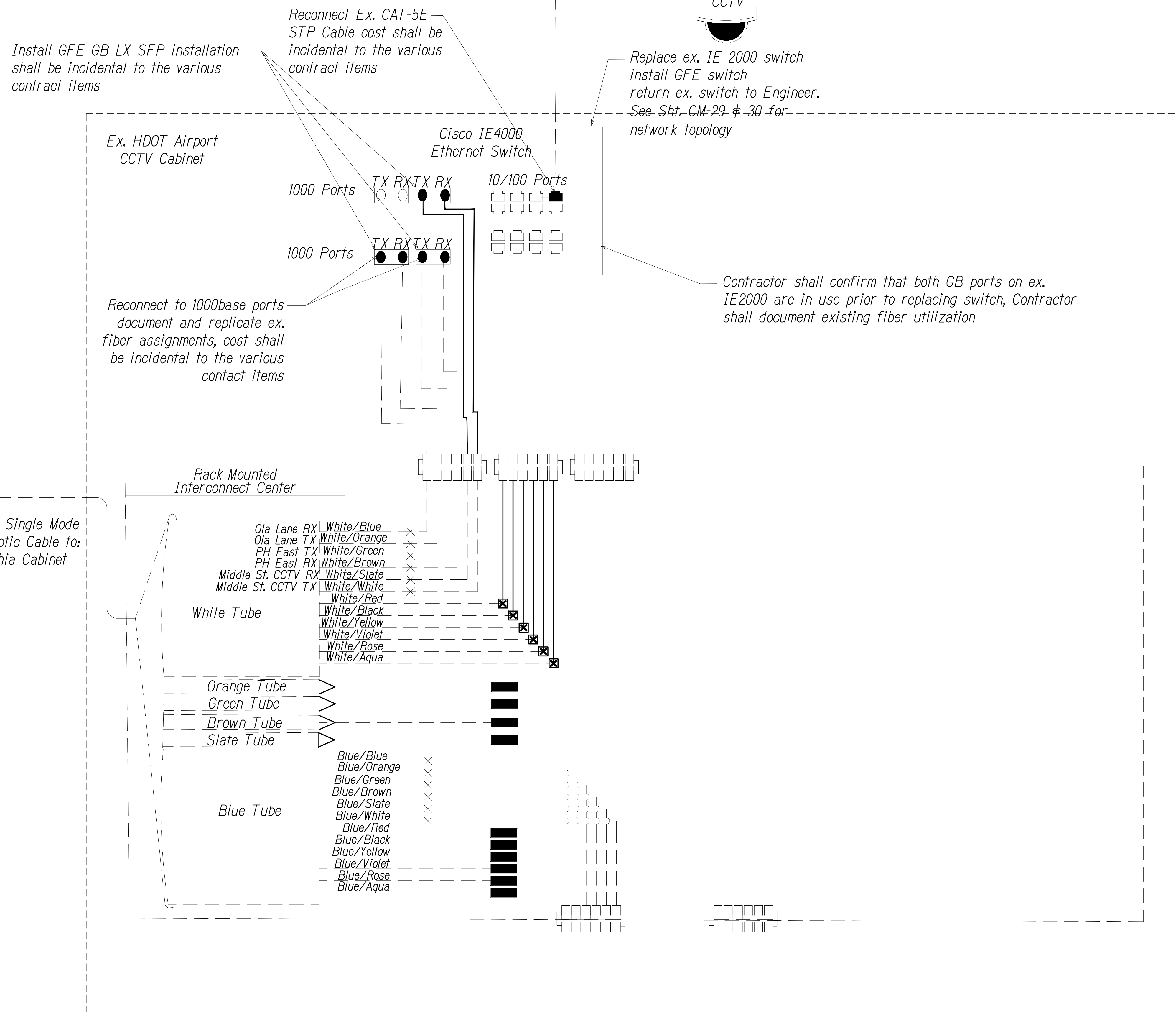
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-20 of 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	48	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
DESIGNED BY	
TRACED BY	
DATE	

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SPLICING AND CONNECTION DETAIL - Ex. Airport CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

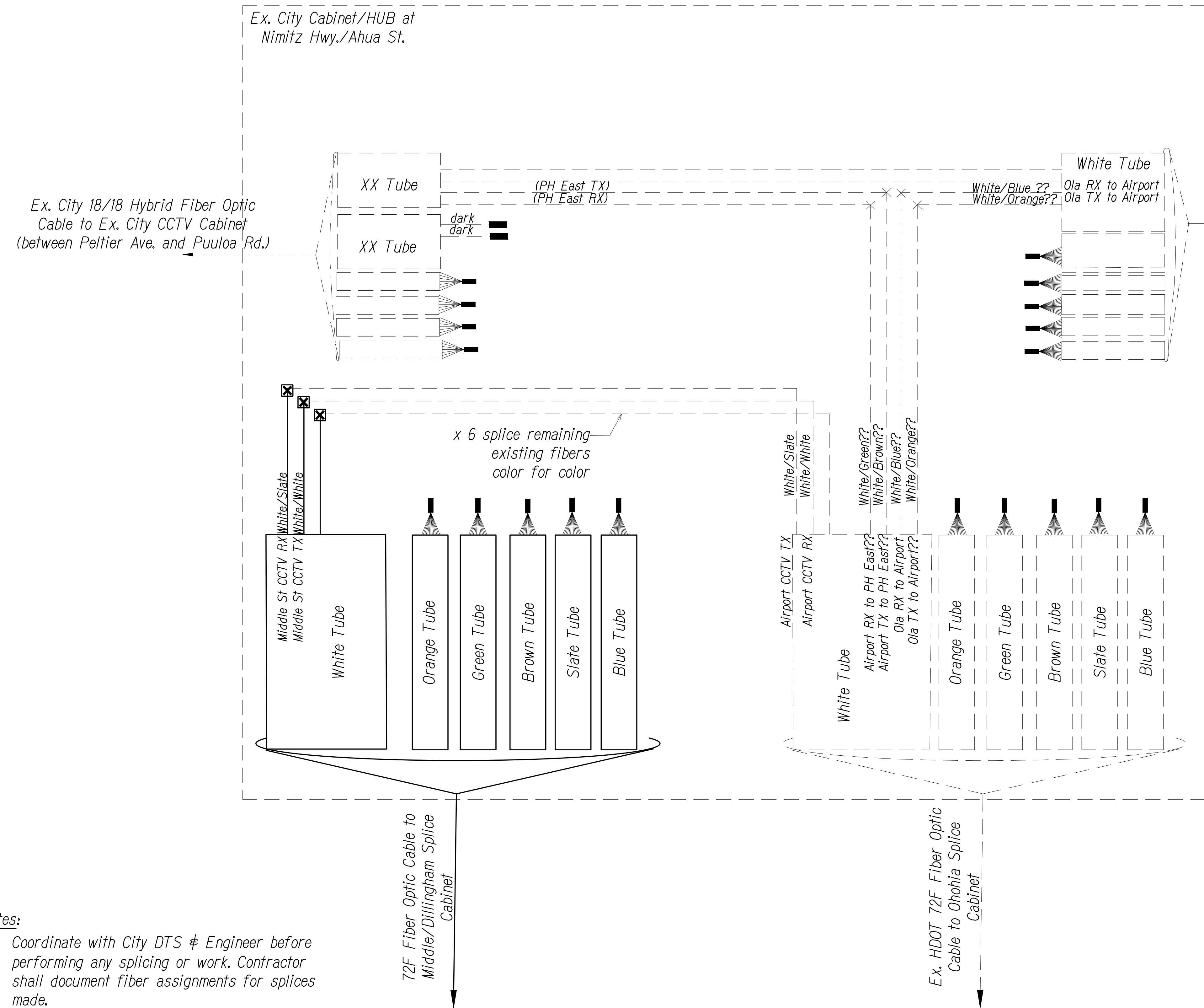
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-21 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	49	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

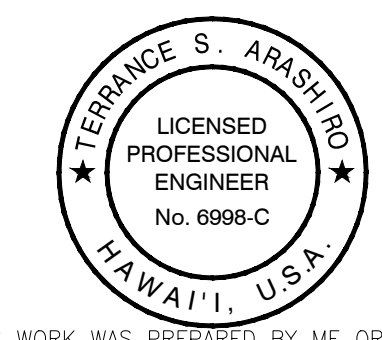
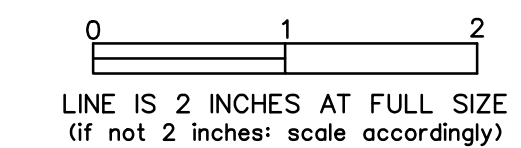
Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

- Notes:**
1. Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.
 2. Fiber assignment to be verified, tested and documented by Contractor, to enable communication shown, cost shall be incidental to the various contract items.

SPLICING AND CONNECTION DETAIL - Ex. City Cabinet/HUB at Nimitz Hwy./Ahua St.
Not to Scale

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
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HIGHWAYS DIVISION

COMMUNICATIONS PLAN

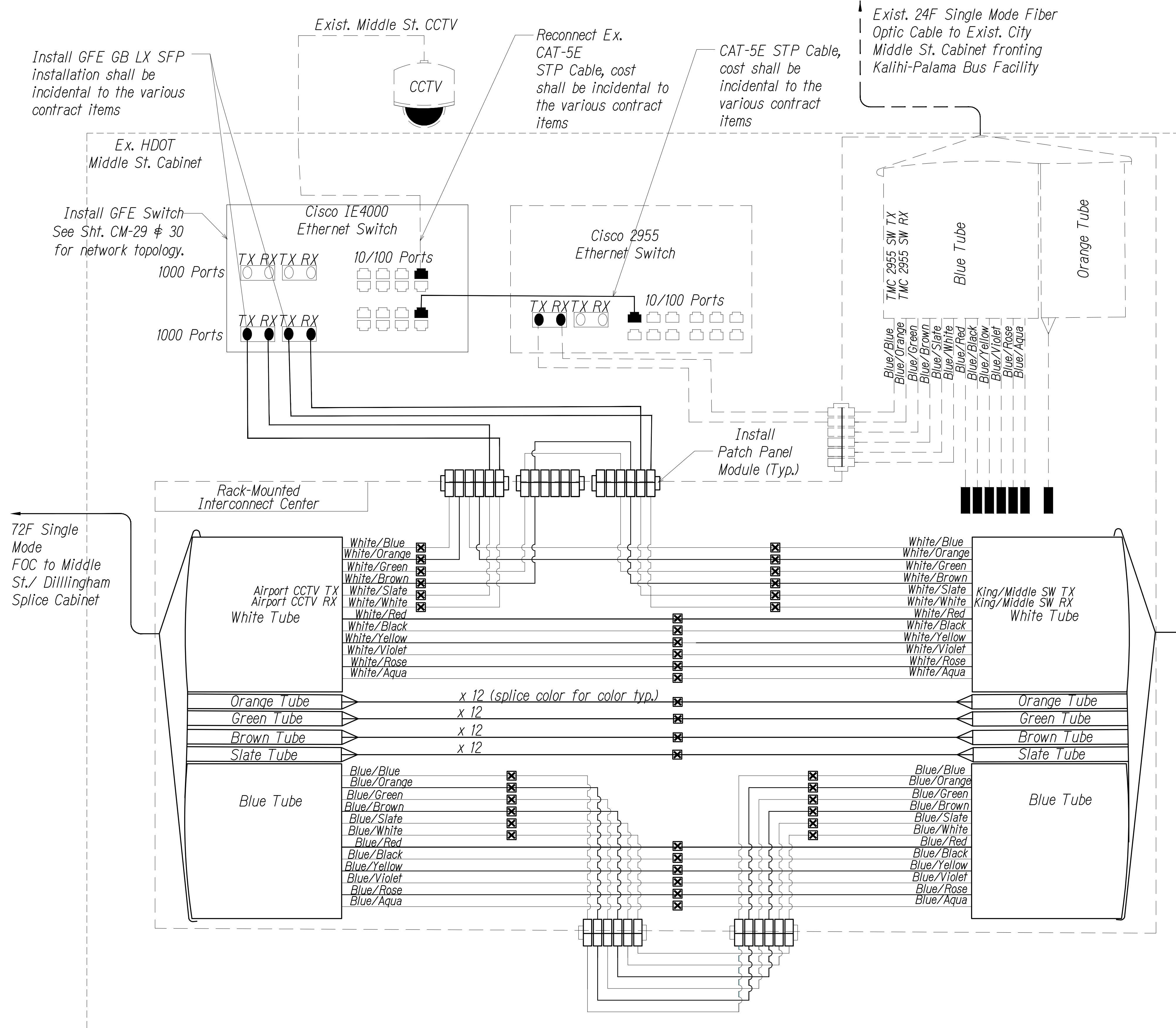
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-22 of 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	50	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- ⊗—□— Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- × Existing Splice
- ⊗ Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

Install GFE GB LX SFP installation shall be incidental to the various contract items

Install GFE Switch See Sht. CM-29 & 30 for network topology.

Reconnect Ex. CAT-5E STP Cable, cost shall be incidental to the various contract items

CAT-5E STP Cable, cost shall be incidental to the various contract items

Exist. 24F Single Mode Fiber Optic Cable to Exist. City Middle St. Cabinet fronting Kalihi-Palama Bus Facility

72F Single Mode FOC to Middle St./ Dillingham Splice Cabinet

72F Single Mode FOC to King/Middle Splice Cabinet

SPLICING AND CONNECTION DETAIL - MIDDLE ST. CCTV
Not to Scale

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

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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

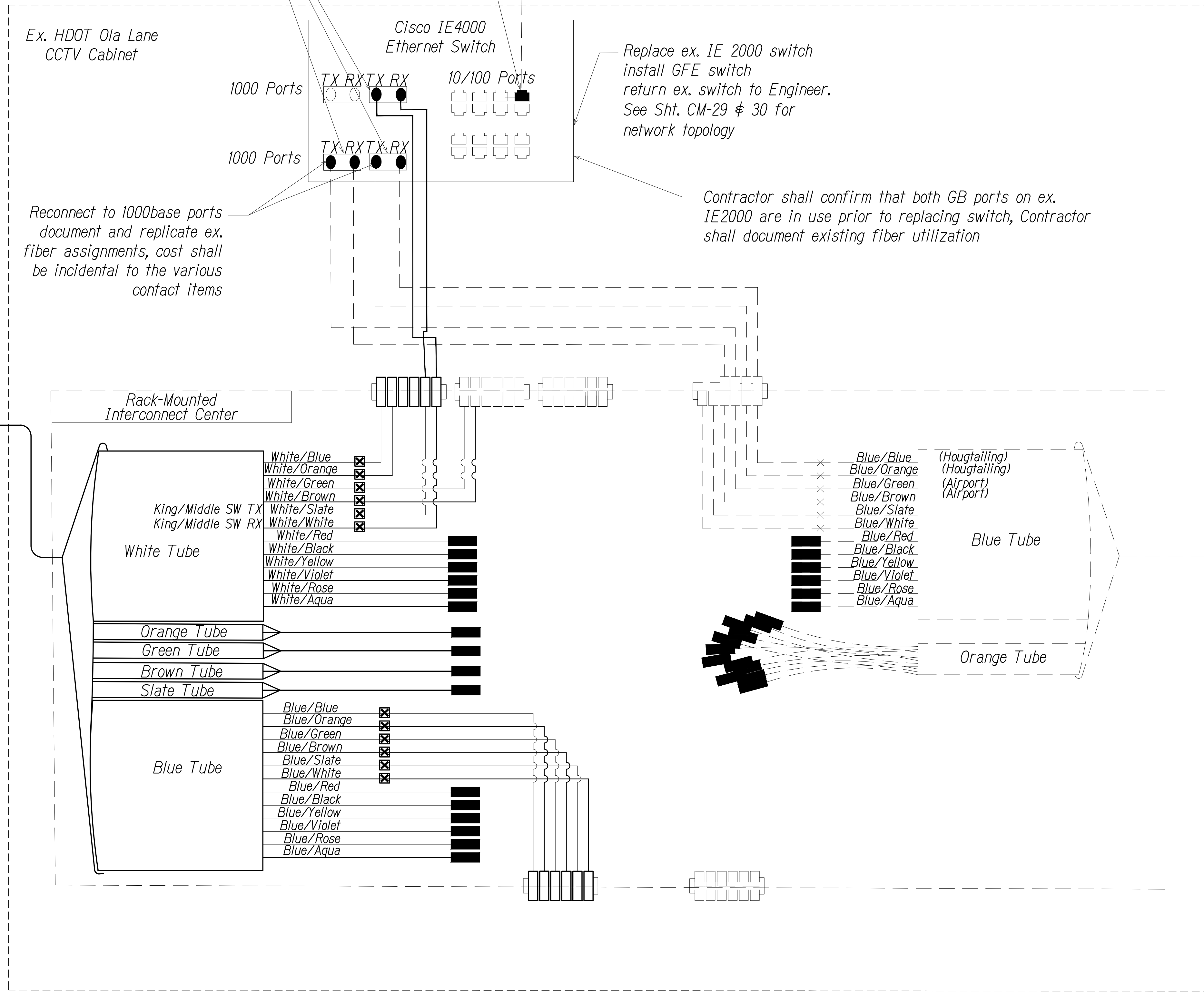
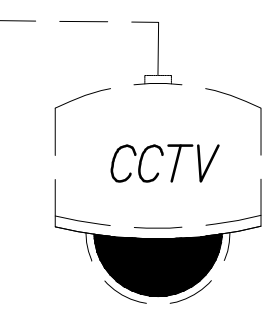
Scale: As Shown Date: June 25, 2021

SHEET No. CM-23 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	51	170

Install GFE GB LX SFP installation shall be incidental to the various contract items

Reconnect Ex. CAT-5E STP Cable cost shall be incidental to the various contract items



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____

F:\A\2019\19-201 EMS PHASE 3\1\DWG\COMM PLANS\CM-24 COMMUNICATIONS PLAN.DWG Jul 22, 2021-9:29 AM

SPLICING AND CONNECTION DETAIL - Ex. Ola Lane CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TERENCE S. ARASHI
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

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

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

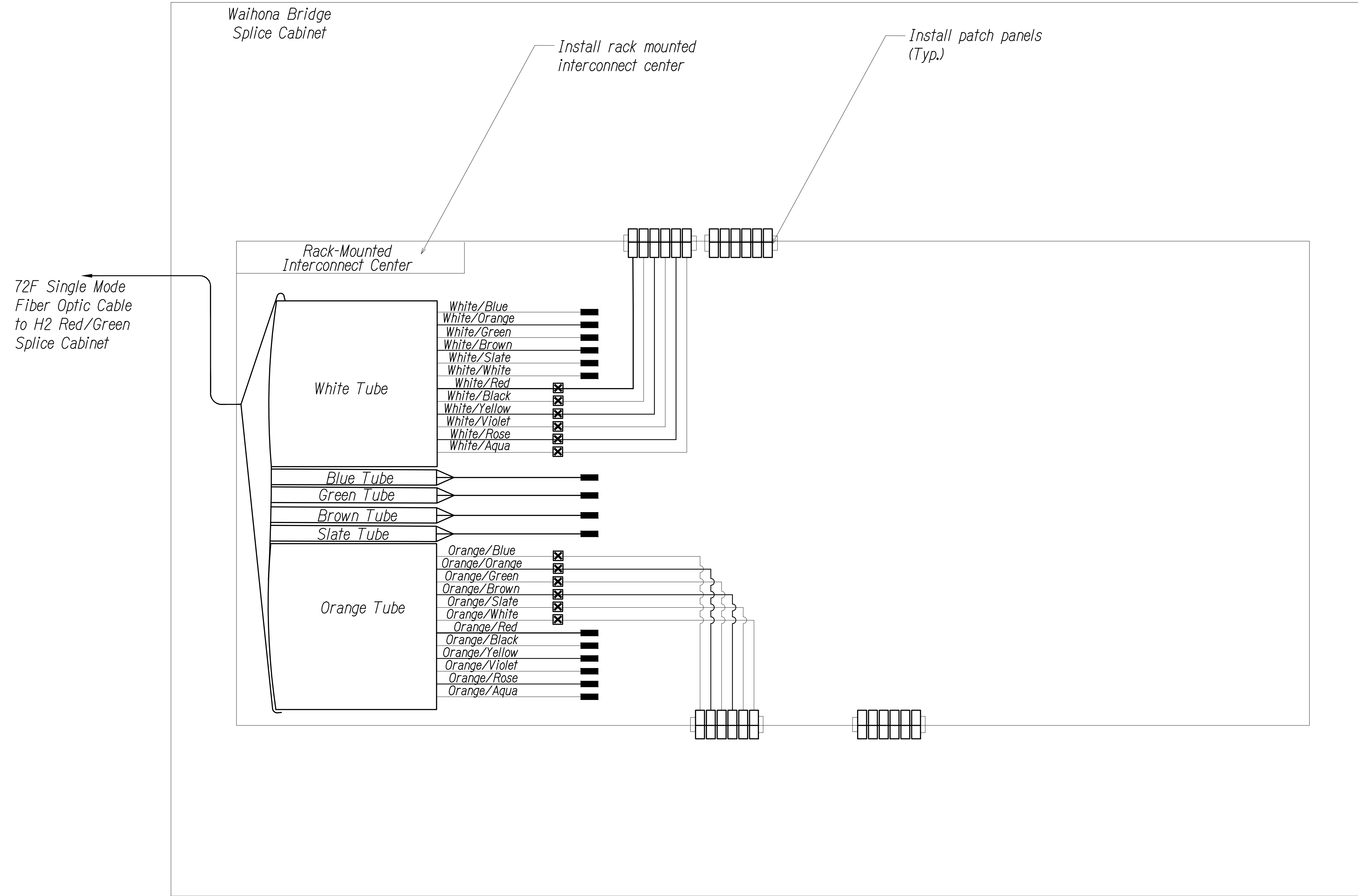
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-24 of 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	52	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

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

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SPLICING AND CONNECTION DETAIL - Waihona Bridge Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

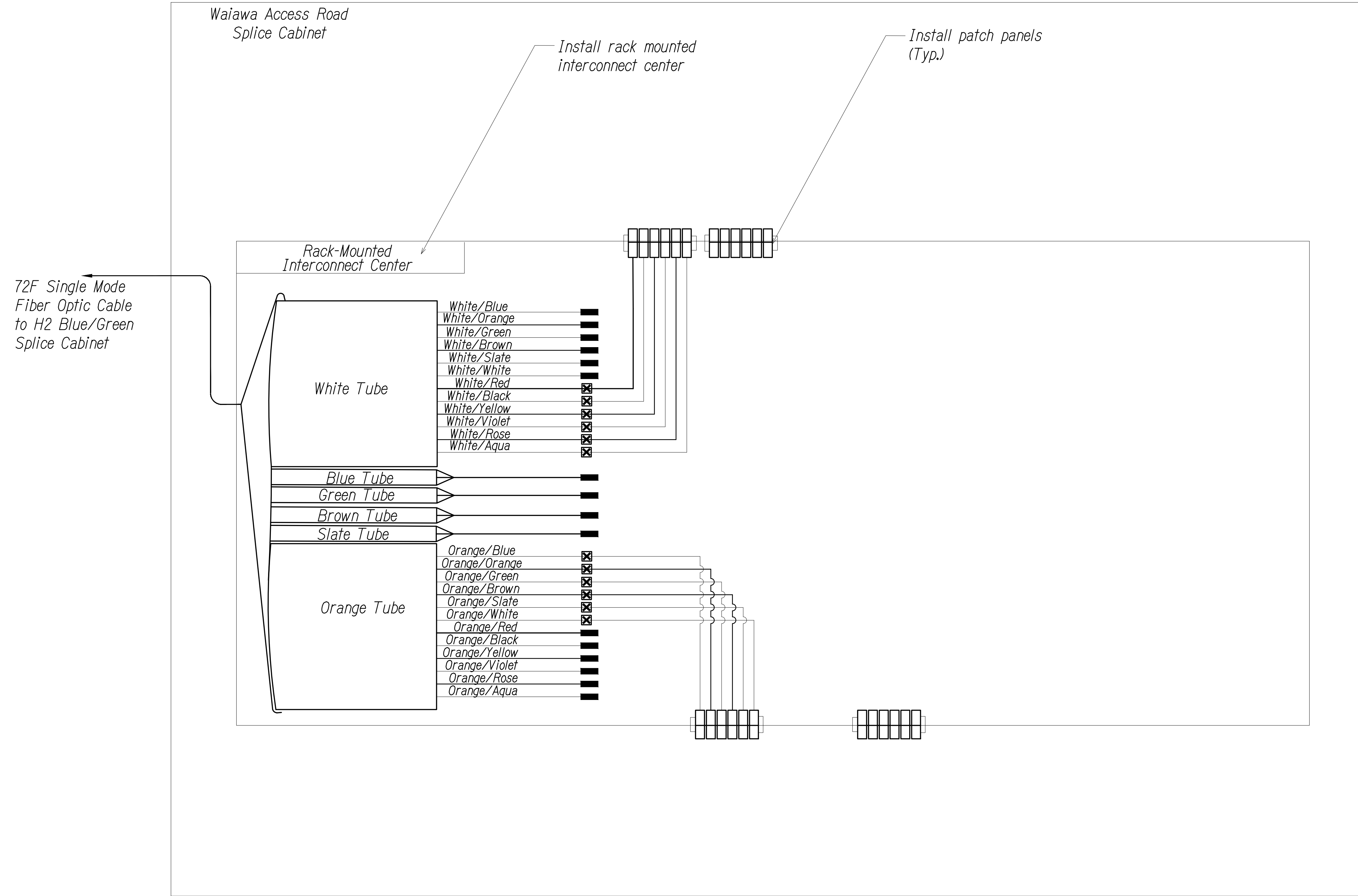
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-25OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	53	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

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

F:\A\2019\19-201 EMS PHASE 3\1\DWG\COMM PLANS\CM-26 COMMUNICATIONS PLANDWG.dwg Jul 22, 2021-9:29 AM

SPLICING AND CONNECTION DETAIL - Waiawa Access Road Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

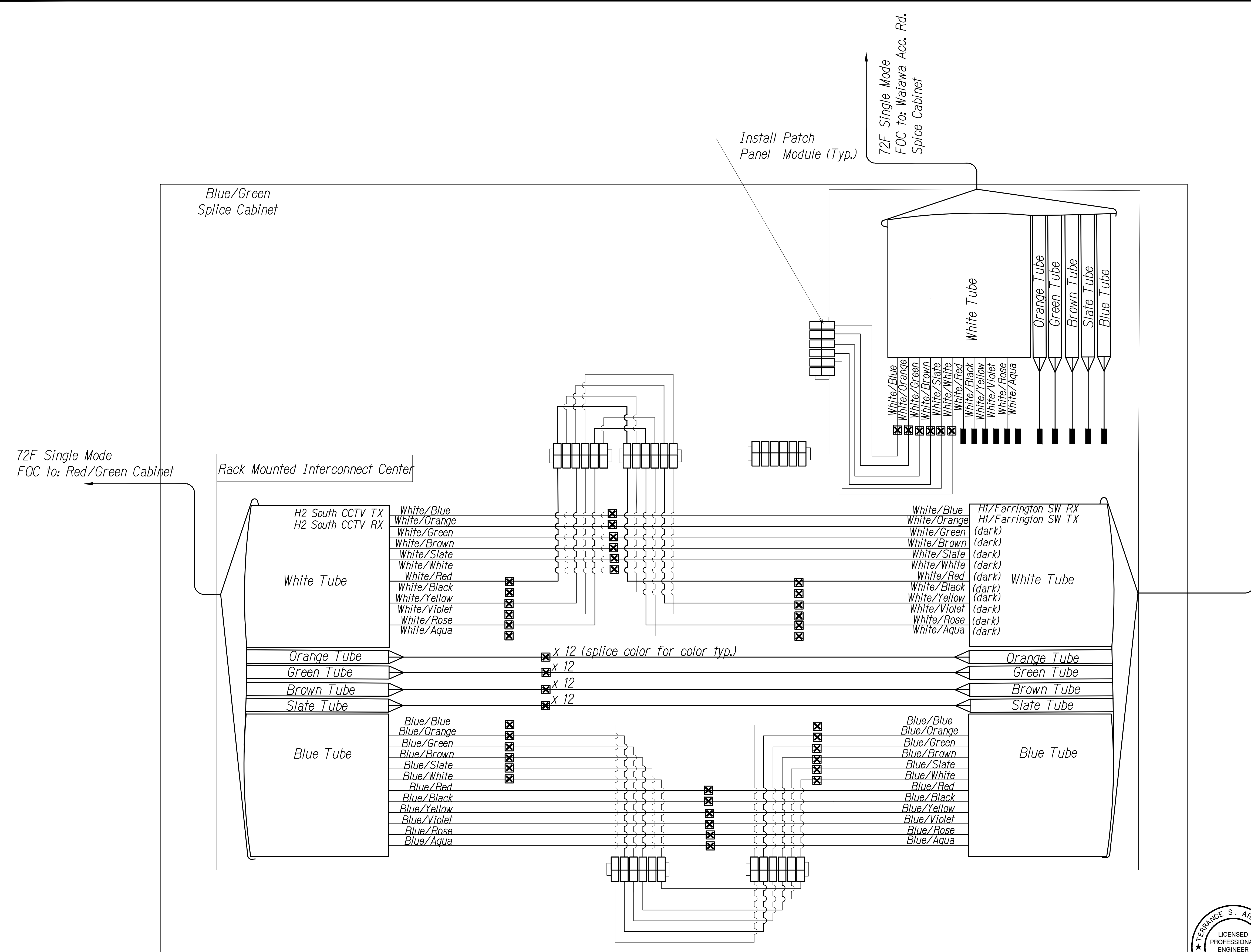
SHEET No. CM-26 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	54	170

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.



72F Single Mode
FOC to: Red/Green Cabinet

Rack Mounted Interconnect Center

Install Patch
Panel
Module (Typ.)

72F Single Mode
FOC to: Waiawa Acc. Rd.
Splice Cabinet

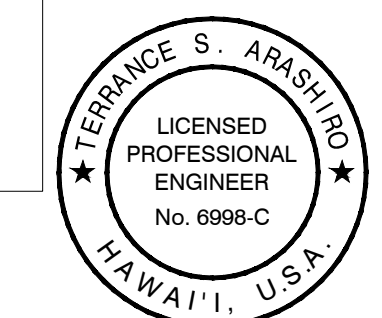
72F Single Mode
FOC to: Ex. H1/
Farrington Cabinet

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

F:\A\2019\19-201-FMS PHASE 3\1\DWG\COMM PLANS\CM-27 COMMUNICATIONS PLANDWG.dwg Jul 22, 2021-9:30 AM

SPLICING AND CONNECTION DETAIL - Blue/Green Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

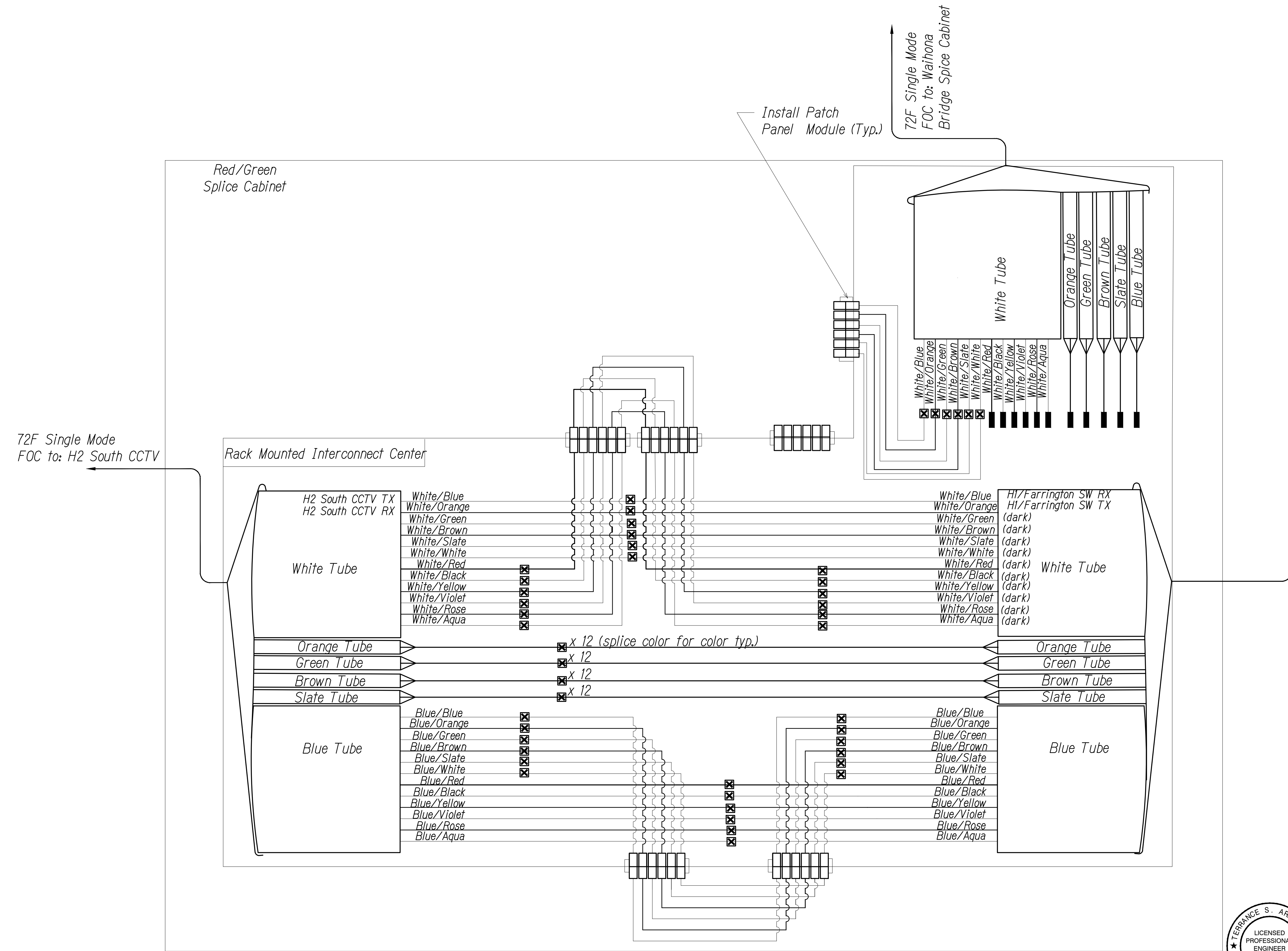
SHEET No. CM-27 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	55	170

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.



SPLICING AND CONNECTION DETAIL - Red/Green Splice Cabinet
Not to Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
DATE	
DESIGNED BY	
CHECKED BY	
DATE	

F:\A\2019\19-201-FMS PHASE 3\1\DWG\COMM PLANS\CM-28 COMMUNICATIONS PLANDWG Jul 22, 2021-9:30 AM



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-28 OF 30 SHEETS

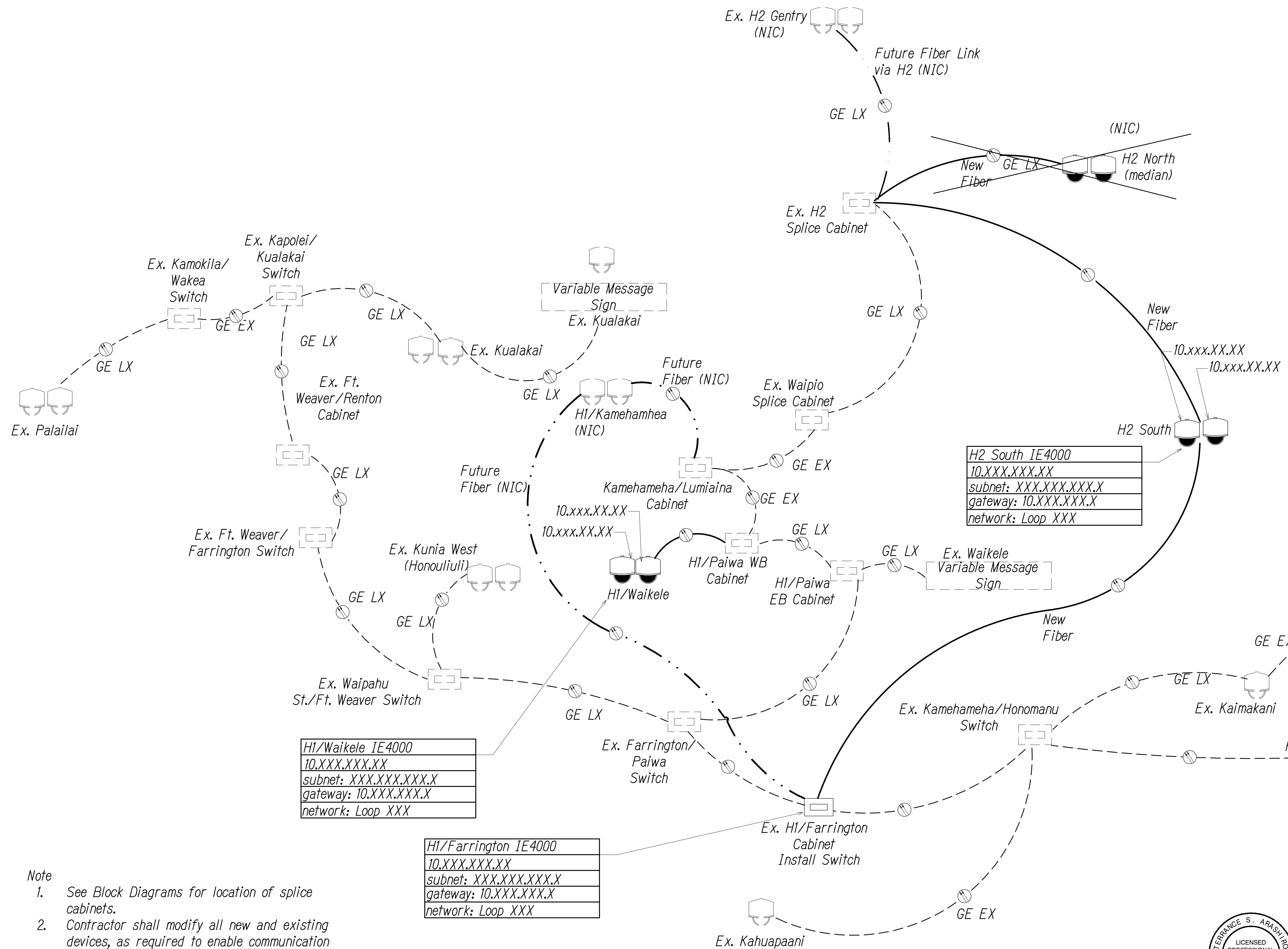
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	56	170

Key

- CCTV Camera
- Variable Message Sign VMS
- Fiber
- Existing Fiber
- Future Fiber
- Ethernet Switch In Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
 LX = LX SFP
 EX = EX SFP
 ZX = ZX SFP
 100LX = 100Base



- Note
1. See Block Diagrams for location of splice cabinets.
 2. Contractor shall modify all new and existing devices, as required to enable communication as shown.
 3. IP Addresses to be provided by the Engineer at later date.

NETWORK TOPOLOGY PLAN
 Not to Scale

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

F:\A\174-HNL-ENG\2020\PROJECTS\2019-19-201-FMS-PHASE-3\UNIT-1\DWG\COMM PLANS\CM-29 COMMUNICATIONS PLAN.DWG Aug. 04, 2021-11:17 AM

LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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Terrence S. Arashi
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
 Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-29 of 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	57	170

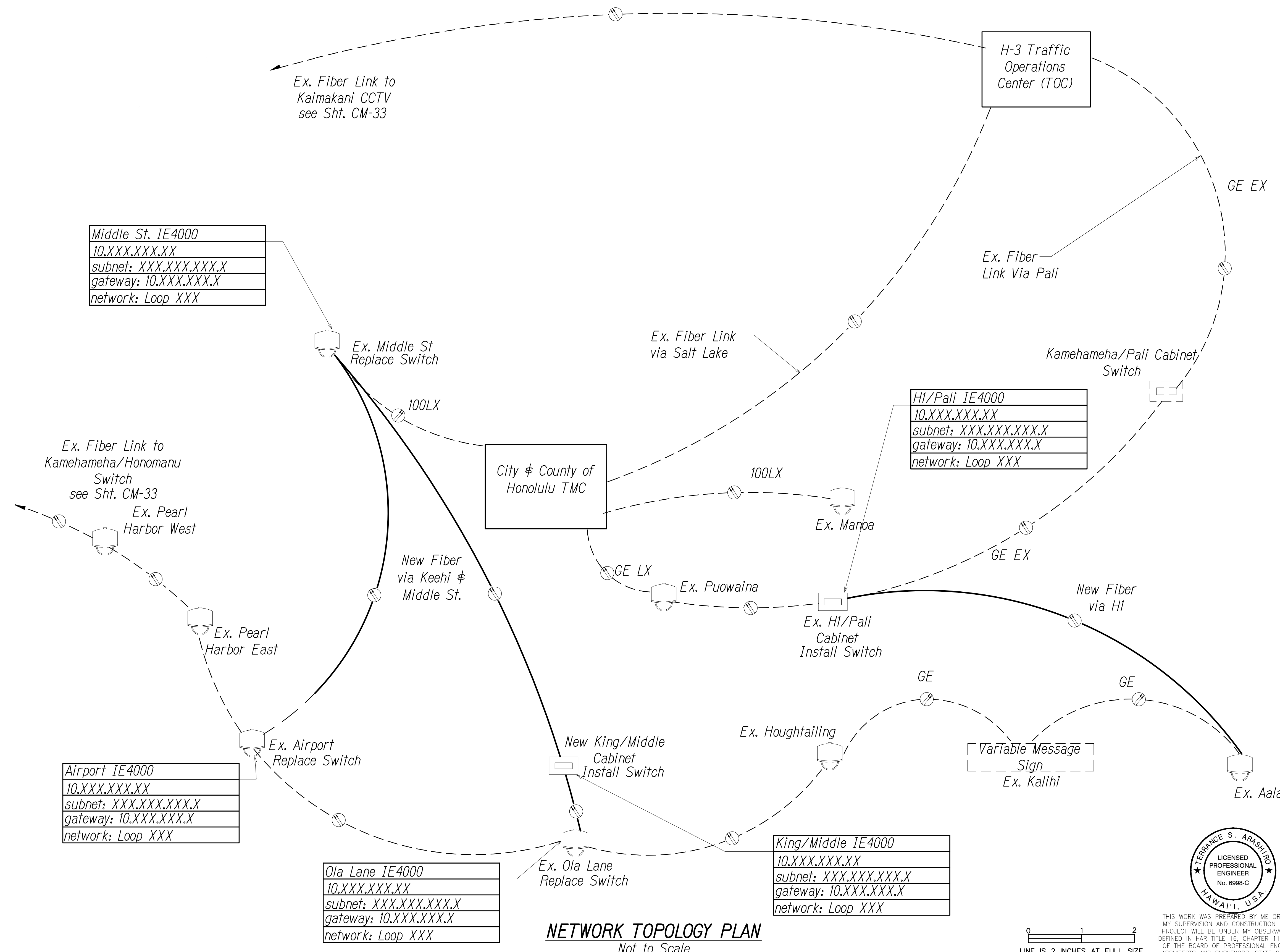
Key

- CCTV Camera
- Variable Message Sign VMS
- Fiber
- Existing Fiber
- Future Fiber
- Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

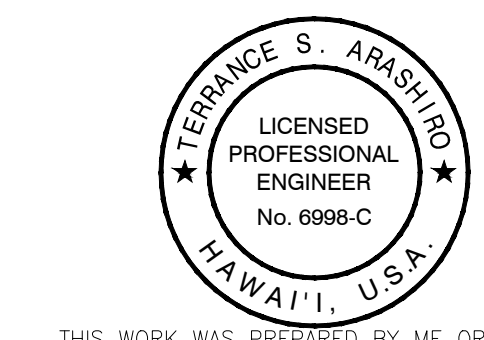
GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

- Note
- See Block Diagrams for location of splice cabinets.
 - Contractor shall modify all new and existing devices, as required to enable communication as shown.
 - IP Addresses to be provided by the Engineer at later date.



NETWORK TOPOLOGY PLAN
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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

Terence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

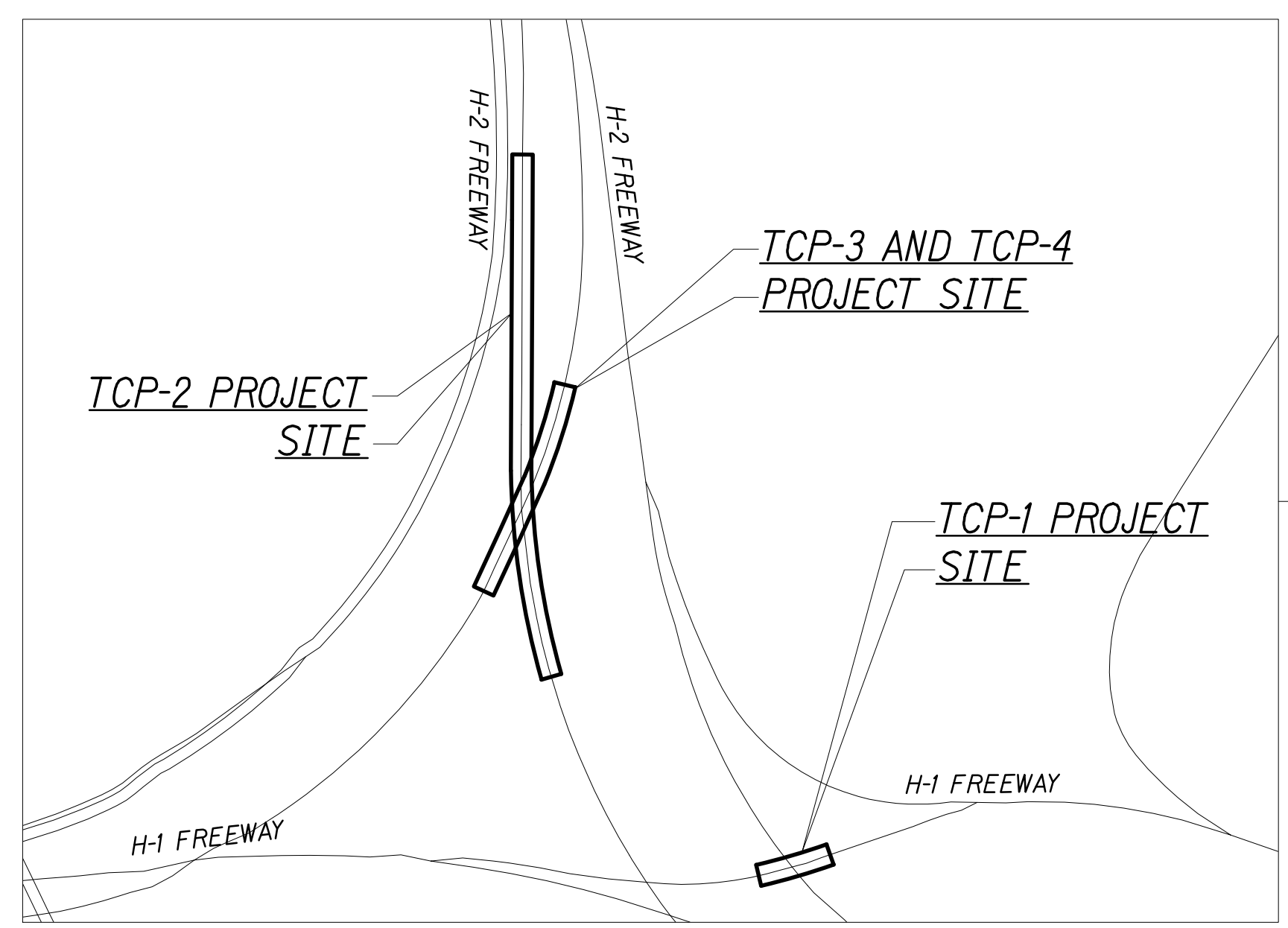
Scale: As Shown Date: June 25, 2021

SHEET No. CM-30 of 30 SHEETS

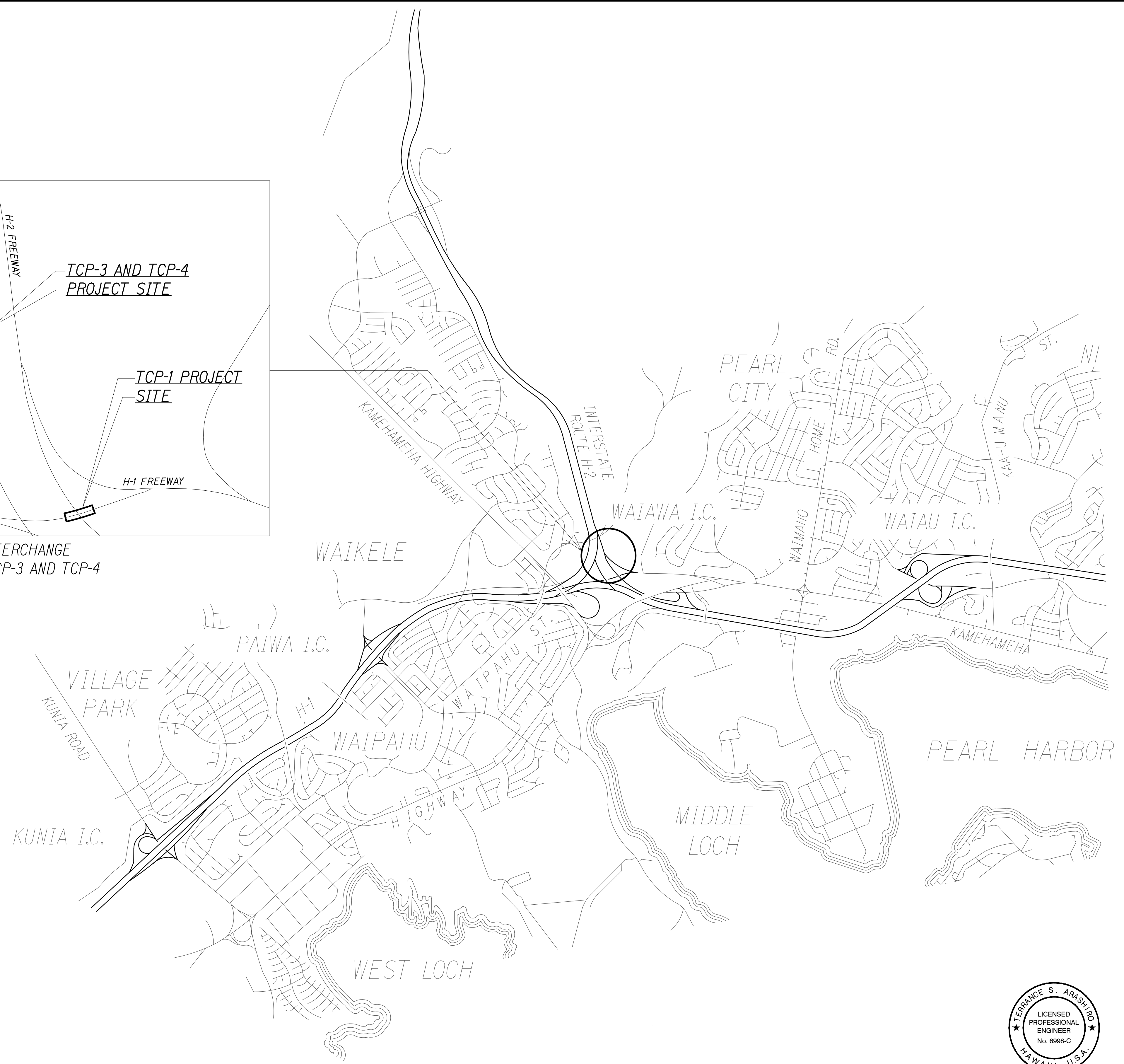
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FWS\2019-19-201_FMS_PHASE_3_UNIT_1\DWG\COMM_PLANS\CM-30_COMMUNICATIONS_PLAN.DWG Jul 22, 2021-9:30 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	58	170



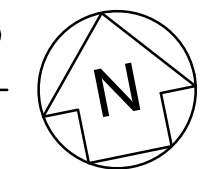
WAIAWA INTERCHANGE
TCP-1, TCP-2, TCP-3 AND TCP-4



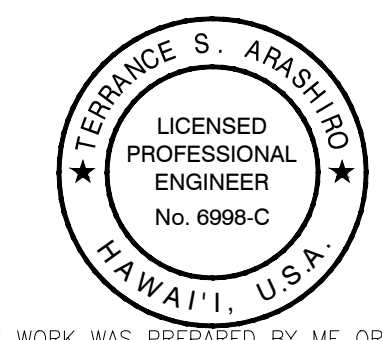
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	TRACED BY	" "
No.	DESIGNED BY	" "
	CHECKED BY	" "

F:\A\2019\19-201 EMS PHASE 3\1\DWG\TC-1 TRAFFIC CONTROL PLAN - LOCATION MAP.DWG Jul 22, 2021-9:31 AM

LOCATION MAP
Not To Scale



0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN
- LOCATION MAP

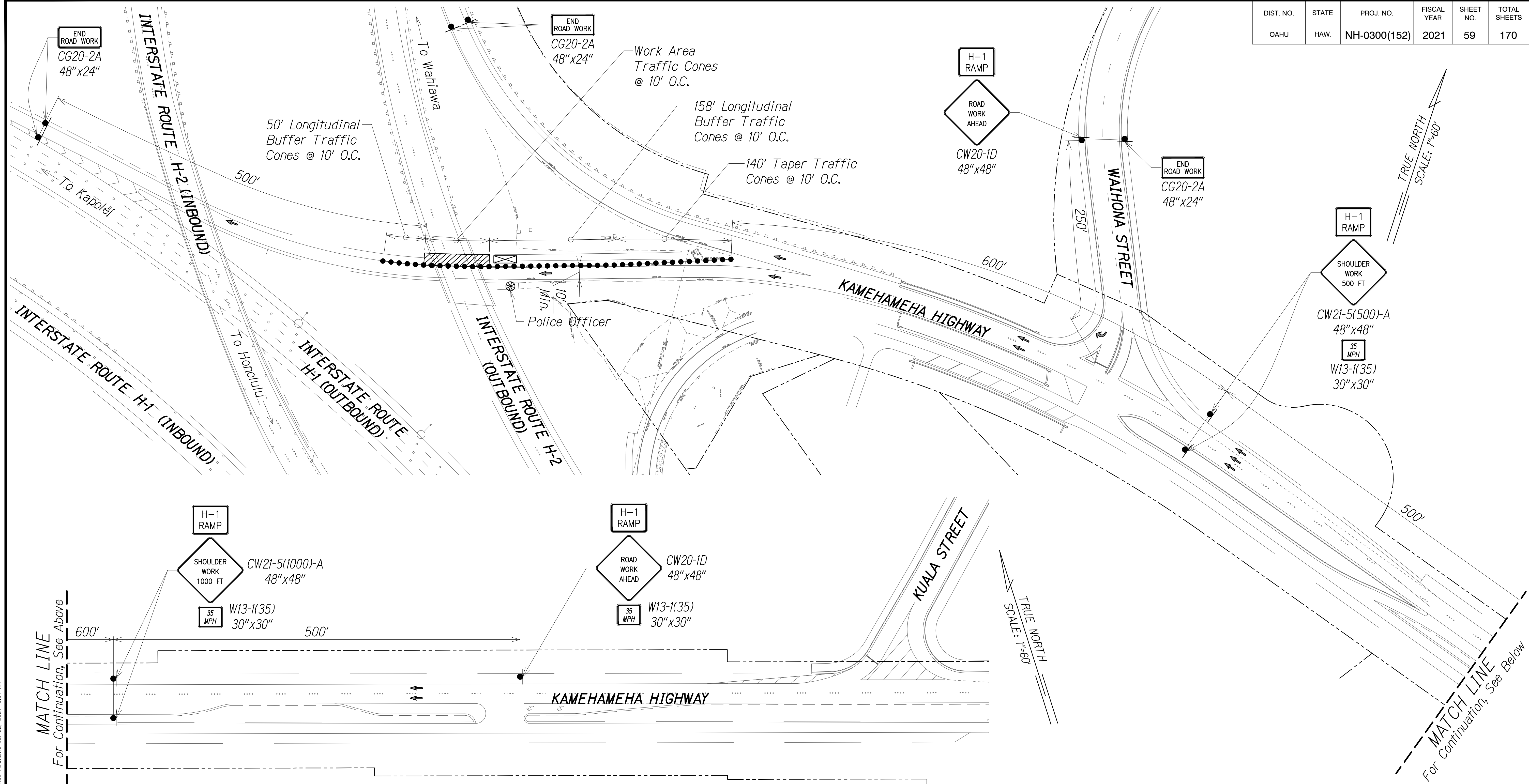
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-1 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	59	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

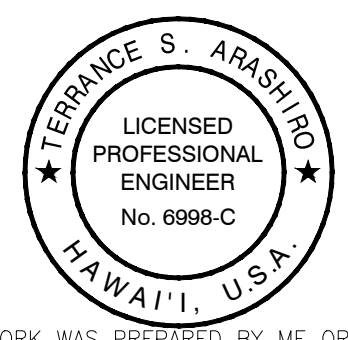
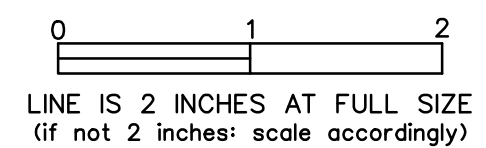
- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Truck - Mounted Attenuator
- Police Officer
- Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 1

Scale: 1"=60'

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

F:\A\2019\19-201 FMS PHASE 3\1_PHASE 3 UNIT 1\DWG\TC-2 TRAFFIC CONTROL PLAN.DWG - Jul 22, 2021 - 9:31 AM



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

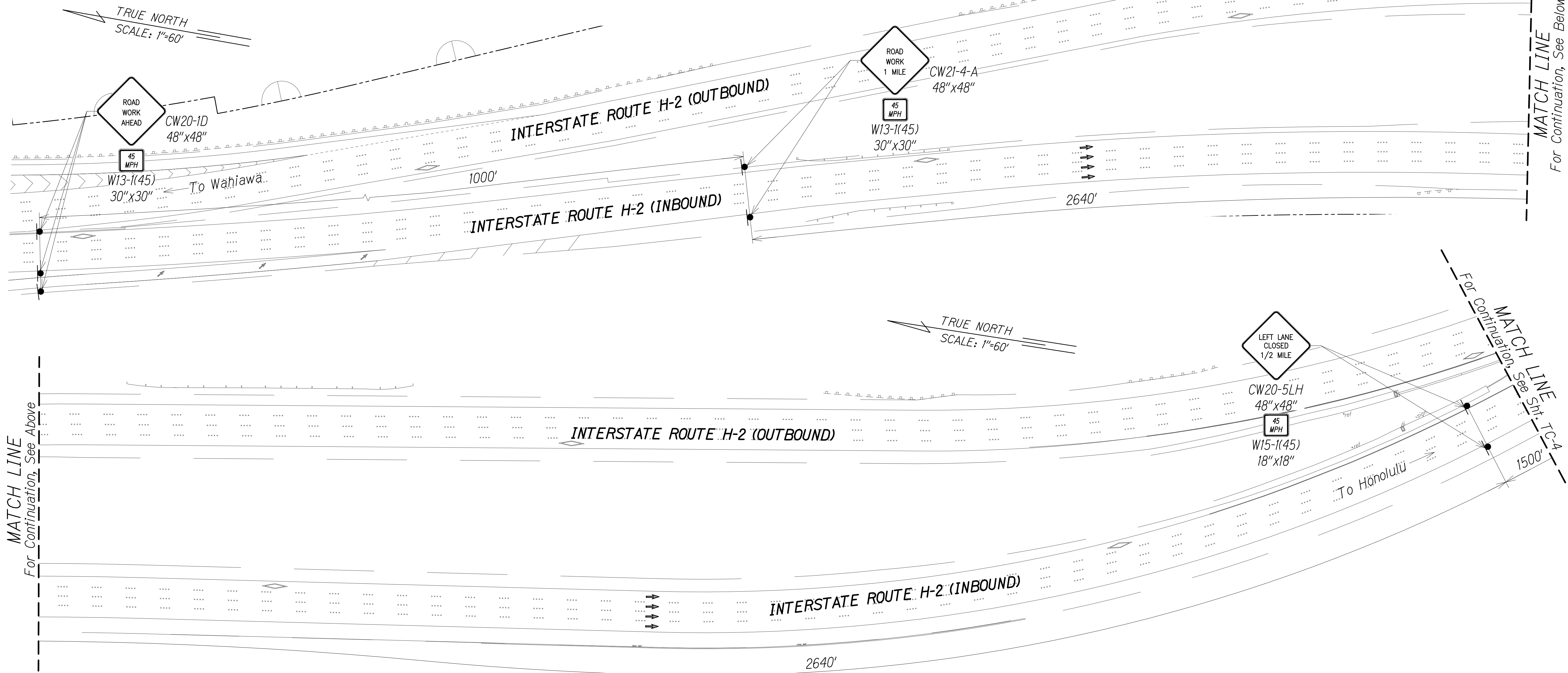
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-2 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	60	170



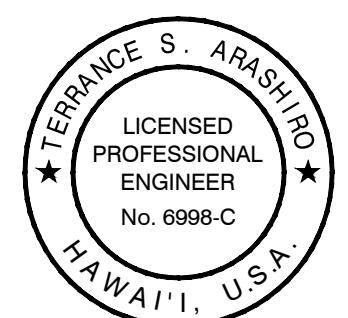
Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 2-1
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

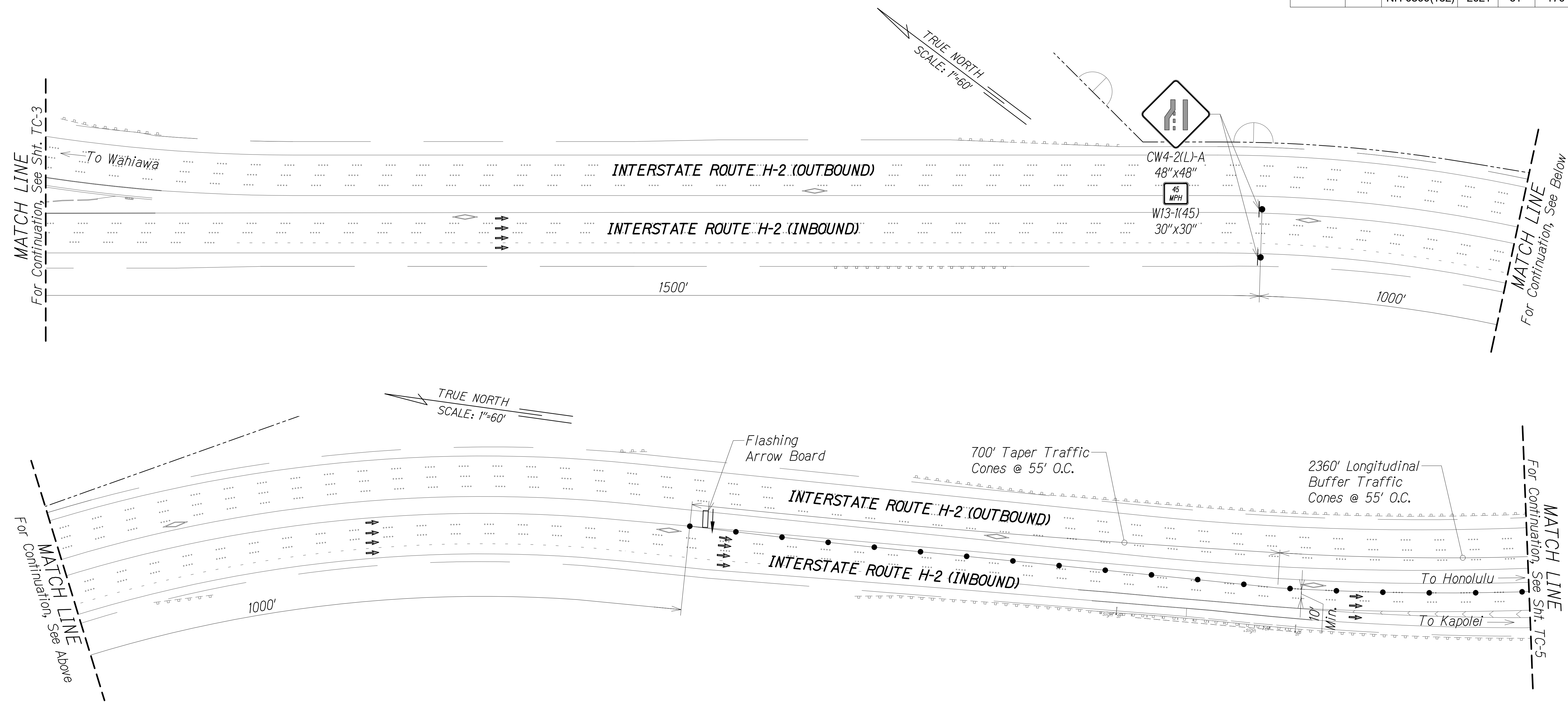
Scale: As Shown Date: June 25, 2021

SHEET No. TC-3 OF 61 SHEETS

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	61	170



Posted Speed Limit: H-2 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ⬇ Flashing Arrow Board
 - XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 2-2
Scale: 1"=60'

DATE	DESIGNED BY
	CHECKED BY
	QUANTITIES BY
	DESIGNED BY
	TRACED BY
	PLANNED BY
	DATE

F:\NA\2019\19-201_FMS_PHASE_3\1\DWG\TC-4 TRAFFIC CONTROL PLAN.DWG - Jul 22, 2021 - 9:33 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

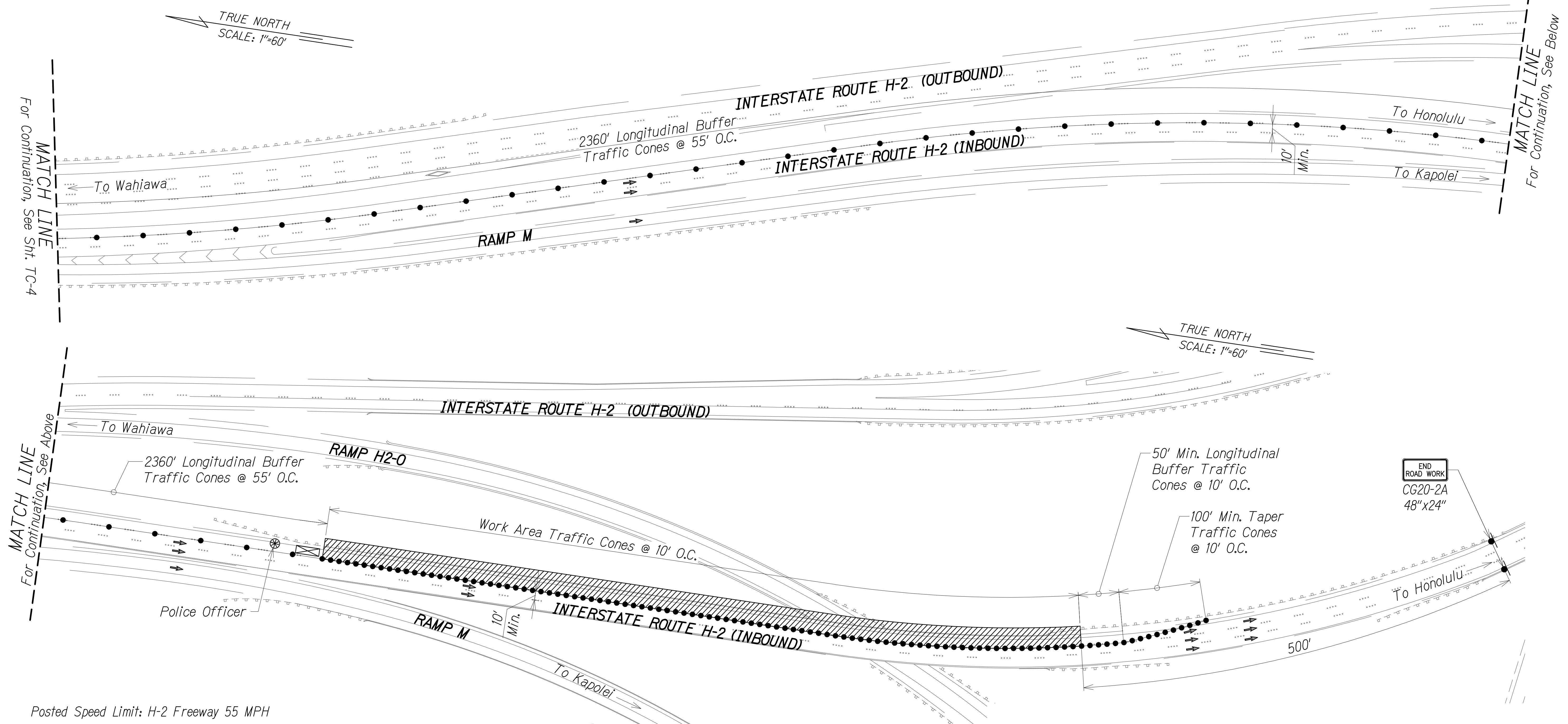
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-4 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	62	170



Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⏏ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- ⊙ Police Officer
- XX MPH Advisory Speed Limit Signs

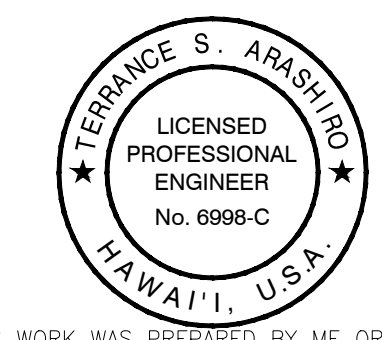
WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 2-3

Scale: 1"=60'

DATE	_____
SURVEY PLOTTED BY	_____
DRANK BY	_____
NOTE BOOK	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

F:\NA\2019\19-201_FMS_PHASE_3\1\DWG\TC-5 TRAFFIC CONTROL PLANNING Jul 22, 2021-9:34 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

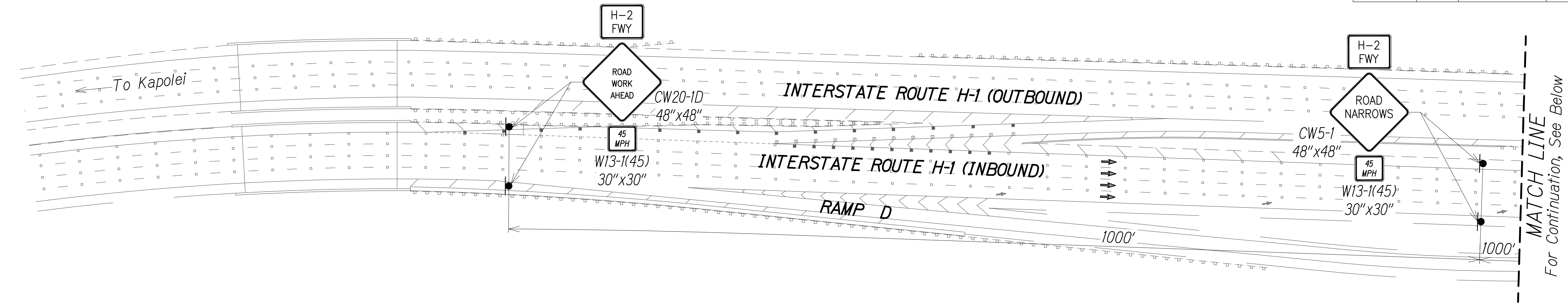
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-5 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	63	170

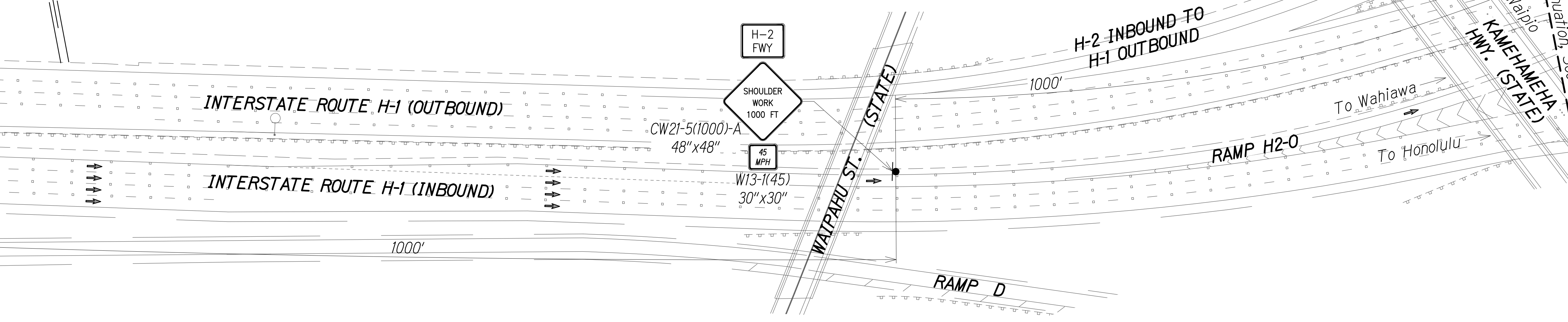
TRUE NORTH
SCALE: 1"=60'



MATCH LINE
For Continuation, See Below

TRUE NORTH
SCALE: 1"=60'

MATCH LINE
For Continuation, See Above



MATCH LINE
For Continuation, See Sht. TC-7

Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 3-1

Scale: 1"=60'

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

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-6 TRAFFIC CONTROL PLAN.DWG-Jul 22, 2021-9:35 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

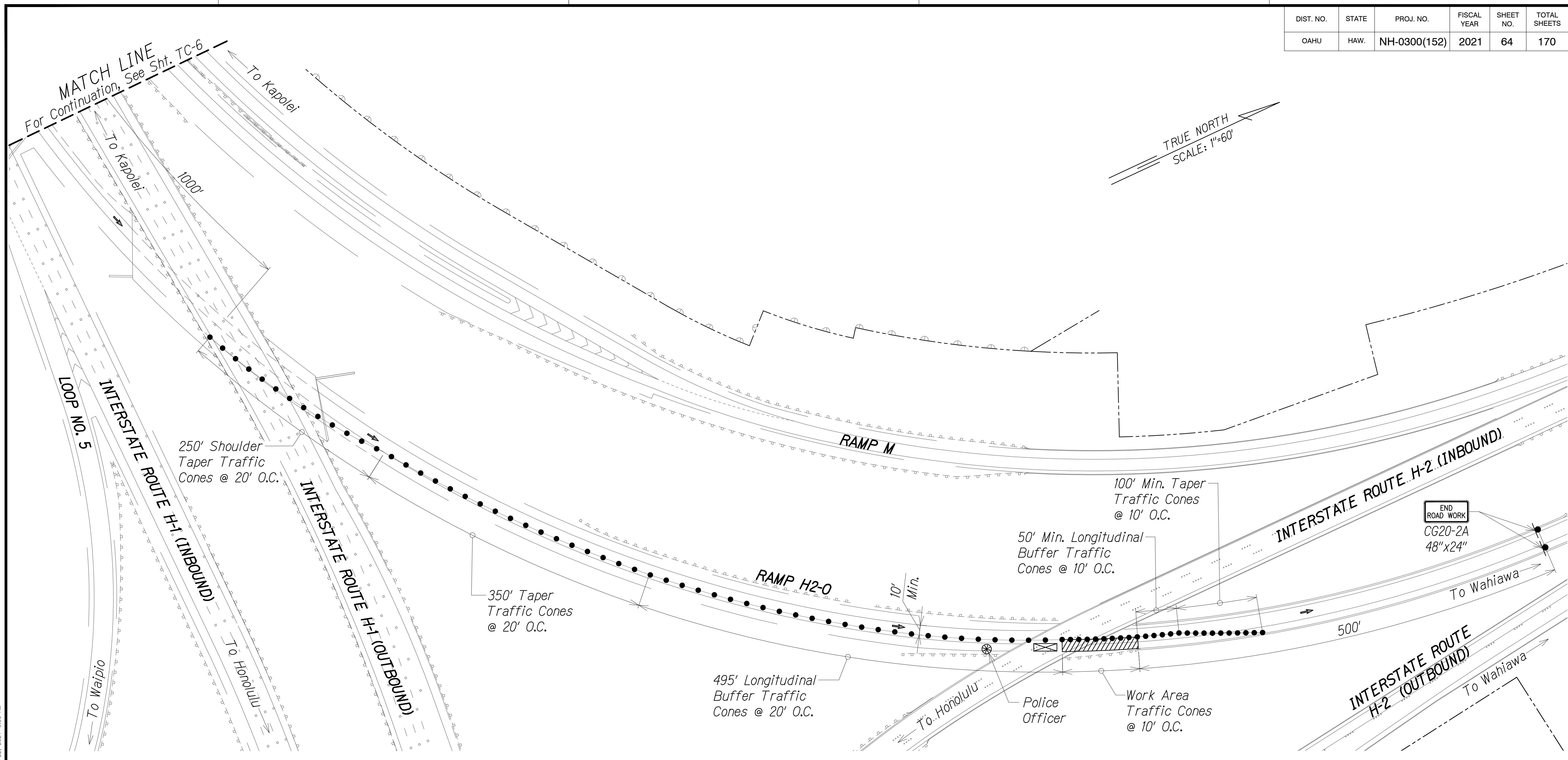
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-6 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	64	170



Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- ➔ Direction Of Traffic
- ▨ Work Area
- ⊠ Truck - Mounted Attenuator
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 3-2

Scale: 1"=60'

DATE	____
DESIGNED BY	____
CHECKED BY	____
NO.	____

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-7 TRAFFIC CONTROL PLAN.DWG: Jul 22, 2021 - 9:36 AM



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

APR 30, 2022
LIC. EXP. DATE

LINE IS 2 INCHES AT FULL SIZE (if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

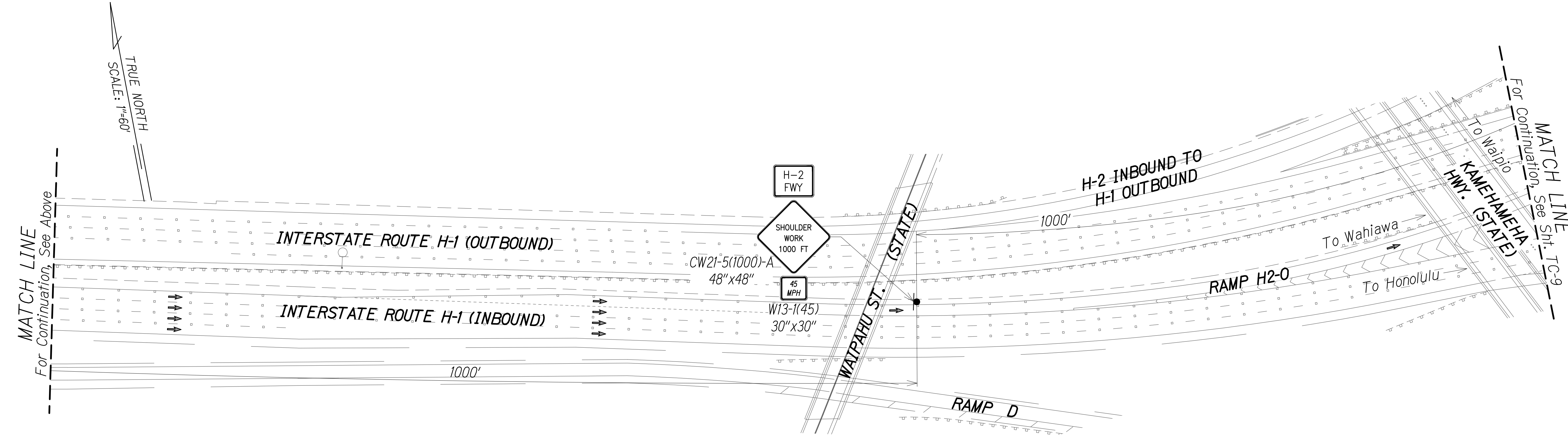
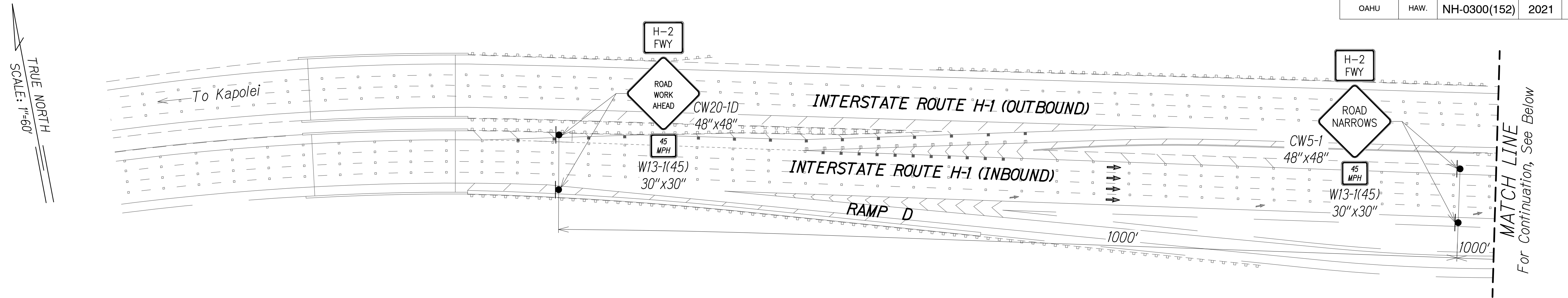
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-7 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	65	170



Posted Speed Limit: H-2 Freeway 55 MPH

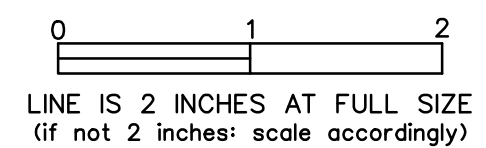
LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 4-1
Scale: 1"=60'

DATE	BY
DESIGNED BY	DATE
CHECKED BY	DATE
QUANTITIES BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
DATE	BY
DATE	BY

F:\A\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\TC-8 TRAFFIC CONTROL PLAN.DWG-Jul 22, 2021-9:37 AM



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

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

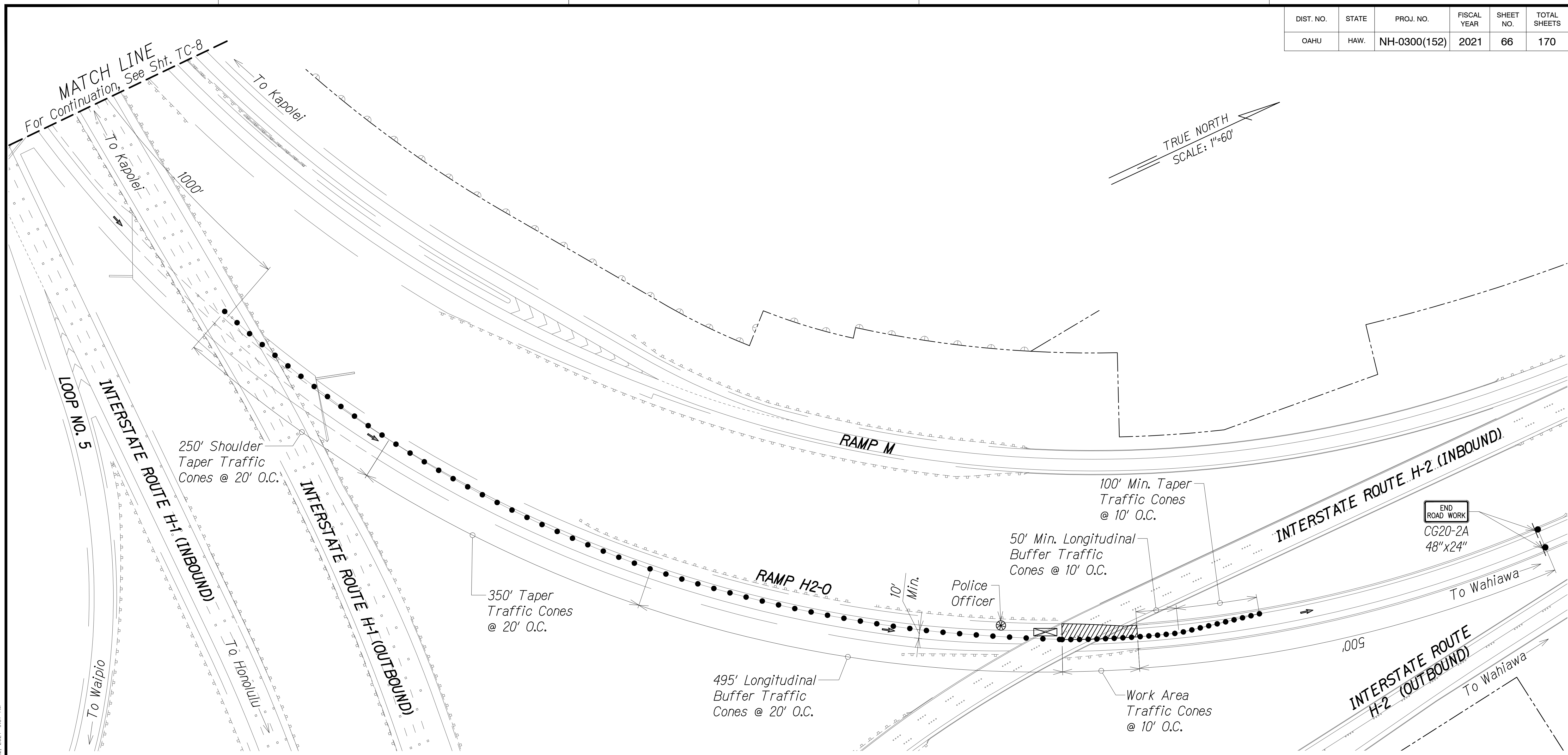
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-8 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	66	170



Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- ➔ Direction Of Traffic
- ▨ Work Area
- ⊠ Truck - Mounted Attenuator
- ⊙ Police Officer
- XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE - TRAFFIC CONTROL PLAN 4-2
Scale: 1"=60'

DATE
DESIGNED BY
CHECKED BY
NO.

P:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-9 TRAFFIC CONTROL PLAN.DWG - Jul 22, 2021 - 9:37 AM



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

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

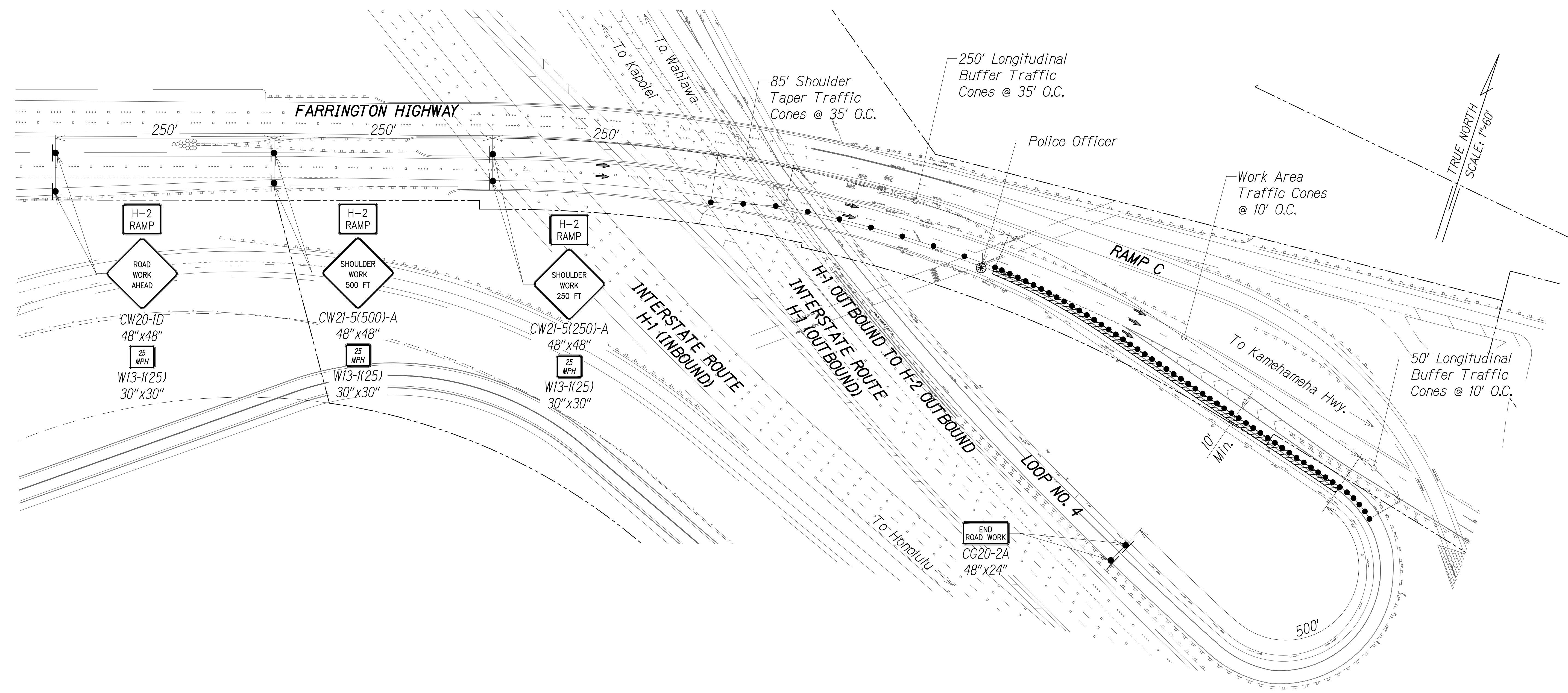
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-9 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	67	170



Posted Speed Limit: Farrington Highway 35 MPH

LEGEND:

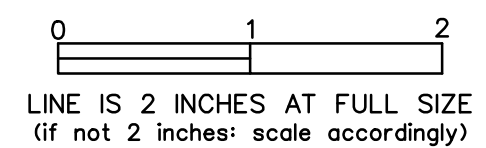
- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Police Officer
- Advisory Speed Limit Signs

WAIAWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 1

Scale: 1"=60'

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
DESIGNED BY	
CHECKED BY	
DATE	

F:\A\2019\19-201-FMS PHASE 3\1-UNITS\TC-10 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 9:38 AM



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

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

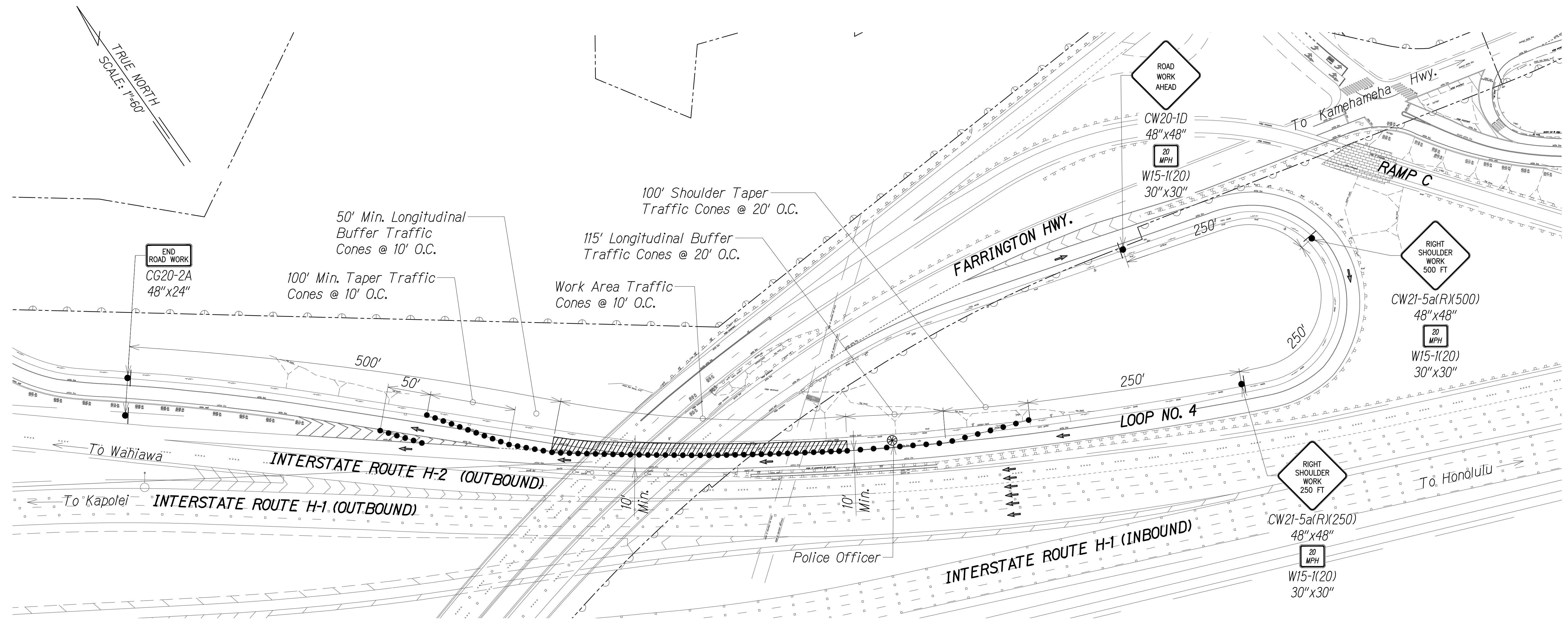
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-10 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	68	170



Posted Speed Limit: Loop No. 4 - 20 MPH

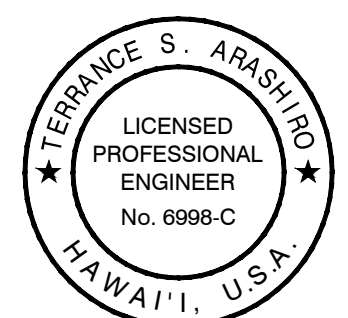
- LEGEND:**
- ◆ Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⊙ Police Officer
 - XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 2
 Scale: 1"=60'

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

F:\A\2019\19-201 EMS PHASE 3\1_PHASE 3 UNIT 1\DWG\TC-11 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 - 9:38 AM

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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

Terrence S. Arashi
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

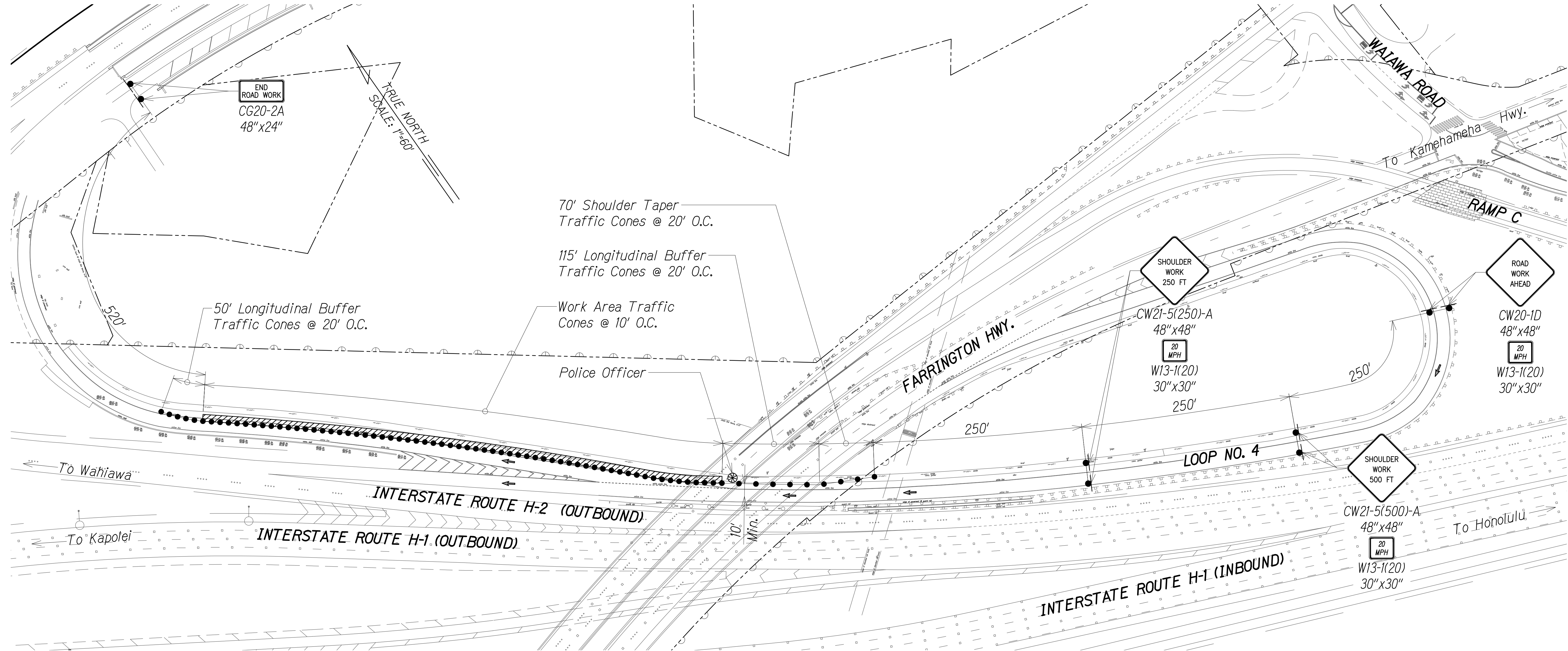
*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-11 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	69	170



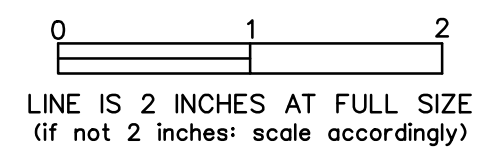
Posted Speed Limit: Loop No. 4 - 20 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - ⊗ Police Officer
 - XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 3
Scale: 1"=60'

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

FNA\2019\19-201-FMS PHASE 3\UNIT 1\DWG\TC-12 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 1:59:39 AM



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

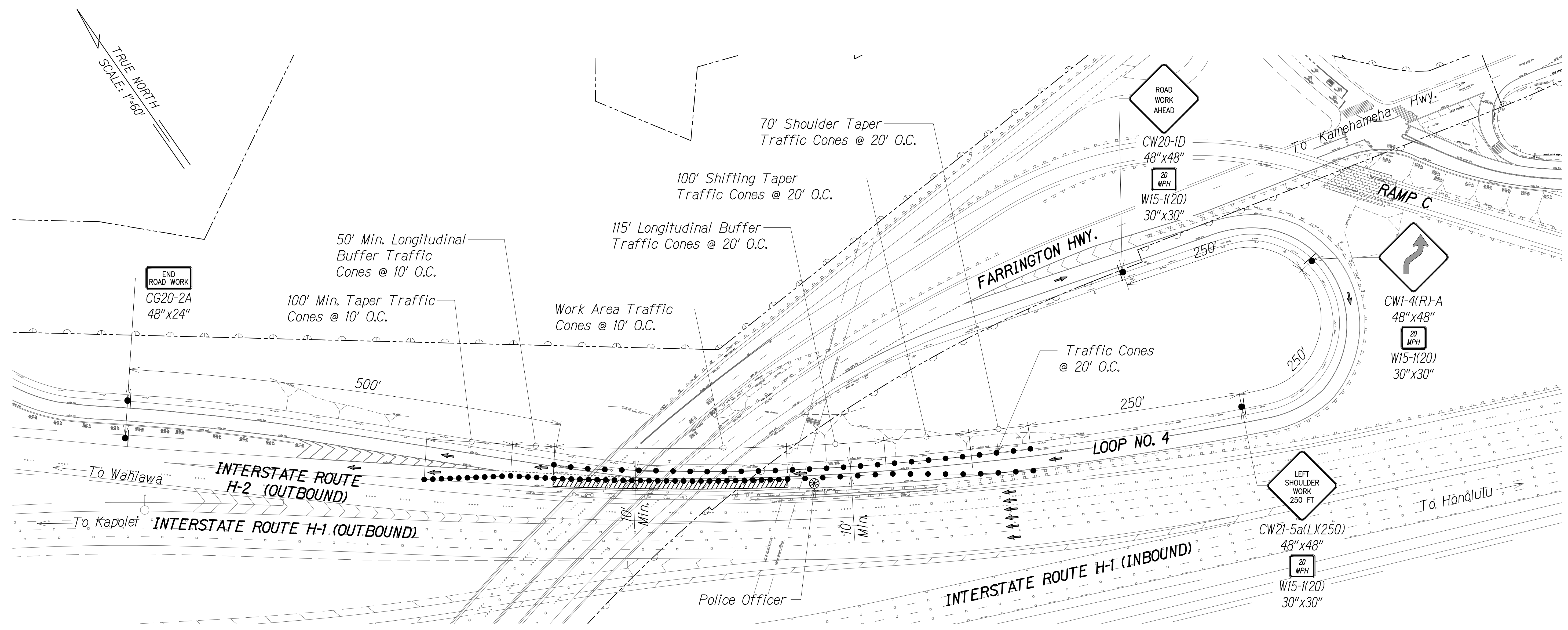
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. **TC-12** OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	70	170



NOTES:

1. Posted Speed Limit: Loop No. 4 - 20 MPH
2. Provide Traffic Cones, As Needed, To Discourage Driving Within Existing Swales.

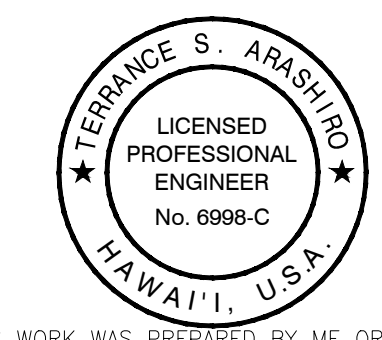
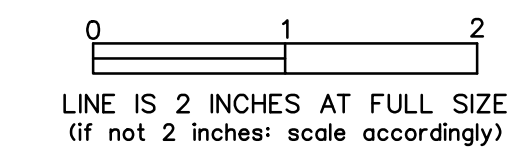
LEGEND:

- Sign
- Retroreflective Cone
- ➔ Direction Of Traffic
- ▨ Work Area
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

WAIAWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 4
Scale: 1"=60'

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____
NO.	____

F:\A\2019\19-201-FMS PHASE 3\1 UNIT\DWG\TC-13 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021, 9:40 AM



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

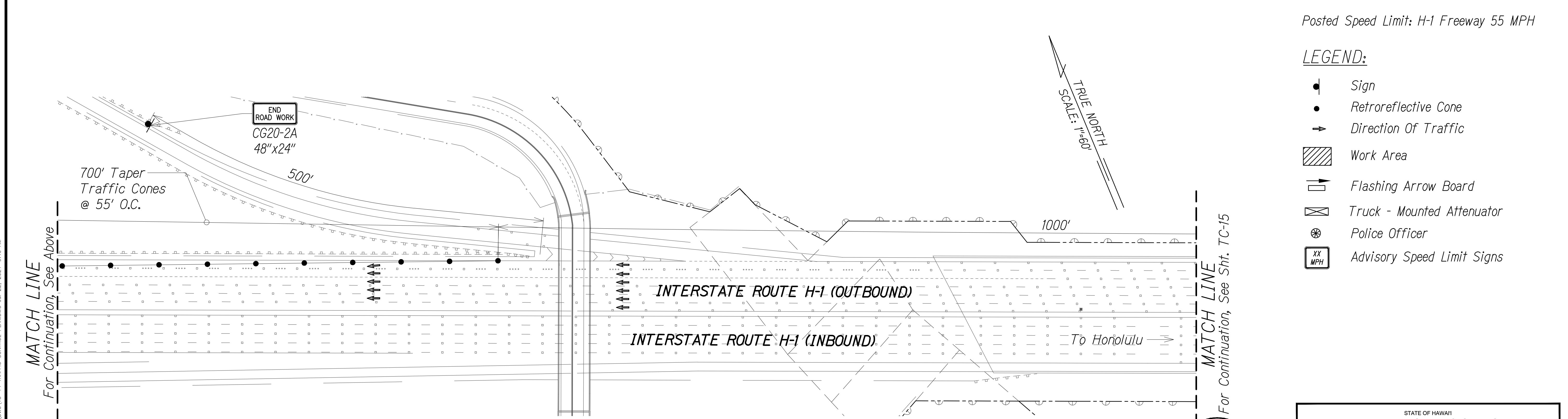
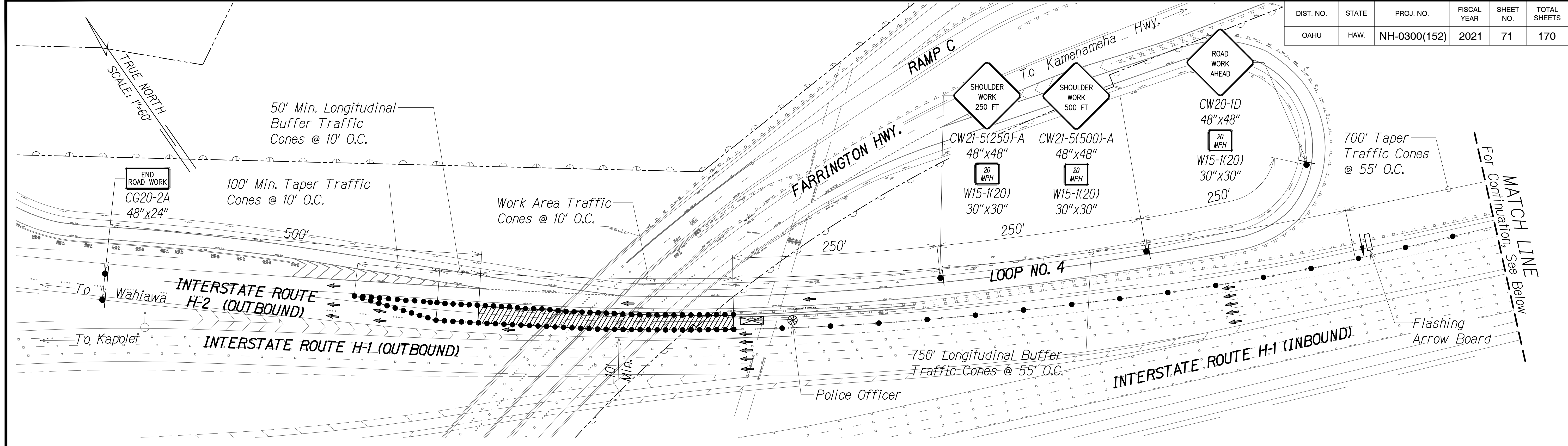
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. **TC-13** OF **61** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	71	170



Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - ⏏ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - ⊙ Police Officer
 - XX MPH Advisory Speed Limit Signs

DATE	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____

F:\A\2019\19-201-FMS PHASE 3\14 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 - 9:40 AM
 PHASE 3 UNIT 1\DWG\TC-14 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 - 9:40 AM

WAIAWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 5-1
 Scale: 1"=60'

LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)

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

TERENCE S. ARASHIRO
 LICENSED PROFESSIONAL ENGINEER
 No. 6998-C
 HAWAII, U.S.A.

APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

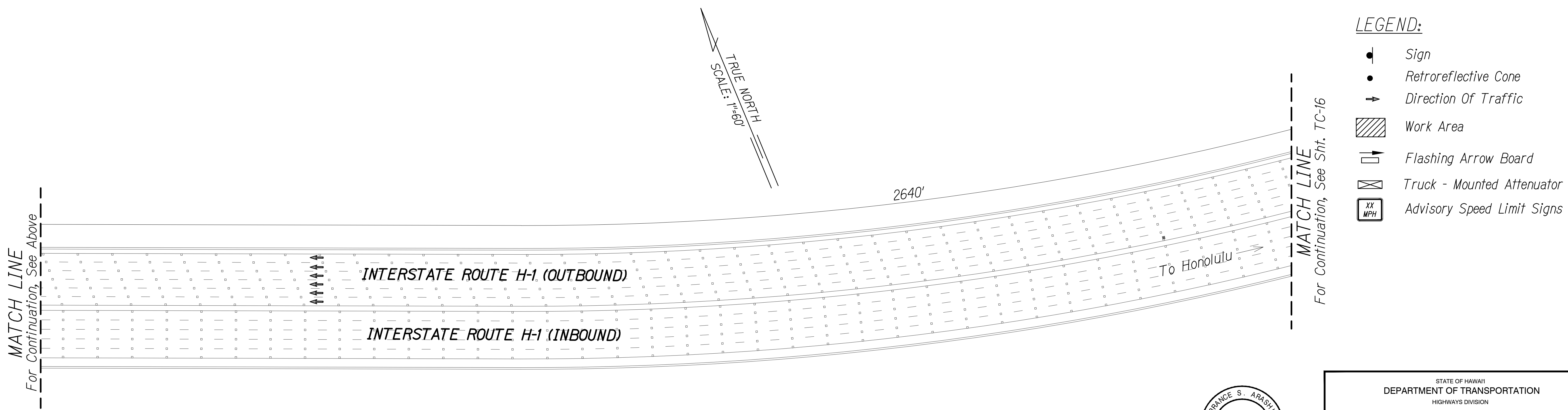
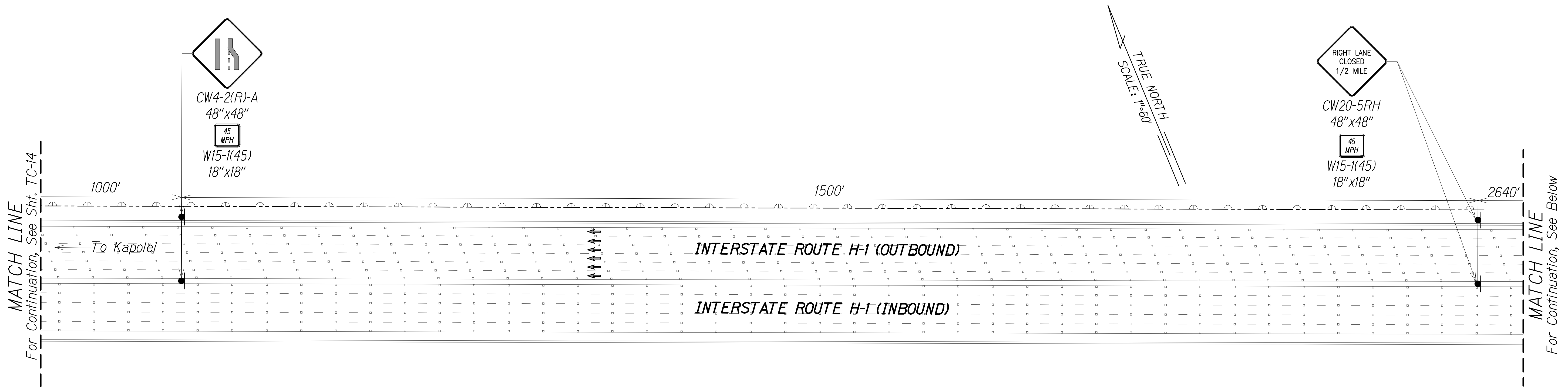
Freeway Management System, Phase 3,
 Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-14 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	72	170



Posted Speed Limit: H-1 Freeway 55 MPH

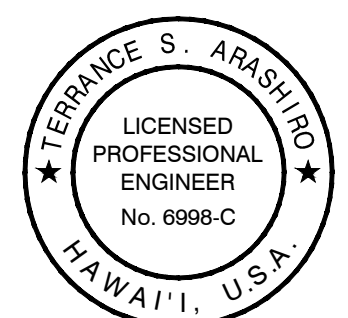
- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⇄ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - XX MPH Advisory Speed Limit Signs

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

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-15 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 9:41 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 5-2
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

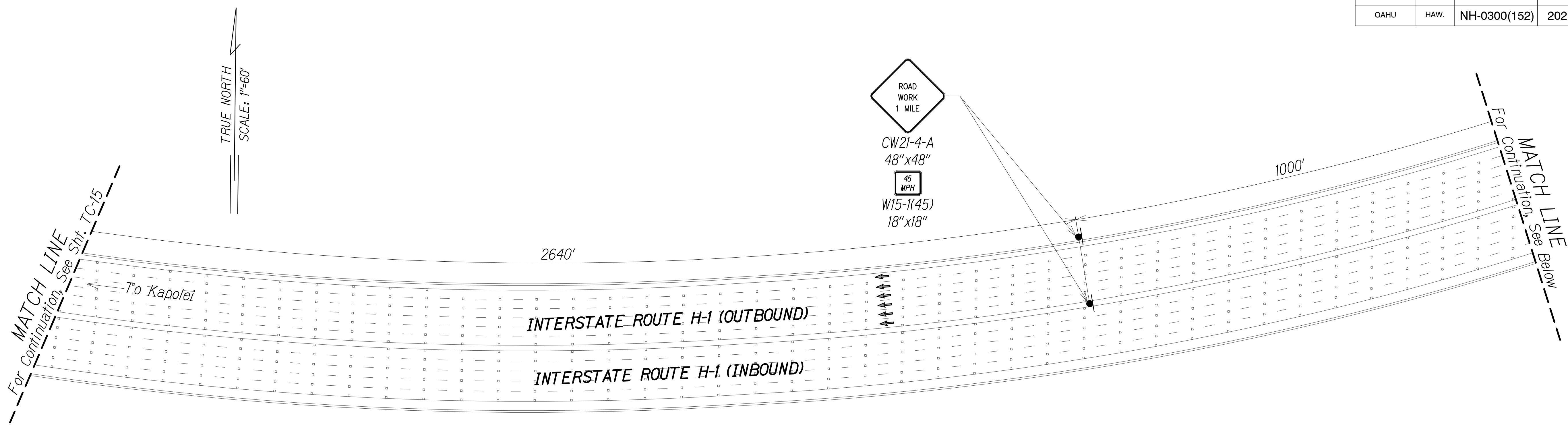
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-15 OF 61 SHEETS

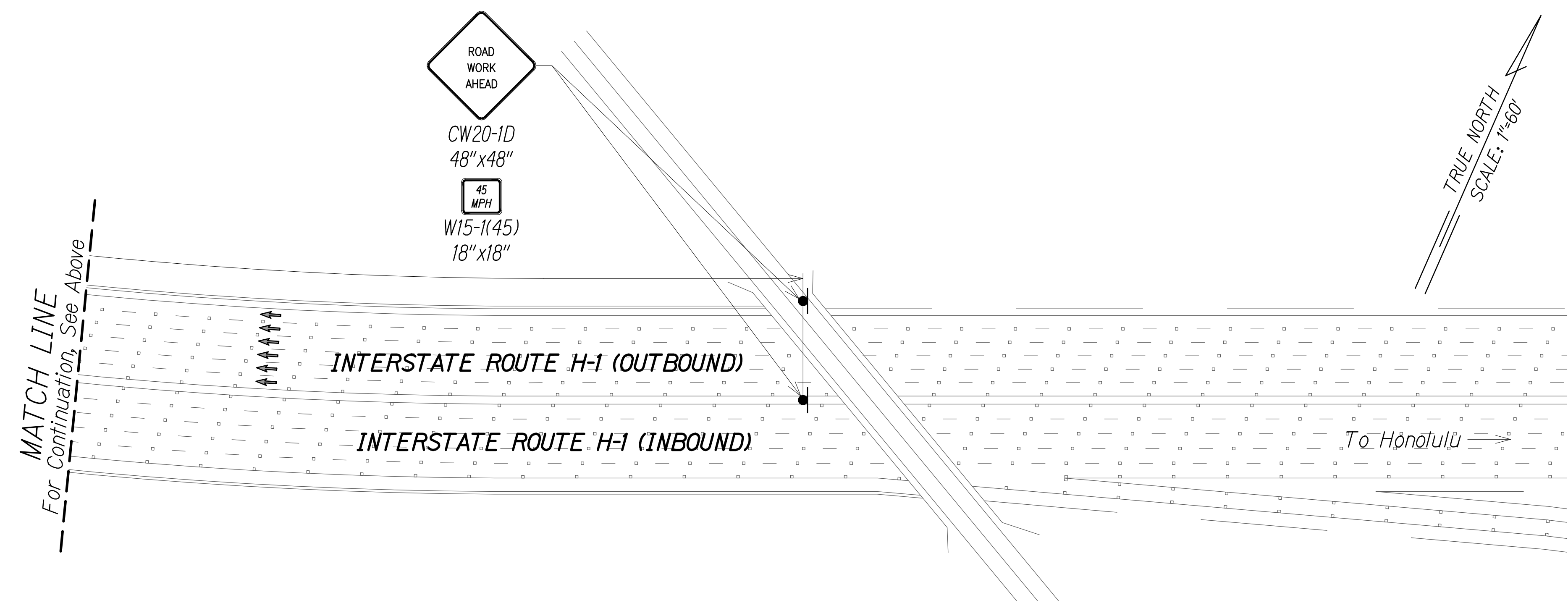
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	73	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⇄ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs



WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 5-3
Scale: 1"=60'

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

F:\A\2019\19-201_FMS PHASE 3\1\DWG\TC-16 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-9:42 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

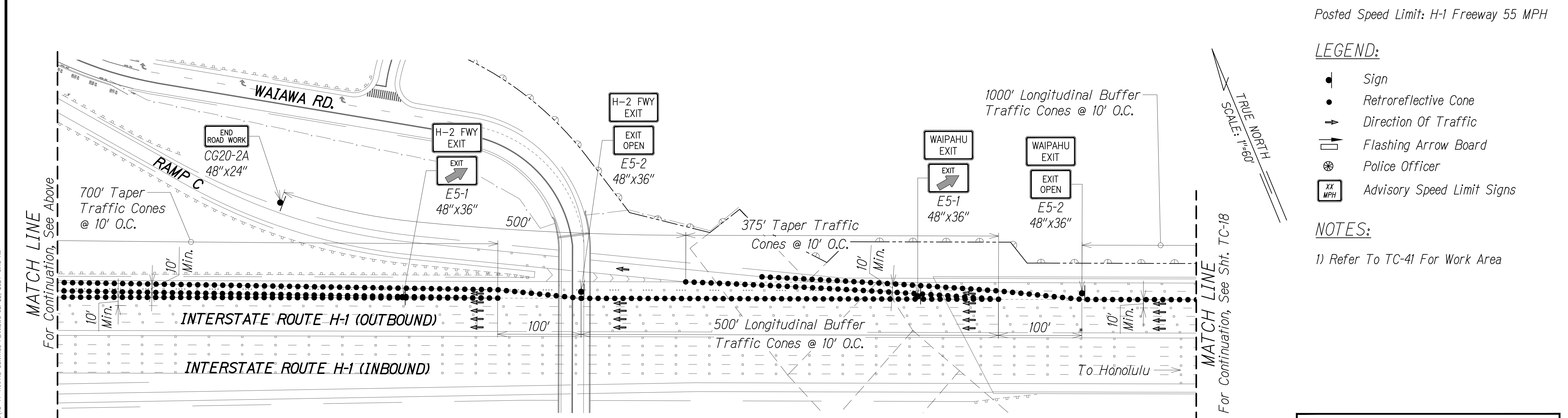
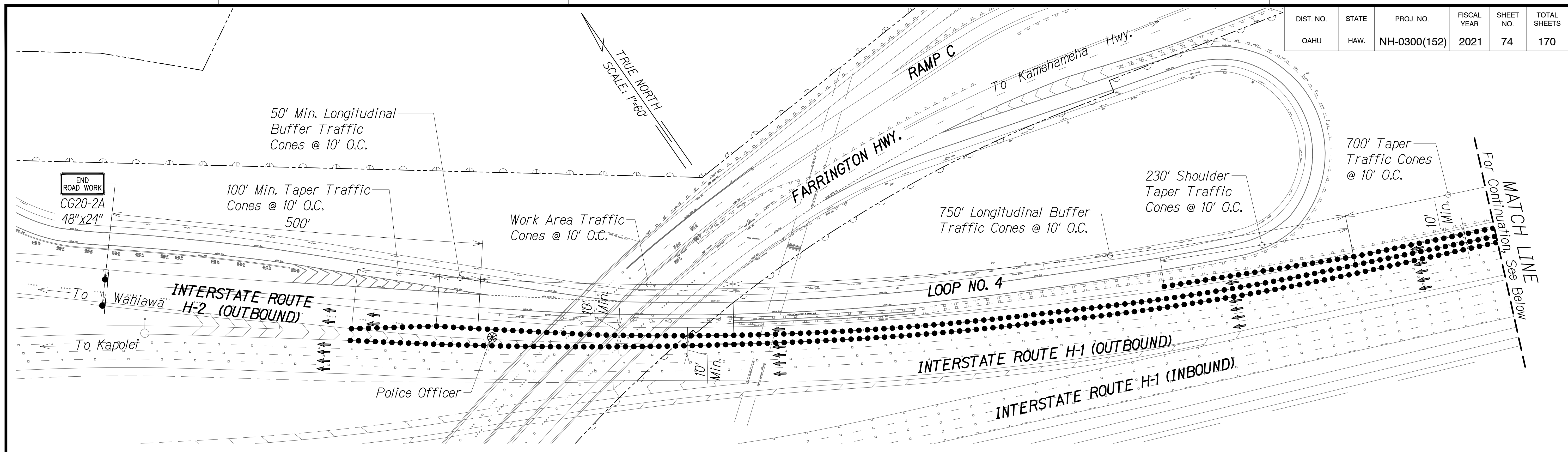
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-16 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	74	170



Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ↔ Flashing Arrow Board
 - ⊗ Police Officer
 - XX MPH Advisory Speed Limit Signs

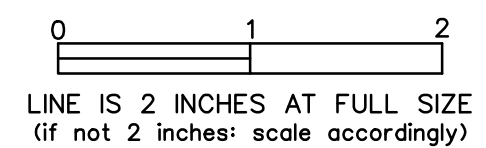
NOTES:

1) Refer To TC-41 For Work Area

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
NOTE BOOK	____
ORIGINAL PLAN	____
SURVEY PLOTTED BY	____

F:\A\2019\19-201-FMS PHASE 3\17 TRAFFIC CONTROL PLAN.DWG, JUL 22, 2021-9:43 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 6-1
Scale: 1"=60'



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Terrence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

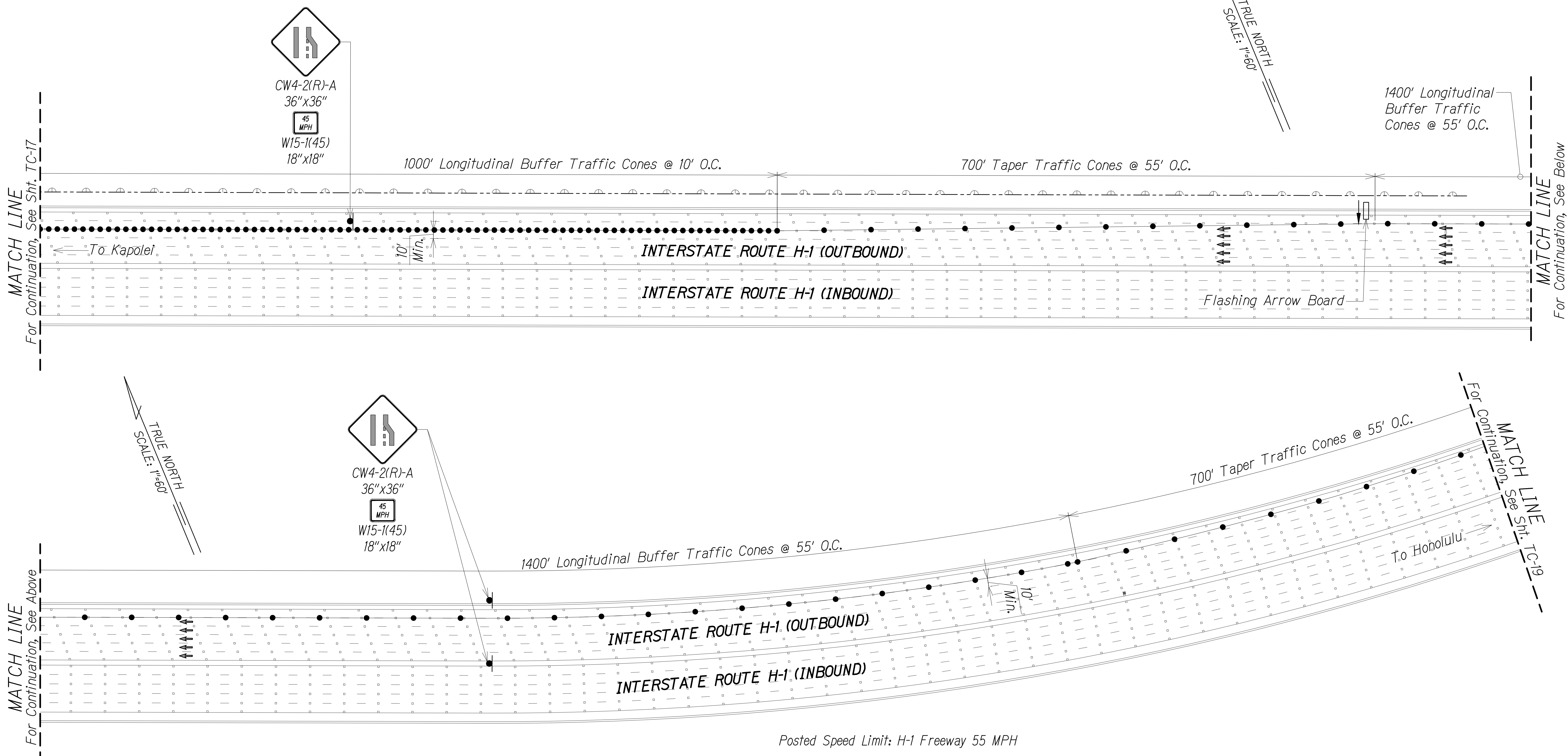
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-17 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	75	170



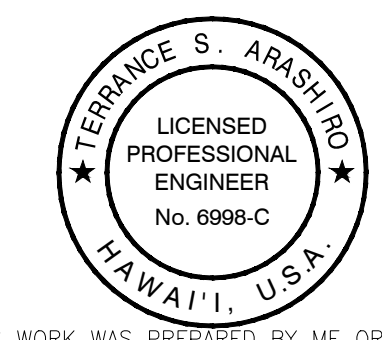
WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 6-2
 Scale: 1"=60'

Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

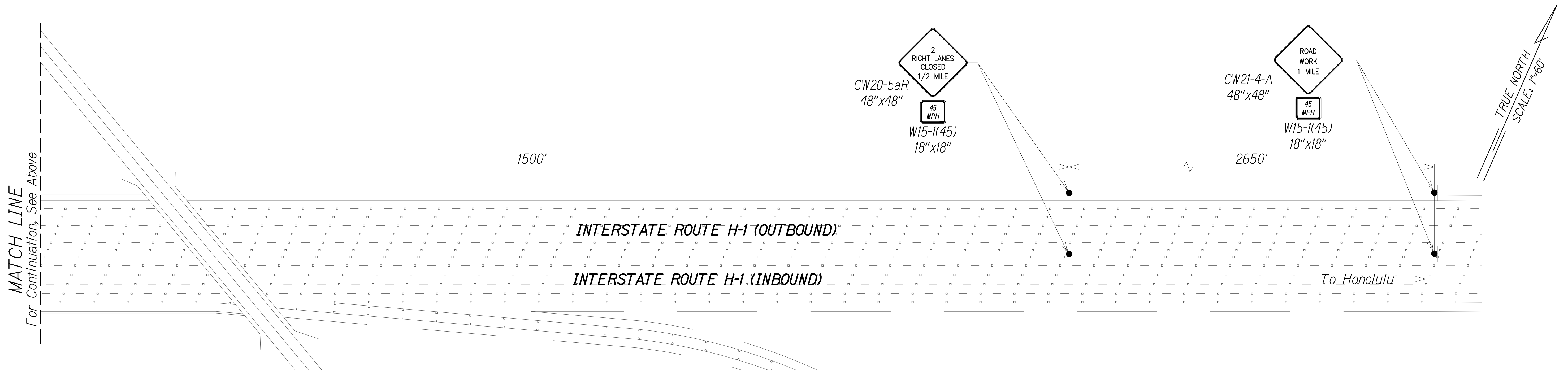
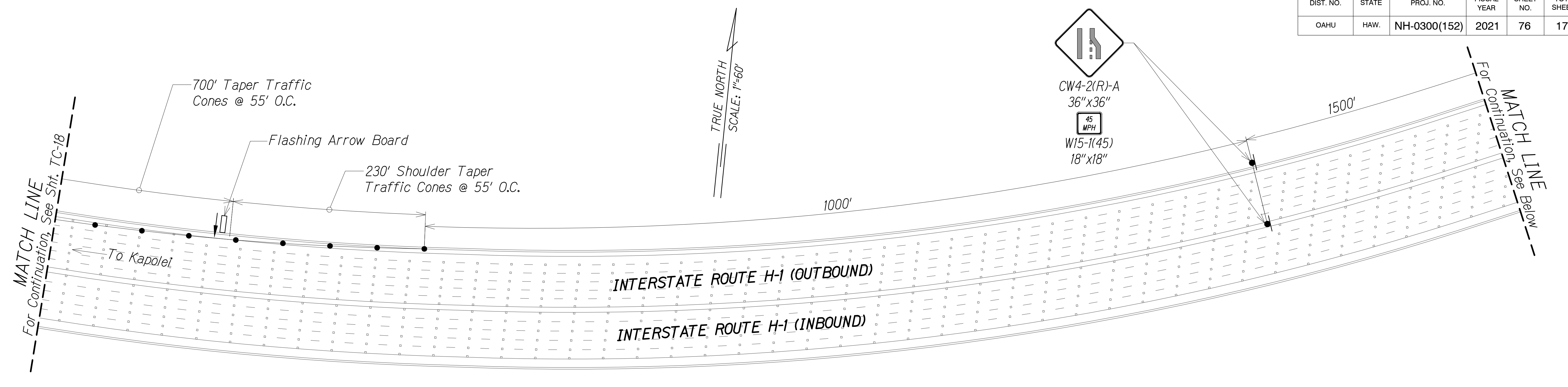
TRAFFIC CONTROL PLAN
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
 SHEET No. TC-18 OF 61 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
CHECKED BY	

F:\A\2019-19-201_FMS_PHASE_3\UNIT_1\DWG\TC-18 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-9:44 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	76	170



WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 6-3

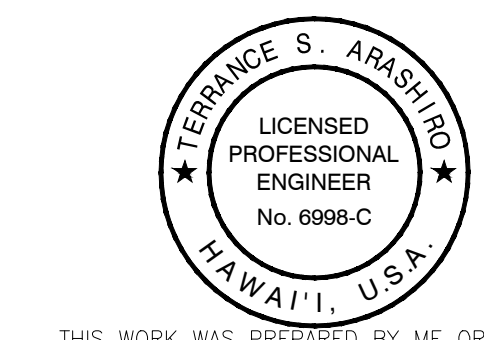
Scale: 1"=60'

Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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.

Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

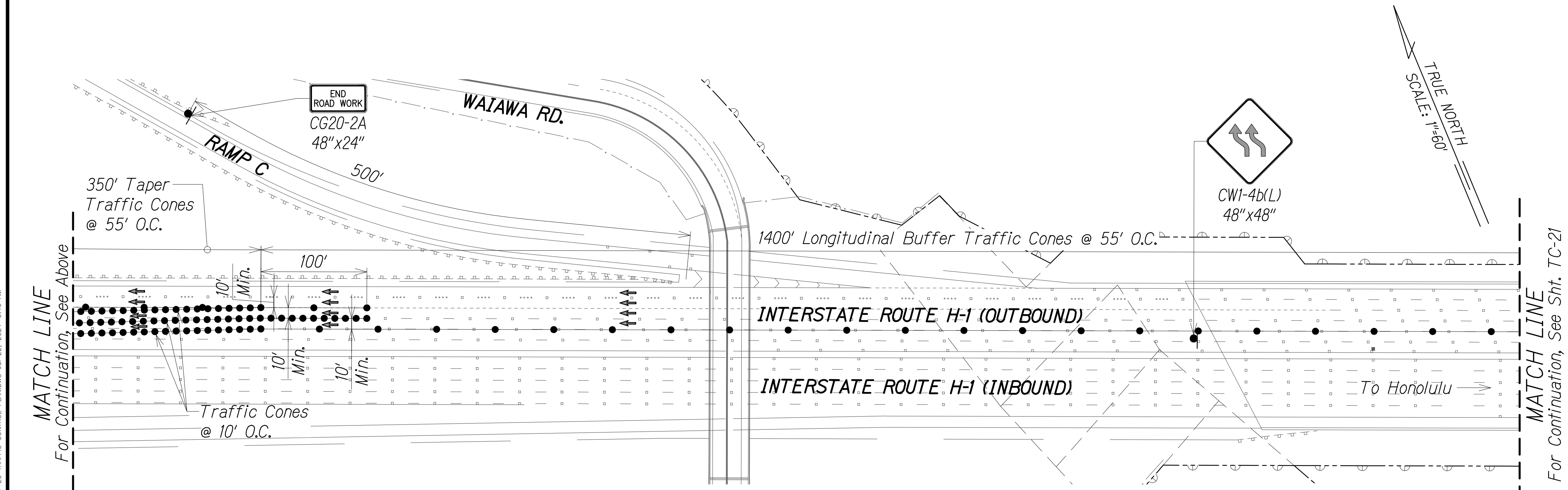
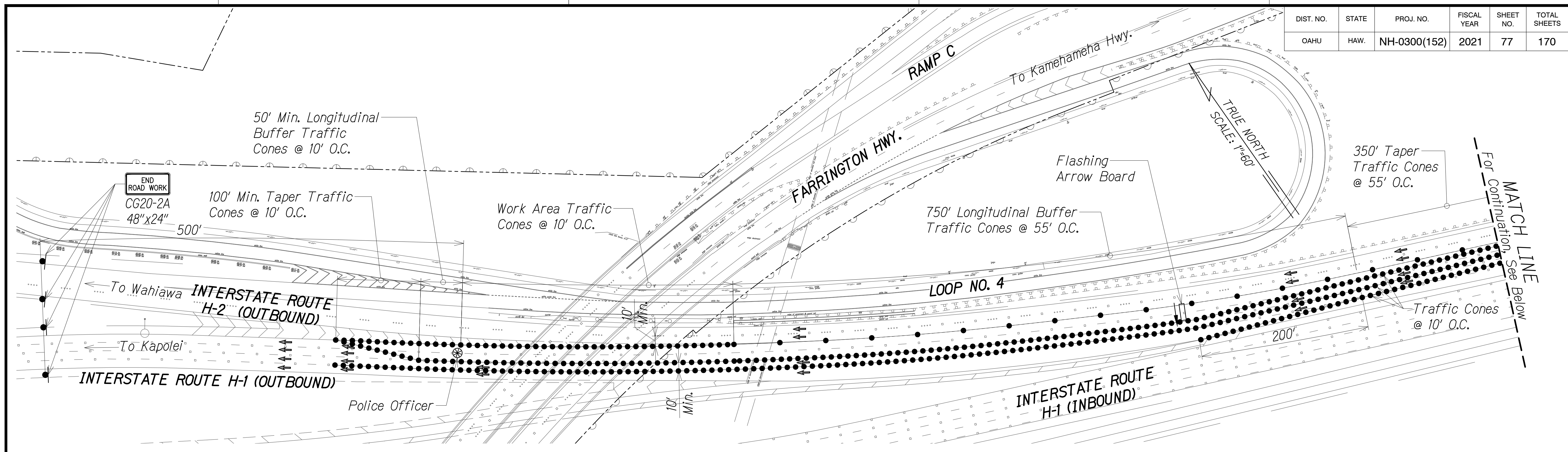
Scale: As Shown Date: June 25, 2021

SHEET No. TC-19 OF 61 SHEETS

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

F:\A\2019\19-201_FMS_PHASE_3\PHASE_3_UNIT_1\DWG\TC-19_TRAFFIC_CONTROL_PLAN.DWG, Jul 22, 2021 1:54:45 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	77	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- ➔ Direction Of Traffic
- ⬮ Flashing Arrow Board
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

NOTES:

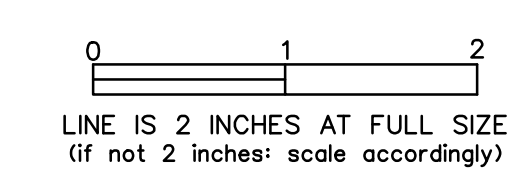
1. Refer To TC-41 For Work Area.

DATE	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-20 TRAFFIC CONTROL PLAN.DWG, JUL 22, 2021 9:46 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 7-1

Scale: 1"=60'



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

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

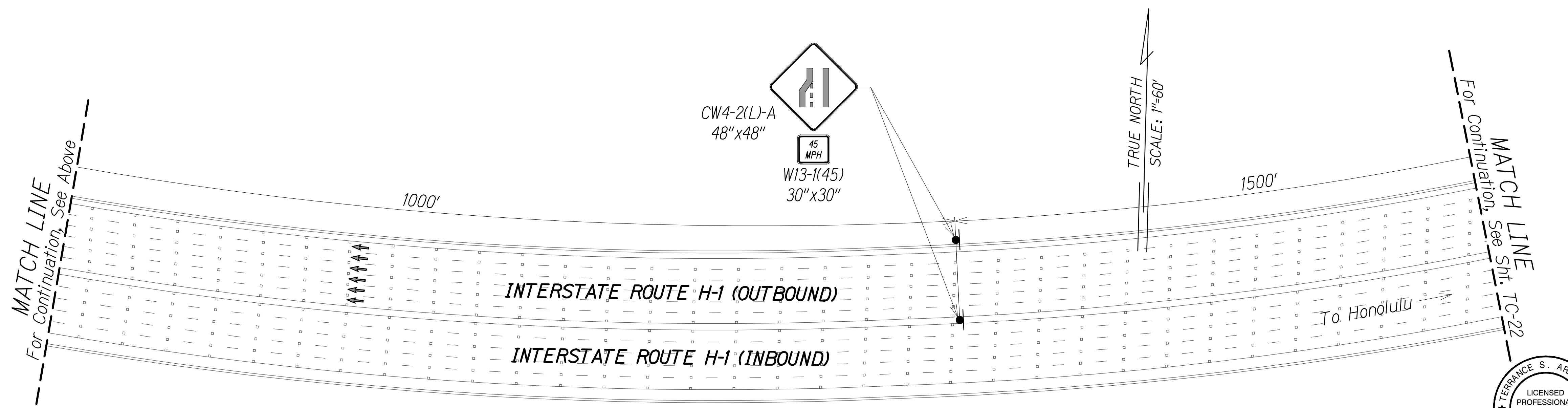
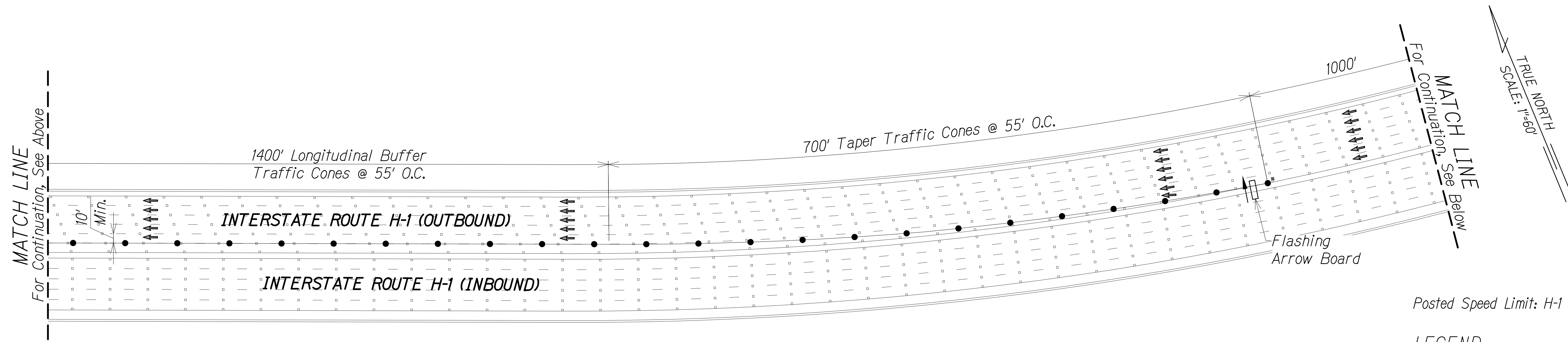
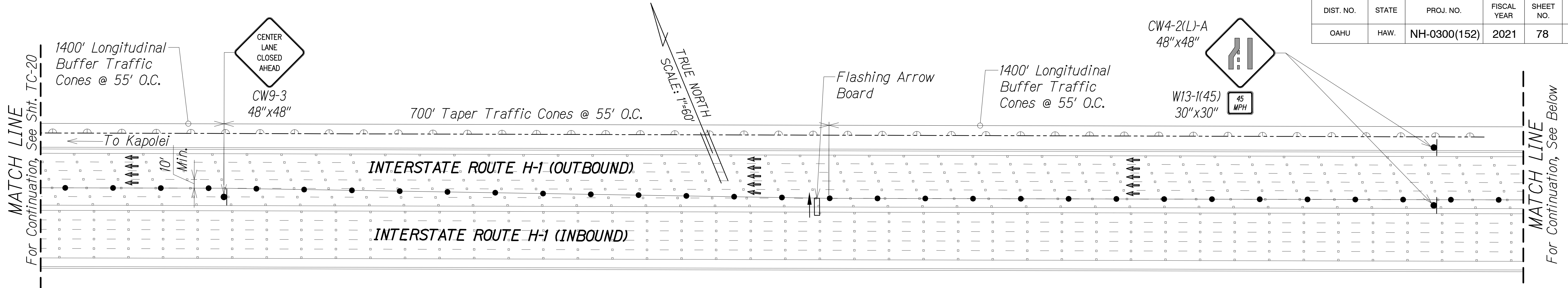
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-20 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	78	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ⬮ Flashing Arrow Board
- XX MPH Advisory Speed Limit Signs

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

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-21 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 9:47 AM

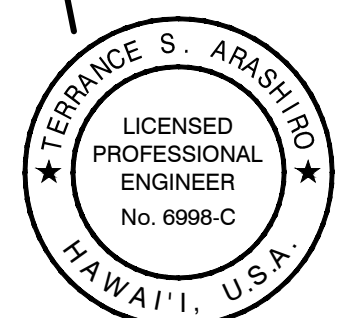
WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 7-2

Scale: 1"=60'

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

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

APR 30, 2022
LIC. EXP. DATE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

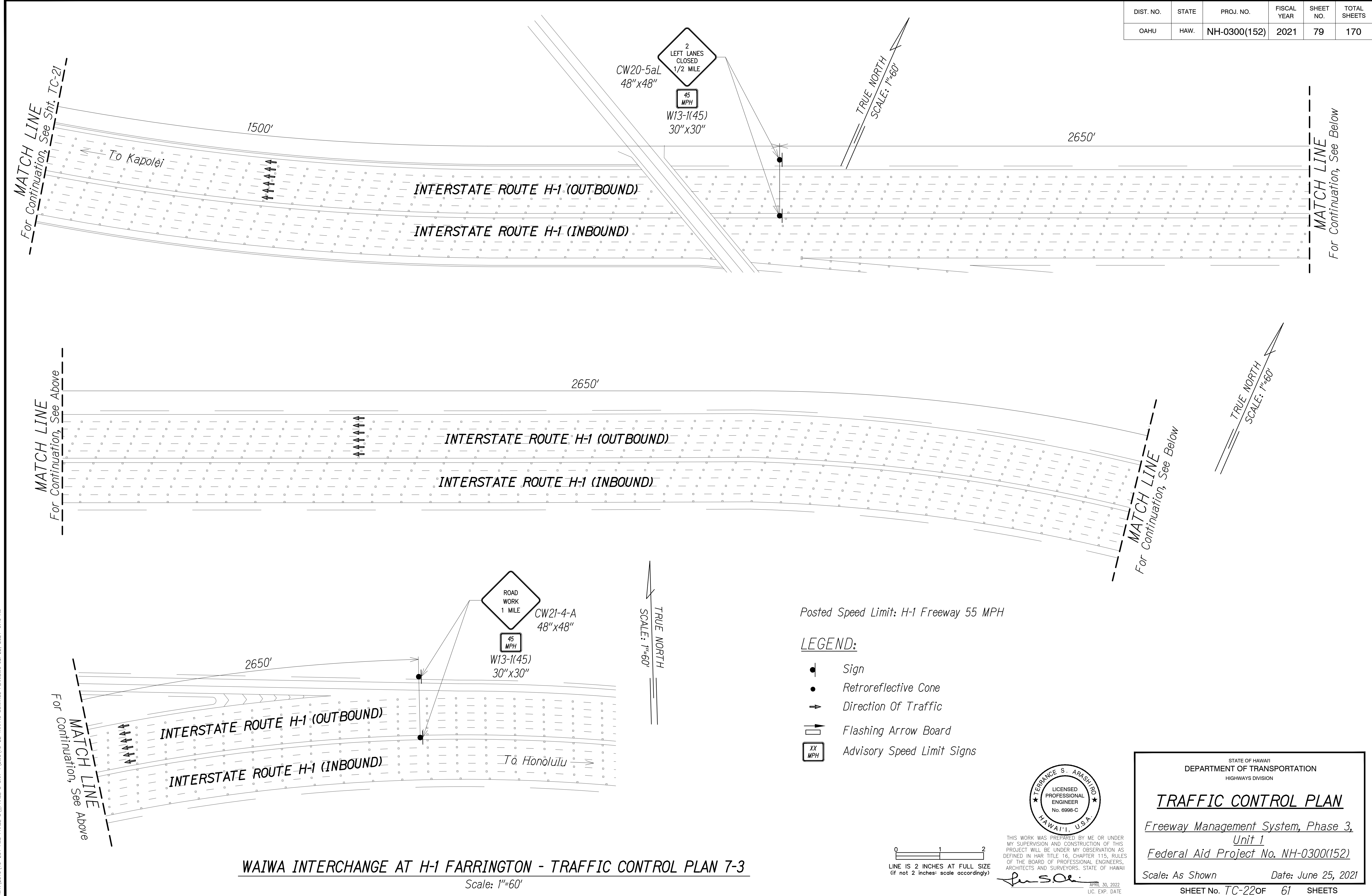
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-21 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	79	170

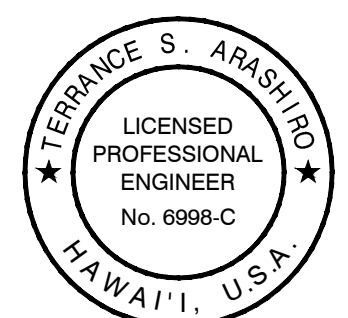


WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 7-3
Scale: 1"=60'

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

F:\NA\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\TC-22_TRAFFIC_CONTROL_PLAN.DWG, Jul 22, 2021, 9:49 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

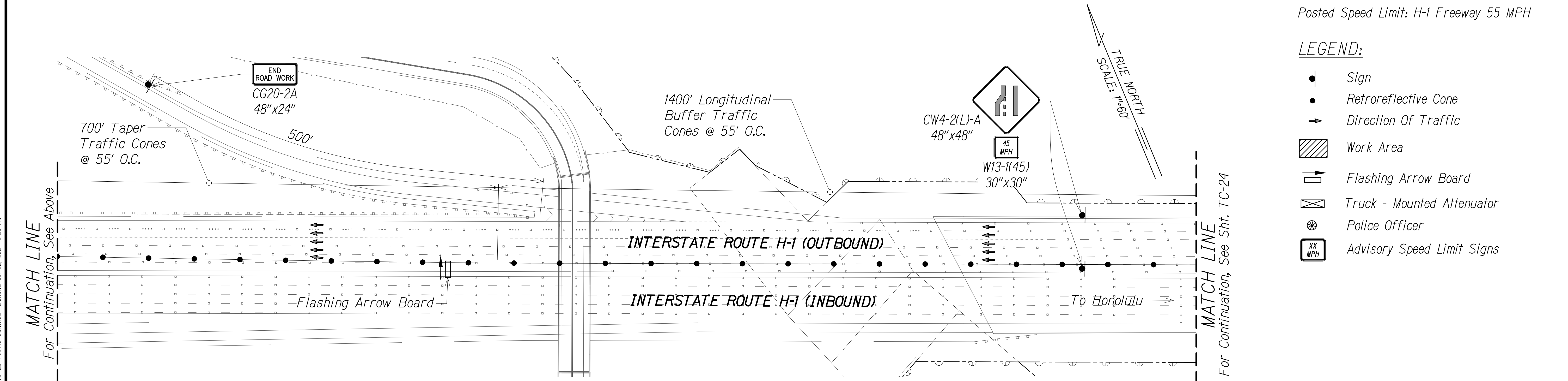
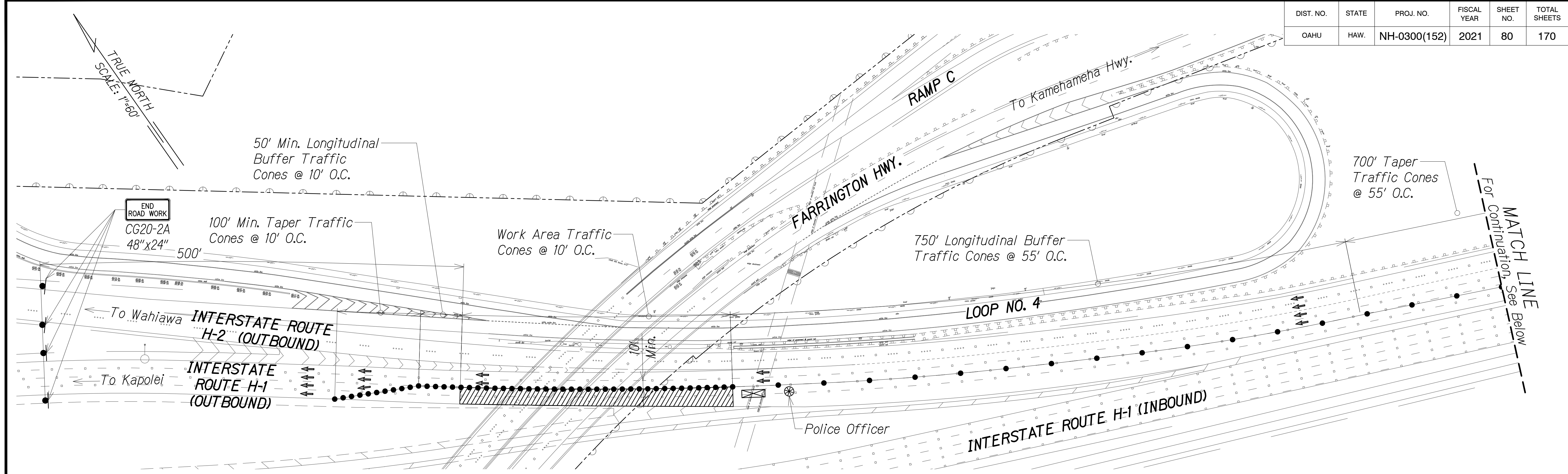
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-22 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	80	170



Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - ⏏ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - ⊙ Police Officer
 - XX MPH Advisory Speed Limit Signs

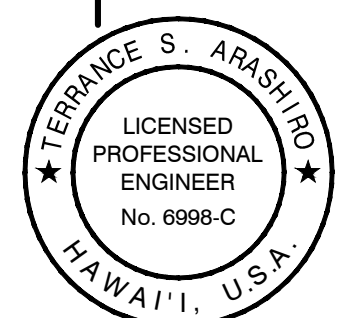
DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____

F:\A\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\TC-23_TRAFFIC_CONTROL_PLAN.DWG, Jul 22, 2021 - 9:50 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 8-1
 Scale: 1"=60'

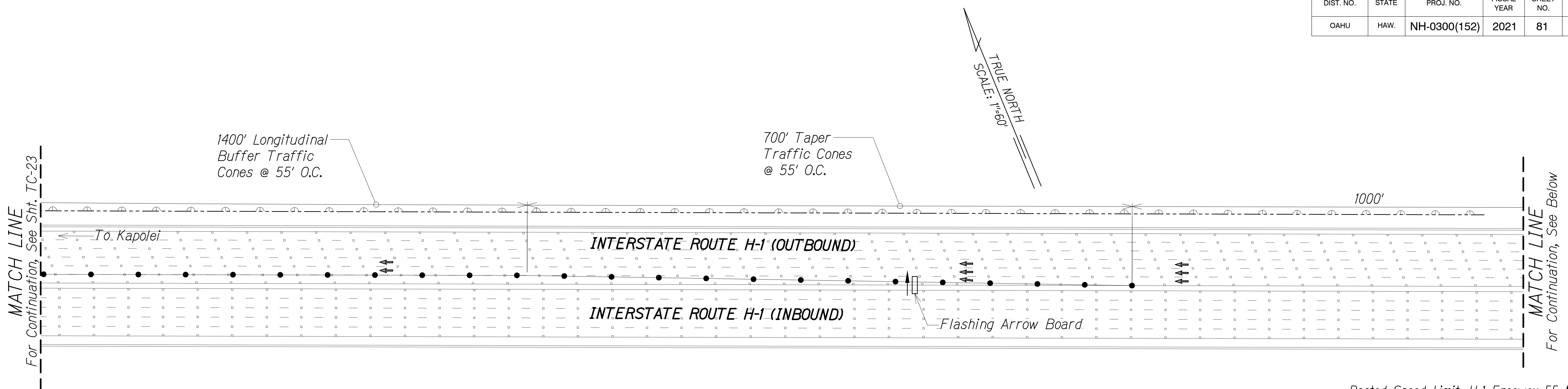
0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 APR 30, 2022
 LIC. EXP. DATE



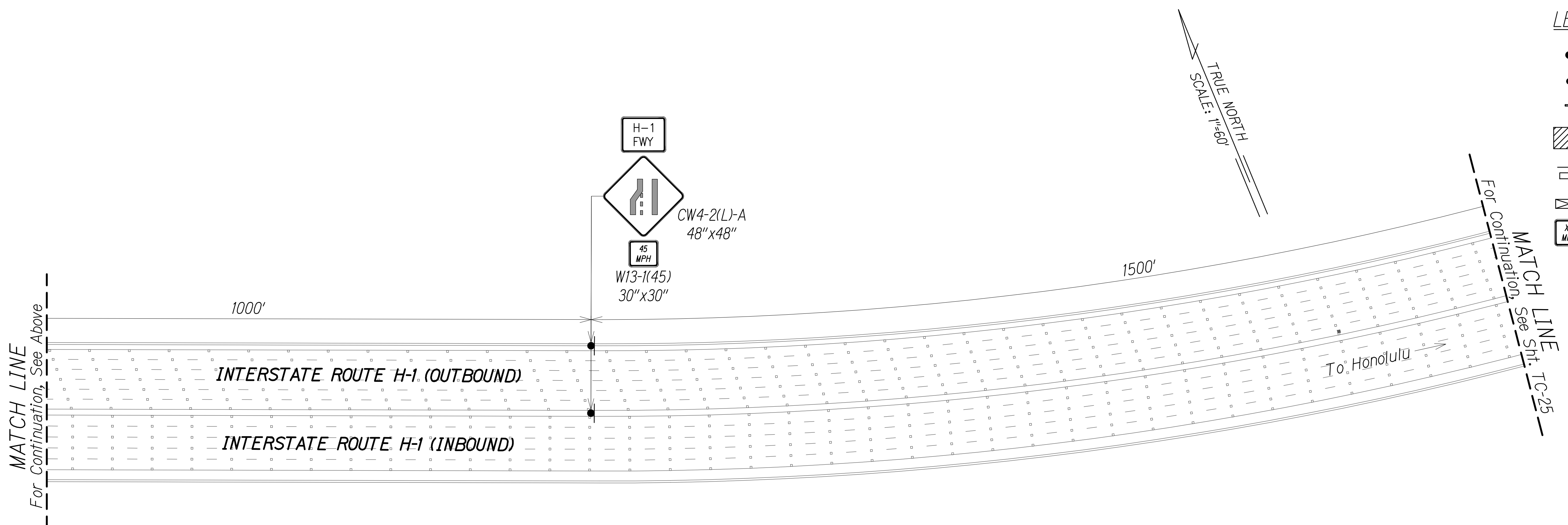
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC CONTROL PLAN
*Freeway Management System, Phase 3,
 Unit 1*
Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. TC-23 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	81	170



Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - ⏏ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - XX MPH Advisory Speed Limit Signs

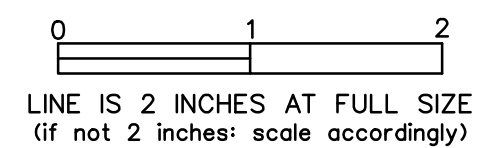


WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 8-2

Scale: 1"=60'

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____

F:\A\2019-19-201-FMS PHASE 3\1\DWG\TC-24 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-9:51 AM



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

Terence S. Arashi

APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

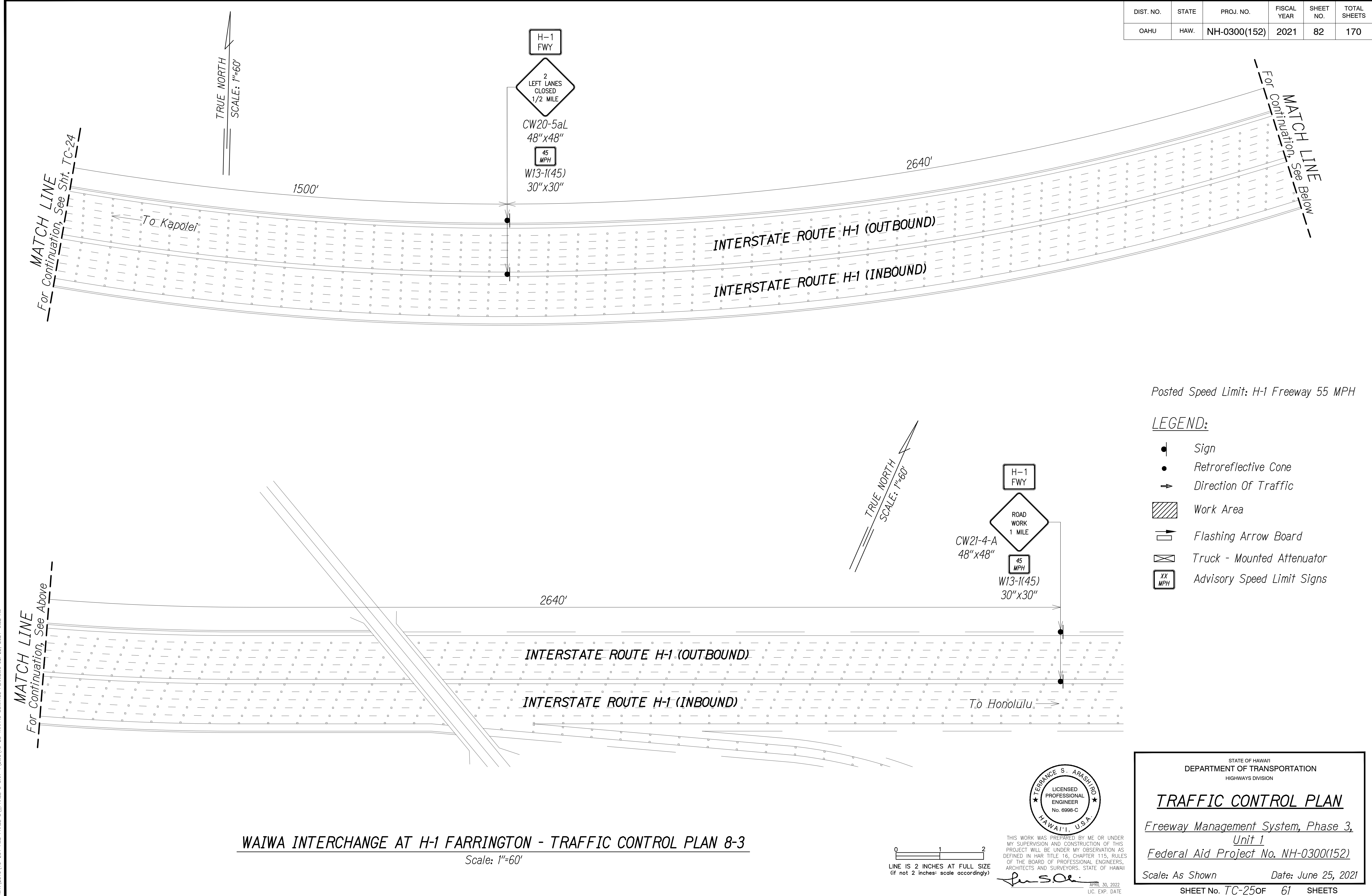
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-24 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	82	170

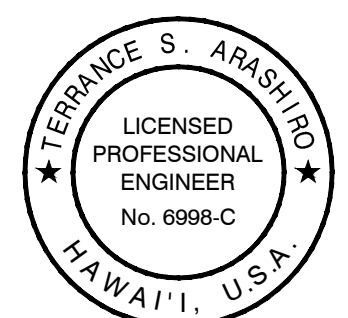


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	TRACED BY	" "
	DESIGNED BY	" "
	QUANTITIES BY	" "
	CHECKED BY	" "

FNA\2019\19-201 FMS PHASE 3\1\DWG\TC-25 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 1:55:52 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 8-3
 Scale: 1"=60'

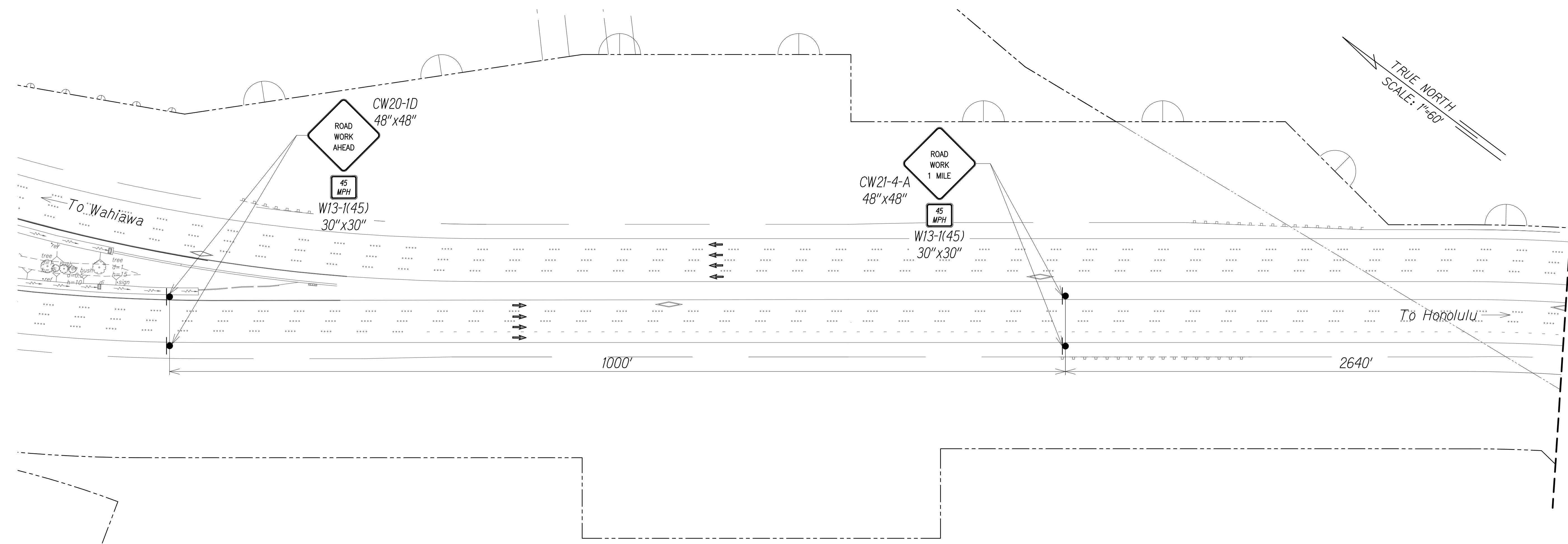
0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 T. S. Arashiro
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC CONTROL PLAN
*Freeway Management System, Phase 3,
 Unit 1*
Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. TC-25 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	83	170



Posted Speed Limit: H-2 Freeway 55 MPH

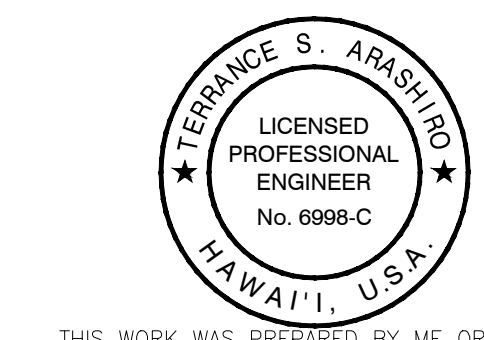
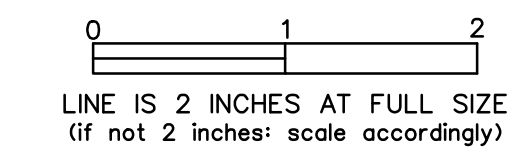
LEGEND:

- Sign
- Retroreflective Cone
- ➔ Direction Of Traffic
- ▨ Work Area
- ⚡ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs

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

FNA\2019\19-201 FMS PHASE 3\PHASE 3 UNIT 1\DWG\TC-26 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 4:52 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 9-1
Scale: 1"=60'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

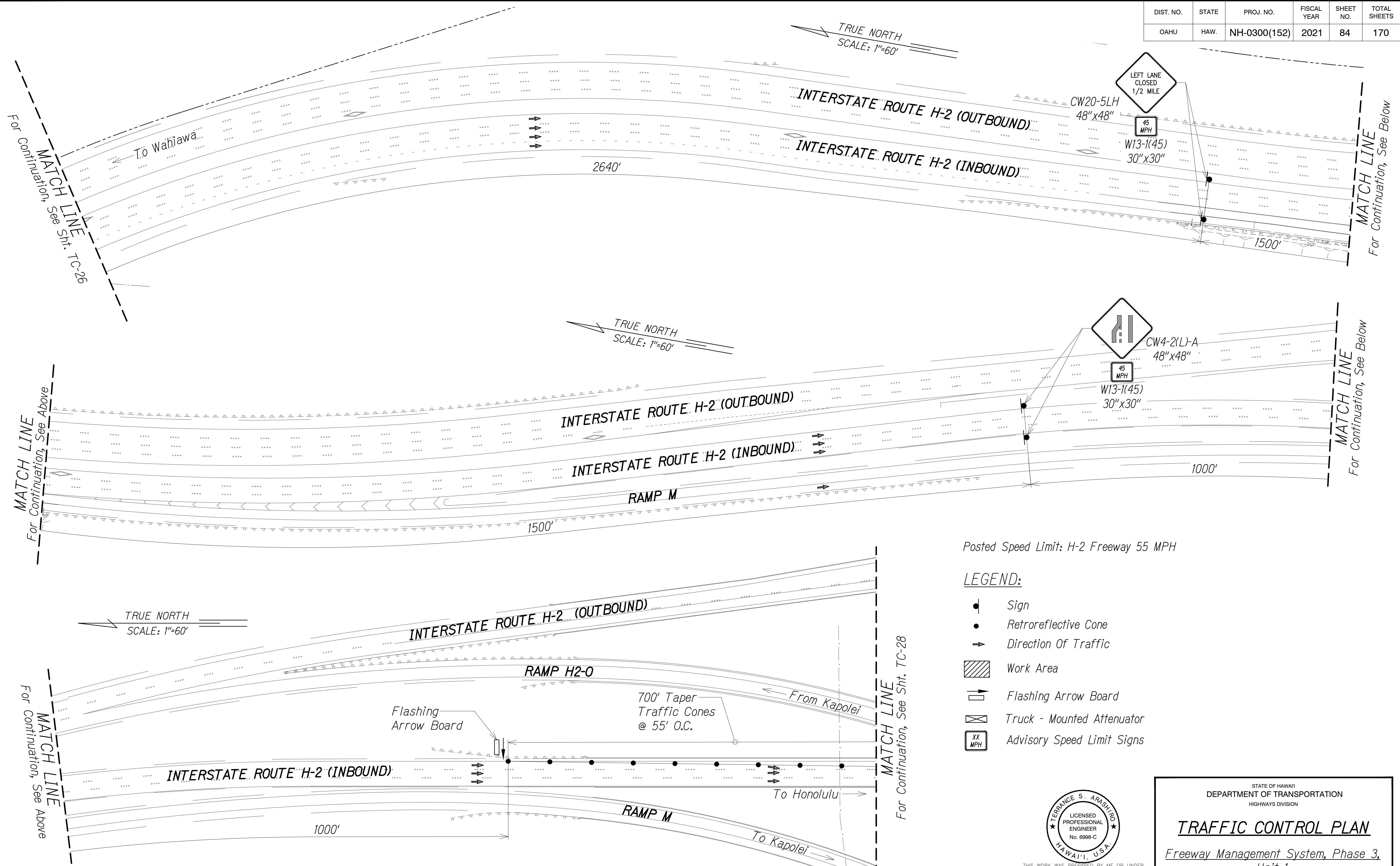
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-26 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	84	170



Posted Speed Limit: H-2 Freeway 55 MPH

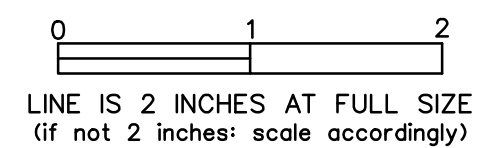
LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⬇ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs



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

APR 30, 2022
LIC. EXP. DATE



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

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-27 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 9:54 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 9-2
Scale: 1"=60'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

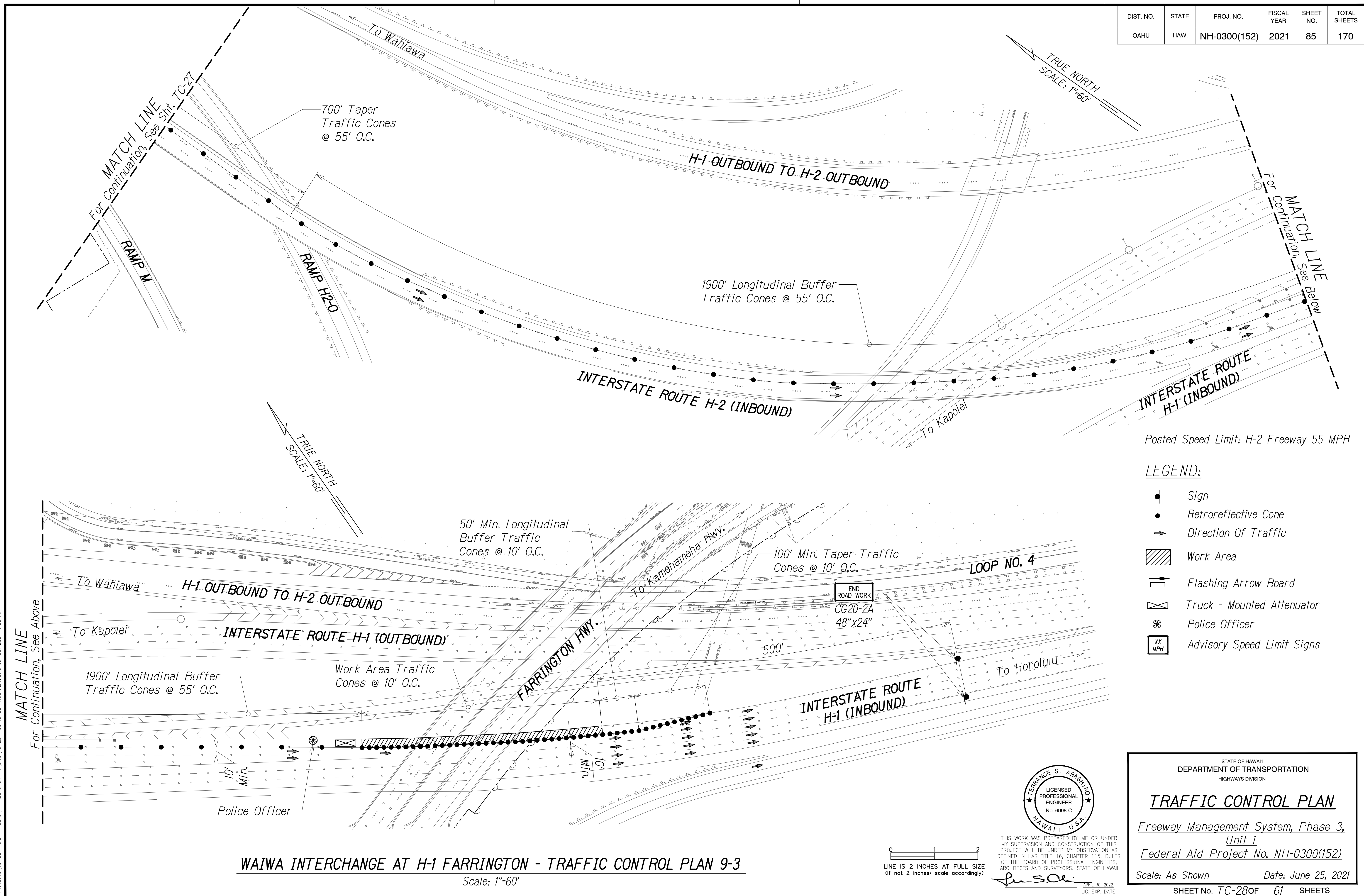
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-27 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	85	170



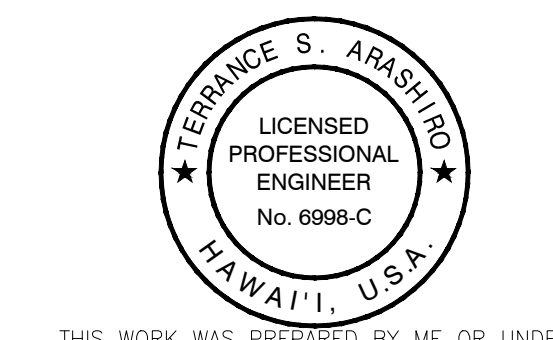
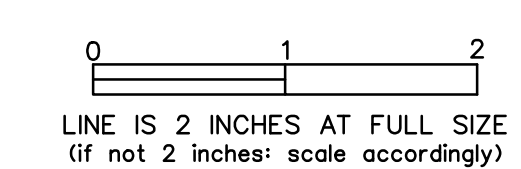
Posted Speed Limit: H-2 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - ➔ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - ⊙ Police Officer
 - XX MPH Advisory Speed Limit Signs

DATE	_____
SURVEY PLOTTED BY	_____
DRANK BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NOTE BOOK No.	_____

FNA\2019\19-201-FMS PHASE 3\UNIT 1\DWG\TC-28 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-9:55 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 9-3
Scale: 1"=60'



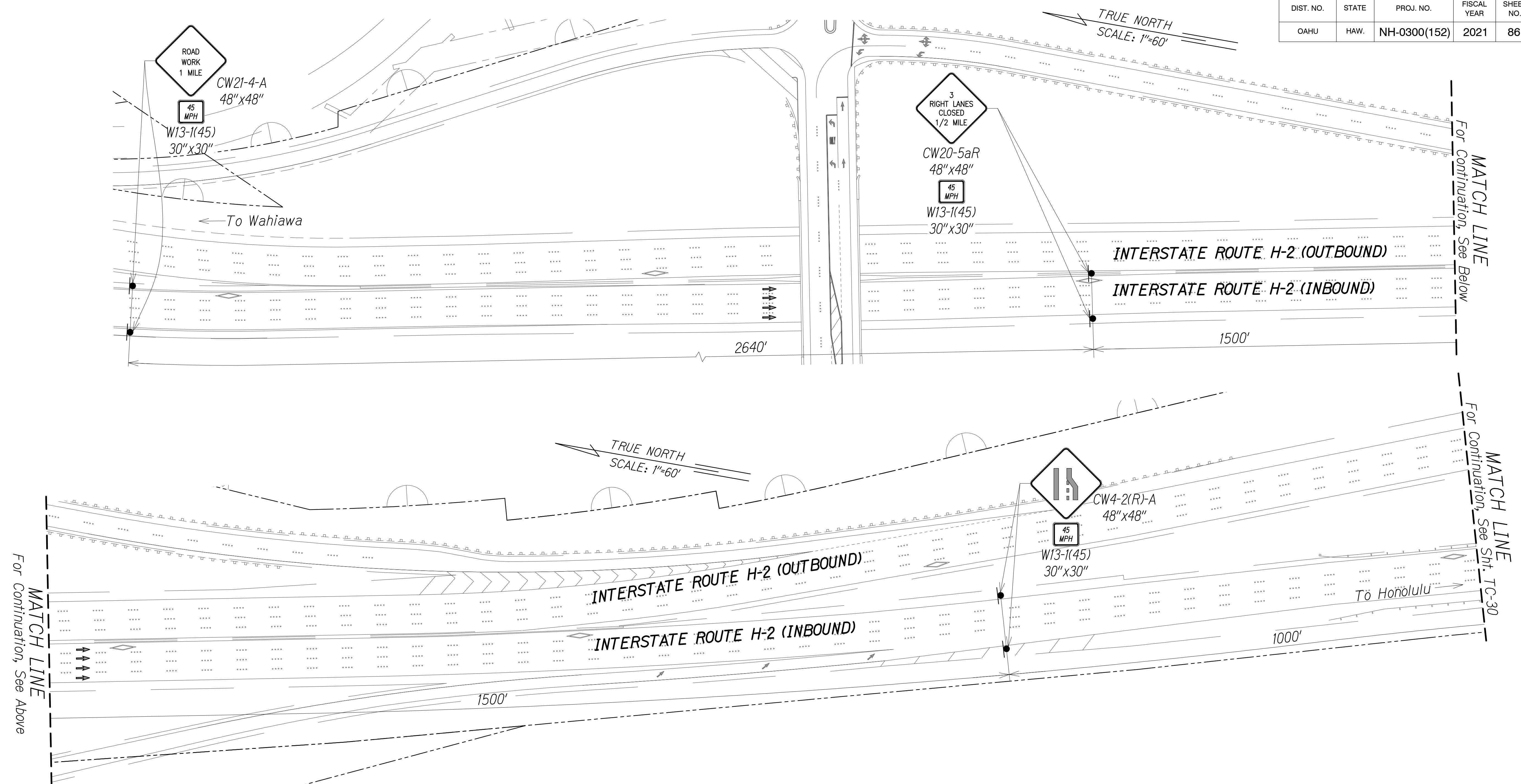
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
 SHEET No. TC-28 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	86	170



Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 10-1

Scale: 1"=60'

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____

FNA\2019-19-201_FMS_PHASE_3\UNIT_1\DWG\TC-29 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 9:56 AM

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

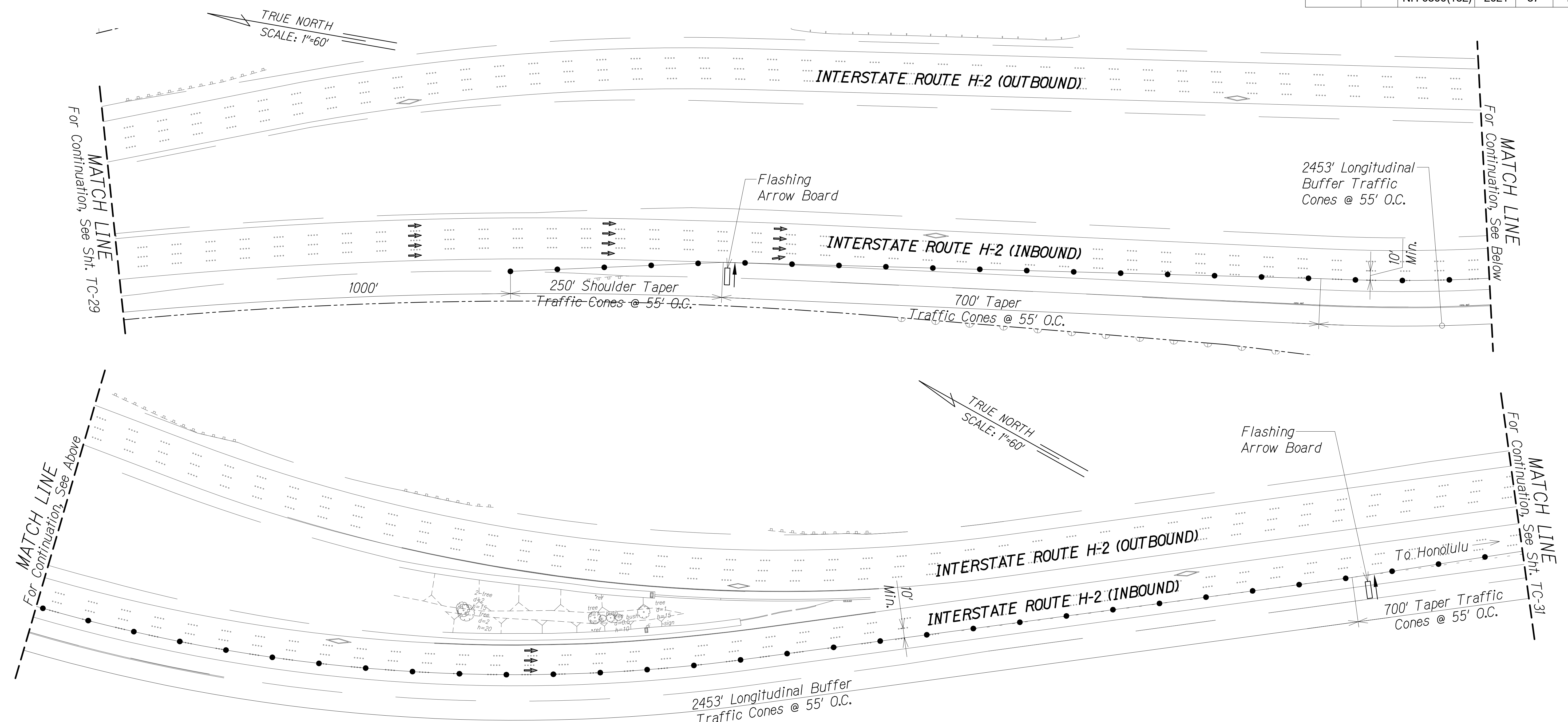
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-29 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	87	170



Posted Speed Limit: H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 10-2

Scale: 1"=60'

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-30 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-9:57 AM



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

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

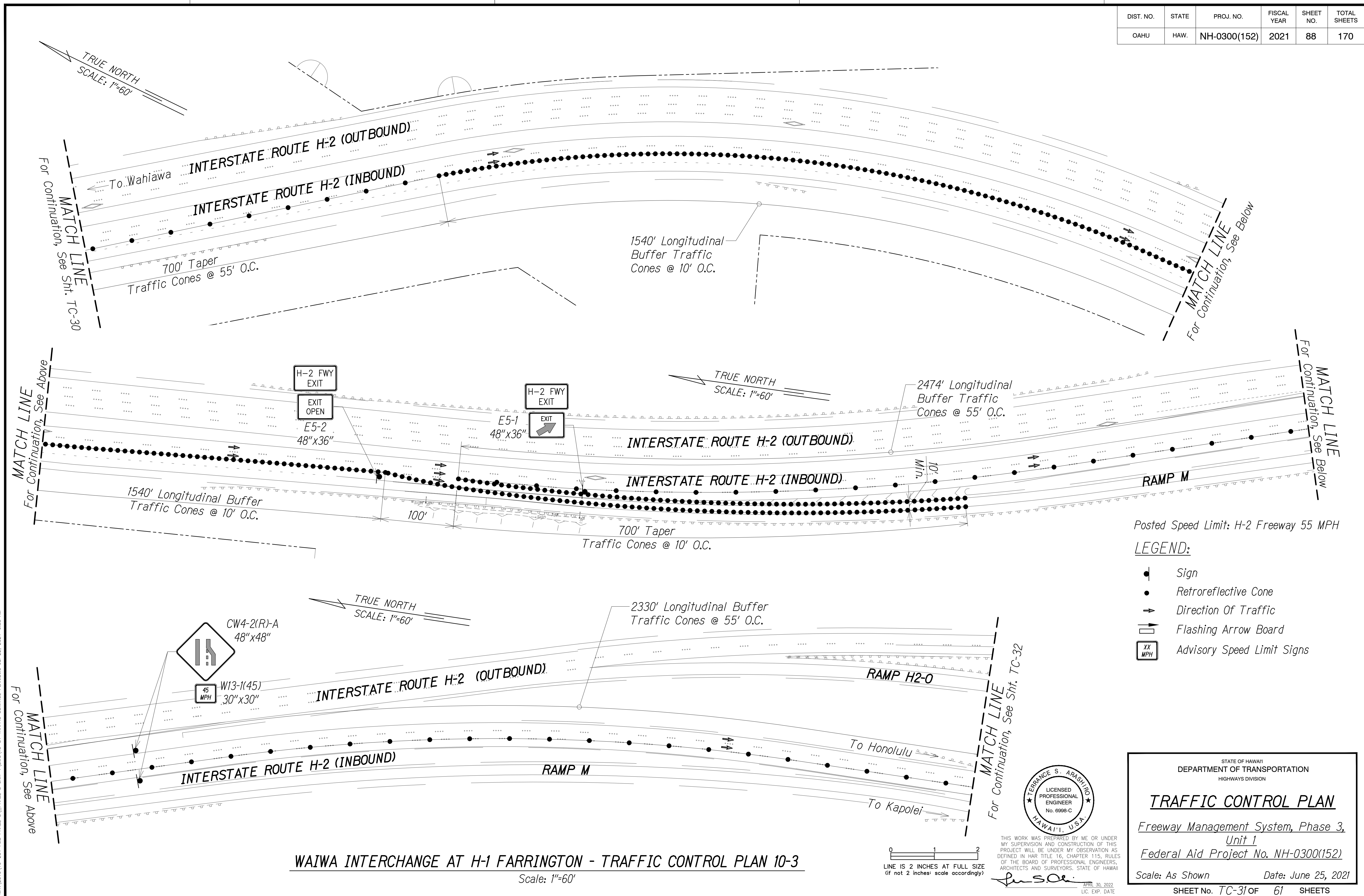
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-30 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	88	170



Posted Speed Limit: H-2 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - Flashing Arrow Board
 - Advisory Speed Limit Signs

DATE	_____
SURVEY PLOTTED BY	_____
DRANK BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NOTE BOOK	_____
No.	_____

F:\A\2019\19-201 EMS PHASE 3\1\DWG\TC-31 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 - 9:58 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 10-3
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

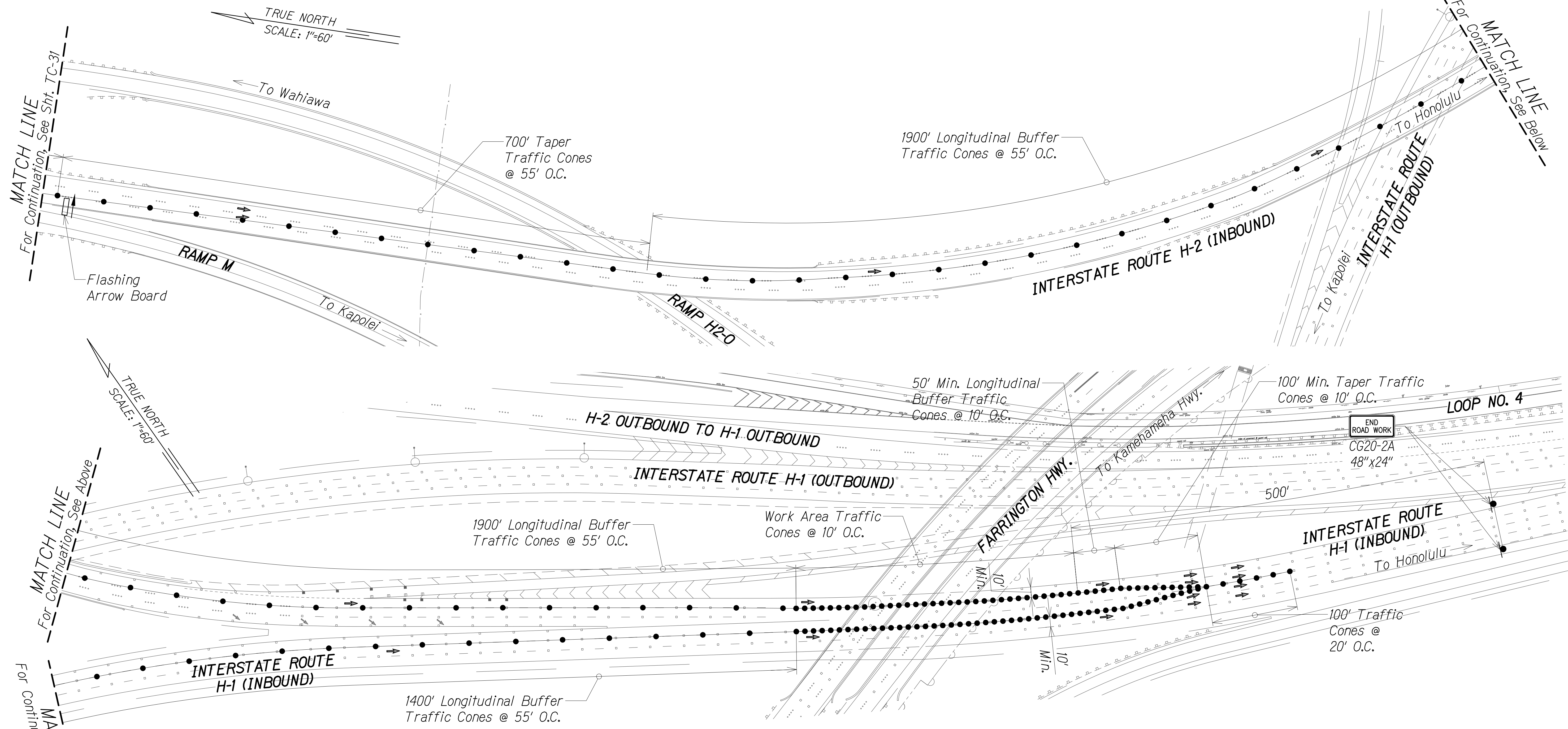
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-31 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	89	170



Posted Speed Limit: H-1, H-2 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ⬇ Flashing Arrow Board
- ⊙ Police Officer
- ⓧ Advisory Speed Limit Signs

NOTES:

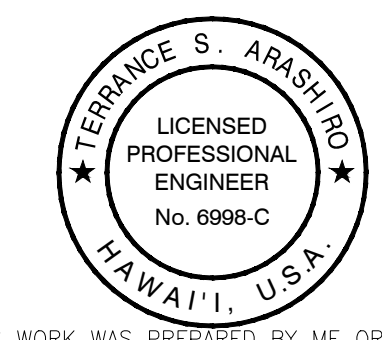
- 1) Refer To TC-41 For Work Area

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 10-4

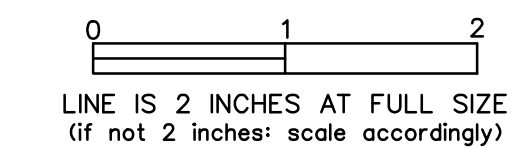
Scale: 1"=60'

DATE	____
SURVEY PLOTTED BY	____
DRAWN BY	____
TRACED BY	____
DESIGNED BY	____
QUANTITIES BY	____
CHECKED BY	____
NO.	____

FNA\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\TC-32 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 9:59 AM



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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

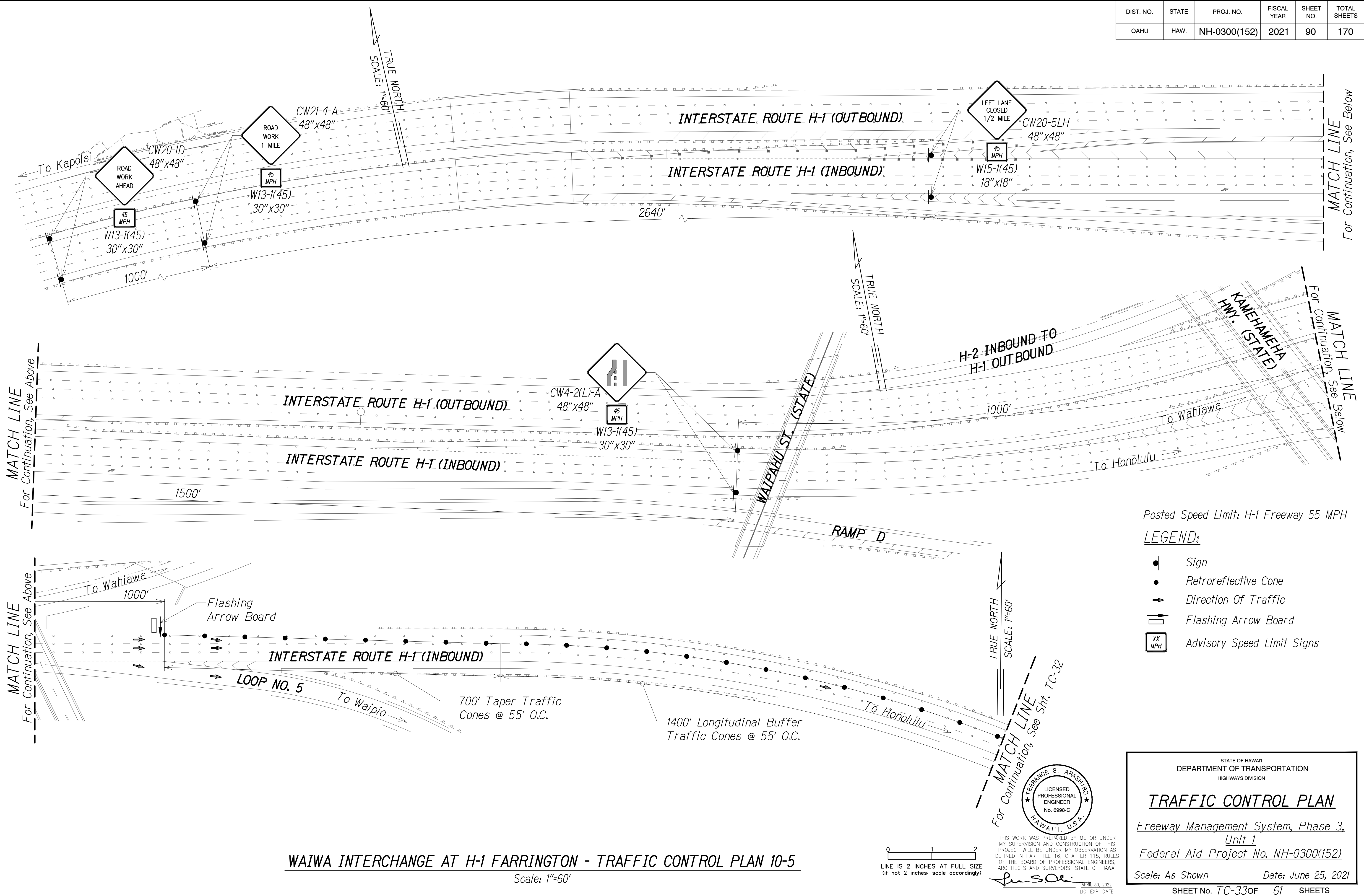
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-32 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	90	170



Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ⚡ Flashing Arrow Board
 - XX MPH Advisory Speed Limit Signs

DATE	_____
SURVEY PLOTTED BY	_____
DRANK BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NOTE BOOK	_____
No.	_____

F:\A\2019\19-201 EMS PHASE 3\1. UNITS\10-5\TC-33 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 10:00 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 10-5
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TRUE NORTH
SCALE: 1"=60'

For Continuation, See Sht. TC-32

TERENCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

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

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

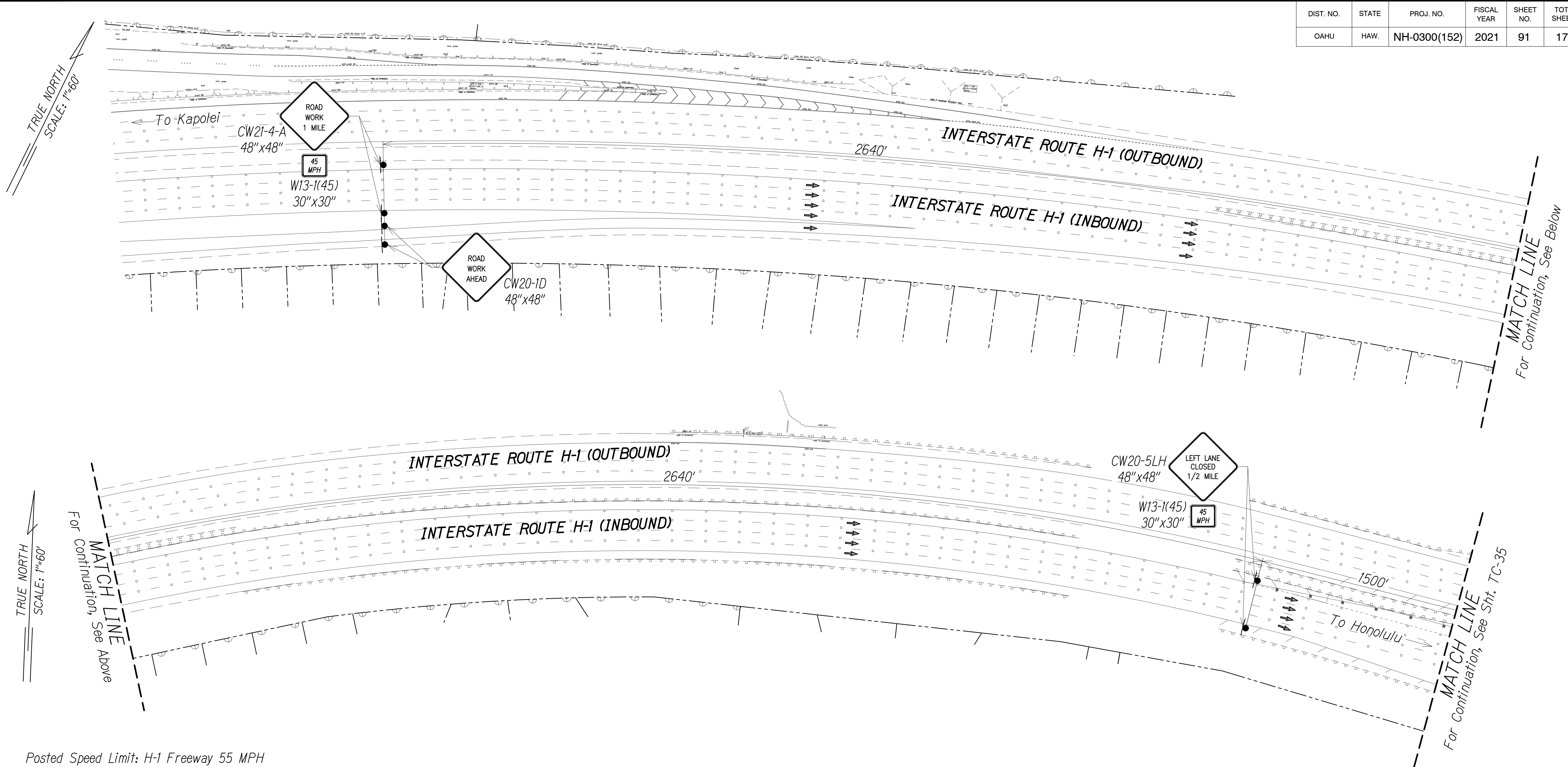
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-33 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	91	170



Posted Speed Limit: H-1 Freeway 55 MPH

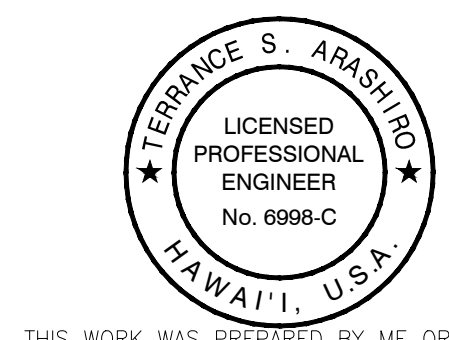
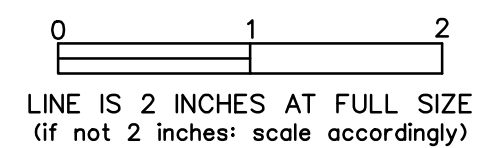
LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____

F:\A\2019\19-201-FMS PHASE 3\1_PHASE 3 UNIT 1\DWG\TC-34 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 - 10:01 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 11-1
Scale: 1"=60'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

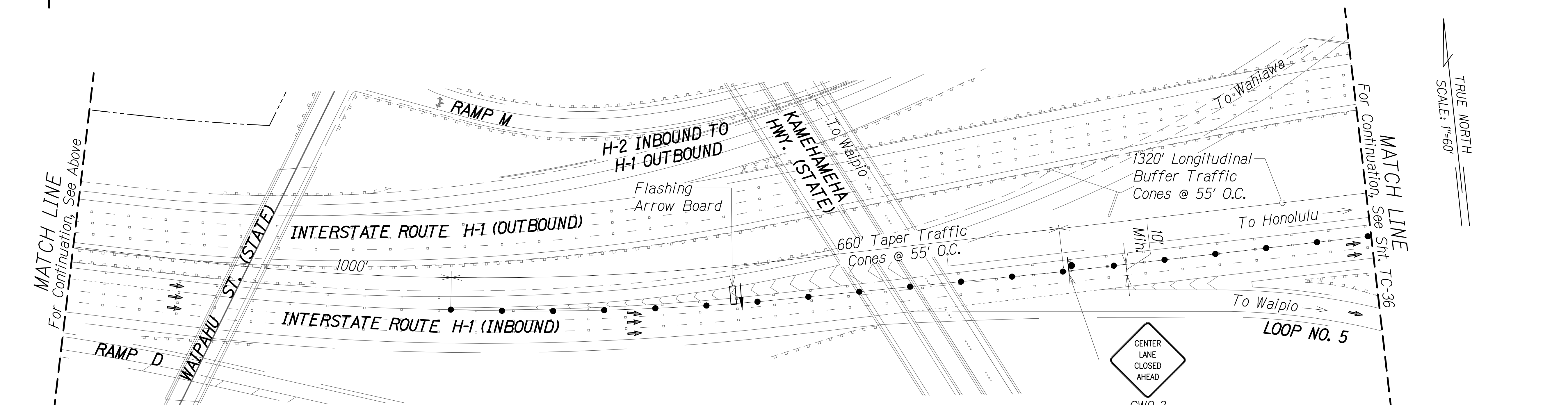
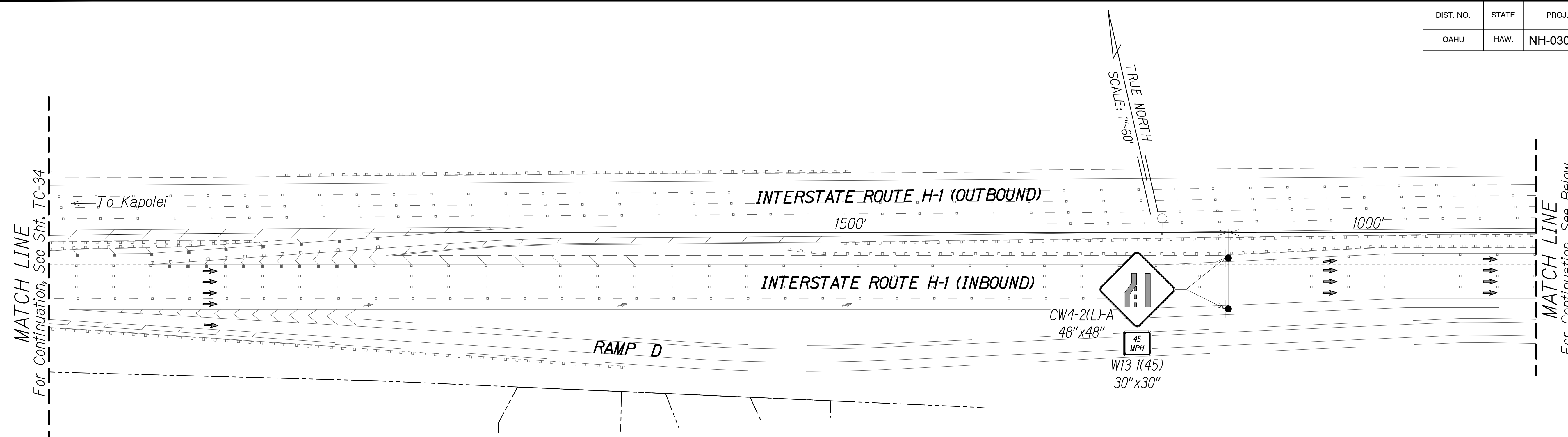
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-34 of 61 SHEETS

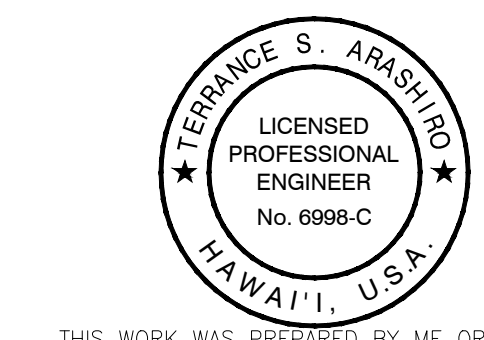
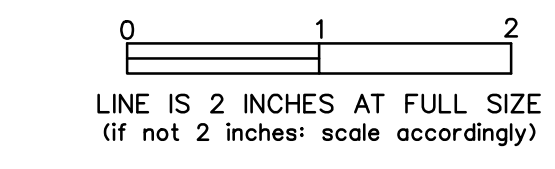
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	92	170



Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⏏ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - XX MPH Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 11-2
Scale: 1"=60'



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

Terence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

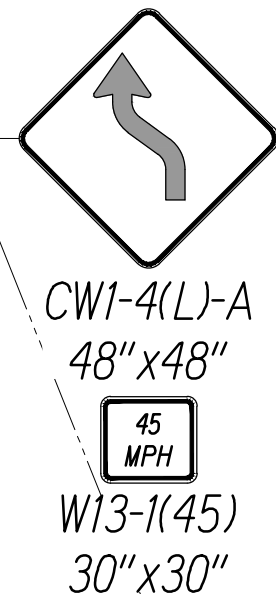
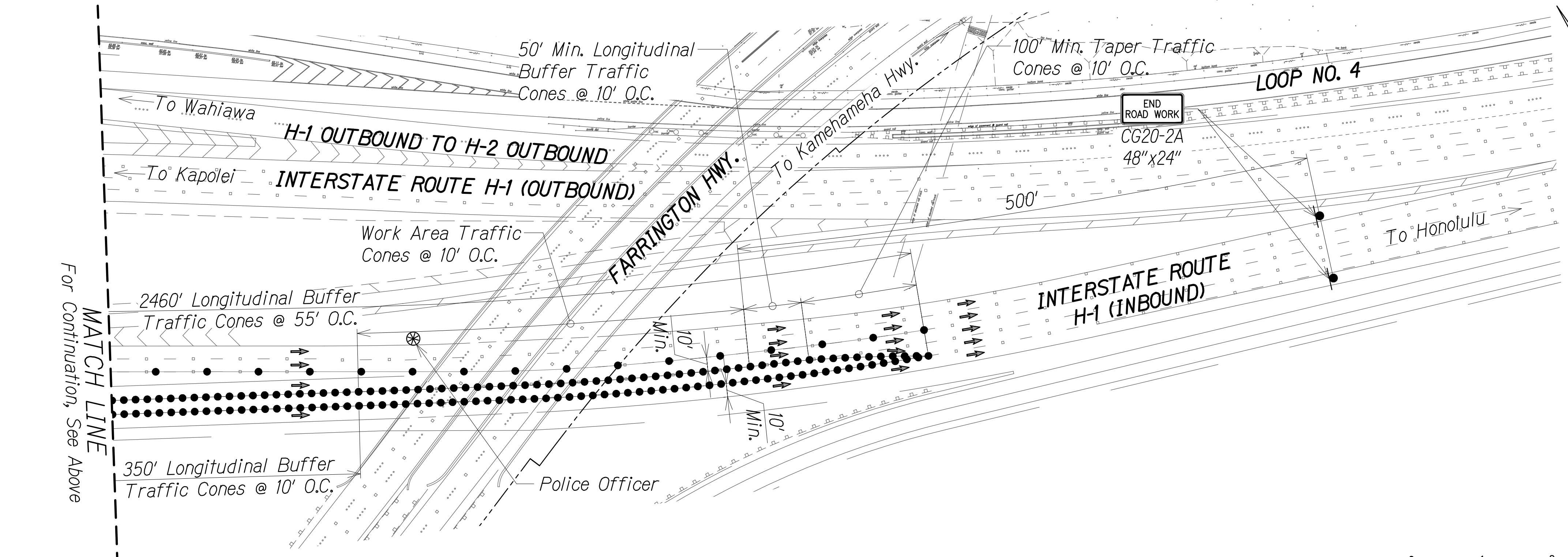
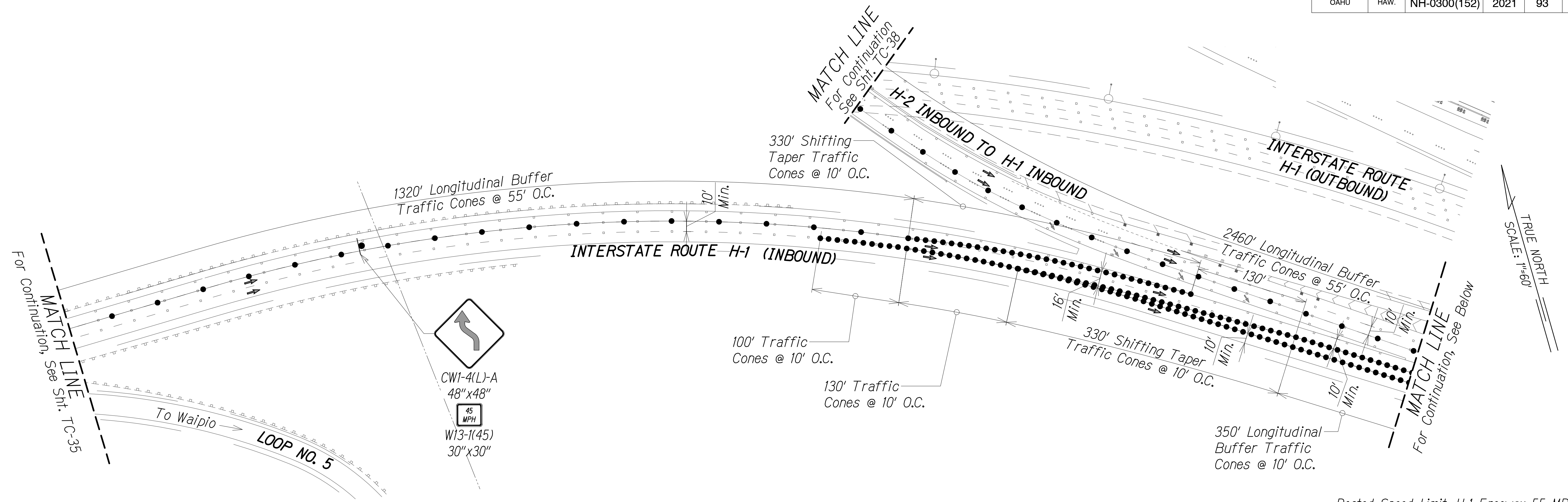
Scale: As Shown Date: June 25, 2021

SHEET No. TC-35 OF 61 SHEETS

DATE	NO.
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
DESIGNED BY	
TRACED BY	
DRANK BY	
DATE	NO.

F:\NA\2019\19-201_FMS_PHASE_3\1_PHASE_3_UNIT_1\DWG\TC-35_TRAFFIC_CONTROL_PLAN.DWG, Jul 22, 2021 - 10:02 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	93	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ⬇ Flashing Arrow Board
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

NOTES:

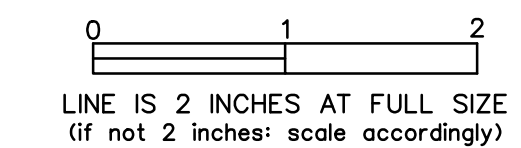
- 1) Refer To TC-41 For Work Area

DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
TRACED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
NO.	_____

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-36 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 - 10:03 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 11-3

Scale: 1"=60'



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.

TERENCE S. ARASHIRO
 LICENSED PROFESSIONAL ENGINEER
 No. 6998-C
 HAWAII, U.S.A.

APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

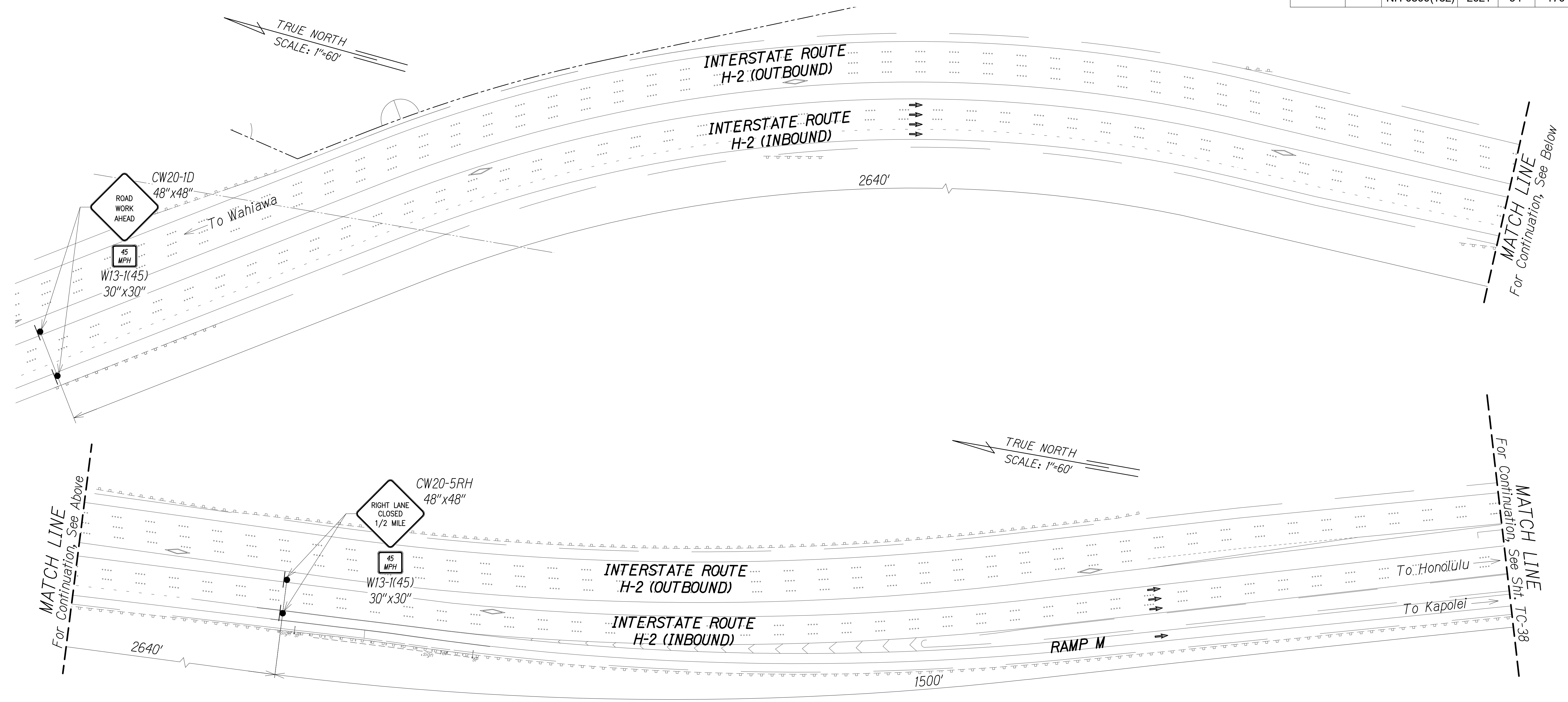
Freeway Management System, Phase 3,
 Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-36 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	94	170



Posted Speed Limit: H-2 Freeway 55 MPH

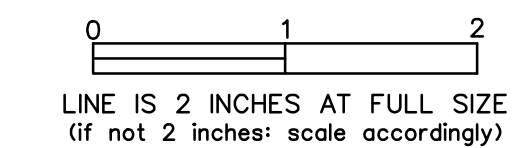
LEGEND:

- Sign
- Retroreflective Cone
- Direction of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 11-4
Scale: 1"=60'

DATE	____
SURVEY PLOTTED BY	____
DRANK BY	____
TRACED BY	____
DESIGNED BY	____
QUANTITIES BY	____
CHECKED BY	____
No.	____

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-37 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 1:10:04 AM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

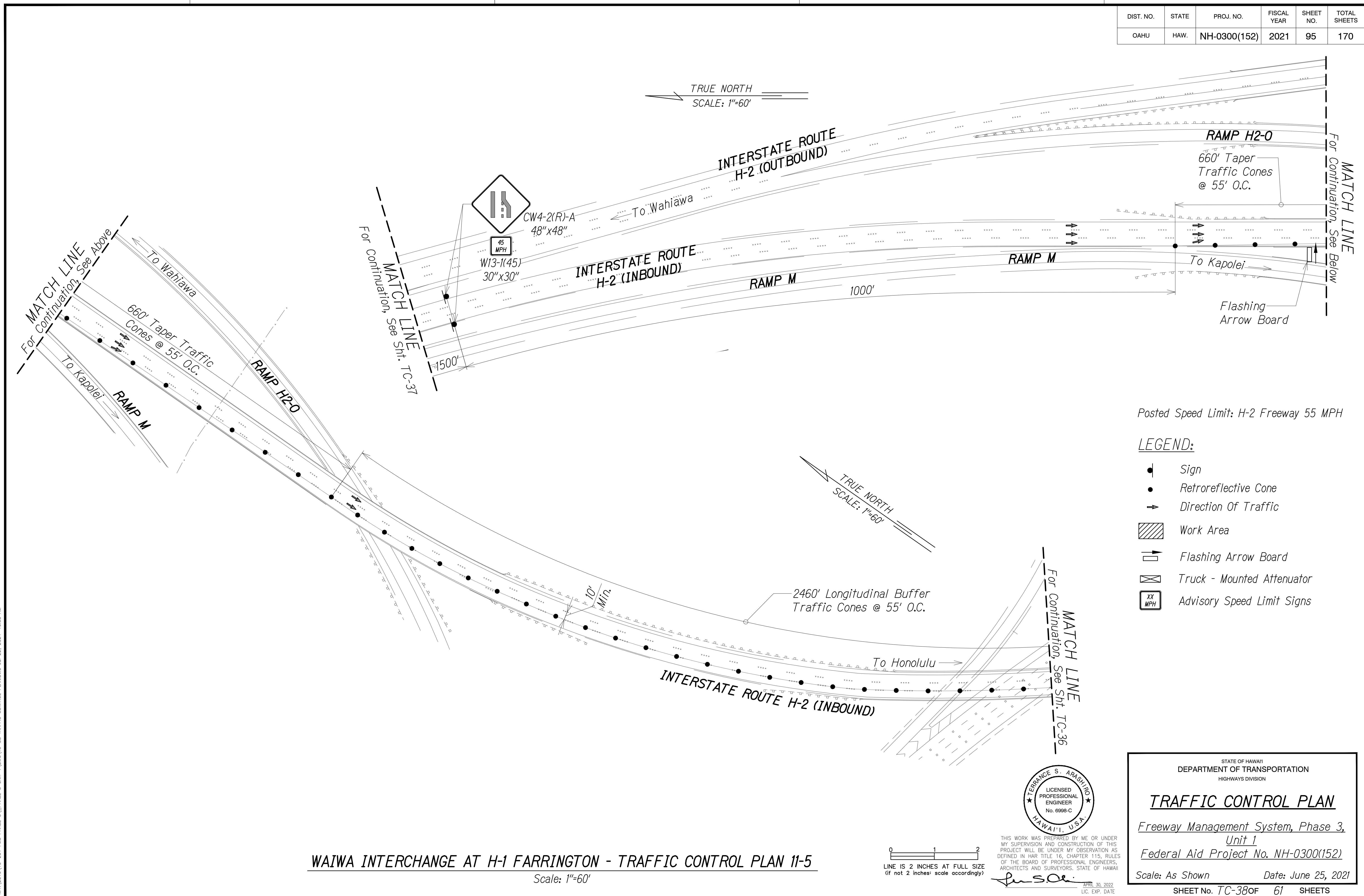
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-37 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	95	170



Posted Speed Limit: H-2 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⬇ Flashing Arrow Board
 - ⊠ Truck - Mounted Attenuator
 - XX MPH Advisory Speed Limit Signs

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

F:\A\2019\19-201-FMS PHASE 3\1-UNITS\UNITS-38 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:05 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 11-5
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

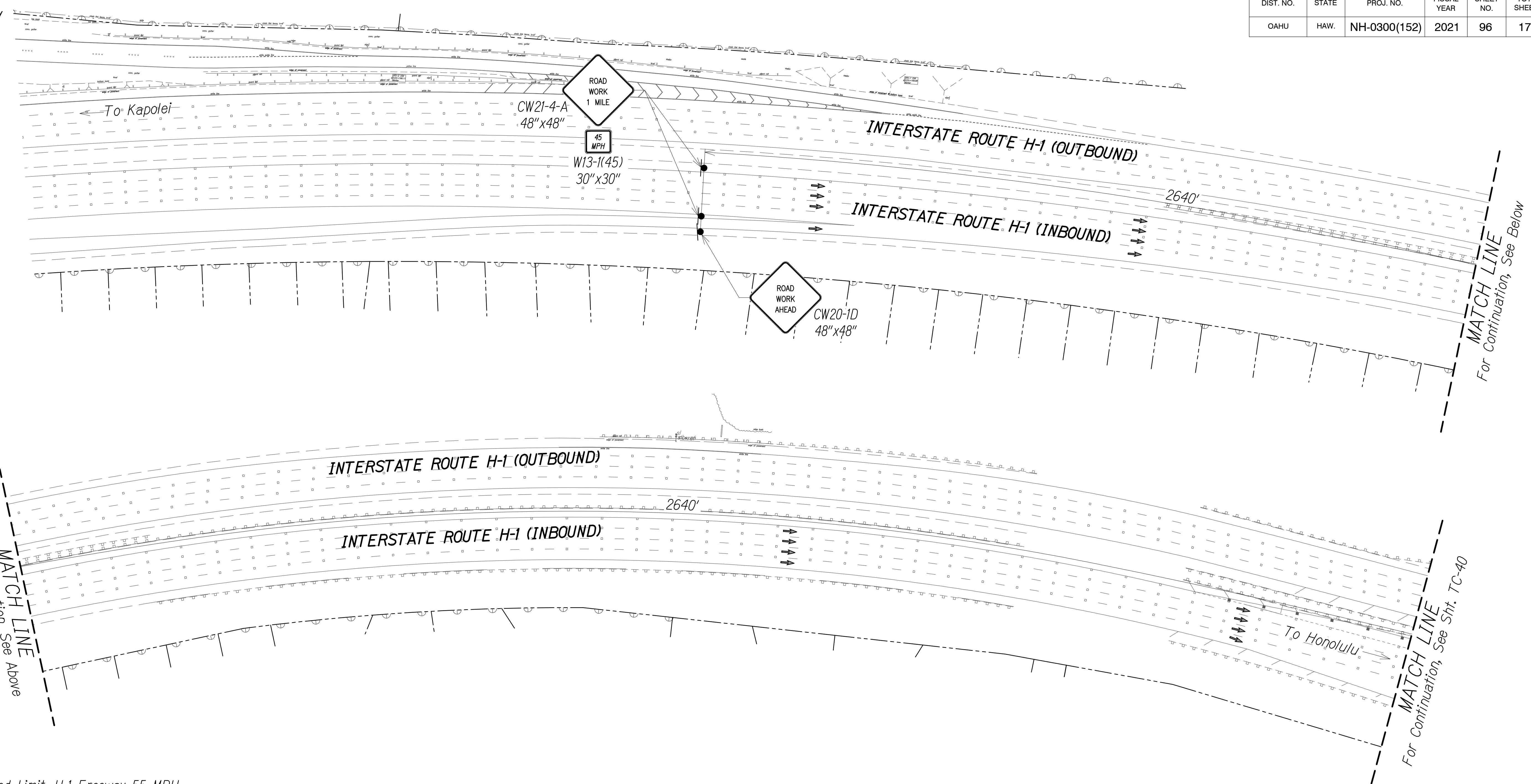
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-38 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	96	170

TRUE NORTH
SCALE: 1"=60'



TRUE NORTH
SCALE: 1"=60'

Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 12-1
Scale: 1"=60'

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____

F:\A\2019-19-201-FMS PHASE 3\1\DWG\TC-39 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:05 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

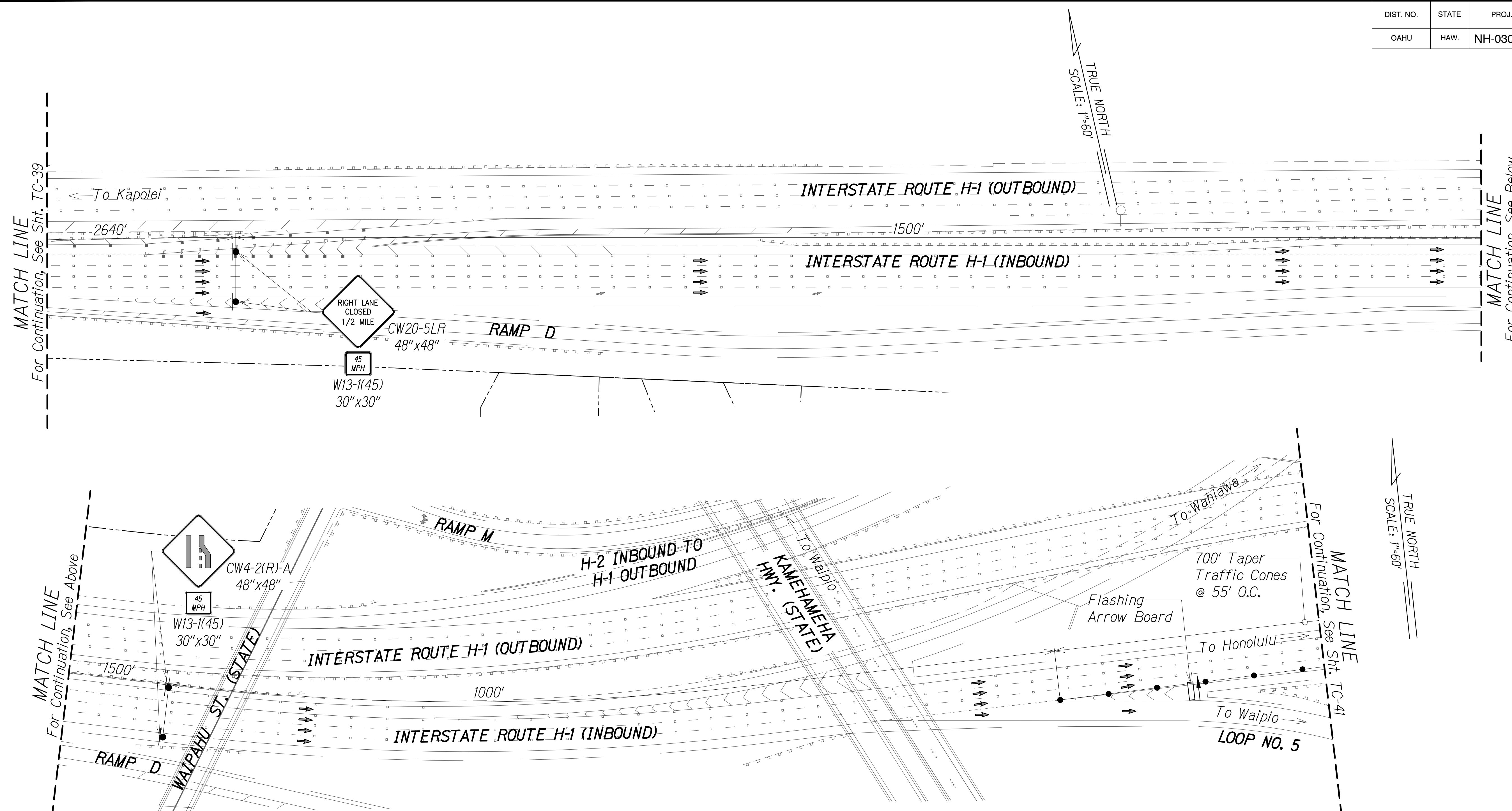
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-39 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	97	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

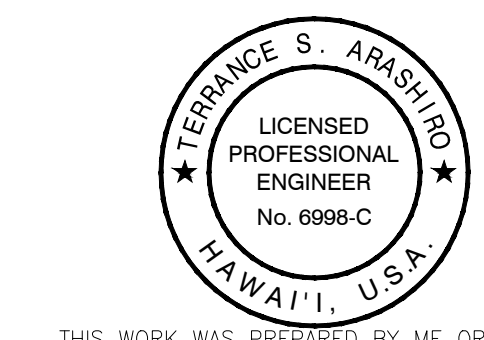
- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⇨ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 12-2
Scale: 1"=60'

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
DATE	____

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-40 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:07 AM

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

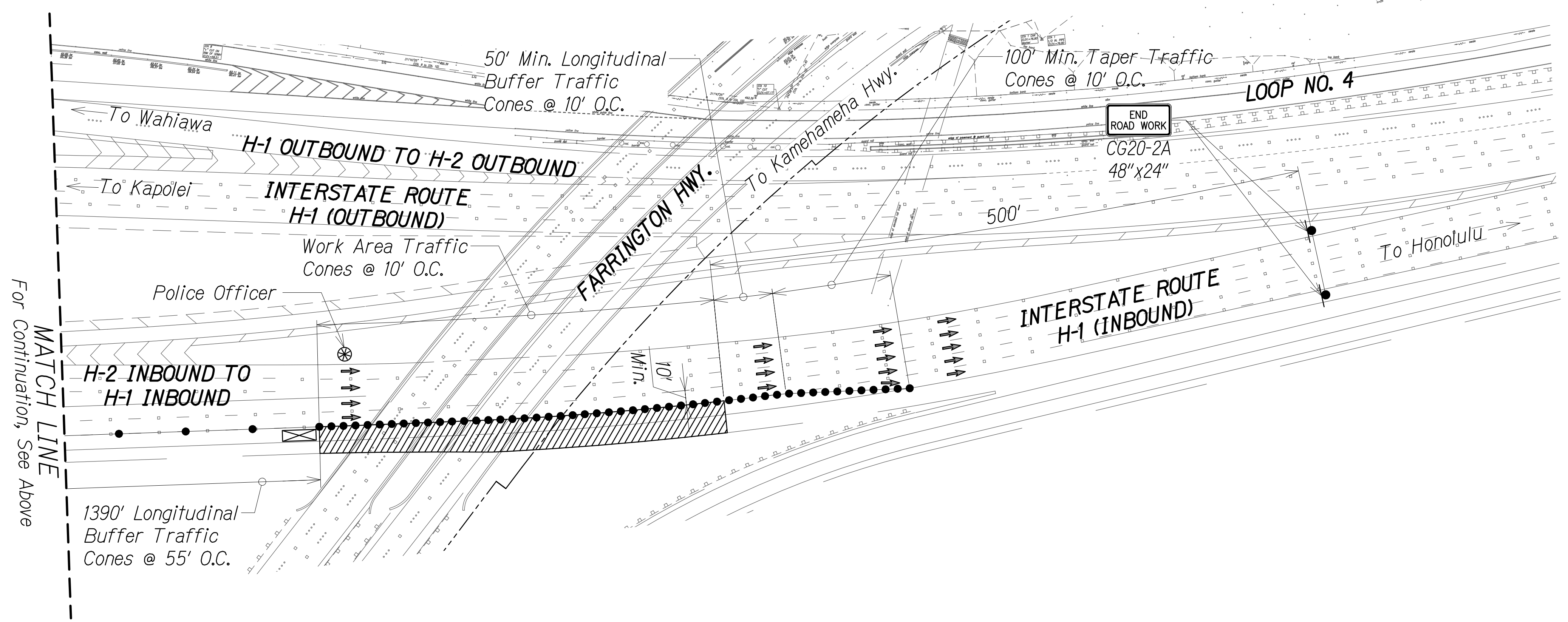
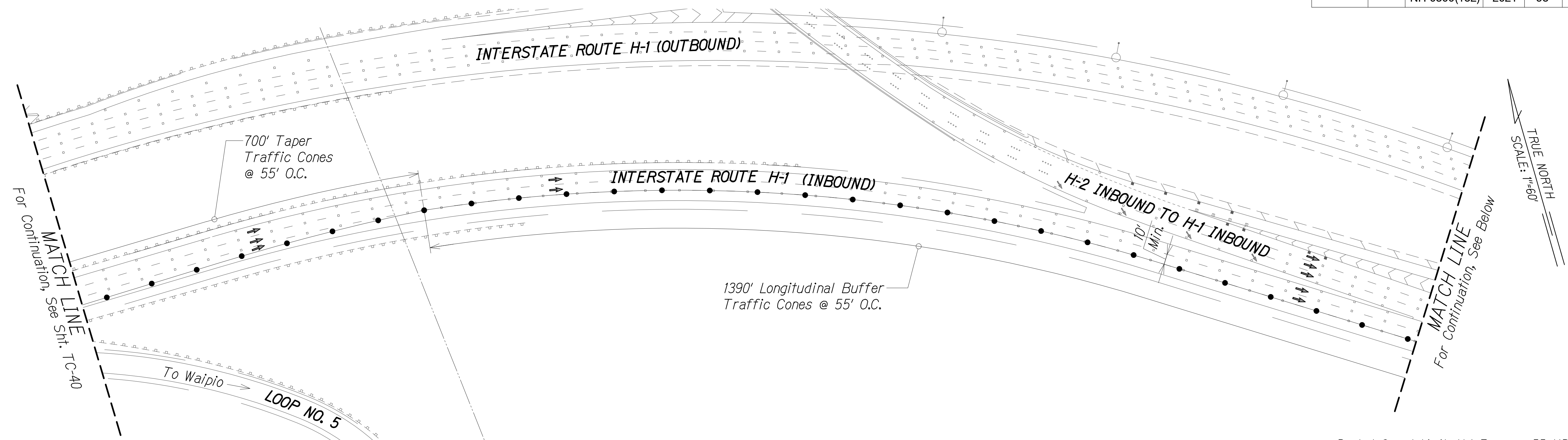
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-40 of 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	98	170



Posted Speed Limit: H-1 Freeway 55 MPH

LEGEND:

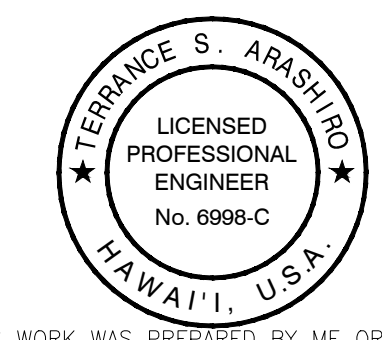
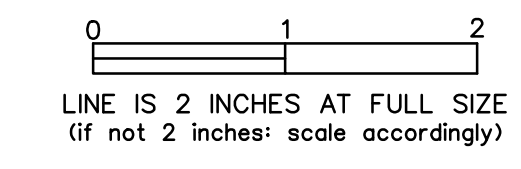
- Sign
- Retroreflective Cone
- Direction of Traffic
- ▨ Work Area
- ⚡ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- ⊙ Police Officer
- XX MPH Advisory Speed Limit Signs

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

FVA\2019\19-201-FMS PHASE 3\1\DWG\TC-41 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:08 AM

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 12-3

Scale: 1"=60'



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

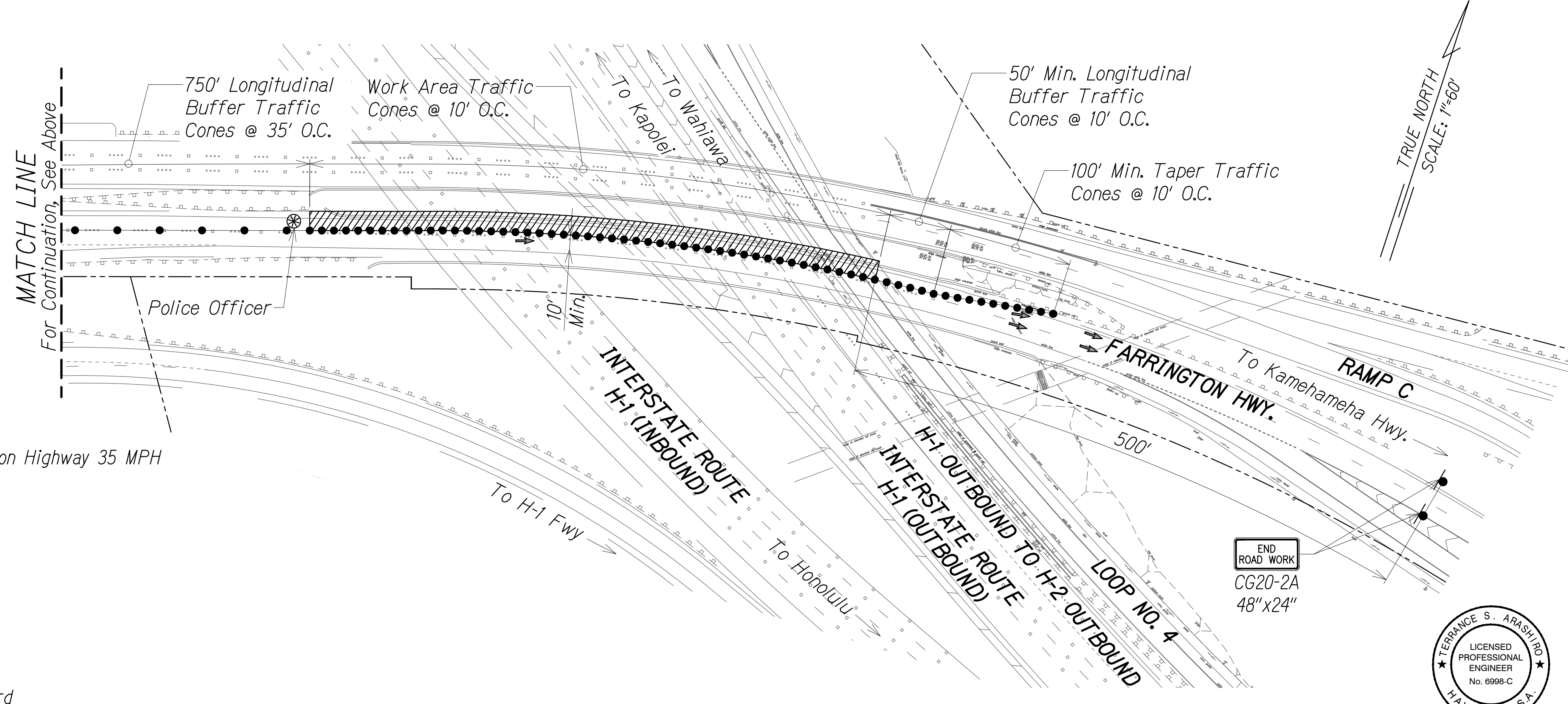
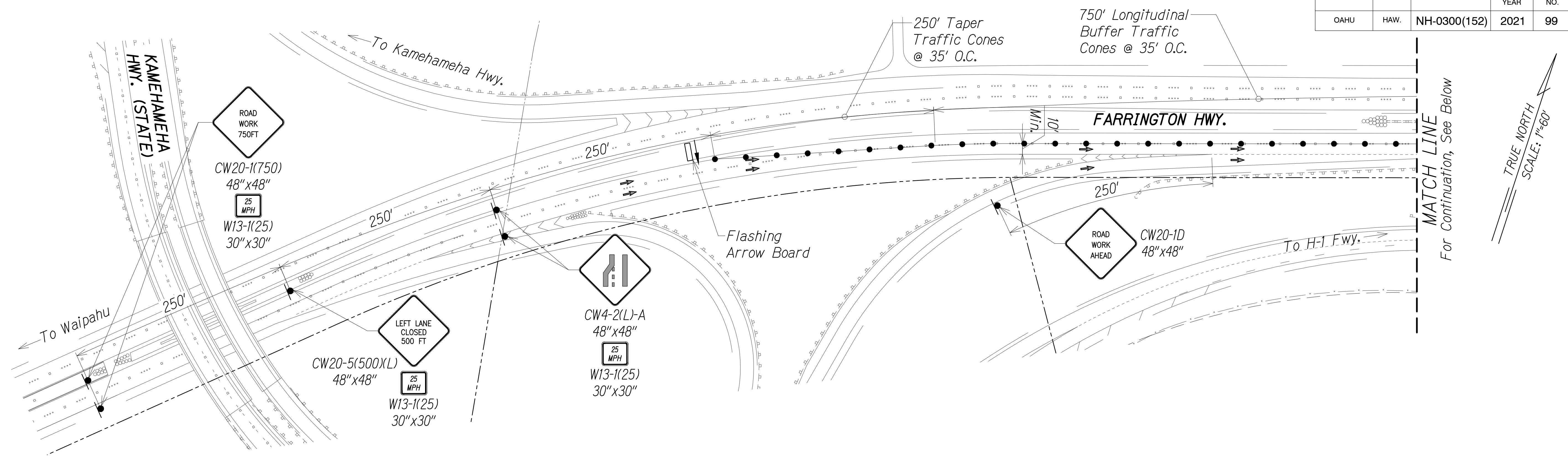
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-41 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	99	170



Posted Speed Limit: Farrington Highway 35 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Police Officer
- Advisory Speed Limit Signs

WAIWA INTERCHANGE AT H-1 FARRINGTON - TRAFFIC CONTROL PLAN 13
Scale: 1"=60'

DATE	_____
SURVEY PLOTTED BY	_____
DRANK BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

FNA\2019\19-201-FMS PHASE 3\1 UNIT\DWG\TC-42 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:08 AM

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

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

TERENCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

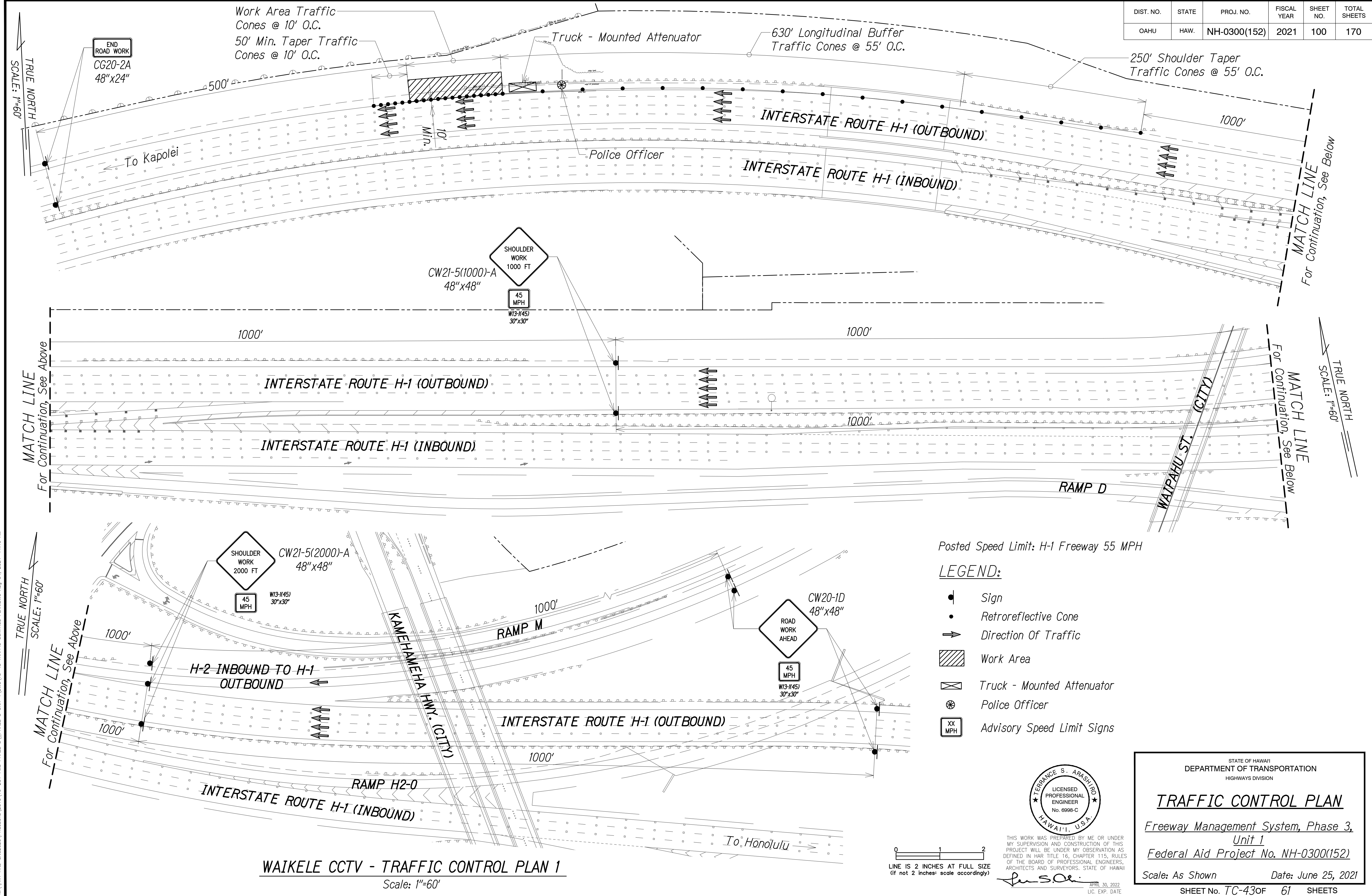
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-42 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	100	170



Posted Speed Limit: H-1 Freeway 55 MPH

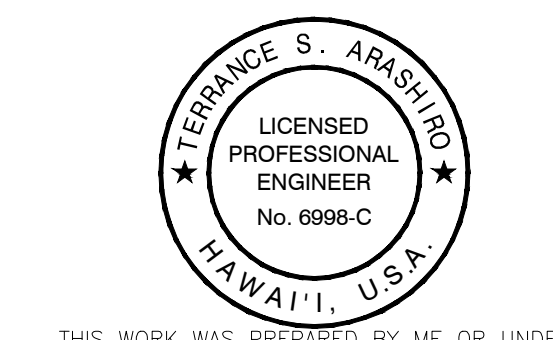
- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - ⊠ Truck - Mounted Attenuator
 - ⊙ Police Officer
 - XX MPH Advisory Speed Limit Signs

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

F:\A\174-HNL-ENG\2020\PROJECTS\2019-2021_FMS_PHASE_3\UNIT_1\DWG\TC-43_TRAFFIC_CONTROL_PLAN.DWG Aug 04, 2021 11:19 AM

WAIKELE CCTV - TRAFFIC CONTROL PLAN 1
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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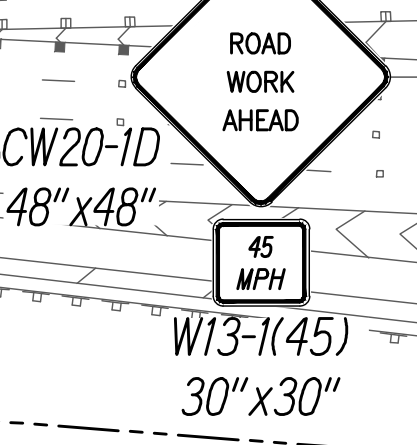
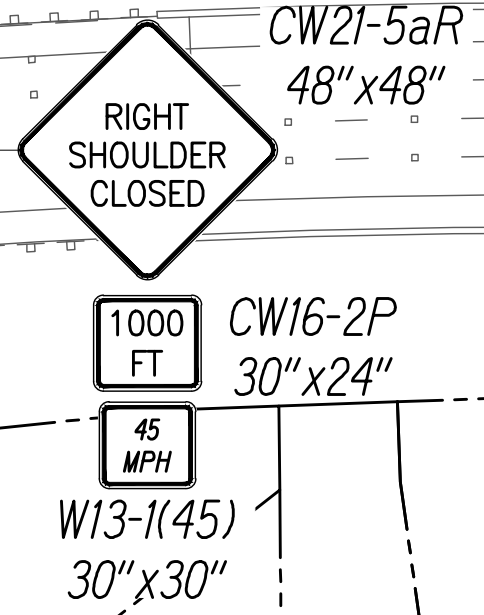
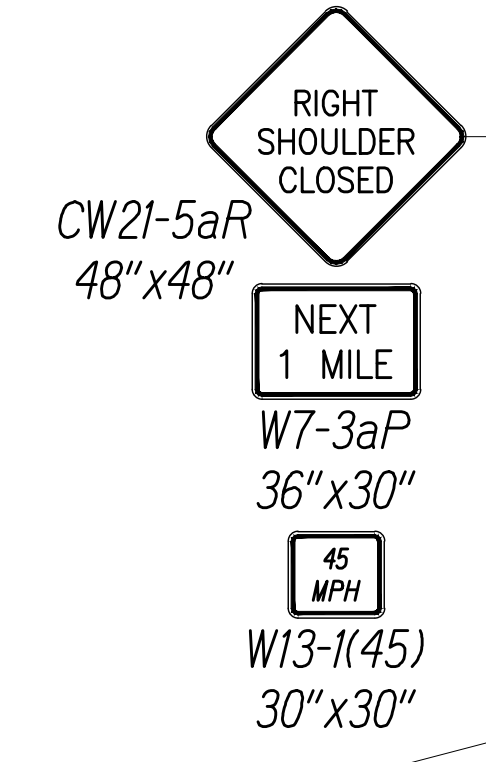
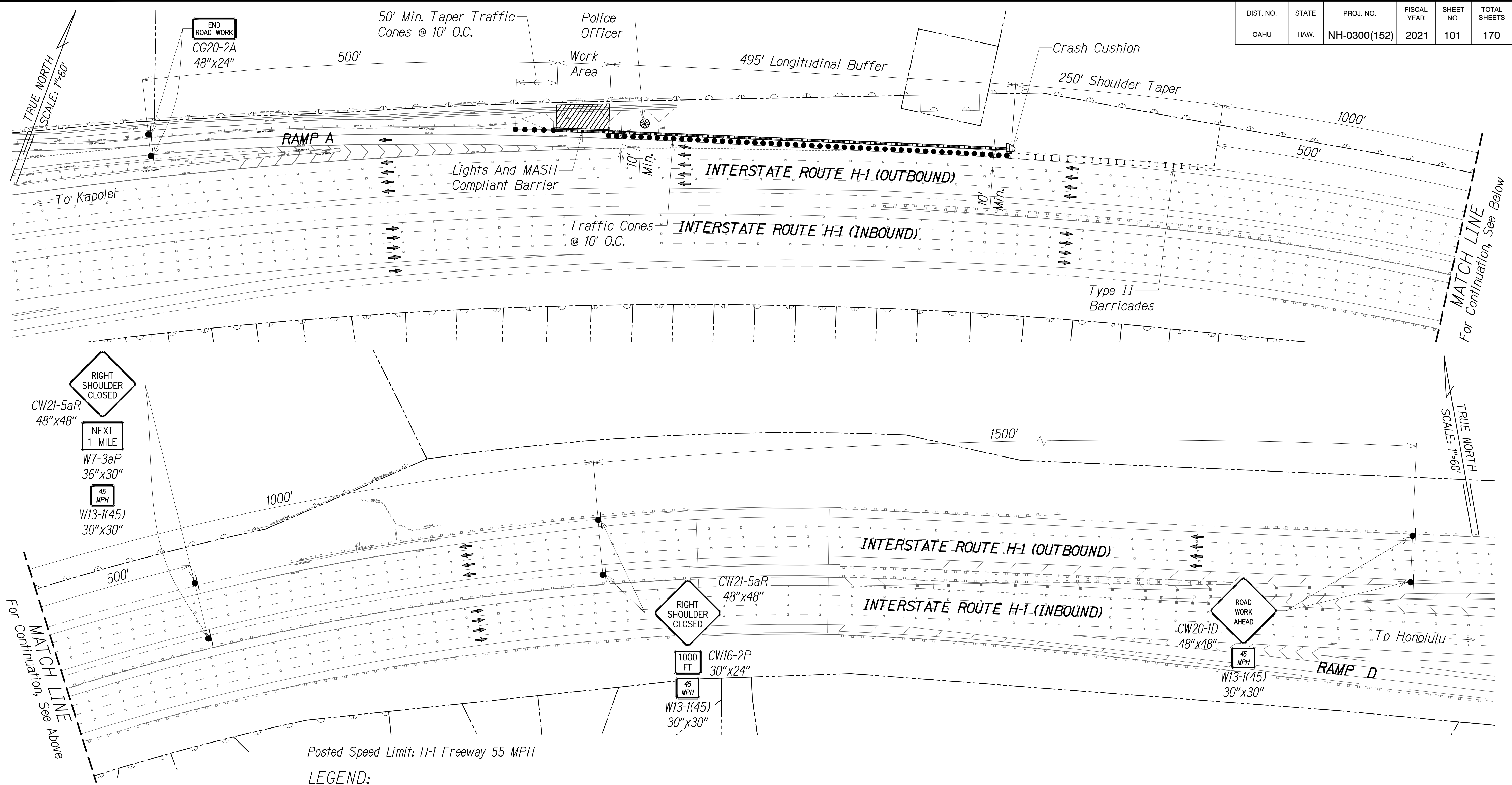
Terence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
SHEET No. TC-43 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	101	170



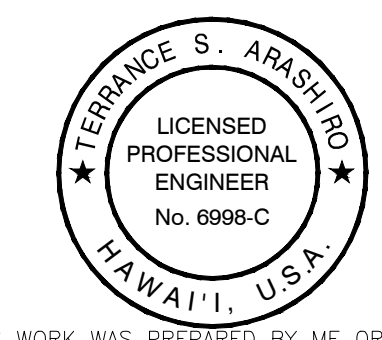
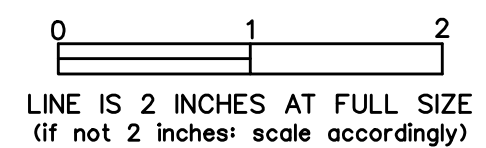
Posted Speed Limit: H-1 Freeway 55 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - ➔ Direction Of Traffic
 - ▨ Work Area
 - Type II Barricade
 - Lights And MASH Compliant Barrier
 - ⊗ Police Officer
 - XX MPH Advisory Speed Limit Signs

WAIKELE CCTV - TRAFFIC CONTROL PLAN 2
Scale: 1"=60'

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

F:\A\174-HNL-ENG\2020\PROJECTS\2019\19-201 FMS PHASE 3\1\VIEW\TC-44 TRAFFIC CONTROL PLAN.DWG Aug 04, 2021-11:24 AM



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

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

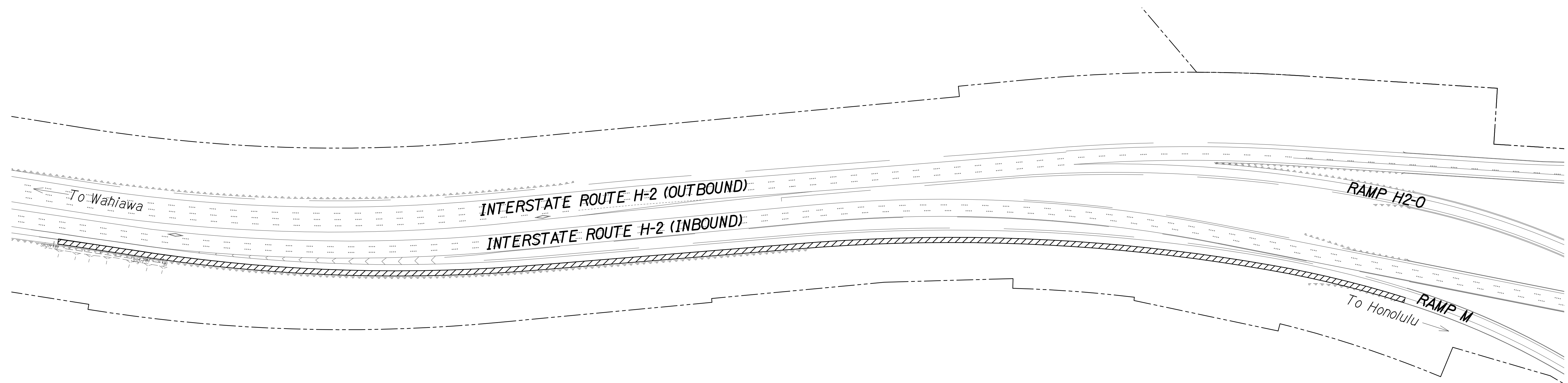
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
SHEET No. TC-44 of 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	102	170

TRUE NORTH
SCALE: 1"=100'



H-2 SOUTH CCTV - TRAFFIC CONTROL PLAN
Scale: 1"=100'

NOTE:

- Speed Limit: H-2 Freeway 55 MPH.
- See Sht. TC-46 For Typical Traffic Control Plan Of Shoulder Work.

LEGEND:

Work Area

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

F:\A\2019\19-201-FMS PHASE 3\1\DWG\TC-45 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:11 AM



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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

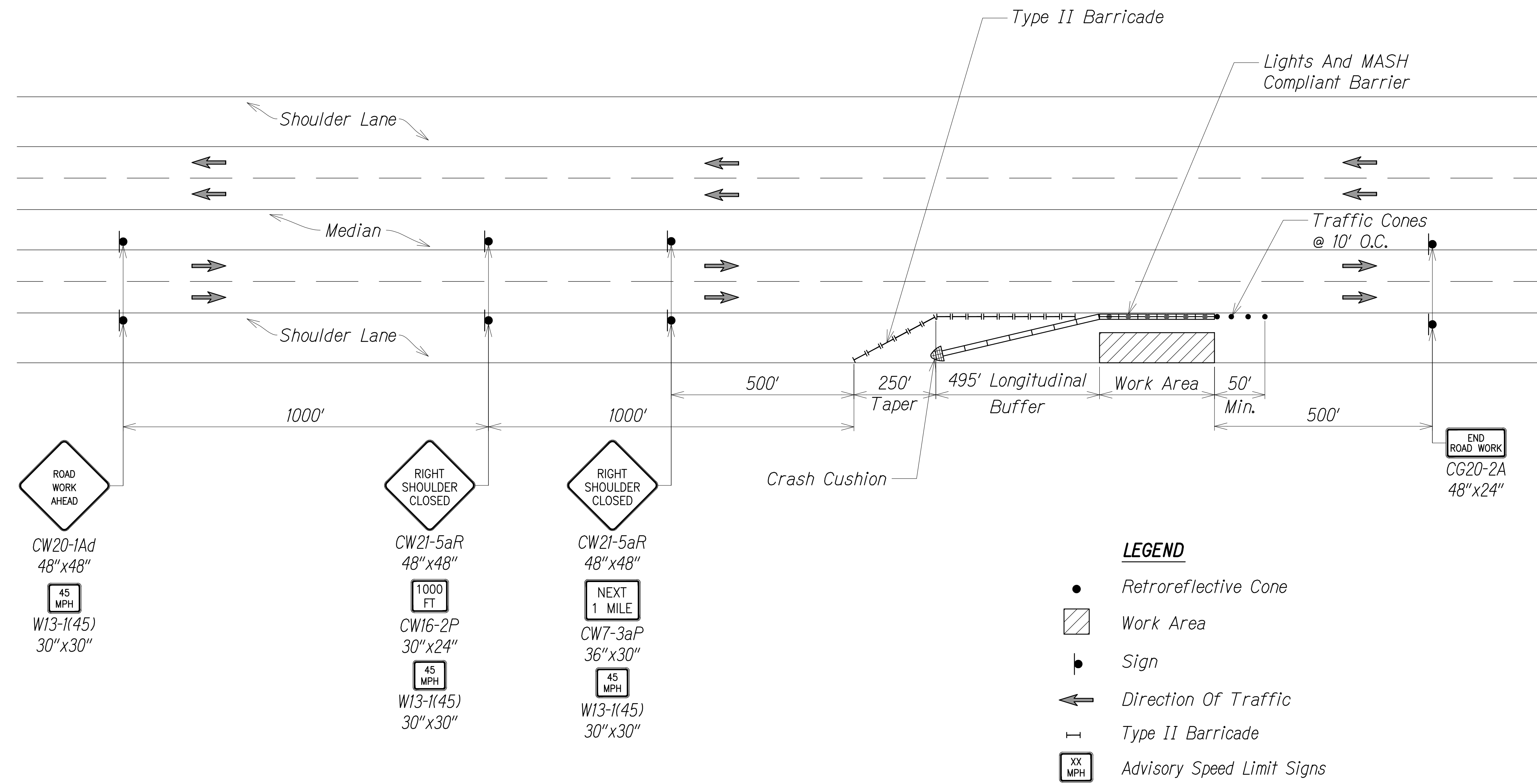
TRAFFIC CONTROL PLAN

*Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)*

Scale: As Shown Date: June 25, 2021

SHEET No. TC-45 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	103	170



TYPICAL TRAFFIC CONTROL PLAN - H-2 SOUTH CCTV
Not To Scale

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

F:\A\2019\19-201 EMS PHASE 3\1\DWG\TC-46 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:11 AM

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

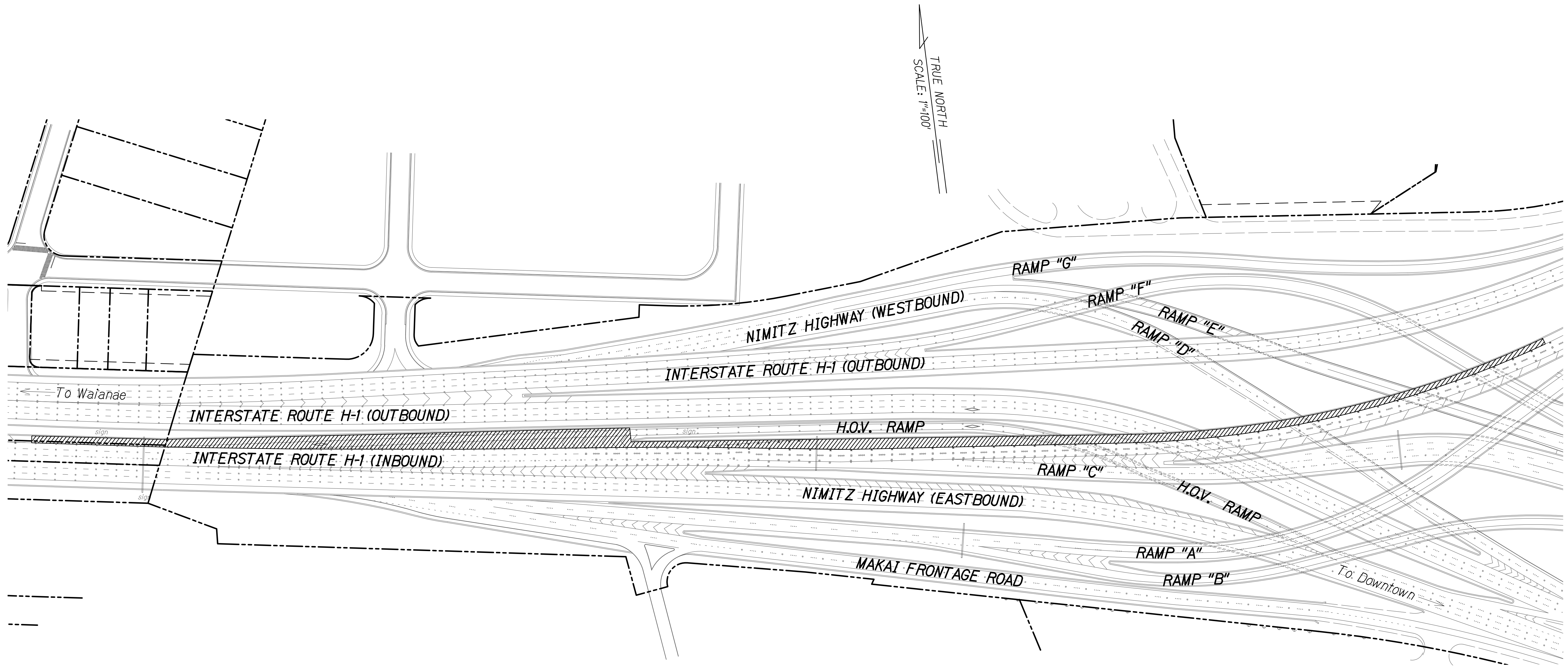
*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-46 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	104	170



KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN

Scale: 1"=100'

NOTE:

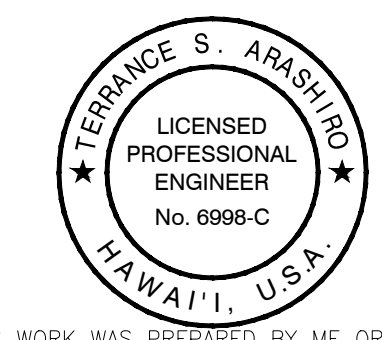
- Speed Limit: H-1 Freeway 45 MPH.
- See Sht. TC-48 For Typical Traffic Control Plan Of Shoulder Work.

LEGEND:

Work Area

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

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-47 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 10:12 AM



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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

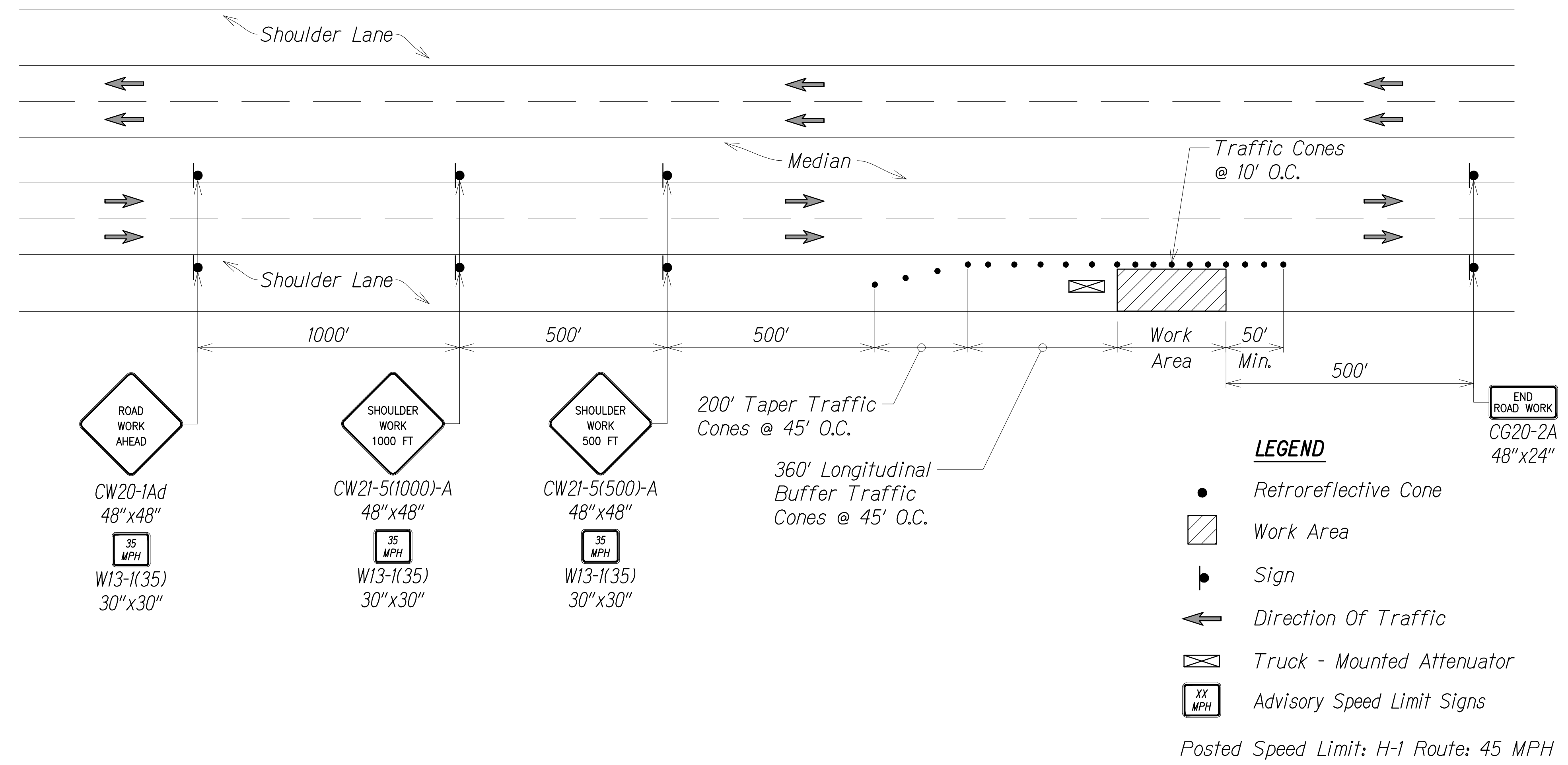
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-47 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	105	170



**TYPICAL TRAFFIC CONTROL PLAN WORK ON SHOULDER
OF INTERSTATE ROUTE H-1 INBOUND AT KEEHI IC**
Not To Scale

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

F:\A\2019\19-201 EMS PHASE 3\1\DWG\TC-48 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:12 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

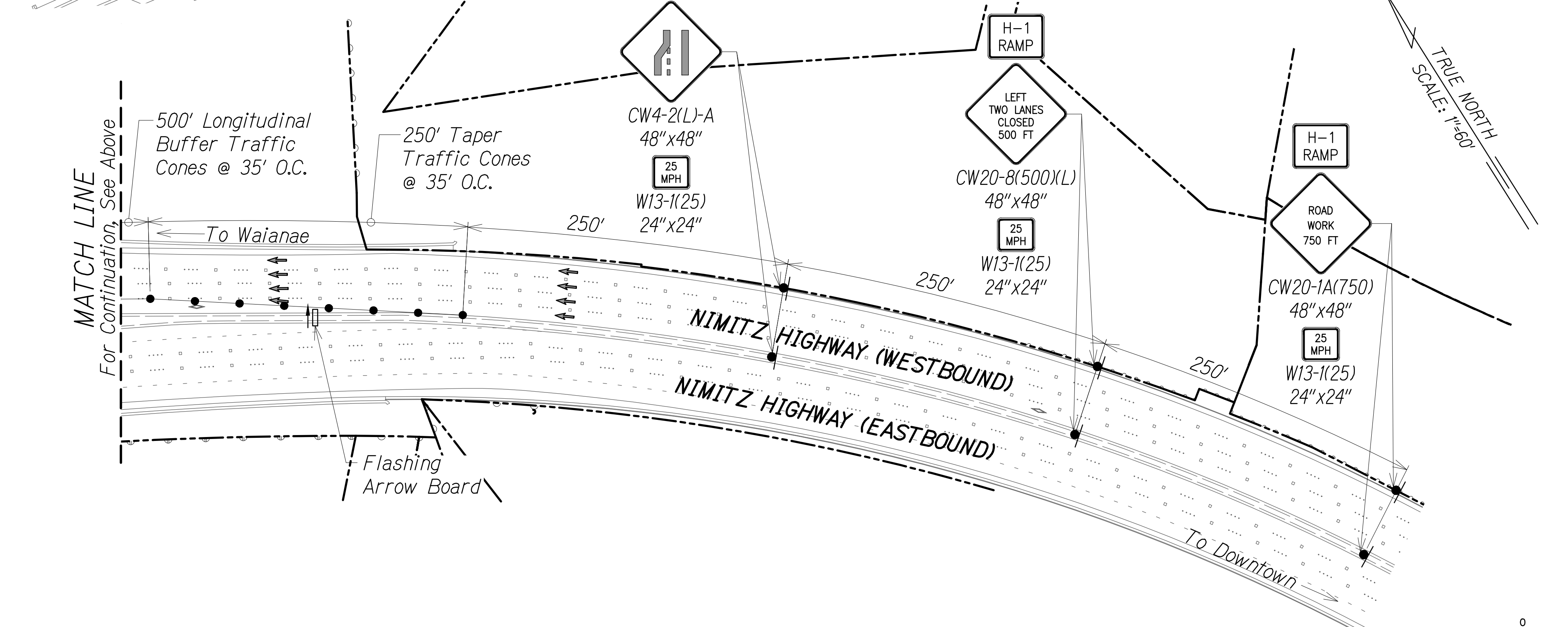
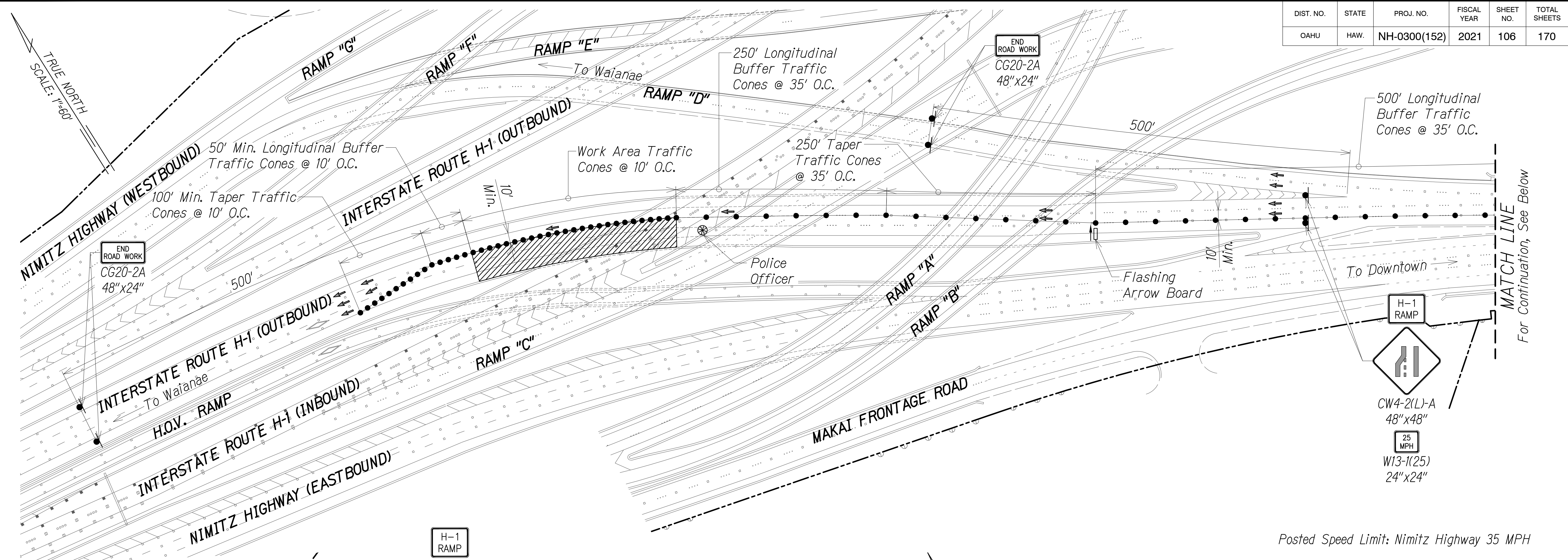
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. *TC-48* OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	106	170



Posted Speed Limit: Nimitz Highway 35 MPH

LEGEND:

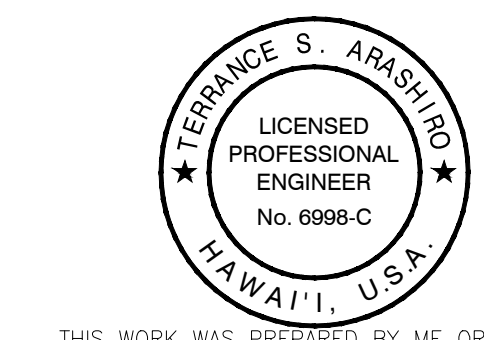
- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⚡ Flashing Arrow Board
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

SURVEY PLOTTED BY _____
 DRAWN BY _____
 DESIGNED BY _____
 CHECKED BY _____
 NO. _____
 F:\A\2019\19-201_FMS PHASE 3\1\DWG\TC-49 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:13 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 1
 Scale: 1"=60'

LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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 APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

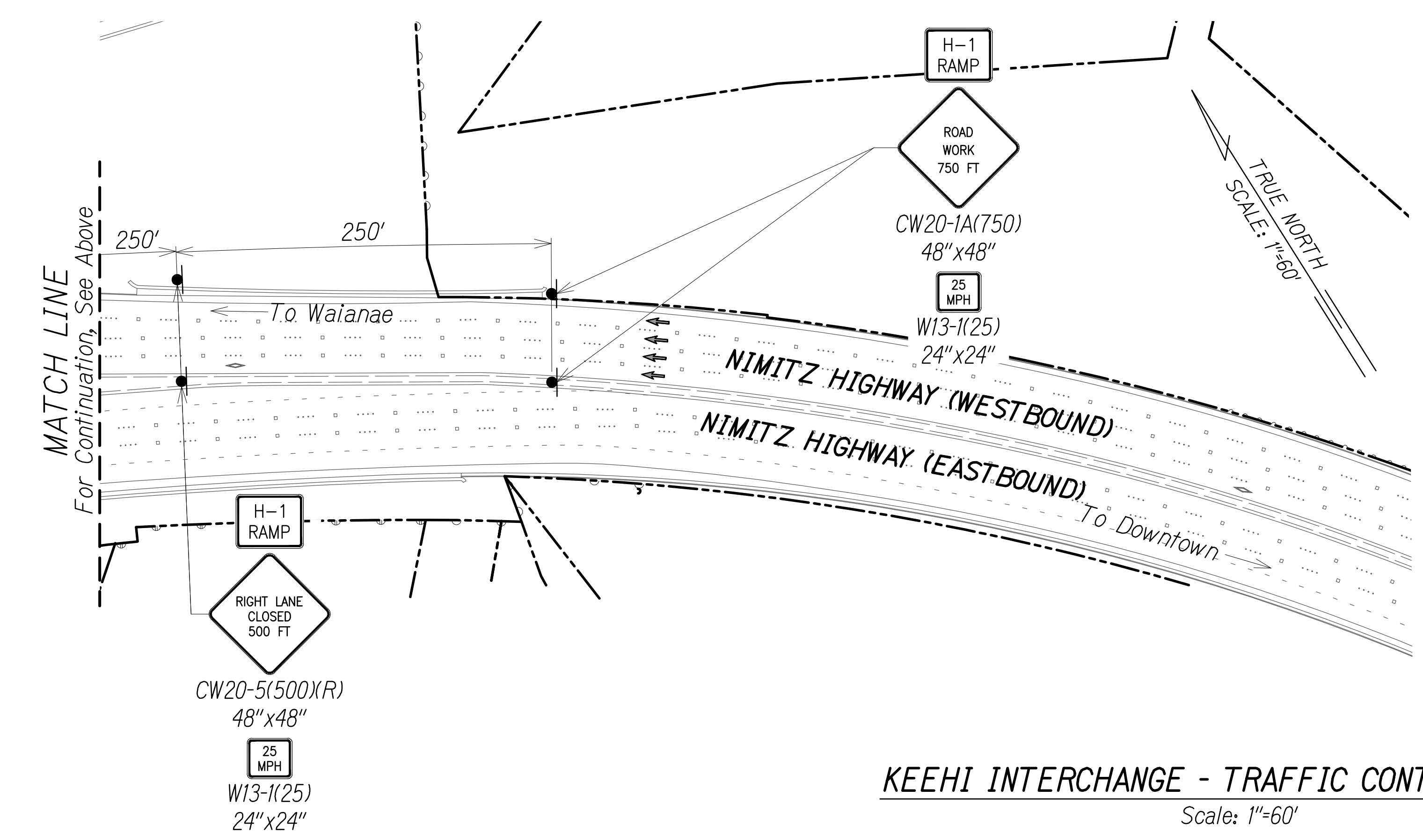
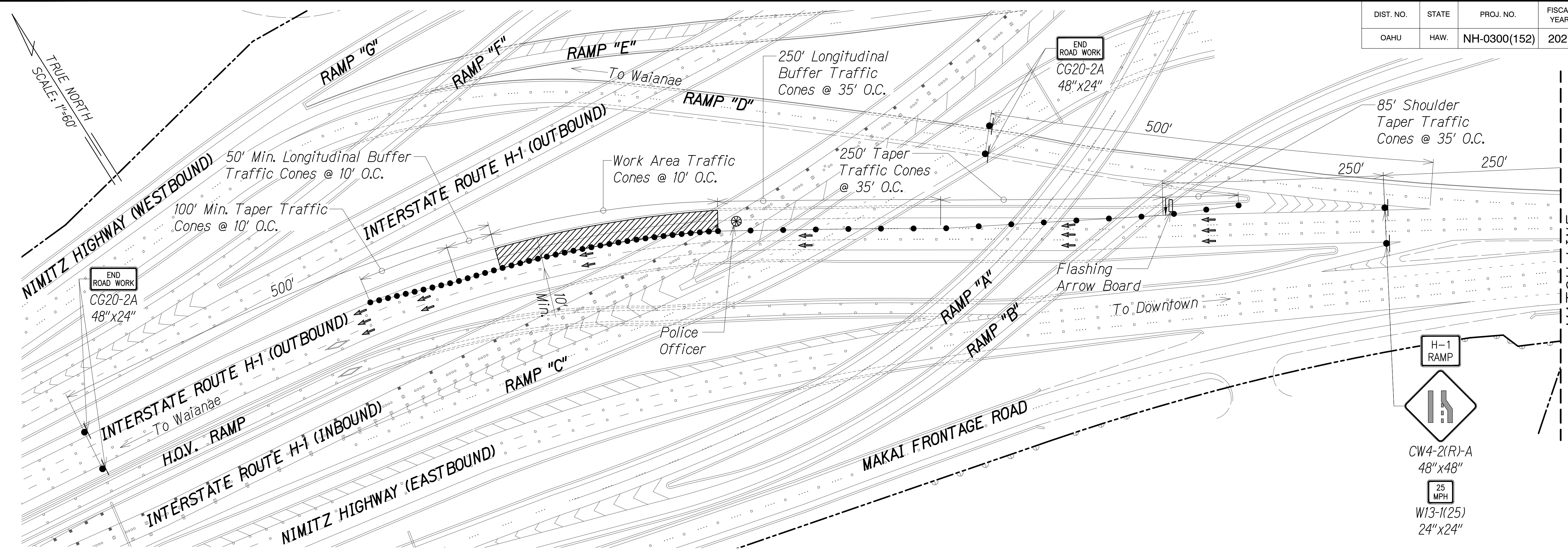
Freeway Management System, Phase 3,
 Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-49 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	107	170



Posted Speed Limit: Nimitz Highway 35 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⇄ Flashing Arrow Board
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
DESIGNED BY	_____
TRACED BY	_____
DATE	_____

F:\A\2019\19-201_FMS_PHASE_3\1\DWG\TC-50 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 10:13 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 2
Scale: 1"=60'

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

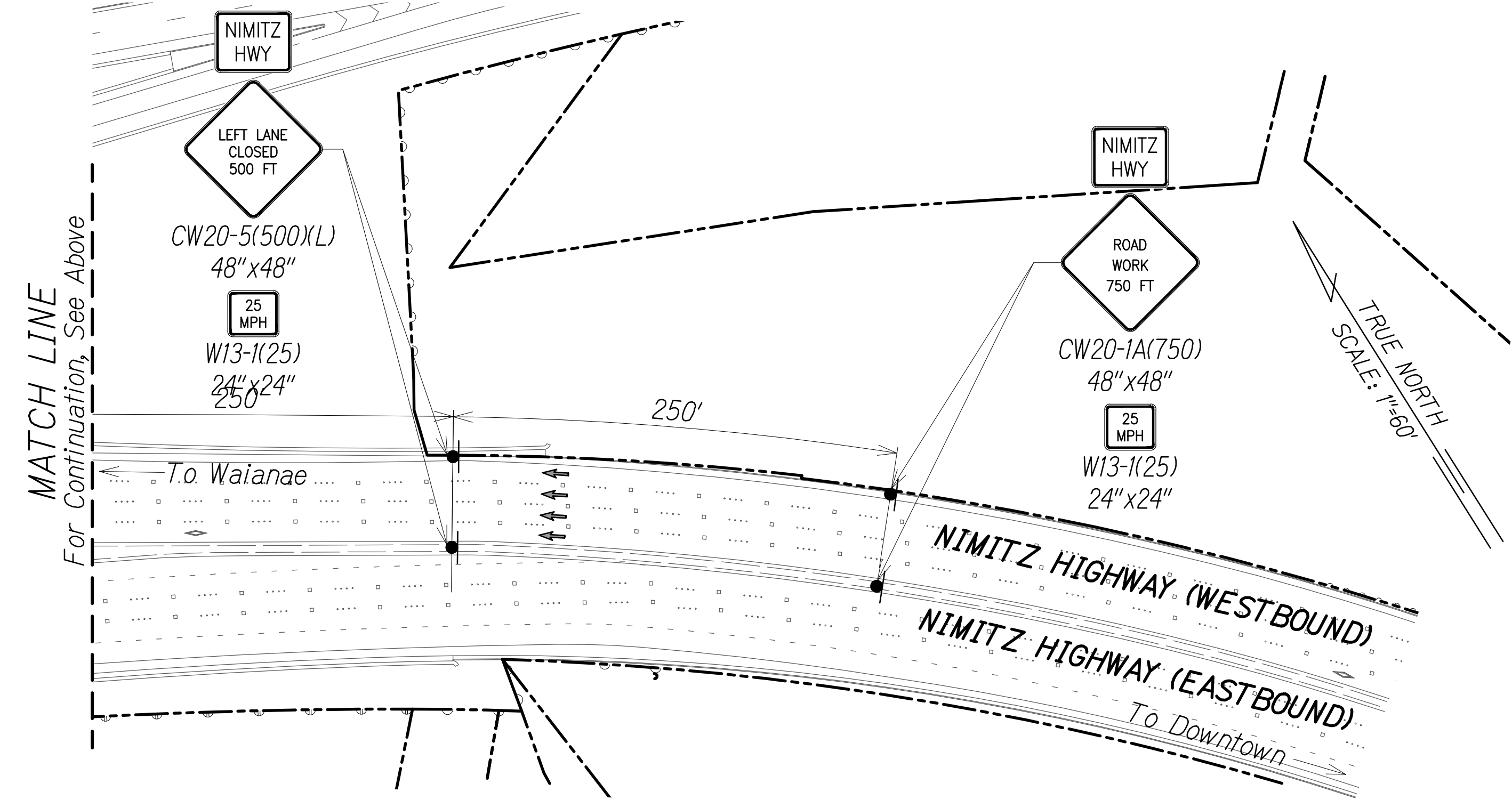
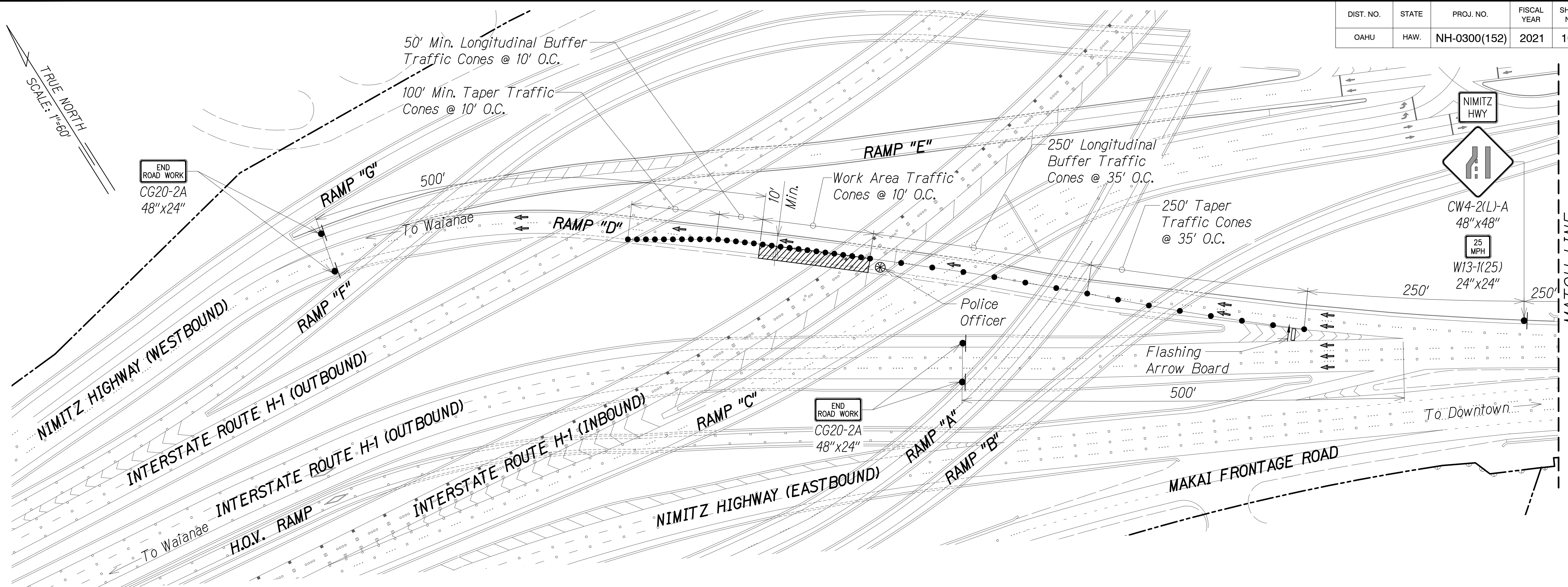
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-50 of 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	108	170



Posted Speed Limit: Nimitz Highway 35 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⏏ Flashing Arrow Board
- ⊙ Police Officer
- XX MPH Advisory Speed Limit Signs

DATE	BY
DESIGNED BY	TERENCE S. ARASHIRO
CHECKED BY	
QUANTITIES BY	
NOTE BOOK	
ORIGINAL PLAN	
SURVEY PLOTTED BY	

FWA\2019\19-201 EMS PHASE 3\UNIT 1\DWG\TC-51 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:14 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 3
Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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 APR 30, 2022
 LIC. EXP. DATE

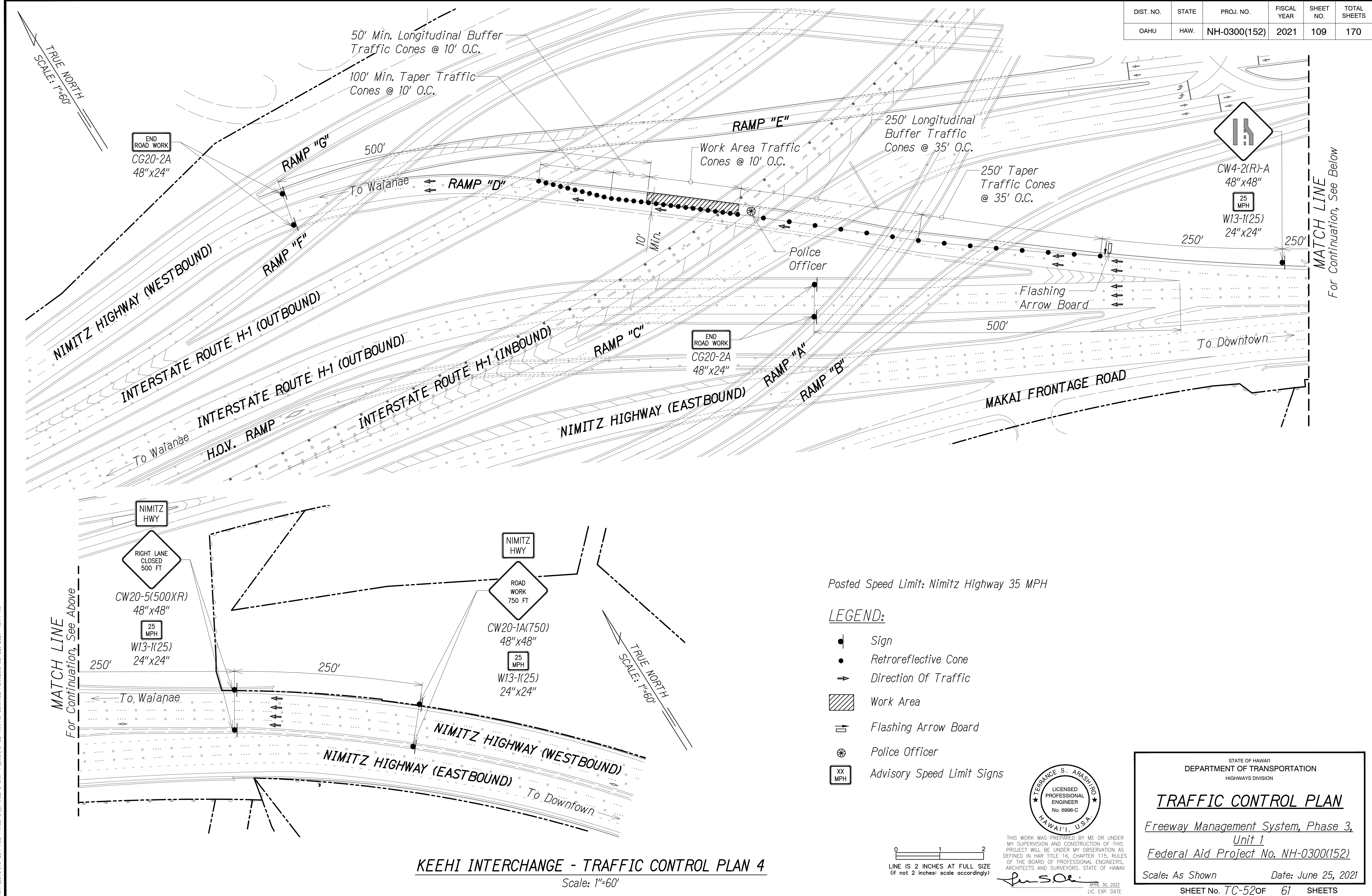
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
 SHEET No. TC-51 OF 61 SHEETS

MATCH LINE
For Continuation, See Below

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	109	170



MATCH LINE
For Continuation, See Above

MATCH LINE
For Continuation, See Below

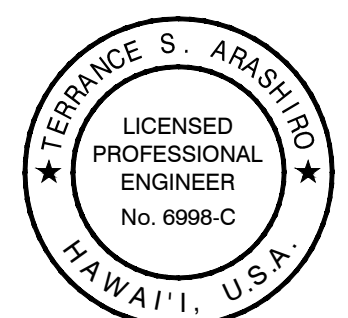
PWA\2019\19-201-EMS PHASE 3\1 UNIT\DWG\TC-52 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:14 AM
 SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGNED BY: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 No. _____

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 4
 Scale: 1"=60'

Posted Speed Limit: Nimitz Highway 35 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - Work Area
 - Flashing Arrow Board
 - Police Officer
 - Advisory Speed Limit Signs

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

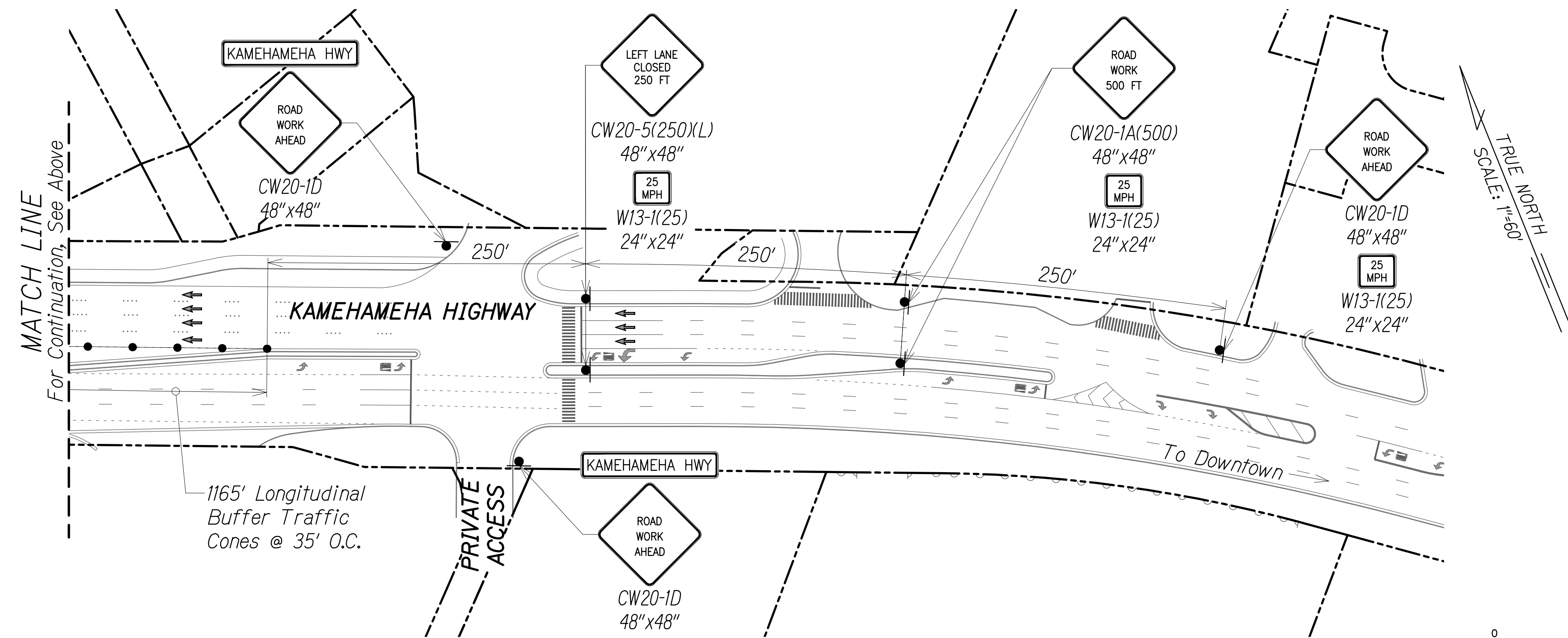
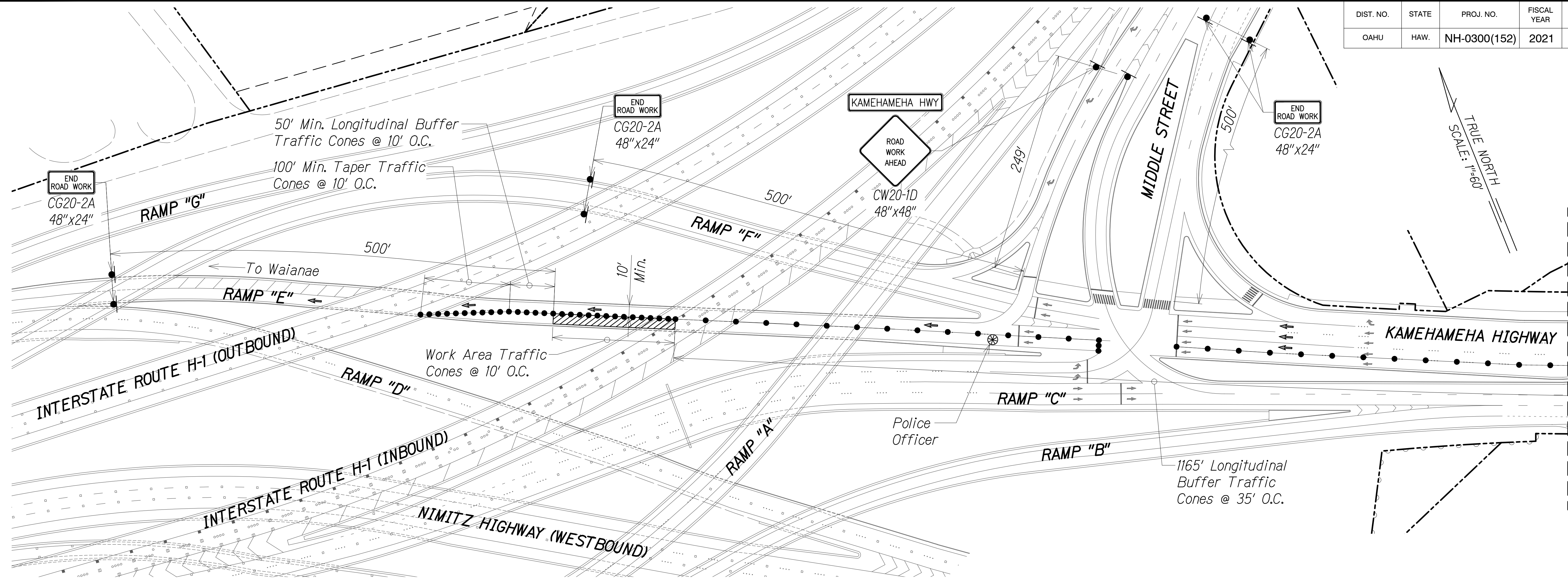
*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-52 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	110	170



Posted Speed Limit: Kamehameha Highway 35 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⊗ Police Officer
- XX MPH Advisory Speed Limit Signs

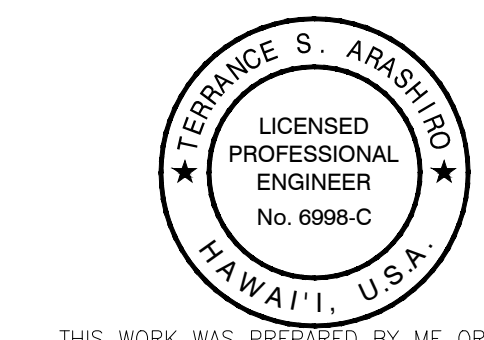
DATE	_____
SURVEY PLOTTED BY	_____
DRANK BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

FNA\2019\19-201 EMS PHASE 3\UNIT 1\DWG\TC-53 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 10:15 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 5

Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

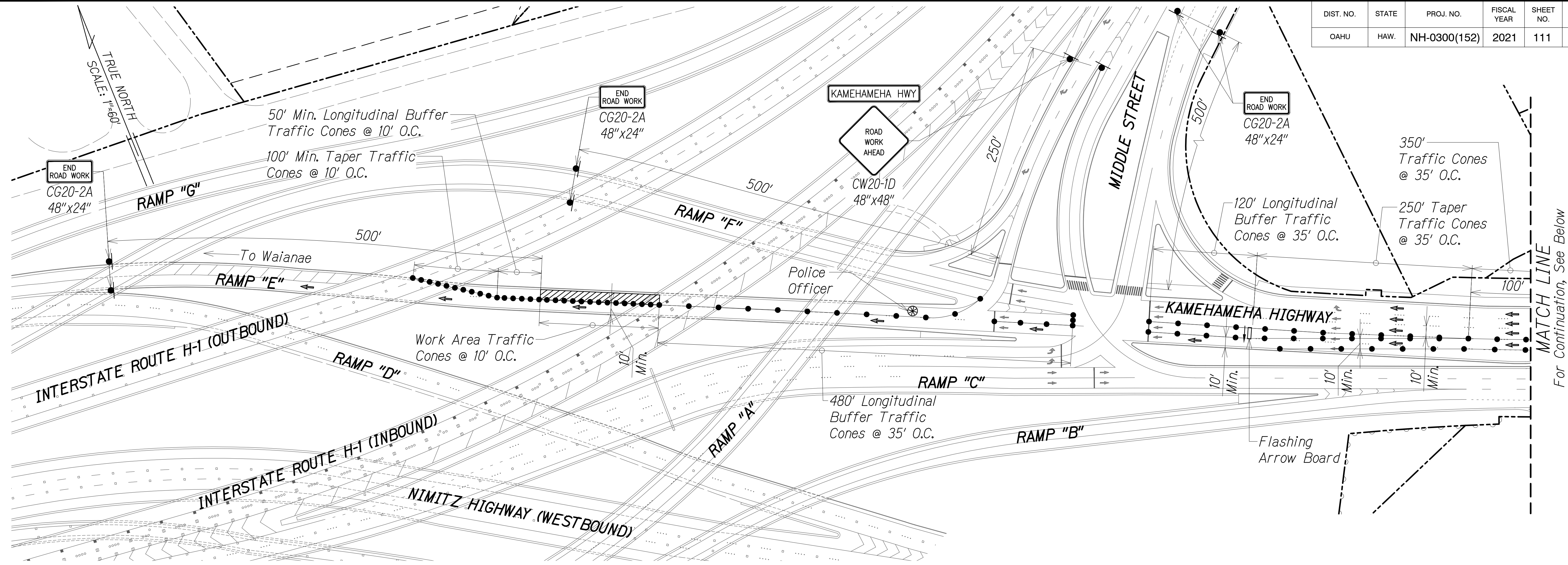
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-53 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	111	170

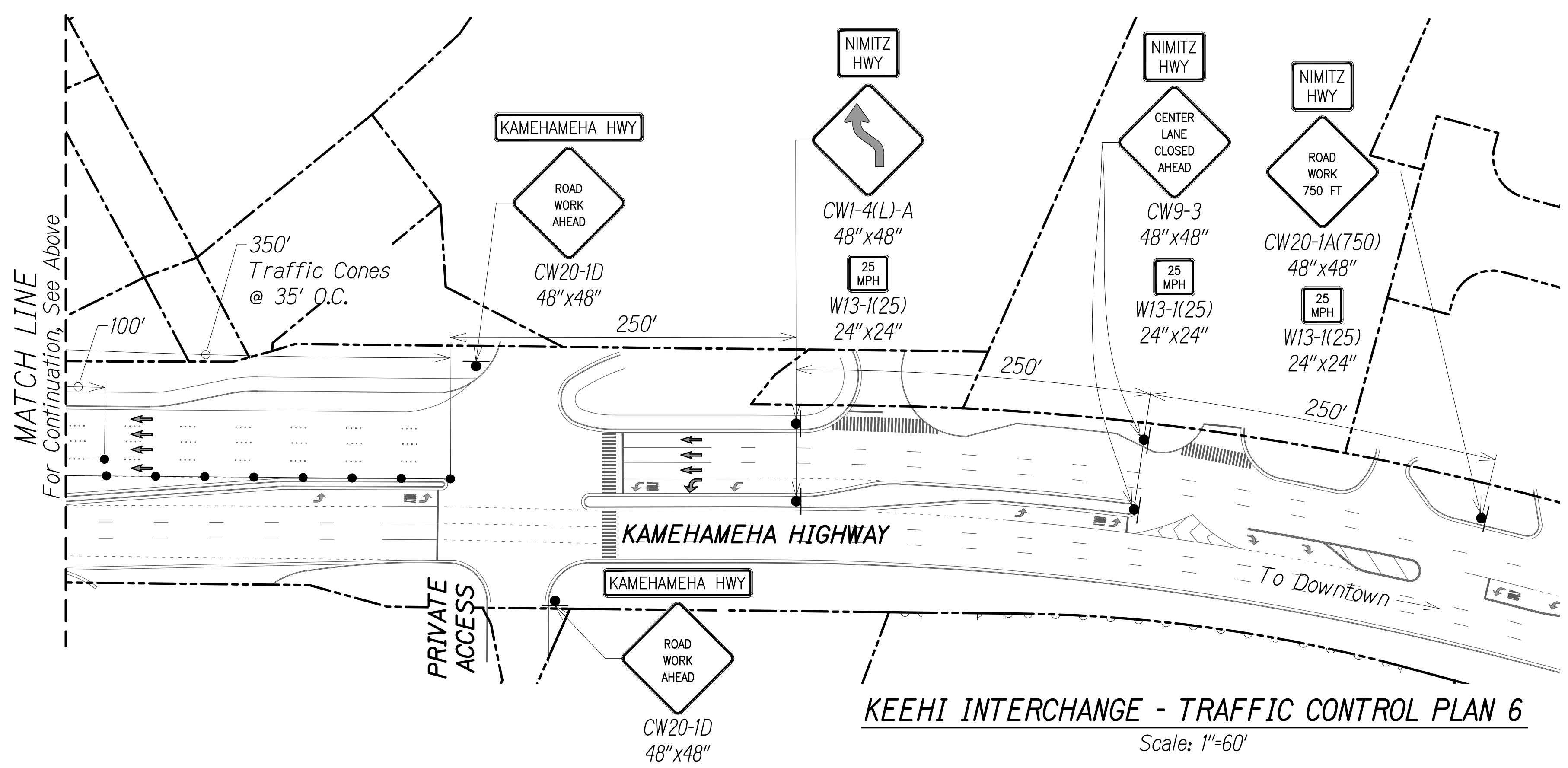


MATCH LINE
For Continuation, See Below

Posted Speed Limit: Kamehameha Highway 35 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⊙ Police Officer
- XX MPH Advisory Speed Limit Signs



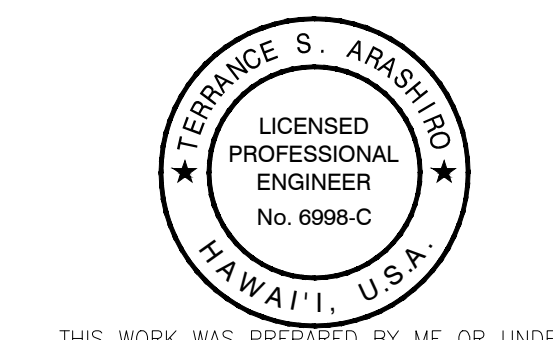
KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 6

Scale: 1"=60'

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
DATE	_____
DESIGNED BY	_____
CHECKED BY	_____

FWS\2019\19-201-FMS PHASE 3\1\DWG\TC-54 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:16 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

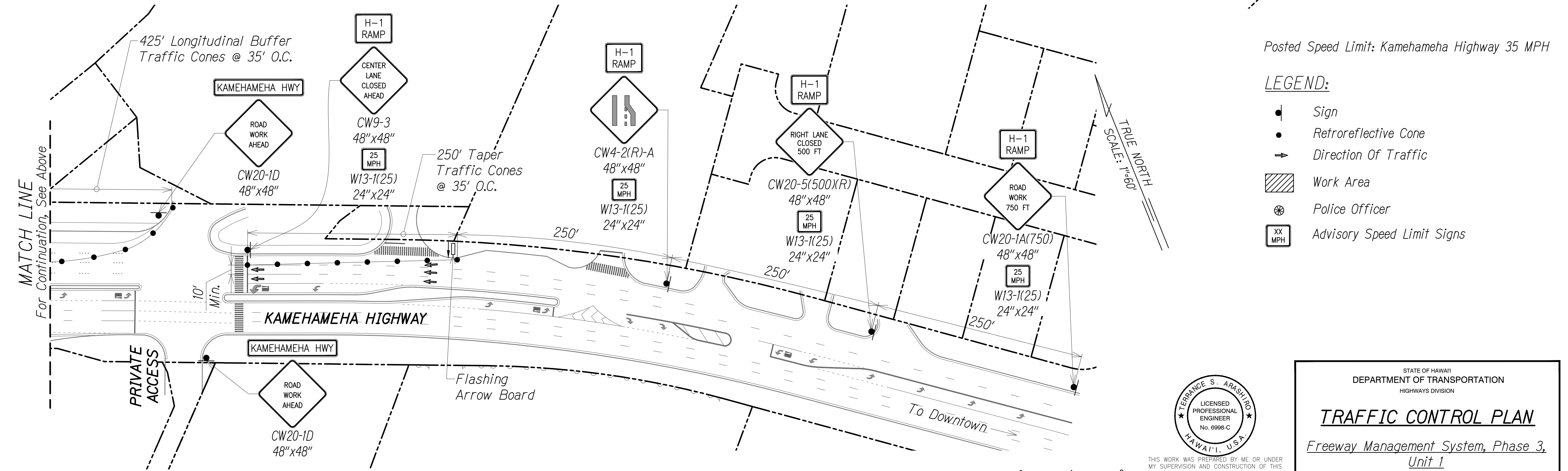
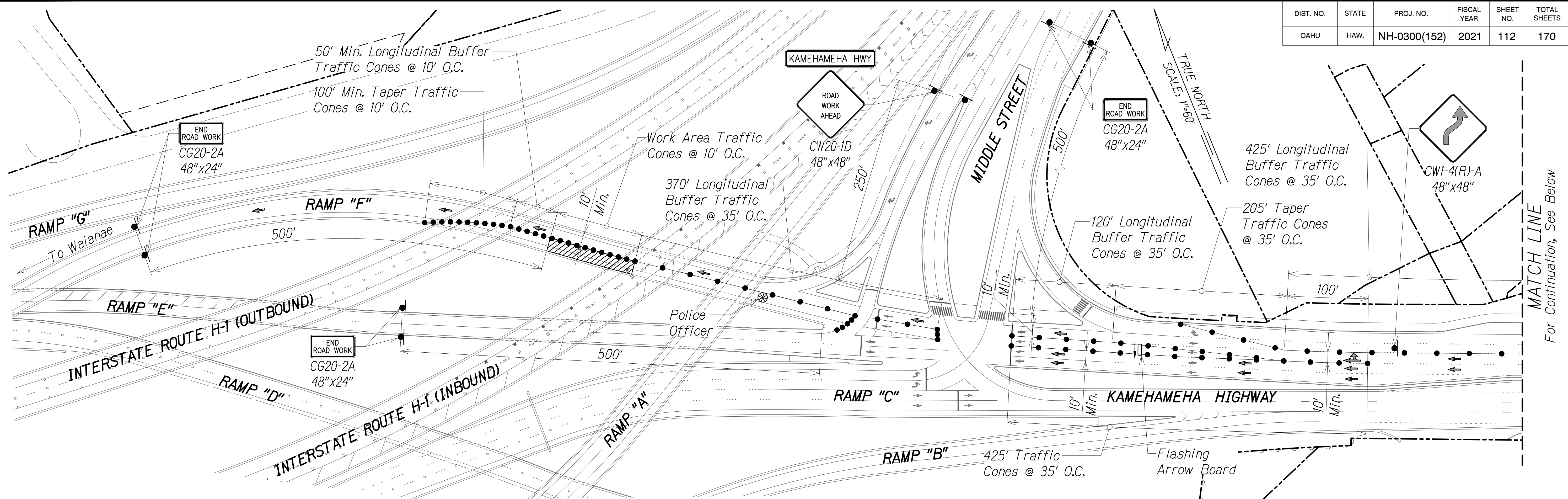
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-54 of 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	112	170



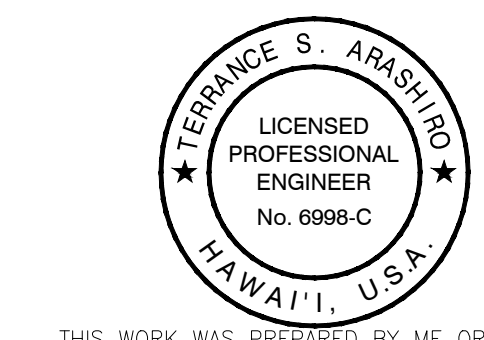
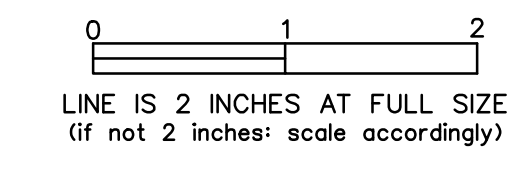
Posted Speed Limit: Kamehameha Highway 35 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⊗ Police Officer
 - XX MPH Advisory Speed Limit Signs

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
NOTE BOOK	_____
ORIGINAL PLAN	_____
TRACED BY	_____
NO.	_____

PWA\2019\19-201_FMS PHASE 3\UNIT 1\DWG\TC-55 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 10:17 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 7
 Scale: 1"=60'



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Terence S. Arashiro
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

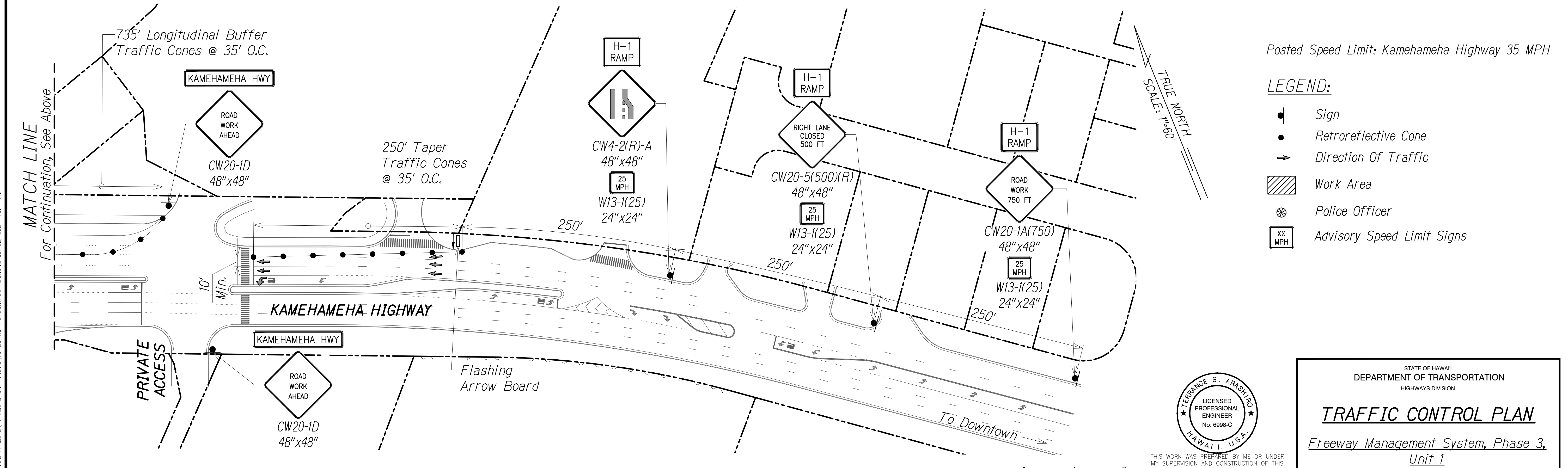
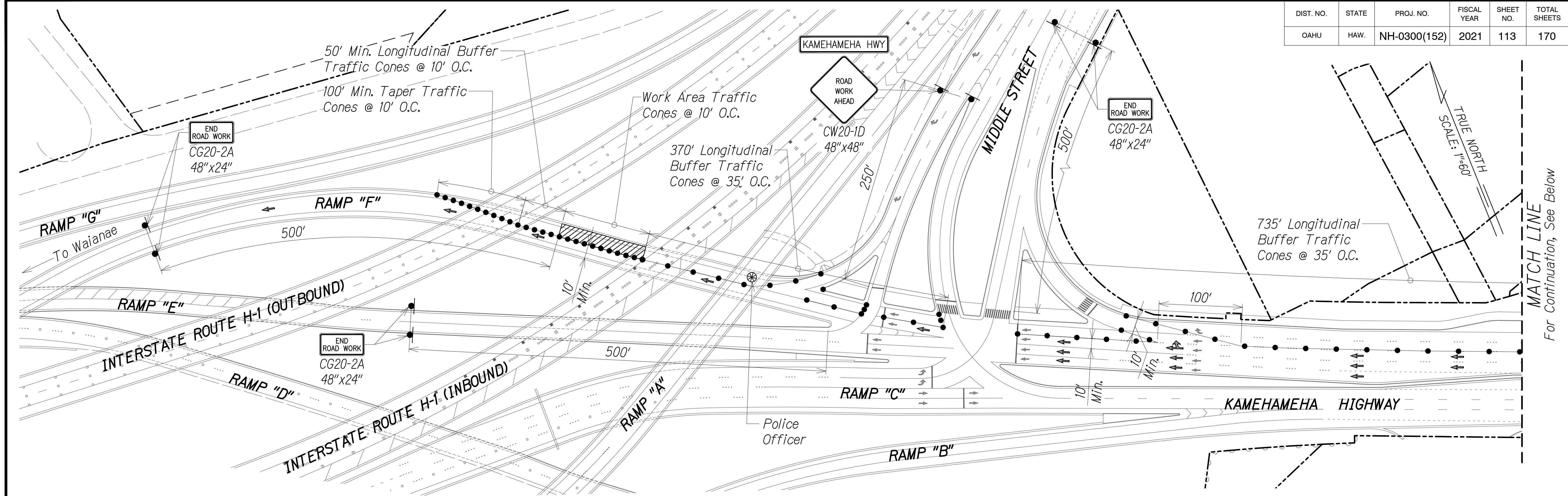
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-55 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	113	170



Posted Speed Limit: Kamehameha Highway 35 MPH

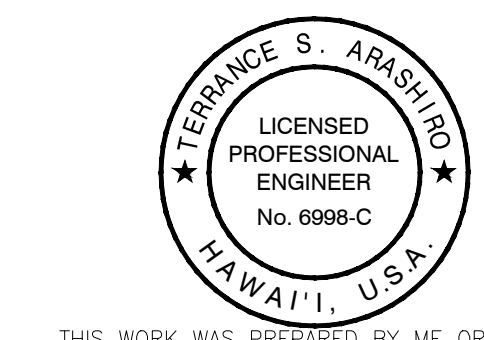
- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⊗ Police Officer
 - XX MPH Advisory Speed Limit Signs

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
DESIGNED BY	_____
TRACED BY	_____
DATE	_____

PWA 2019-19-201 - FMS PHASE 3 - UNIT 1 (W/TC-56 TRAFFIC CONTROL PLAN) DMC, JUL 22, 2021 - 10:17 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 8
Scale: 1"=60'

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashiro
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

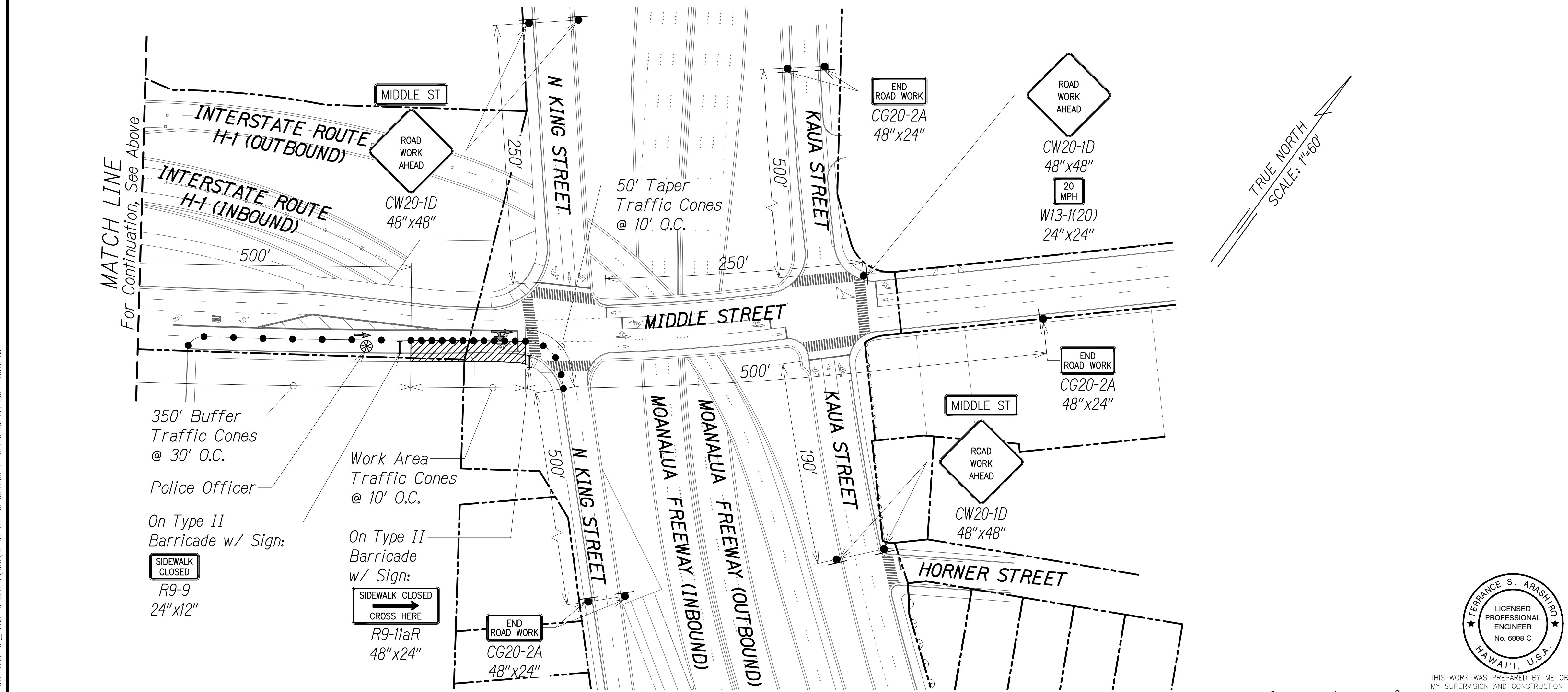
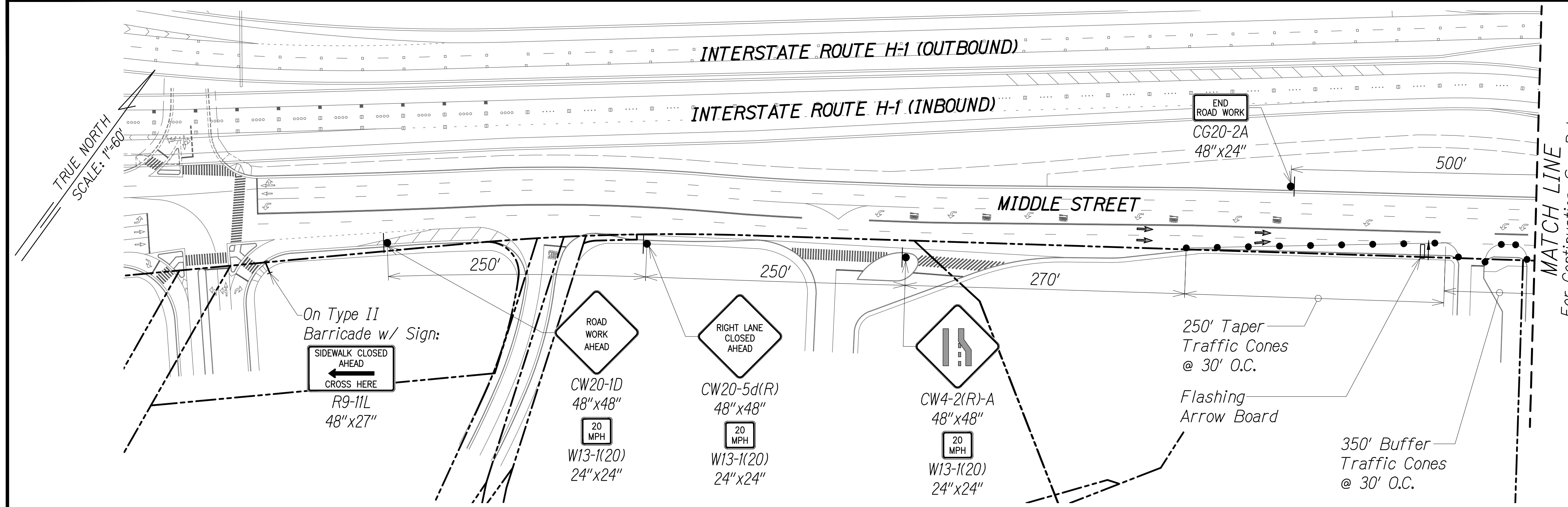
TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-56 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	114	170



Posted Speed Limit: Middle Street 30 MPH

- LEGEND:**
- Sign
 - Retroreflective Cone
 - Direction Of Traffic
 - ▨ Work Area
 - ⊗ Police Officer
 - I Type II Barricade
 - XX MPH Advisory Speed Limit Signs

DATE	
SURVEY PLOTTED BY	
DRANK BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FNA\2019-19-201-FMS-PHASE-3\UNIT 1\DWG\TC-57 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:18 AM

KEEHI INTERCHANGE - TRAFFIC CONTROL PLAN 9

Scale: 1"=60'

0 1 2
 LINE IS 2 INCHES AT FULL SIZE
 (if not 2 inches scale accordingly)



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APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

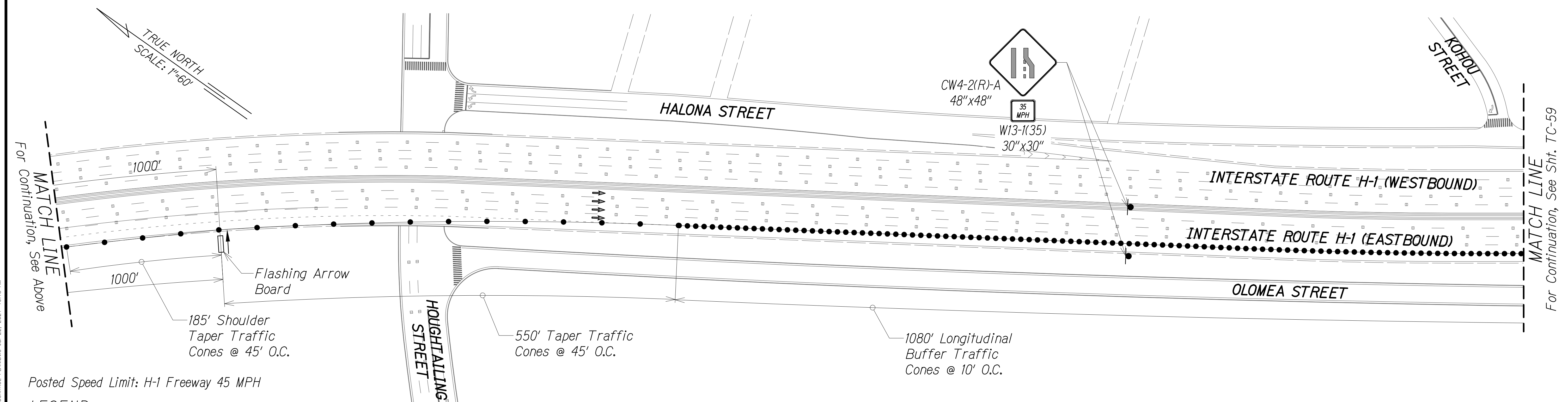
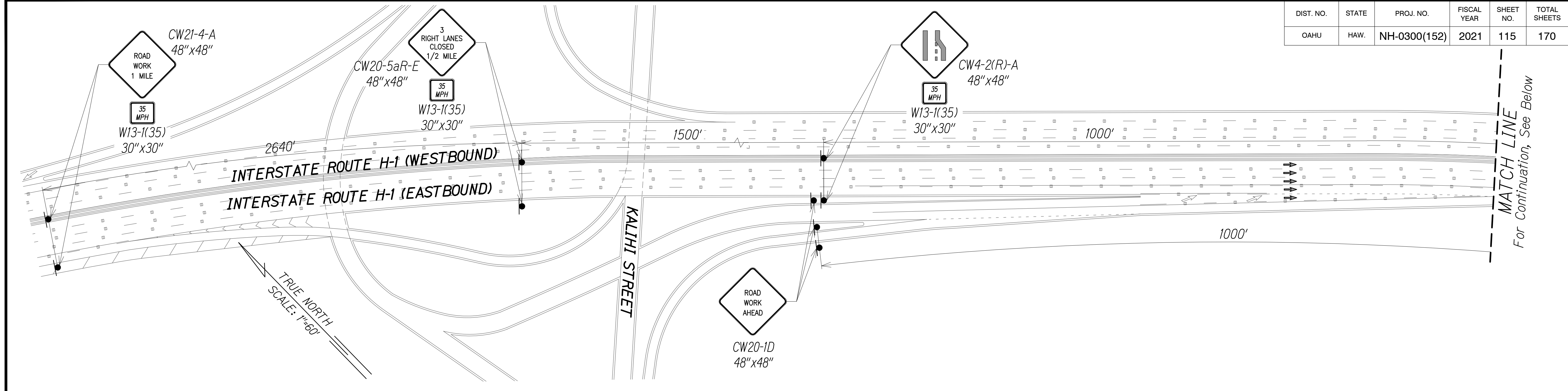
*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-57 OF 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	115	170



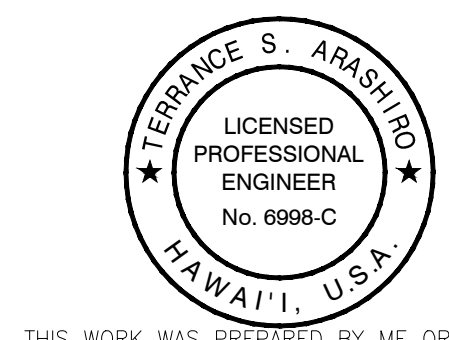
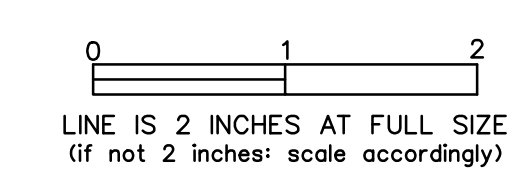
Posted Speed Limit: H-1 Freeway 45 MPH

LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- ▨ Work Area
- ⏏ Flashing Arrow Board
- ⊠ Truck - Mounted Attenuator
- XX MPH Advisory Speed Limit Signs

H-1 FREEWAY AALA TO PALI - TRAFFIC CONTROL PLAN 1-1

Scale: 1"=60'



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APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

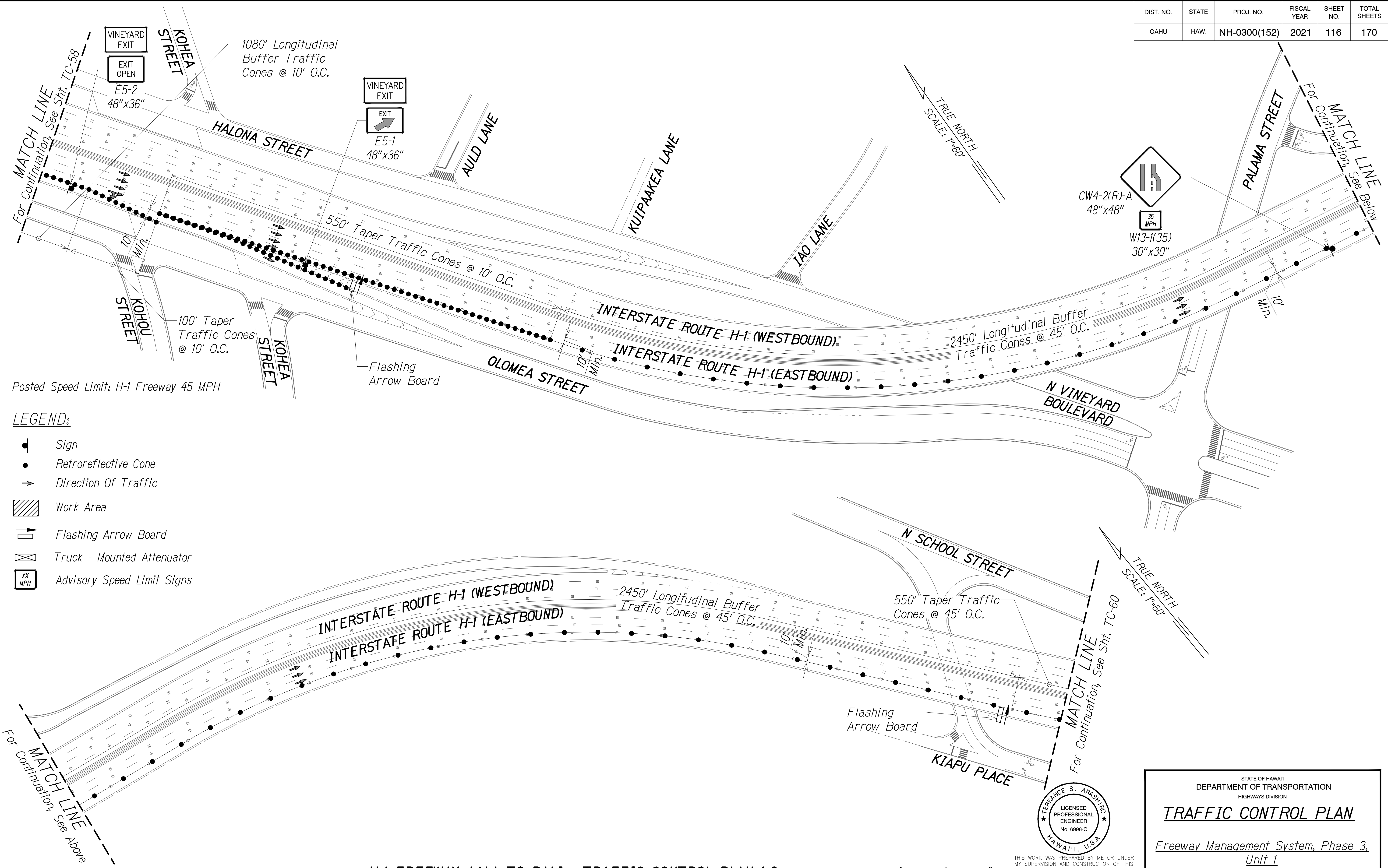
Scale: As Shown Date: June 25, 2021

SHEET No. TC-58 OF 61 SHEETS

DATE	____
DESIGNED BY	____
CHECKED BY	____
DESIGNED BY	____
CHECKED BY	____
DATE	____

F:\NA\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\TC-58 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021 10:18 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	116	170



Posted Speed Limit: H-1 Freeway 45 MPH

LEGEND:

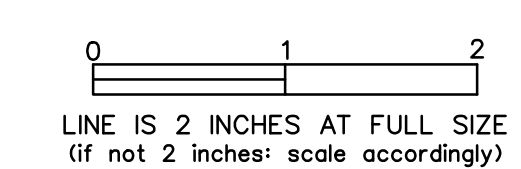
- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Advisory Speed Limit Signs

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FNA\2019\19-201_FMS_PHASE_3\UNIT_1\DWG\TC-59 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:19 AM

H-1 FREEWAY AALA TO PALI - TRAFFIC CONTROL PLAN 1-2

Scale: 1"=60'



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TERENCE S. ARASHIRO
 LICENSED PROFESSIONAL ENGINEER
 No. 6998-C
 HAWAII, U.S.A.

APR 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

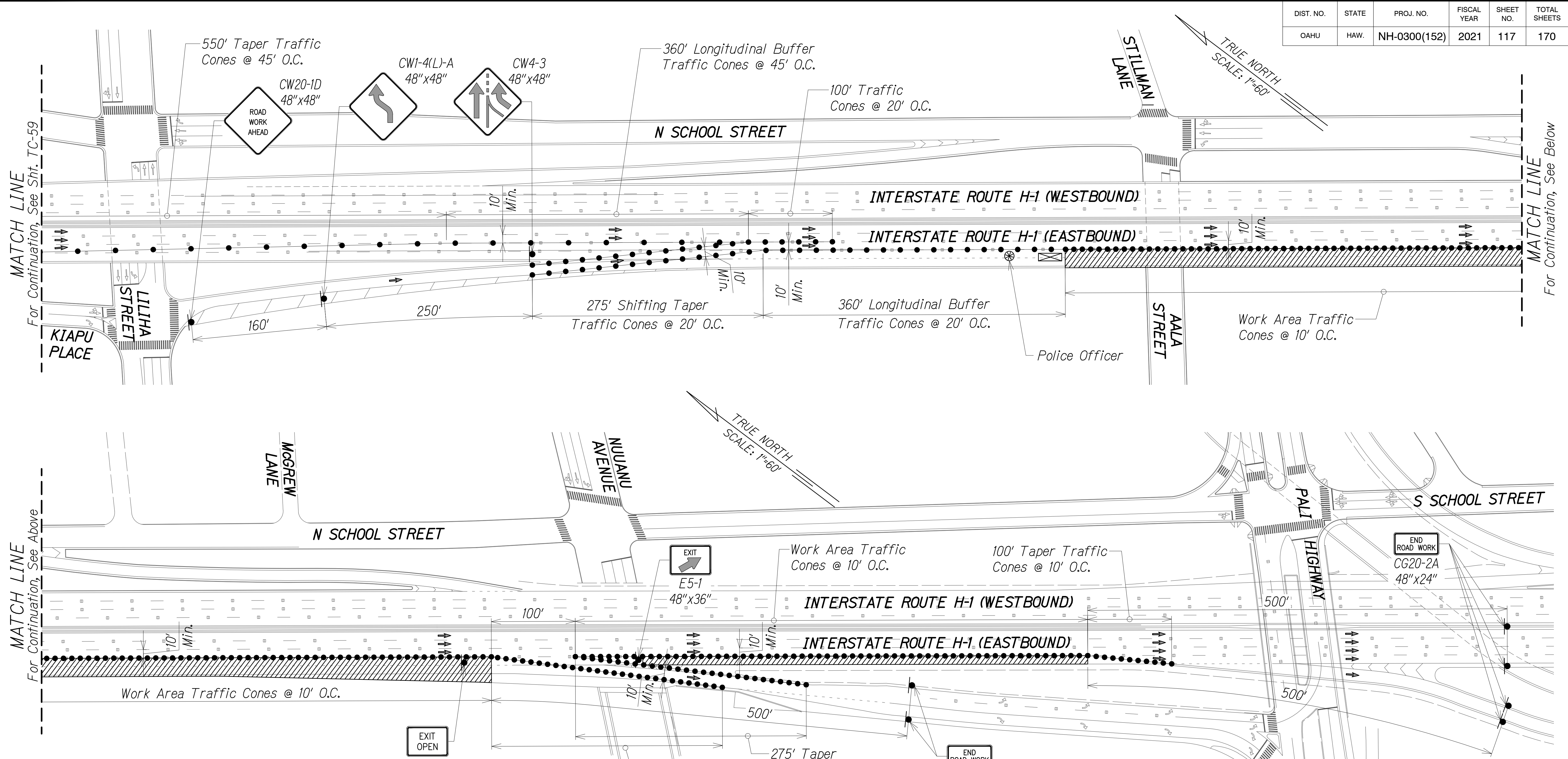
*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-59 of 61 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	117	170



Posted Speed Limit: H-1 Freeway 45 MPH

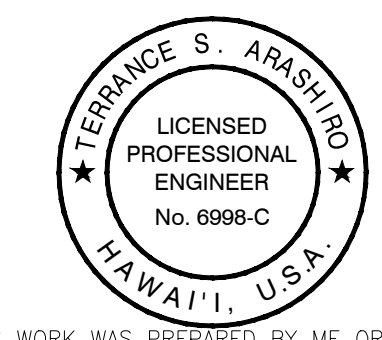
LEGEND:

- Sign
- Retroreflective Cone
- Direction Of Traffic
- Work Area
- Flashing Arrow Board
- Truck - Mounted Attenuator
- Police Officer
- Advisory Speed Limit Signs

H-1 FREEWAY AALA TO PALI - TRAFFIC CONTROL PLAN 1-3

Scale: 1"=60'

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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Terrence S. Arashi
APR 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

Freeway Management System, Phase 3,
Unit 1

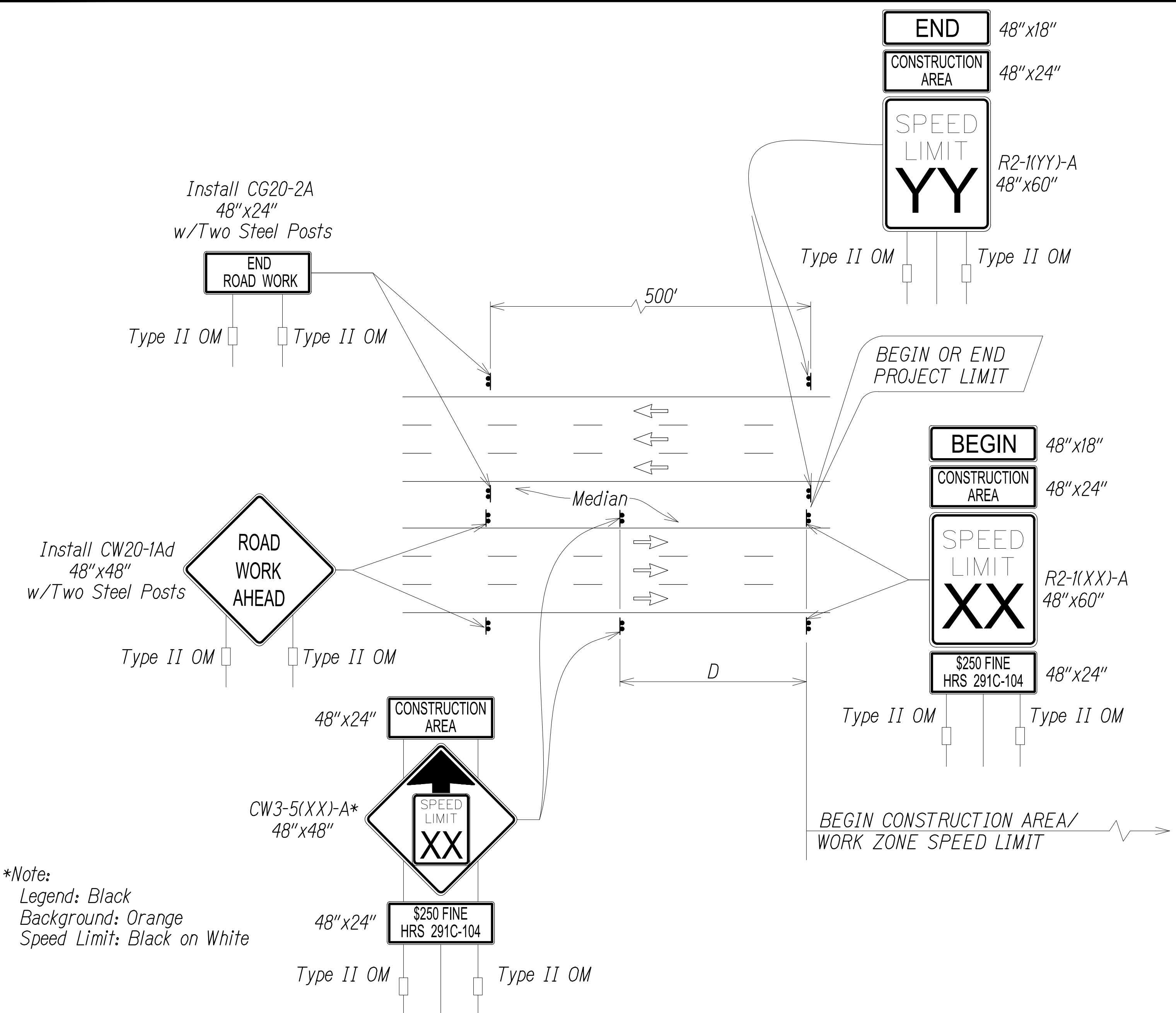
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. TC-60 OF 61 SHEETS

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
NO.	____

F:\NA\2019-2021-FMS-Phase-3\1-UNITS\TC-60 TRAFFIC CONTROL PLAN.DWG, Jul 22, 2021-10:19 AM



*Note:
 Legend: Black
 Background: Orange
 Speed Limit: Black on White

TYPICAL DETAIL FOR CONSTRUCTION SIGNS
 ON FREEWAY

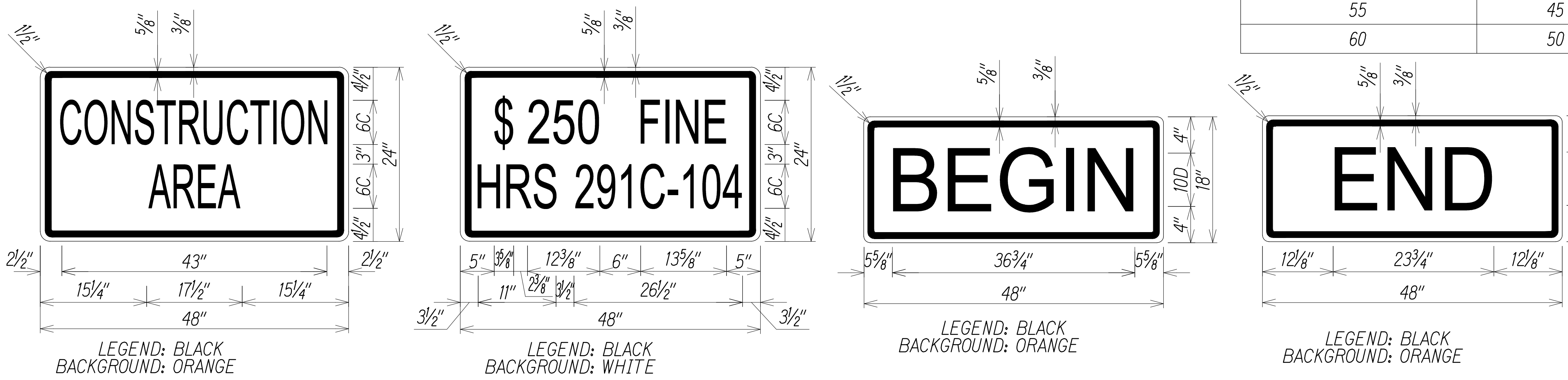
Notes:

1. The contractor shall replace all XX, YY & D references with appropriate speed limit as indicated in Table 1.
2. Speed Limit YY shall be the existing posted speed.

Work Zone Note:

1. This Work Zone Sign Plan is intended for use on long-term work zones/construction phases (3 days or more). All work zones or construction phases less than 3 day duration will use traffic control plans shown in section 645 of the Special Provisions.
2. All existing regulatory speed limit signs within the work zone/project limits shall be covered and work zone speed limit sign assemblies (R2-1(XX)-A and CW3-5(XX)-A with "CONSTRUCTION AREA" and "\$250 FINE HRS 291C-104" Supplemental signs) shall be displayed during lane closure hours.
3. Upon the removal of the lane closure, all work zone speed limit signs shall be covered and existing speed limit signs within the work zone/project limits shall be restored.
4. Construction signs shall be installed on both the approaching and trailing ends of each work zone.
5. Each construction sign shall have a minimum of two (2) type II OM. Installation of each type II OM shall be considered incidental to Section 645, Work Zone Traffic Control.
6. All work zone speed sign assembly shall be mounted on three (3) 4.00 lbs/ft. galvanized flanged channel sign posts with a sign clearance height of five (5) feet. Sign stiffeners as specified by Standard Plan Sheet TE-02 shall be installed as needed or as directed by the engineer.
7. The daily covering and uncovering of existing regulatory speed limit signs along with the installation, maintenance, removal and daily covering and uncovering of work zone speed limit sign assemblies shall be considered incidental to lump sum items in Section 645, Work Zone Traffic Control.

EXISTING POSTED SPEED LIMIT (MPH)	XX-NEW CONSTRUCTION AREA SPEED LIMIT (MPH)	D-REDUCED SPEED LIMIT SIGN SPACING TO FIRST CONSTRUCTION AREA SPEED LIMIT SIGN (FEET)
40	30	175
45	35	225
50	40	225
55	45	300
60	50	300



TERENCE S. ARASHIRO
 LICENSED PROFESSIONAL ENGINEER
 No. 6998-C
 HAWAII, U.S.A.
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 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
FREEWAY WORK ZONE SIGNING
PLAN, NOTES & DETAILS
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. TC-61 OF 61 SHEETS

DATE	BY
DESIGNED BY	TERENCE S. ARASHIRO
CHECKED BY	TERENCE S. ARASHIRO
QUANTITIES BY	TERENCE S. ARASHIRO
DESIGNED BY	TERENCE S. ARASHIRO
TRACED BY	TERENCE S. ARASHIRO
DRAWN BY	TERENCE S. ARASHIRO
DATE	BY

P:\A\2019\19-201 FMS PHASE 3\1\WORK-61 FREEWAY WORK ZONE SIGNING - PLAN, NOTES & DETAILS.DWG Jul 22, 2021 10:19 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	119	170

Electrical Symbols

Symbol		Description
Existing	New	
		Highway Light Standard
		Highway Light Standard
		Highway Light Standard
		Junction Box, 4 11/16" Sq. Min. X 1 1/2" Depth Min. Unless Noted Otherwise; Wall/Ceiling Surface Mtd. Respectively
		Meter Pedestal, See Detail A/E-30
		Xfmr Equipment & Support, See Detail A/E-29
		Underground Ductline Via Directional Drilling
		Underground Ductline
		Breakline to Beginning and End Duct Section Type
		Surface Mounted Conduit, See Detail C/E-31
		Electrical/Signal Ductline with Designator, Indicates Type "A" Duct Section with "2-4E" Ducts. See Sheet E-28 for Typical Duct Sections and Conduit Schedule
		Electrical Ductline
		Traffic Signal Ductline
		Street Light Ductline
		Traffic Signal & Street Light Ductline
		Overhead Lines
		CCTV or Splice Cabinet, See Sheet E-31
		VMS Controller Cabinet
		24" x 36" Traffic Signal Pullbox. See Detail A/E-32.
		Traffic Rated Type "A" Metric Traffic Signal Pullbox
		HECo. Handhole
		Pullbox
		HTCo. 2' x 4' Handhole

Symbol Notes:

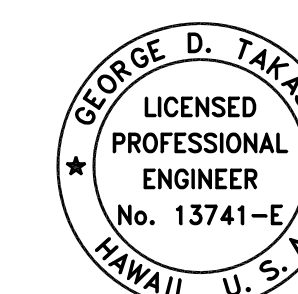
- "X" Through Symbol Indicates Item to be Removed.

General Electrical Notes:

- Electrical Work shall be New Unless Indicated Otherwise.
- Existing Electrical Equipment shall Remain Unless Indicated Otherwise.
- The Location of Existing Underground Utilities Shown On Plans are from Existing Records and are Approximations Only. Contractor shall Exercise Caution when Construction Crosses or is in Close Proximity to Existing Underground Utilities. Damages to Utility Companies' Existing Facilities shall be Repaired by the Respective Utility Company and Repair Costs shall be Paid by the Contractor at No Additional Cost to the State.
- Concrete Dust from Drilling of Anchoring System onto the Viaduct/Overpass shall be Contained and Disposed of Properly.

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

PR2:\A24\PROJECTS\8034\UNIT_1\E01_218034_SYMBOL.DWG, Jul 19, 2021 - 7:54 AM



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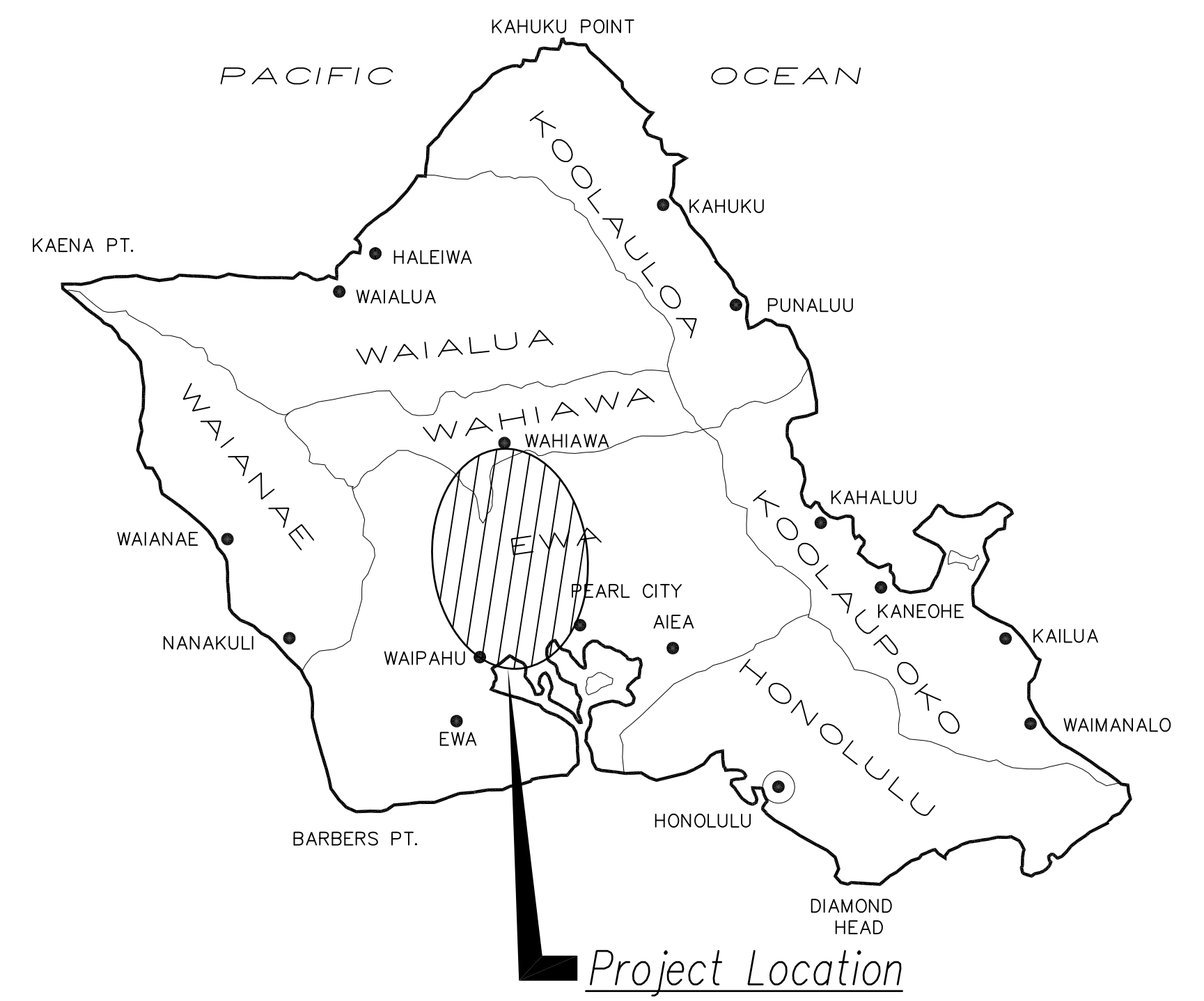
George D. Takase
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SYMBOL LIST

*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

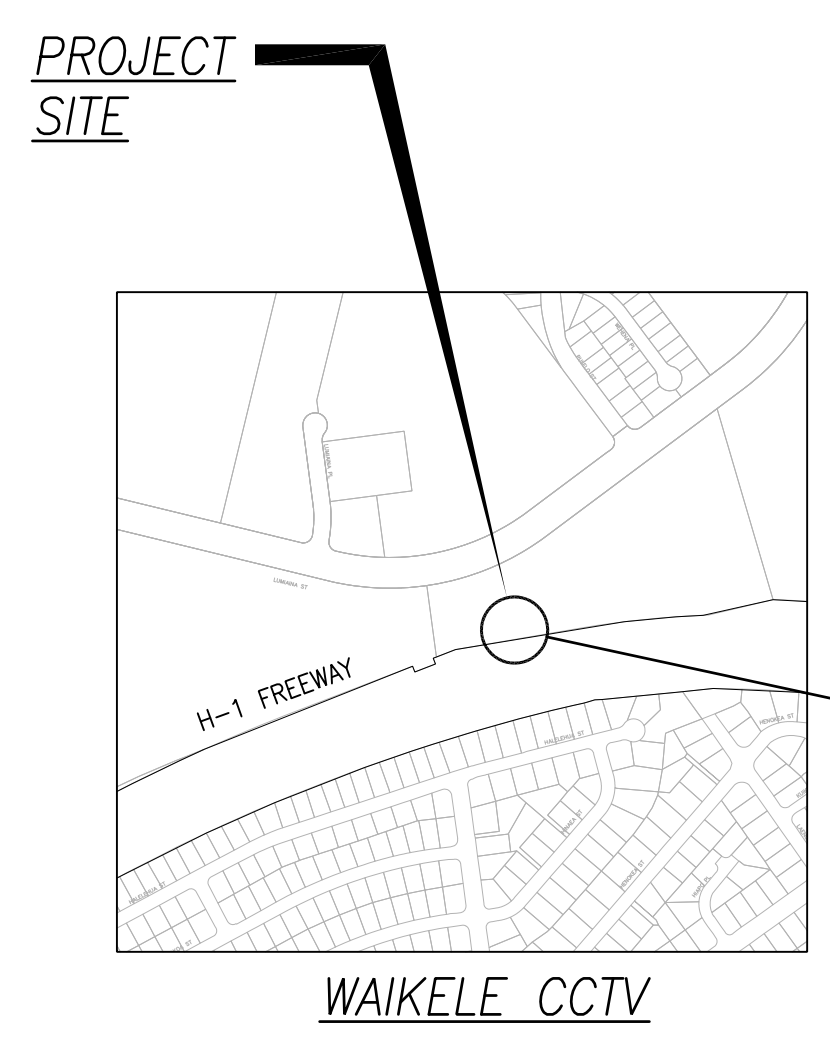
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	120	170



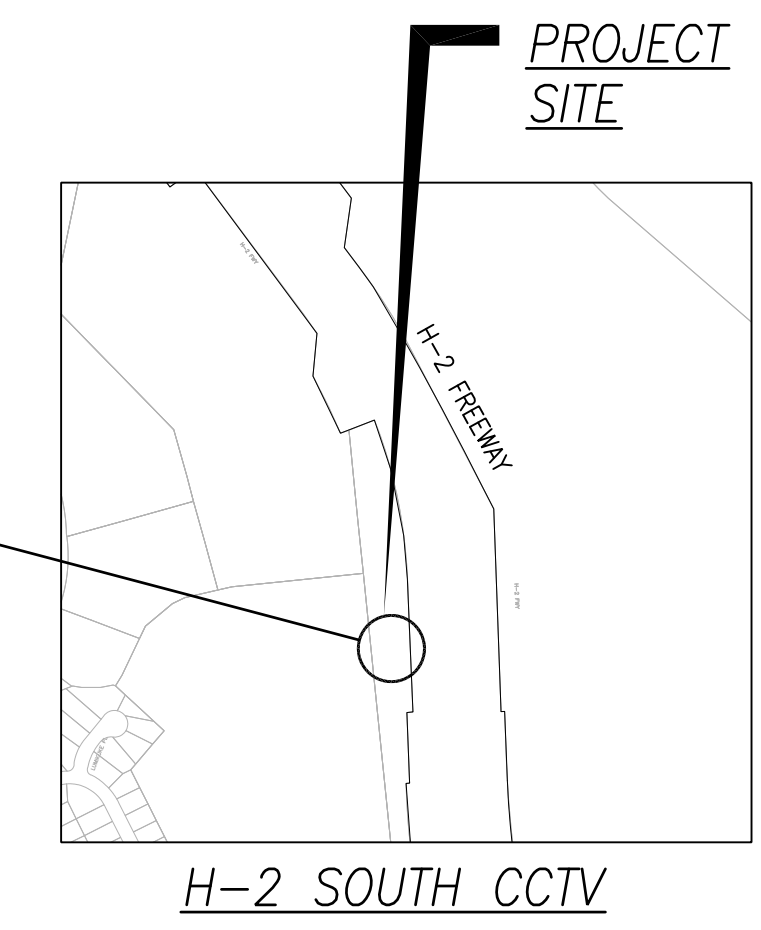
NORTH
Oahu Island Map



NORTH
FMS CCTV Locations



PROJECT SITE

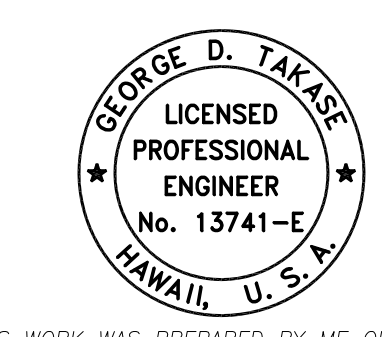


PROJECT SITE

H-2 SOUTH CCTV

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

PR2:\A240\PROJECTS\218034\UNIT_1\E002_218034_CCTV_LOCATIONS-001.DWG Jul 19, 2021-7:52 AM



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
FMS CCTV LOCATIONS

*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

SHEET No. E-2 OF 32 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	121	170

GUIDELINES FOR MINIMUM HORIZONTAL (PARALLEL) CLEARANCES BETWEEN HAWAIIAN ELECTRIC AND OTHER UNDERGROUND UTILITIES

UNDERGROUND UTILITY	HAWAIIAN ELECTRIC DIRECT BURIED CABLE	HAWAIIAN ELECTRIC DIRECT BURIED IN CONDUIT (NO CONCRETE ENCASEMENT)	HAWAIIAN ELECTRIC 3" (MINIMUM) CONCRETE ENCASEMENT	APPLICABLE NOTES:
HAWAIIAN ELECTRIC DB CONDUITS	12"	3"	0"	
HAWAIIAN ELECTRIC 3" ENCASEMENT	0"	0"	0"	
TELEPHONE/CATV DB	12"	12"	6"	
TELEPHONE/CATV DB DUCTS	12"	12"	6"	
TELEPHONE/CATV 3" ENCASEMENT	0"	0"	0"	5
TRAFFIC SIGNAL	12"	12"	12"	
WATER DB (BWS OWNED)	36"	36"	36"	1, 4
CUSTOMER OWNED WATER SERVICE LATERALS	12"	12"	12"	
WATER (CONCRETE JACKETED) (BWS OWNED)	36"	36"	36"	1, 4
GAS DB	12"	12"	12"	1
GAS (CONCRETE JACKETED)	12"	12"	12"	1
SEWER DB	36"	36"	36"	1, 2
SEWER (CONCRETE JACKETED)	36"	36"	36"	1, 2
DRAIN	12"	12"	12"	1
FUEL PIPELINES				3

NOTES:

- WHERE SPACE IS AVAILABLE, PARALLEL CLEARANCE TO OTHER UTILITIES, OR FOREIGN STRUCTURES OTHER THAN COMMUNICATION OR TRAFFIC SIGNAL SHALL BE 36"
- IF 36" CLEARANCE CANNOT BE MET:
 - IF CLEARANCE IS LESS THAN 12", JACKET SEWER LINE WITH REINFORCED CONCRETE (PER HECO'S STD. 30-1030) FOR A DISTANCE OF 5' PLUS PIPE DIAMETER.
 - IF CLEARANCE IS BETWEEN 12" AND 36", JACKET SEWER LINE WITH PLAIN CONCRETE.
- ALL FUEL PIPELINE CROSSINGS SHALL BE REVIEWED AND APPROVED BY THE COMPANY THAT OWNS AND MAINTAINS IT.
- 5 FEET CLEAR TO WATER MAINS 16" OR LARGER.
- FOR SITUATIONS WITH 0" MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
- CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITIES. WHENEVER CONCRETE JACKETS ARE INVOLVED, CLEARANCES SHALL BE TOTAL CLEAR DISTANCE BETWEEN THE CONCRETE JACKET AND UTILITY CONCERNED.

GUIDELINES FOR MINIMUM VERTICAL (CROSSING) CLEARANCES HAWAIIAN ELECTRIC AND OTHER UNDERGROUND UTILITIES

UNDERGROUND UTILITY	HAWAIIAN ELECTRIC DIRECT BURIED CABLE	HAWAIIAN ELECTRIC DIRECT BURIED IN CONDUIT (NO CONCRETE ENCASEMENT)	HAWAIIAN ELECTRIC 3" (MINIMUM) CONCRETE ENCASEMENT	APPLICABLE NOTES:
HAWAIIAN ELECTRIC DB CONDUITS	6"	3"	0"	
HAWAIIAN ELECTRIC 3" ENCASEMENT	0"	0"	0"	
TELEPHONE/CATV DB	12"	12"	6"	
TELEPHONE/CATV DB DUCTS	12"	12"	6"	
TELEPHONE/CATV 3" ENCASEMENT	0"	0"	0"	3
TRAFFIC SIGNAL	12"	12"	6"	
WATER DB (BWS OWNED)	12"	12"	12"	5
CUSTOMER OWNED WATER SERVICE LATERALS	6"	6"	6"	
WATER (CONCRETE JACKETED) (BWS OWNED)	12"	12"	12"	5
GAS DB	12"	12"	12"	
GAS (CONCRETE JACKETED)	12"	12"	12"	
SEWER DB	24"	24"	24"	1
SEWER (CONCRETE JACKETED)	24"	24"	24"	1
DRAIN	12"	12"	6"	
FUEL PIPELINES				2

NOTES:

- IF 36" CLEARANCE CANNOT BE MET:
 - IF CLEARANCE IS LESS THAN 12", JACKET SEWER LINE WITH REINFORCED CONCRETE (PER HECO'S STD. 30-1030) FOR A DISTANCE OF 5' PLUS PIPE DIAMETER.
 - IF CLEARANCE IS BETWEEN 12" AND 36", JACKET SEWER LINE WITH PLAIN CONCRETE.
- ALL FUEL PIPELINE CROSSINGS SHALL BE REVIEWED AND APPROVED BY THE COMPANY THAT OWNS AND MAINTAINS IT.
- FOR SITUATIONS WITH 0" MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
- CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITIES. WHENEVER CONCRETE JACKETS ARE INVOLVED, CLEARANCES SHALL BE TOTAL CLEAR DISTANCE BETWEEN THE CONCRETE JACKET AND UTILITY CONCERNED.
- 36" CLEARANCE IS REQUIRED FOR TRENCHLESS INSTALLATION WORK.

HECO NOTES:

1. LOCATION OF HAWAIIAN ELECTRIC FACILITIES
 THE LOCATION OF HAWAIIAN ELECTRIC'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATIONS OF THE FACILITIES AND SHALL EXERCISE PROPER CARE IN EXCAVATING AND WORKING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES AND UTILITY CROSSINGS ARE SHOWN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS AND CROSSINGS TO VERIFY THE DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HAWAIIAN ELECTRIC'S FACILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLANS.

2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS
 THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAWS AND REGULATIONS, INCLUDING WITHOUT LIMITATION, THOSE RELATED TO WORKING ON OR NEAR EXPOSED OR ENERGIZED ELECTRICAL LINES AND EQUIPMENT.

3. EXCAVATION CLEARANCE
 THE CONTRACTOR SHALL OBTAIN AN EXCAVATION CLEARANCE FROM HAWAIIAN ELECTRIC'S PLANNING AND DESIGN SECTION OF THE CUSTOMER INSTALLATIONS DEPARTMENT (543-5654) LOCATED AT 820 WARD AVENUE, 4TH FLOOR, A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO STARTING CONSTRUCTION.

4. CAUTION!!! ELECTRICAL HAZARD!!!
 EXISTING HAWAIIAN ELECTRIC OVERHEAD AND UNDERGROUND LINES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION UNLESS PRIOR SPECIAL ARRANGEMENTS HAVE BEEN MADE WITH HAWAIIAN ELECTRIC. ONLY HAWAIIAN ELECTRIC PERSONNEL ARE TO HANDLE THESE ENERGIZED LINES AND ERECT TEMPORARY GUARDS TO PROTECT THESE LINES FROM DAMAGE. THE CONTRACTOR SHALL WORK CAUTIOUSLY AT ALL TIMES TO AVOID ACCIDENTS AND DAMAGE TO EXISTING HAWAIIAN ELECTRIC FACILITIES, WHICH CAN RESULT IN ELECTROCUTION.

5. OVERHEAD LINES
 STATE LAW (OSHA) REQUIRES THAT A WORKER AND THE LONGEST OBJECT HE OR SHE MAY CONTACT CANNOT COME CLOSER THAN A SPECIFIED MINIMUM RADIAL CLEARANCE WHEN WORKING CLOSE TO OR UNDER ANY OVERHEAD LINES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE INFORMED OF AND COMPLY WITH THE LAW.

AT ANY TIME SHOULD THE CONTRACTOR ANTICIPATE THAT HIS WORK WILL RESULT IN THE NEED TO ENCROACH WITHIN THE MINIMUM REQUIRED CLEARANCE AS STATED IN THE LAW, THE CONTRACTOR SHALL NOTIFY HAWAIIAN ELECTRIC AT LEAST THREE (3) MONTHS PRIOR TO THE PLANNED ENCROACHMENT SO

THAT, IF FEASIBLE, THE NECESSARY PROTECTIONS (E.G. RELOCATE OR DE-ENERGIZE HAWAIIAN ELECTRIC LINES) CAN BE INVESTIGATED. HAWAIIAN ELECTRIC MAY ALSO BE ABLE TO BLANKET ITS DISTRIBUTION (12KV AND BELOW) LINES TO PROVIDE A VISUAL AID IN PREVENTING ACCIDENTAL CONTACT. HAWAIIAN ELECTRIC'S COST OF SAFEGUARDING OR IDENTIFYING ITS LINES WILL BE CHARGED TO THE CONTRACTOR.

CONTACT HAWAIIAN ELECTRIC'S CUSTOMER INSTALLATIONS DEPARTMENT AT 543-7846 FOR ASSISTANCE IN IDENTIFYING AND SAFEGUARDING OVERHEAD POWER LINES.

6. POLE BRACING
 CONTRACTOR SHALL NOT EXCAVATE WITHIN 10 FEET FROM HAWAIIAN ELECTRIC'S UTILITY POLES OR ANY ANCHOR SYSTEM SUPPORTING THE UTILITY POLE. IF CONTRACTOR MUST EXCAVATE CLOSER THAN 10 FEET FROM A UTILITY POLE OR ITS ANCHOR SYSTEM, CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING, SUPPORTING, SECURING AND TAKING ALL PRECAUTIONS TO PREVENT DAMAGE TO OR LEANING OF EXISTING POLES. BEFORE COMMENCING SUCH EXCAVATION, CONTRACTOR MUST SUBMIT ITS BRACING CALCULATIONS AND DRAWINGS, PREPARED AND STAMPED BY A LICENSED STRUCTURAL ENGINEER, TO HAWAIIAN ELECTRIC'S CUSTOMER INSTALLATIONS DEPARTMENT (543-7846) FOR REVIEW. HAWAIIAN ELECTRIC REQUIRES A MINIMUM OF TEN (10) WORKING DAYS TO CONDUCT THE REVIEW OF CONTRACTOR'S SUBMITTAL. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND REMOVAL OF THE TEMPORARY POLE BRACING SYSTEM, AS WELL AS ALL COSTS INCURRED BY HAWAIIAN ELECTRIC TO REVIEW CONTRACTOR'S DRAWINGS AND TO REPAIR OR STRAIGHTEN POLES IMPACTED BY CONTRACTOR'S ACTIVITIES, INCLUDING RESPONSE AND RESTORATION COSTS INCURRED BY HAWAIIAN ELECTRIC ARISING OUT OF OR RELATED TO OUTAGES CAUSED BY CONTRACTOR'S FAILURE TO MEET THE FOREGOING REQUIREMENTS. HAWAIIAN ELECTRIC'S REVIEW AND APPROVAL OF ANY CONTRACTOR SUBMITTALS INCLUDING ITS WORK PROCEDURE SHALL NOT RELIEVE CONTRACTOR FROM ANY LIABILITY RESULTING FROM CONTRACTOR'S EXCAVATION NEAR OR AROUND HAWAIIAN ELECTRIC'S UTILITY POLES.

7. UNDERGROUND LINES
 THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION

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).

WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES. HAWAIIAN ELECTRIC'S EXISTING ELECTRICAL CABLES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION. ONLY HAWAIIAN ELECTRIC PERSONNEL ARE TO BREAK INTO EXISTING HAWAIIAN ELECTRIC FACILITIES, HANDLE THESE CABLES, AND ERECT TEMPORARY GUARDS TO PROTECT THESE CABLES FROM DAMAGE. THE COST OF HAWAIIAN ELECTRIC'S ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF ITS UNDERGROUND LINES WILL BE CHARGED TO THE CONTRACTOR. FOR ASSISTANCE/COORDINATION IN PROVIDING PROPER SUPPORT AND PROTECTION OF THESE LINES, THE CONTRACTOR SHALL CALL HAWAIIAN ELECTRIC'S CUSTOMER INSTALLATIONS DEPARTMENT AT 543-7846 A MINIMUM OF TEN (10) WORKING DAYS IN ADVANCE.

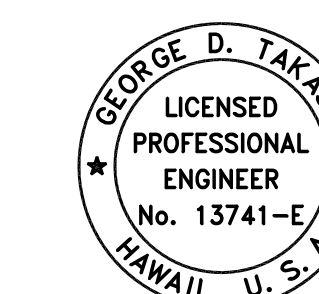
SPECIAL PRECAUTIONS ARE REQUIRED WHEN EXCAVATING NEAR HAWAIIAN ELECTRIC'S 138KV OR 46KV UNDERGROUND LINES (SEE HAWAIIAN ELECTRIC INSTRUCTIONS TO CONSULTANTS/CONTRACTORS ON "EXCAVATION NEAR HAWAIIAN ELECTRIC'S UNDERGROUND 138KV AND/OR 46KV LINES" FOR DETAILED REQUIREMENTS).

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).

DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
NO.	_____

PROJECT NO. NH-0300(152) UNIT 1 E003 2/8/04 HECO NOTES (REV. JUL 19, 2021)-7/48 AM



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

APRIL 30, 2022 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
HECO NOTES 1
Freeway Management System, Phase 3, Unit 1
 Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021

HECO NOTES: (CONTINUED)

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	122	170

9. EXCAVATIONS
WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HAWAIIAN ELECTRIC'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:
- ARRANGING FOR HAWAIIAN ELECTRIC STANDBY PERSONNEL TO OBSERVE WORK AT CONTRACTOR'S COST.
 - SHEETING, BRACING, OR OTHERWISE SUPPORTING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE AND TO PREVENT POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENTS.
 - PROPERLY SUPPORTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, UNDER-PINNINGS, OR OTHER NECESSARY METHODS TO FULLY PROTECT IT FROM DAMAGE.
 - BACKFILLING WITH PROPER BACKFILL MATERIAL INCLUDING SPECIAL THERMAL BACKFILL WHERE EXISTING (REFER TO ENGINEERING DEPARTMENT FOR THERMAL BACKFILL SPECIFICATIONS).

SUBSURFACE UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HAWAIIAN ELECTRIC'S FACILITIES AS A RESULT OF HIS OPERATIONS. THE CONTRACTOR SHALL IMMEDIATELY REPORT SUCH DAMAGES OR ANY HAZARDOUS CONDITIONS RELATED TO HAWAIIAN ELECTRIC'S LINES TO HAWAIIAN ELECTRIC'S TROUBLE DISPATCHER AT 548-7961. REPAIR WORK SHALL BE DONE BY HAWAIIAN ELECTRIC OR BY THE CONTRACTOR UNDER HAWAIIAN ELECTRIC'S SUPERVISION. COSTS FOR DAMAGES TO HAWAIIAN ELECTRIC'S FACILITIES SHALL BE BORNE BY THE CONTRACTOR.

IN CASE OF DAMAGE OR SUSPECTED DAMAGE TO HAWAIIAN ELECTRIC'S FUEL PIPELINE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY HAWAIIAN ELECTRIC'S SECURITY COMMAND CENTER AT 543-7685 (A 24-HOUR NUMBER) SO HAWAIIAN ELECTRIC PERSONNEL CAN SECURE THE DAMAGED SECTION AND REPORT ANY OIL SPILLS TO THE PROPER AUTHORITIES. ALL COSTS ASSOCIATED WITH THE DAMAGE, REPAIR, AND OIL SPILL CLEANUP SHALL BE BORNE BY THE CONTRACTOR.

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.

13. HAWAIIAN ELECTRIC STAND-BY PERSONNEL
THE CONTRACTOR MAY REQUEST HAWAIIAN ELECTRIC TO PROVIDE AN INSPECTOR TO STAND-BY DURING CONSTRUCTION NEAR HAWAIIAN ELECTRIC'S FACILITIES. THE COST OF SUCH INSPECTION WILL BE CHARGED TO THE CONTRACTOR.

THE CONTRACTOR SHALL CALL HAWAIIAN ELECTRIC'S CUSTOMER INSTALLATIONS DEPARTMENT AT 543-7846 A MINIMUM OF TWO (2) MONTHS IN ADVANCE TO ARRANGE FOR HAWAIIAN ELECTRIC STAND-BY PERSONNEL.

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.

14. CLEARANCES
THE FOLLOWING CLEARANCES SHALL BE MAINTAINED BETWEEN HAWAIIAN ELECTRIC'S DUCTLINE AND ALL ADJACENT STRUCTURES (CHARTED AND UNCHARTED) IN THE TRENCH:

[REFER TO TABLES]

THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER & HAWAIIAN ELECTRIC OF ANY HEAT SOURCES (POWER CABLE DUCT BANK, STEAMLINE, ETC.) ENCOUNTERED THAT ARE NOT PROPERLY IDENTIFIED ON THE DRAWING.

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.

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

12. DAMAGE TO HAWAIIAN ELECTRIC FACILITIES
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HAWAIIAN ELECTRIC SURFACE AND

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 DIVISION AT 543-4329 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 DIVISION AT 543-4329 AT LEAST TEN (10) WORKING DAYS IN ADVANCE.

20. STAKEOUT
THE CONTRACTOR SHALL ARRANGE FOR TONEOUTS OF ALL UNDERGROUND FACILITIES AND SHALL STAKEOUT ALL PROPOSED HAWAIIAN ELECTRIC FACILITIES WITHIN THE PROJECT AREA SO AS TO NOT CONFLICT WITH ANY UTILITY (EXISTING OR PROPOSED) AND ANY PROPOSED CONSTRUCTION OR IMPROVEMENT WORK FOR VERIFICATION BY HAWAIIAN ELECTRIC BEFORE PROCEEDING WITH HAWAIIAN ELECTRIC WORK.

21. DUCTLINES
ALL DUCTLINE INSTALLATIONS SHALL BE PVC SCHEDULE 40 ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED. ALL COMPLETED DUCTLINES SHALL BE MANDREL TESTED

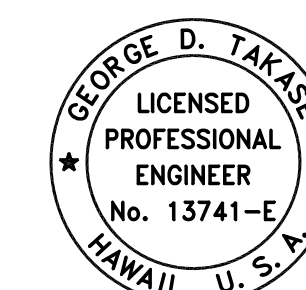
BY THE CONTRACTOR IN THE PRESENCE OF HAWAIIAN ELECTRIC'S INSPECTOR USING HAWAIIAN ELECTRIC'S STANDARD PRACTICE. THE CONTRACTOR SHALL INSTALL 1800# TENSILE STRENGTH MULETAPE PULL LINE IN ALL COMPLETED DUCTLINES AFTER MANDREL TESTING IS COMPLETE.

22. JOINT POLE REMOVAL
THE LAST JOINT POLE OCCUPANT OFF THE POLES SHALL REMOVE THE POLES.

23. AS-BUILT PLANS
THE CONTRACTOR SHALL PROVIDE HAWAIIAN ELECTRIC WITH A SET OF ELECTRONIC AND HARD COPY PLANS OF EACH SHEET SHOWING THE OFFSETS, STATIONING, AND VERTICAL ELEVATION OF THE DUCT LINE(S) CONSTRUCTED.

DATE	DATE
DESIGNED BY	DESIGNED BY
CHECKED BY	CHECKED BY
NO.	NO.

PROJECT: PROJECTS/8034/UNIT_1/E004_2/8034_HECO NOTES.DWG, Jul 19, 2021-7:56 AM

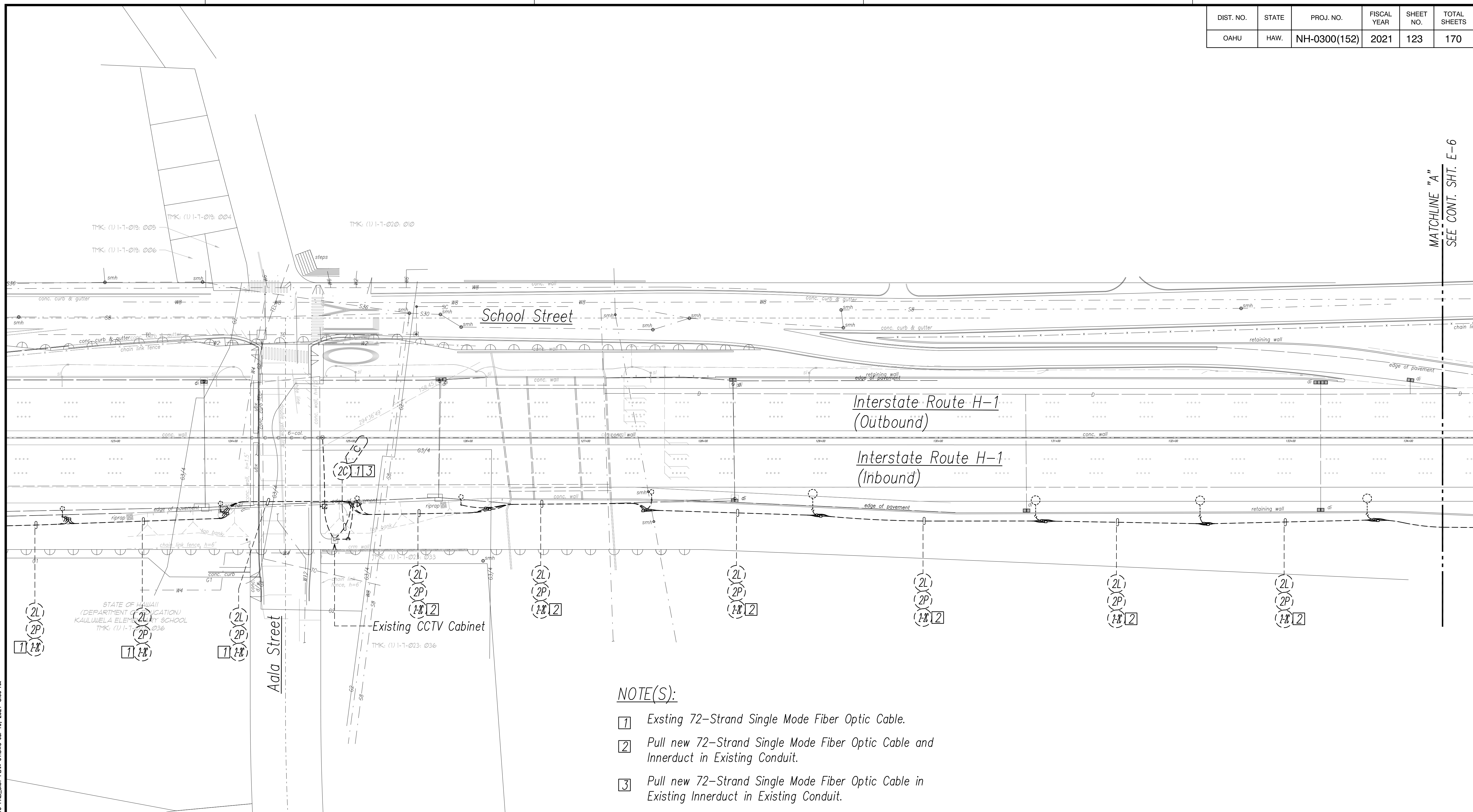


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APRIL 30, 2022 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HECO NOTES 2
Freeway Management System, Phase 3, Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	123	170



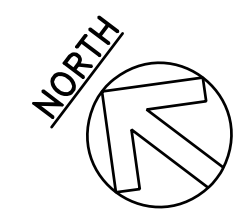
MATCHLINE "A"
SEE CONT. SHT. E-6

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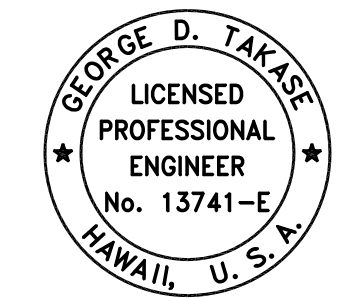
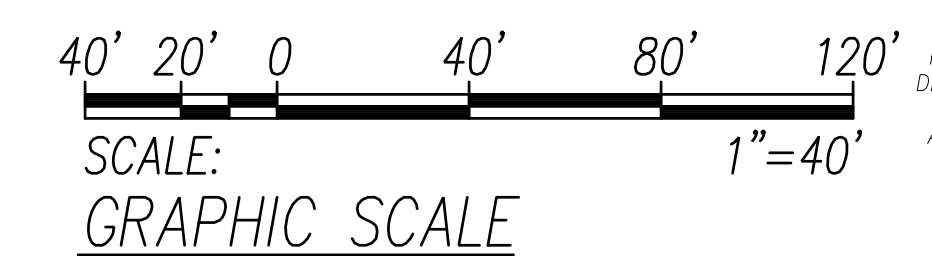
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

NOTE(S):

- 1 Existing 72-Strand Single Mode Fiber Optic Cable.
- 2 Pull new 72-Strand Single Mode Fiber Optic Cable and Innerduct in Existing Conduit.
- 3 Pull new 72-Strand Single Mode Fiber Optic Cable in Existing Innerduct in Existing Conduit.



Aala - Pali Electrical Distribution Plan 1
SCALE: 1"=40'



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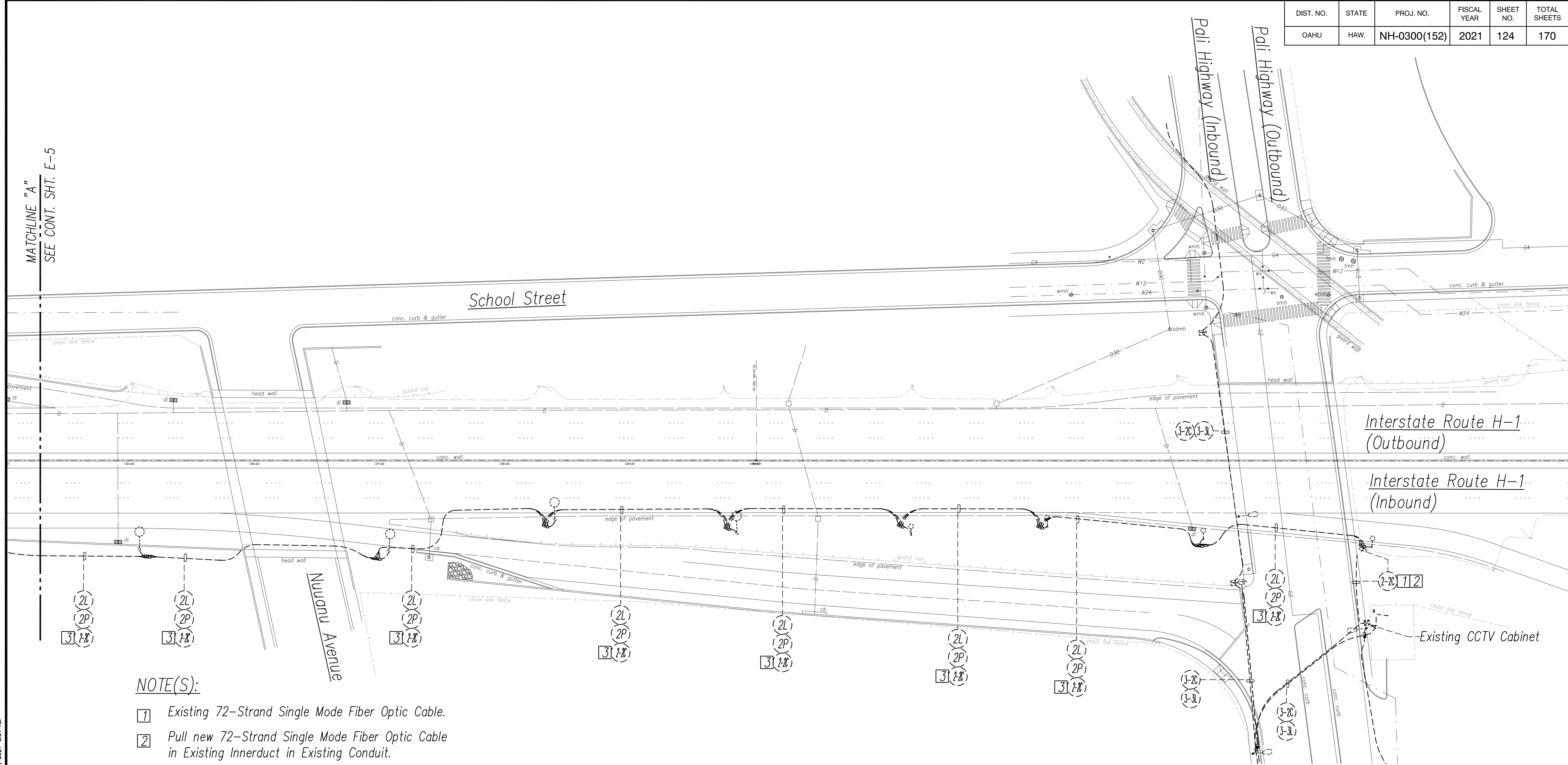
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**AALA - PALI ELECTRICAL
DISTRIBUTION PLAN 1**
*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

SHEET No. **E-5** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	124	170



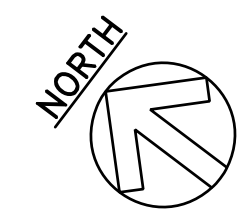
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SEE CONT. SHT. E-5

NOTE(S):

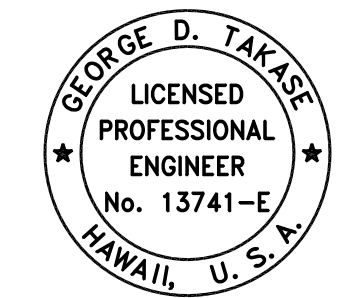
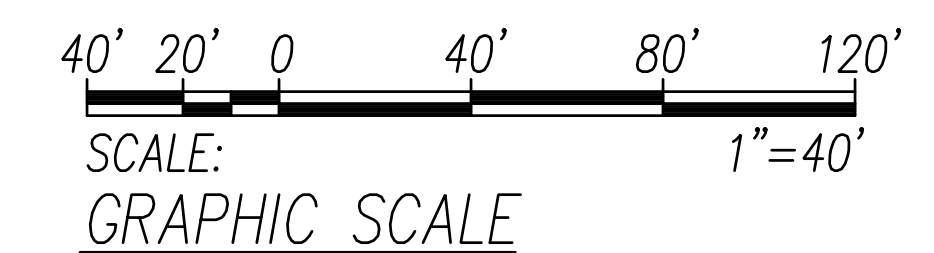
- 1 Existing 72-Strand Single Mode Fiber Optic Cable.
- 2 Pull new 72-Strand Single Mode Fiber Optic Cable in Existing Innerduct in Existing Conduit.
- 3 Pull new 72-Strand Single Mode Fiber Optic Cable and Innerduct in Existing Conduit.

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

PR2\A040\PROJECTS\8034\UNIT_1\E006_2\8034_AAA TO PALI_DIST_PLAN_02.DWG Jul 19, 2021-8:01 AM



Aala - Pali Electrical Distribution Plan 2
SCALE: 1"=40'

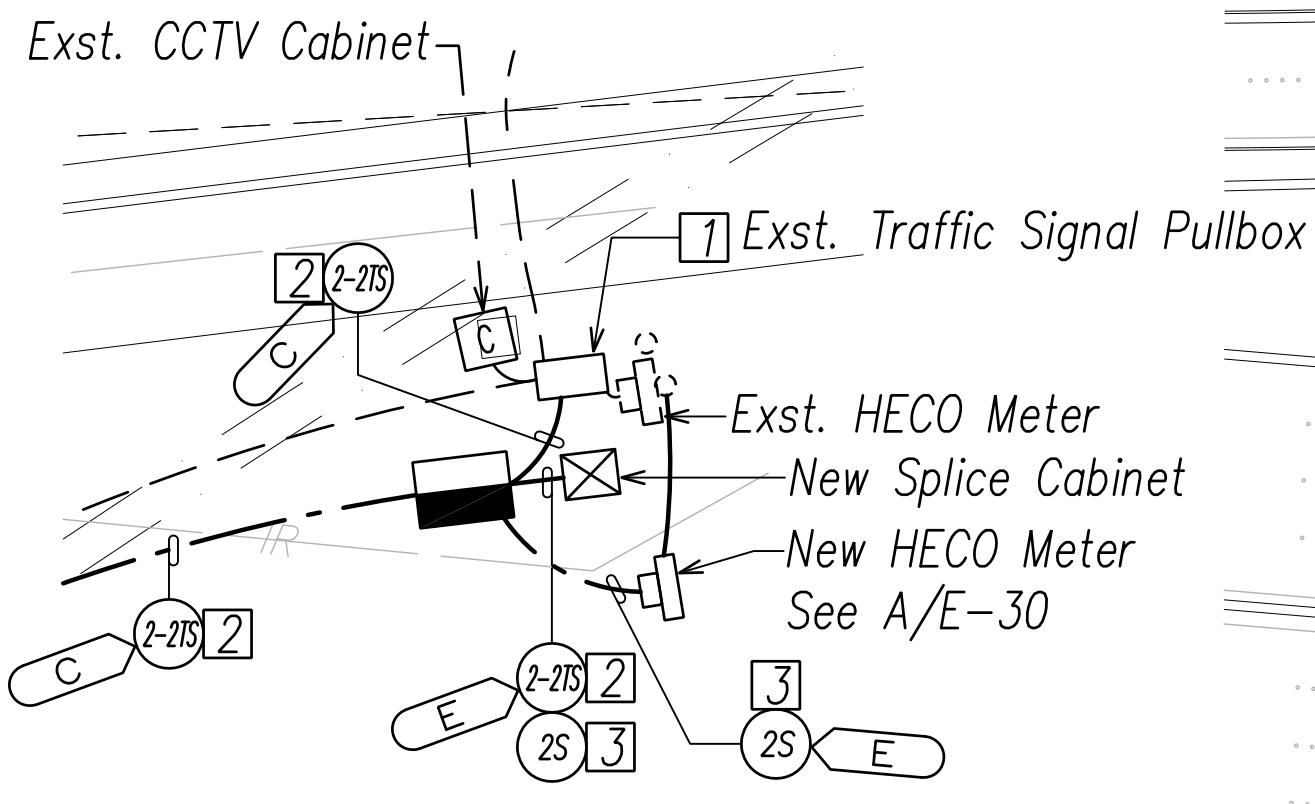


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GT
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**AALA - PALI ELECTRICAL
DISTRIBUTION PLAN 2**
*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-6** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	125	170

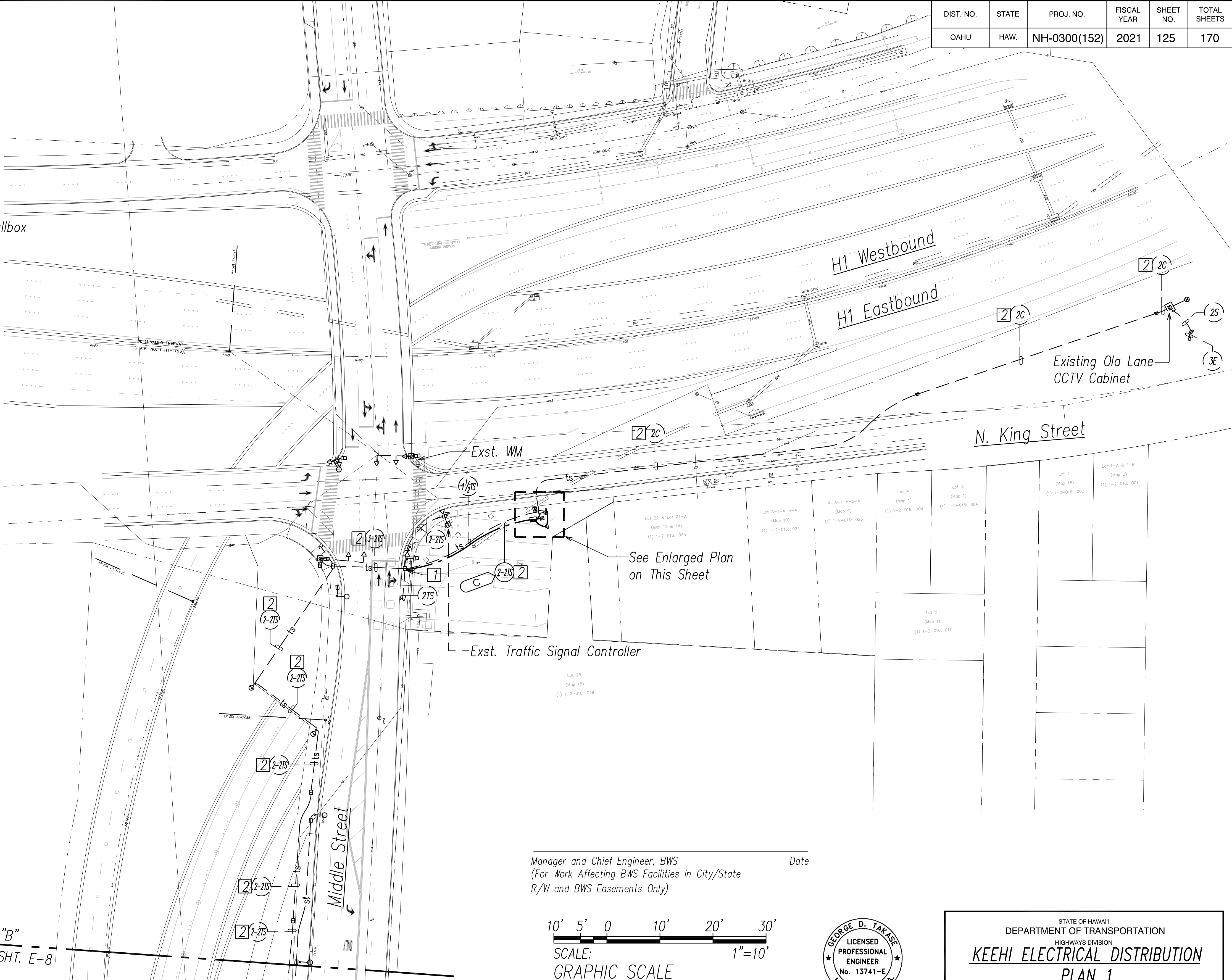


Enlarged Plan
SCALE: 1"=10'

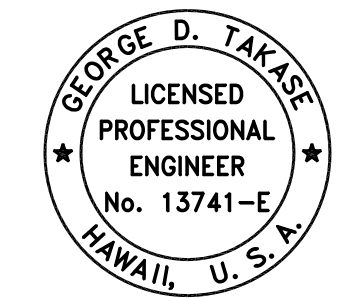
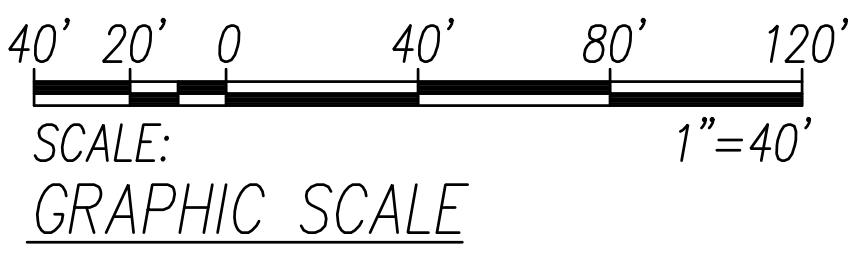
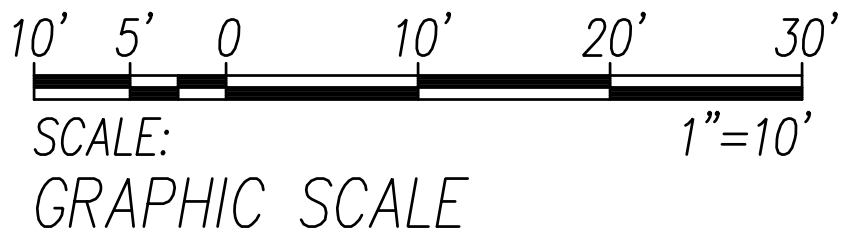
- NOTE(S):**
- 1 Penetrate Existing Pullbox to Accommodate Conduit Installation.
 - 2 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
 - 3 Pull 2#8 #10 Gnd in New Conduit.

MATCHLINE "B"
SEE CONT. SHT. E-8

Keehi Electrical Distribution Plan 1
SCALE: 1"=40'



Manager and Chief Engineer, BWS
(For Work Affecting BWS Facilities in City/State
R/W and BWS Easements Only) _____ Date _____



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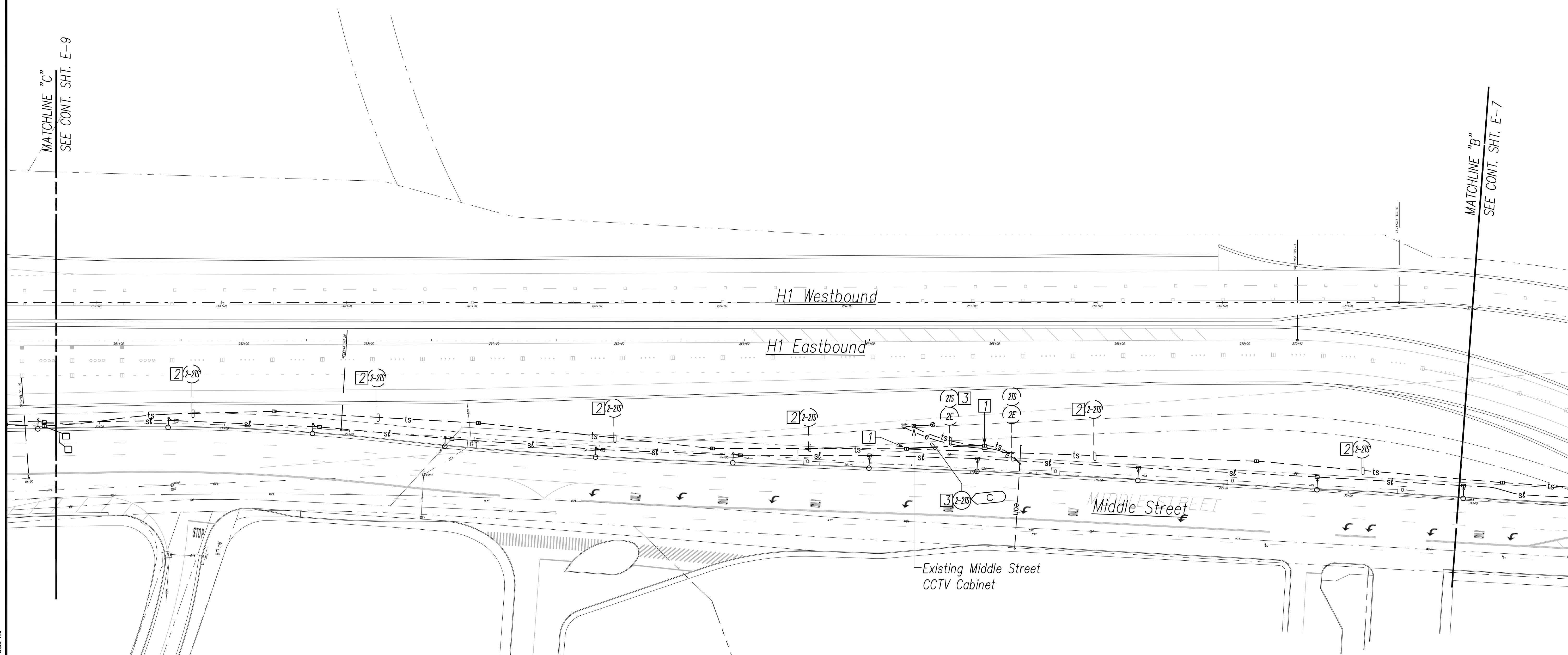
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI ELECTRICAL DISTRIBUTION
PLAN 1
Freeway Management System, Phase 3, Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021

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

PROJECTS\218034\UNIT_1\007_218034_KEEHI_DIST_PLAN_01.DWG Sep 02, 2021-8:05 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	126	170



MATCHLINE "C"
SEE CONT. SHT. E-9

MATCHLINE "B"
SEE CONT. SHT. E-7

H1 Westbound

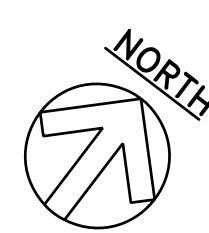
H1 Eastbound

Middle Street

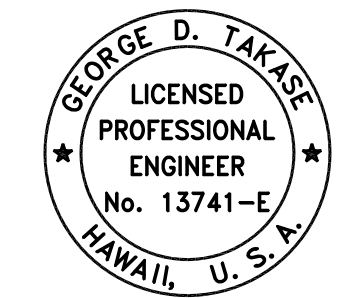
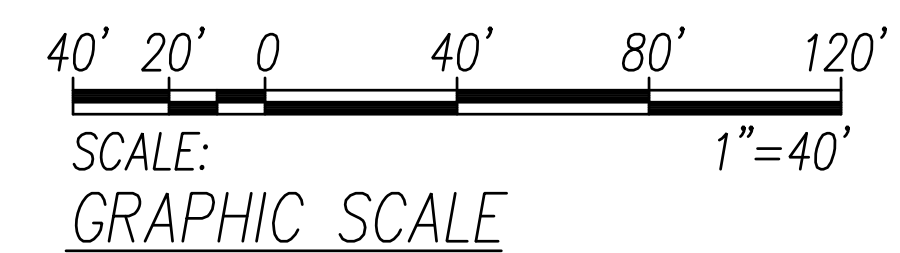
Existing Middle Street
CCTV Cabinet

NOTE(S):

- 1 Penetrate Existing Pullbox to Accommodate Conduit Installation.
- 2 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 Pull New Two 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.



Keehi Electrical Distribution Plan 2
SCALE: 1"=40'



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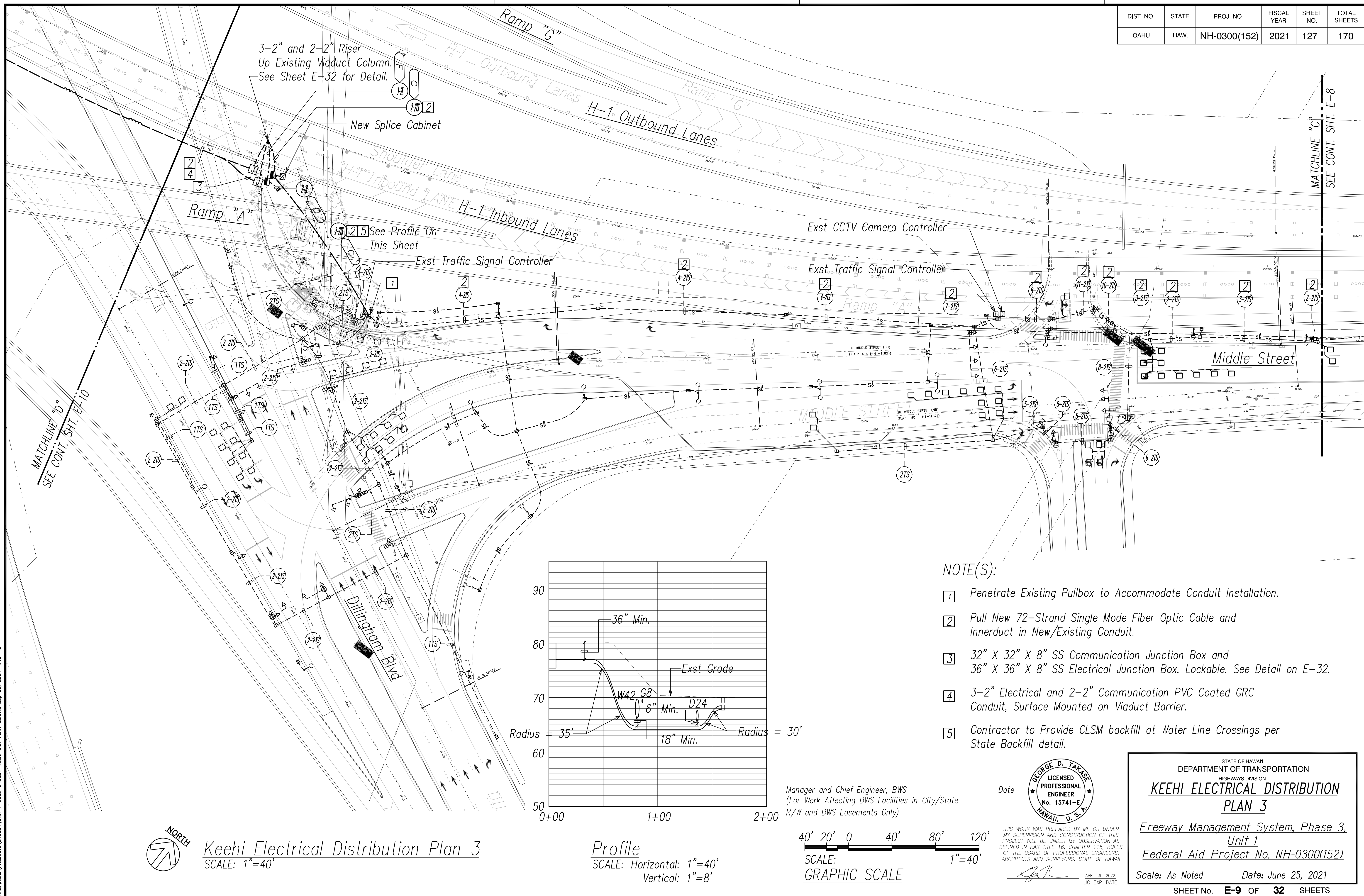
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI ELECTRICAL DISTRIBUTION
PLAN 2
*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

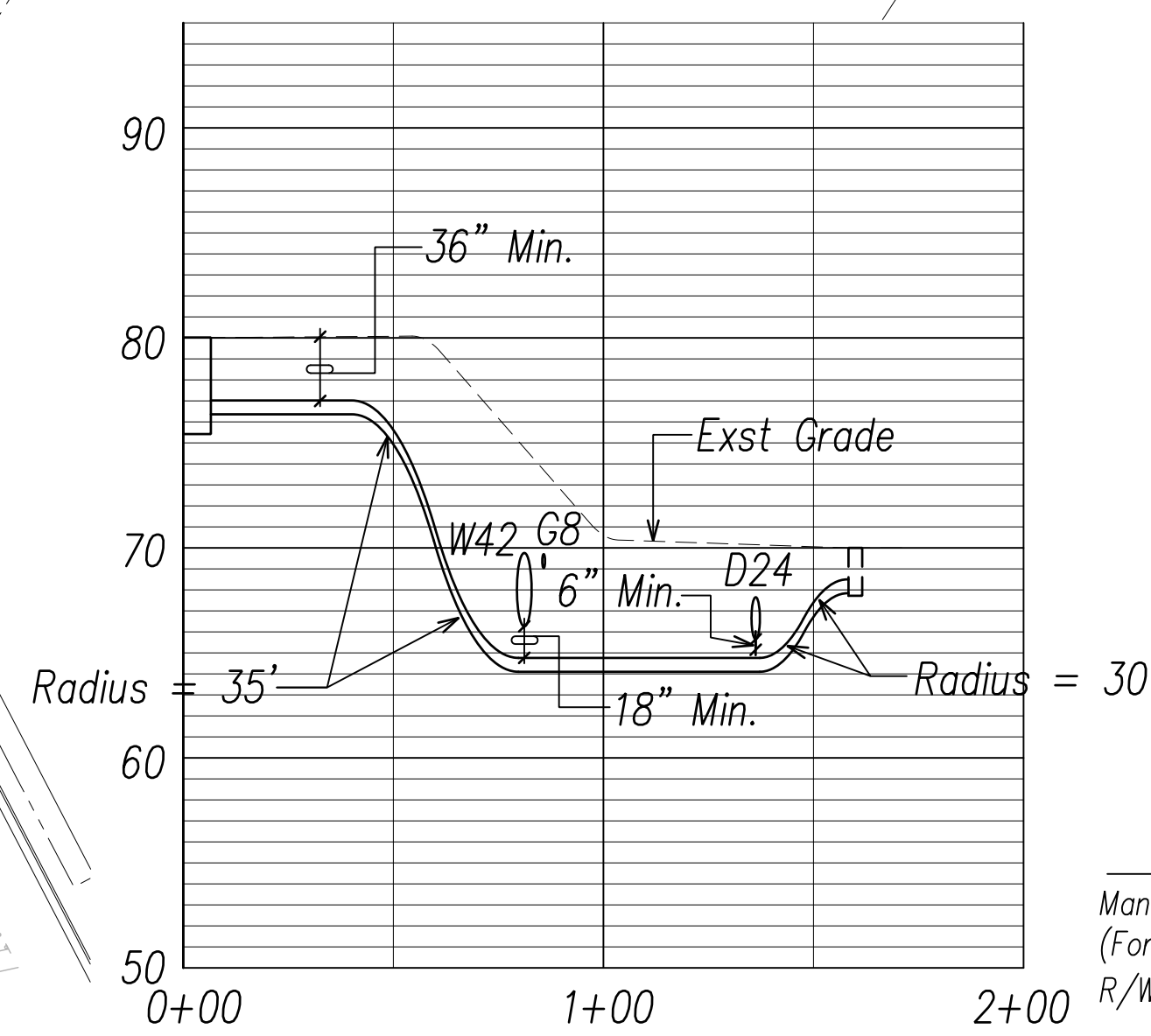
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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	127	170



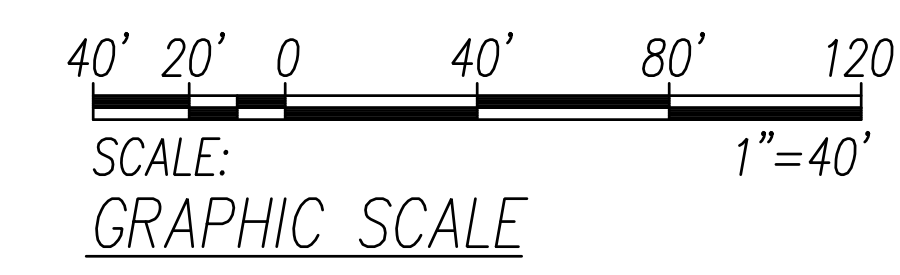
MATCHLINE "D"
SEE CONT. SHT. E-10

MATCHLINE "C"
SEE CONT. SHT. E-8



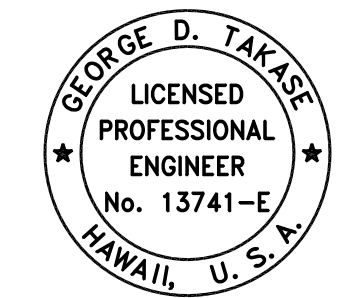
Profile
SCALE: Horizontal: 1"=40'
Vertical: 1"=8'

Manager and Chief Engineer, BWS
(For Work Affecting BWS Facilities in City/State
R/W and BWS Easements Only)



NOTE(S):

- 1 Penetrate Existing Pullbox to Accommodate Conduit Installation.
- 2 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 32" X 32" X 8" SS Communication Junction Box and 36" X 36" X 8" SS Electrical Junction Box. Lockable. See Detail on E-32.
- 4 3-2" Electrical and 2-2" Communication PVC Coated GRC Conduit, Surface Mounted on Viaduct Barrier.
- 5 Contractor to Provide CLSM backfill at Water Line Crossings per State Backfill detail.



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DESIGNED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

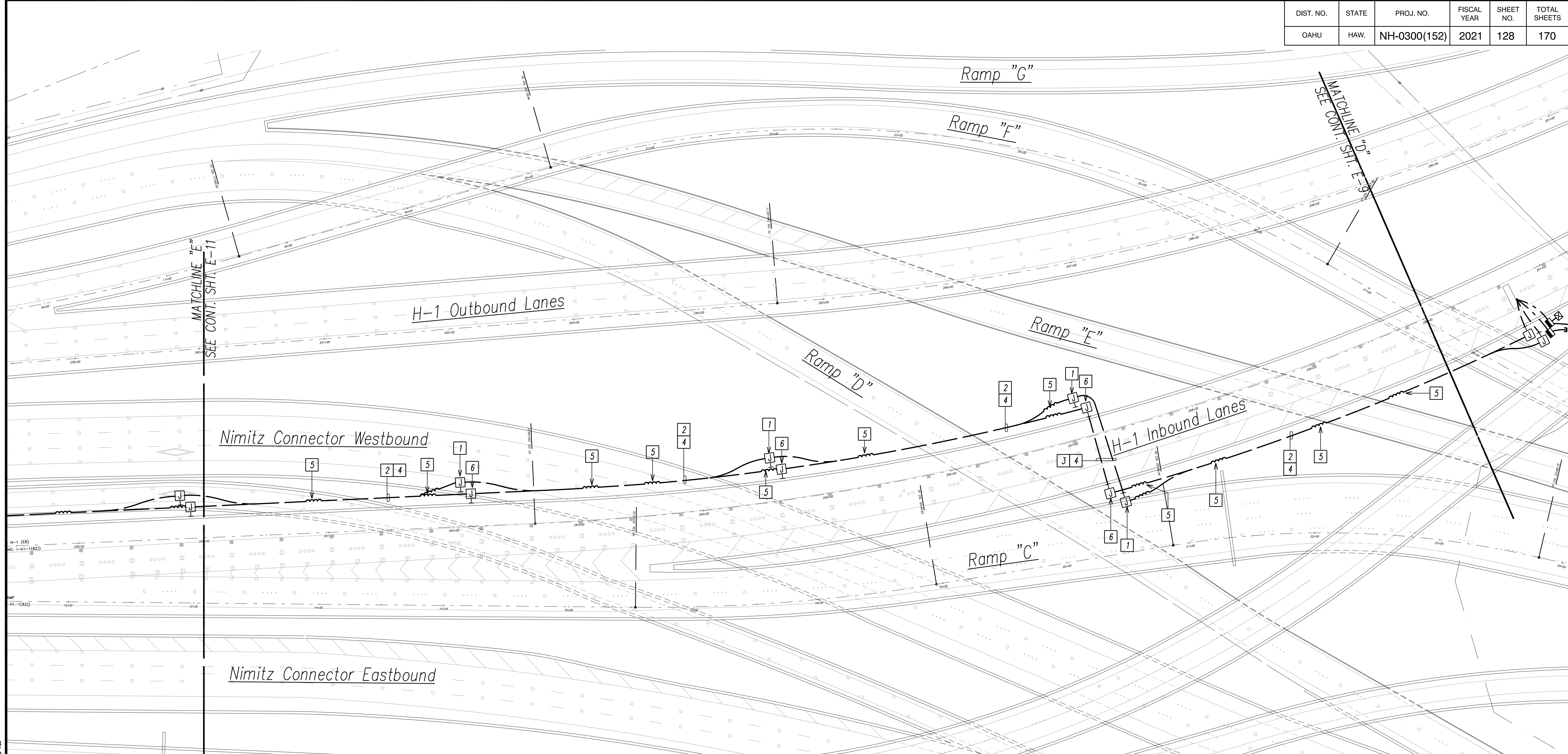
PR2-VCA0 PROJECTS\218034\UNIT_1_LE09_218034_KEEH DIST PLAN 03.DWG Sep 02, 2021-4:46 PM



Keehi Electrical Distribution Plan 3
SCALE: 1"=40'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI ELECTRICAL DISTRIBUTION
PLAN 3
*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-9** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	128	170

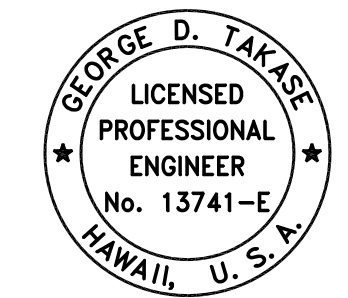
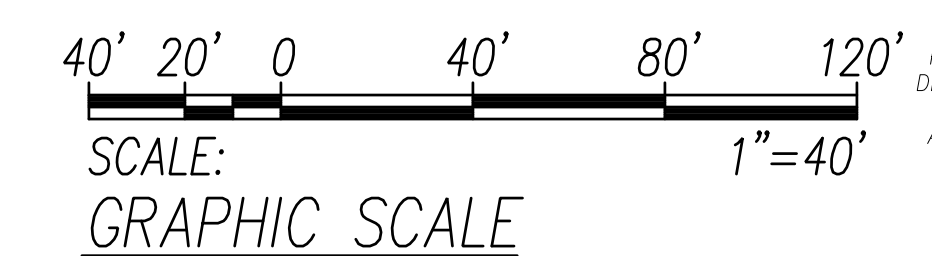


NOTE(S):

- 1 New 32" X 32" X 8" SS Communication Junction Box. See Detail C/E-32.
- 2 3-2" Electrical and 2-2" Communication PVC Coated GRC Conduit, Surface Mounted on Viaduct Barrier. See D/E-31.
- 3 3-2" Electrical and 2-2" Communication PVC Coated GRC Conduit, Mounted to Concrete Pier Below. Do Not Mount to Prestressed Concrete Beams.
- 4 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 5 Provide Flex Conduit at Viaduct Construction Joint.
- 6 New 36" X 36" X 8" SS Electrical Junction Box. See Detail C/E-32.



Keahi Electrical Distribution Plan 4
SCALE: 1"=40'



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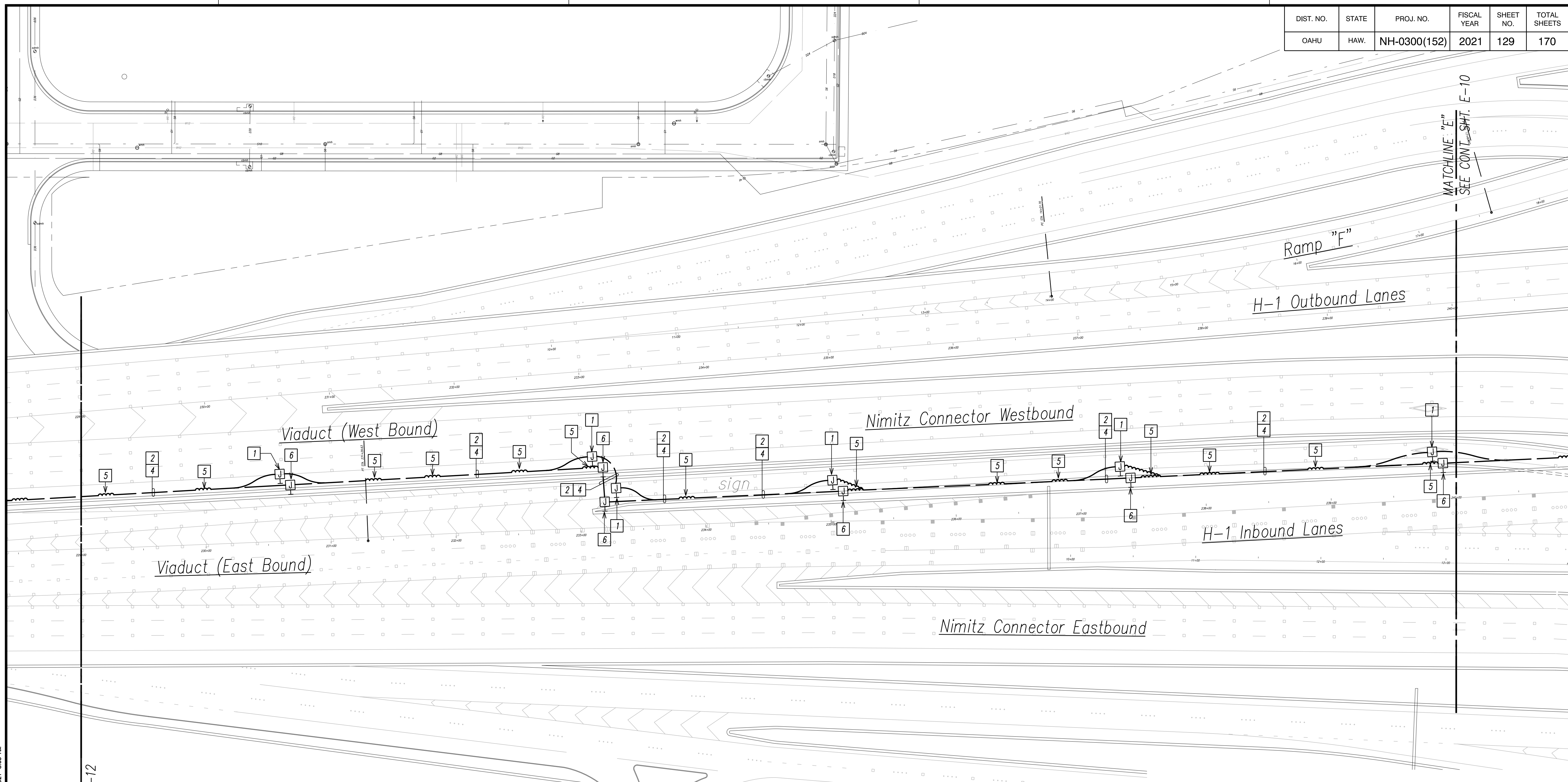
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI ELECTRICAL DISTRIBUTION
PLAN 4
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-10** OF **32** SHEETS

DATE	____
DESIGNED BY	____
CHECKED BY	____
QUANTITIES BY	____
DESIGNED BY	____
TRACED BY	____
PLANNED BY	____
DATE	____

PROJECTS\218034\UNIT_1\ED10_218034_KEEHI_DIST_PLAN_04.DWG, Jul 19, 2021-8:05 AM

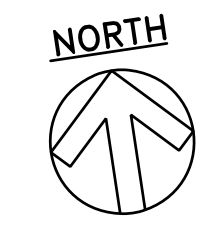
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	129	170



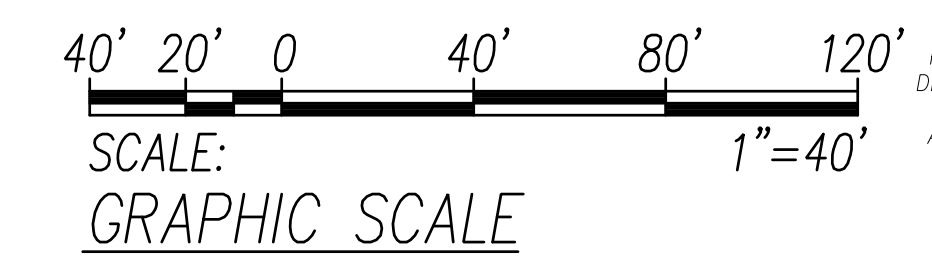
MATCHLINE "F"
SEE CONT. SHT. E-12

NOTE(S):

- 1 New 32" X 32" X 8" SS Communication Junction Box. See Detail C/E-32.
- 2 3-2" Electrical and 2-2" Communication PVC Coated GRC Conduit, Surface Mounted on Viaduct Barrier.
- 3 3-2" Electrical PVC Coated GRC Conduit, Mounted to Concrete Pier Below. Do Not Mount to Prestressed Concrete Beams.
- 4 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 5 Provide Flex Conduit at Viaduct Construction Joint.
- 6 New 36" X 36" X 8" SS Electrical Junction Box. See Detail C/E-32.

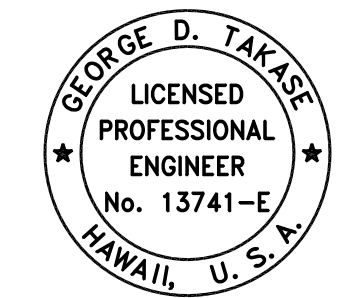


Keahi Electrical Distribution Plan 5
SCALE: 1"=40'



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

PR2-VG40 PROJECTS\218034\UNIT_1\ED1_218034_KEEHI_DIST_PLAN_05.DWG, Jul 19, 2021-8:05 AM

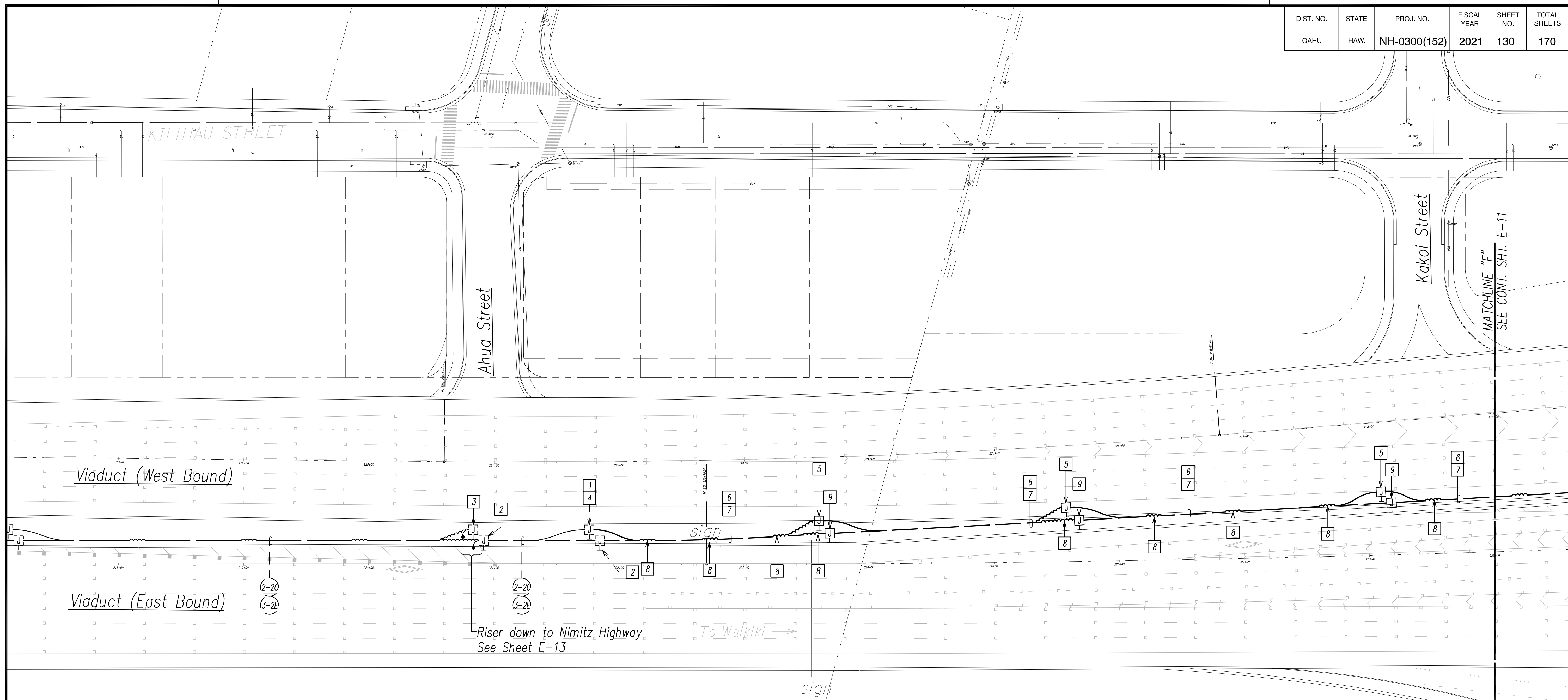


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GT
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI ELECTRICAL DISTRIBUTION
PLAN 5
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET NO. **E-11** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	130	170



NOTE(S):

- 1 Existing 32" X 32" X 8" SS Communication Junction Box
- 2 Existing 36" X 36" X 8" SS Electrical Junction Box
- 3 Existing 32" X 32" X 12" SS Communication Junction Box
- 4 Penetrate Existing Junction Box for Conduit Installation.
- 5 New 32" X 32" X 8" SS Communication Junction Box. See Detail C/E-32.
- 6 3-2" Electrical and 2-2" Communication PVC Coated GRC Conduit, Surface Mounted on Viaduct Barrier.
- 7 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 8 Provide Flex Conduit at Viaduct Construction Joint.
- 9 New 36" X 36" X 8" SS Electrical Junction Box See Detail C/E-32.

Riser down to Nimitz Highway
See Sheet E-13

To Waikiki →

sign

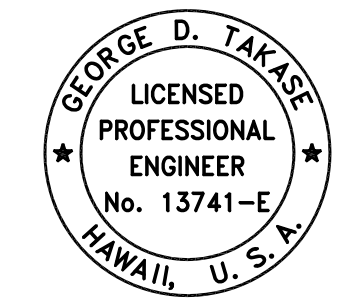
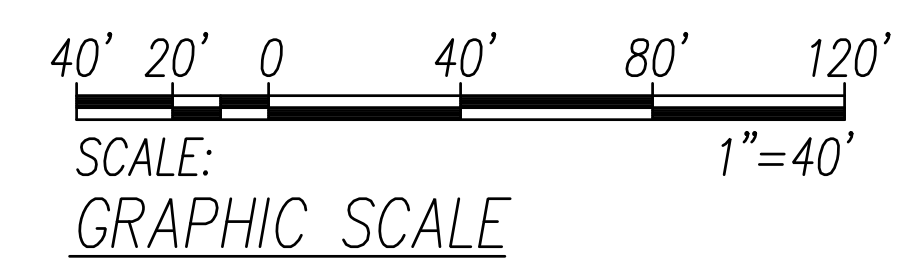
MATCHLINE "F"
SEE CONT. SHT. E-11

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

PROJECT NO. 2021-0807 AM



Keahi Electrical Distribution Plan 6
SCALE: 1"=40'

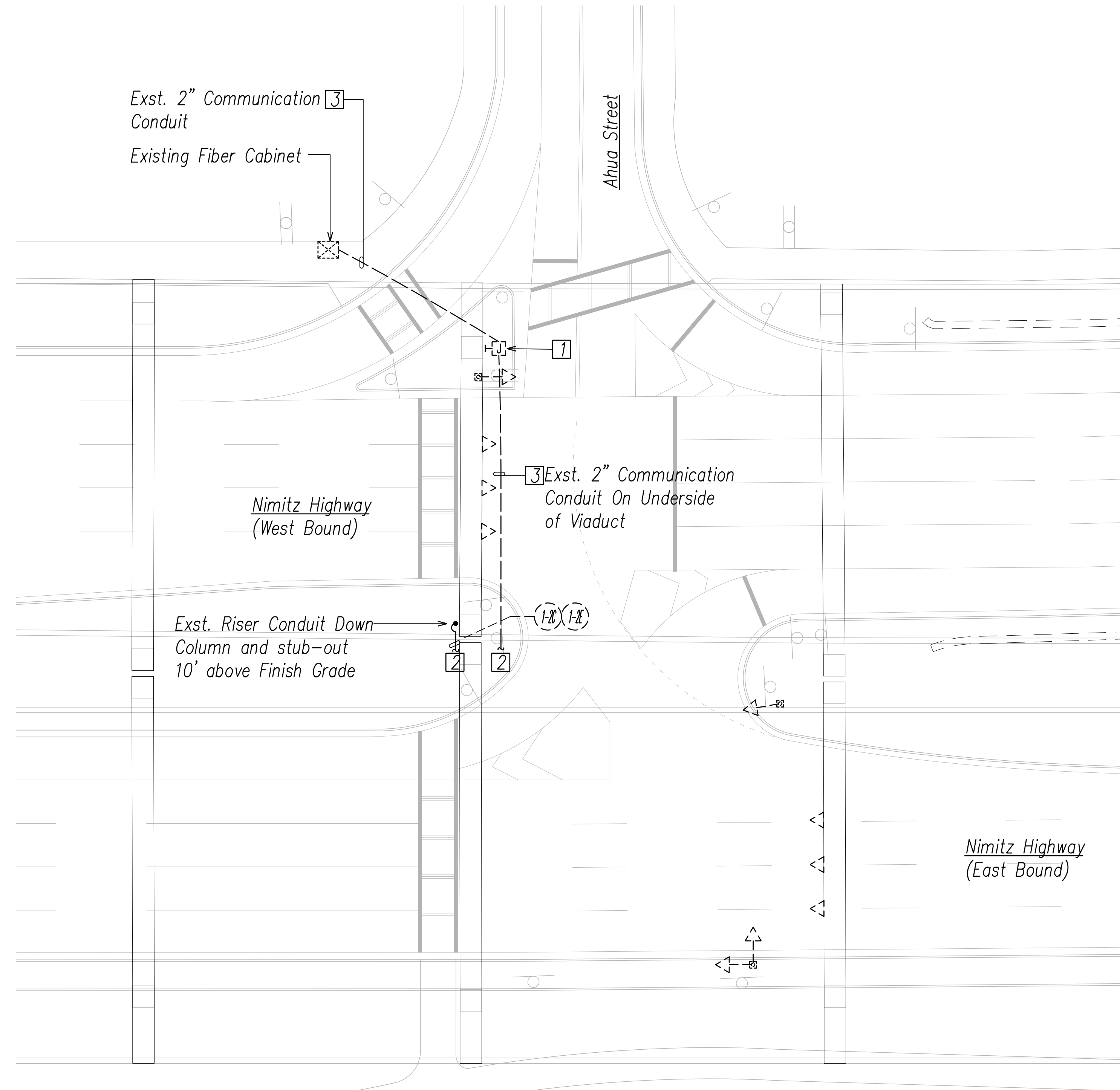


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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI ELECTRICAL DISTRIBUTION
PLAN 6
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	131	170



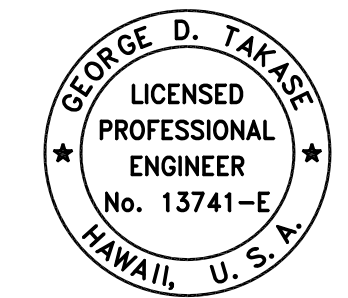
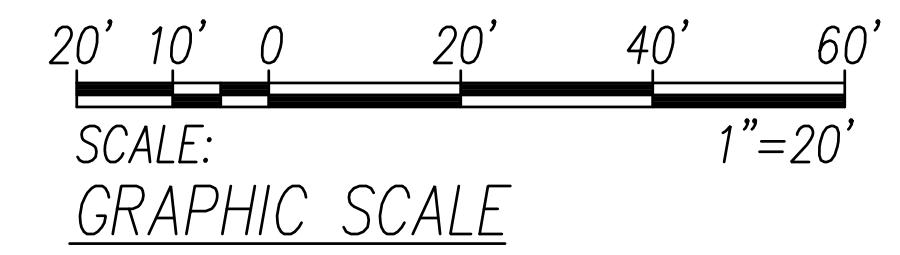
NOTE(S):

- 1 Existing 24" x 24" SS Junction Box with Homerun to Existing Fiber Cabinet.
- 2 Continuation from Junction Box on Sheet E-12.
- 3 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in Existing Conduit.

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

P:\2\1640\PROJECTS\1640\UNIT_1\ED13_218034_AHUA_INTERSECTION.DWG Jul 19, 2021-8:07 AM

NORTH
Ahua Distribution Plan
 SCALE: 1"=20'



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APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

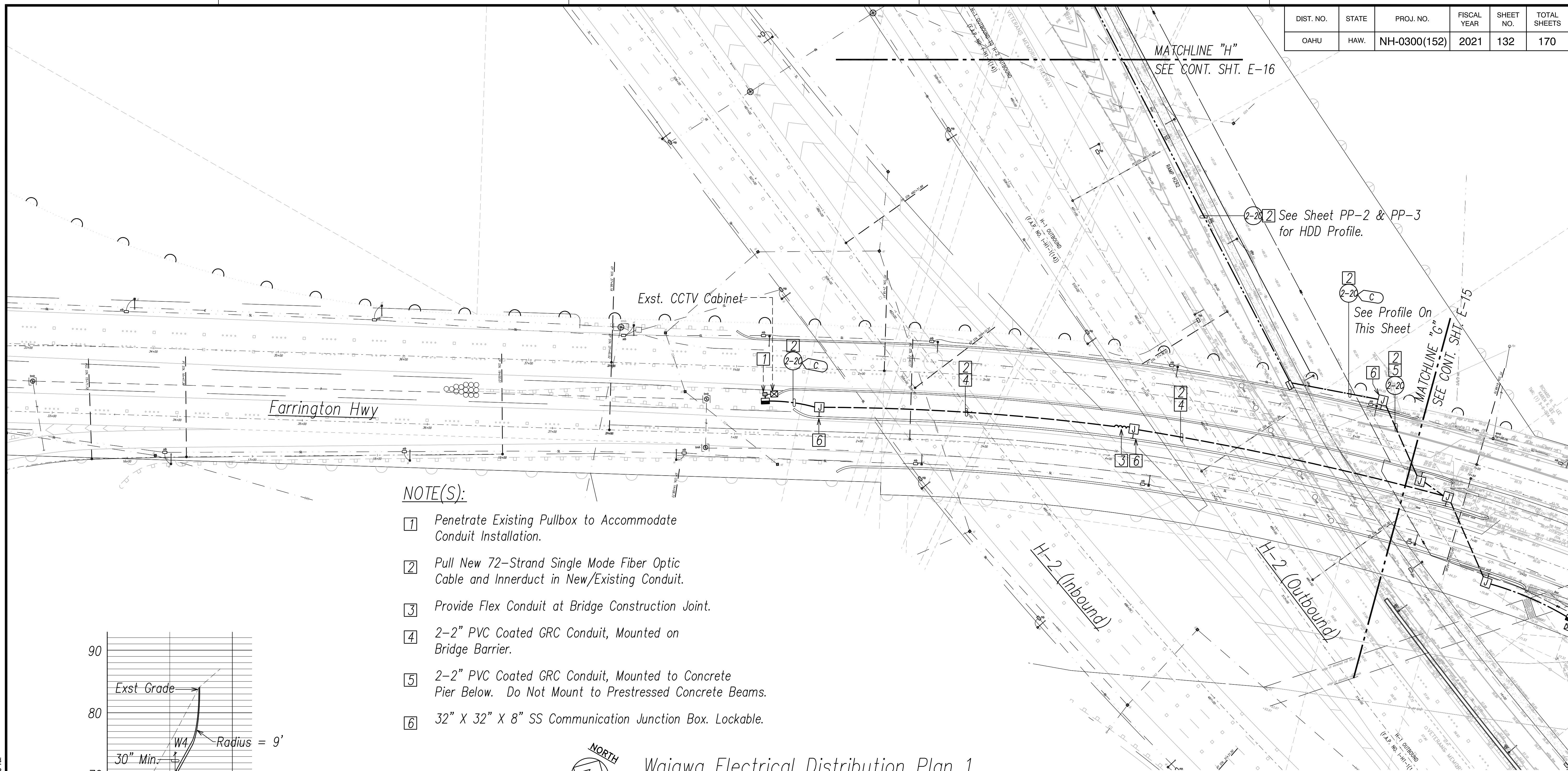
AHUA DISTRIBUTION PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

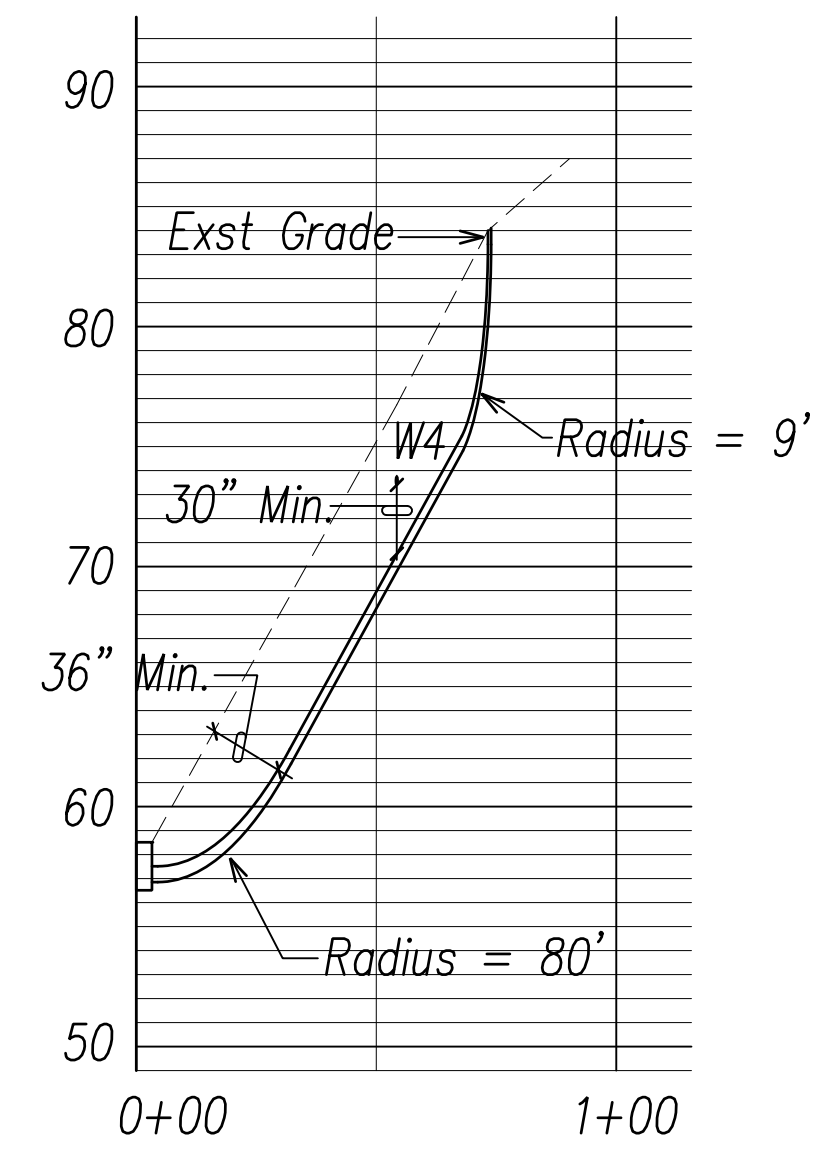
SHEET No. E-13 OF 32 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	132	170



NOTE(S):

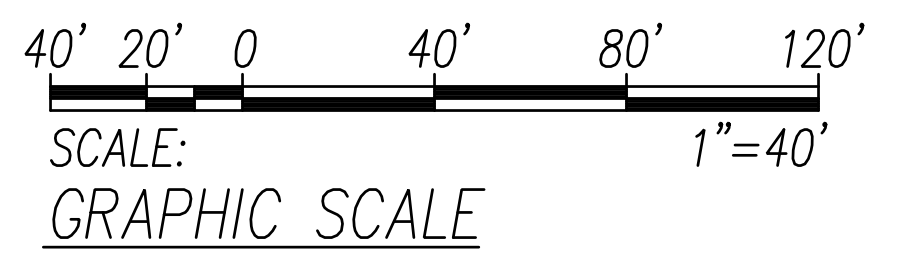
- 1 Penetrate Existing Pullbox to Accommodate Conduit Installation.
- 2 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 Provide Flex Conduit at Bridge Construction Joint.
- 4 2-2" PVC Coated GRC Conduit, Mounted on Bridge Barrier.
- 5 2-2" PVC Coated GRC Conduit, Mounted to Concrete Pier Below. Do Not Mount to Prestressed Concrete Beams.
- 6 32" X 32" X 8" SS Communication Junction Box. Lockable.



Profile
 SCALE: Horizontal: 1"=40'
 Vertical: 1"=8'

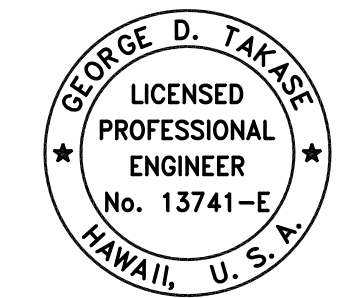


Waiawa Electrical Distribution Plan 1
 SCALE: 1"=40'



DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

PROJECTS\218034\UNIT_1\ED14_218034_WAIAWA_DST_01.DWG Sep 02, 2021-8:10 AM

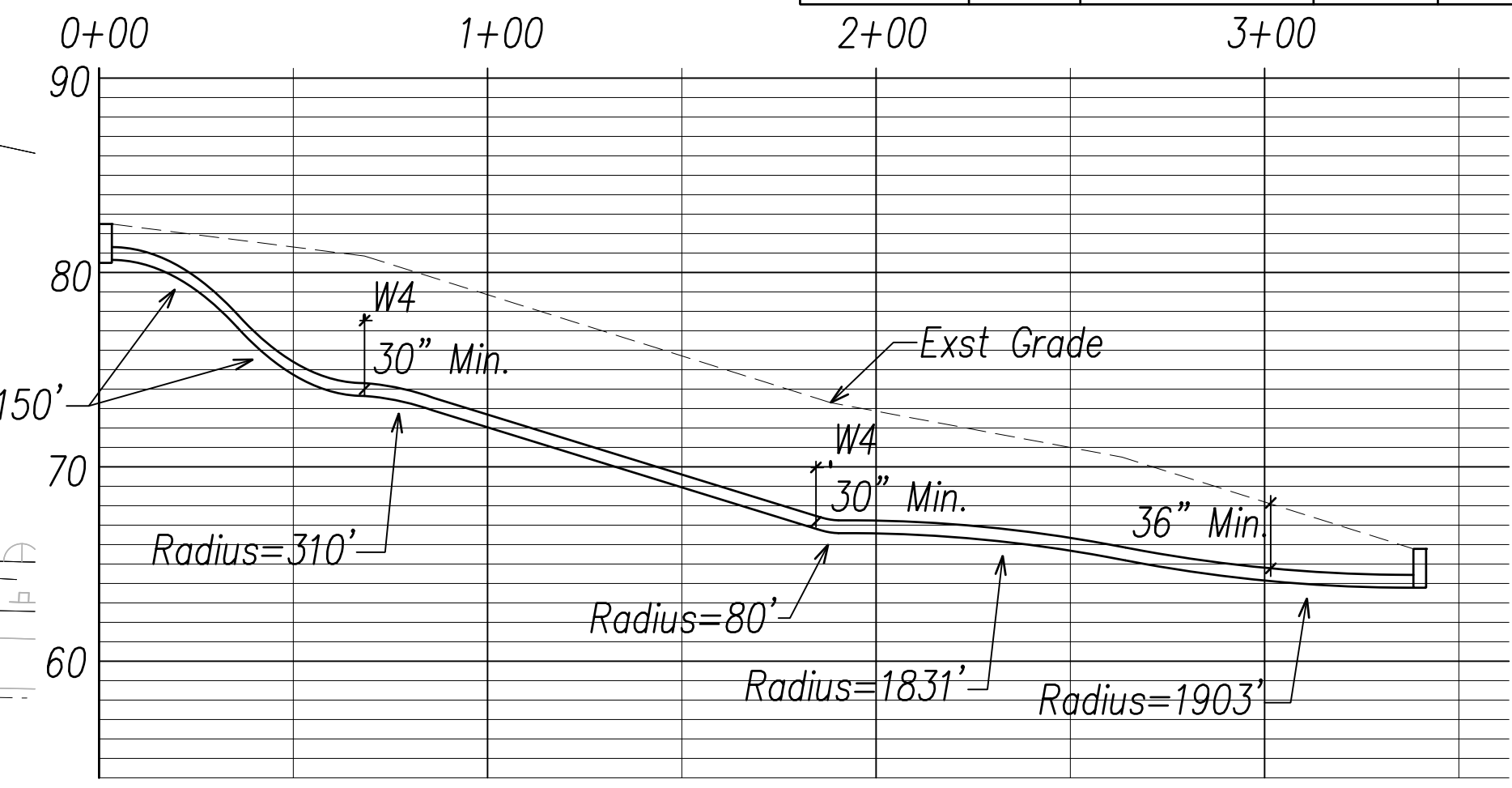
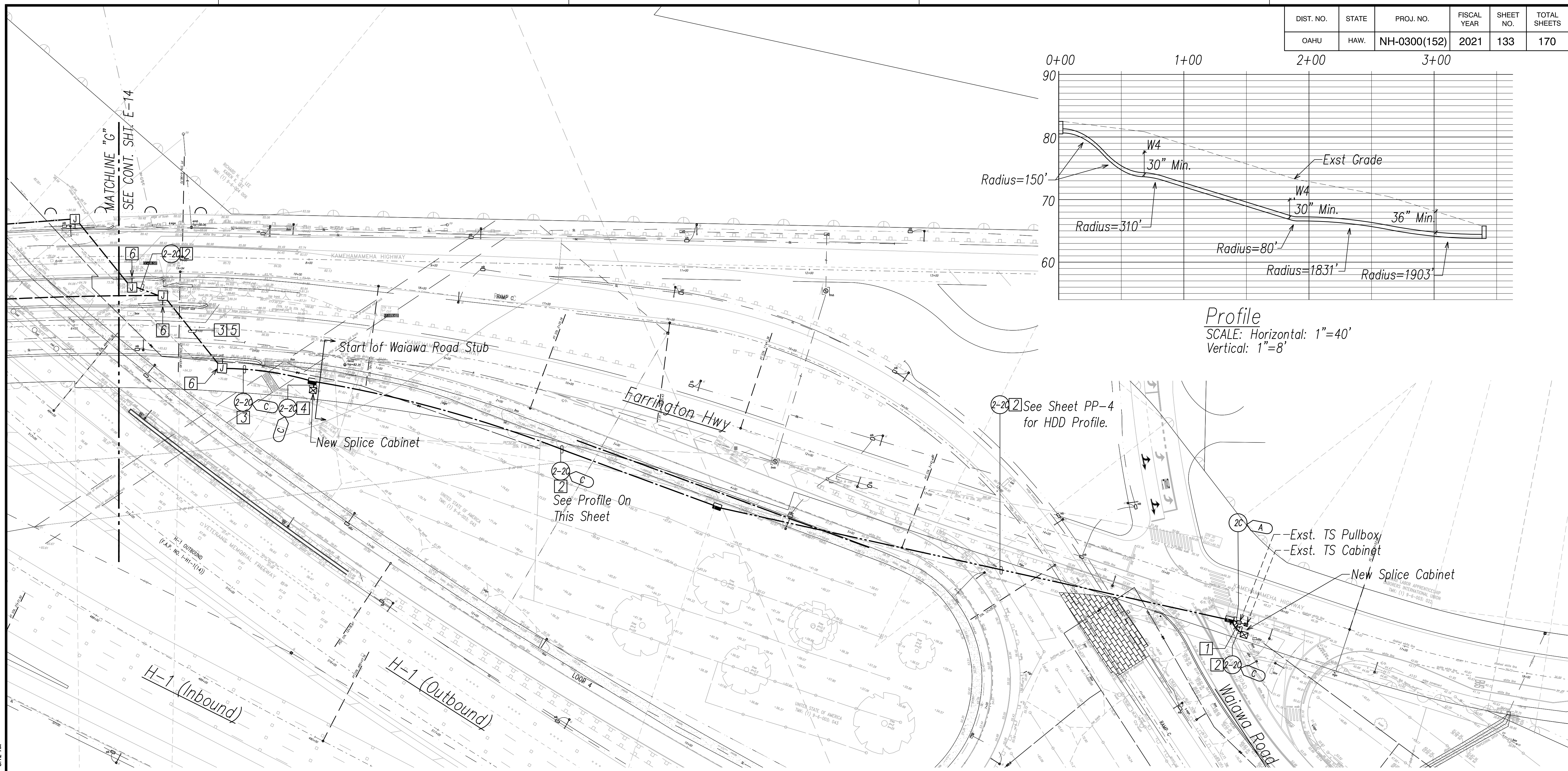


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APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 1
Freeway Management System, Phase 3,
Unit 1
 Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021
 SHEET No. **E-14** OF **32** SHEETS

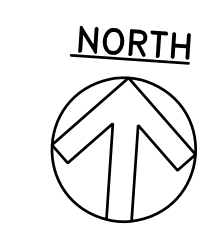
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	133	170



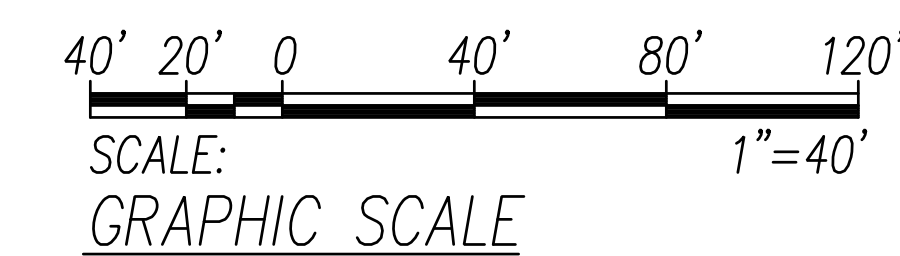
Profile
SCALE: Horizontal: 1"=40'
Vertical: 1"=8'

NOTE(S):

- 1 Penetrate Existing Pullbox to Accommodate Conduit Installation.
- 2 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 Pull Two New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 4 Pull Three New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 5 2-2" PVC Coated GRC Conduit, Mounted to Concrete Pier Below. Do Not Mount to Prestressed Concrete Beams.
- 6 32" X 32" X 8" SS Communication Junction Box. Lockable.

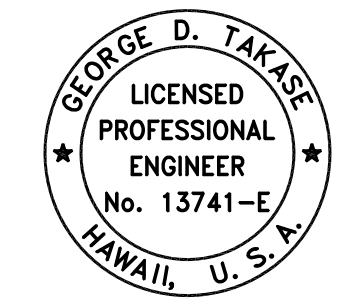


Waiawa Electrical Distribution Plan 2
SCALE: 1"=40'



DATE	____
SURVEY PLOTTED BY	____
DRAWN BY	____
TRACED BY	____
DESIGNED BY	____
QUANTITIES BY	____
CHECKED BY	____
No.	____

PR2-VG40 PROJECTS\218034\UNIT_1\ED15_218034_WAIWA_DST_02.LCC.DWG Sep 02, 2021 8:12 AM

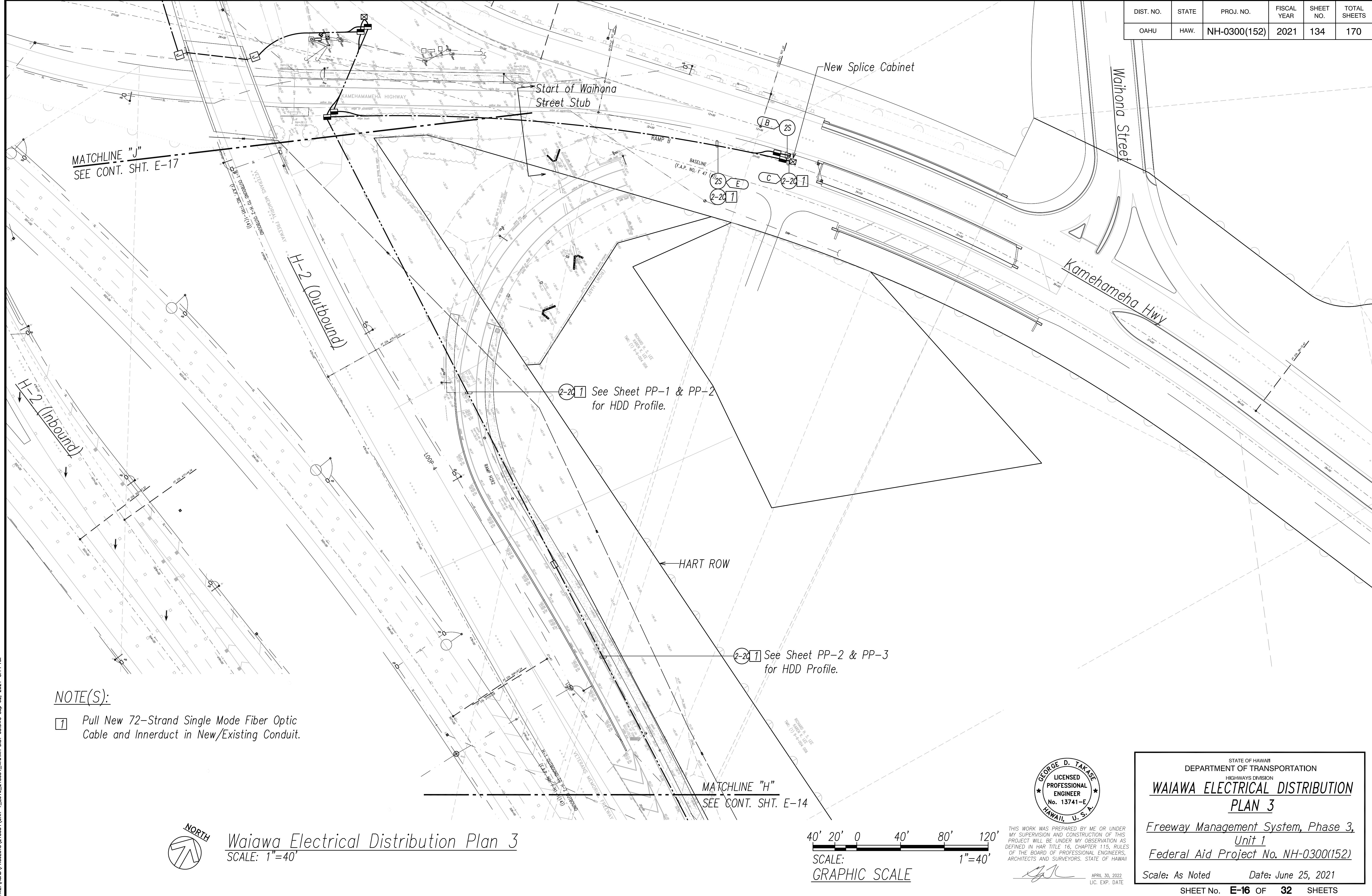


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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 2
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-15** OF **32** SHEETS

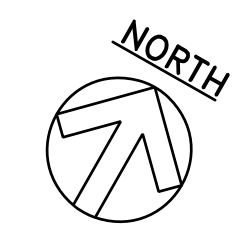
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	134	170



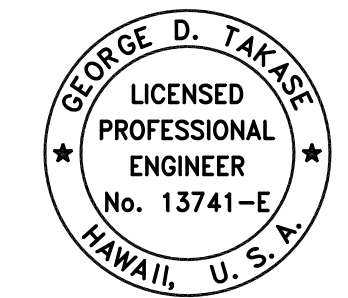
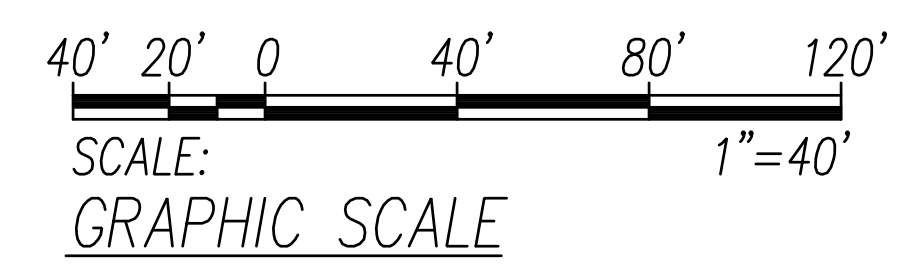
NOTE(S):
 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.

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

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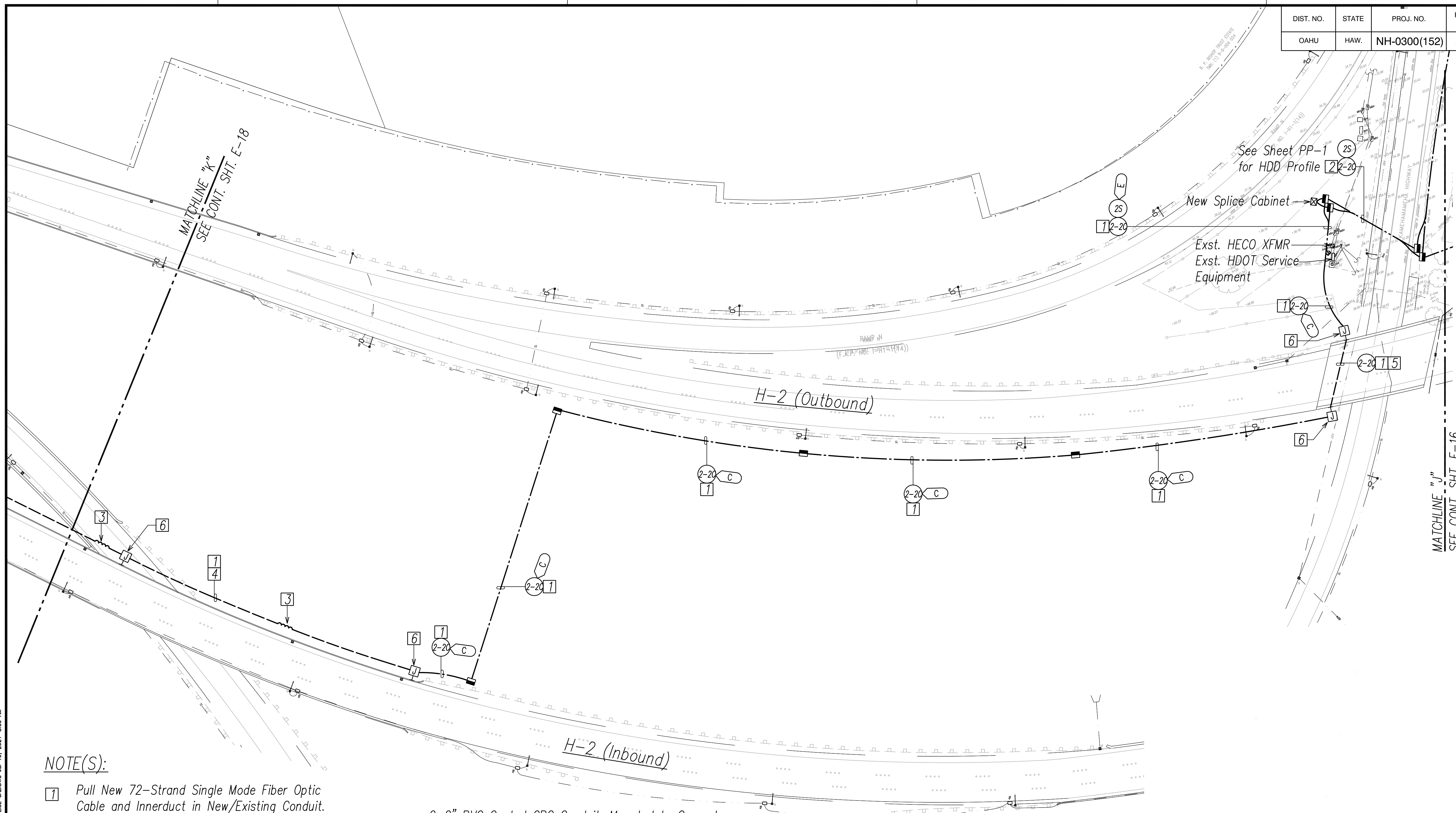
Waiawa Electrical Distribution Plan 3
 SCALE: 1"=40'



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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 3
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021
 SHEET No. **E-16** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	135	170

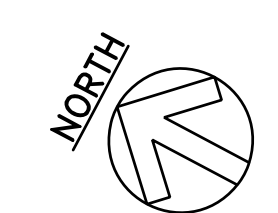


NOTE(S):

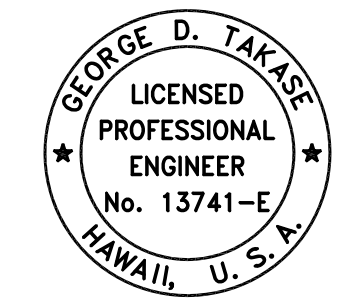
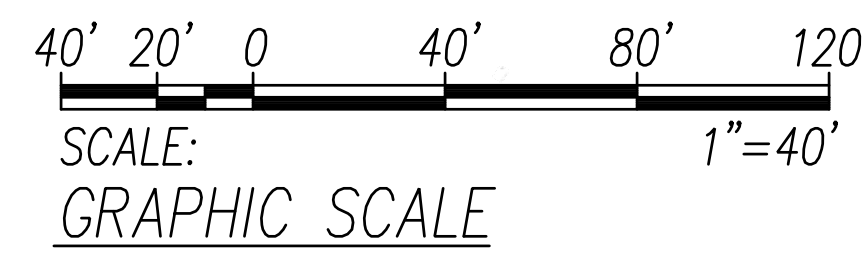
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull Two New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 Provide Flex Conduit at Bridge Construction Joint.
- 4 2-2" PVC Coated GRC Conduit, Mounted on Bridge Barrier.
- 5 2-2" PVC Coated GRC Conduit, Mounted to Concrete Pier Below. Do Not Mount to Prestressed Concrete Beams.
- 6 32" X 32" X 8" SS Communication Junction Box. Lockable.

DATE	_____
SURVEY PLOTTED BY	_____
PLAN	_____
DESIGNED BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

PROJECTS\218034\UNIT 1\ED7_218034_WAIAWA_DST 04_KAM_SPLICE_CAB.DWG, Jul 19, 2021-8:09 AM



Waiawa Electrical Distribution Plan 4
SCALE: 1"=40'

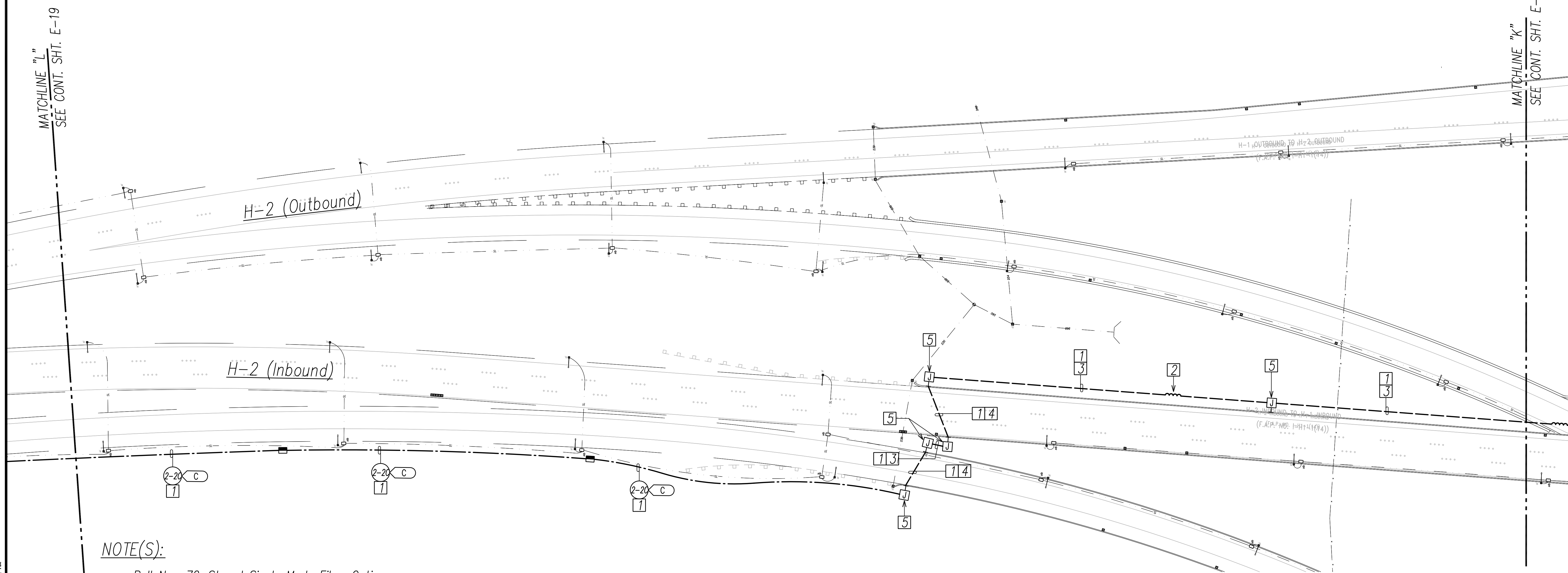


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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 4
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-17** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	136	170

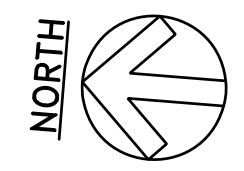


NOTE(S):

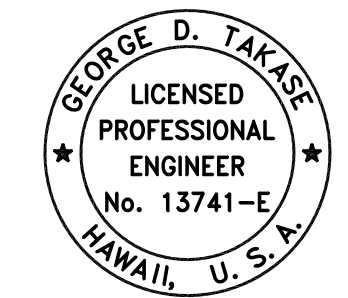
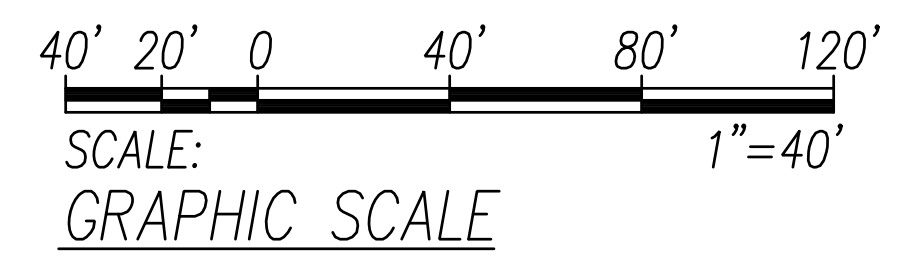
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Provide Flex Conduit at Bridge Construction Joint.
- 3 2-2" PVC Coated GRC Conduit, Mounted on Bridge Barrier.
- 4 2-2" PVC Coated GRC Conduit, Mounted to Concrete Pier Below. Do Not Mount to Prestressed Concrete Beams.
- 5 32" X 32" X 8" SS Communication Junction Box.

DATE	DATE
DESIGNED BY	DESIGNED BY
CHECKED BY	CHECKED BY
QUANTITIES BY	QUANTITIES BY
TRACED BY	TRACED BY
DRAWN BY	DRAWN BY
PLAN	PLAN
ORIGINAL	ORIGINAL

PROJECTS\218034\UNIT_1_ED18_218034_WAIIWA_DIST_05.DWG Jul 19, 2021-8:12 AM



Waiawa Electrical Distribution Plan 5
SCALE: 1"=40'

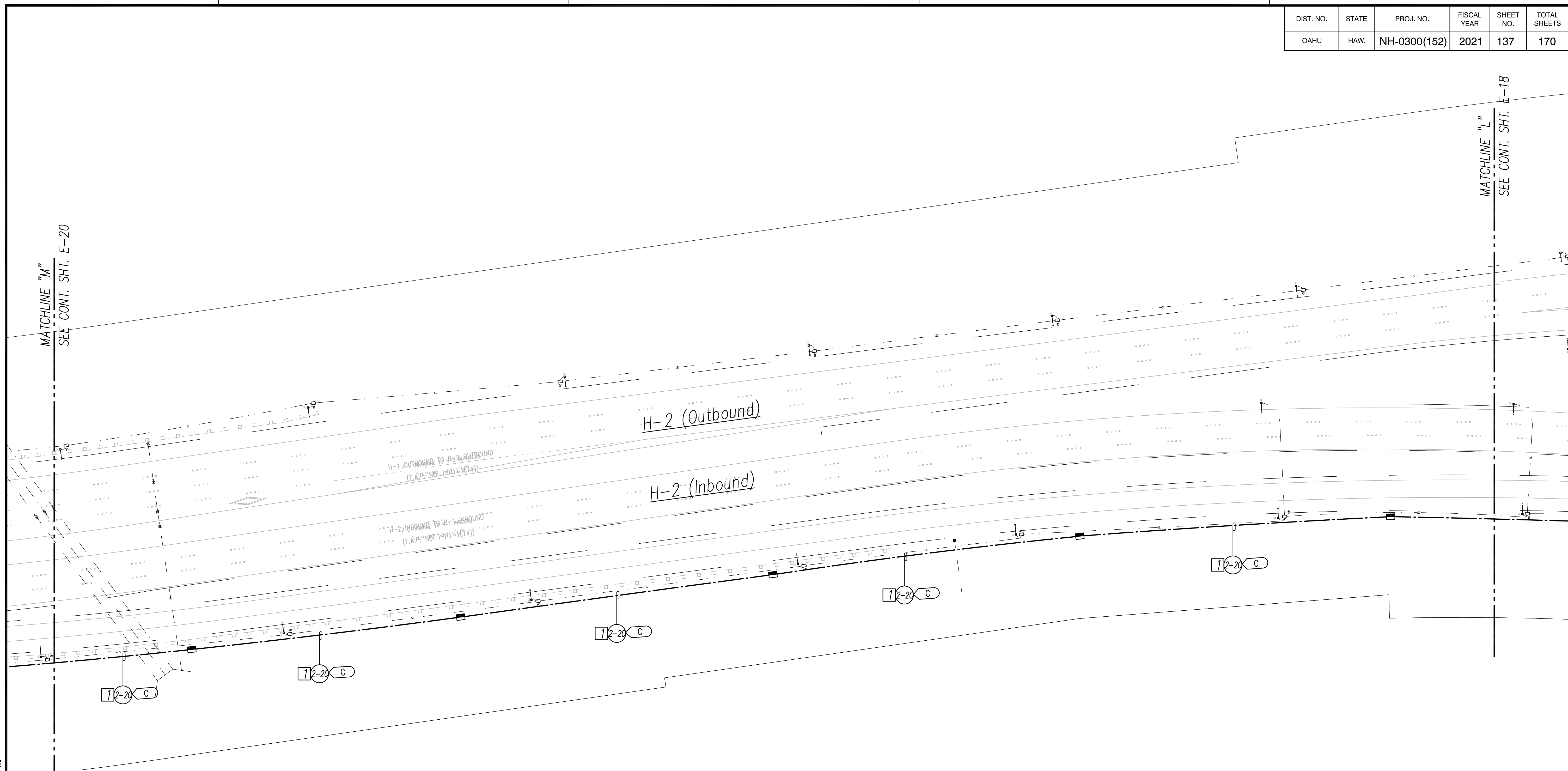


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 5
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021

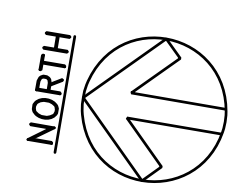
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	137	170



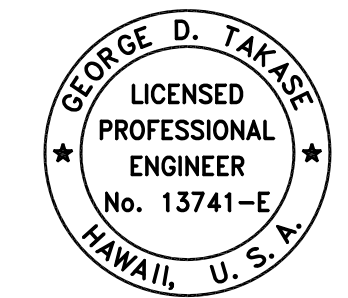
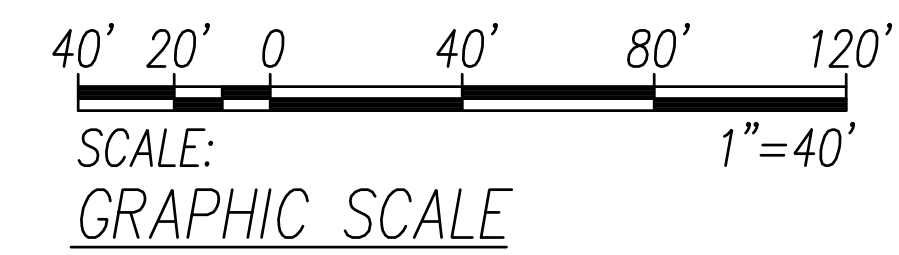
NOTE(S):
 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.

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

PR2:\A04\PROJECTS\8034\UNIT_1\ED19_218034_WAIIWA_DST_06.DWG Jul 19, 2021-8:13 AM



Waiawa Electrical Distribution Plan 6
 SCALE: 1"=40'



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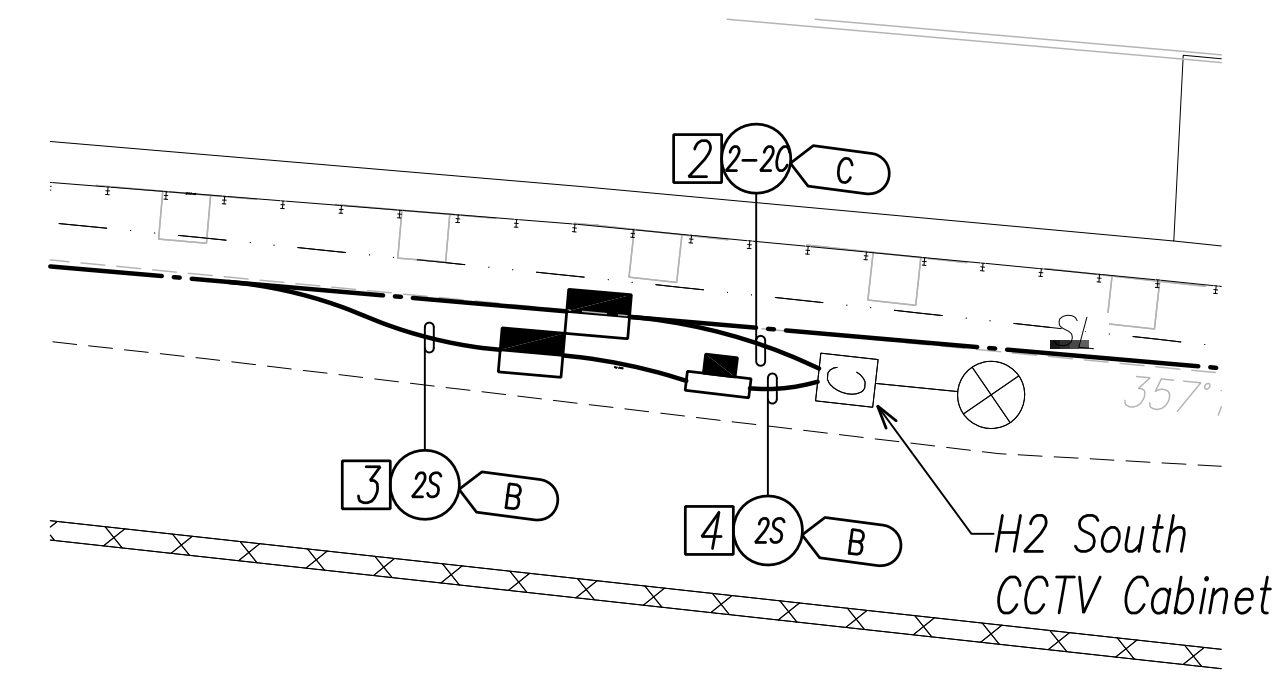
Signature
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 6
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021

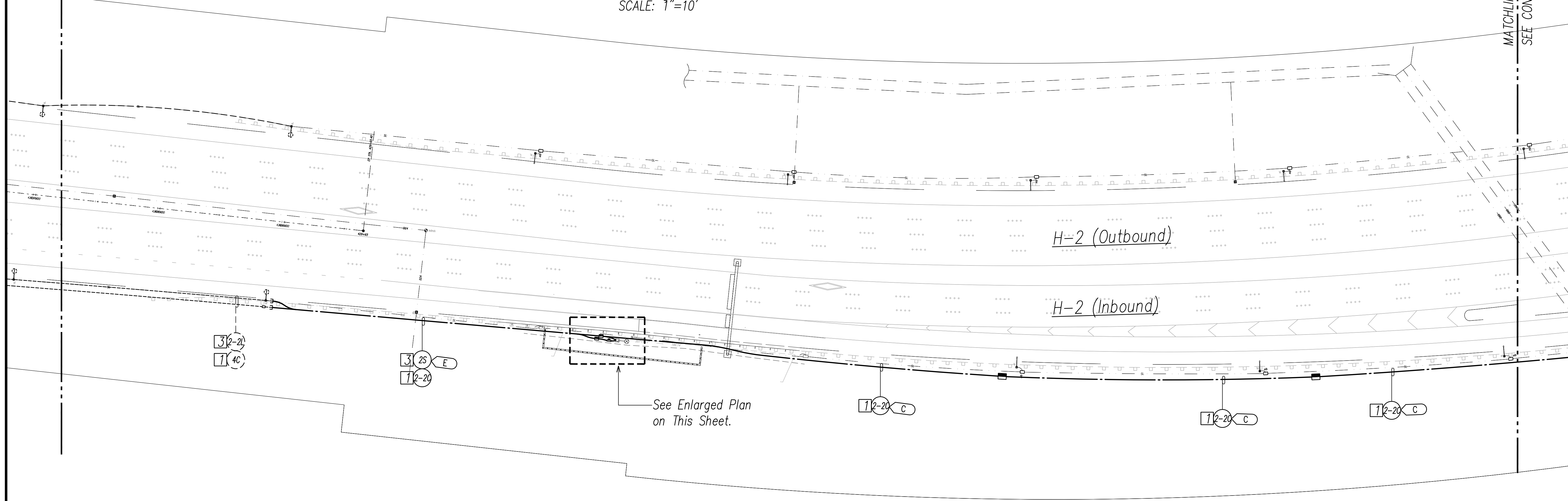
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	138	170

MATCHLINE "N"
SEE CONT. SHT. E-21

MATCHLINE "M"
SEE CONT. SHT. E-19



Enlarged Plan
SCALE: 1"=10'

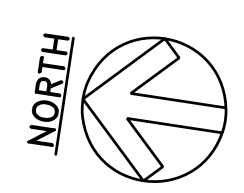


NOTE(S):

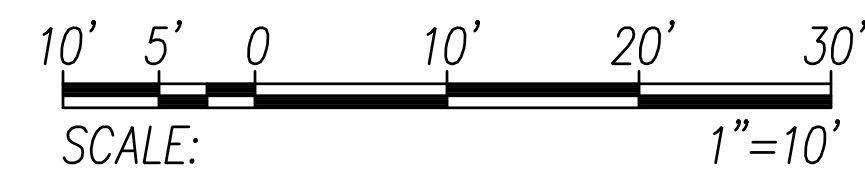
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull Two New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 Pull 2#2/0 #2/0 Gnd in New Conduit.
- 4 Pull 2#10 #10 Gnd in New Conduit.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

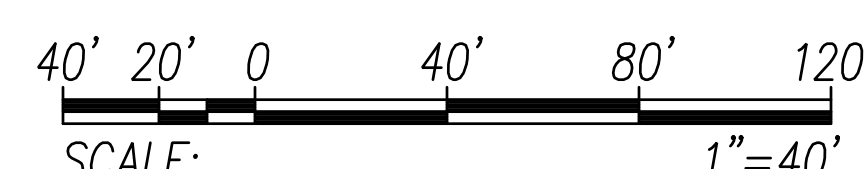
P:\2-V\40\PROJECTS\18034\UNIT_1_EC02_218034_WAIIWA_DIST_07_H2SOUTH.DWG Jul 19, 2021-8:11 AM



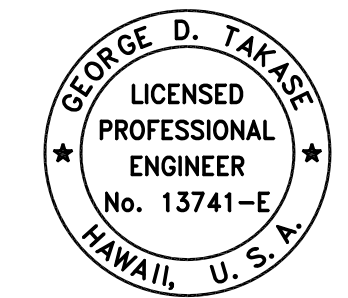
Waiawa Electrical Distribution Plan 7
SCALE: 1"=40'



SCALE: 1"=10'
GRAPHIC SCALE



SCALE: 1"=40'
GRAPHIC SCALE

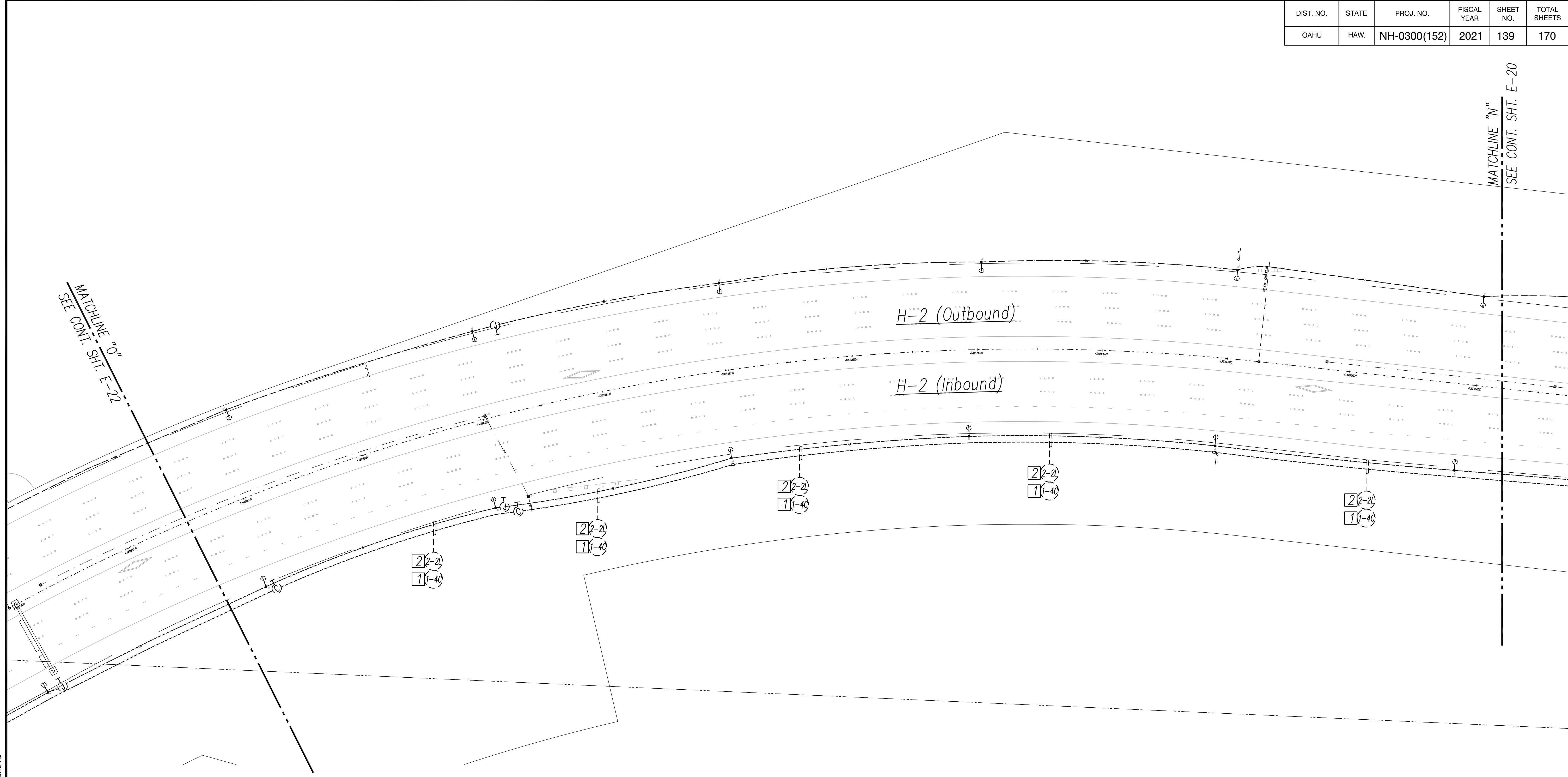


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GT
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WAIAWA ELECTRICAL DISTRIBUTION
PLAN 7**
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	139	170

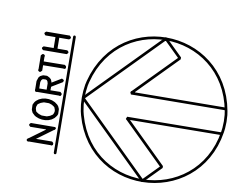


NOTE(S):

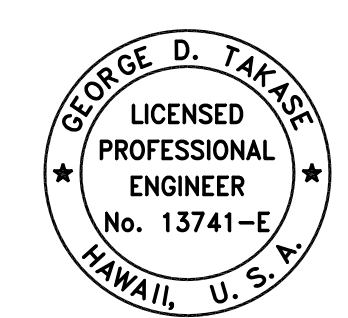
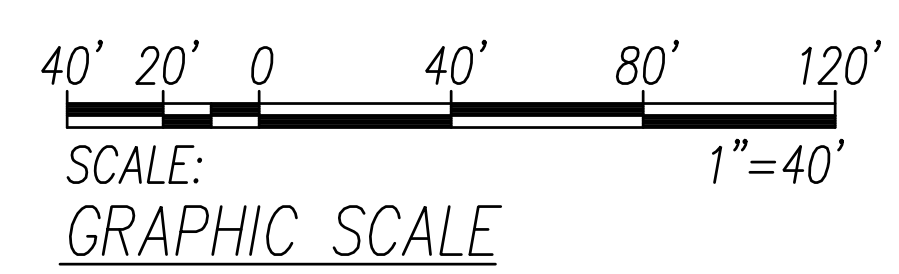
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull 2#2/0 #2/0 Gnd in New Conduit.

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

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Waiawa Electrical Distribution Plan 8
SCALE: 1"=40'

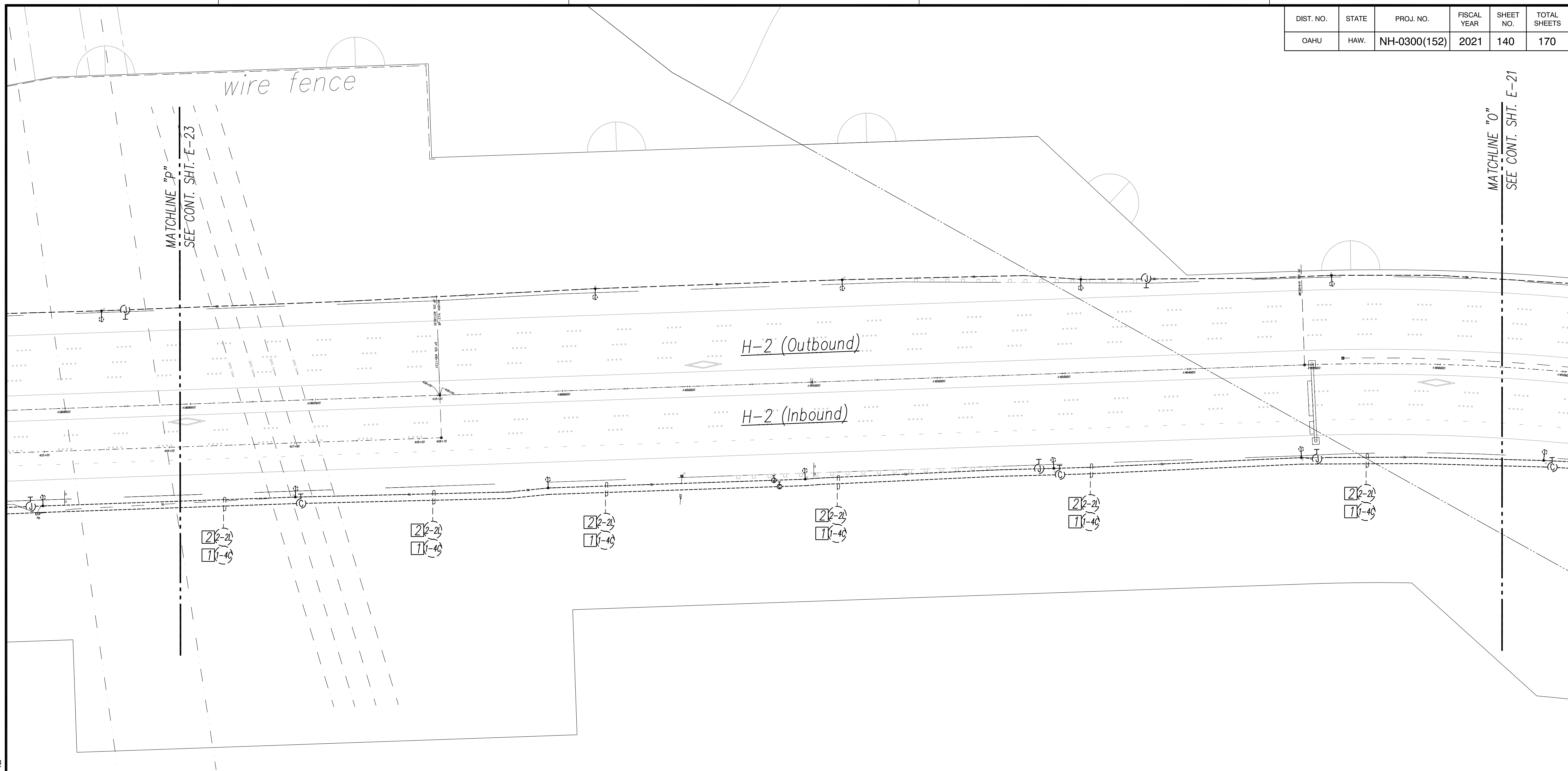


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GT
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WAIAWA ELECTRICAL DISTRIBUTION
PLAN 8**
*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-21** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	140	170

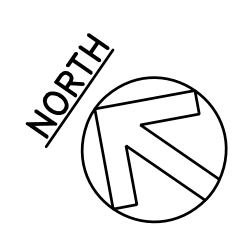


NOTE(S):

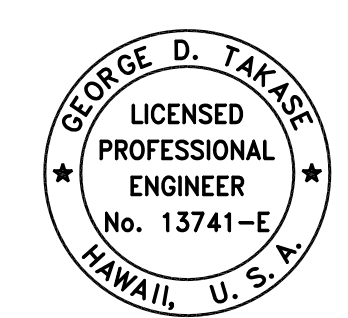
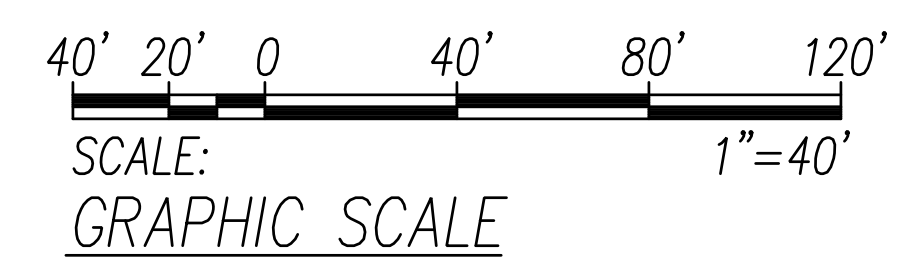
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull 2#2/0 #2/0 Gnd in New Conduit.

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

PR2:\CADD\PROJECTS\218034\UNIT_1_EC22_218034_WAIIWA_DST_05.DWG Jul 19, 2021-8:17 AM



Waiawa Electrical Distribution Plan 9
SCALE: 1"=40'

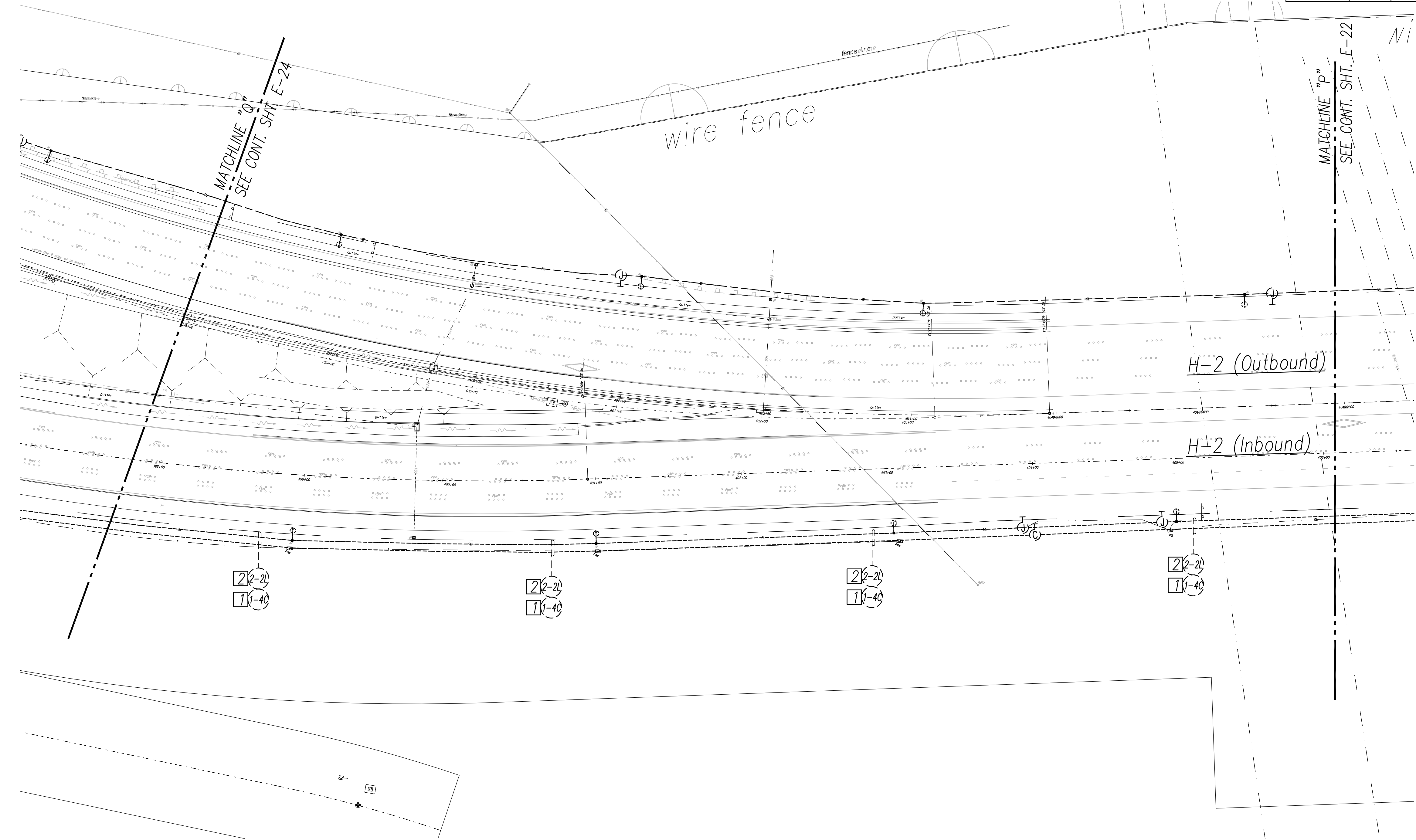


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GT
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 9
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	141	170

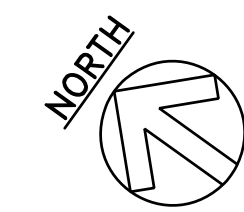


NOTE(S):

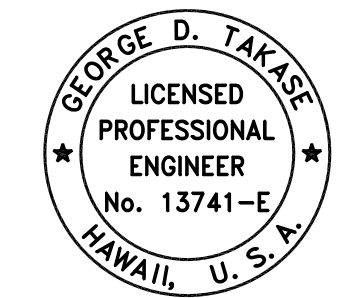
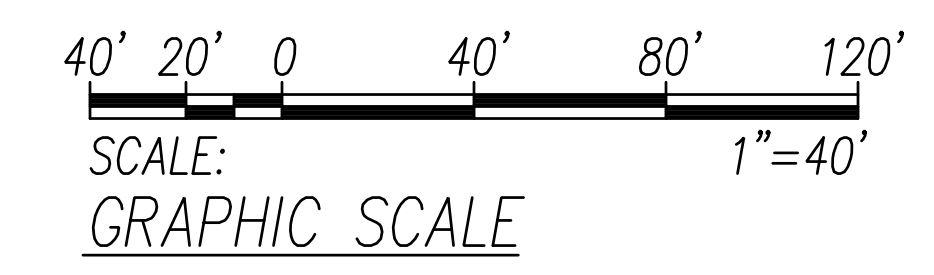
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull 2#2/0 #2/0 Gnd in New Conduit.

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

P:\2\1624\PROJECTS\1624\UNIT_1\ED03_218034_WAIIWA_DST_10_H2NORTH.DWG Jul 19, 2021 - 8:16 AM



Waiawa Electrical Distribution Plan 10
SCALE: 1"=40'

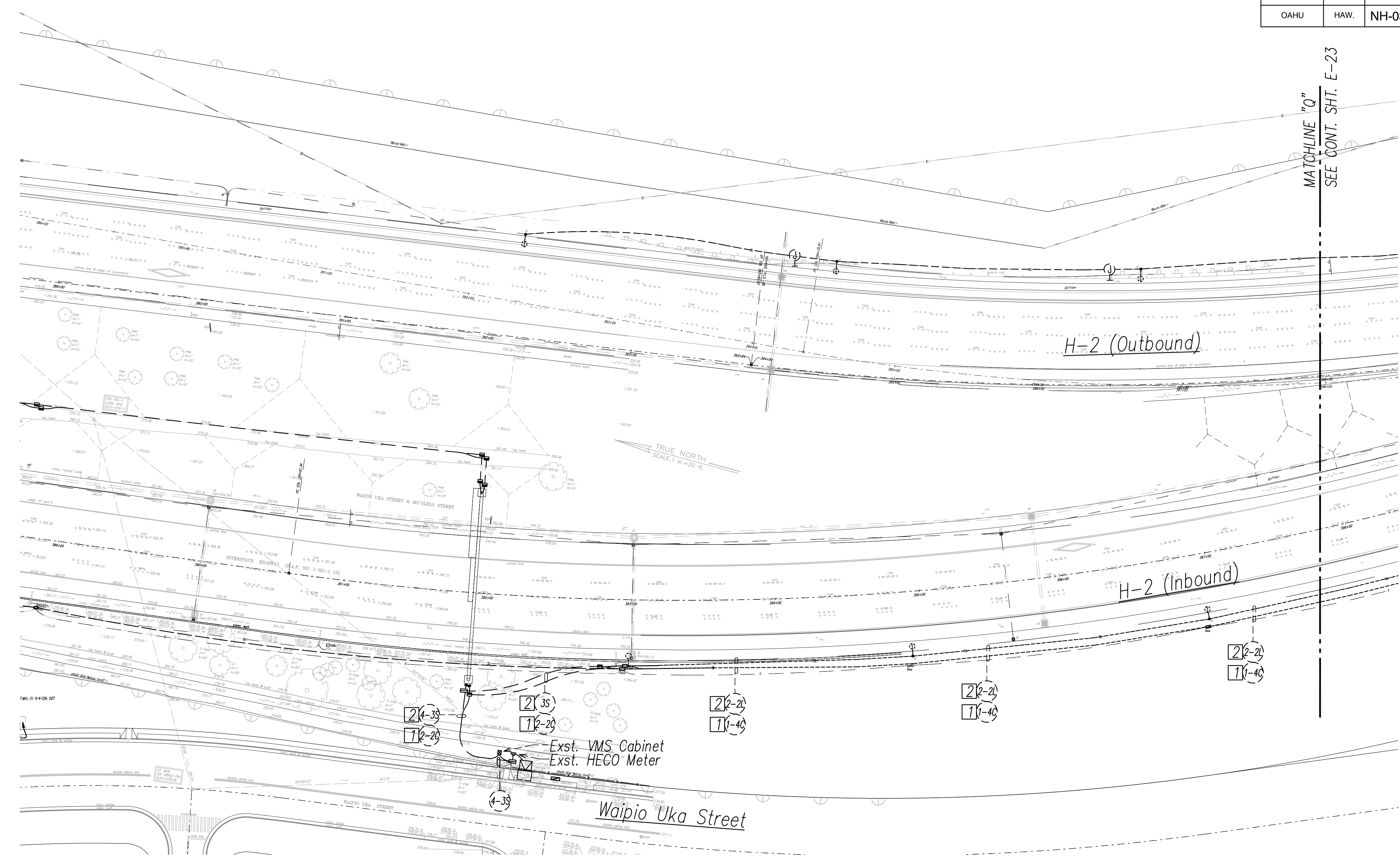


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George D. Takase
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 10
Freeway Management System, Phase 3, Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-23** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	142	170

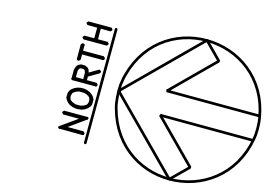


NOTE(S):

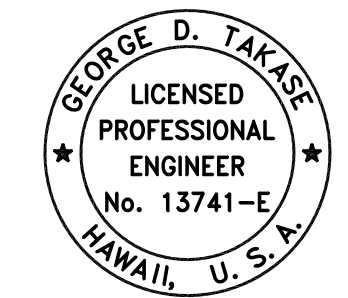
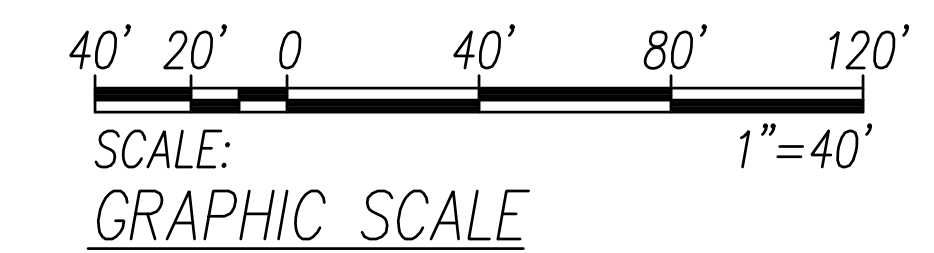
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull 2#2/0 #2/0 Gnd in New Conduit.

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
DATE	_____
DESIGNED BY	_____
CHECKED BY	_____

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Waiawa Electrical Distribution Plan 11
 SCALE: 1"=40'



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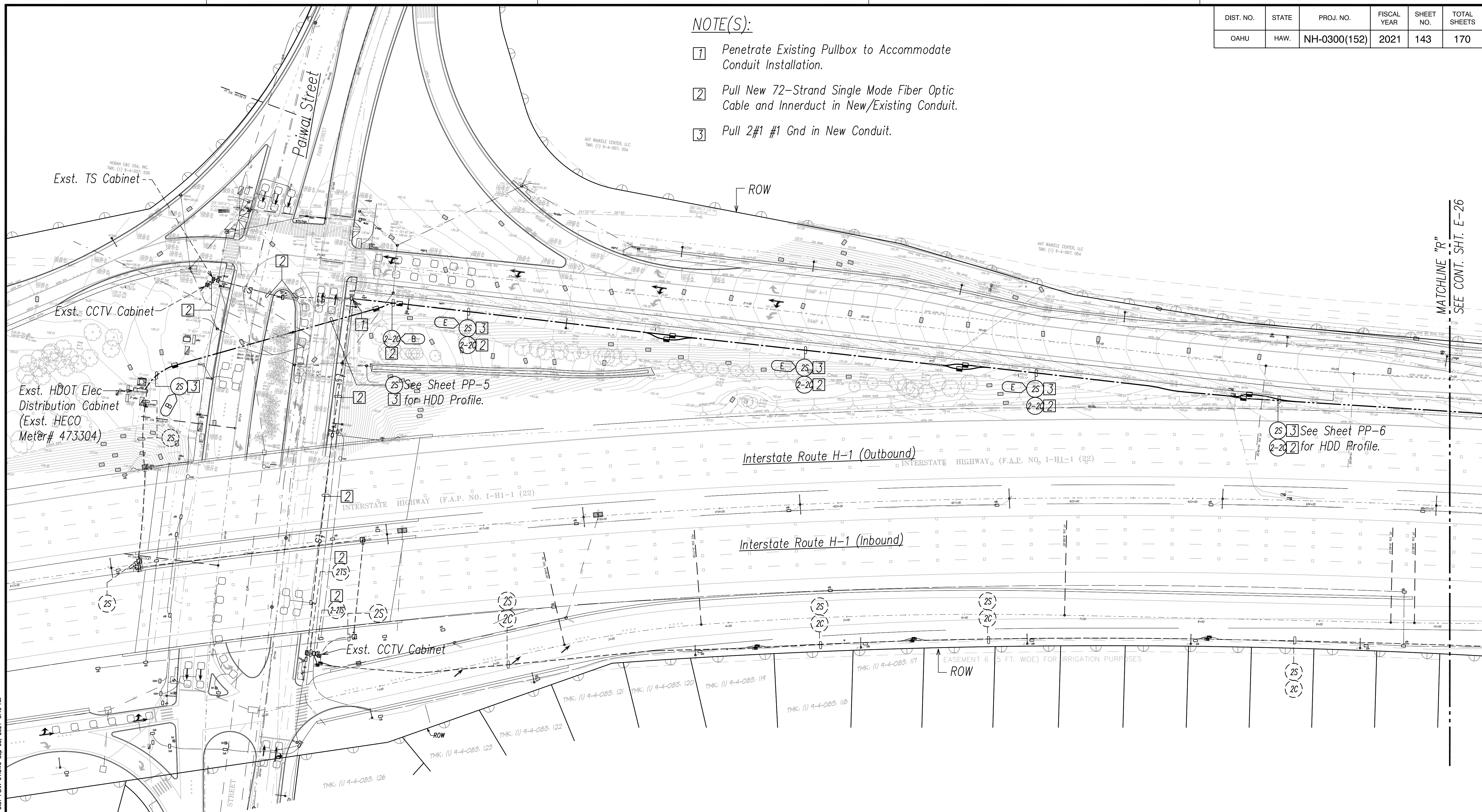
APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIAWA ELECTRICAL DISTRIBUTION
PLAN 11
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	143	170

NOTE(S):

- 1 Penetrate Existing Pullbox to Accommodate Conduit Installation.
- 2 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 3 Pull 2#1 #1 Gnd in New Conduit.



MATCHLINE "R"
SEE CONT. SHT. E-26

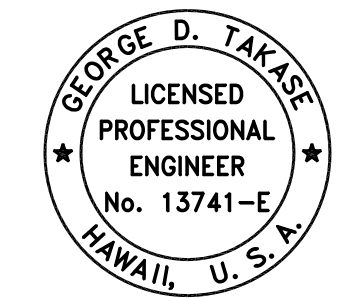
DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

PROJECTS\28034\UNIT_1_ED05_28034_WAILEE_DIST_PLAN_01.DWG Sp. 03, 2021-08-40 AM

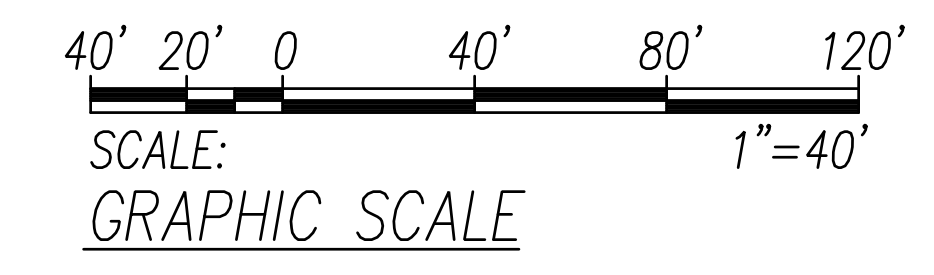


Wailele Electrical Distribution Plan 1
SCALE: 1"=40'

Manager and Chief Engineer, BWS
(For Work Affecting BWS Facilities in City/State
R/W and BWS Easements Only)

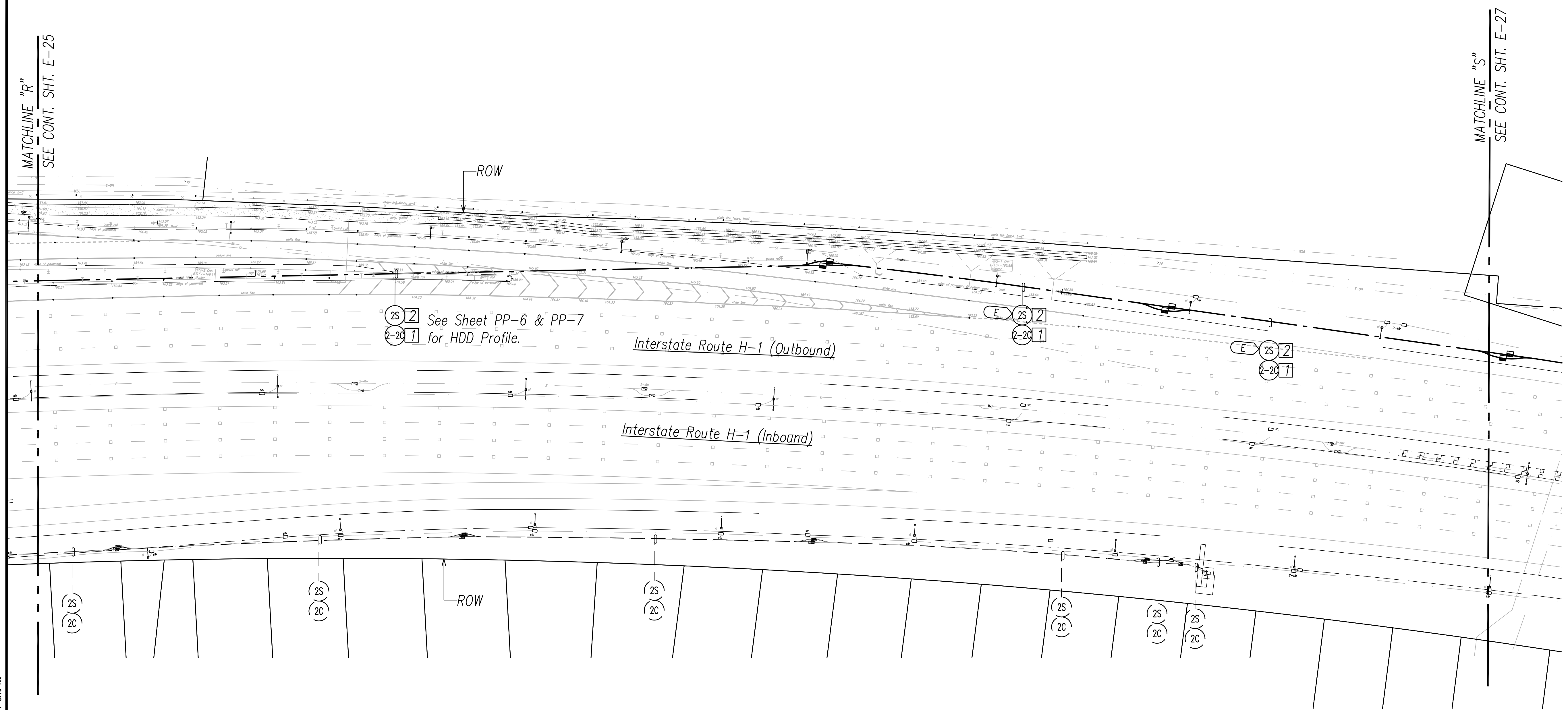


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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAILELE ELECTRICAL DISTRIBUTION
PLAN 1
*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-25** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	144	170



NOTE(S):

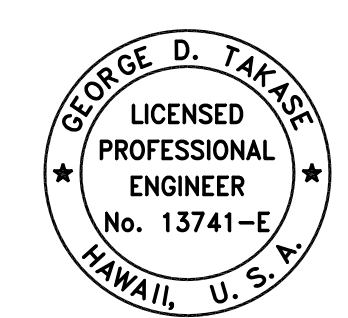
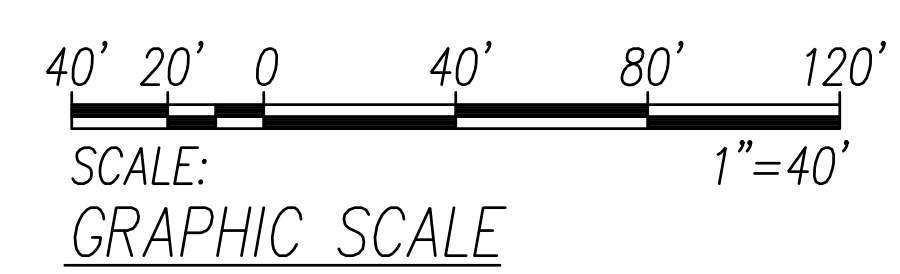
- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull 2#1 #1 Gnd in New Conduit.

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

PR2:\V400\PROJECTS\28034\UNIT_1\ED06_28034_WAIKELE_DST_PLAN_02.DWG Jul 19, 2021 - 9:19 AM



Waikele Electrical Distribution Plan 2
SCALE: 1"=40'

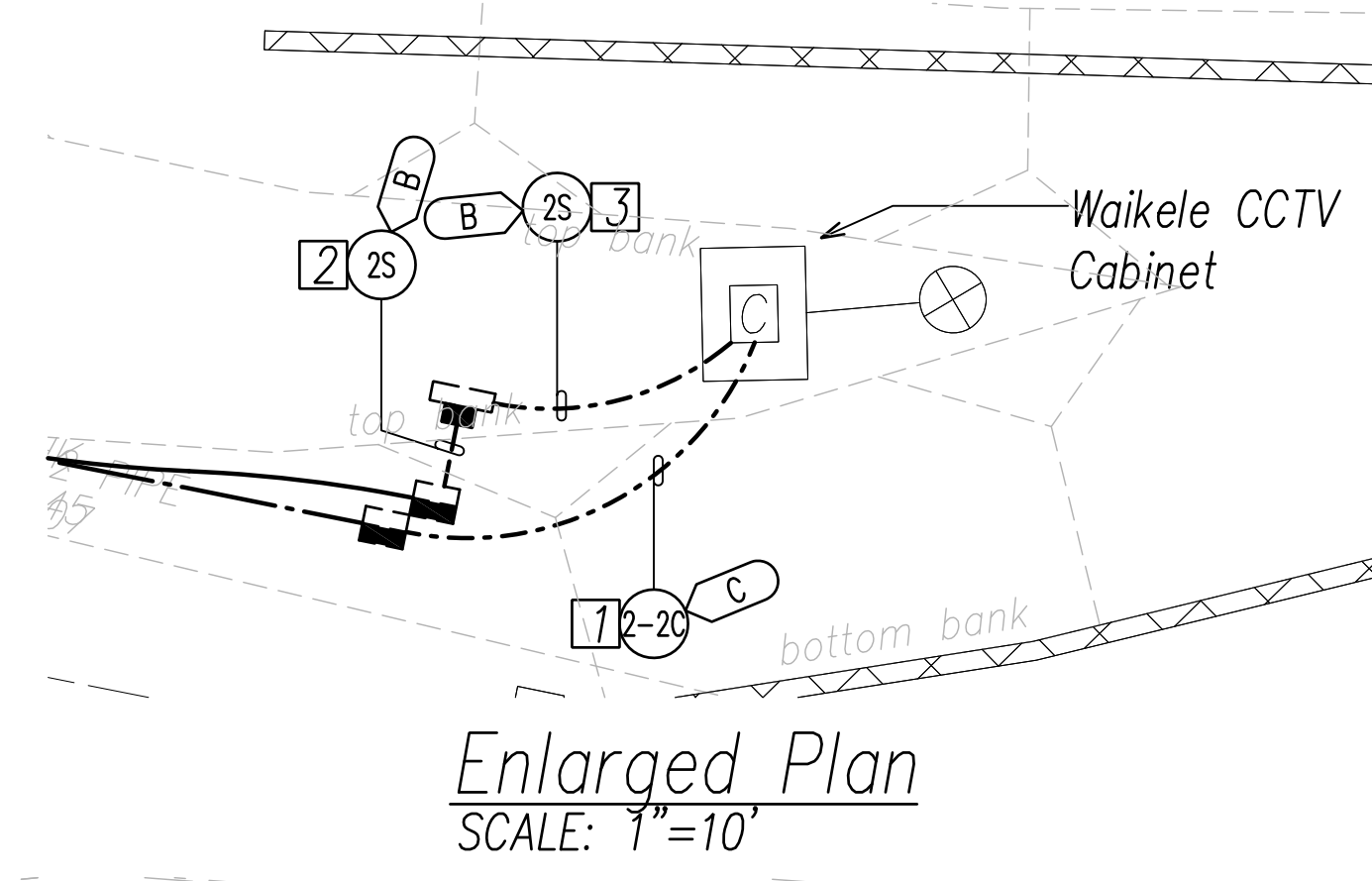


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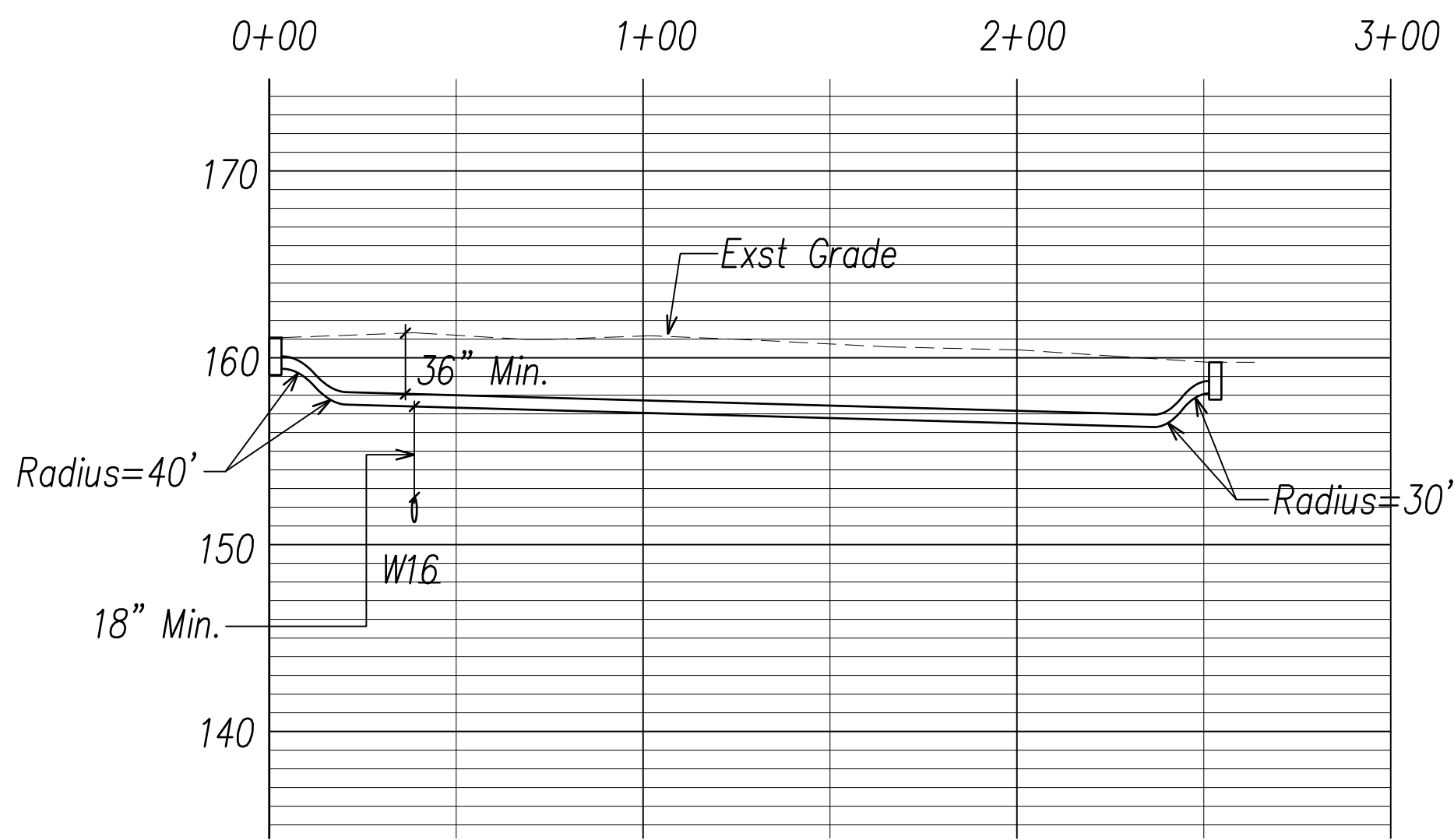
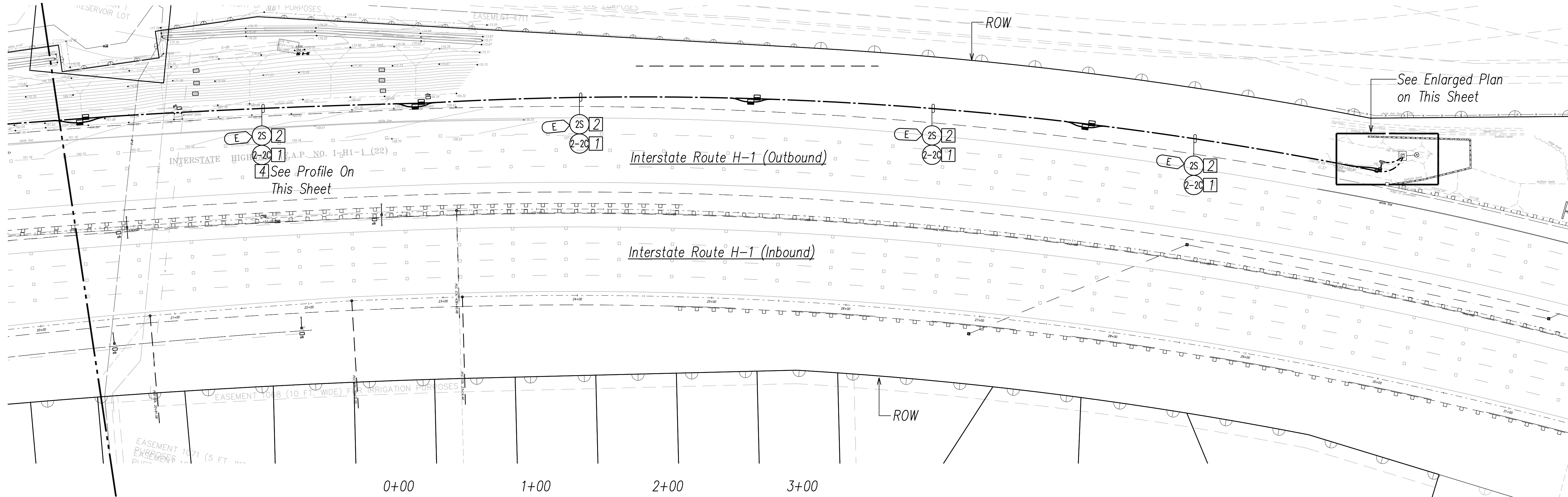
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKELE ELECTRICAL DISTRIBUTION
PLAN 2
Freeway Management System, Phase 3, Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. **E-26** OF **32** SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	145	170

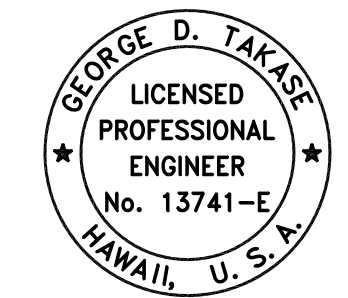
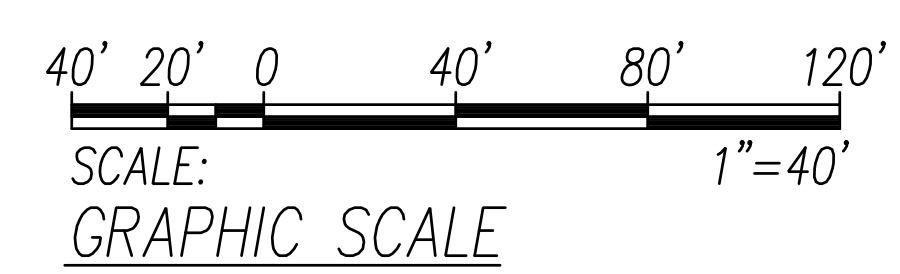
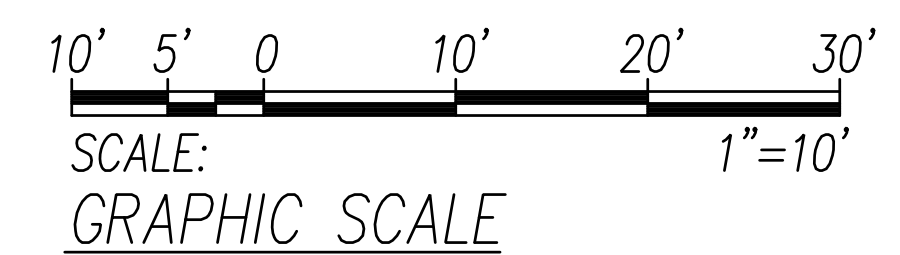


MATCHLINE "S"
SEE CONT. SHIT. E-26



Profile
SCALE: Horizontal: 1"=40'
Vertical: 1"=8'

Manager and Chief Engineer, BWS
(For Work Affecting BWS Facilities in City/State
R/W and BWS Easements Only)
Date



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APRIL 30, 2022
LIC. EXP. DATE

NOTE(S):

- 1 Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
- 2 Pull 2#1 #1 Gnd in New Conduit.
- 3 Pull 2#10 #10 Gnd in New Conduit.
- 4 Contractor to Provide CLSM backfill at Water Line Crossings per State Backfill detail.

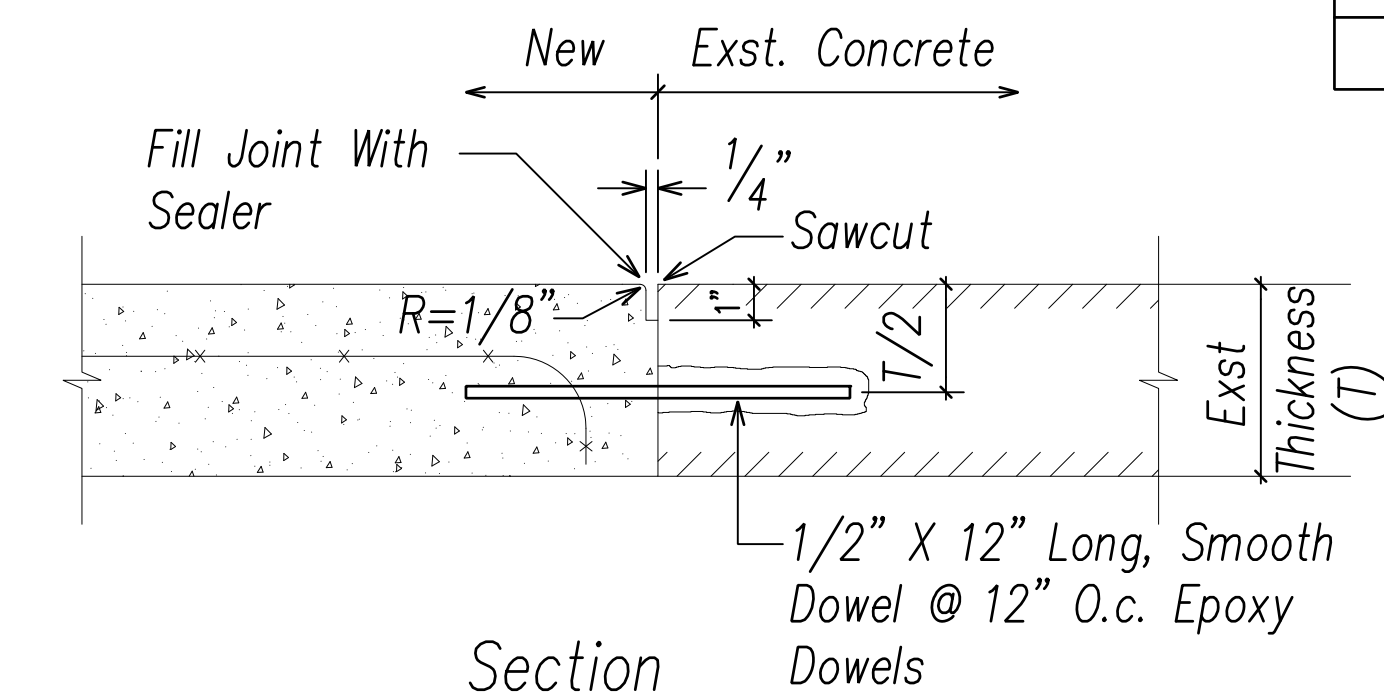
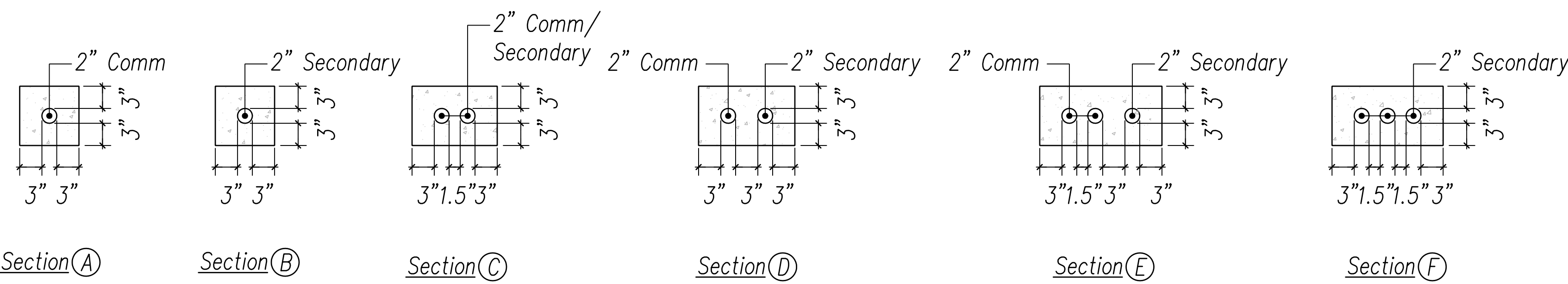


Waikele Electrical Distribution Plan 3
SCALE: 1"=40'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIKELE ELECTRICAL DISTRIBUTION
PLAN 3
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
Scale: As Noted Date: June 25, 2021
SHEET No. E-27 OF 32 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
TRACED BY	_____
DRAWN BY	_____
ORIGINAL PLAN	_____
NO.	_____

PROJECT: PROJECTS\218034\UNIT_1\ED02_218034_WAIKELE_DIST_PLAN_03.DWG Sp. 03, 2021-08-25 AM



Item	Description
(2C)	Communication 2" Conduit
(2-2)	Communication 2-2" Conduit
(2TS)	Traffic Signal 2" Conduit
(2L)	Street Light 2" Conduit
(2S)	Secondary Power 2" Conduit
(3S)	Secondary Power 3" Conduit

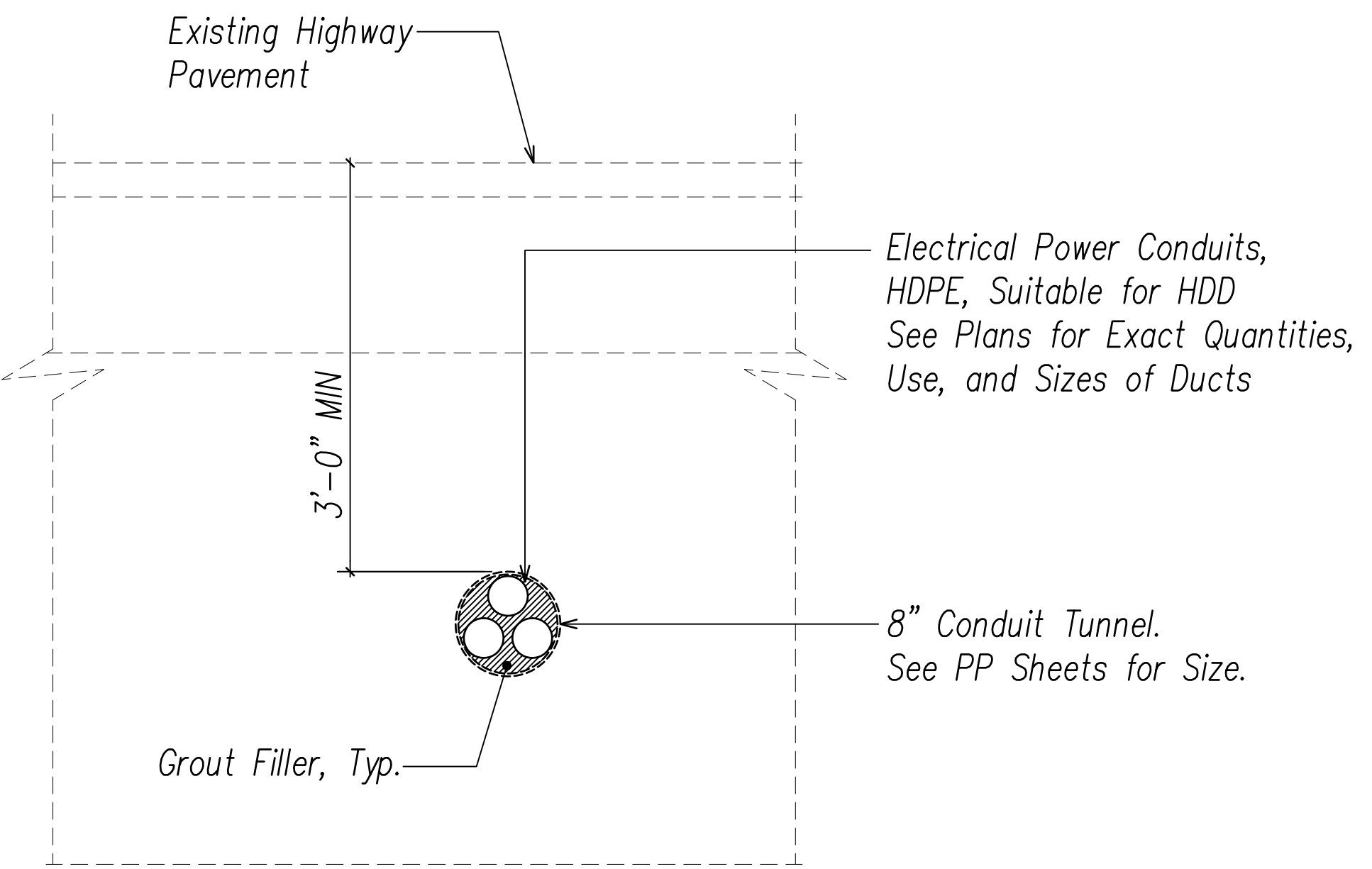
State Right-Of-Way Backfill Notes

- Trench Backfill Material "B"
 1. Sand Equivalent ≥ 2
 2. 8" Max. Lift Loose
 3. 95% Compaction
- Concrete - 3" Encasement, 2500 PSI Compressive Strength @ 28 Days.

Notes:

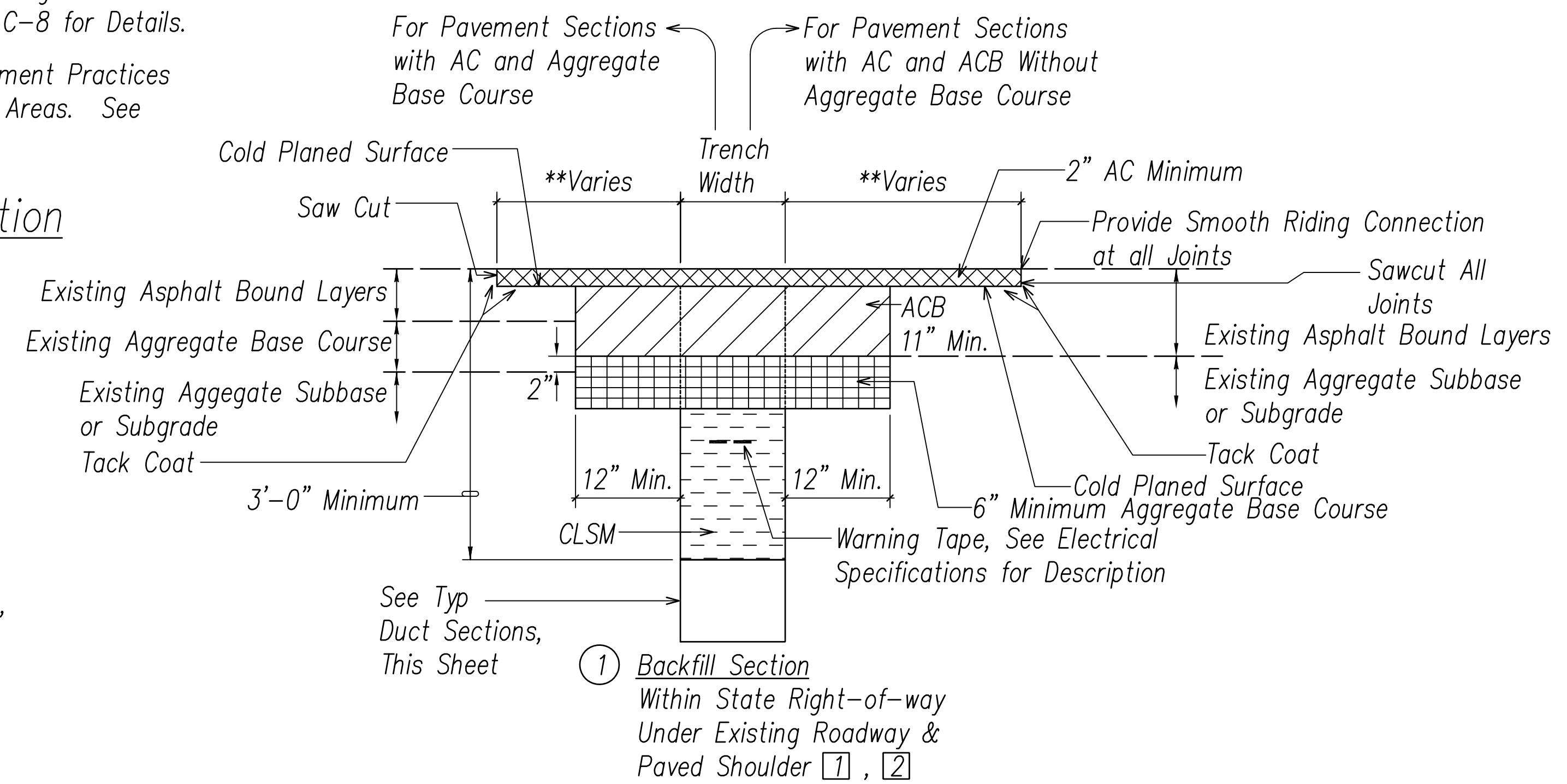
- 1 Contractor to Observe Best Management Practices and take Measures Required for Existing Storm Drain Inlets or Catch Basins. See Sheet C-8 for Details.
- 2 Contractor to Observe Best Management Practices for Existing Grassed or Landscaped Areas. See Detail on Sheet C-8.

Typical Duct Section
NOT TO SCALE

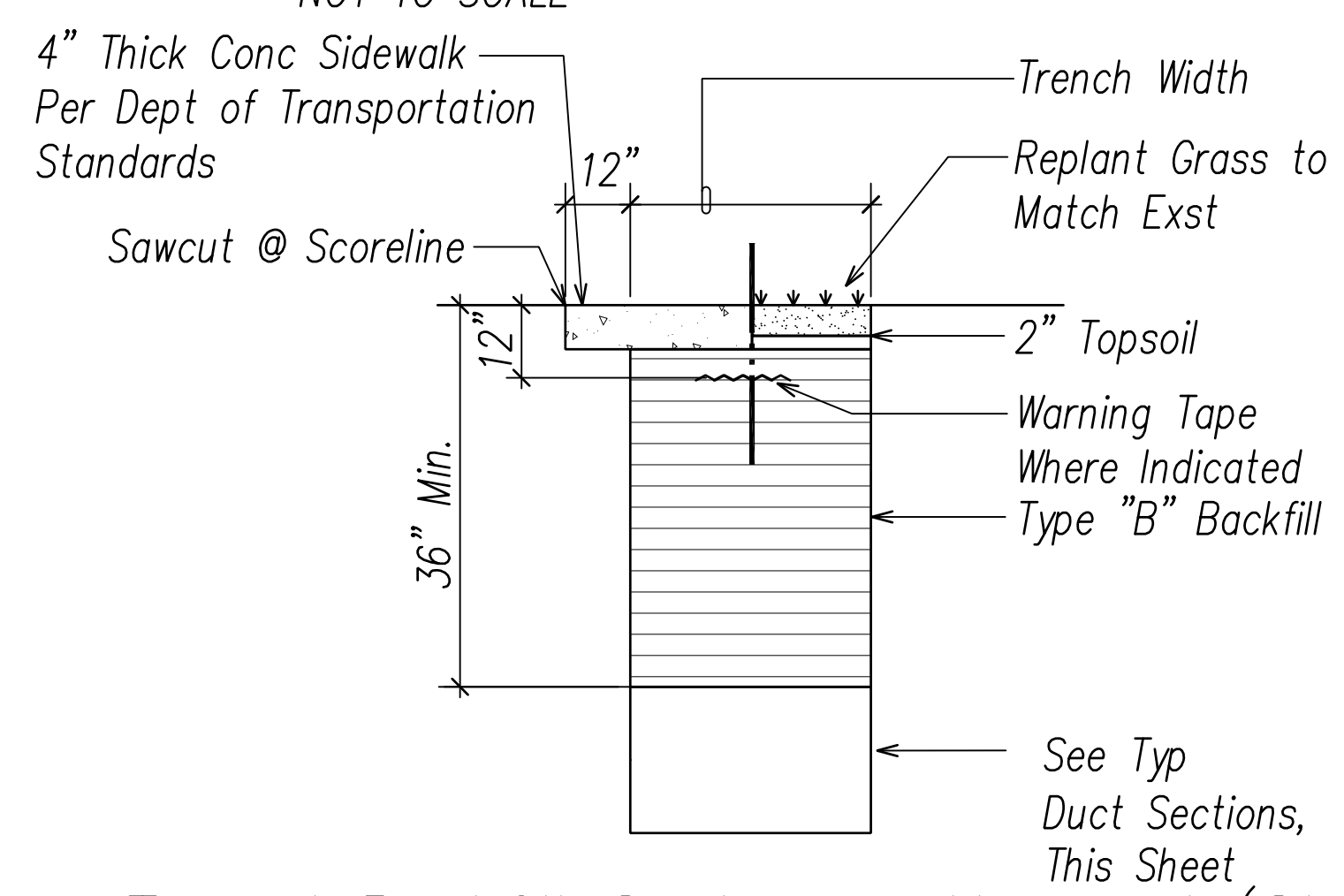


Note: See Specifications, Section 652-Horizontal Directional Drilling

Horizontal Directional Drilling Section
NOT TO SCALE



Typical Backfill Section (State)
NOT TO SCALE

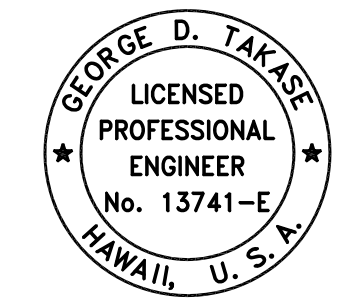


Typical Backfill Section - Unpaved (State)
NOT TO SCALE

** Notes For Backfill Section 1

1. If Trench Aligned Transverse to Direction of Travel, Sawcut 1 Foot on Each Side of Trench.
2. If Trench Aligned Along Direction of Travel, Sawcut to Edge of Lane in which Edge of Trench is Located.
3. Smoothness of Paved Surfaces: The Distance from the Paved Surface to the Testing Edge of a Ten-foot Straight Edge Between Two Points of Contact shall not Exceed 3/16".

SURVEY PLOTTED BY: _____ DATE: _____
 ORIGINAL PLAN: _____
 DRAWN BY: _____
 NOTE BOOK: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____
 PROJECTS/2803A/UNIT 1/ED08_2803A_DUCT/DWG Jul 19, 2021-8:18 AM



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DUCT SECTION

*Freeway Management System, Phase 3,
Unit 1*
Federal Aid Project No. NH-0300(152)

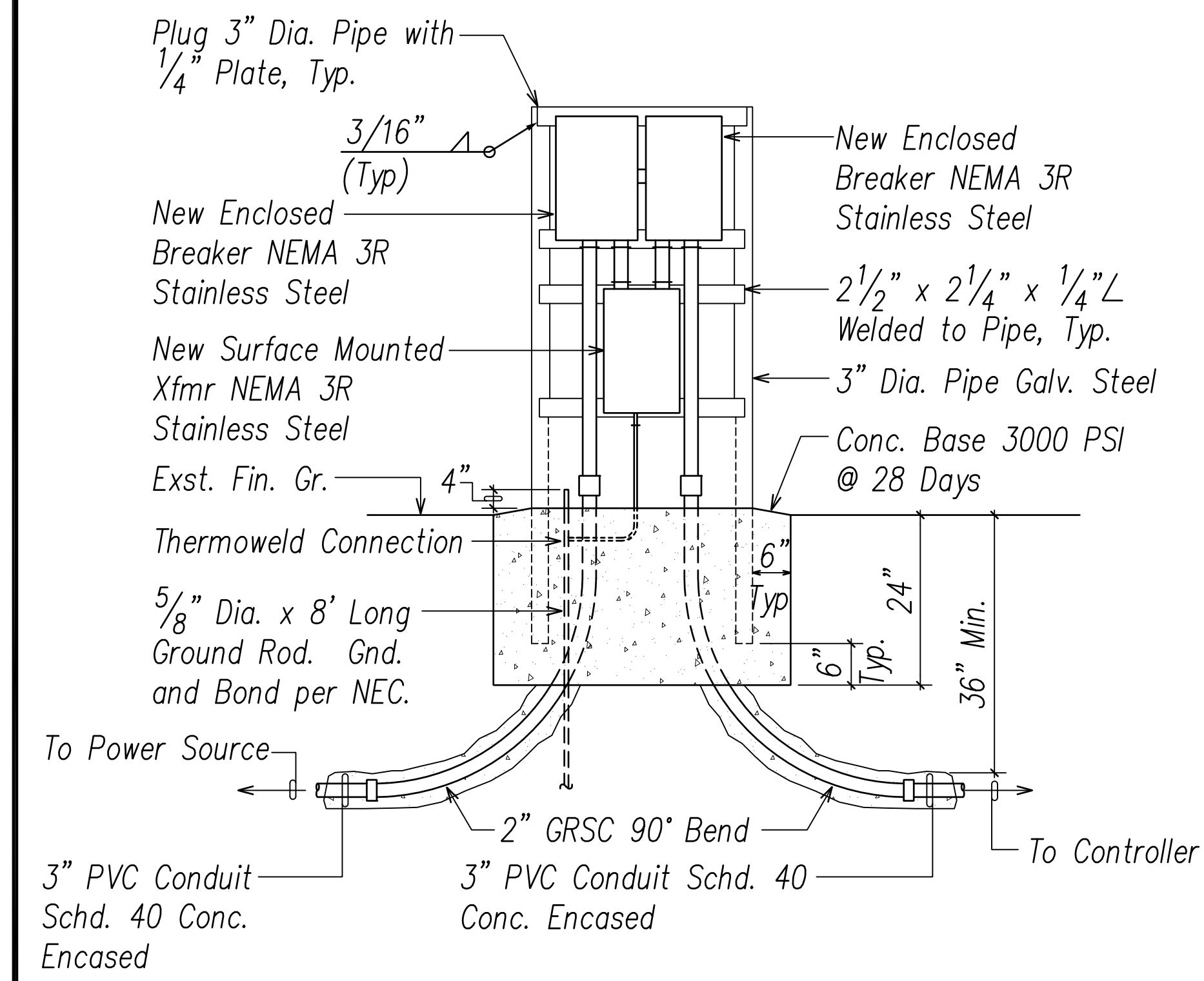
Scale: As Noted Date: June 25, 2021

SHEET NO. E-28 OF 32 SHEETS

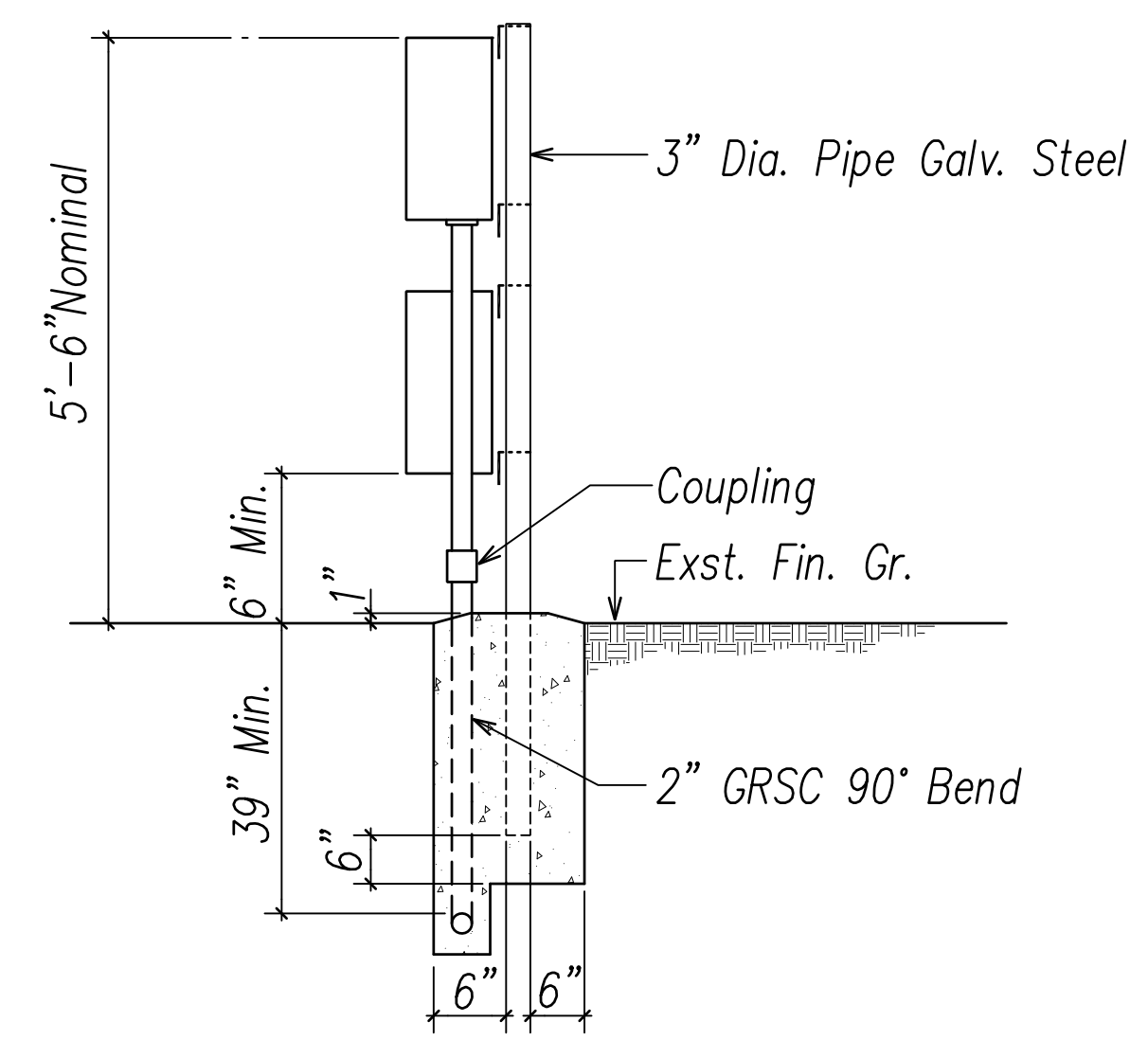
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	147	170

Notes:

- All Conduits to Contain a Polyolefin Pull Line. (Jet Line Cat. #232 or Equiv.)
- Pedestal shall be Hot-Dipped Galvanized After Fabrication.
- All Fastening Bolts, Nuts & Washers Shall be 316 Stainless Steel.
- See One-Line Diagram, This Sheet.
- Contractor Shall Make All Electrical Connection to Cabinet.
- All Connections to Xfmr shall be Liquid Tight, Flex Metal Conduit.

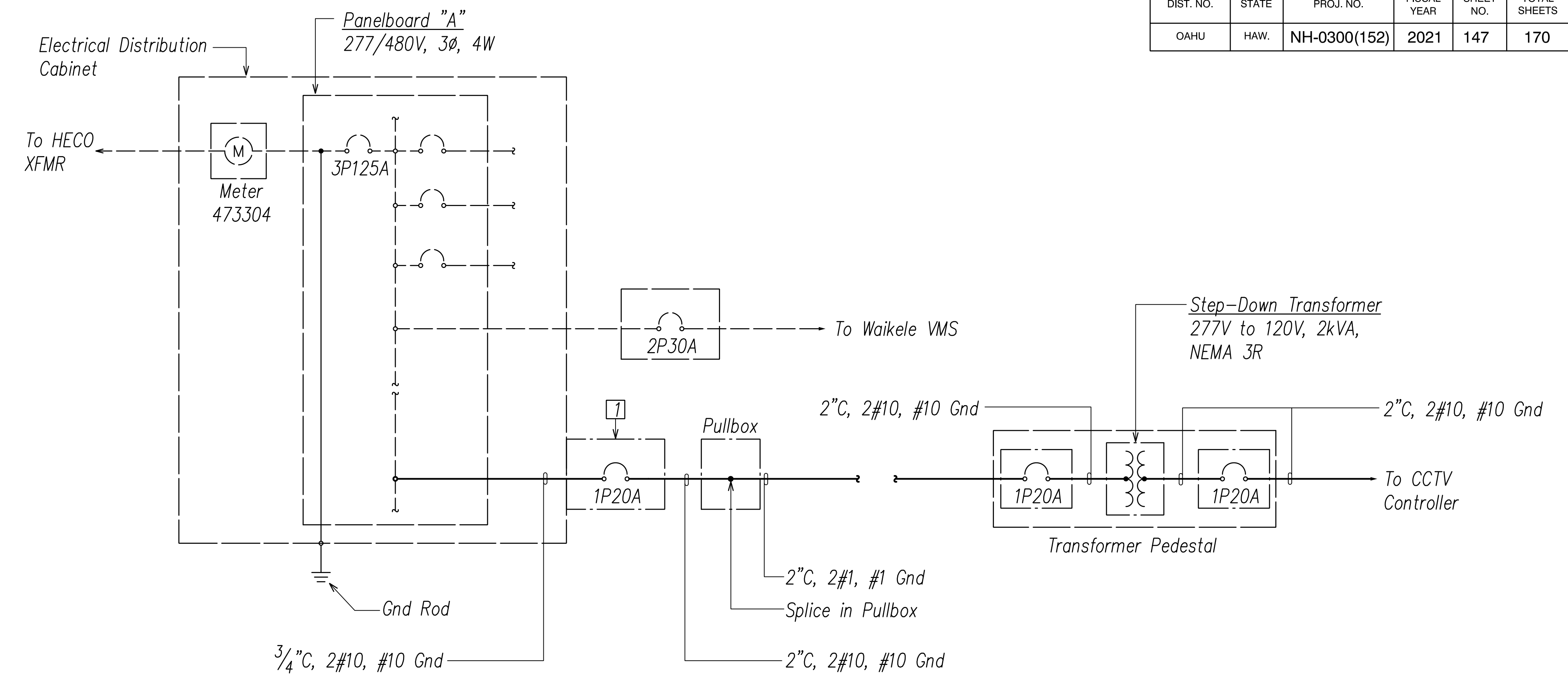


Front Elevation



Side Elevation

A Xfmr Pedestal Detail
E-29 NOT TO SCALE



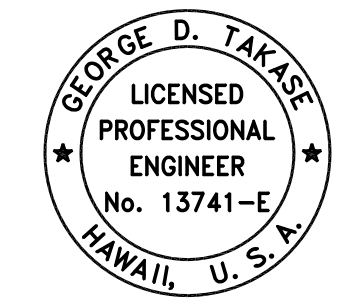
NOTE(S):

- 1 New 1P20A Enclosed Circuit Breaker Mounted to Exterior of Cabinet. NEMA 3R, Stainless Steel.

B Waikele CCTV Oneline Diagram
E-29 NOT TO SCALE

DATE	DESIGNED BY	CHECKED BY
DATE	DESIGNED BY	CHECKED BY
DATE	DESIGNED BY	CHECKED BY

PROJECTS\218034\UNIT_1_EC09_218034_ONLINE.DWG Jul 19, 2021-8:20 AM



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APRIL 30, 2022 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ONLINE DIAGRAMS 1

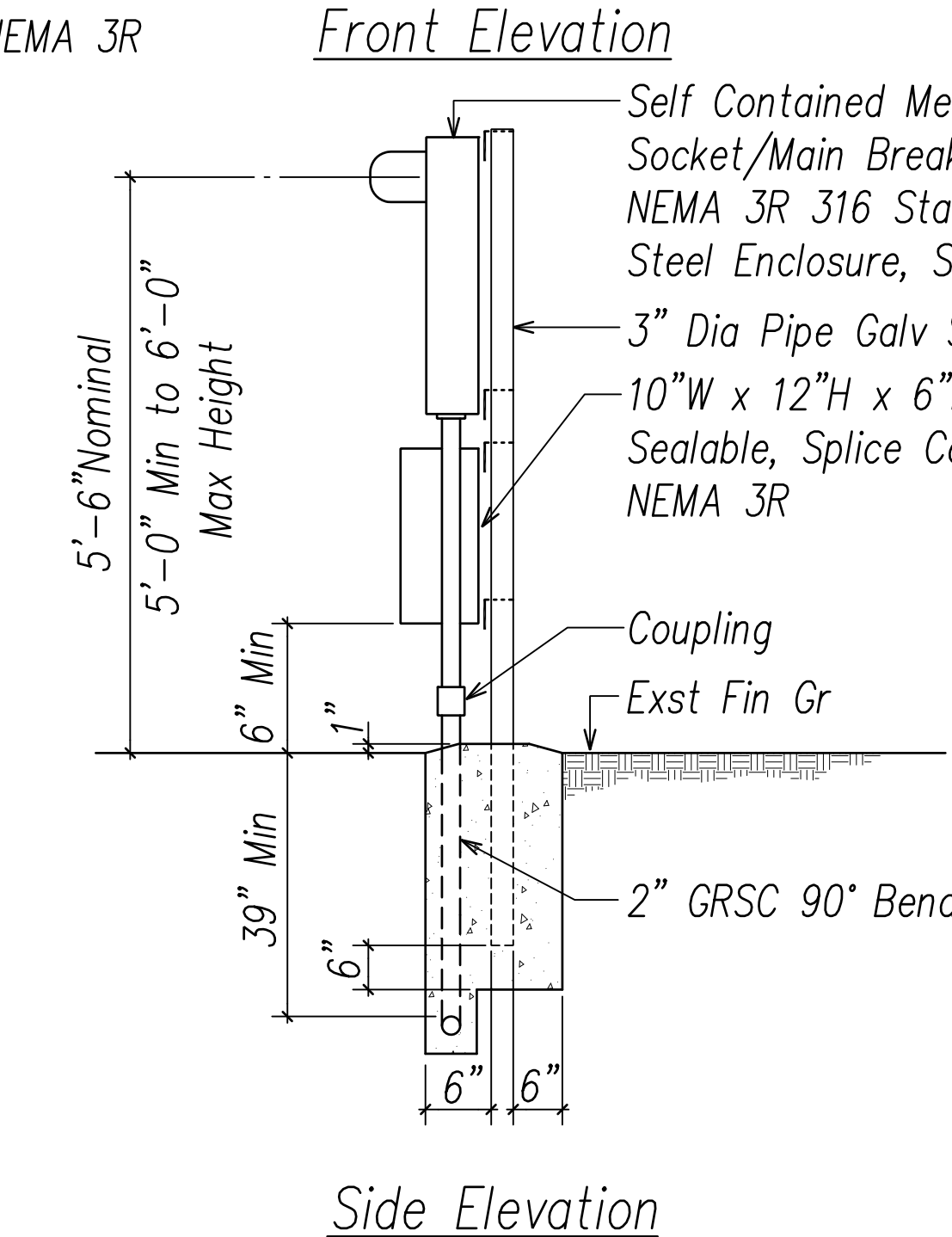
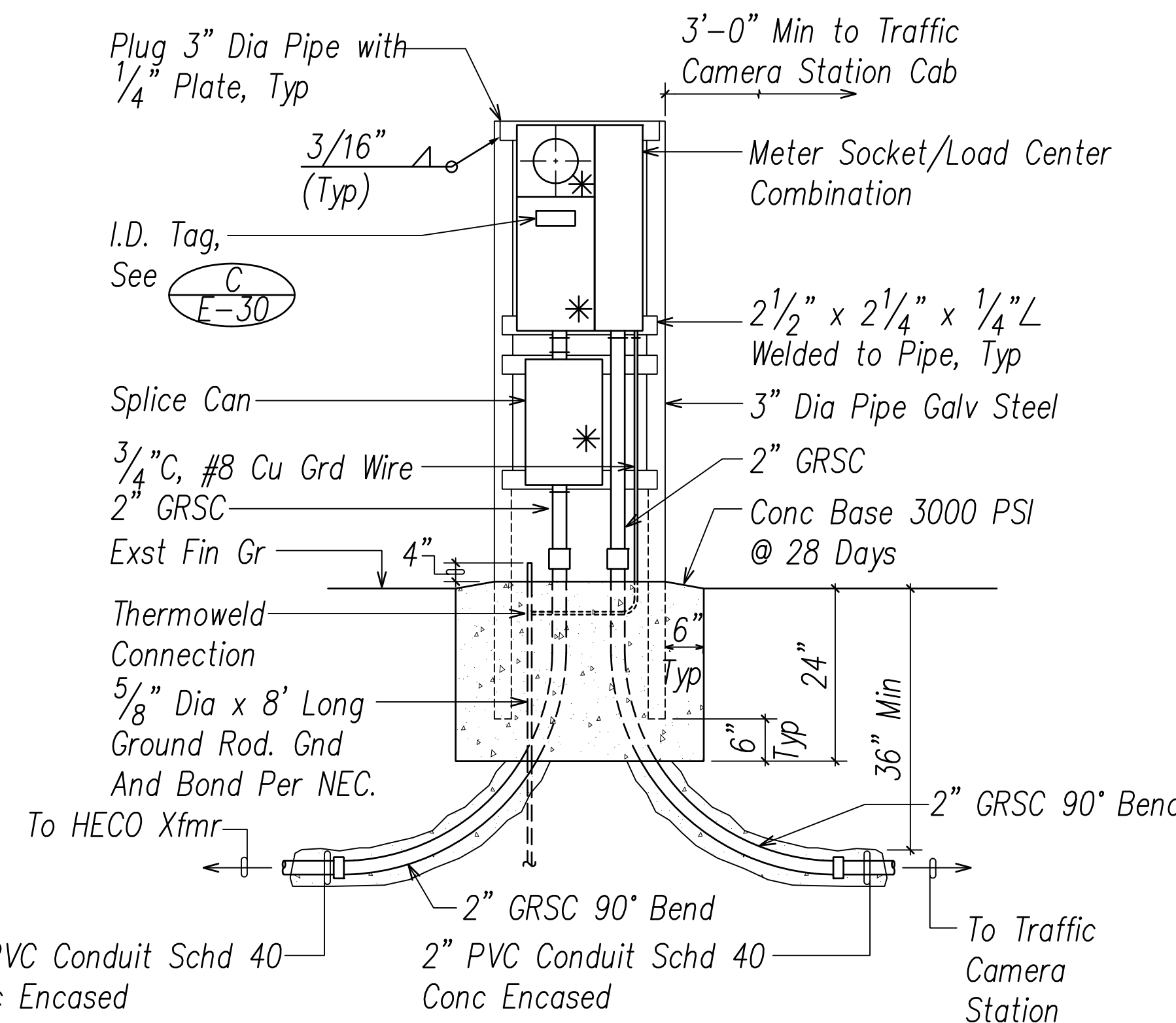
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

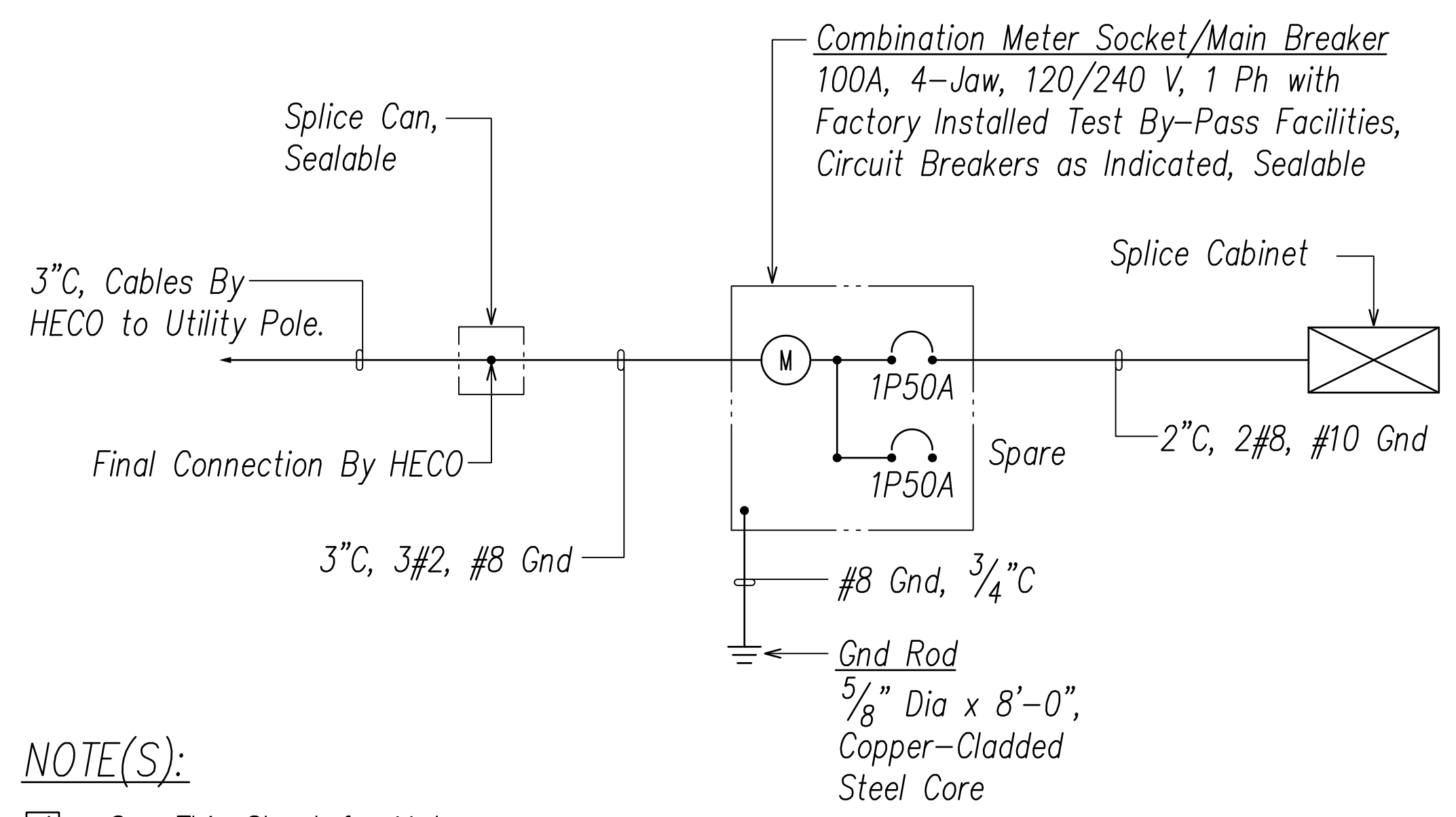
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	148	170

Notes:

1. All Conduits to Contain a Polyolefin Pull Line. (Jet Line Cat #232 or Equiv)
2. Pedestal shall be Hot-Dipped Galvanized After Fabrication.
3. All Fastening Bolts, Nuts & Washers shall be 316 Stainless Steel.
4. Provide 4 Ft Clearance in Front of Meter.
5. See One-Line Diagram, This Sheet
6. Contractor shall Make All Electrical Connection to Traffic Camera Cabinet.



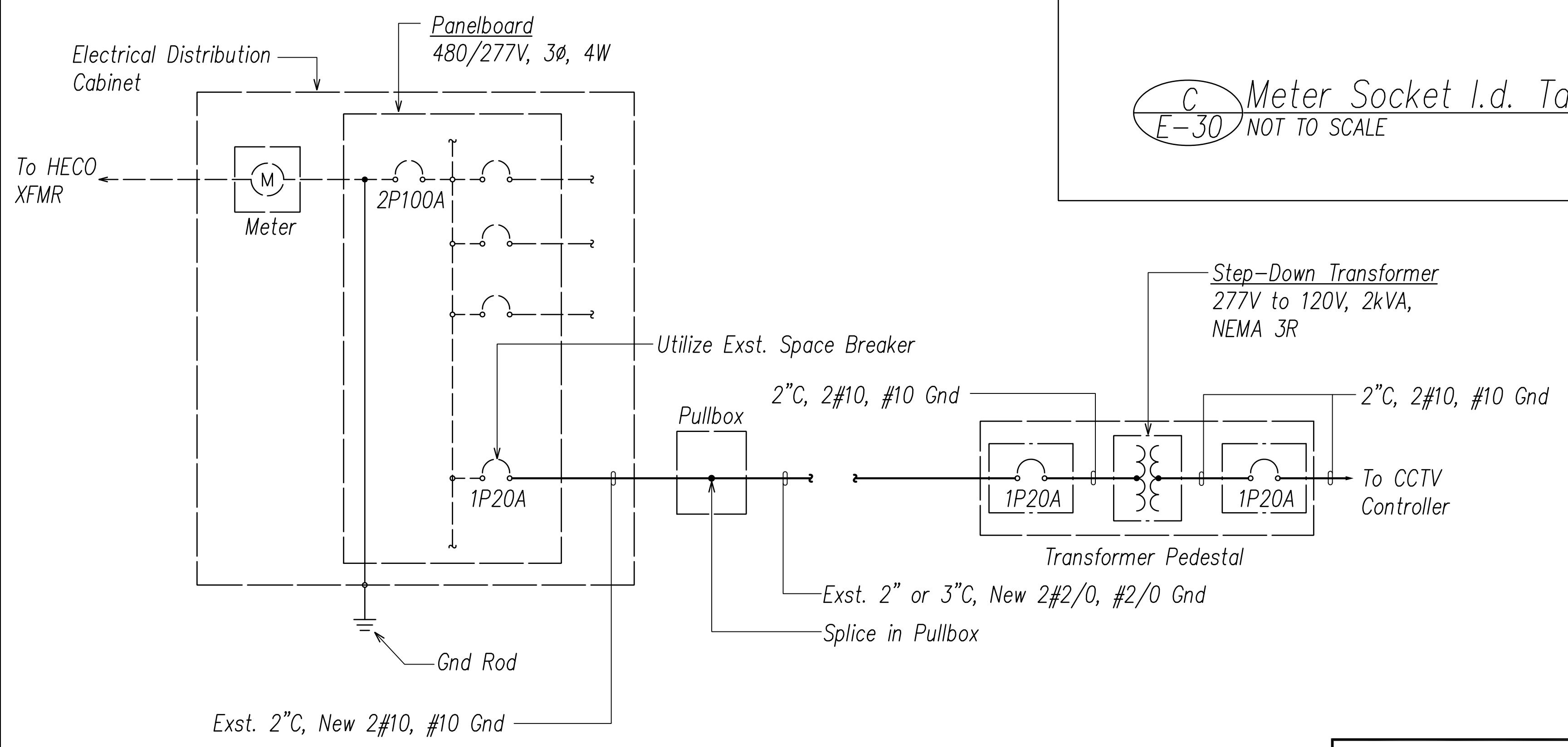
A Meter Socket Detail
E-30 NOT TO SCALE



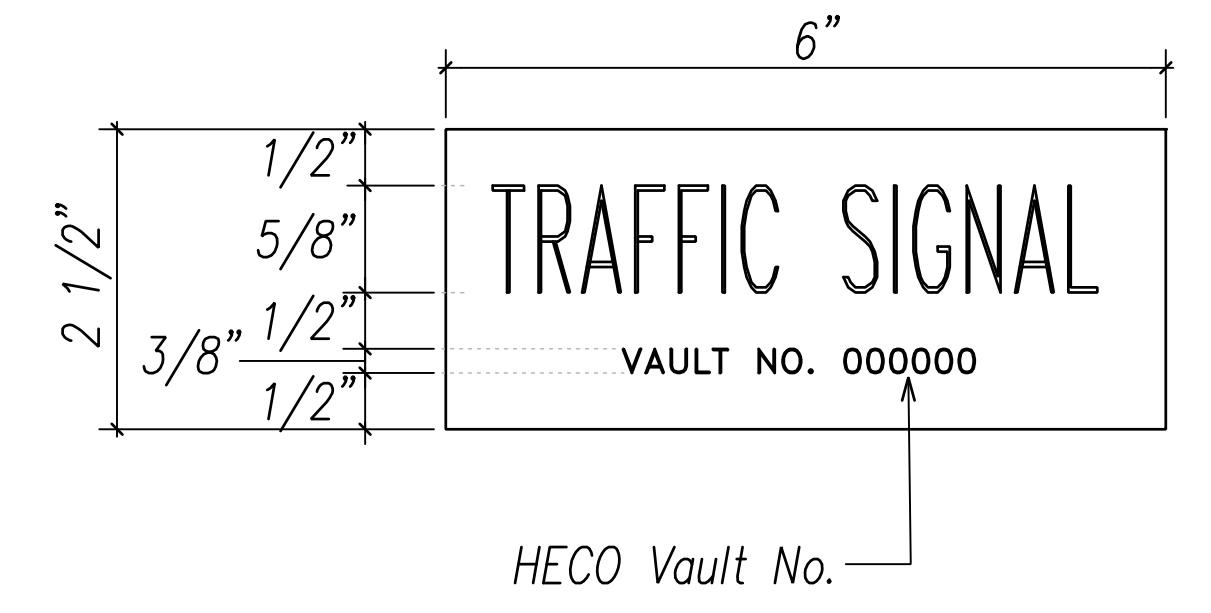
NOTE(S):

- 1 See This Sheet for Meter Elevation Details.

B New HECO Service CCTV Online Diagram
E-30 NOT TO SCALE



D H2 South CCTV Online Diagram
E-30 NOT TO SCALE



Notes:

1. Use 3-Ply Laminated Flexible Plastic, Black-White-Black Thickness: Black Cap Sheet-0.010", White Base Sheet-0.052", Black Base Sheet-0.010".
2. Attach to Meter Socket Using Scotch 3M Brand Very High Bond (VHB) Double Coated Acrylic Foam Tape or Equivalent.
3. Letters/Numbers shall be 1/16" Stroke, (White in Color).
4. Letters/Numbers Area Inscribed by Cutting through "Black Cap Sheet" to Expose White Letters/Numbers.

C Meter Socket I.d. Tag Detail
E-30 NOT TO SCALE

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

PROJECTS/218034/UNIT_1/EXD_218034_ONLINE2.DWG, Jul 19, 2021, 8:20 AM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ONLINE DIAGRAMS 2

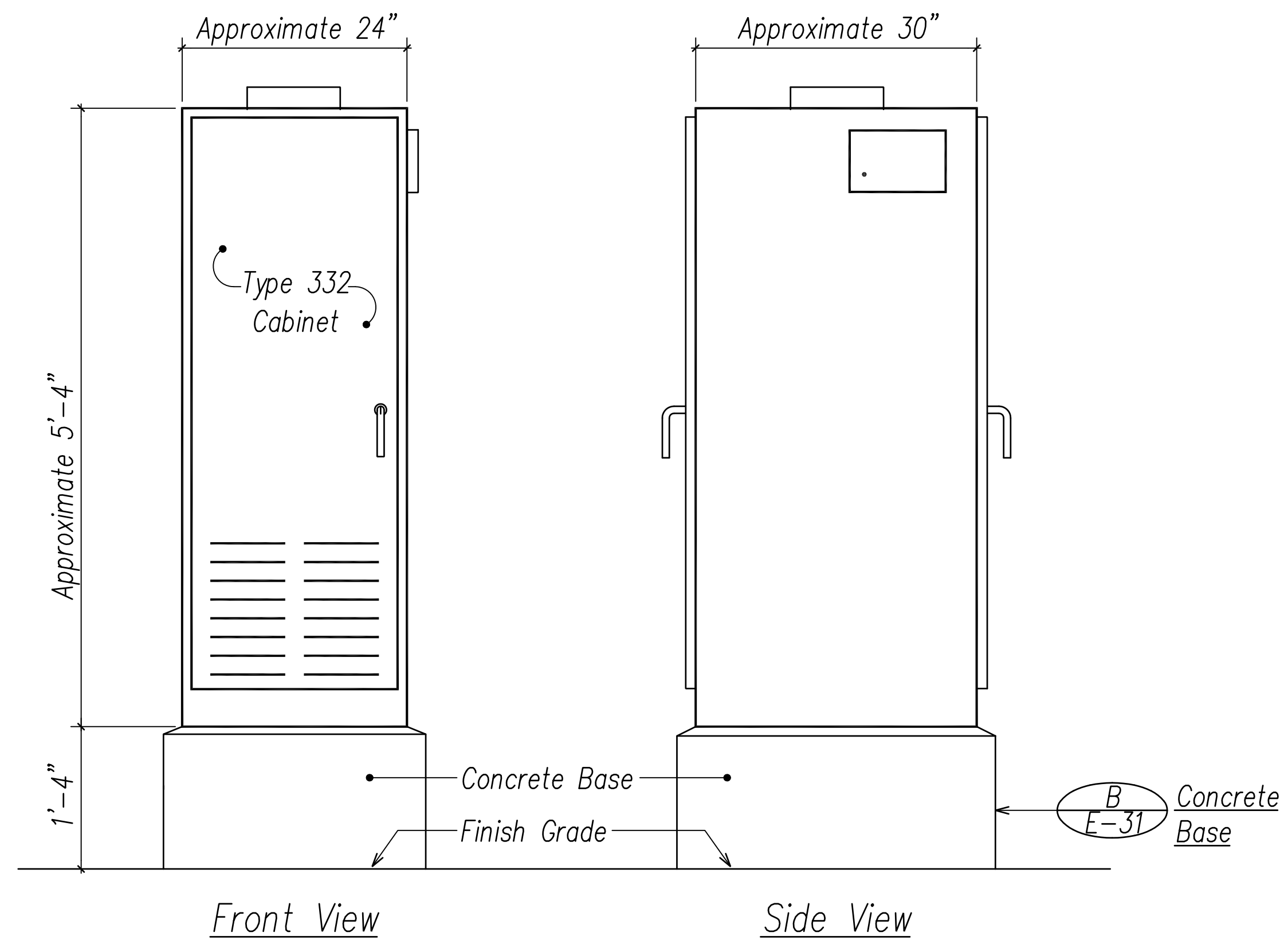
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

SHEET No. **E-30** OF **32** SHEETS

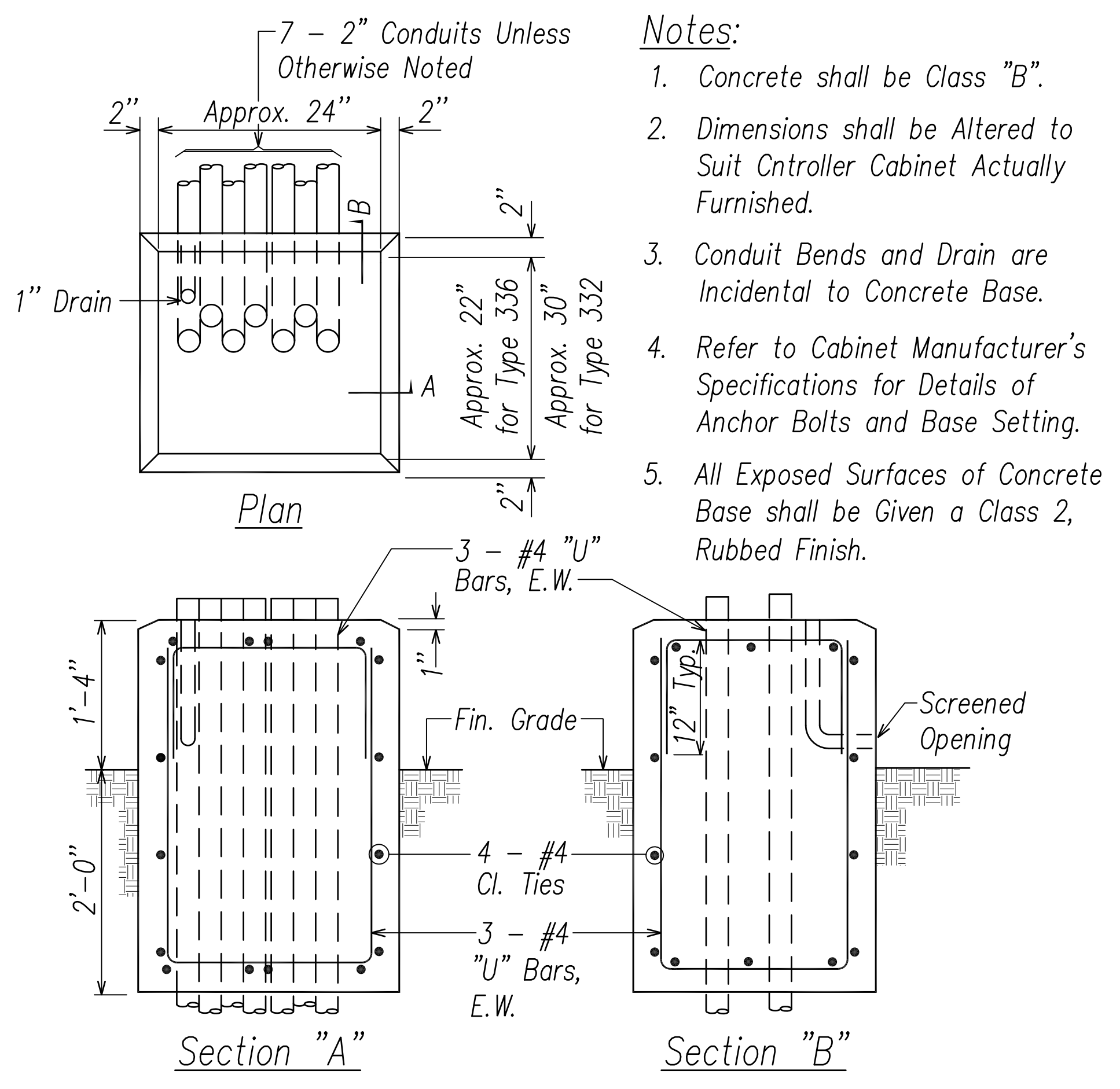
APRIL 30, 2022
LIC. EXP. DATE

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	149	170



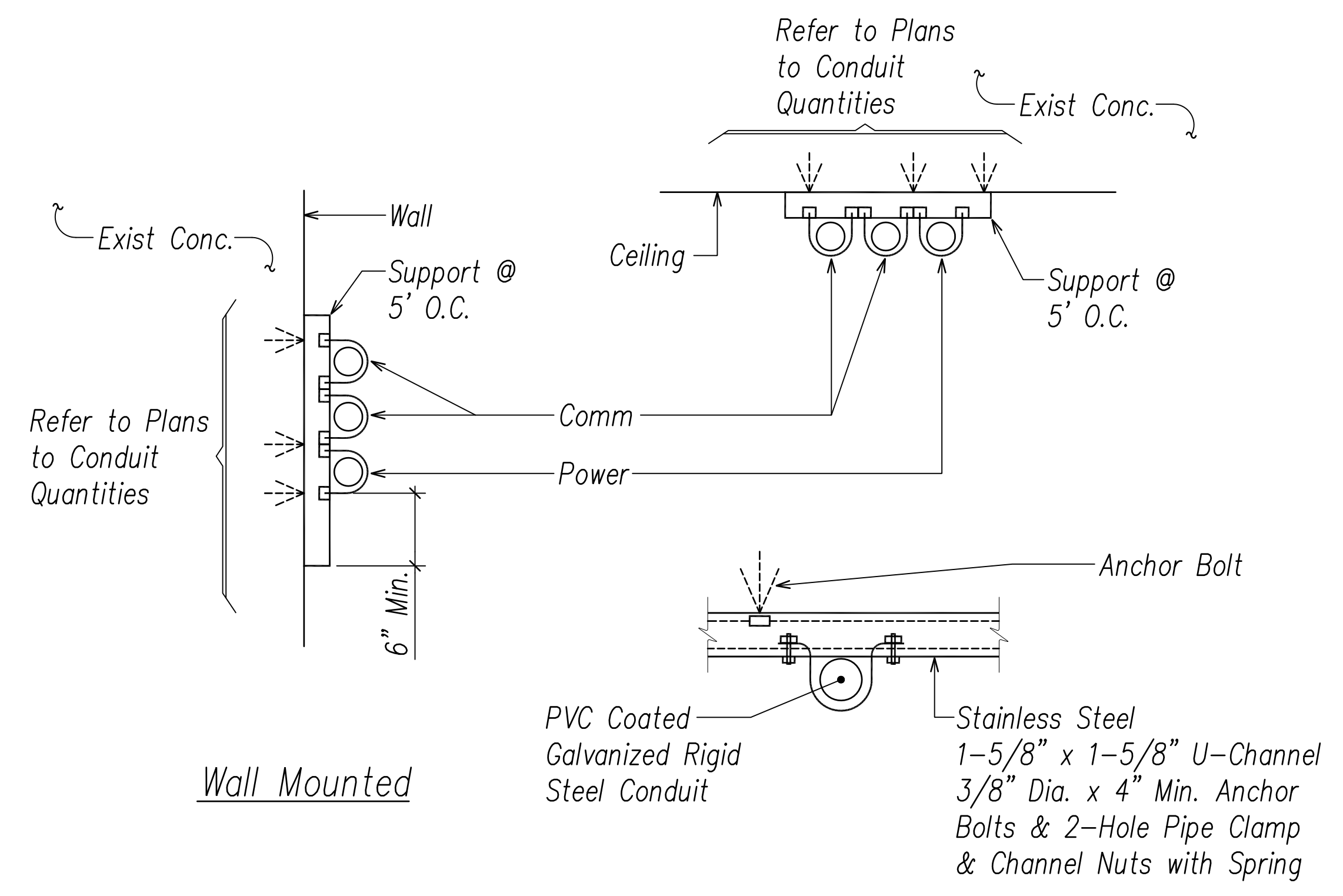
Note: Splice Cabinet with Rack Mounted Interconnect Center. Rack Mounted Interconnect Center shall be Paid Under Section 681-CCTV System.

A Type 332 Traffic Controller Cabinet Detail
E-31 NOT TO SCALE

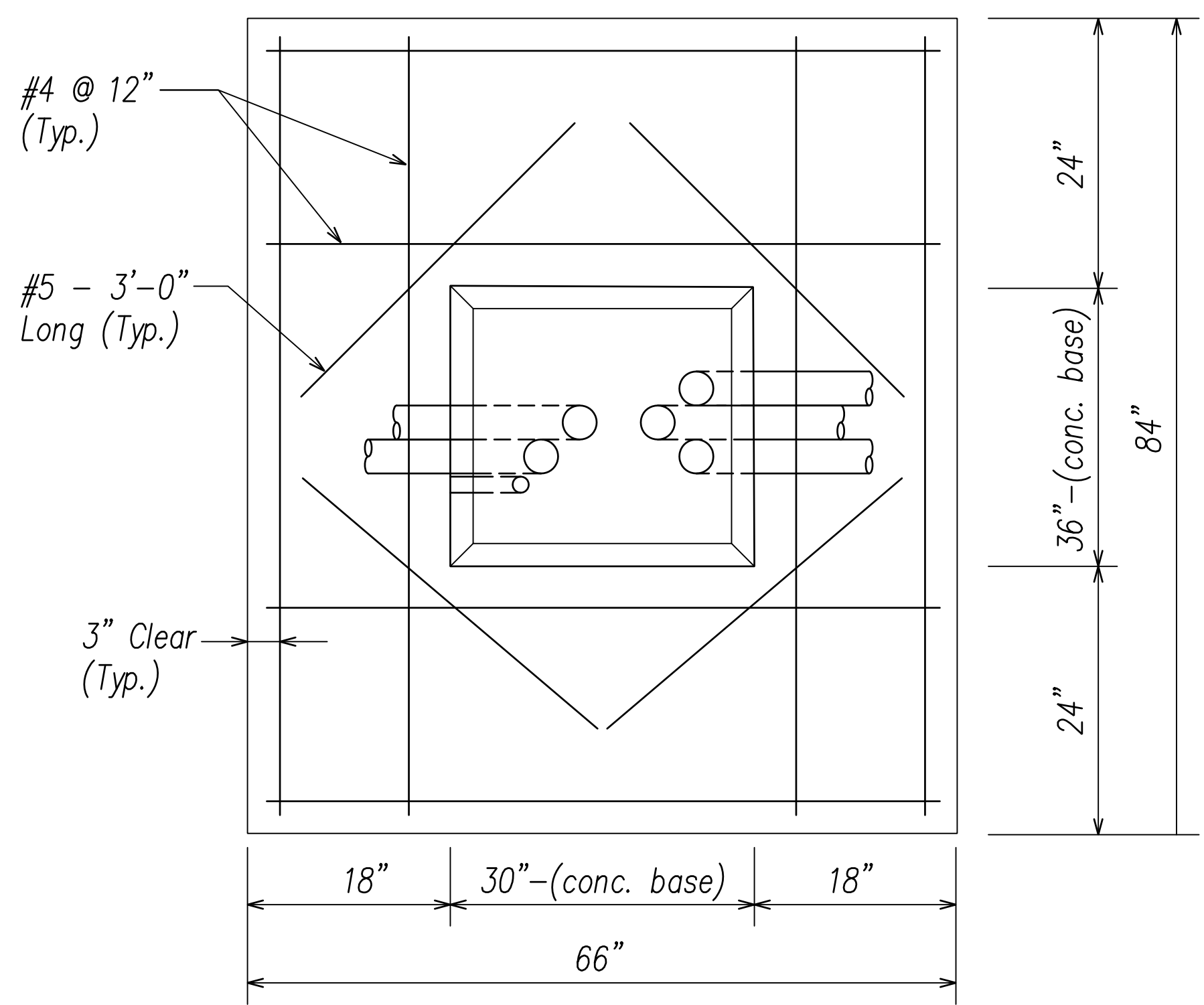


- Notes:
1. Concrete shall be Class "B".
 2. Dimensions shall be Altered to Suit Controller Cabinet Actually Furnished.
 3. Conduit Bends and Drain are Incidental to Concrete Base.
 4. Refer to Cabinet Manufacturer's Specifications for Details of Anchor Bolts and Base Setting.
 5. All Exposed Surfaces of Concrete Base shall be Given a Class 2, Rubbed Finish.

B Type "D" Concrete Base Detail
E-31 NOT TO SCALE



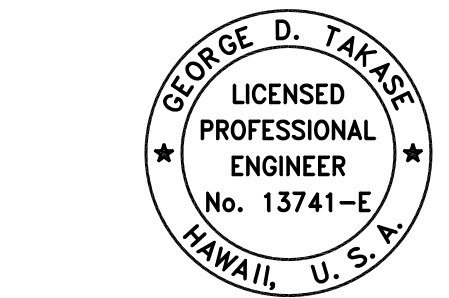
C Conduit Mounting Detail
E-31 NOT TO SCALE



D Plan View of Concrete Apron for Equipment Cabinet
E-31 NOT TO SCALE

DATE	DESIGNED BY
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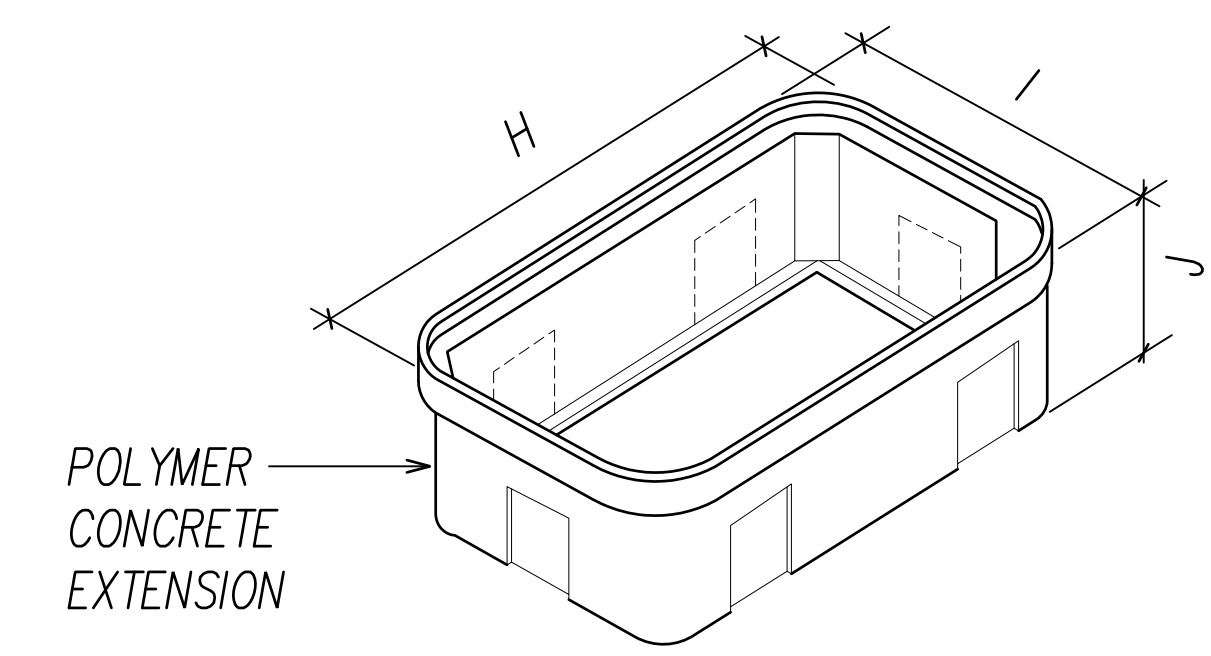
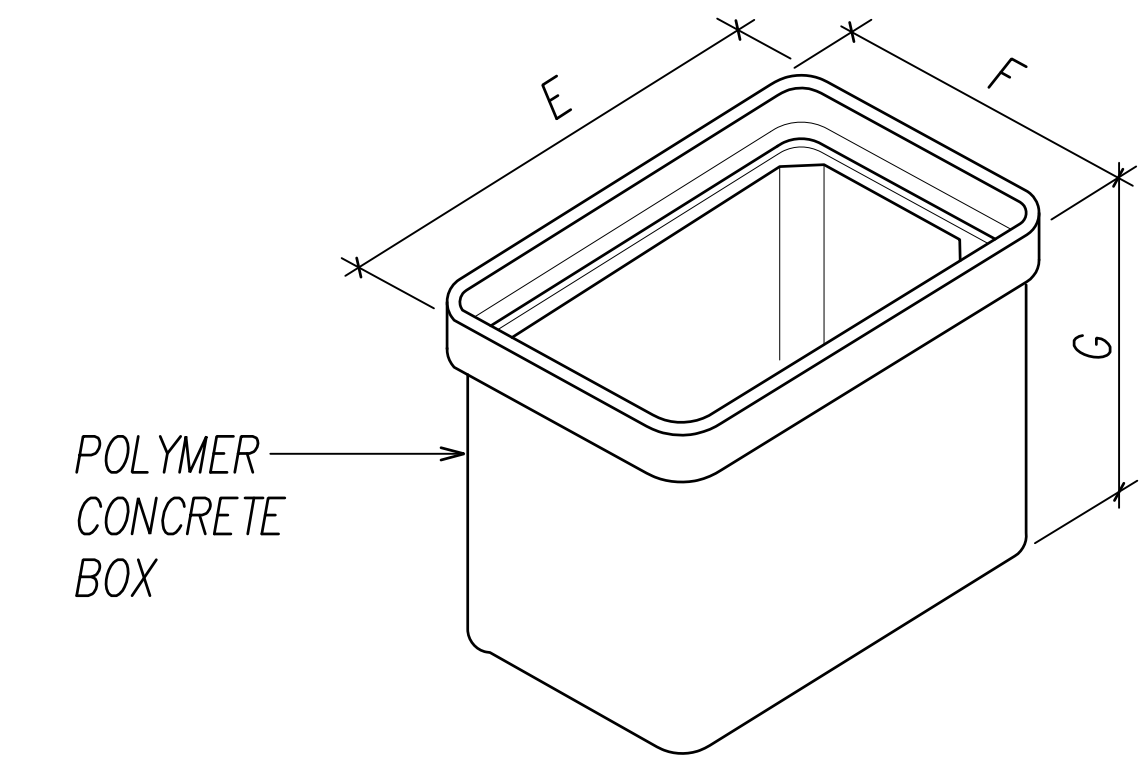
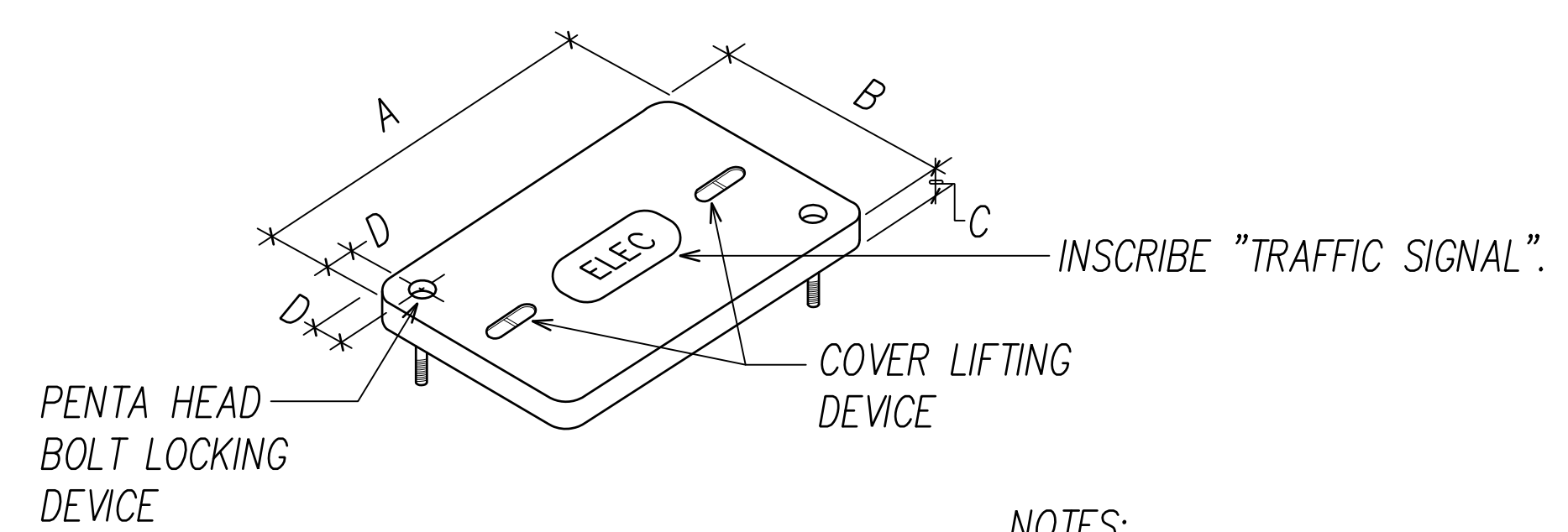
PROJECT: PROJECTS/28034/UNIT_1/E031_28034_CABINET_DETAIL.DWG Jul 19, 2021-8:20 AM



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
CABINET AND CONDUIT MOUNTING DETAILS
Freeway Management System, Phase 3, Unit 1
Federal Aid Project No. NH-0300(152)

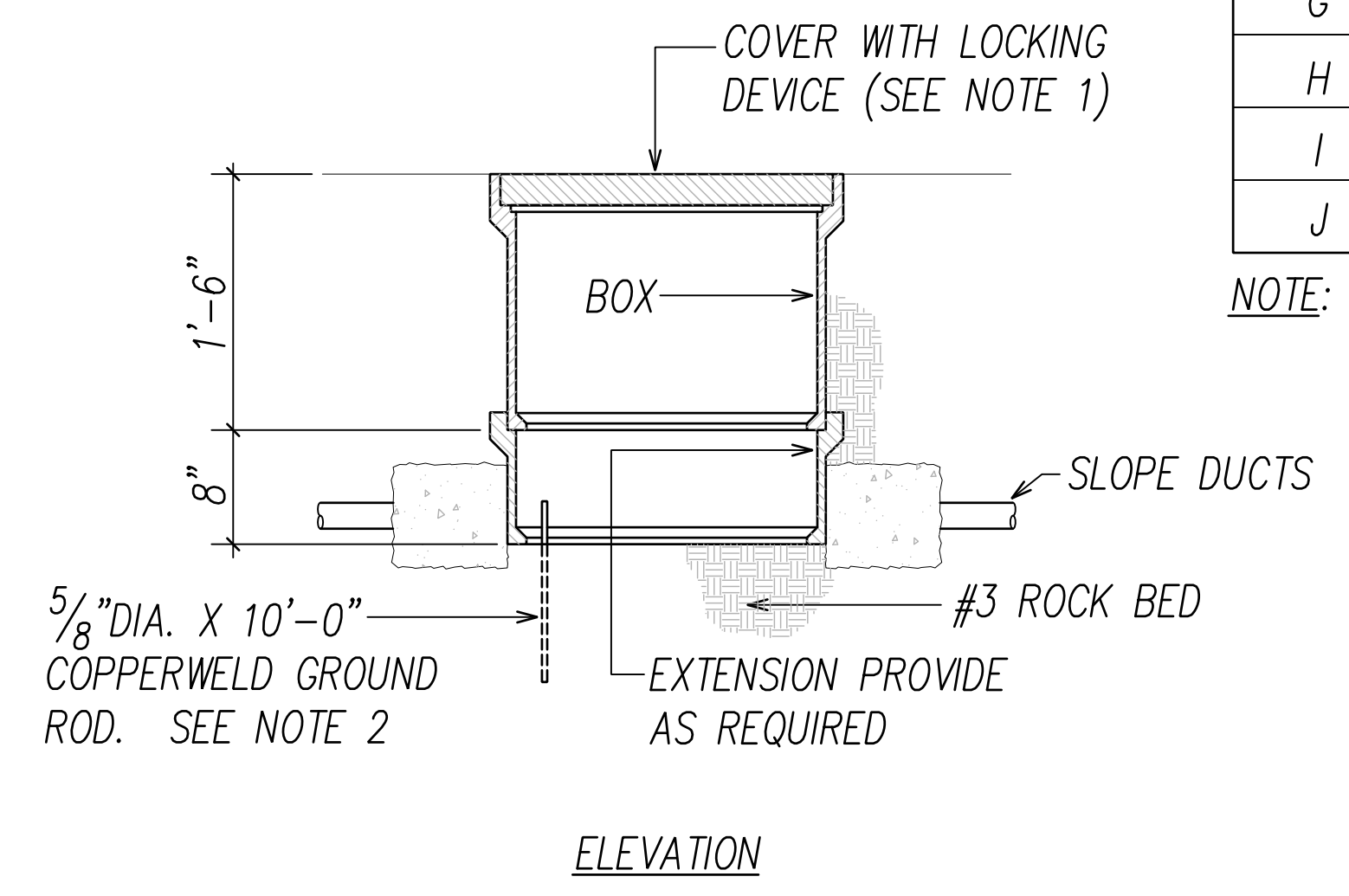
Scale: As Noted Date: June 25, 2021



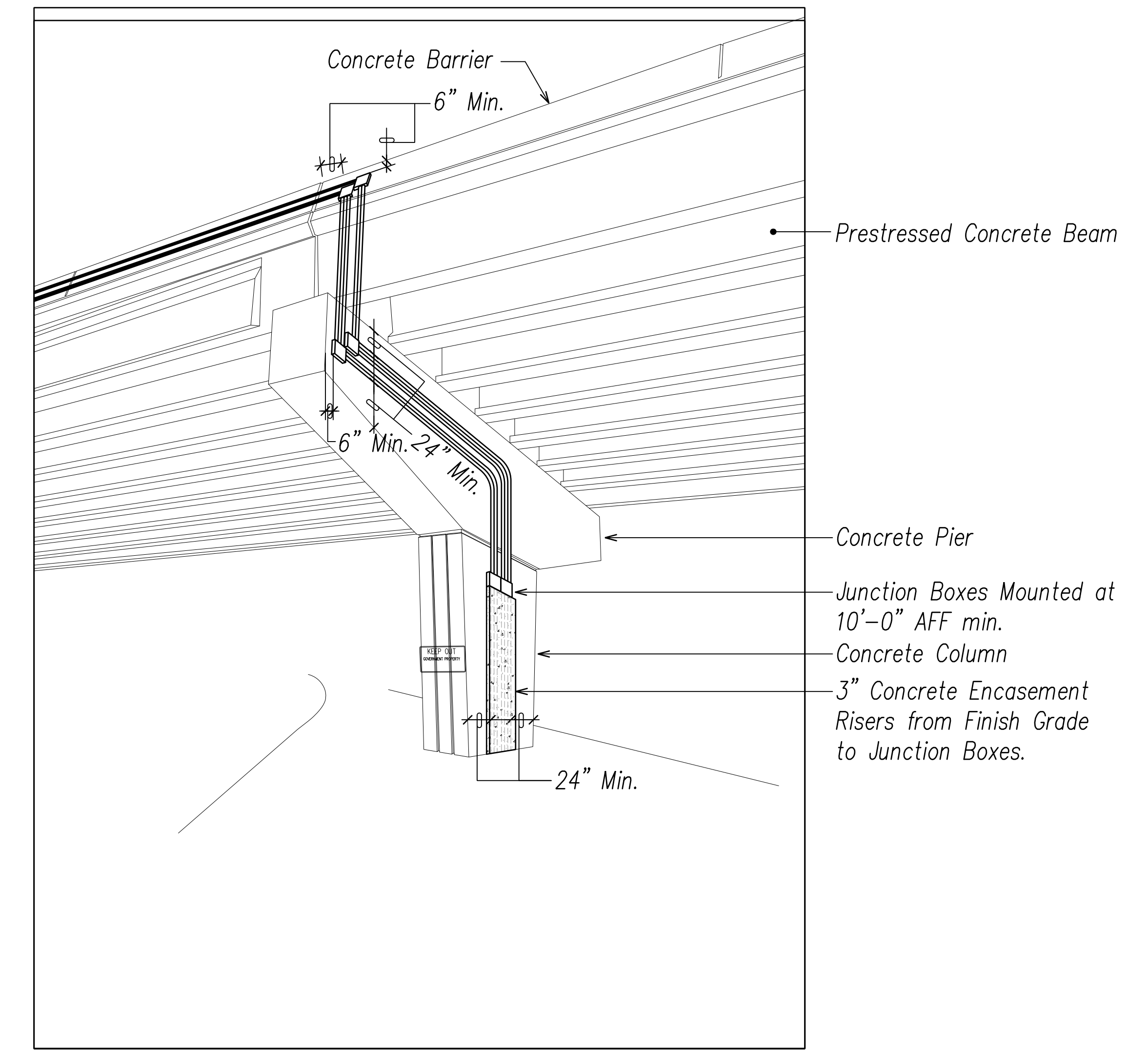
- NOTES:**
1. TO PROPERLY SECURE THE COVER, BE SURE THAT THE PENTAHEAD BOLTS ARE IN PLACE AND TIGHTENED. THE PENTA BOLTS SHALL BE FASTENED SECURELY TO THE COVERS (BY MEANS OF A COTTER PIN, FOR EXAMPLE), SO THE BOLTS CANNOT BE EASILY REMOVED FROM THE COVERS, EVEN WHEN THE COVERS ARE REMOVED FROM THE BOXES.
 2. GROUND ROD SHALL BE INSTALLED IN THE CORNER, 6" FROM EACH WALL AND 6" ABOVE FINAL FLOOR GRADE.
 3. NON-CONCRETE BOXES, COVERS, AND EXTENSIONS SHALL BE RATED FOR A VERTICAL LOAD OF 20,000 LBS (20K) MINIMUM.

NON-CONCRETE BOX SCHEDULE			
ITEM	13" X 24" PULLBOX	17" X 30" PULLBOX	24" X 36" PULLBOX
A	23 ¹ / ₄	30 ¹ / ₂	35 ⁵ / ₈
B	13 ³ / ₄	17 ¹ / ₂	24
C	2	2	3
D	1 ³ / ₄	2 ¹ / ₂	2 ³ / ₄
E	24 ¹ / ₂	31 ³ / ₄	36 ⁷ / ₈
F	15	18 ³ / ₄	25 ¹ / ₄
G	18	18	18
H	29 ¹ / ₄	36 ¹ / ₂	41 ⁷ / ₈
I	19 ³ / ₄	23 ¹ / ₂	30 ¹ / ₄
J	9	9	9

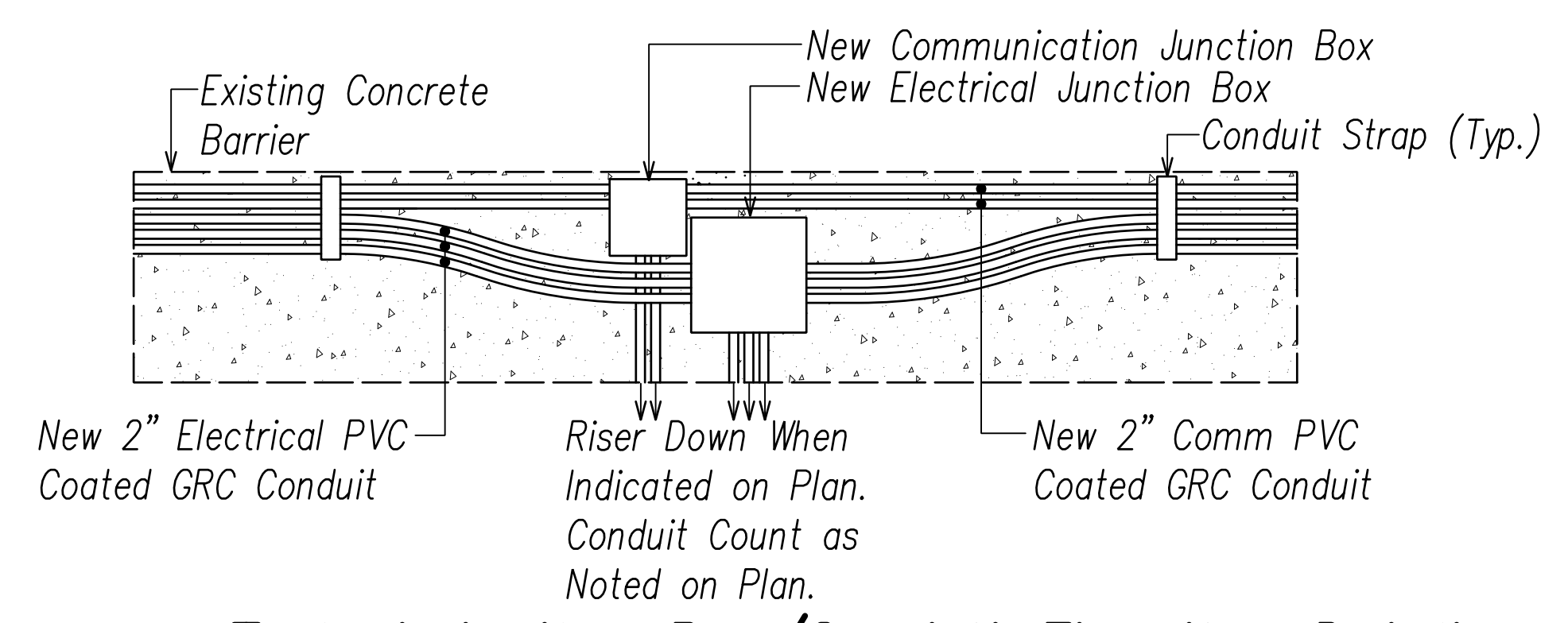
NOTE: ALL DIMENSIONS ARE IN INCHES & ARE NOMINAL.



A
E-32
Non-Concrete Pullbox Detail
Not To Scale



B
E-32
Viaduct Riser Detail
NOT TO SCALE



C
E-32
Typical Junction Box/Conduit Elevation Detail
NOT TO SCALE

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

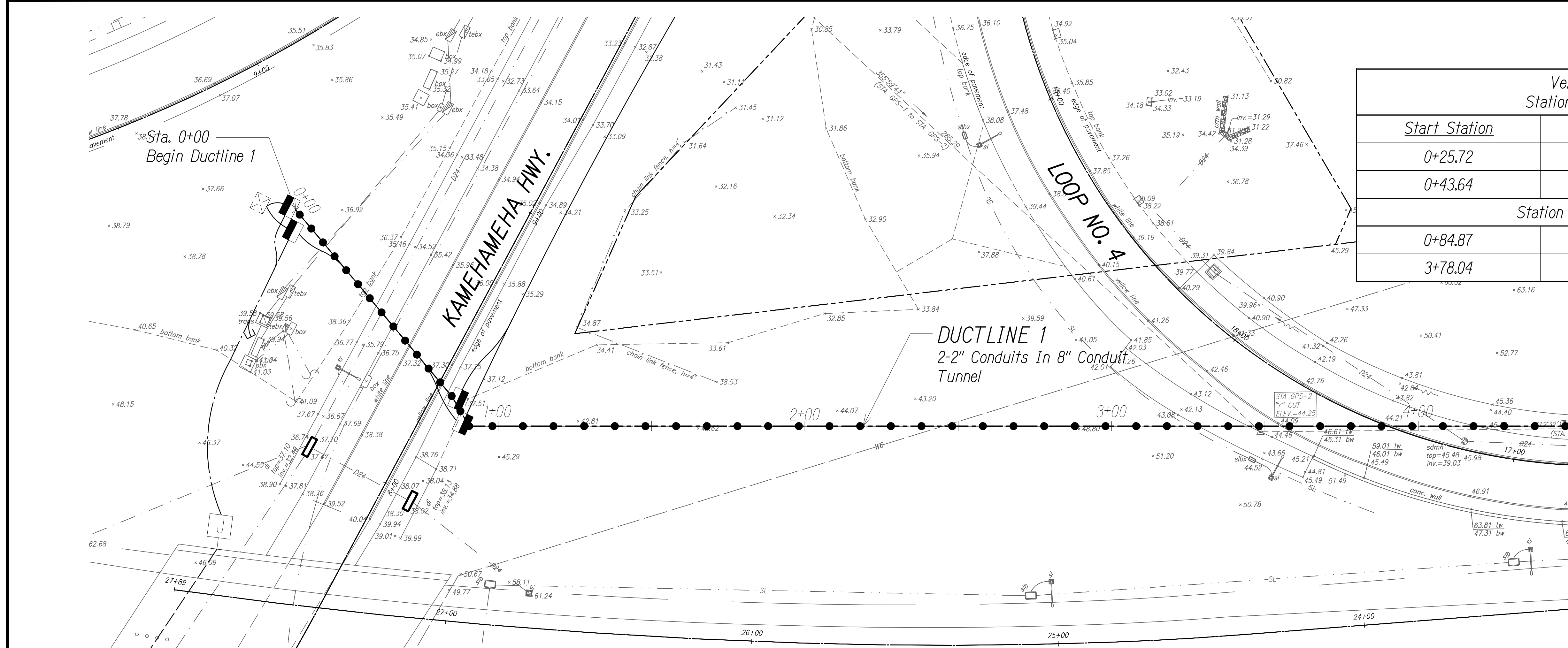
PR2:V400 PROJECTS\218034\UNIT_1_ED02_218034_KEEH_VIADUCT-DETAIL.DWG Jul 19, 2021-8:20 AM

GEORGE D. TAKASE
 LICENSED PROFESSIONAL ENGINEER
 No. 13741-E
 HAWAII, U.S.A.
 APRIL 30, 2022
 LIC. EXP. DATE

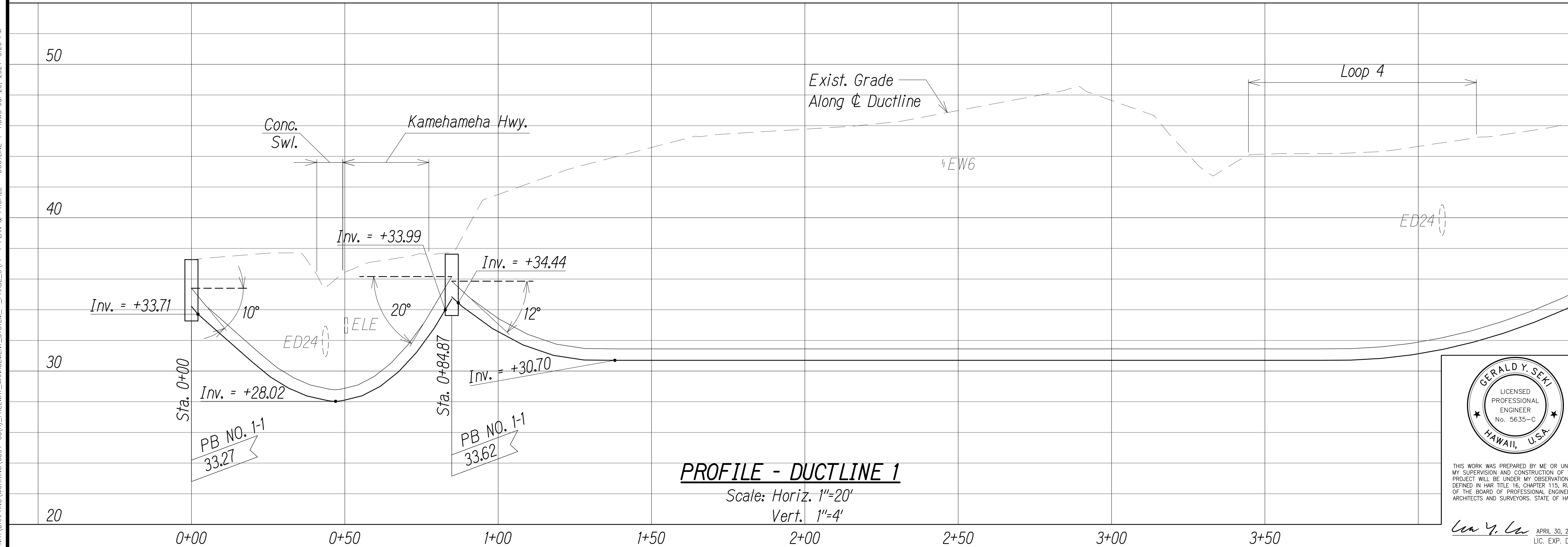
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
VIADUCT RISER DETAIL
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)
 Scale: As Noted Date: June 25, 2021
 SHEET No. E-32 OF 32 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	151	170

Vertical Curve Summary		
Station 0+00 to Station 0+84.87		
Start Station	End Station	Radius (Feet)
0+25.72	0+43.64	150.0
0+43.64	0+84.87	110.0
Station 0+84.87 to Station 5+46.77		
0+84.87	1+34.83	263.3
3+78.04	5+46.77	832.9



PLAN - DUCTLINE 1
Scale: 1"=20'



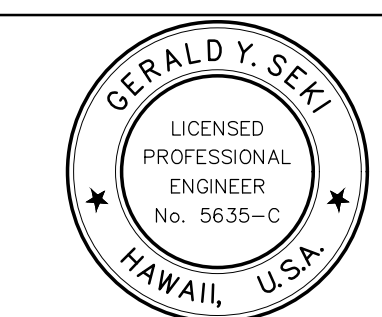
PROFILE - DUCTLINE 1
Scale: Horiz. 1"=20'
Vert. 1"=4'

MATCH LINE @ STA. 4+50
For Continuation, See Shit. PP-2

MATCH LINE @ STA. 4+50
For Continuation, See Shit. PP-2

DATE	BY

ORIGINAL PLAN DRAWN BY: [blank]
 NOTE BOOK DESIGNED BY: [blank]
 QUANTITIES BY: [blank]
 CHECKED BY: [blank]
 No. [blank]



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Gerald Y. Seki
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HDD PLAN AND PROFILE
DUCTLINE 1
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

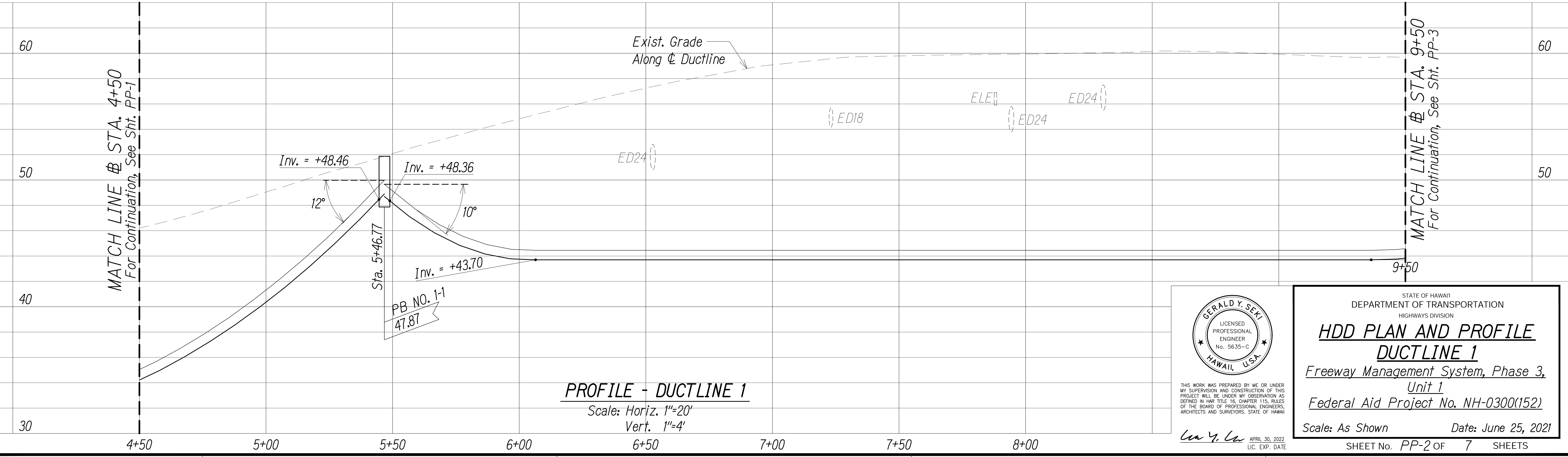
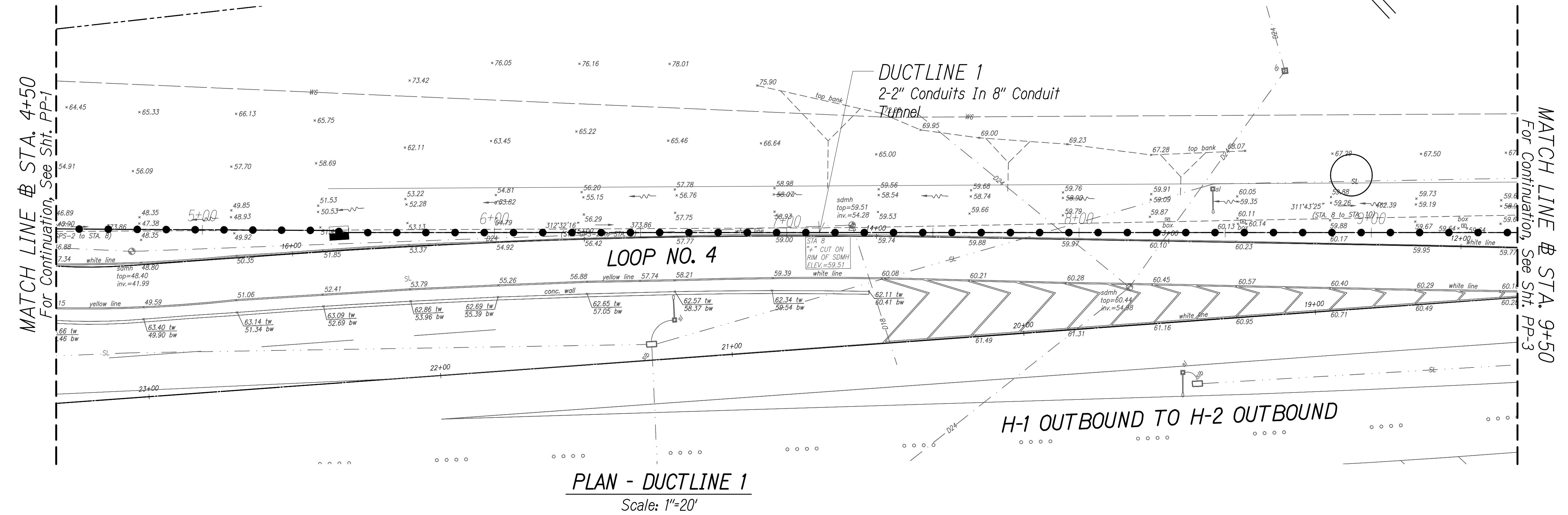
Scale: As Shown Date: June 25, 2021

SHEET No. PP-1 OF 7 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	152	170

Vertical Curve Summary
Station 5+46.77 to Station 10+73.49

Start Station	End Station	Radius (Feet)
5+46.77	6+06.48	329.1
9+36.48	10+73.49	789.9



ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

P:\1\DRAWINGS\WORKING\0801-3000\FREEMAN_MANAGEMENT_SYSTEM_-_PHASE_3\PP-2_PLAN & PROFILE - DUCTLINE 1-2.DWG Jul 20, 2021 3:54 PM



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Gerald Y. Seki
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

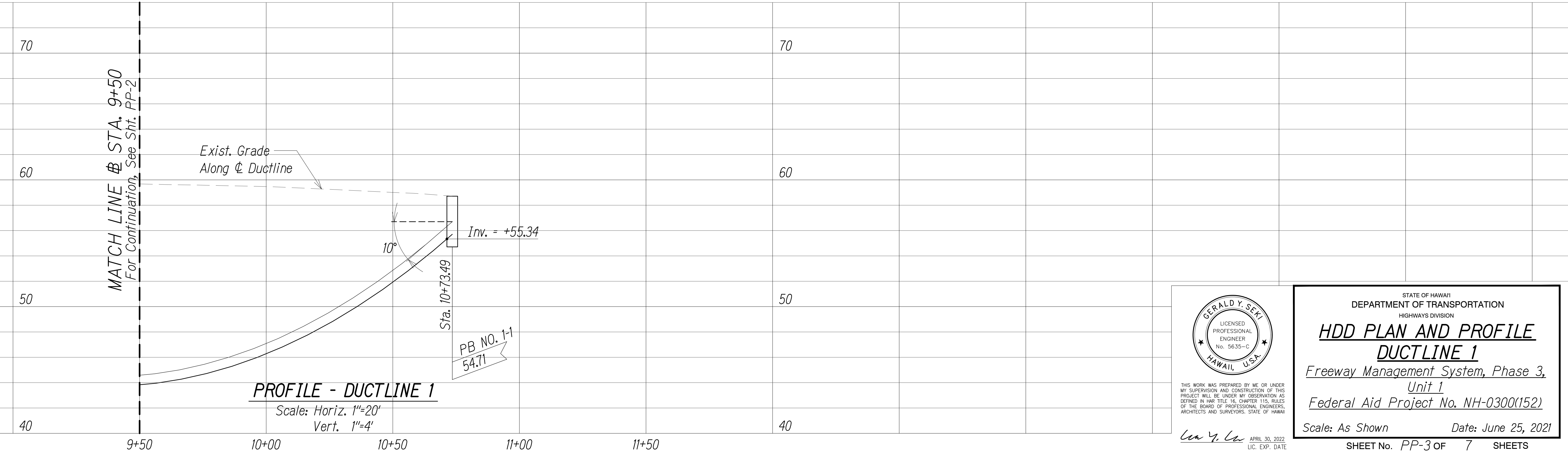
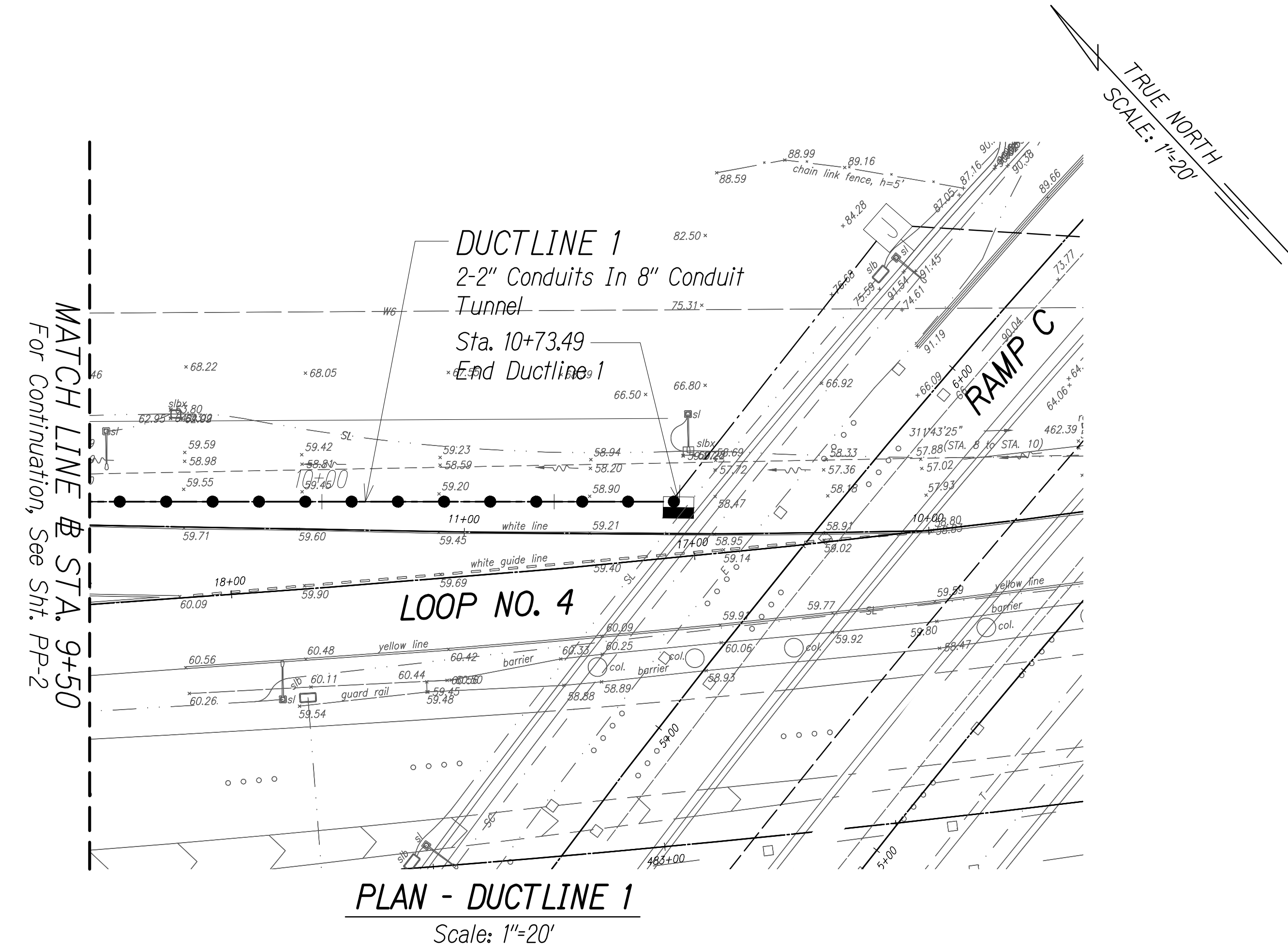
HDD PLAN AND PROFILE
DUCTLINE 1
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. PP-2 OF 7 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	153	170

Vertical Curve Summary Station 5+46.77 to Station 10+73.49		
Start Station	End Station	Radius (Feet)
5+46.77	6+06.48	329.1
9+36.48	10+73.49	789.9



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

PP-3 (REVISED) 11/15/18 - ROADWAY MANAGEMENT SYSTEM - PHASE 3, PP-3, PLAN & PROFILE - DUCTLINE 1 - 5:00 PM Jul 20, 2021 - 4:05 PM

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

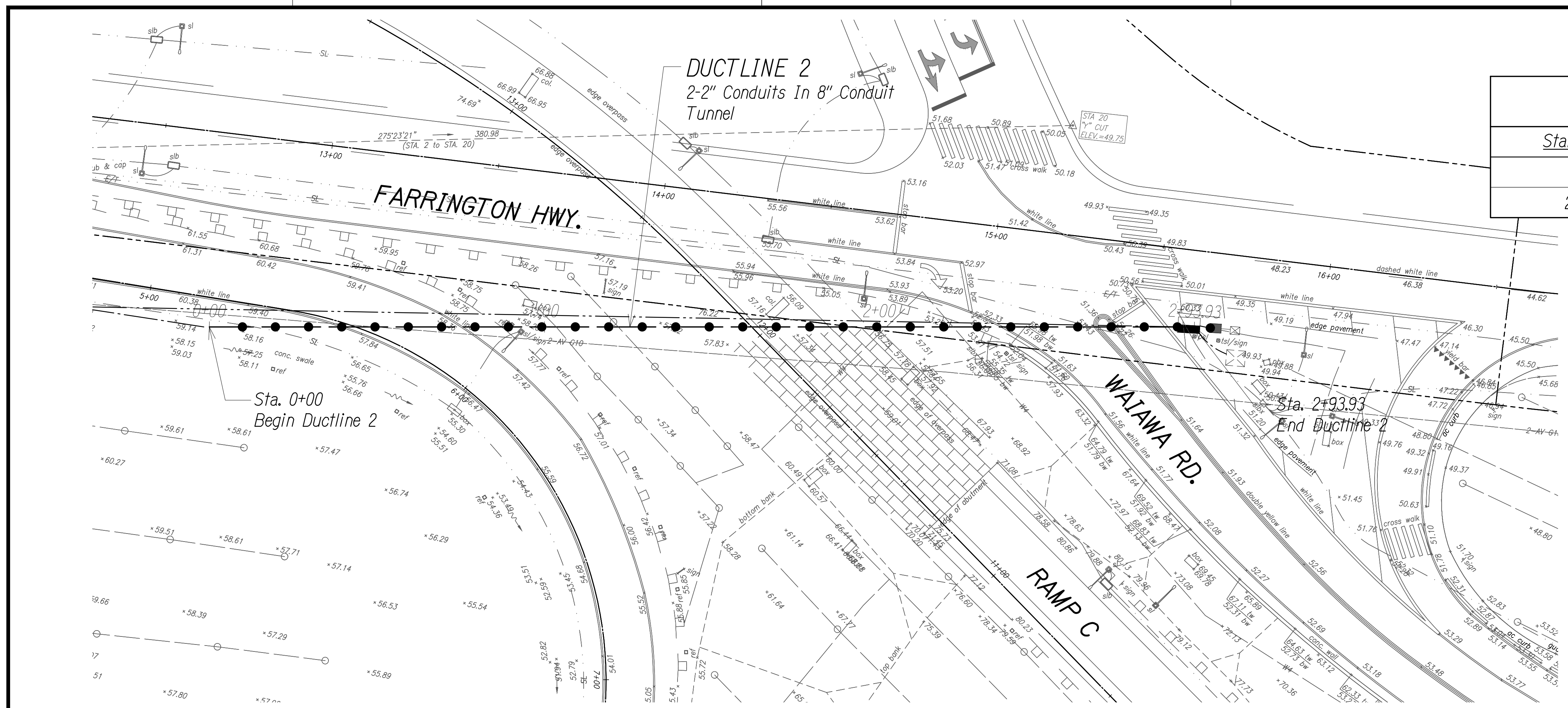
HDD PLAN AND PROFILE
DUCTLINE 1
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

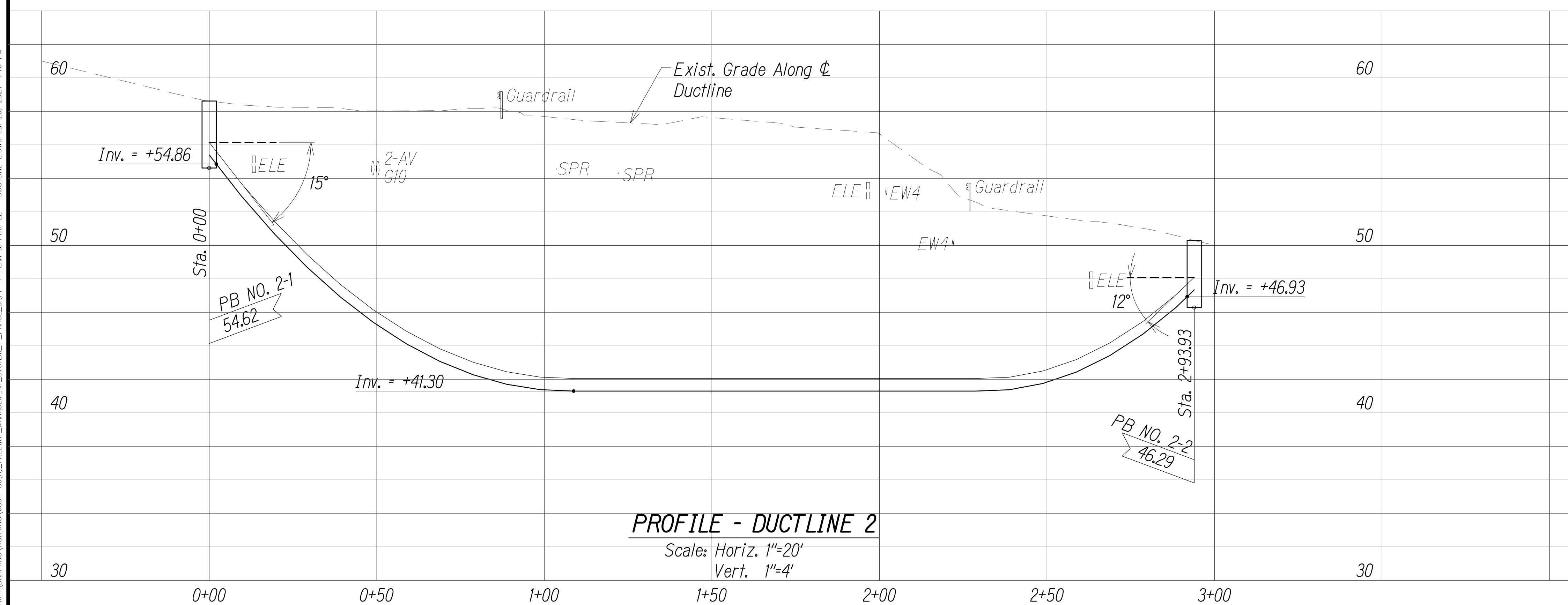
SHEET No. PP-3 OF 7 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	154	170

Vertical Curve Summary Station 0+00 to Station 2+93.93		
Start Station	End Station	Radius (Feet)
0+00	1+08.77	413.8
2+38.77	2+93.93	326.6




PLAN - DUCTLINE 2
Scale: 1"=20'



PROFILE - DUCTLINE 2
Scale: Horiz. 1"=20'
Vert. 1"=4'

DATE	BY
DESIGNED BY	TRACED BY
DESIGNED BY	DESIGNED BY
QUANTITIES BY	QUANTITIES BY
CHECKED BY	CHECKED BY
No.	No.

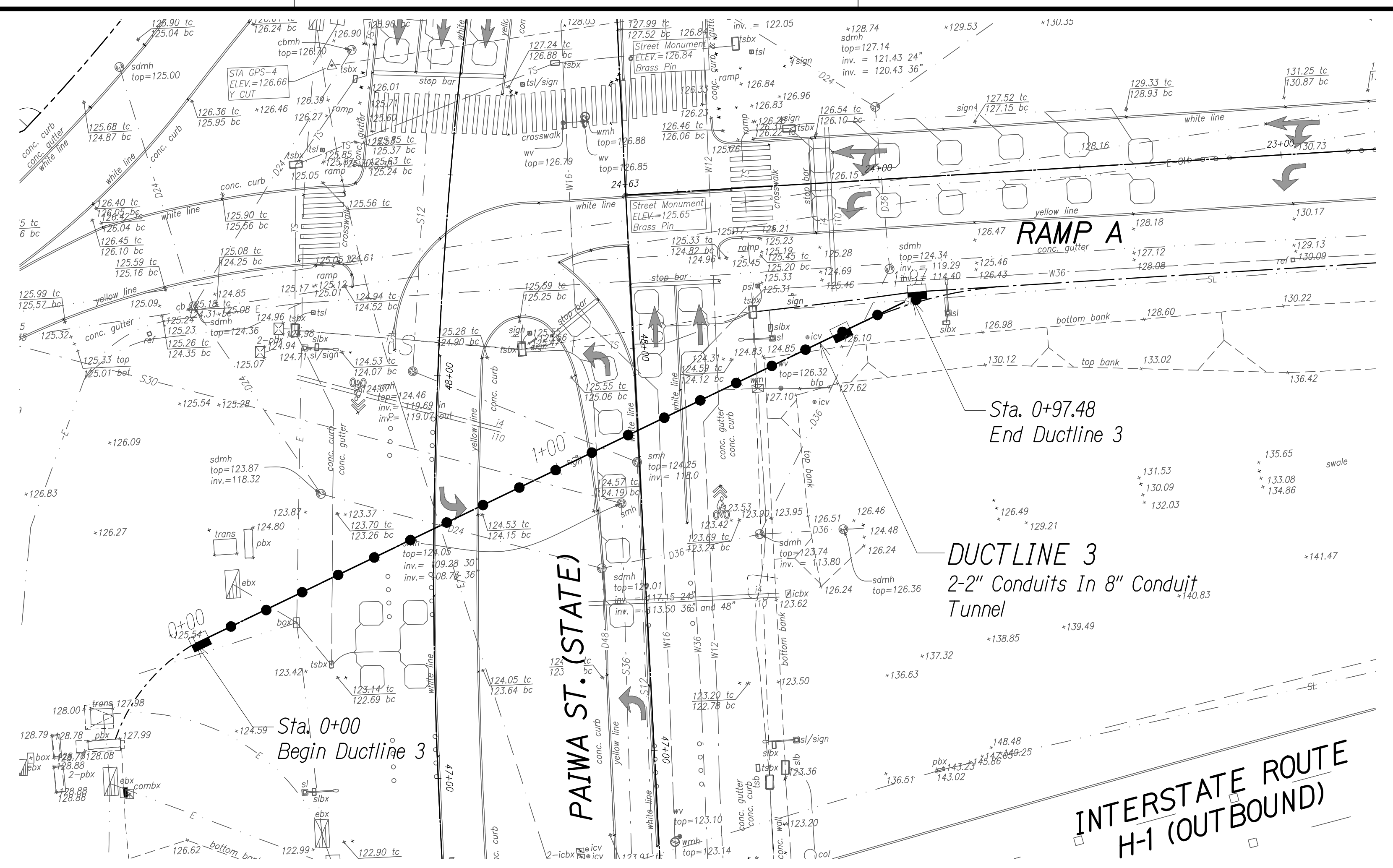
P:\2\DRAWINGS\WORKING\0801 - ROAD\FREEMAN MANAGEMENT SYSTEM - PHASE 3\PP-4 PLAN & PROFILE - DUCTLINE 2.DWG Jul 20, 2021 - 4:10 PM


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 APRIL 30, 2022
 LIC. EXP. DATE

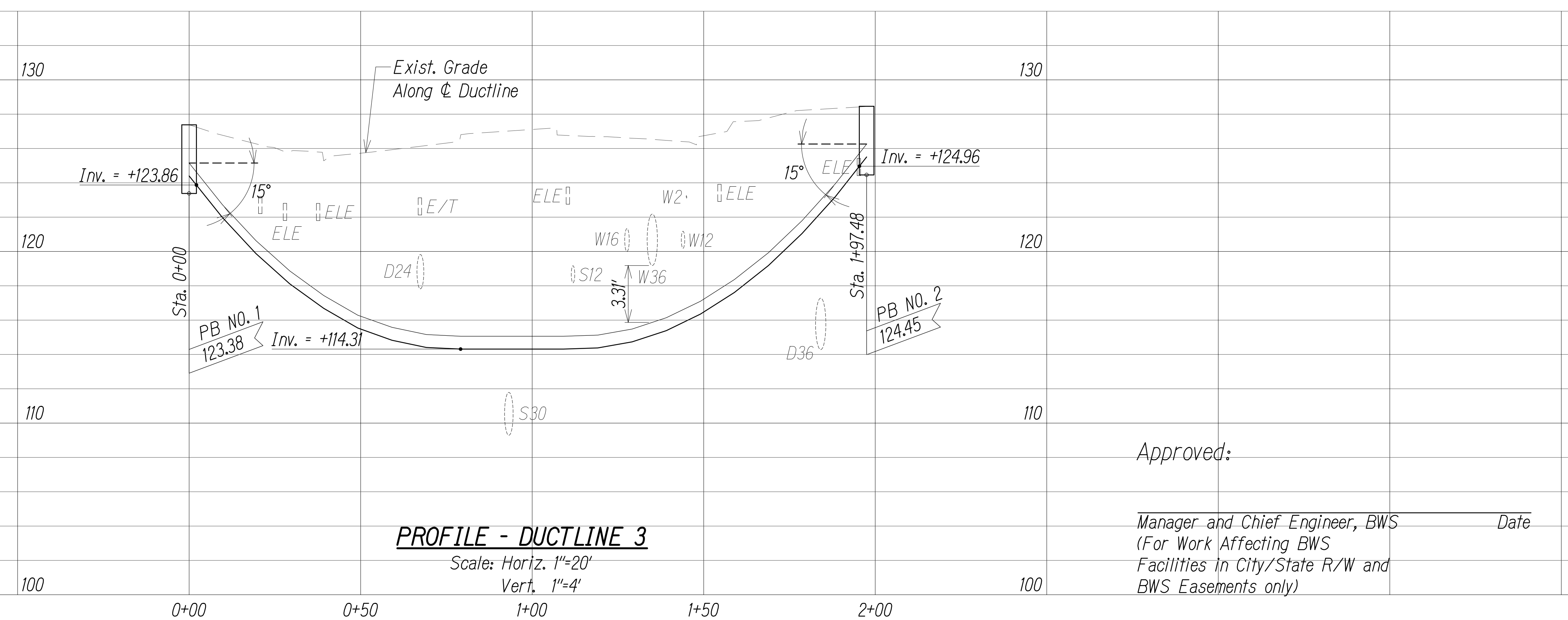
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
HDD PLAN AND PROFILE
DUCTLINE 2
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. PP-4 OF 7 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	155	170

Vertical Curve Summary Station 0+00 to Station 1+97.48		
Start Station	End Station	Radius (Feet)
0+00	0+79.15	296.1
1+19.12	1+98.48	328.4



PLAN - DUCTLINE 3
Scale: 1"=20'



PROFILE - DUCTLINE 3
Scale: Horiz. 1"=20'
Vert. 1"=4'

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
NO.	_____

P:\15\DRAWINGS\WORKING\0891 - ROAD\FREEMAN MANAGEMENT SYSTEM - PHASE 3\PP-5 PLAN & PROFILE - DUCTLINE 3.DWG Jul 20, 2021 - 4:13 PM

Approved: _____ Date _____
 Manager and Chief Engineer, BWS
 (For Work Affecting BWS
 Facilities in City/State R/W and
 BWS Easements only)

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Gerald Y. Seki
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

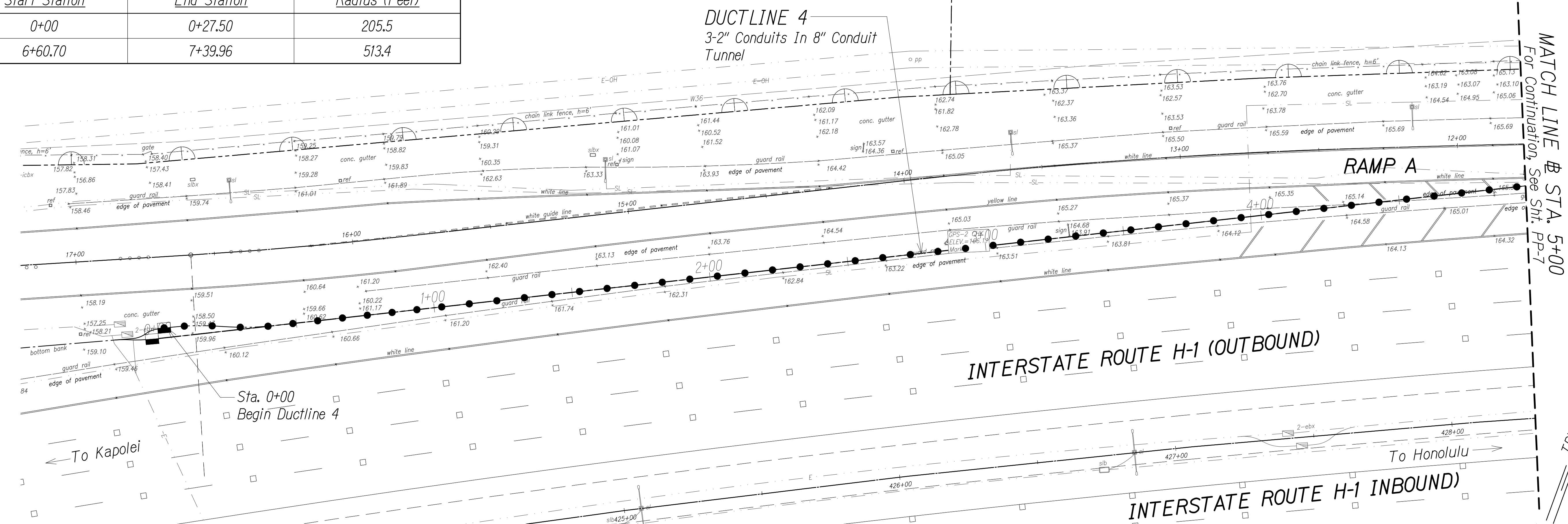
HDD PLAN AND PROFILE
DUCTLINE 3
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

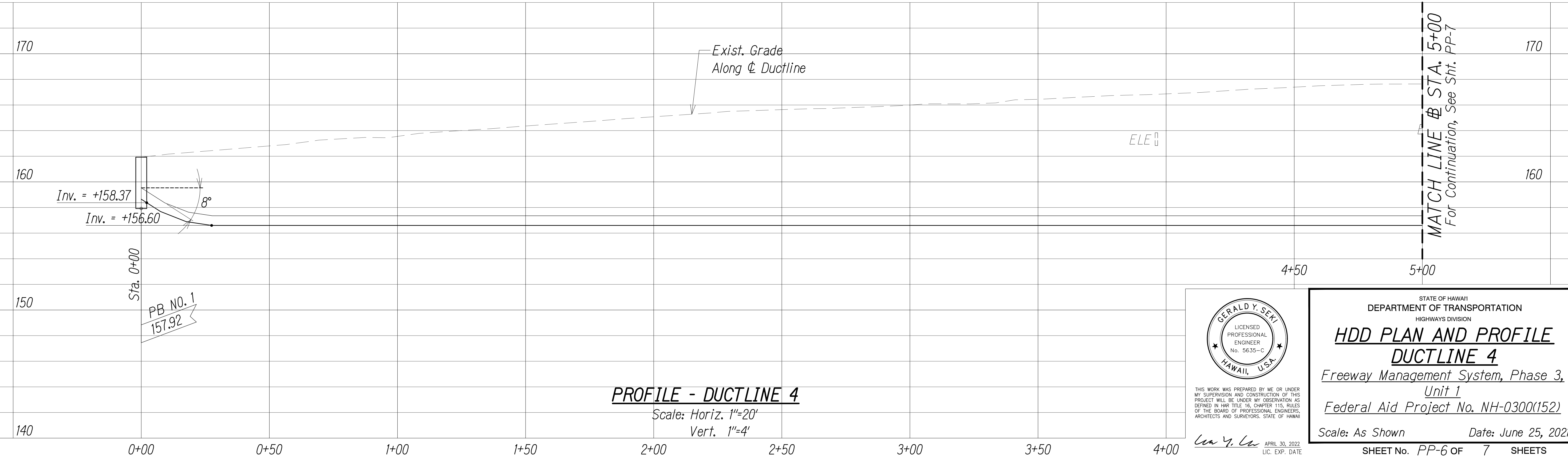
SHEET No. PP-5 OF 7 SHEETS

Vertical Curve Summary Station 0+00 to Station 7+39.96		
Start Station	End Station	Radius (Feet)
0+00	0+27.50	205.5
6+60.70	7+39.96	513.4

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	156	170



PLAN - DUCTLINE 4
Scale: 1"=20'



PROFILE - DUCTLINE 4
Scale: Horiz. 1"=20'
Vert. 1"=4'

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
DATE	_____

ORIGINAL PLAN DRAWN BY _____
 NOTE BOOK _____
 NO. _____
 FILE: \\DRATINGS\WORKING\9891 - ROAD\FREEMAN MANAGEMENT SYSTEM - PHASE 3\PP-6 PLAN & PROFILE - DUCTLINE 4-1.DWG Jul 20, 2021 - 4:19 PM

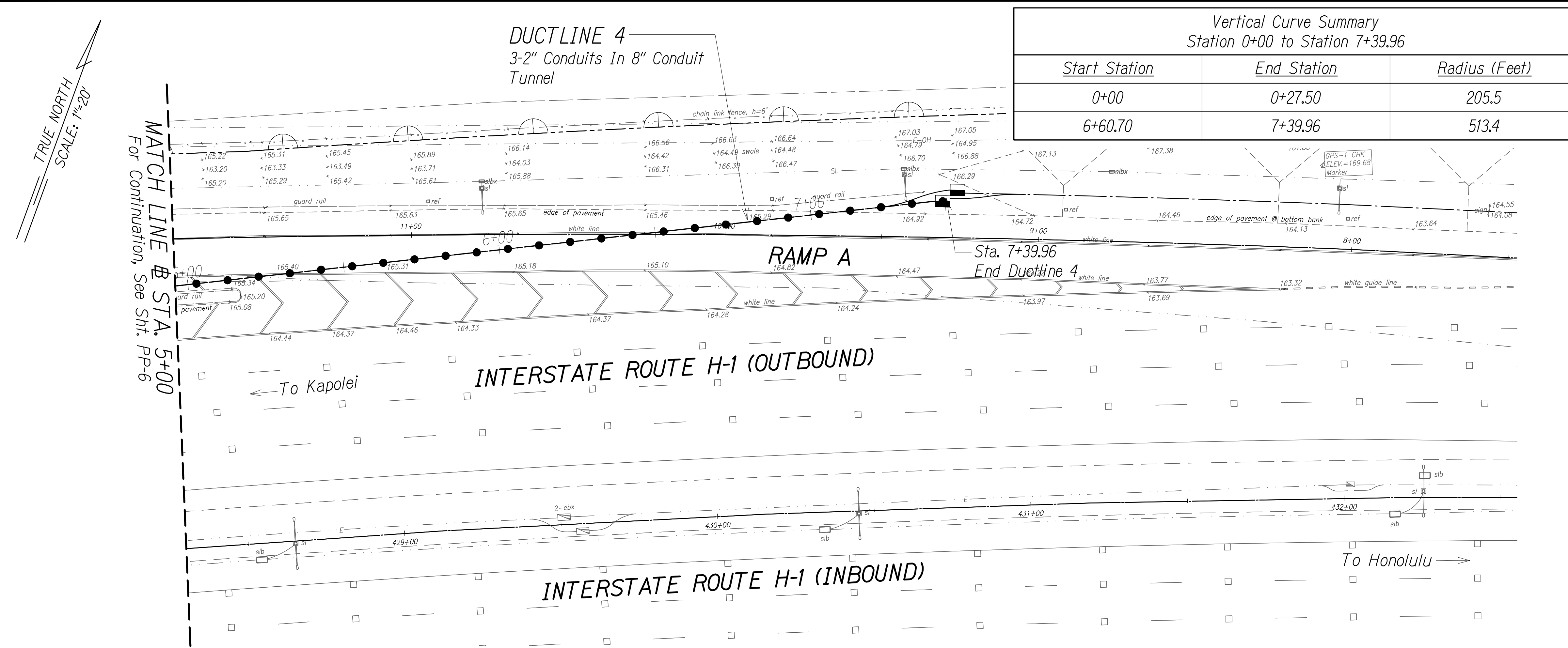


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 APRIL 30, 2022
 LIC. EXP. DATE

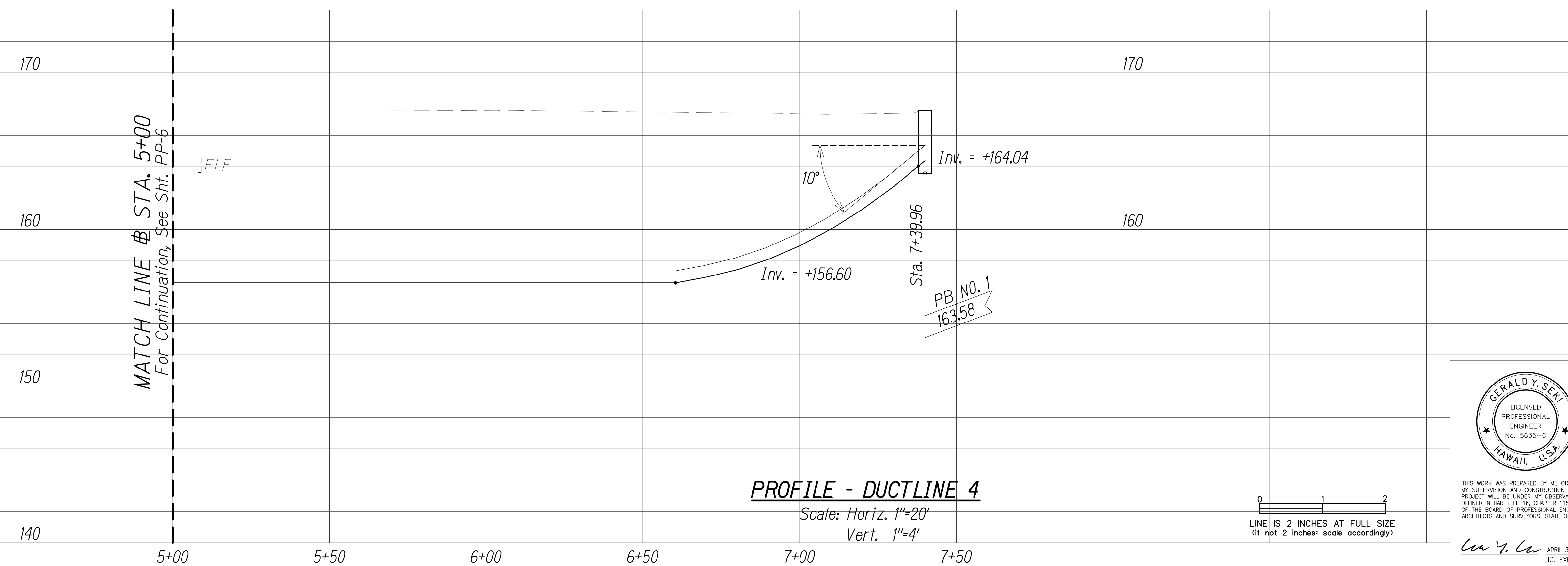
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
HDD PLAN AND PROFILE
DUCTLINE 4
 Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)
 Scale: As Shown Date: June 25, 2021
 SHEET No. PP-6 OF 7 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	157	170

Start Station	End Station	Radius (Feet)
0+00	0+27.50	205.5
6+60.70	7+39.96	513.4



PLAN - DUCTLINE 4
Scale: 1"=20'



ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

PP-7 (DRAWING WORKING) 0801 - ROAD FREEMANAGEMENT SYSTEM - PHASE 3 (PP-7 PLAN & PROFILE - DUCTLINE 4) 20.DWG Jul 20, 2021 - 4:23 PM



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Gerald Y. Seki
APRIL 30, 2022
LIC. EXP. DATE

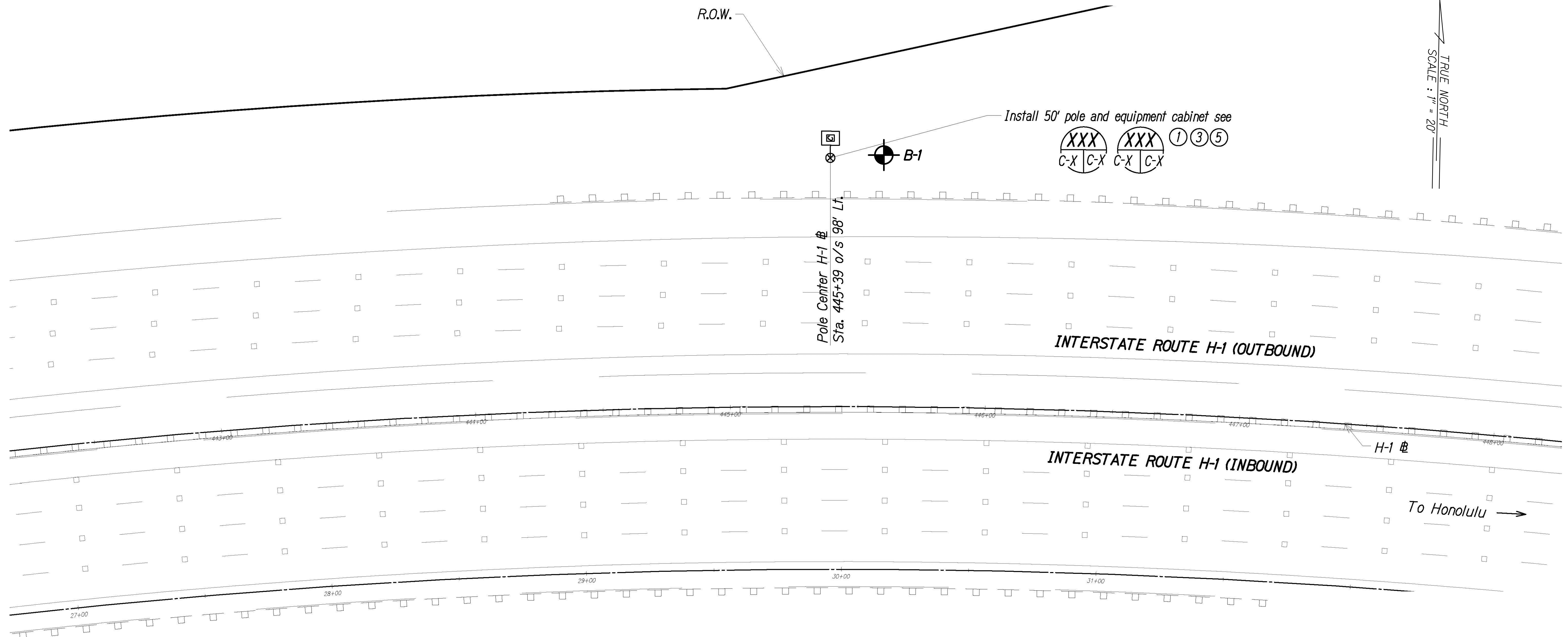
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HDD PLAN AND PROFILE
DUCTLINE 4
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. PP-7 OF 7 SHEETS

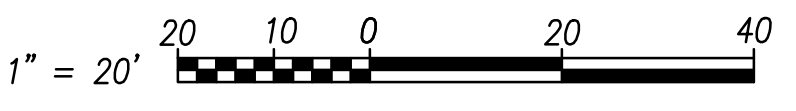
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	158	170



TRUE NORTH
 SCALE: 1" = 20'

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

LEGEND:
 Approximate Boring Location



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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

BORING LOCATION PLAN - 1

Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)

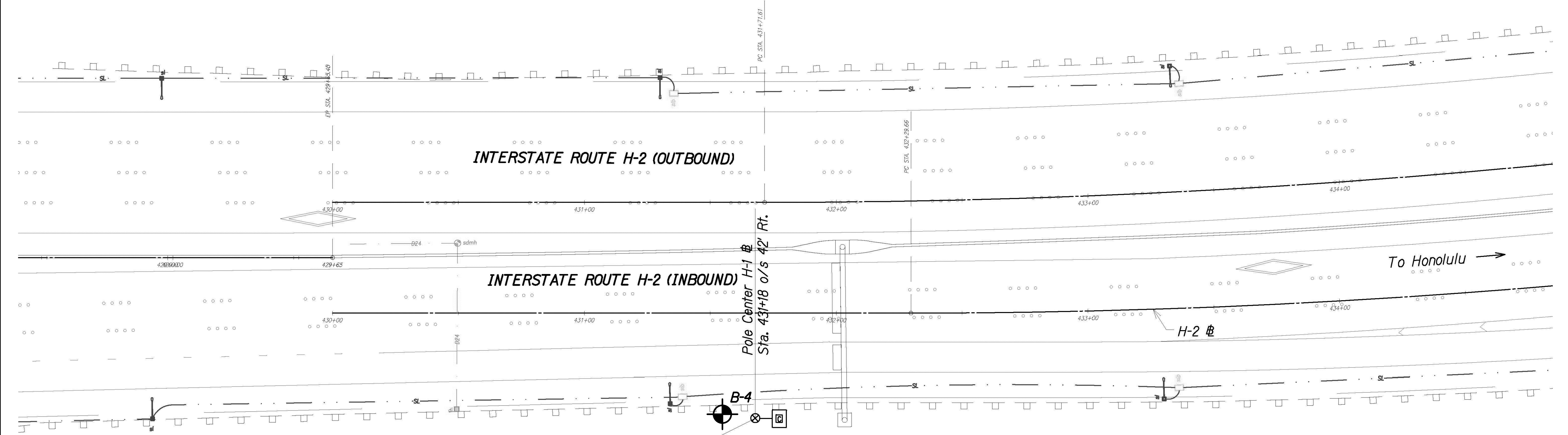
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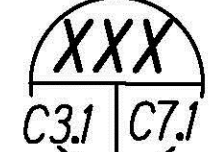
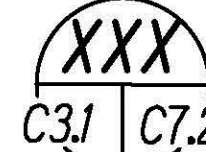
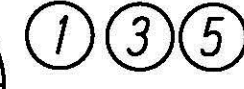
SHEET No. BL-1 OF SHEETS

F:\NA\DRABTING\WORKING\0891-30(A)\FREWAY_MANAGEMENT_SYSTEM_-_PHASE_3\0891-30(A)_FREWAY_MANAGEMENT_SYSTEM.dwg, Jul 19, 2021 - 4:24 PM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	159	170


TRUE NORTH
SCALE : 1" = 20'

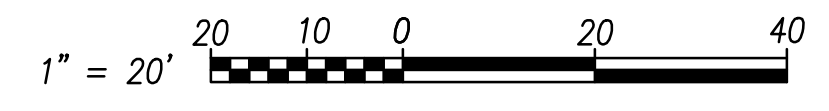


Install 50' pole and equipment cabinet see




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

F:\NA\DRAWING\DRAWING\WORKING\0891-30(A)\FREEMANAGEMENT_SYSTEM_-_PHASE_3\0891-30(A)\SHEETBORINGLOCATIONPLAN.DWG, Jul 19, 2021, 4:24 PM

LEGEND:
 Approximate Boring Location



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Gerald Y. Seki
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOCATION PLAN - 2

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

SHEET No. *BL-2* OF SHEETS

GEOLABS, INC.
Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)			
MAJOR DIVISIONS		USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS	GRAVELS	CLEAN GRAVELS LESS THAN 5% FINES	GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES	GP POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES	GM SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	SANDS	CLEAN SANDS LESS THAN 5% FINES	SW WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES MORE THAN 12% FINES	SP POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES MORE THAN 12% FINES	SM SILTY SANDS, SAND-SILT MIXTURES
FINE-GRAINED SOILS	SILTS AND CLAYS	ML LIQUID LIMIT LESS THAN 50	ML INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		CL LIQUID LIMIT LESS THAN 50	CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL LIQUID LIMIT LESS THAN 50	OL ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	MH LIQUID LIMIT 50 OR MORE	MH INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
		CH LIQUID LIMIT 50 OR MORE	CH INORGANIC CLAYS OF HIGH PLASTICITY
		OH LIQUID LIMIT 50 OR MORE	OH ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS		PT	PT PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

	(2-INCH) O.D. STANDARD PENETRATION TEST	LL	LIQUID LIMIT (NP=NON-PLASTIC)
	(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE	PI	PLASTICITY INDEX (NP=NON-PLASTIC)
	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
	GRAB SAMPLE	UC	UNCONFINED COMPRESSION OR UNIAXIAL COMPRESSIVE STRENGTH
	CORE SAMPLE	TXUU	UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)
	WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING		
	WATER LEVEL OBSERVED IN BORING AFTER DRILLING		
	WATER LEVEL OBSERVED IN BORING OVERNIGHT		

RELATIVE DENSITY / CONSISTENCY

Granular Soils		Relative Density	Cohesive Soils		Consistency
N-Value (Blows/Foot)	MCS		N-Value (Blows/Foot)	PP Readings (tsf)	
0 - 4	0 - 7	Very Loose	0 - 2	0 - 4	Very Soft
4 - 10	7 - 18	Loose	2 - 4	4 - 7	Soft
10 - 30	18 - 55	Medium Dense	4 - 8	7 - 15	Medium Stiff
30 - 50	55 - 91	Dense	8 - 15	15 - 27	Stiff
> 50	> 91	Very Dense	15 - 30	27 - 55	Very Stiff
			> 30	> 55	Hard

GEOLABS, INC.
Geotechnical Engineering

Soil Classification Log Key

(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*					
GRANULAR SOIL (- #200 < 50%)			COHESIVE SOIL (- #200 ≥ 50%)		
<ul style="list-style-type: none"> PRIMARY constituents are composed of the largest percent of the soil mass. Primary constituents are capitalized and bold (i.e., GRAVEL, SAND) SECONDARY constituents are composed of a percentage less than the primary constituent. If the soil mass consists of 12 percent or more fines content, a cohesive constituent is used (SILTY or CLAYEY); otherwise, a granular constituent is used (GRAVELLY or SANDY) provided that the secondary constituent consists of 20 percent or more of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY GRAVEL, CLAYEY SAND) and precede the primary constituent. accessory descriptions compose of the following: <ul style="list-style-type: none"> with some: >12% with a little: 5 - 12% with traces of: <5% accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY GRAVEL with a little sand) 			<ul style="list-style-type: none"> PRIMARY constituents are based on plasticity. Primary constituents are capitalized and bold (i.e., CLAY, SILT) SECONDARY constituents are composed of a percentage less than the primary constituent, but more than 20 percent of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY CLAY, SILTY CLAY, CLAYEY SILT) and precede the primary constituent. accessory descriptions compose of the following: <ul style="list-style-type: none"> with some: >12% with a little: 5 - 12% with traces of: <5% accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY CLAY with some sand) 		
EXAMPLE: Soil Containing 60% Gravel, 25% Sand, 15% Fines. Described as: SILTY GRAVEL with some sand					

*Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).

MOISTURE CONTENT DEFINITIONS

Dry: Absence of moisture, dry to the touch

Moist: Damp but no visible water

Wet: Visible free water

GRAIN SIZE DEFINITION

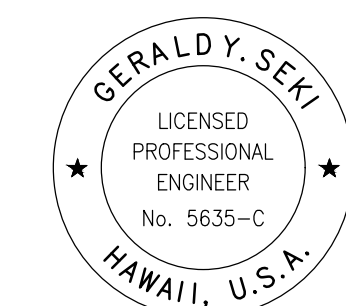
Description	Sieve Number and / or Size
Boulders	> 12 inches (305-mm)
Cobbles	3 to 12 inches (75-mm to 305-mm)
Gravel	3-inch to #4 (75-mm to 4.75-mm)
Coarse Gravel	3-inch to 3/4-inch (75-mm to 19-mm)
Fine Gravel	3/4-inch to #4 (19-mm to 4.75-mm)
Sand	#4 to #200 (4.75-mm to 0.075-mm)
Coarse Sand	#4 to #10 (4.75-mm to 2-mm)
Medium Sand	#10 to #40 (2-mm to 0.425-mm)
Fine Sand	#40 to #200 (0.425-mm to 0.075-mm)

ABBREVIATIONS

WOH: Weight of Hammer
 WOR: Weight of Drill Rods
 SPT: Standard Penetration Test Split-Spoon Sampler
 MCS: Modified California Sampler
 PP: Pocket Penetrometer

SURVEY PLOTTED BY _____ DATE _____
 DESIGNED BY _____
 CHECKED BY _____
 QUANTITIES BY _____
 No. _____

LOG LEGEND FOR SOIL 6891-30A&B.GPJ GEOLABS.GDT 5/12/21
 P:\C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACFIBLISH\1762A\6891-30A\6891-30A(S)SHEETBORINGLOGS.DWG, Jul 19, 2021 - 4:27 PM



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 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

BORING LOG LEGENDS

*Freeway Management System, Phase 3,
 Unit 1*
 Federal Aid Project No. NH-0300(152)

Scale: As Noted Date: June 25, 2021

SHEET No. BL-3 OF SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	161	170

GEOLABS, INC.
Geotechnical Engineering

Rock Log Legend

ROCK DESCRIPTIONS

	BASALT		CONGLOMERATE
	BOULDERS		LIMESTONE
	BRECCIA		SANDSTONE
	CLINKER		SILTSTONE
	COBBLES		TUFF
	CORAL		VOID/CAVITY

ROCK DESCRIPTION SYSTEM

ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

Massive:	Greater than 24 inches apart
Slightly Fractured:	12 to 24 inches apart
Moderately Fractured:	6 to 12 inches apart
Closely Fractured:	3 to 6 inches apart
Severely Fractured:	Less than 3 inches apart

DEGREE OF WEATHERING

The following terms describe the chemical weathering of a rock:

Unweathered:	Rock shows no sign of discoloration or loss of strength.
Slightly Weathered:	Slight discoloration inwards from open fractures.
Moderately Weathered:	Discoloration throughout and noticeably weakened though not able to break by hand.
Highly Weathered:	Most minerals decomposed with some corestones present in residual soil mass. Can be broken by hand.
Extremely Weathered:	Saprolite. Mineral residue completely decomposed to soil but fabric and structure preserved.

HARDNESS

The following terms describe the resistance of a rock to indentation or scratching:

Very Hard:	Specimen breaks with difficulty after several "pinging" hammer blows. Example: Dense, fine grain volcanic rock
Hard:	Specimen breaks with some difficulty after several hammer blows. Example: Vesicular, vugular, coarse-grained rock
Medium Hard:	Specimen can be broken by one hammer blow. Cannot be scraped by knife. SPT may penetrate by ~25 blows per inch with bounce. Example: Porous rock such as clinker, cinder, and coral reef
Soft:	Can be indented by one hammer blow. Can be scraped or peeled by knife. SPT can penetrate by ~100 blows per foot. Example: Weathered rock, chalk-like coral reef
Very Soft:	Crumbles under hammer blow. Can be peeled and carved by knife. Can be indented by finger pressure. Example: Saprolite

GEOTECHNICAL NOTES:

- A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Freeway Management System, Phases 3, Units 1 and 2, IM-0300(152), Interstate Routes H-1 and H-2 Freeways, Districts of Honolulu and Ewa, Oahu, Hawaii" dated February 5, 2021 has been prepared by Geolabs, Inc. A copy of the report is on file at the office of the Engineer for review by the Contractor.
- For boring locations, see Sheets BL-1 and BL-2.
- The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.
- The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
- The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.

LOG LEGEND FOR ROCK 6867-30A&B.GPJ GEOLABS.GDT 5/12/21

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

P:\CADD\PROJECTS\APPDATA\LOCAL\TEMP\ACPIBLSH_1762A\B91-70(6)SHEETBORINGLOGS.DWG: Jul 19, 2021 - 4:27 PM



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROCK LOG LEGEND & NOTES

*Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)*

Scale: As Noted Date: June 25, 2021

SHEET No. BL-4 OF SHEETS

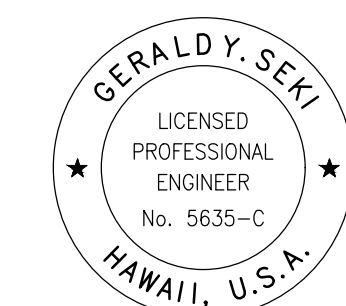
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	162	170

G		GEOLABS, INC. Geotechnical Engineering		FREEWAY MANAGEMENT SYSTEM PHASE 3, UNITS 1 AND 2, IM-0300(152) INTERSTATE ROUTES H-1 AND H-2 FREEWAYS DISTRICTS OF HONOLULU AND EWA, OAHU, HAWAII			Log of Boring 1		
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic USCS	Approximate Ground Surface Elevation (feet 25): 168 *
Direct Shear LL=71 PI=42 Sieve #200 = 31.6% UC= 3710 psi UC= 2910 psi	23 20 35	69 80			36 18 10	4.5	4.5 5	CH SM	Approximate Ground Surface Elevation (feet 25): 168 *
							10		Description
							15		Reddish brown SILTY CLAY, very stiff, moist (residual soil)
							20		Brownish gray BOULDERS (BASALTIC)
							25		Reddish brown with gray mottling SILTY SAND (BASALTIC) with a little gravel (basaltic), loose, moist (saprolite)
							30		Gray BASALT, closely to slightly fractured, moderately to slightly weathered, hard to very hard (basalt formation) grades to moderately to severely fractured
							35		Boring terminated at 20 feet
Date Started: September 1, 2020			Date Completed: September 1, 2020			Water Level: Not Encountered			
Logged By: D. Gremminger			Drill Rig: CME-45C TRUCK						
Total Depth: 20 feet			Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Work Order: 6891-30(A)			Driving Energy: 140 lb. wt., 30 in. drop						

G		GEOLABS, INC. Geotechnical Engineering		FREEWAY MANAGEMENT SYSTEM PHASE 3, UNITS 1 AND 2, IM-0300(152) INTERSTATE ROUTES H-1 AND H-2 FREEWAYS DISTRICTS OF HONOLULU AND EWA, OAHU, HAWAII			Log of Boring 4		
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic USCS	Approximate Ground Surface Elevation (feet 25): 195 *
TXUU LL=53 PI=24 UC= 9790 psi	27 26 25	96 76			41 25 65	4.5	4.5 5	GP GM MH	Approximate Ground Surface Elevation (feet 25): 195 *
							10	GM	Description
							15		3-inch ASPHALTIC CONCRETE
							20		Reddish gray SANDY GRAVEL (BASALTIC) with a little silt, dry (fill)
							25		Reddish brown CLAYEY SILT with some sand and gravel, very stiff, dry (fill) grades to hard
							30		Grayish brown SILTY GRAVEL (BASALTIC) with some sand and a little clay, medium dense, dry (residual soil)
							35		Brownish gray COBBLY BOULDERS (BASALTIC) with some clay seams, very dense, dry (residual soil)
									Boring terminated at 20.5 feet
Date Started: September 2, 2020			Date Completed: September 2, 2020			Water Level: Not Encountered			
Logged By: D. Gremminger			Drill Rig: CME-45C TRUCK						
Total Depth: 20.5 feet			Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Work Order: 6891-30(A)			Driving Energy: 140 lb. wt., 30 in. drop						

ORIGINAL PLAN	DATE
REVISION	
DESIGNED BY	
CHECKED BY	
DATE	

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Gerald Y. Seki
 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

BORING LOGS

*Freeway Management System, Phase 3,
 Unit 1
 Federal Aid Project No. NH-0300(152)*

Scale: As Noted Date: June 25, 2021

SHEET No. *BL-5* OF SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	163	170

GENERAL NOTES

- All materials shall conform to the drawings, Hawaii Standard Specifications for Road, Bridge and Public Works Construction (2005 Edition) and Special Provisions for Federal Aid Project No. NH-0300(152) Freeway Management System Phase 3.
- The Contractor shall verify the location of all existing utility lines and notify the respective owners before commencing with work. See Civil drawings for additional information.
- Standard detail drawings refer to structures in general except for modifications as may be required for special conditions. For such modifications refer to corresponding detailed drawings.
- 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 be equipment, winds, seismic, etc.
- 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.
- 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.
- 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.
- 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.
- Except as otherwise noted, all vertical dimensions are measured plumb.
- Design Criteria

- A. Codes:
 AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2015, 1st Edition with 2017 Interim Revisions and AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014

Design Criteria for Bridges and Structures, August 8 2014 State of Hawaii Department of Transportation Highways Division w/ changes dated January 9, 2018

- B. Seismic:

Location	Site Class	S _{DS}	S _{DI}	SDC
H-2 South CCTV	D	0.506	0.243	D
Waikele CCTV	C	0.476	0.158	C

- C. Wind:

Location	Pole Ht (Ft)	K _{ZT}	V _{ULT} (Mph)
H-2 South CCTV	50	1.30	145
Waikele CCTV	50	1.25	145

- D. Fatigue:
 Importance Factor, IF, shall be based on Fatigue Category I.

FOUNDATION NOTES

- Foundation Design is based on Geotechnical report by Geolabs, Inc., dated February 5, 2021.
 Passive Pressure = 350 pcf
- Contractor shall provide for design and installation of all cribbing, sheathing, and shoring necessary to safely retain excavations and earth banks.
- All excavations shall be properly backfilled. Do not place backfill before concrete has attained full design strength.
- Contractor shall submit drilled shaft construction installation procedure to Engineer for review.

STRUCTURAL STEEL

- All structural steel shall be detailed, fabricated and erected in accordance with the AASHTO LRFD Bridge Design Specifications.
- Structure Materials shall be as follows:
 Steel Plates AASHTO M270 (ASTM A572, Grade 50)
 Bolts (except Anchor Bolts) AASHTO M164 (ASTM F1852 and ASTM A325, Type 1)
 Anchor Bolts AASHTO M-314, Grade 55 ksi (ASTM F1554, Grade 55 ksi)
 Nuts for Anchor Bolts AASHTO M292 (ASTM A563, Grade A)
 Washers for Anchor Bolts AASHTO M293 (ASTM F436, Type 1)
 Stainless Steel Screws AISI, Type 316
 Hollow Structural Sections (HSSx) ASTM A500, Grade B
 Poles AASHTO M223 (ASTM A572, Grade 65)
- All welding shall conform to American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Electrodes shall be E70.
- All Steel items shall be galvanized as follows:
 All Nuts, Bolts and Washers AASHTO M232 (ASTM F2329)
 All other steel items (including Pole) AASHTO M111 (ASTM A123)

- Except for Anchor Bolts, all bolt hole diameters shall be equal to the bolt diameter plus 1/16", prior to galvanizing. Hole diameters for Anchor Bolts shall not exceed the bolt diameter plus 1/4".
- All structural steel shall be hot dip zinc coated after fabrication.
- All holes including bolt holes and drainage holes shall be pre-punched before coating steel.
- All anchor bolts, threaded rods and other hardware, including nuts and washers, which connect steel to concrete shall conform to ASTM F1554 Grade 55 as noted and shall be hot dip galvanized.
- All bolts which connect steel to steel shall be high-strength bolts conforming to AASHTO M164 (ASTM A325) and shall be "Twist off" typ ASTM F1852, unless otherwise noted. All bolts, nuts and washers shall be hot dip zinc coated. All bolts shall be pre-loaded to slip critical tension per special provisions Section 718 Steel Fasteners.
- Paint per Special Provisions Section 708. Epoxy primer and intermediate coat with Fluorourethane top coats "Dark Green".
- Stainless steel surfaces in contact with galvanized structural steel shall be isolated with neoprene material pre-reviewed by the Engineer or coated with epoxy. Aluminum shall be isolated from dissimilar metals per Standard Specification Section 715.02
- All threaded rods shall be cut off clean between 3 and 6 threads past the nut and ground smooth. Threads shall be spoiled and all terminations shall be neat and consistent.
- 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 bolt installed in a misaligned position.

SURVEY PLOTTED BY: DATE:
 DESIGNED BY:
 CHECKED BY:
 QUANTITIES BY:
 NOTE BOOK No.
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 APRIL 30, 2022
 LIC. EXP. DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

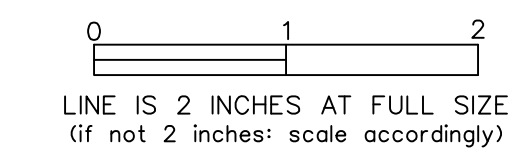
STRUCTURAL GENERAL NOTES

*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. S0-1 OF 8 SHEETS



DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	164	170

CONCRETE

- Schedule of Structural Concrete 28-Day strength and water cement ratio:

Drilled Shafts and Pile Caps = 5,500 psi (W/C = 0.40)
- Non-Shrink Grout shall have a minimum 28-day compressive strength of 9,000 psi and shall be nonmetallic and nonstaining. See Specification Table 712.04-02 for additional information. Grout at the base of uprights shall be installed a minimum of 7 days prior to the installation of signals or sign panels. The standoff distance (the distance between the bottom of the leveling nut and the top of the foundation) shall not exceed one anchor bolt diameter.
- Concrete mix design shall be submitted to the Engineer for review.
- Minimum clear coverage 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 directly against Earth 3"
All other exterior concrete 2"
- Concrete admixtures containing chloride salts shall not be used.
- All roughened surfaces in concrete shall be made with a minimum amplitude of 1/4".
- 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

- Reinforcing steel bars shall be ASTM A-615 Grade 60, typical unless otherwise noted.
- Reinforcing steel bars shall be uncoated, unless otherwise noted.
- Reinforcing steel splices shall be made only where indicated on the drawings.
- All reinforcing steel bars, anchor bolts, dowels and other embedded items shall be securely tied in place before concrete pour.
- All reinforcing steel bar bends shall be made cold.
- Welding of reinforcing steel shall not be permitted unless otherwise shown on the drawings. Welding of reinforcing steel shall conform to AWS D1.4-05 "AWS Structural Welding Code - Reinforcing Steel" of the American Welding Society.

GENERAL NOTES FOR EPOXY GROUTED DOWELS &

BOLTS

- See Special Provisions Section 503 Concrete Structures and Standard Specifications Section 656 for reinforcing steel dowels.

- Contractor shall locate existing reinforcing prior to drilling holes for new epoxy grouted reinforcing steel dowels and steel anchor bolts. Do not damage existing reinforcing.
- Epoxy grout for reinforcing steel dowels and steel anchor bolts shall conform to Standards Specifications Section 712.04(B).
- Clean holes of all dust and residue before filling holes with epoxy grout. The hole shall be prepared, cleaned, drilled at a diameter in accordance with the epoxy manufacturer's recommendations.
- Where noted on drawings, installation of epoxy grout and reinforcing dowels and steel anchor bolts shall be inspected by the Engineer.
- Epoxy grouted reinforcing steel dowels shall be incidental to Section 602 reinforcing steel and will not be paid for separately.
- Epoxy grouted steel anchor bolts shall be incidental to Section 501 Steel Structures and will not be paid for separately.
- All drilled holes shall be cleaned, filled with epoxy, and reinforcing dowels and anchor bolts installed prior to end of work day.

EXISTING & DEMOLITION GENERAL NOTES

- Demolition work shall be coordinated with construction of new work. Contractor shall submit proposed schedule and sequence of demolition work for Engineer's review prior to commencing with demolition work.
- Known existing conditions are shown on the drawings. Dimensions and member sizes where shown on the drawings are based on available as-built plans. Existing dimensions shown may not be exact and are provided for information only. Contractor shall field verify all existing dimensions prior to construction. All discrepancies shall be promptly called to the attention of the Engineer and shall be resolved prior to proceeding with the demolition work.
- As-built plans are available for review from the State of Hawaii Department of Transportation, Highways Division, Design Branch, Kakuhihewa Building Room 609, 601 Kamokila Boulevard, Kapolei, Hawaii 96707, Phone no. 808-692-7585.
- Protect from damage existing structures to remain. Protect from damage and clean existing reinforcing steel to be incorporated in new concrete work. See Standard Specifications Section 202 "Removal of Structures and Obstructions".
- Where existing reinforcing steel is not required to be incorporated in new concrete work, cut ends of reinforcing steel shall be recessed 1-1/2" minimum below existing concrete surface. Resulting pockets in existing concrete shall be filled with non-shrink grout. This work shall be incidental to Section 202 "Removal of Structures and Obstructions".

INSPECTION REQUIREMENTS

- Contractor shall refer to Standard Specifications Section 105.11 - "Inspection of the Work and Materials."

- The work items that will require inspection by the Engineer shall be, but not be limited to, the following items:

- Reinforcing steel
- Concrete
- Epoxy grouted reinforcing dowels and steel anchor bolts
- Anchor bolts cast-in concrete
- High-strength bolting
- Field welding
- Drilled Shaft

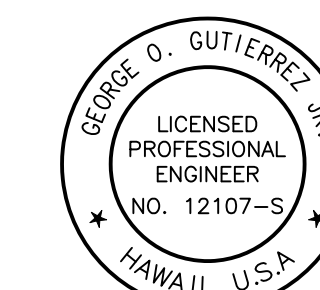
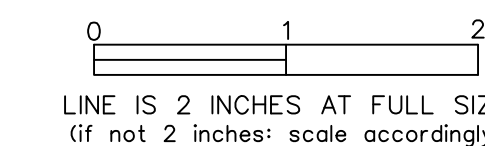
Contractor shall notify the Engineer at least 7 working days prior to the above inspections

ABBREVIATIONS

Bm	Beam	Jt	Joint
Bot	Bottom	Manu	Manufacturer
CC	Center to Center	Max	Maximum
Clr	Clear	MAC	Media Access Controls
Col	Column	Min	Minimum
Conc	Concrete	(N)	New
Cont	Continuous	NIC	Not In Contract
Dia	Diameter	Open'g	Opening
Diag	Diagonal	SS	Stainless Steel
DO	Ditto	Std	Standard
EI	Elevation	T&B	Top and Bottom
(E), exist	Existing	Thk	Thick
ES	Each Side	Typ	Typical
Flr	Floor	UON	Unless Otherwise Noted
Ga	Gauge	Vert	Vertical
H	Height	W	Width
Horiz	Horizontal	W/	With

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 APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

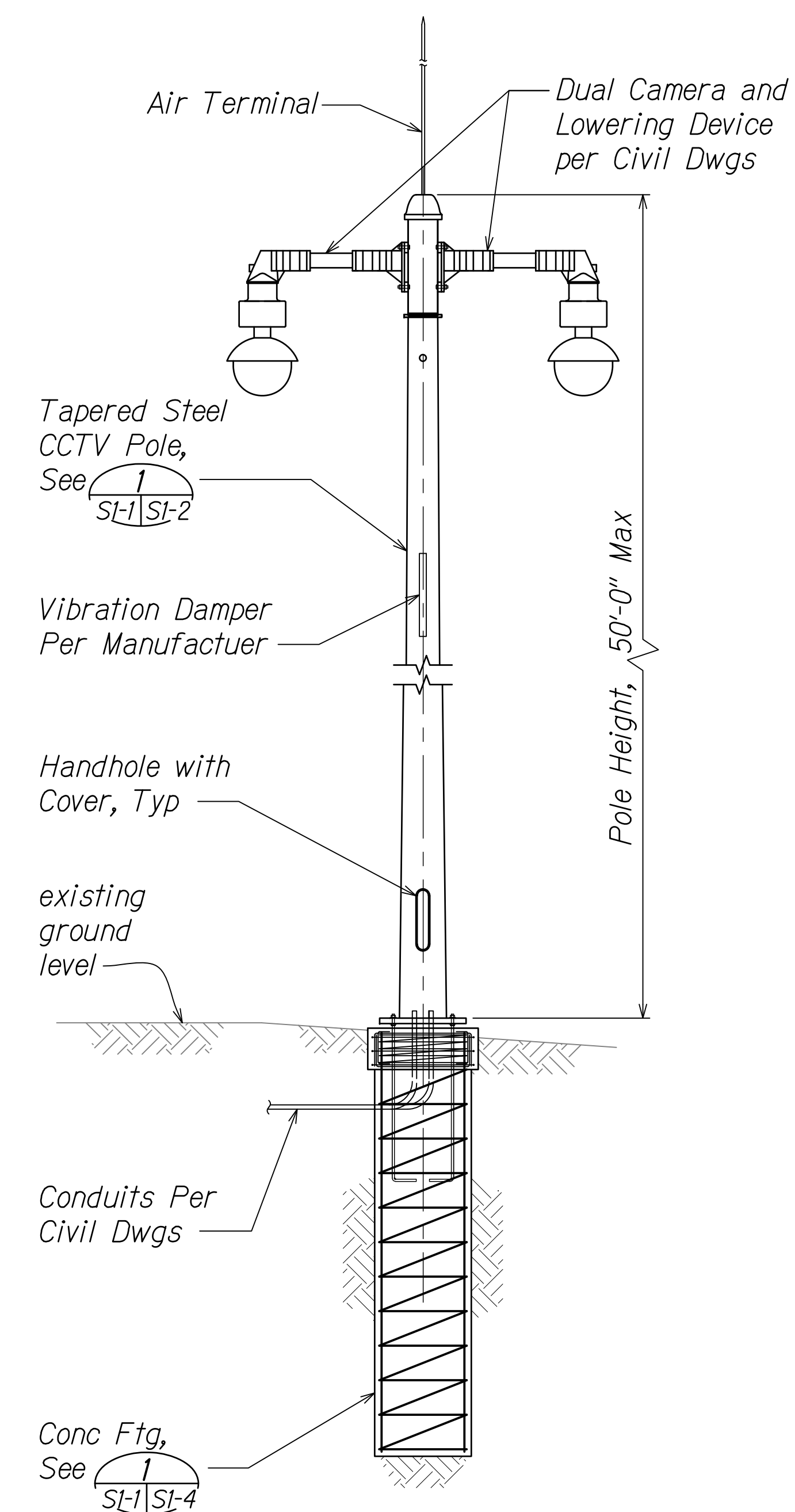
STRUCTURAL GENERAL NOTES

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. S0-2 OF 8 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	166	170



1 CCTV TYPICAL POLE DETAIL
 Scale: 1/4" = 1'-0"

CCTV GENERAL NOTES

1. Galvanizing/Painting:
 - A. Poles, plates and bases shall be hot dipped galvanized per AASHTO M 111 (ASTM A 123).
 - B. Hardware and anchors bolts shall be per ASTM A307 and AASHTO M 314 (ASTM F1554, Gr 55), respectively, and hot dipped galvanized per AASHTO M 111 (ASTM A 123).
 - C. CCTV Poles shall be painted per Special Provisions Section 708 - Paints. Color shall be "Aluminum" to match Aluminum light poles.
2. Materials
 - A. 50' pole shall be ASTM A572 Grade 65 with a yield stress of 65 ksi.
 - B. Base plates, shall be AASHTO M270 GR 50.
3. Welds:
 - A. All welding shall conform to American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (Current Edition).
 - B. Longitudinal seam welds by submerged arc at 75% penetration and circumferential butt welds at complete penetration shall conform to section 5.15 of the AASHTO Standard Specifications For Structural Supports For Highway Signs, Luminaries, and Traffic Signals (Latest Edition) and have optional back up rings. All exposed butt welds shall be ground flush.
 - C. Deburr all sharp edges for wire protection.
4. All poles shall have first and/or second mode vibration dampers as required by manufacturer.
5. An internal camera lowering device and pole shall be used for each CCTV camera installation, unless otherwise noted. Camera installation details shall be provided by manufacturer. Details to be approved by the Engineer before installation.
6. Pole mounted details for cabinet shall be provided by manufacturer. Details to be approved by the Engineer before installation.
7. The contractor shall verify, in the field all dimensions, elevations, and details pertaining to the structures before proceeding with the work. Any discrepancies shall be brought to the attention of the Engineer.
8. Pole shall be located outside of roadway clear zone or protected behind barrier per AASHTO Roadside Design Guide (Latest Edition). Where potential for vehicle impact exists, and only VDS are mounted on pole, control cabinet shall be mounted downstream of traffic flow.

CCTV DESIGN DATA

Design is in accordance with the AASHTO "Standard Specifications For Structural Supports For Highway Signs, Luminaries and Traffic Signals." 1st Edition, 2015 with 2017 Interim Provisions.

Wind Velocity: : See Wind Table on S0-1
 Gust Effect Factor, G : 1.14
 Exp Cat : C

CCTV Camera Face Area = 2 Sq Ft
 CCTV Camera Wind Drag Coefficient, C_d = 1.2
 CCTV Camera Weight = 40 LBS
 Cabinet Dimensions = 24" x 24" x 36"

Maximum Pole Deflection = 1" at 30 MPH, non-gust
 Maximum Pole Deflection = 2" at 70 MPH, non-gust

Cabinet weight including equipment contents not to exceed 500 LBS.

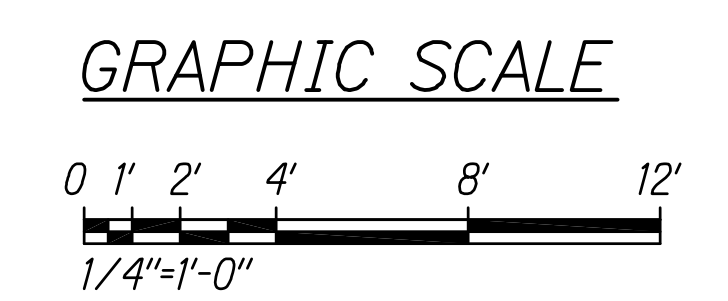
Camera Lowering Device Design Data

Camera lowering device arm, disconnect, and camera carries weight of 96 LBS and EPA of 2.00 Sq Ft. This weight does not include the cable.

Camera Lowering Device
 Wind Drag Coefficient, C_d = 1.10

Vehicle Detection Unit Design Data

Face Area = 2 Sq Ft
 Wind Drag Coefficient, C_d = 1.7
 Weight = 35 LBS



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 LINE IS 2 INCHES AT FULL SIZE (if not 2 inches scale accordingly)

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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

CCTV TYPICAL DETAIL
GENERAL NOTES

*Freeway Management System, Phase 3,
 Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

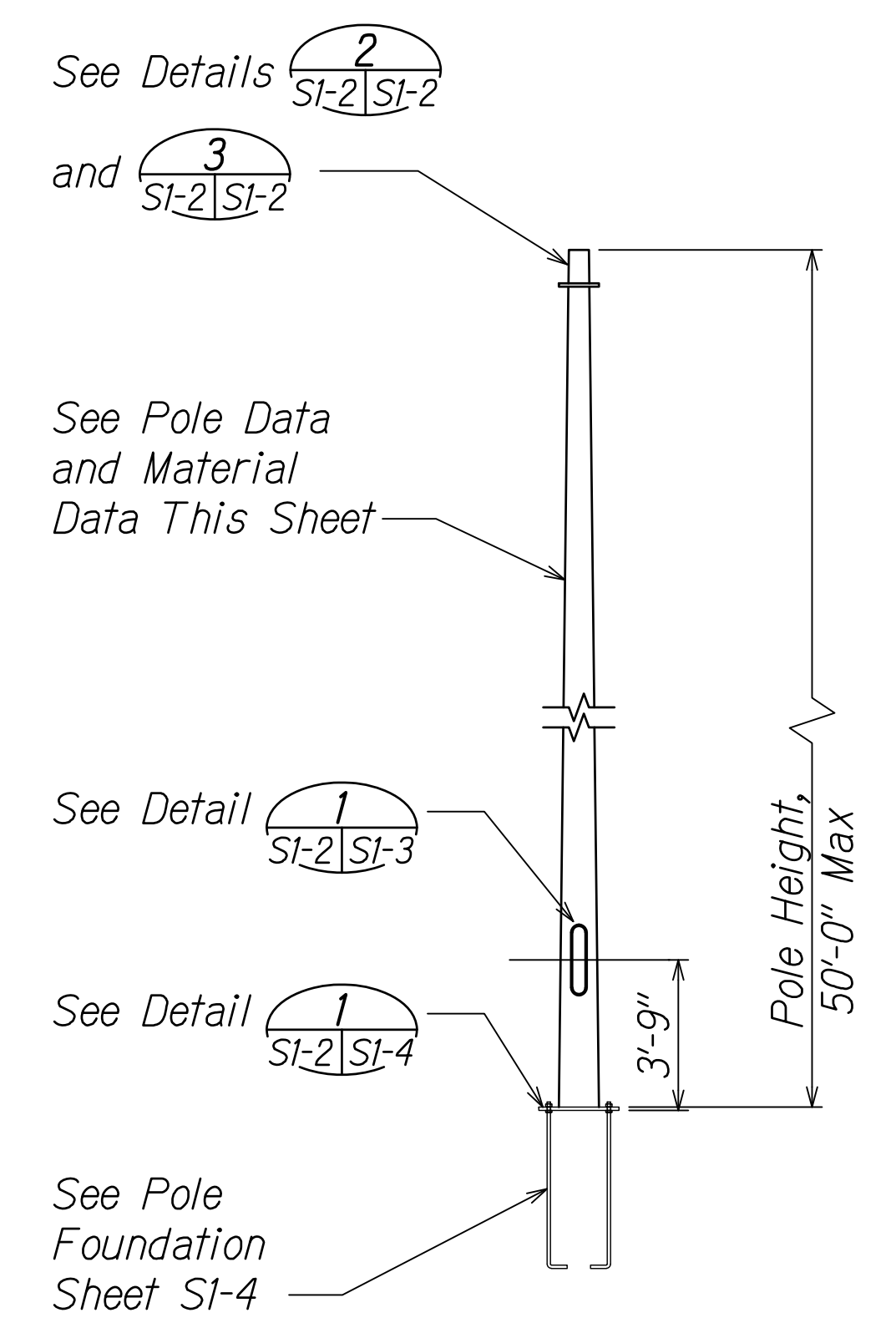
SHEET No. S1-1 OF 8 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	167	170

Table - Pole Top Plate Properties

Pole Height (Ft)	Pole Top Diameter (In)	Plate Diameter (In)	Bolt Circle (In)
50	13.1	19	17

Notes:
1. See Civil drawings for camera orientation details.

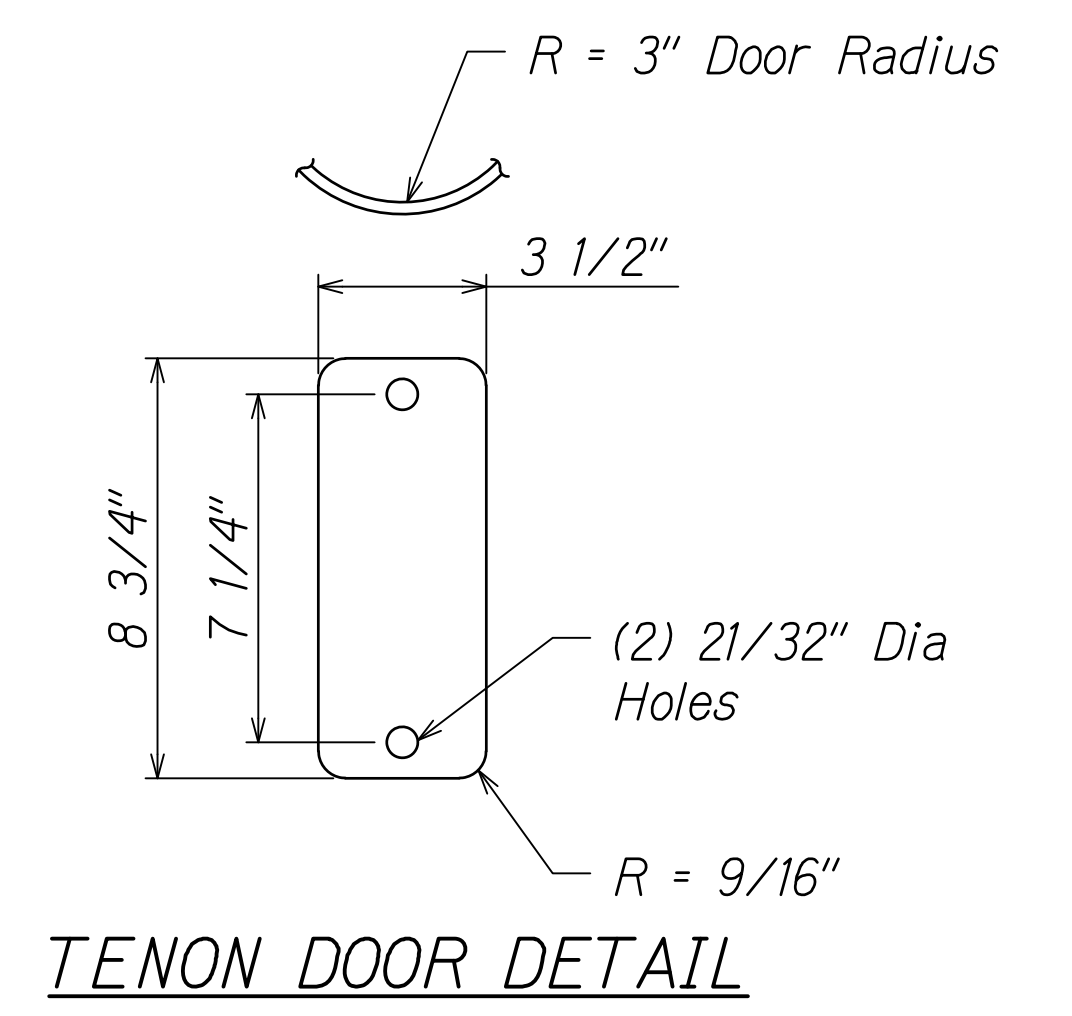
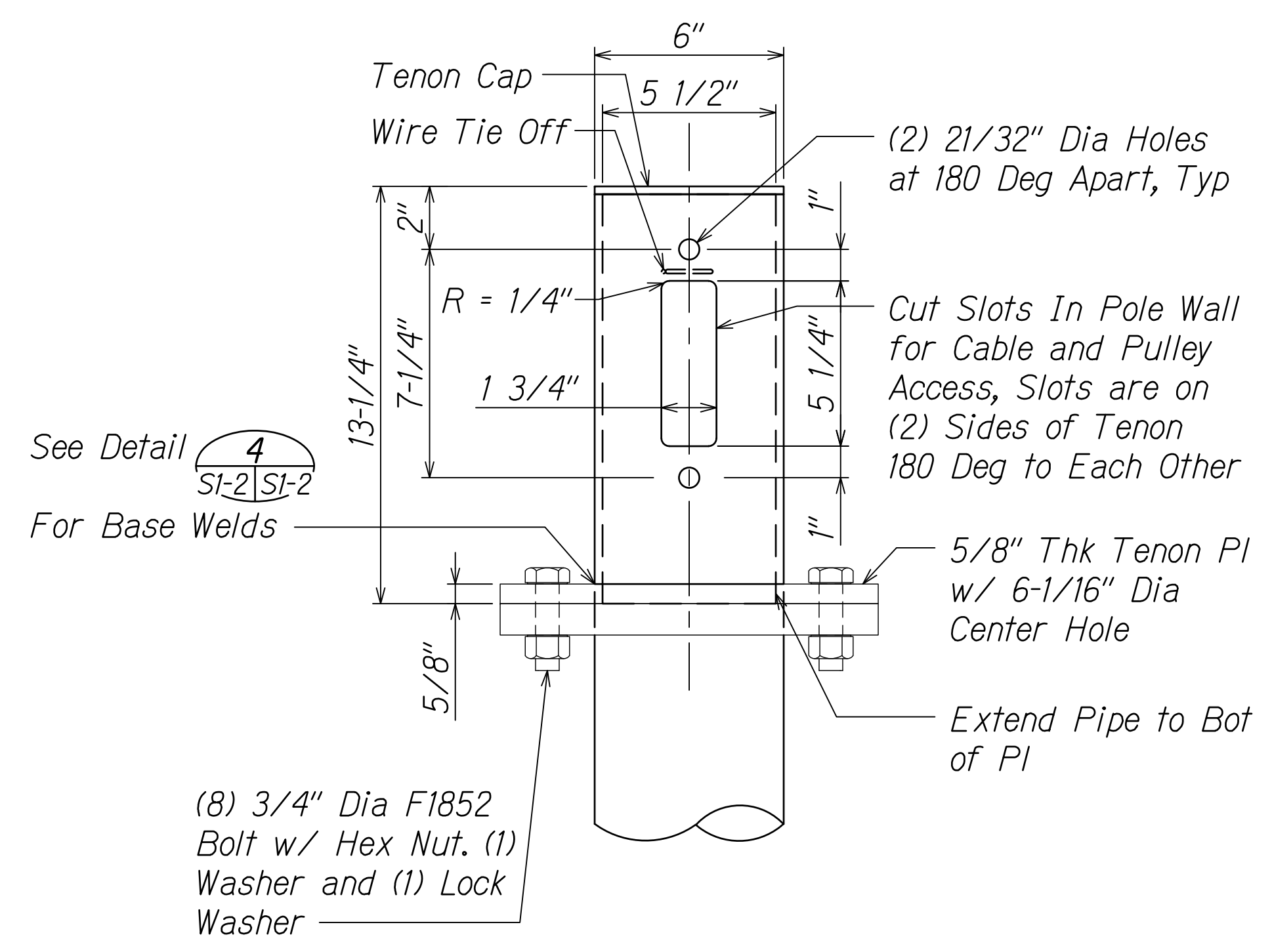
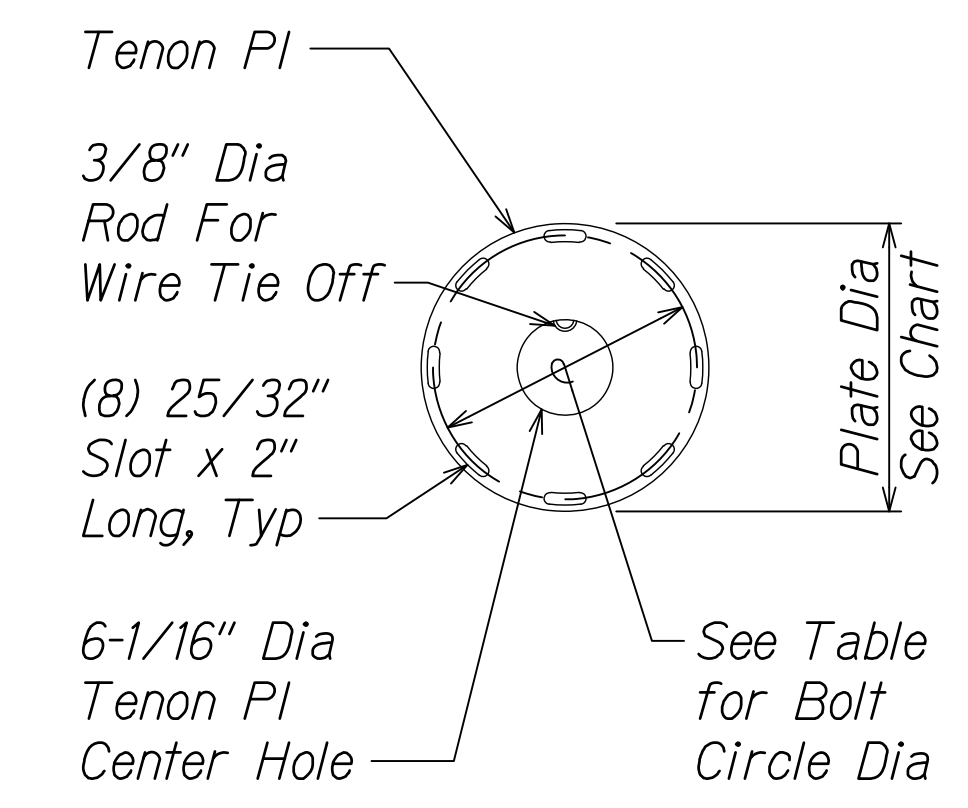


POLE DATA

Pole Height (Ft)	TUBE			
	Min Base Diameter O.D. (In)	Min Top Diameter O.D. (In)	Min Thickness (In)	Taper (In/Ft)
50	21	13.1	0.250	0.06

MATERIAL DATA

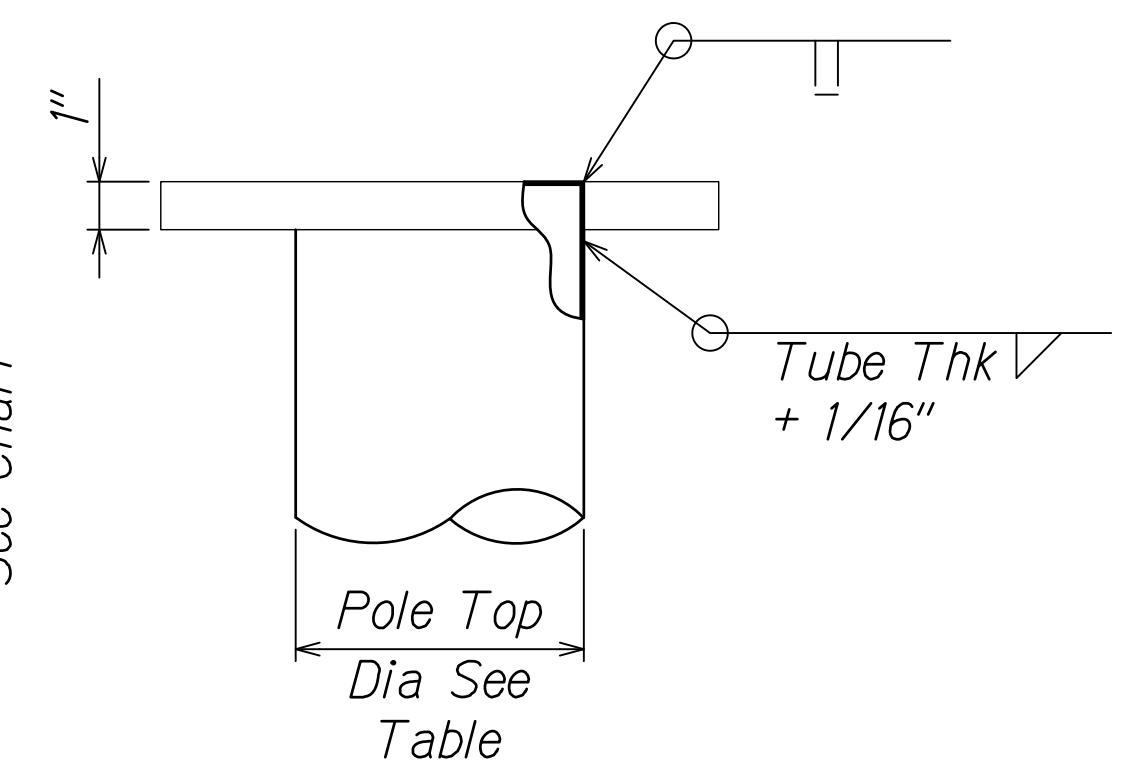
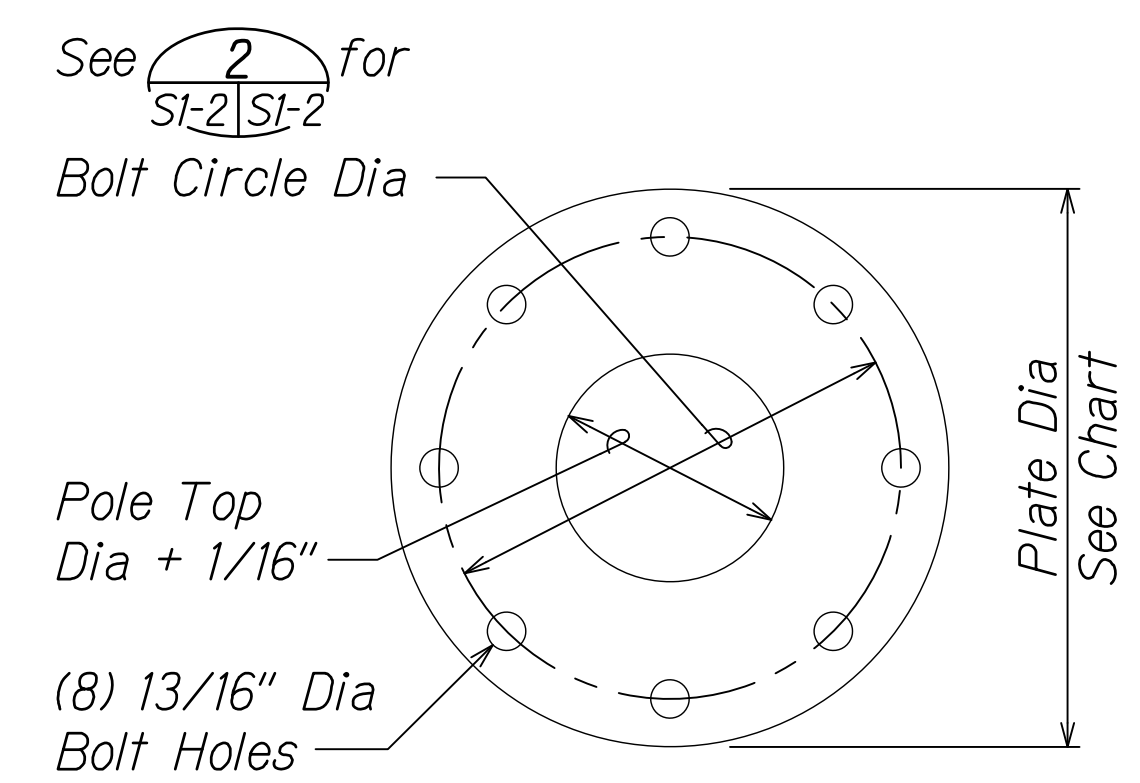
Component	ASTM Designation	Min Yield (KSI)
Pole Shaft - 50'	A 572, Gr 65	65
Base Plates	M270 Gr 50	50
Pole Top Plate	M270 Gr 50	50
Tenon Tubing	M270 Gr 50	50
Anchor Bolts	F1554, Gr 55	55
Galvanizing - Structure	A 123	--
Galvanizing - Hardware	A 153	--



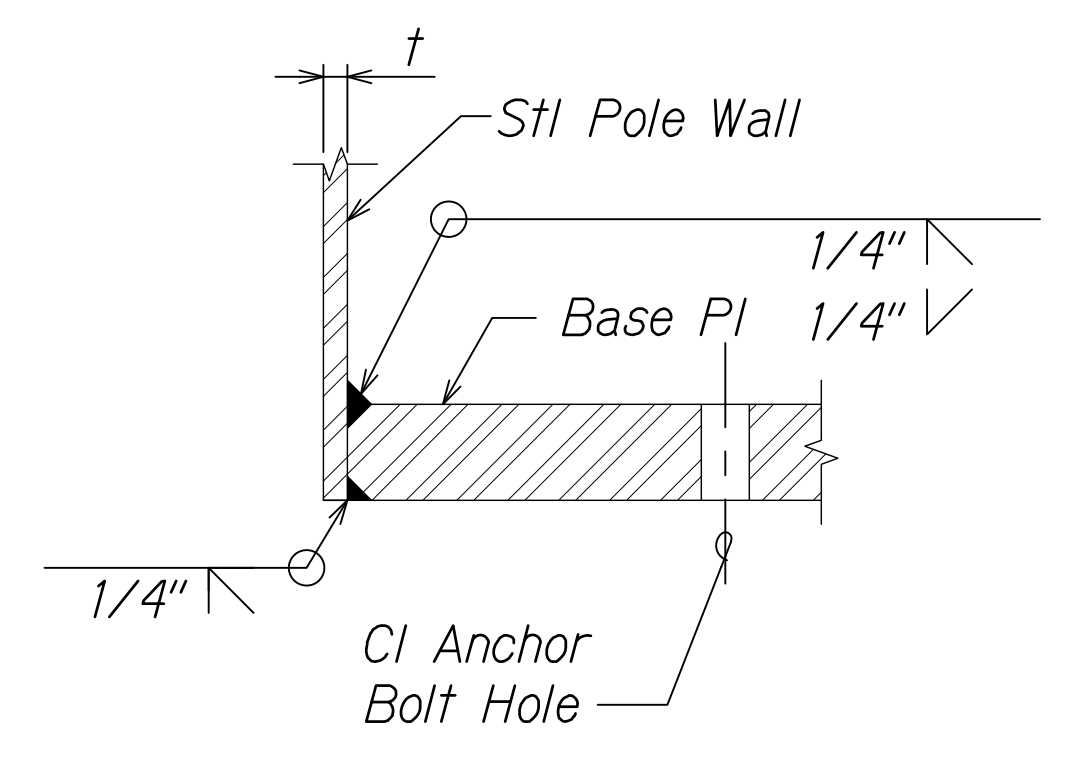
Note:
One Door Required Per Tenon Plate. To Be Secured Using (2) 1/2" x 1-1/4" Galvanized Bolts and (2) Nuts and Lock Washers. Door Thickness No Greater than 1/4" or Less Than 1/16".

1 CCTV POLE = 50' AND LESS
SI-1, SI-2 | SI-2 Scale: 1/4" = 1'-0"
SI-6

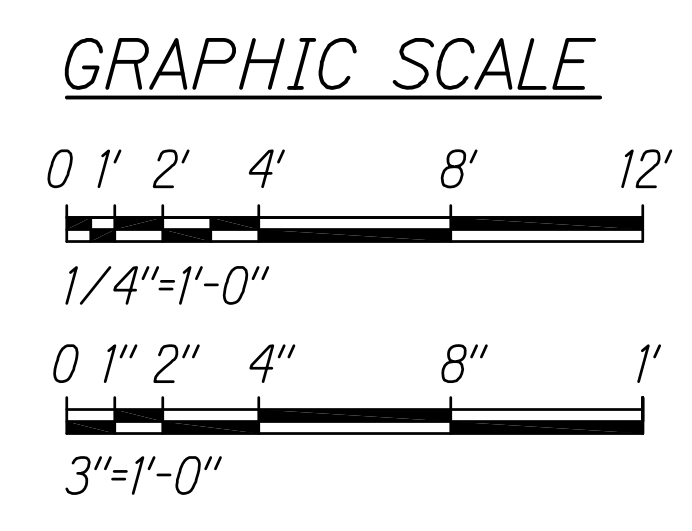
2 DETAIL - TENON ASSEMBLY
SI-2 | SI-2 Scale: 3" = 1'-0"



3 DETAIL - POLE TOP PLATE
SI-2 | SI-2 Scale: 3" = 1'-0"



4 DETAIL - BASE WELD DETAIL
SI-2, SI-4 | SI-2 TOP PLATE (SIM) Not To Scale



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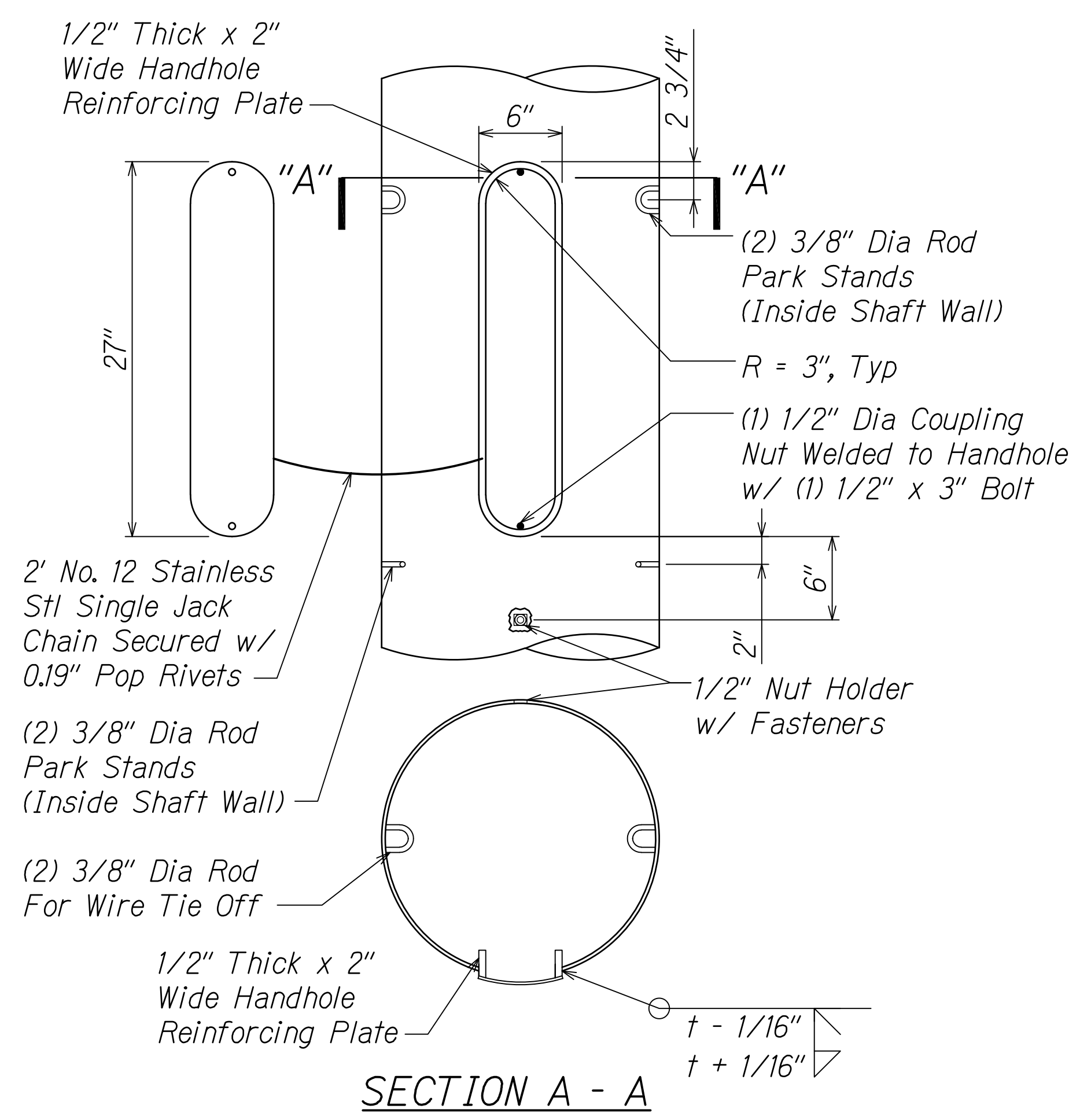
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV TYPICAL DETAILS

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
SHEET No. SI-2 OF 8 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	168	170



HANDHOLE NOTES:

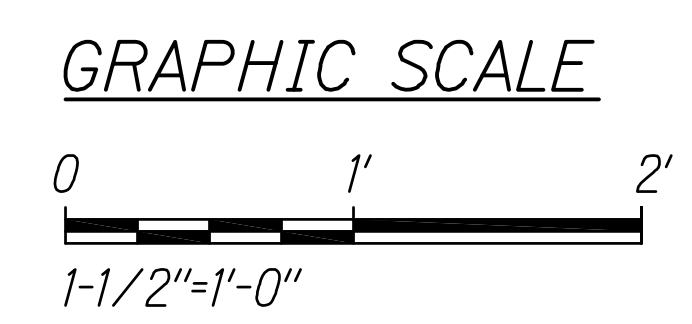
Handhole reinforcement shall be AASHTO M270 Grade 50.

Reinforcement shall be welded to the post shaft in the 90 degree location, prior to galvanizing pole shaft. Cover shall be fabricated from 3/16" steel. Steel cover is galvanized according to ASTM A 153. Cover shall be equipped with two (2) AISI 304 stainless steel 1/4" - 20UNC x 3/4" LB hex cap screw and two (2) captive washers.

Provision for internal grounding shall be provided by a tapped hole.

SECTION A - A

1
SI-2 | SI-3 **DETAIL - CAMERA LOWERING DEVICE HANDHOLE**
Scale: 1-1/2" = 1'-0"



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NOTE BOOK No.	

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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

George O. Gutierrez
APR 30, 2022
LIC. EXP. DATE

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV TYPICAL DETAILS

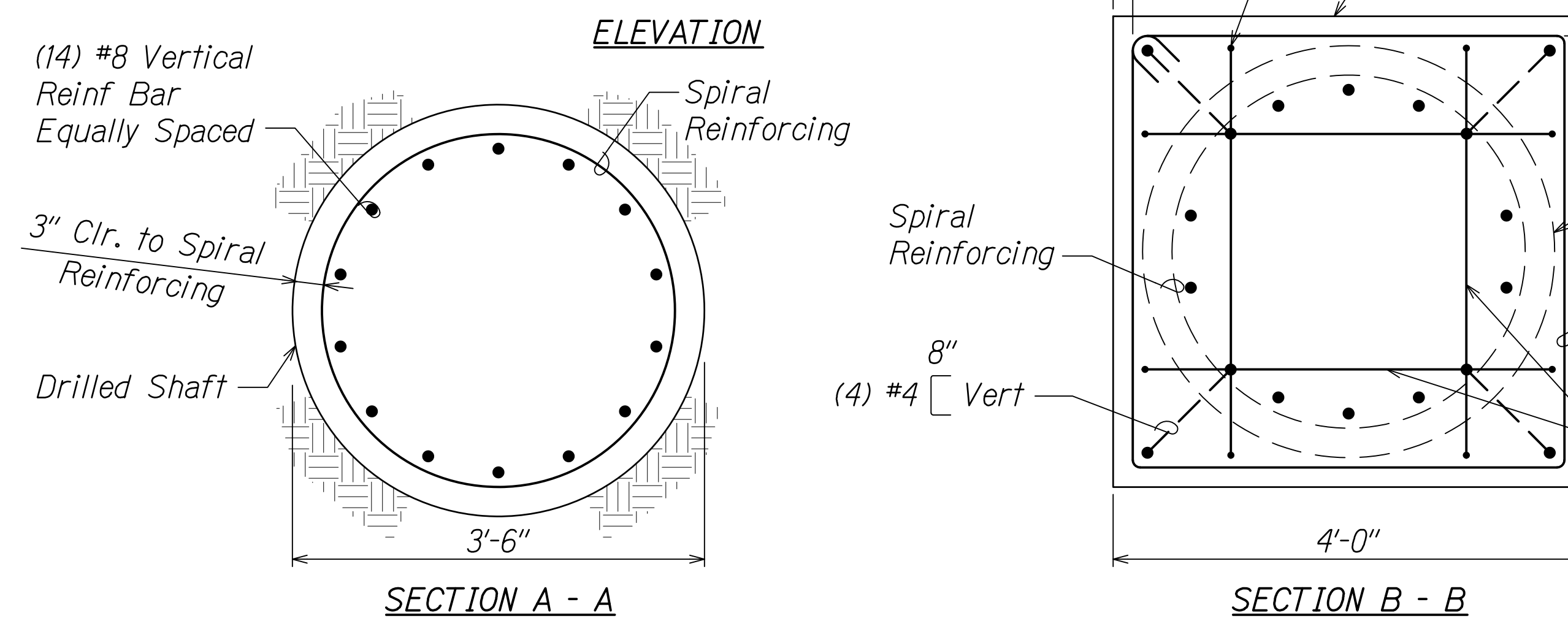
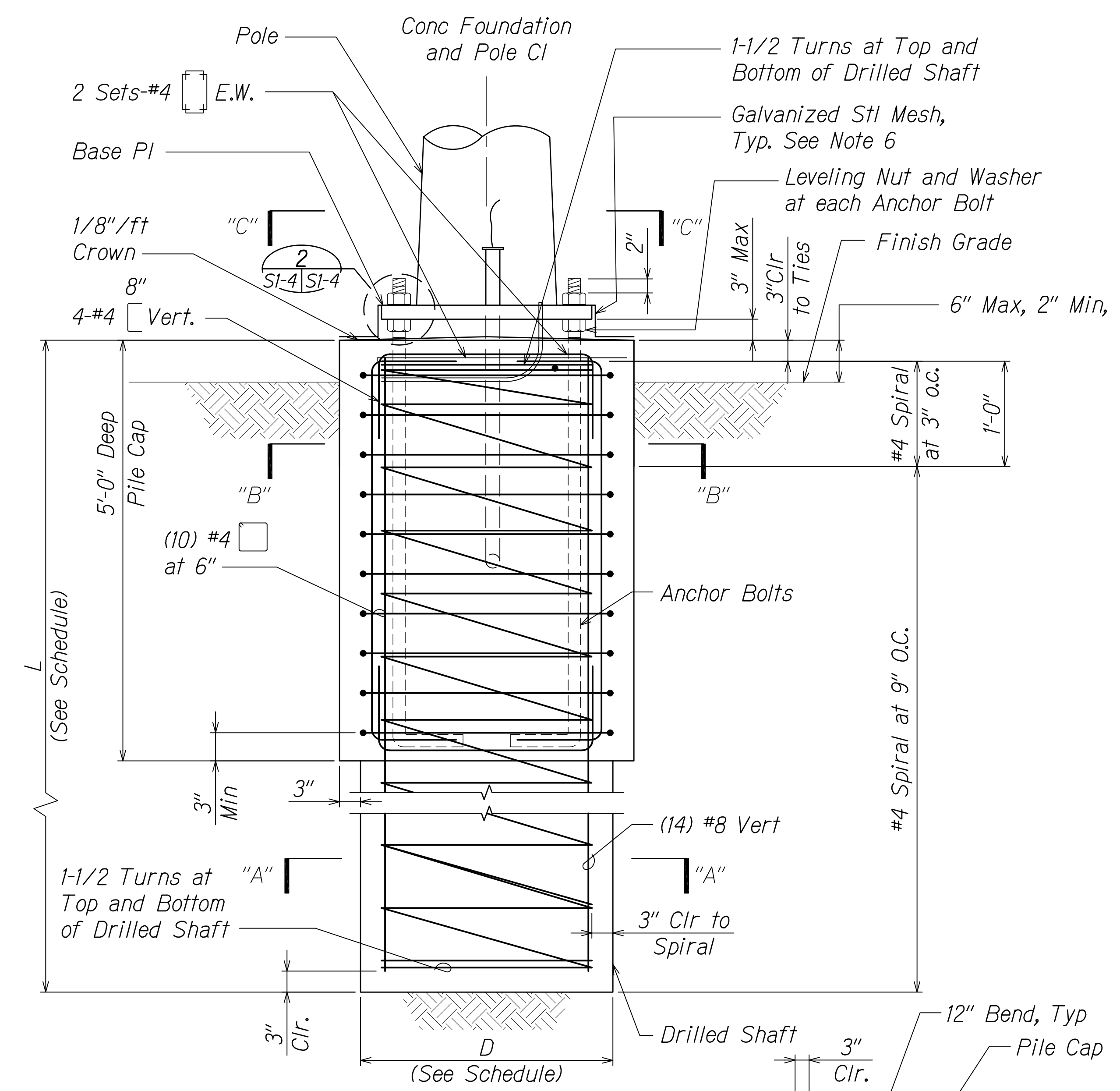
*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. SI-3 OF 8 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	169	170

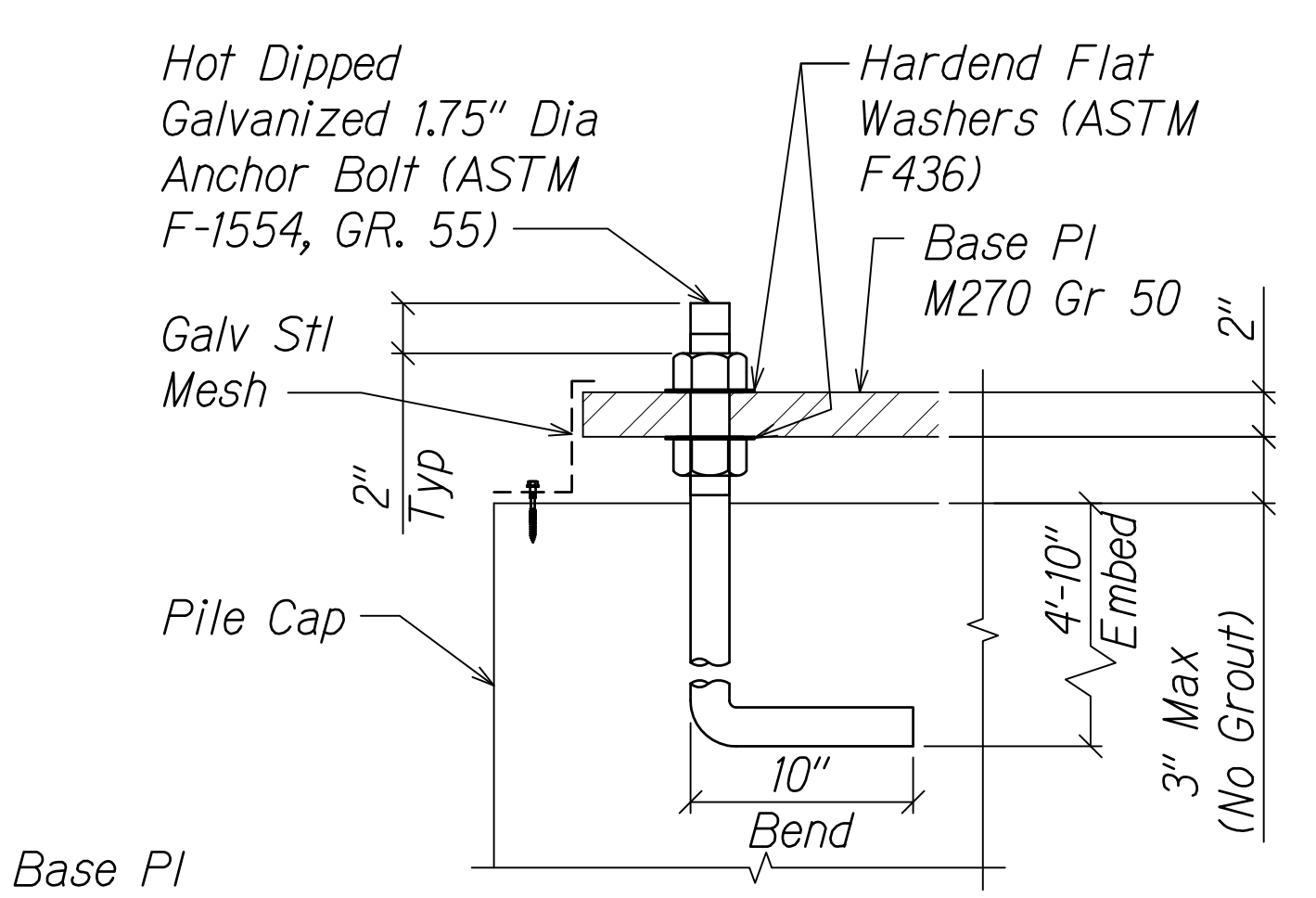


1 **DETAIL - DRILLED SHAFT FOUNDATION FOR CCTV POLE (50' MAX)**
SI-1, SI-2, SI-4 Not To Scale

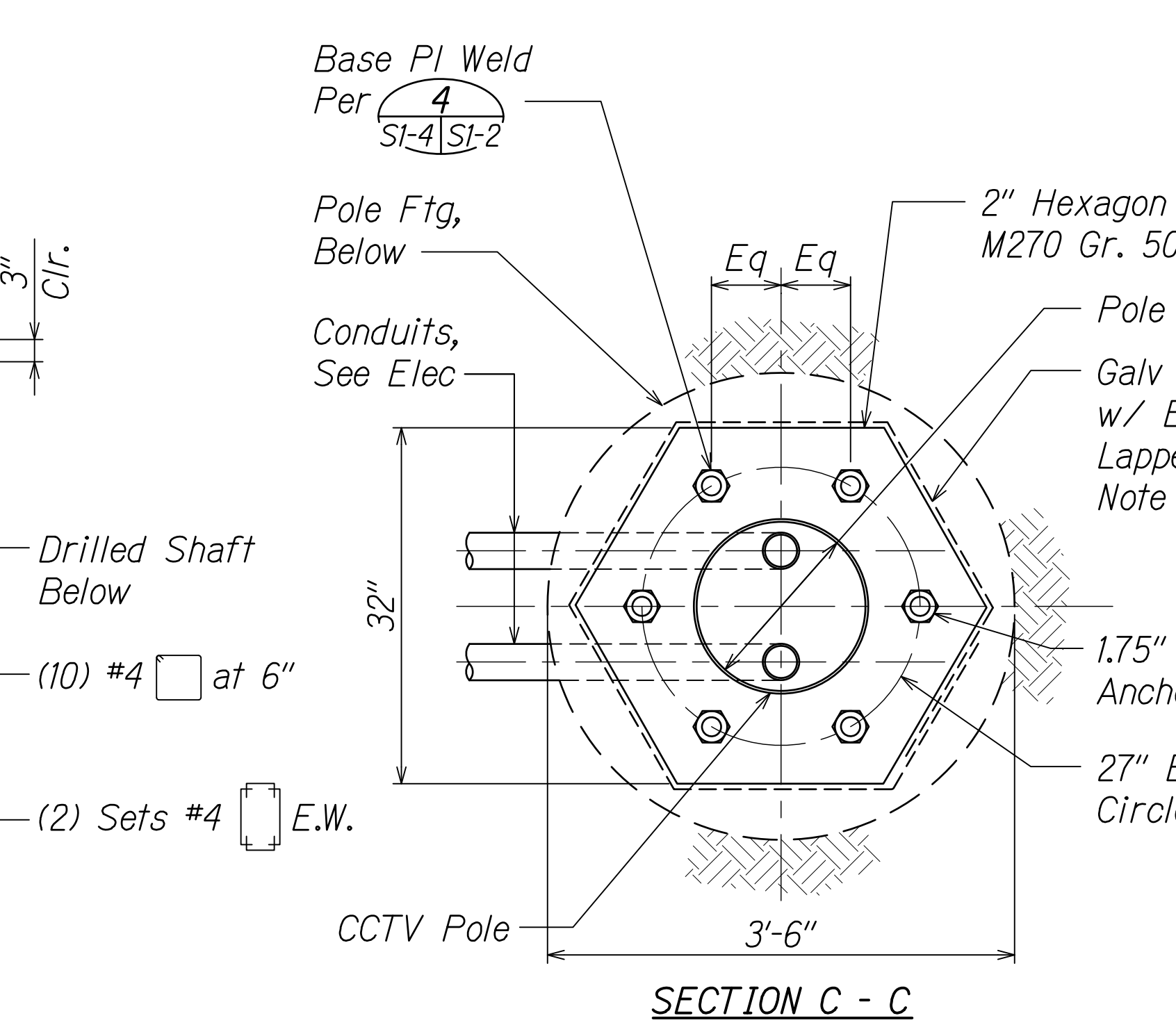
CCTV AND MAC AND SPEED READER POLE FOUNDATION GENERAL NOTES:

1. Reinforcing steel (rebar) shall conform to AASHTO M 31 (ASTM A 615) Grade 60. Dimensions refer to the centerline of reinforcing steel unless otherwise noted on the plans. All reinforcing shall be incidental to concrete.
2. Anchor Bolts shall be ASTM F1554 Grade 55. Provide a top hex nut, bottom leveling nut, and 2 washers for each bolt at base plate. Bolts shall be galvanized.
3. Prior to tightening anchor bolts, leveling nuts shall be adjusted so that they bear uniformly against the base plates.
4. Tighten the anchor bolt nuts two or more times in the cross patterns (tightening nuts diametrically opposite) to ensure even tightening. The bolts shall be torqued according to the specifications.
5. After torquing, tack weld the top of nuts to the anchor bolts to ensure that the nuts will not loosen. Clean and provide two coats of cold galvanizing on surfaces damaged by tack welding.
6. Provide 2x2 galvanized steel mesh with 0.063\"/>

Location	Diameter, D (Ft)	Length, L (Ft)
H-2 South CCTV	3'-6"	13'-0" Min
Waiakele CCTV	3'-6"	15'-0" Min



2 ANCHOR BOLT DETAIL
Scale: 1-1/2" = 1'-0"
GRAPHIC SCALE
0 3" 6" 1' 2'
1-1/2"=1'-0"



3 **SECTION C - C**



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV FOUNDATION DETAILS

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021
SHEET No. SI-4 OF 8 SHEETS

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

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