

STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	2	231

STANDARD PLAN NO.	TITLE	DATE
B-01 ●	NOTES & MISCELLANEOUS DETAILS	05/31/07
B-03 ·	BACKFILL DETAILS AT EARTH RETAINING STRUCTURES	05/31/07
B-12 ·	PRESTRESSED CONCRETE PILES & COMPRESSION SPLICE	05/31/07
	CAN DETAILS	
B-12A ·	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION	05/31/07
	SPLICE CAN DETAILS & NOTES	
B-12B ·	PILE INTERACTION DIAGRAM	05/31/07
B-13 ·	PRESTRESSED CONCRETE PILE BUILD-UP DETAILS	05/31/07

D-01 ●	CATTLE GATE	05/31/07
D-02 ●	CHAIN LINK FENCE WITH TOPRAIL	05/31/07
D-03 ●	CHAIN LINK FENCE WITHOUT TOPRAIL	05/31/07
D-04 ·	WIRE FENCE WITH METAL POSTS	05/31/07
D-05 ●	TYPICAL DETAILS OF CURBS AND/OR GUTTERS ▲	05/31/07
D-06 ·	TYPICAL DETAIL OF REINFORCED CONCRETE DROP DRIVEWAY	05/31/07
D-07 ●	CENTERLINE AND REFERENCE SURVEY MONUMENTS	05/31/07
D-08 ·	STREET SURVEY MONUMENT	05/31/07
D-15 ·	CONCRETE SIDEWALK	05/31/07
D-16 ·	P.C.C. BUS PAD	05/31/07
D-17 ·	P.C.C. BUS PAD	05/31/07
D-18 ·	P.C.C. PAVEMENT LAYOUT	05/31/07
D-19 ·	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-20 ·	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-21 ·	P.C.C. LONGITUDINAL JOINT DETAILS	05/31/07
D-22 ·	P.C.C. CONNECTION TO CURBS AND GUTTERS	05/31/07
D-23 ·	JOINTS	05/31/07

L-01 ●	TREE PLANTING	08/16/06
L-02 ●	TREE PLANTING	08/16/06
L-03 ●	TREE TRANSPLANTING	08/16/06
L-04 ●	PALM PLANTING	08/16/06
L-05 ●	SHRUB PLANTING	08/16/06
L-06 ●	LANDSCAPE DETAILS	08/16/06
L-07 ●	LANDSCAPE DETAILS	08/16/06
L-08 ●	LANDSCAPE DETAILS	08/16/06
L-09 ●	LANDSCAPE DETAILS	08/16/06
L-10 ●	LANDSCAPE DETAILS	08/16/06
L-11 ●	PLANTING NOTES	08/16/06
L-12 ·	IRRIGATION DETAILS	08/16/06
L-13 ·	IRRIGATION DETAILS	08/16/06
L-14 ·	IRRIGATION DETAILS	08/16/06
L-15 ·	IRRIGATION DETAILS	08/16/06
L-16 ·	IRRIGATION DETAILS	08/16/06
L-17 ·	IRRIGATION DETAILS	08/16/06
L-18 ·	IRRIGATION DETAILS	08/16/06
L-19 ·	IRRIGATION DETAILS	08/16/06
L-20 ·	IRRIGATION DETAILS	08/16/06
L-21 ·	IRRIGATION DETAILS	08/16/06
L-22 ·	IRRIGATION DETAILS	08/16/06
L-23 ·	IRRIGATION DETAILS	08/16/06
L-24 ·	IRRIGATION NOTES	08/16/06

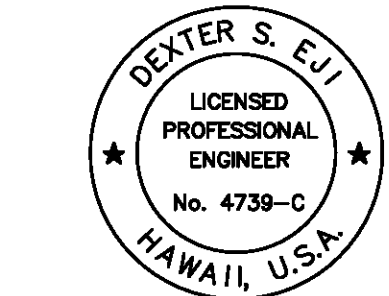
STANDARD PLAN NO.	TITLE	DATE
H-01A ·	TYPE A CATCH BASIN	05/31/07
H-01B ·	TYPE B CATCH BASIN	05/31/07
H-01C ·	TYPE C CATCH BASIN	05/31/07
H-01D ·	TYPE D CATCH BASIN	05/31/07
H-01E ·	CATCH BASIN SECTIONS	05/31/07
H-02A ·	TYPE A1 CATCH BASIN	05/31/07
H-02B ·	TYPE B2 CATCH BASIN	05/31/07
H-02C ·	TYPE C1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

TE-01 ●	SIGN HEIGHT AND LOCATION	07/11/08
TE-1A ●	SIGN INSTALLATION	07/11/08
TE-02A ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A ·	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-03B ·	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-04 ●	REGULATORY SIGNS	07/11/08
TE-05 ●	WARNING SIGNS	07/11/08
TE-06 ●	MISCELLANEOUS SIGNS	07/11/08
TE-07 ·	CONSTRUCTION SIGNS	07/11/08
TE-08 ·	MISCELLANEOUS INTERSECTION SIGNS	07/11/08

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

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

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE: [Signature] 04/30/24 EXPIRATION DATE OF THE LICENSE

9/1/23	▲ Addendum 2 Added D-05
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STANDARD PLAN SUMMARY KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: None	Date: December 2022

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	4	231

NOTES FOR PROTECTION OF ENDANGERED SPECIES:

1. HAWAIIAN SEABIRDS
No night time construction will be permitted during the seabird fledging period (September 15th through December 15th). The Contractor's attention is directed to Special Provision Section 107.18 - Avoidance and Minimization Measures for Endangered Species.

All outdoor lights shall be fully shielded and only visible from below the bulb height. Outdoor lights shall only be used when necessary and shall be turned off when activity is not occurring in the lighted area.

2. HAWAIIAN HOARY BAT ('Ope'ape'a)
No disturbing, clearing, grubbing, or trimming of woody plants greater than 15' tall shall be allowed during the Hawaiian Hoary Bat birthing and pup-rearing season (June 1st through September 15th).

The Contractor shall not use barbed wire fencing.

3. HAWAIIAN WATERBIRDS
In areas where waterbirds are known to be present, post and implement reduced speed limits and inform project personnel about the presence of endangered species on-site.

In areas where vegetated streambanks would be disturbed, waterbird nest searches shall be conducted by a qualified biologist before any work is conducted, within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).

- If a nest or active brood is found:
- Contact the Service (808) 861-8525 within 48 hours for further guidance.
- Establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.

- △ 4. SEA TURTLES
When possible, night work near the beach, night work near the beach will be avoided between May 1 and November 1, the sea turtle nesting and hatching season

- △ 5. Shielded lighting to reduce direct and ambient lighting of beach habitats within and adjacent to the project site will be used.

When possible, night work near the beach will be avoided between May 1 and November 1, the sea turtle nesting and hatching season.

- △ 6. HAWAIIAN SHORT-EARED OWL OR PUEO
Before clearing any vegetation, daily pre-construction surveys shall be conducted by a qualified biologists

If pueo nests are present, DOFAW staff should be notified and a 100 foot buffer zone should be established in which no clearing occurs until nesting is completed.

7. A biological monitor that is familiar with the species' biology shall be present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

NOTES FOR PROTECTION OF ENDANGERED SPECIES (CONT):

8. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

9. No project construction-related materials or equipment (dredges, vessels, backhoes, silt curtains, etc.) shall be placed in an aquatic environment. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats.

10. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to, aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

11. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

12. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

13. Artificial light from exterior fixtures on the zoning lot, including but not limited to floodlights, uplights, or spot lights used for decorative or aesthetic purposes, is prohibited if the light directly illuminates or is directed to project across property boundaries toward the shoreline and ocean waters, except as otherwise permitted pursuant to HRS Section 205A-71(b). All outdoor lighting shall be fully shielded during and after construction to avoid artificial light impacts on seabirds, hoary bats, and sea turtles, particularly during the seabird fledgling season from September 15 through December 15.

11. All project activities must cease if a Hawaiian monk seal or green sea turtle is present within 150 ft of the work area, or as recommended by State of Federal regulations. Project activities may only recommence after the animal voluntarily leaves the area. If a monk seal and/or pup pair is present, a 300 ft buffer must be observed. Any Project-related debris that may impose an entanglement threat to monk seals and turtles must be removed from the work area at the end of wach day and at the conclusion of the Project-related activites.

PUBLIC HEALTH, SAFETY, AND CONVENIENCE NOTES:

1. 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.
2. 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 City may require supplementary measures as necessary.

PUBLIC HEALTH, SAFETY, AND CONVENIENCE NOTES (CONT):

3. The Contractor's attention is directed to Chapter 448, Public Health Regulations, Department of Health, State of Hawaii, "Community Noise Control for Oahu" in which maximum allowable noise levels have been set. If the construction activities for this project will exceed the allowable noise levels, the Contractor will be required to obtain a permit from the Director of the Department of Health. The Contractor shall obtain a copy of Chapter 448 and become familiar with the noise level restrictions and the procedures for obtaining a Permit for construction activities.

4. The Contractor is to comply with the directions of the State of Hawaii Occupation Safety and Health Law (DOSH).

MONUMENT GENERAL NOTES

1. All existing right-of-way, centerline, as-built, construction, and NGS (horizontal and vertical in the NGS database) monuments located within the State of Hawaii right of way, must be preserved and displayed on the plans. All monuments shall be preserved during all design and construction phases. If monuments are disturbed or destroyed, the Cadastral Engineering Section (HWY-DC) shall be notified prior to groundbreaking. Reconciliation to the Right-of-Way Baseline and/or a boundary study and determination may be required prior to re-installation of the disturbed or destroyed monuments. HWY-DC shall be contacted for guidelines and procedures. As to construction, a State of Hawaii Licensed Surveyor shall perform the location and staking of the reset monument. The DOT Standard Plans # Specifications, with the exception of NGS monuments which shall have a NGS approved "brass disk" marker, shall be referenced for the monument type and materials.
2. Any NGS vertical monuments that are deemed necessary for relocation due to construction shall follow the NGS benchmark reset procedures written by Curtis Smith dated September 2010 or newer. All work must be done by an electronic digital level that is acceptable by NGS for second-order class one or higher work. The surveyor must use two one-piece invar barcode rods with current certifications with struts with 15 lbs turning plate or turtles; and/or turning pin with driving cap and temperature readings. Contact NGS prior to any work to ensure all equipment meets reset specifications. A State of Hawaii Licensed Surveyor shall perform the relocation. All work must be submitted both in electronic and hard copy formats to NGS and HWY-DC.
3. All monument work shall be considered incidental to this project.

DESIGNED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTEBOOK	
No.	

9/1/23	△ Addendum 2 Added Notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GENERAL NOTES	
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale:	Date: December 2022
SHEET No. N-02 OF 13 SHEETS	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	10	231

WATER NOTES:

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "WATER SYSTEM STANDARDS", DATED 2002, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 2021, and all subsequent amendments and additions.
2. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply.
3. The Contractor shall notify Board of Water Supply Capital Projects Division, Construction Section in writing or call (808) 748-5730, and submit six (6) sets of 24"x36" approved construction drawings, one week prior to commencing construction activities.
4. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the 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.
5. Re-approval shall be required if this project is not under construction within a period of two years.
6. The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees, and bends wherever there is a possibility of water line movement due to the removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction methods.
7. Prior to any excavating, the Contractor shall verify in the field the location of existing water mains and appurtenances.
8. 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.
9. The Contractor shall adjust all manhole frames/valve boxes/meter boxes within the resurfaced area. The Contractor shall be responsible for "referencing" these manholes/valve boxes/meter boxes to facilitate the adjustments.
10. All waterline construction requiring shutdown connection shall be scheduled for normal working hours at six (6) hours maximum downtime.
11. At the electrical/cable/signal ductline water crossings, adjust all electrical/cable/signal ductline elevations to maintain 12" vertical clear separation from all waterlines at no cost to the Board of Water Supply.
12. Maintain 3'-0" minimum horizontal clear separation between all waterlines and nearest electrical/cable/signal ductlines paralleling the water system at no cost to the Board of Water Supply.
13. All fire hydrants to be adjusted and/or relocated shall be replaced with new fire hydrants, unless otherwise directed by the Board of Water Supply.

WATER NOTES, CON'T:

14. Maintain 3'-0" minimum horizontal clear separation between electrical/cable/signal appurtenances, (including any modular units) and the nearest waterline or water appurtenance. Contractor shall field verify for any conflicts at each electrical/cable/signal appurtenance location. Where conflicts occur, the contractor shall coordinate with the project engineer to revise the electrical/cable/signal appurtenance to provide the required clearances at no cost to the BWS.
15. Pipe cushion shall be of high resistivity material. The Contractor shall submit a soil certification that high resistant cushion material has a resistivity greater than 5,000 OHM-CM. Remainder of the backfill material shall be as specified in the Water Systems Standards. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury, chromium, cadmium, zinc, strontium, and polychlorinated biphenyls (PCB).
16. All ductile iron pipe including sections requiring reinforced concrete jacketing, shall be Ductile Iron Class 53, and bonded dielectric coated as per the Board of Water Supply 2002 Water System Standards as amended.
17. The Contractor shall install electronic markers to all mains and test the electronic markers prior to installations to verify proper operation. BWS personnel shall verify the number and locations of placed electronic markers before final paving of the project.
18. No deviation to the Board of Water Supply 2002 Water System Standards shall be allowed without the Manager and Chief Engineer's approval.
19. 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 of Water Supply.
20. 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 by the designer of record, to the Board of Water Supply for approval. All work shall be at no cost to the Board of Water Supply.
22. All ductile iron fittings and metallic valves shall have factory applied coating and wrapped with petroleum wax tape.
23. Soil resistivity for the site has a corrosion rating of Corrosion Category A (Moderately to Severely Corrosive) and Corrosion Category B (Negligibly to Mildly Corrosive) as reported by Geolabs. All required electrical isolation procedures and corrosion control requirements shall apply.

WATER NOTES, CON'T:

24. Water Pipeline Chlorination and Testing Procedures
 - A. The following chlorination and water sample collection procedure shall apply to all water pipeline projects (all work to be coordinated through Board of Water Supply Inspector):
 1. Chlorination of Water Systems
 - a. The Contractor shall provide a 4-week advance notice, in writing, to the Officer-In-Charge for proposed flushing, filling and bacterial testing of the new pipeline.
 - b. The Contractor shall hire a State of Hawaii - Department of Health certified laboratory to provide water sampling services and to deliver water samples to the Micro Lab for analysis. Water samples for bacterial testing shall be delivered no later than 2:30 p.m. on the day the samples are taken to the Board of Water Supply Micro Lab located at 630 S. Beretania St., Honolulu, HI 96843. The Micro Lab shall perform analysis and provide their results to the Officer-In-Charge by 4:30 p.m. on the following day (in some cases, final results notification may take up to 48 hours).
 - c. Water mains shall be disinfected in accordance with the Board of Water Supply System Standards (2002), as amended, Section 302.29.

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

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

 - a. The following chlorination and water sample collection procedure shall apply to all water pipeline projects:

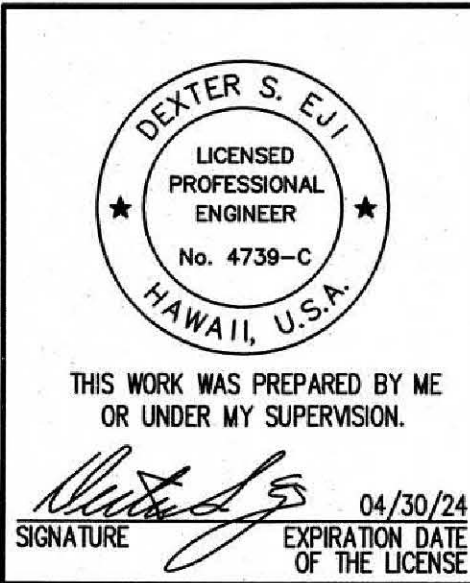
Step 1: Chlorinate main by filling with water and introducing chlorine in sufficient quantity to obtain a minimum chlorine concentration of 50 parts per million. Leave chlorinated water in main overnight.

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

APPROVED:

MANAGER & CHIEF ENGINEER, BWS *
(For Work Affecting BWS Facilities in
City/State Right-of-Way and BWS Easement only)

DATE



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	UTILITY NOTES
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Lanikaea Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: None	Date: December 2022
SHEET No. N-08 OF 13 SHEETS	

9/1/23	ADDENDUM 2 BWS SIGNATURE
DATE	REVISION

WATER NOTES, CONT:

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

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

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

b. The main is deemed acceptable and certified when:

- (i) the three consecutive water samples, collected 24 hours apart under Steps 1 and 2, show no TC (Total Coliform bacteria), no E. coli, less than CFU/ml (Colony Forming Units per ml) of HPC (Heterotrophic Plate Count bacteria) or less than 202 HPC using the MPN (Most Probable Number) method and Turbidity <1.0 NTU, and
- (ii) the sample of water held in the main for one hour, collected under Step 4, also shows no TC, no E. coli, less than 200 CFU of HPC using the MPN method and Turbidity <1.0 NTU.

c. Chlorination, flushing, sampling and testing will be extended should unsatisfactory results be encountered. Any sample that shows positive TC, E. coli, HPC > 200 CFU/ml, HPC >202 MPN or Turbidity >1.0 NTU is unsatisfactory.

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

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

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

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

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

WATER NOTES, CONT:

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

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

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

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

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

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

l. All measures for chlorine residual shall be analyzed using E.P.A. approved methods for drinking water.

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

n. The Contractor shall be responsible for all costs associated with all of the foregoing.

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

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

APPROVED:



MANAGER & CHIEF ENGINEER, BWS

(For Work Affecting BWS Facilities in City/State Right-of-Way and BWS Easement only)

8/1/2023
DATE

WATER NOTES, CONT:

25. All water mains and appurtenances shall be subject to hydrostatic test pressure of 150 psi and by the contractor in accordance with Division 300 - Construction, Section 302.28, PIPE PRESSURE TEST of the "WATER SYSTEM STANDARDS", DATED 2002. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.

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

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

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

29. Contractor shall cut and plug all existing unused laterals at the main whether or not shown on the plans. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.

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

31. Install 4 mil thick, non-metallic, blue colored, 6 inches wide warning tape over centerline of the pipe and below the base course along the entire length of trench. Tape should be marked with "CAUTION WATER LINE BURIED BELOW".

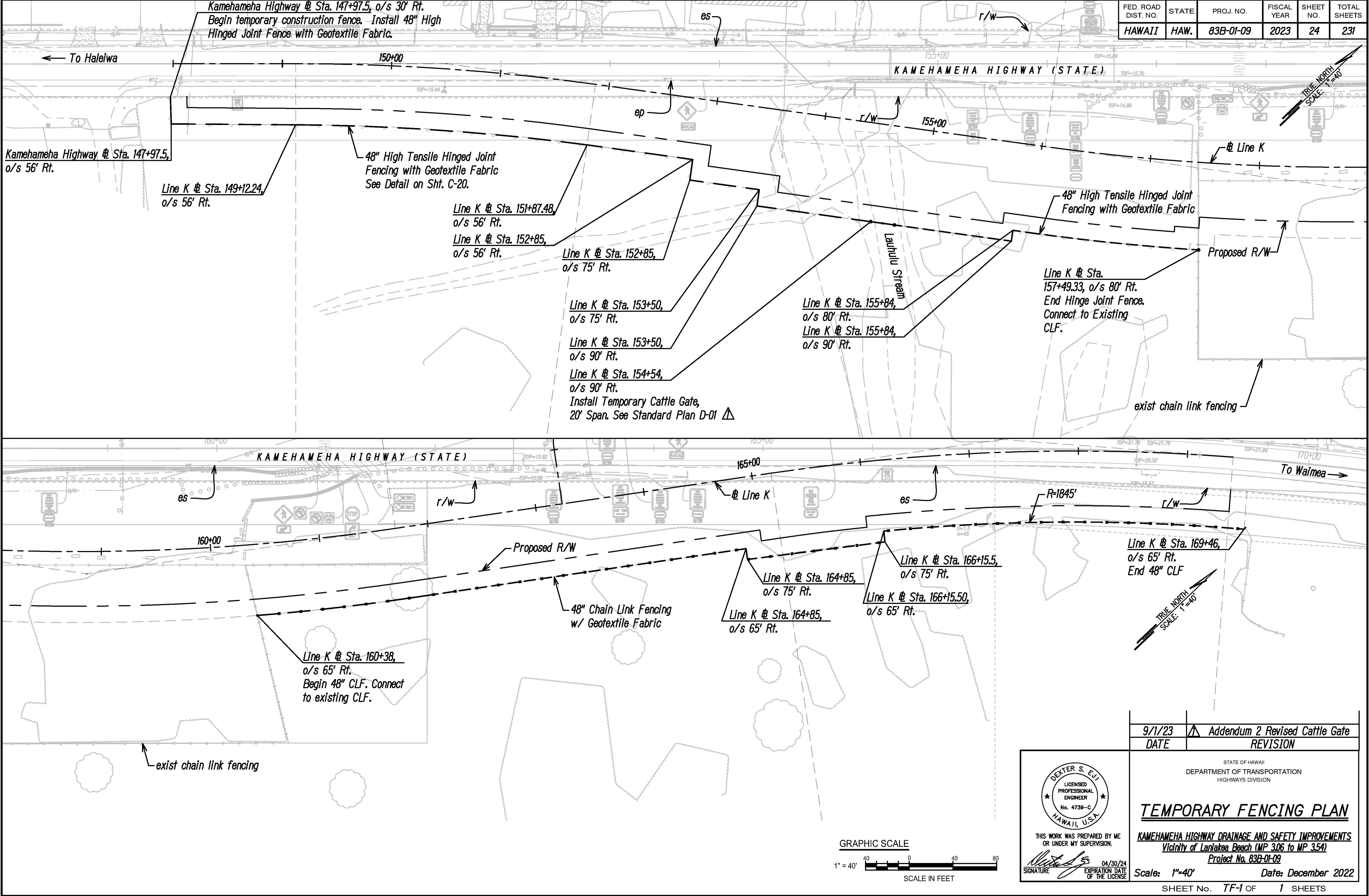
32. Cleaning shall be by the use of pigs introduced into the pipeline and run completely through all installed pipelines and all branches line for fire hydrants. "Pigging" of service laterals is not required. Bare Foam "pigs" shall be used to swab piping clean as each length of pipeline is installed.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

DATE	*****
QUANTITY FACIOTED BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



9/1/23	ADDENDUM 2 BWS SIGNATURE
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
UTILITY NOTES	
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakea Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: None	Date: December 2022
SHEET No. N-09 OF 13 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	24	231



QUANTITIES BY	DATE
DESIGNED BY	*****
TRACED BY	*****
NOTED BY	*****
CHECKED BY	*****

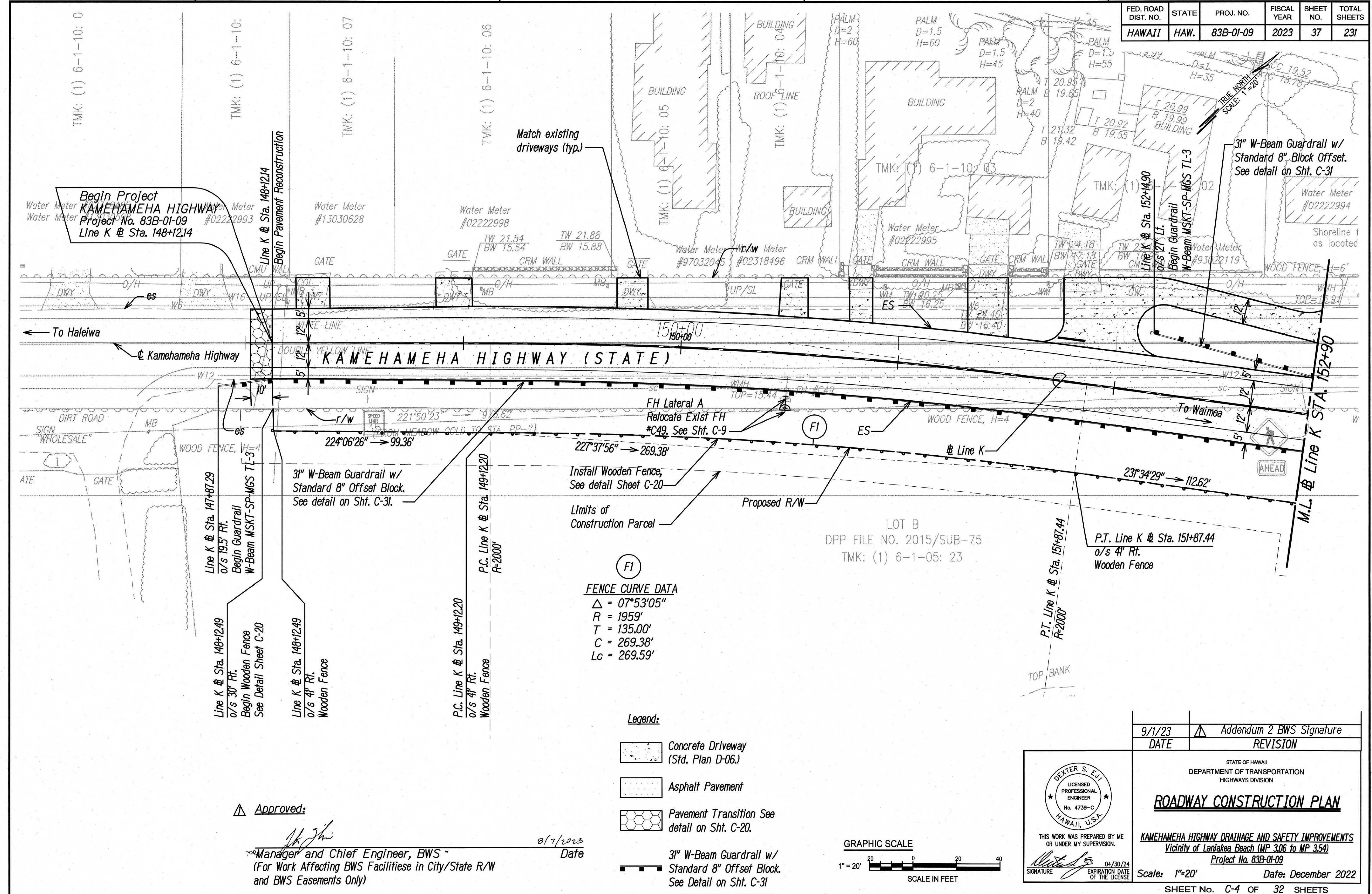
DEXTER S. EJI
LICENSED PROFESSIONAL ENGINEER
No. 4739-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

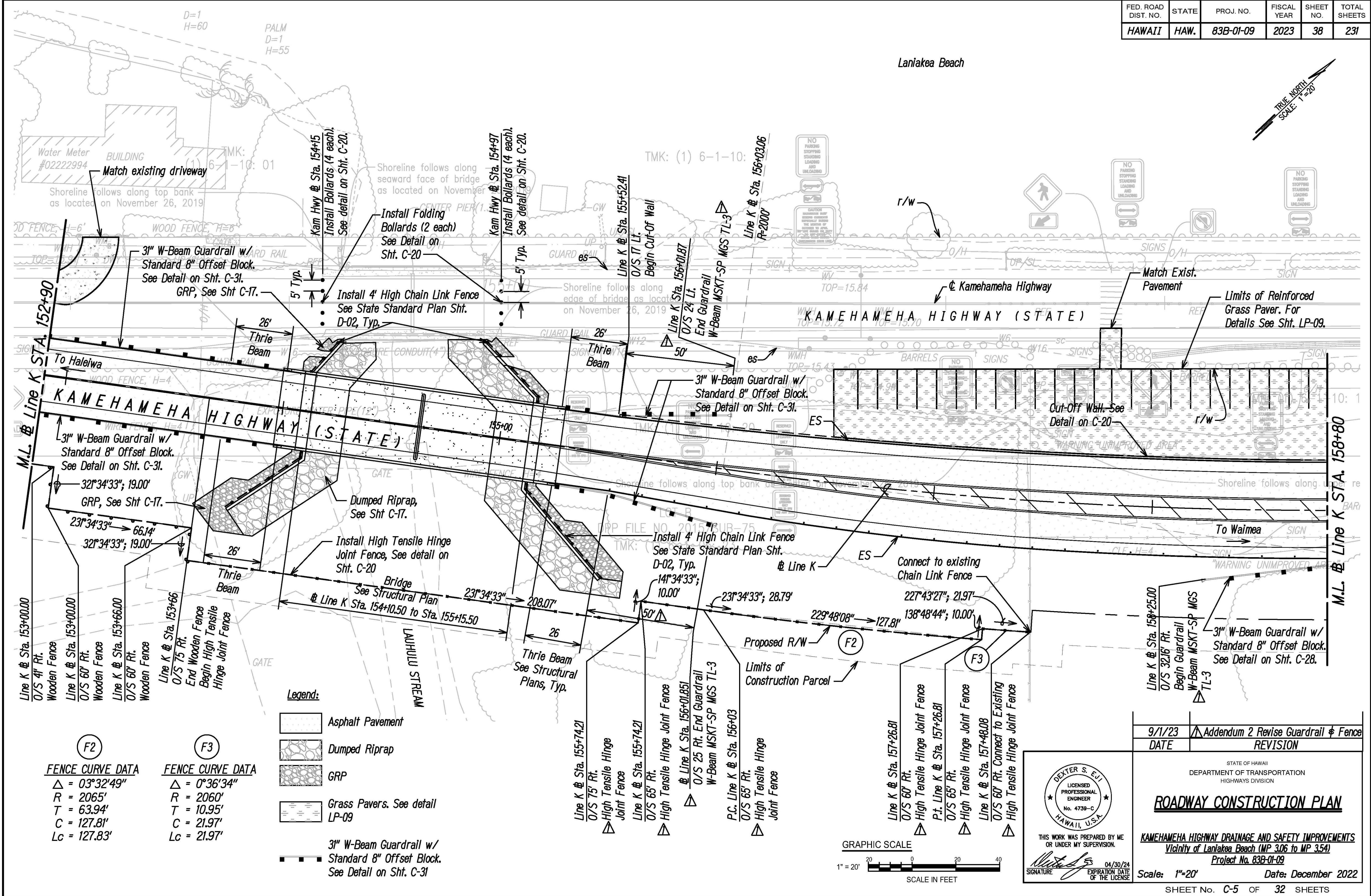
SIGNATURE: [Signature] EXPIRATION DATE OF THE LICENSE: 04/30/24

9/1/23 DATE	ADDENDUM 2 REVISED CATTLE GATE REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TEMPORARY FENCING PLAN	
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: 1"=40'	Date: December 2022
SHEET No. TF-1 OF 1 SHEETS	

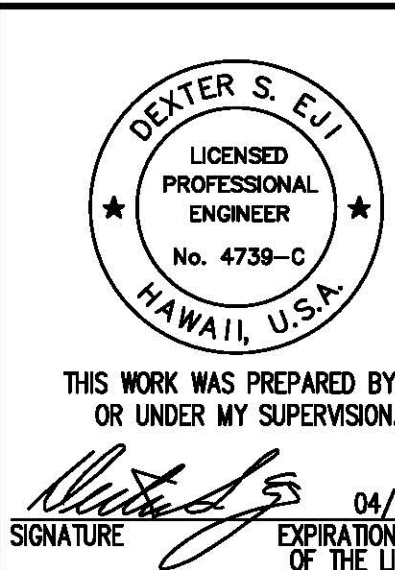
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	37	231



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	38	231

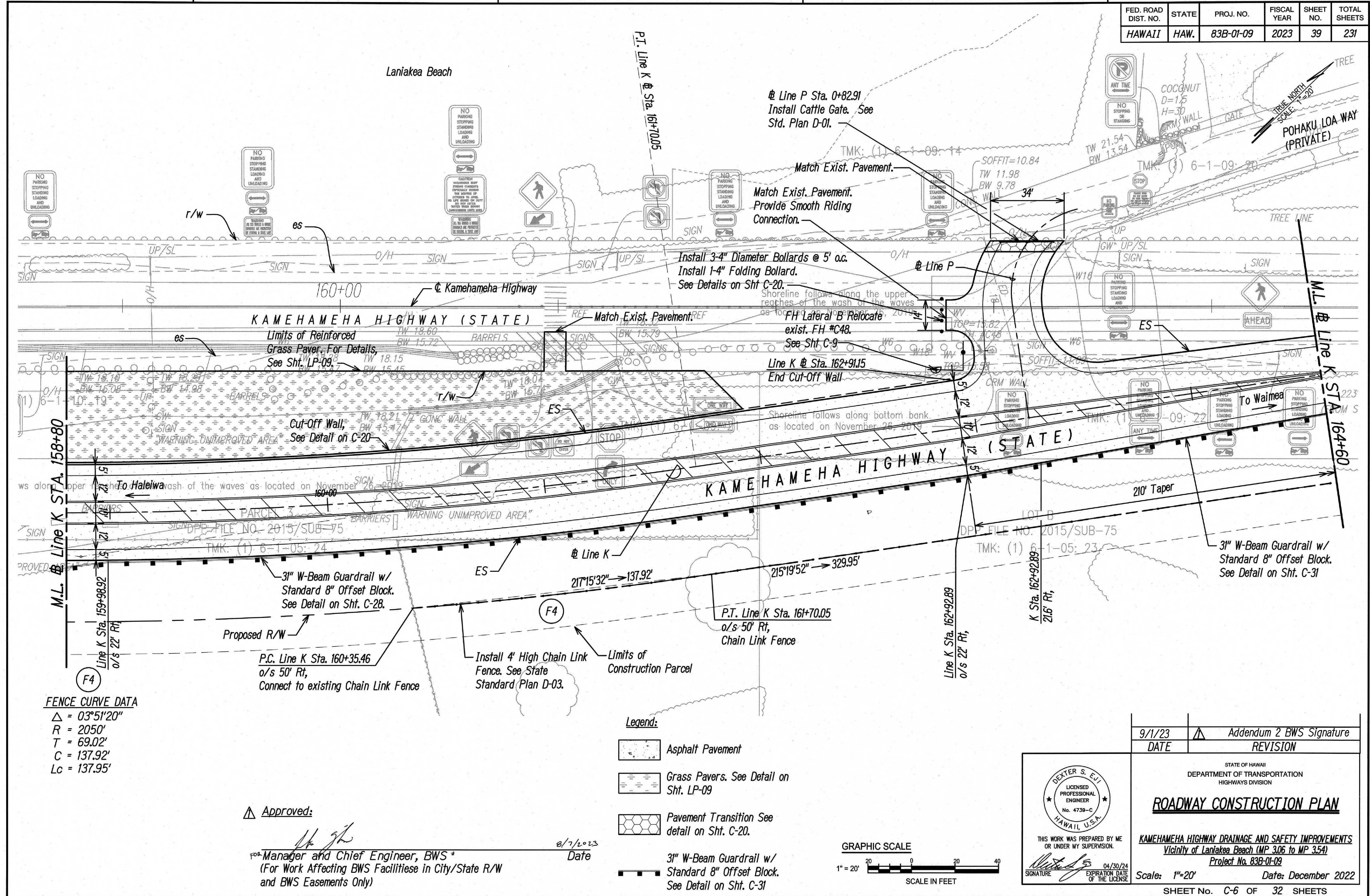


DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	



9/1/23	ADDENDUM 2 REVISE GUARDRAIL & FENCE
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ROADWAY CONSTRUCTION PLAN	
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Lanika Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: 1"=20'	Date: December 2022
SHEET No. C-5 OF 32 SHEETS	

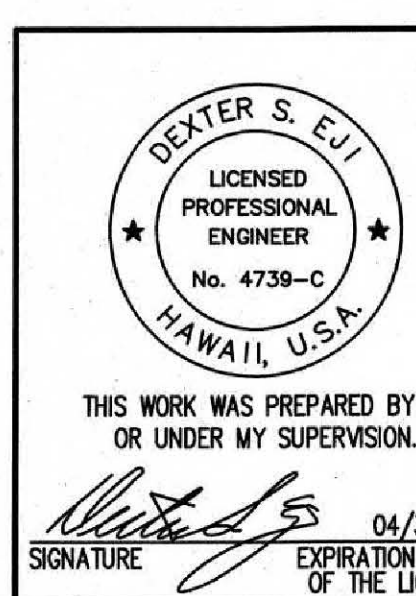
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	39	231



Approved:

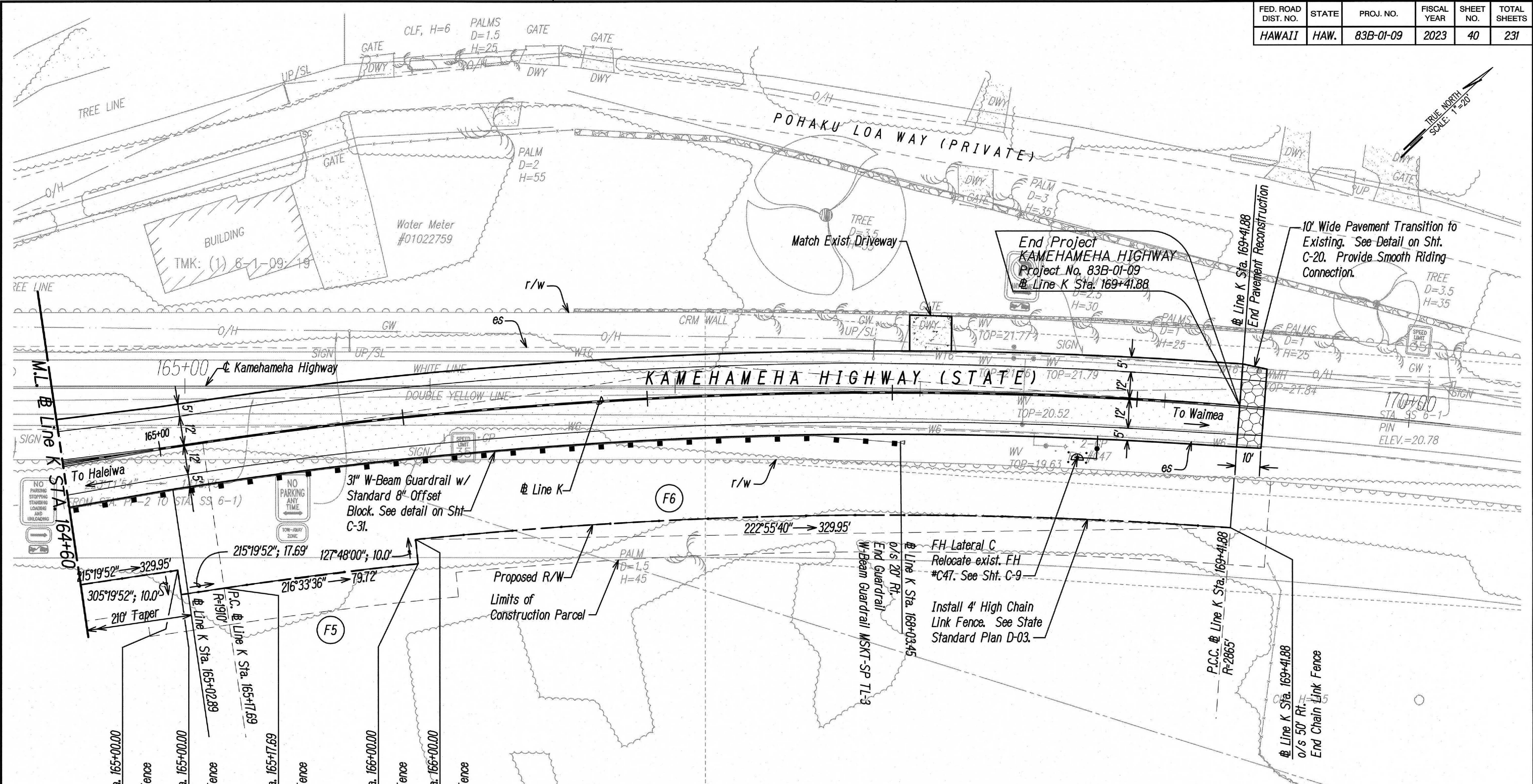
Manager and Chief Engineer, BWS*
(For Work Affecting BWS Facilities in City/State R/W and BWS Easements Only)

8/7/2023
Date



9/1/23	ADDENDUM 2 BWS SIGNATURE
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ROADWAY CONSTRUCTION PLAN KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Lanika Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: 1"=20'	Date: December 2022
SHEET No. C-6 OF 32 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	40	231



F5	F6
FENCE CURVE DATA	FENCE CURVE DATA
$\Delta = 02^{\circ}28'09''$	$\Delta = 10^{\circ}15'20''$
$R = 1850'$	$R = 1860'$
$T = 39.86'$	$T = 166.91'$
$C = 79.72'$	$C = 332.48'$
$Lc = 79.72'$	$Lc = 332.93'$

Approved:

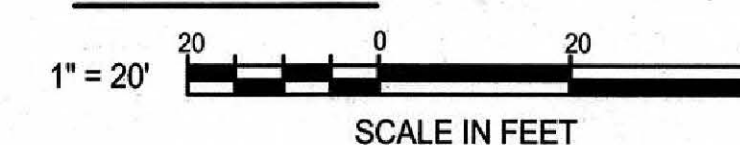
Manager and Chief Engineer, BWS *
(For Work Affecting BWS Facilities in City/State R/W
and BWS Easements Only)

8/7/2023
Date

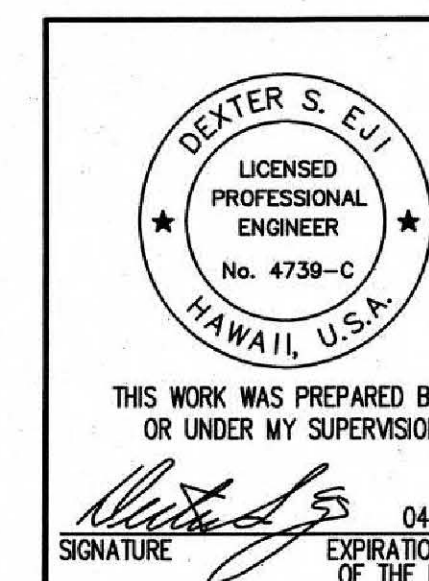
Legend:

- Concrete Driveway (Std. Plan D-06.)
- Asphalt Pavement
- Pavement Transition See detail on Sht. C-20.
- 31" W-Beam Guardrail w/ Standard 8" Offset Block. See Detail on Sht. C-31

GRAPHIC SCALE



9/1/23	ADDENDUM 2 BWS SIGNATURE
DATE	REVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION PLAN

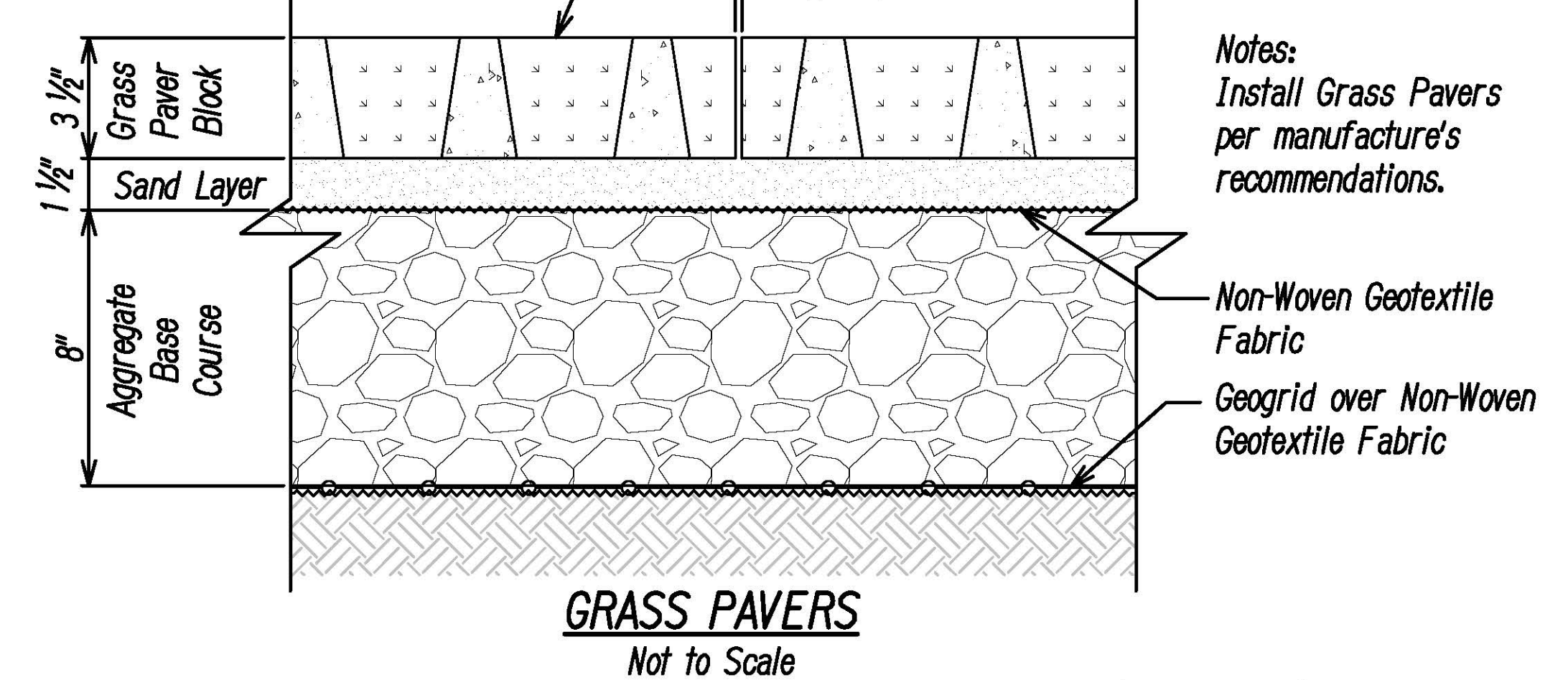
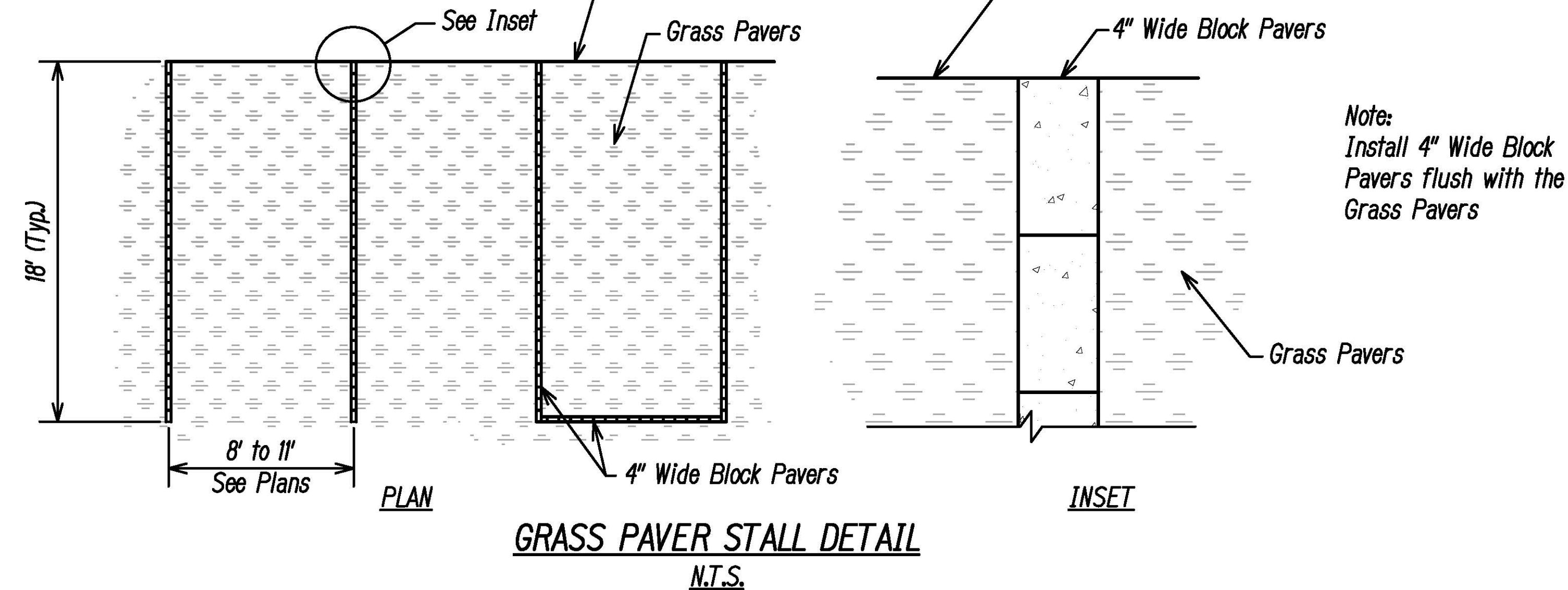
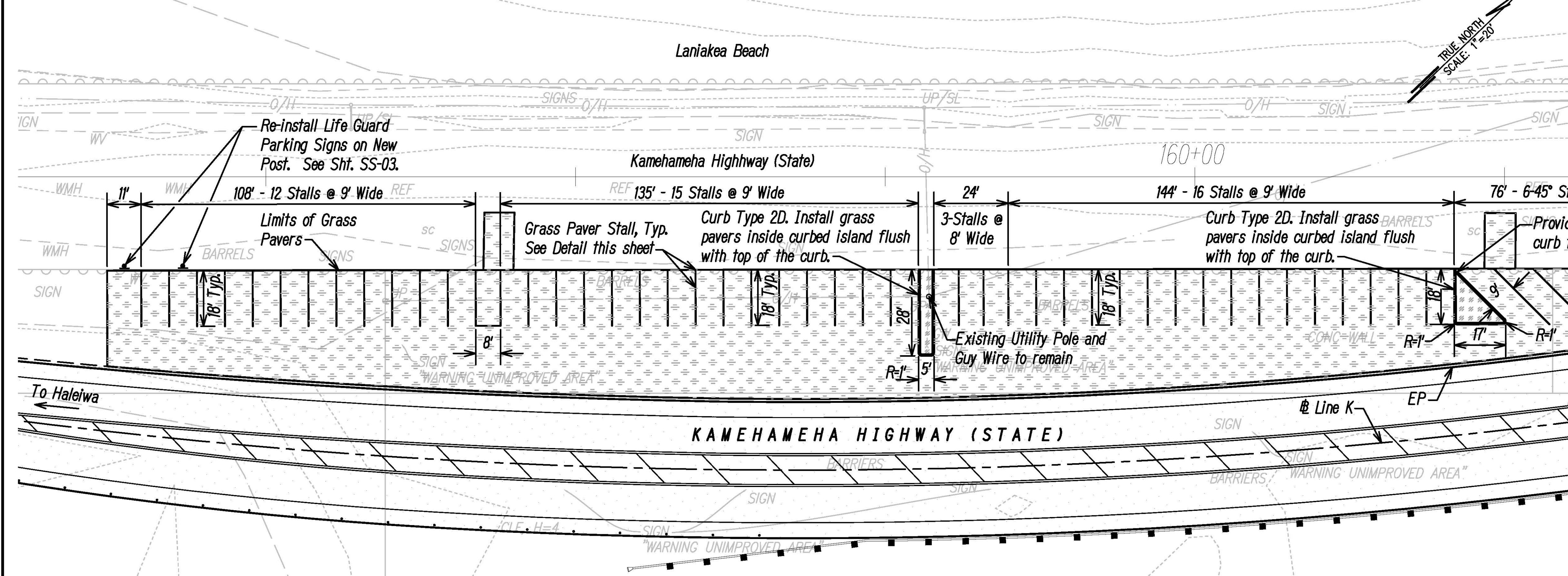
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS
Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54)
Project No. 83B-01-09

Scale: 1"=20' Date: December 2022

SHEET No. C-7 OF 32 SHEETS

ADD. 40

Pacific Ocean



20 0



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS
Vicinity of Laniakea Beach (MP 3.06 to MP 3.54)
Project No. 83B-01-09

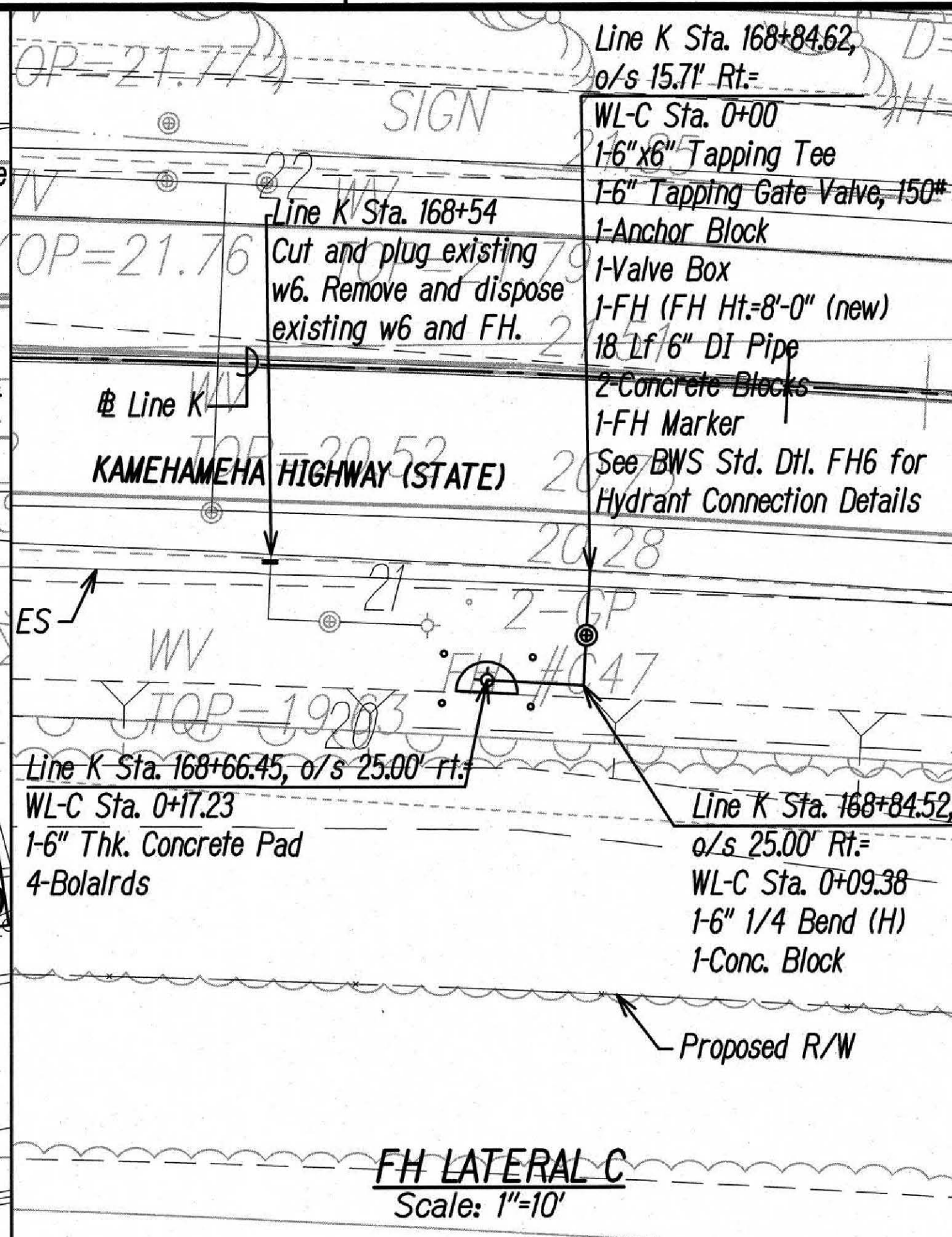
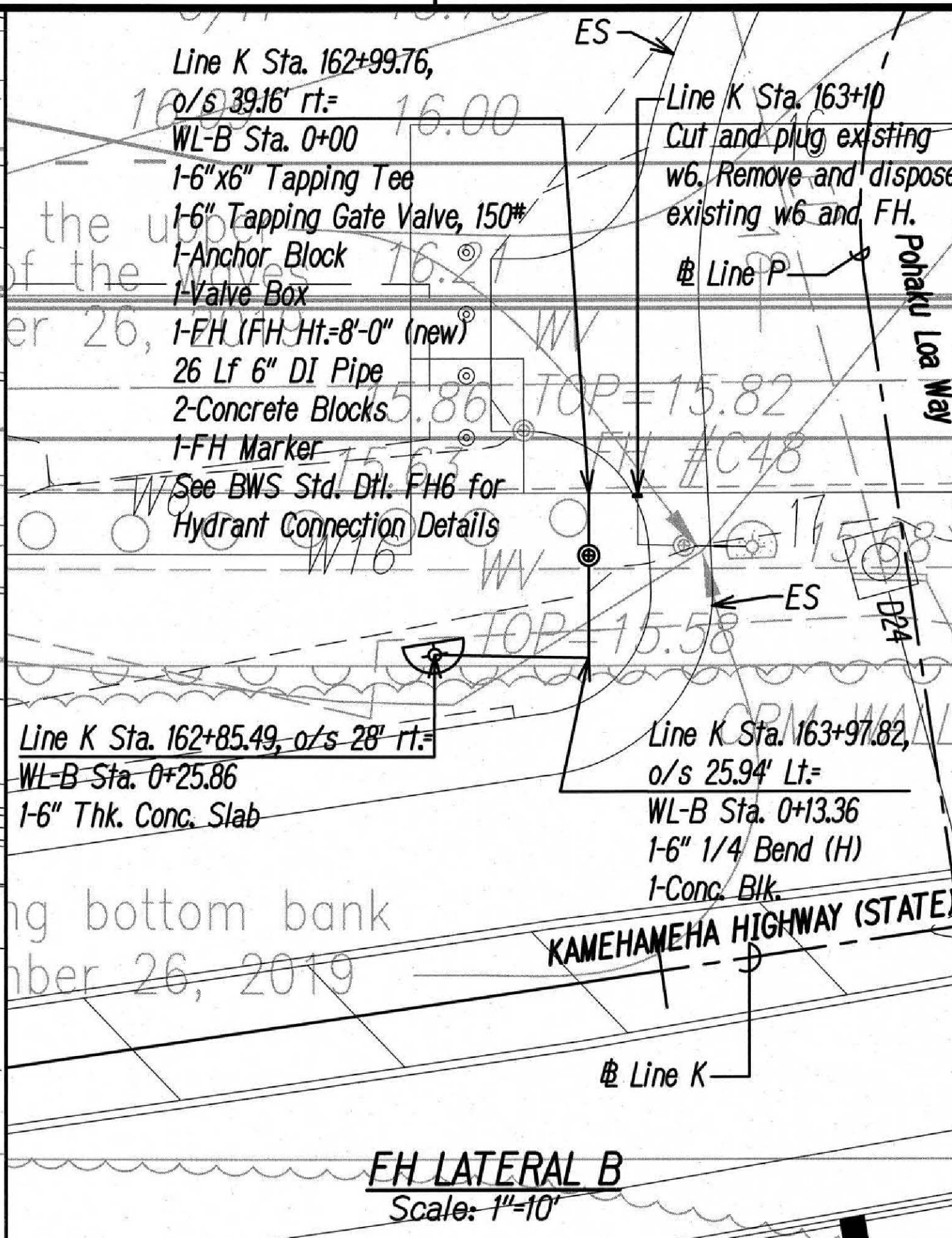
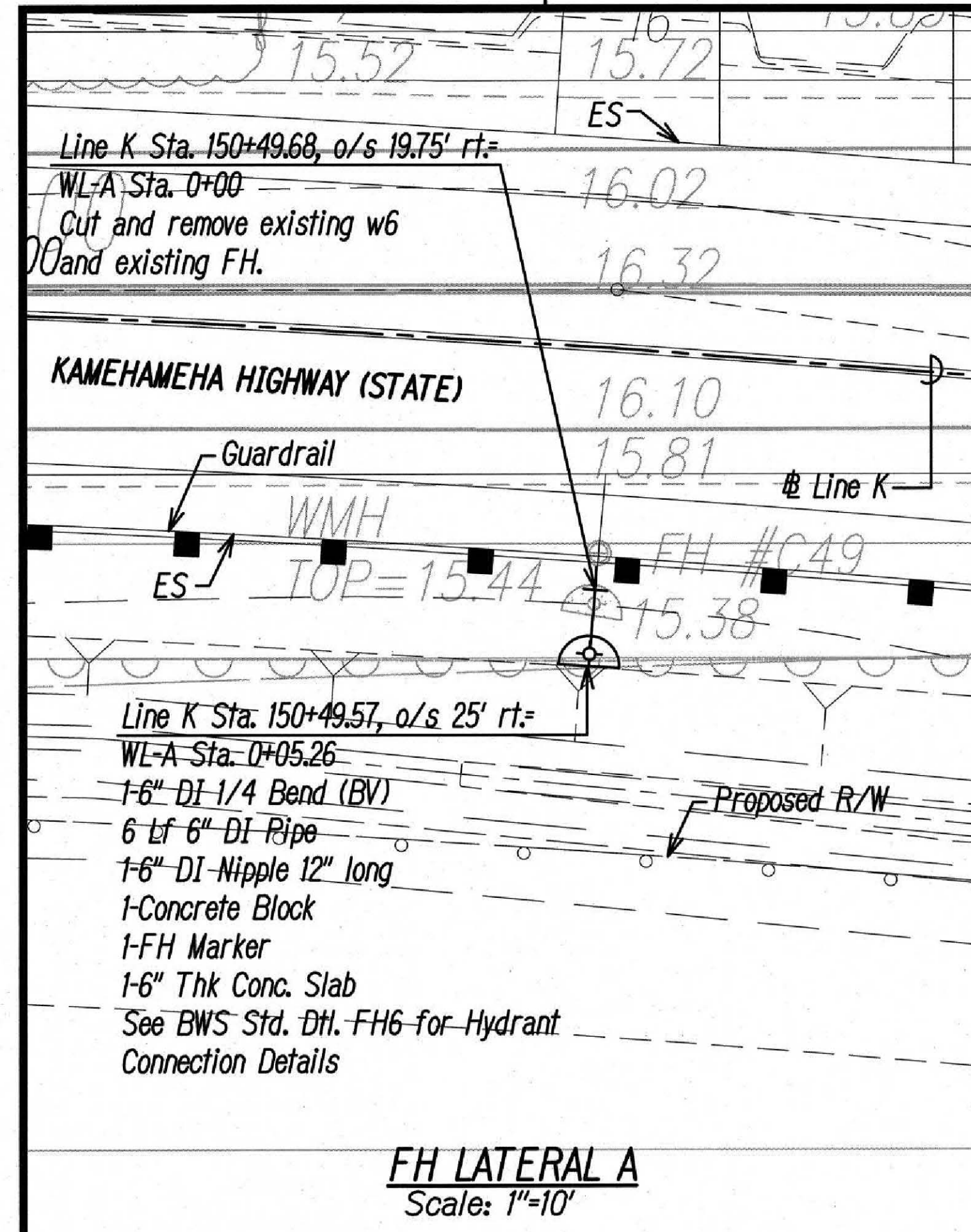
SHEET No. C-7A OF 32 SHEETS

ADD 10C 1

ADD.40S-1

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	42	231

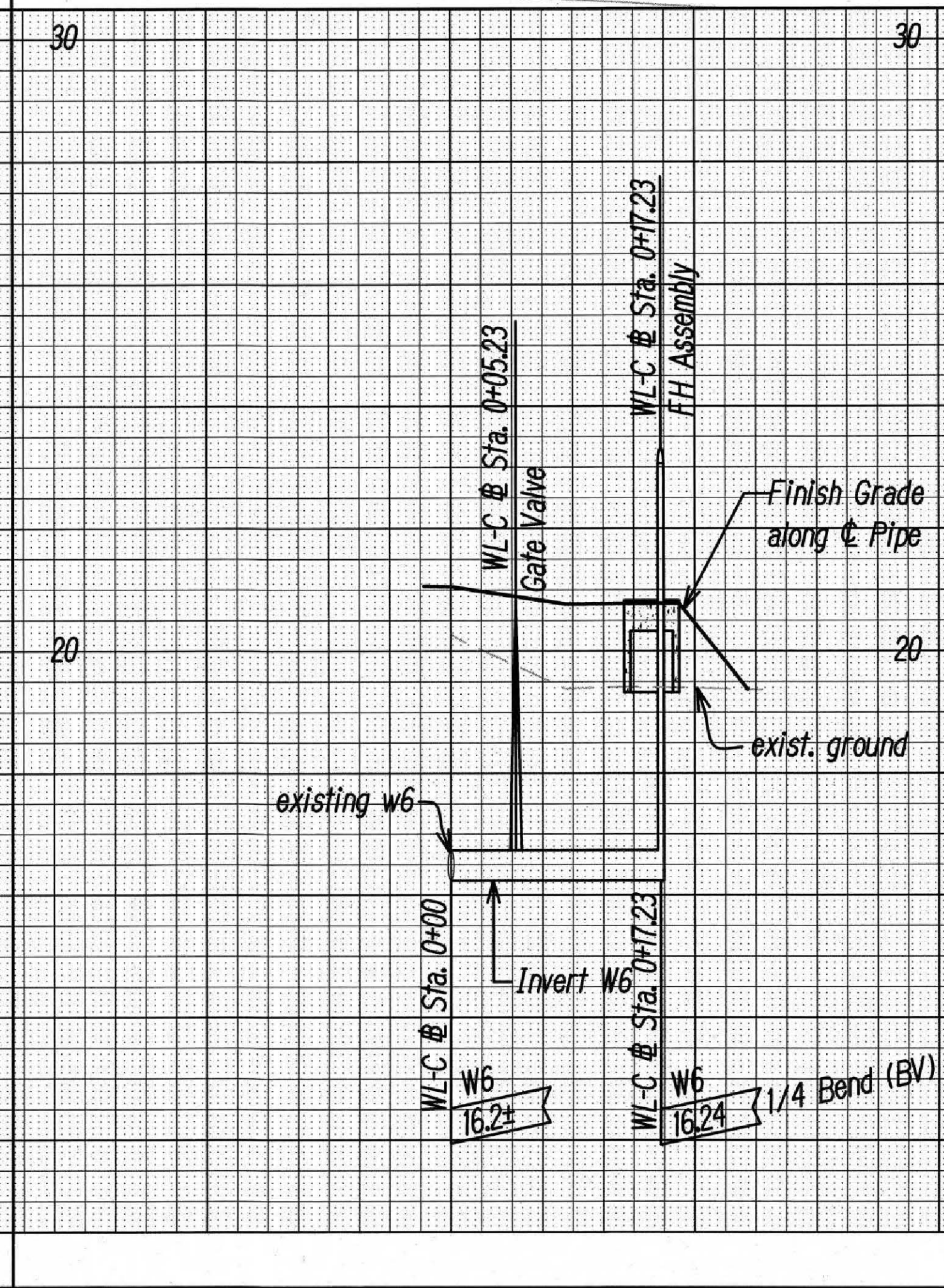
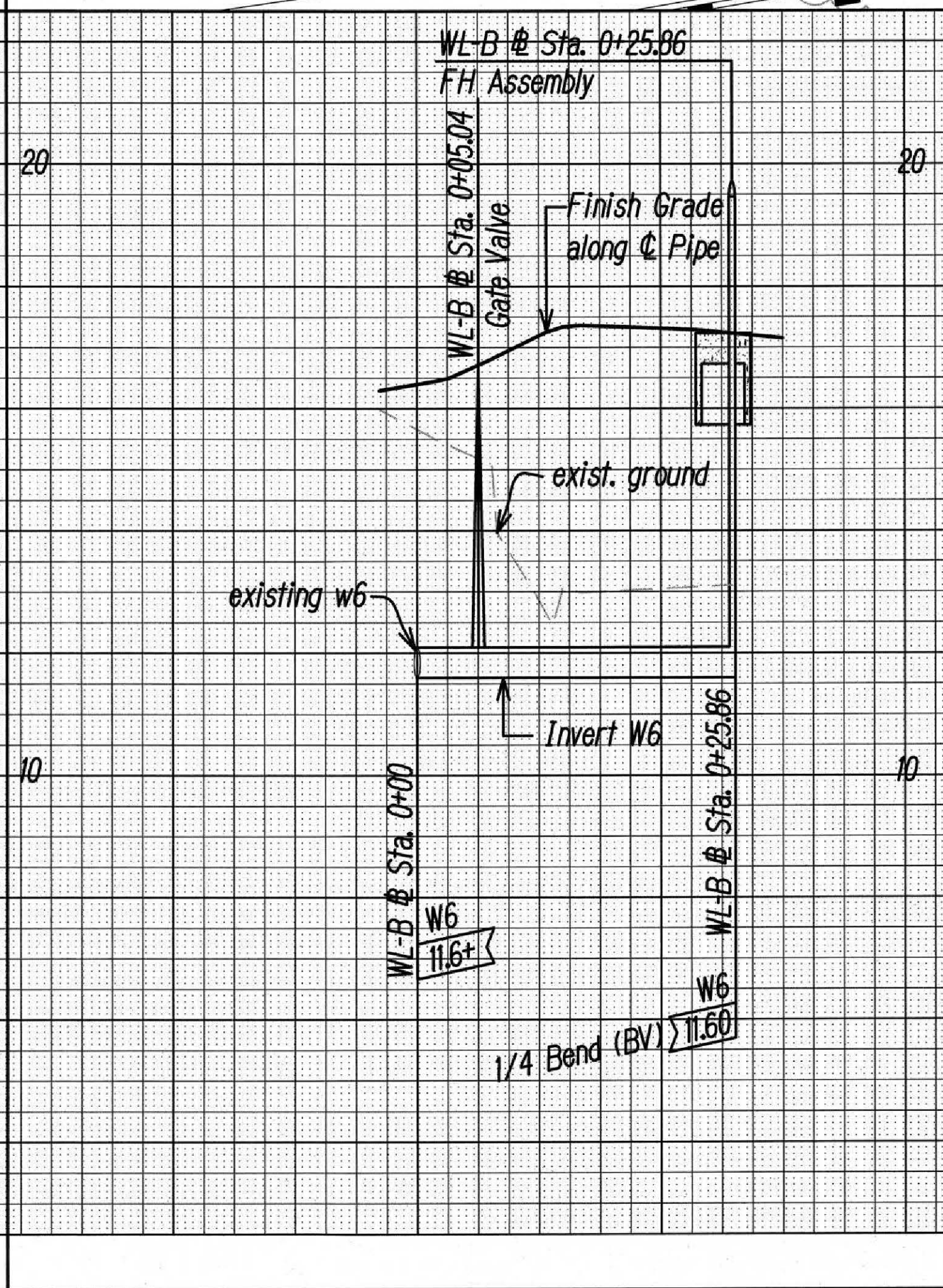
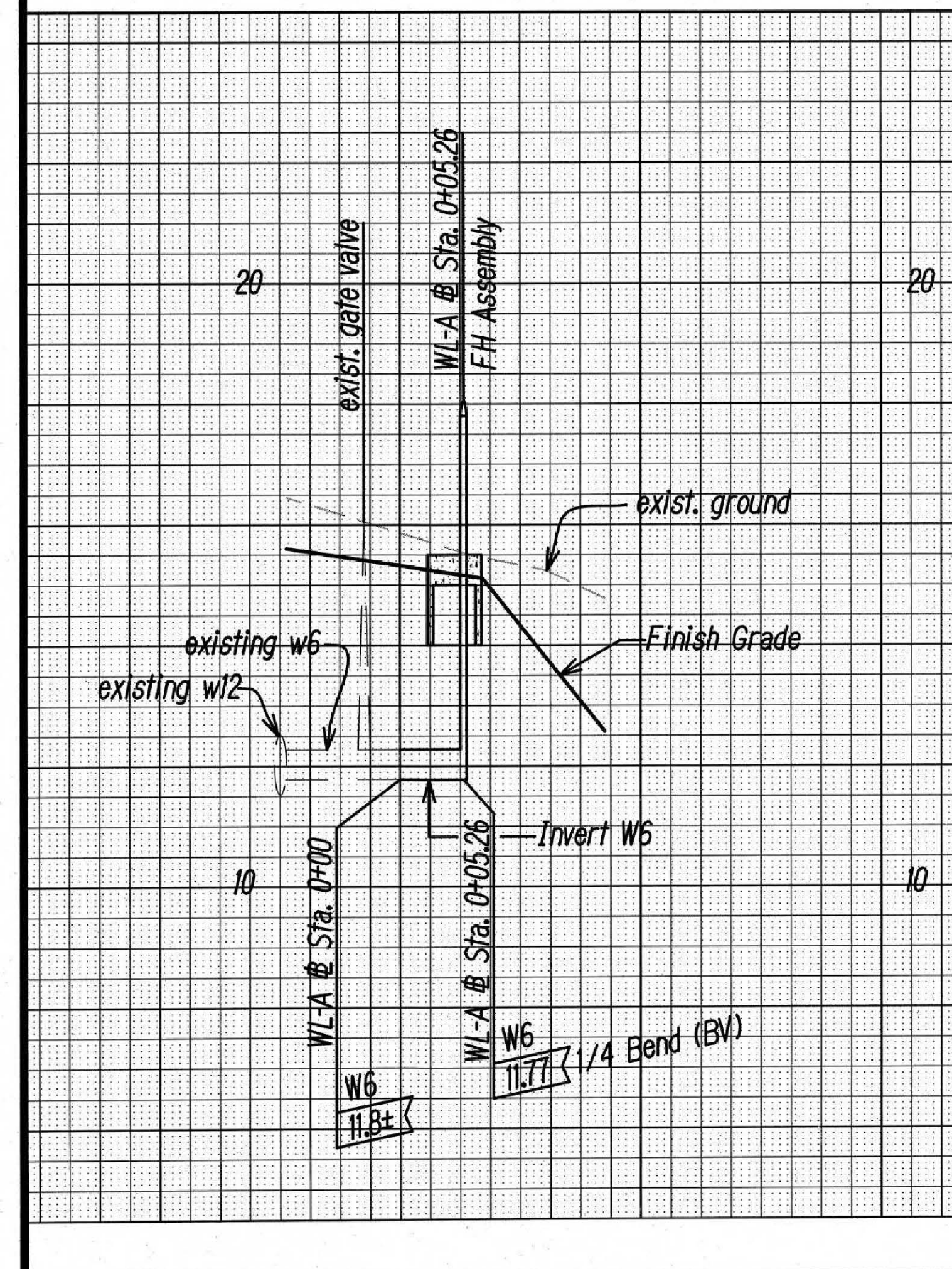


6" Transition Coupling
 6" Pipe
 Exist. W6" Cast Iron

WL-A Sta. 0+00

Temporary for Testing:
 2-6" Cap Tapped for 2 1/2" IPT
 2-2 1/2" Cleanout
 2-Concrete Blocks

Approved: *[Signature]* 8/1/2023
 Date
 Manager and Chief Engineer, BWS*
 (For Work Affecting BWS Facilities in City/State R/W and BWS Easements Only)



GRAPHIC SCALE
 HORIZ. 1"=10'
 VERT. 1"=2'

9/1/23 DATE
 Addendum 2 BWS Signature REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**PLAN AND PROFILE
 FH LATERAL A, B, & C**
 KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS
 Vicinity of Laniakea Beach (MP 3.06 to MP 3.54)
 Project No. 83B-01-09

Scale: 1"=10' Date: December 2022
 SHEET No. C-9 OF 32 SHEETS

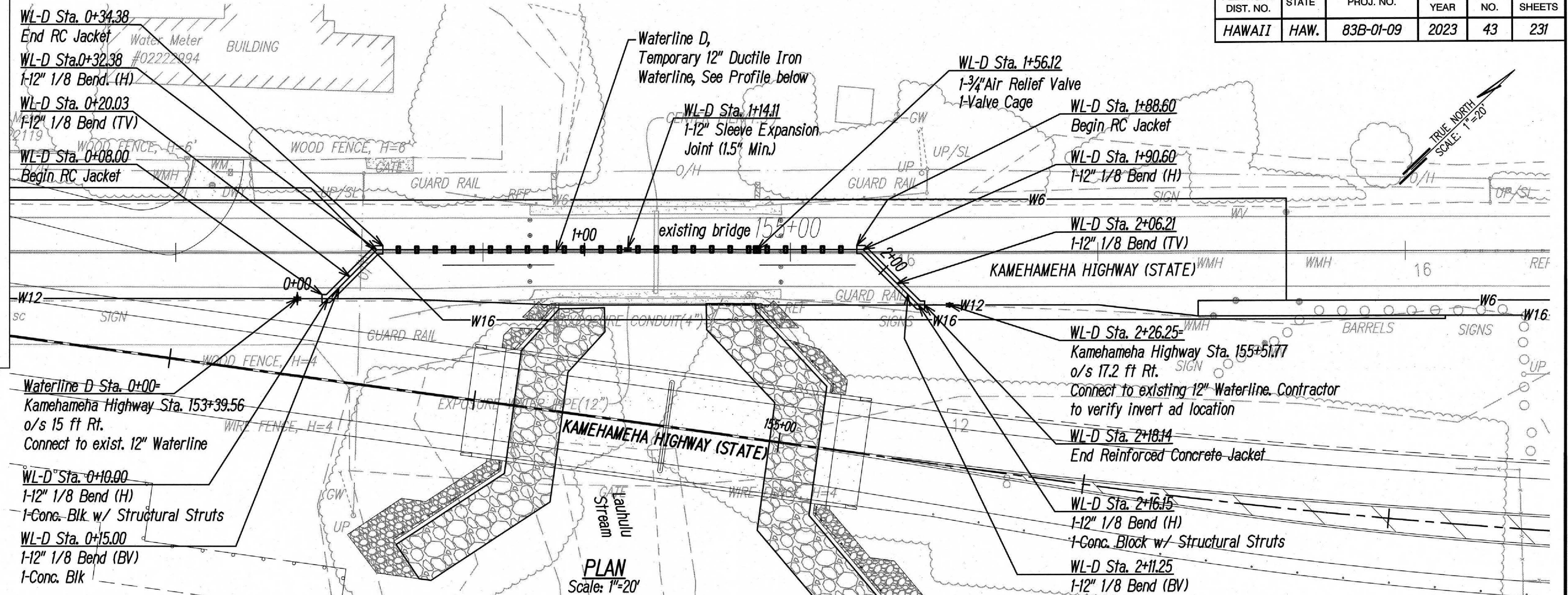
DEKSTER S. EJI
 LICENSED PROFESSIONAL ENGINEER
 No. 4739-C
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
[Signature] 04/30/24
 SIGNATURE EXPIRATION DATE OF THE LICENSE

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

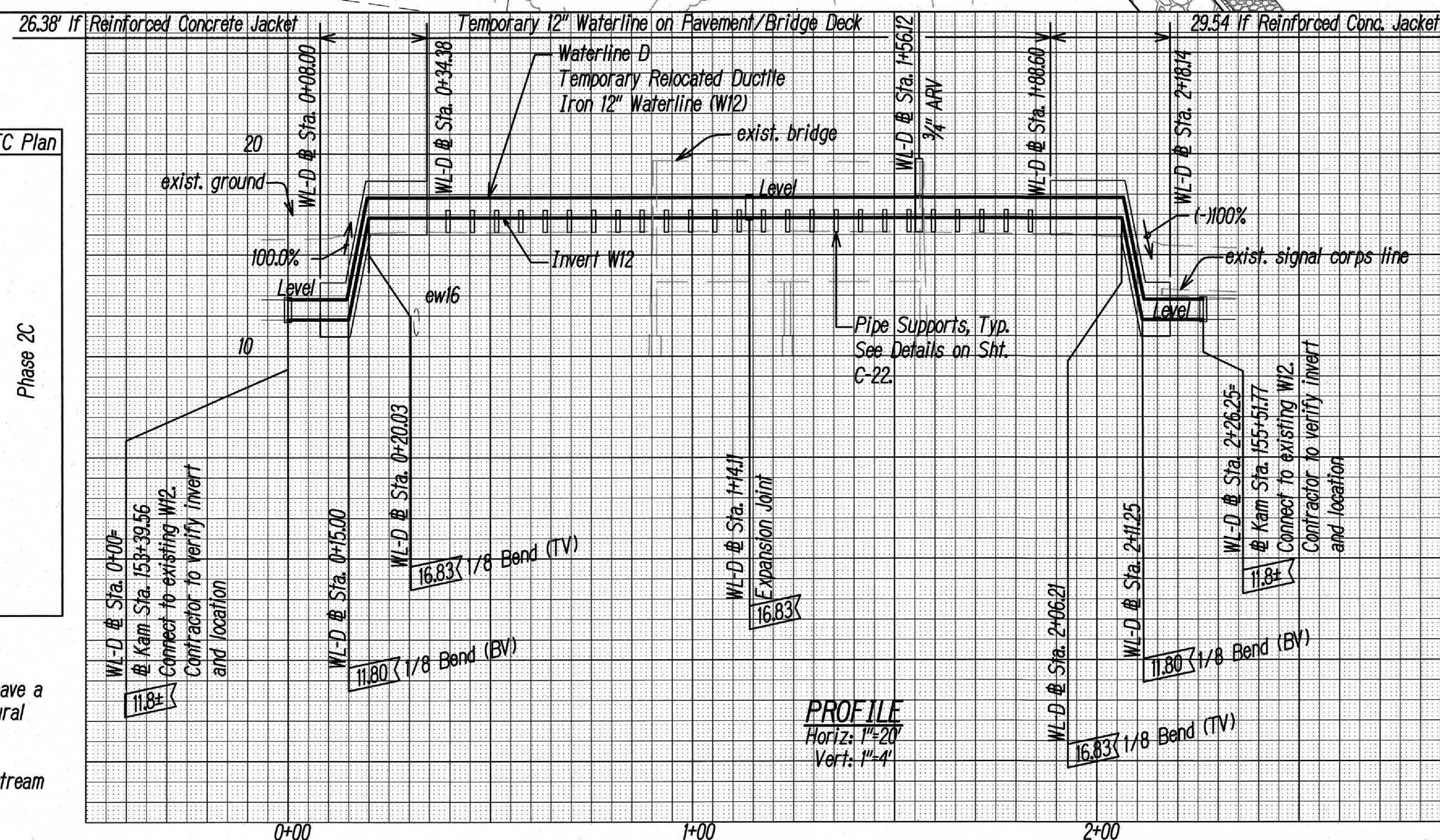
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	43	231

Materials for Connection:
1-12" Sleeves, 2' Long
2-10' LF of 12" Pipe
2-12" Transition Couplings, 2' Long



	Temporary 12" Waterline D	TC Plan
1.	Construct temporary 12-inch Waterline D except for tie ins to exist. 12W	Phase 2C
2.	Turn Off Exist. W12 at valves for construction.	
3.	Connect temporary 12-inch Waterline D to exist. W12	
4.	Turn on exist. valves	
5.	Remove existing wingwall.	
6.	Construct new Wingwalls	
7.	Replace fill behind new wingwalls	
8.	Turn off temp. 12-inch Waterline D at Valves for connection	
9.	Connect exist. W12 to exist W12 on bridge	
10.	Turn on exist valves	
11.	Remove temporary 12-inch Waterline D, Reinforced Concrete Jacket, Pipe Support, Air Relief Valve and enclosure.	

*Note:
Should the existing 16" WL be found to not have a concrete encasement as shown on the structural drawings, Contractor shall concrete encase existing 16" WL between points exposed for wingwall construction on either side of the stream with jacket ending at the nearest bell joint outside of the exposed section.*




GRAPHIC SCALE

HORIZ. 1" = 20'

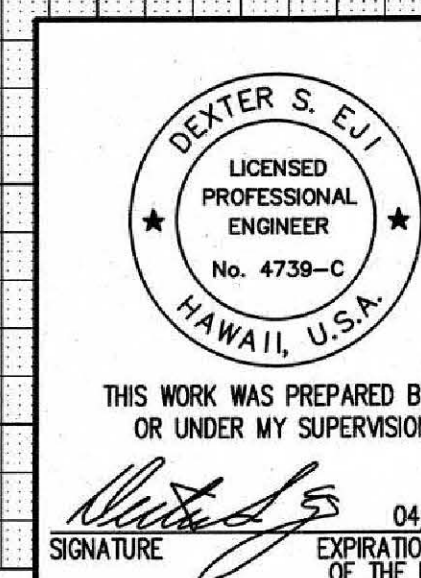
SCALE IN FEET

VERT. 1" = 4'

SCALE IN FEET

Approved:  B / 7 / 2025
Date
Mahager and Chief Engineer, BWS*
(For Work Affecting BWS Facilities in City/State R/W
and BWS Easements Only)

9/1/23	▲ Addendum 2 BWS Signature
DATE	REVISION



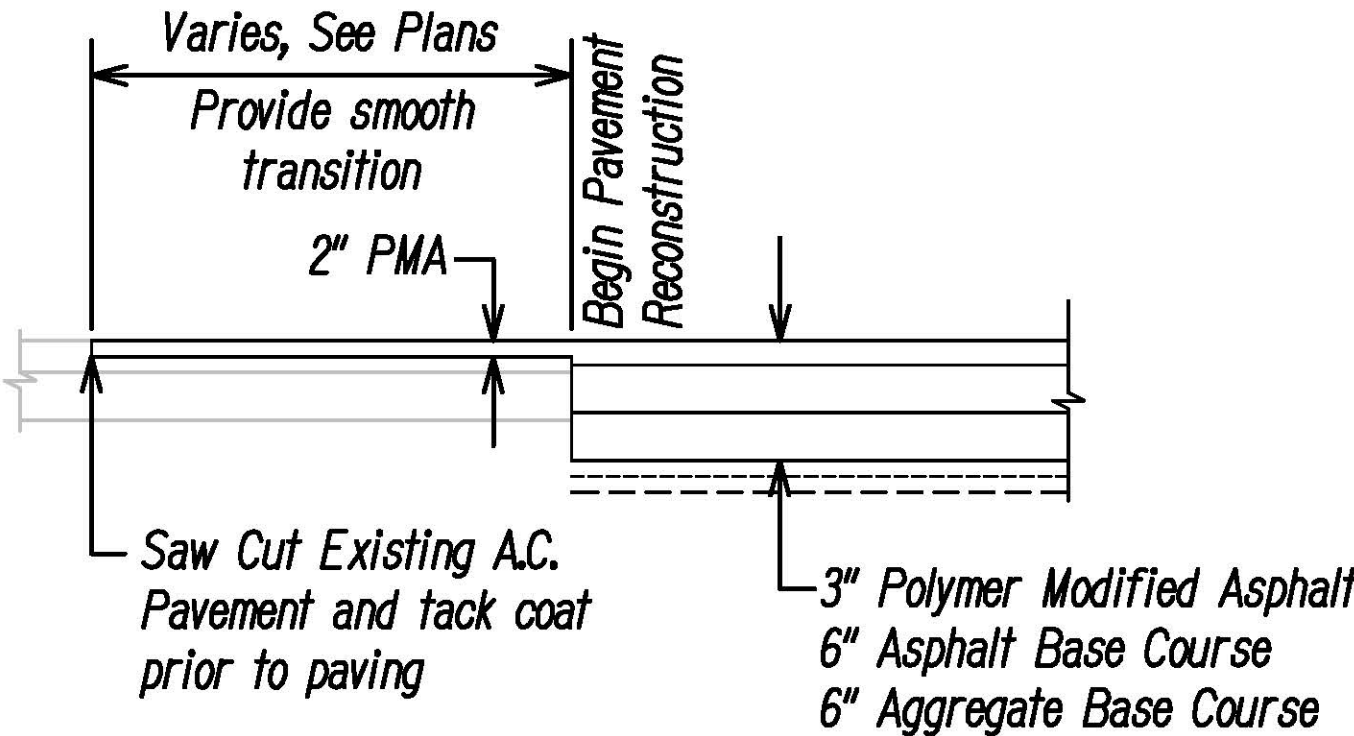
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN AND PROFILE
TEMPORARY 12" WATERLINE
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS
Vicinity of Laniakea Beach (MP 3.06 to MP 3.54)
Project No. 83B-01-09

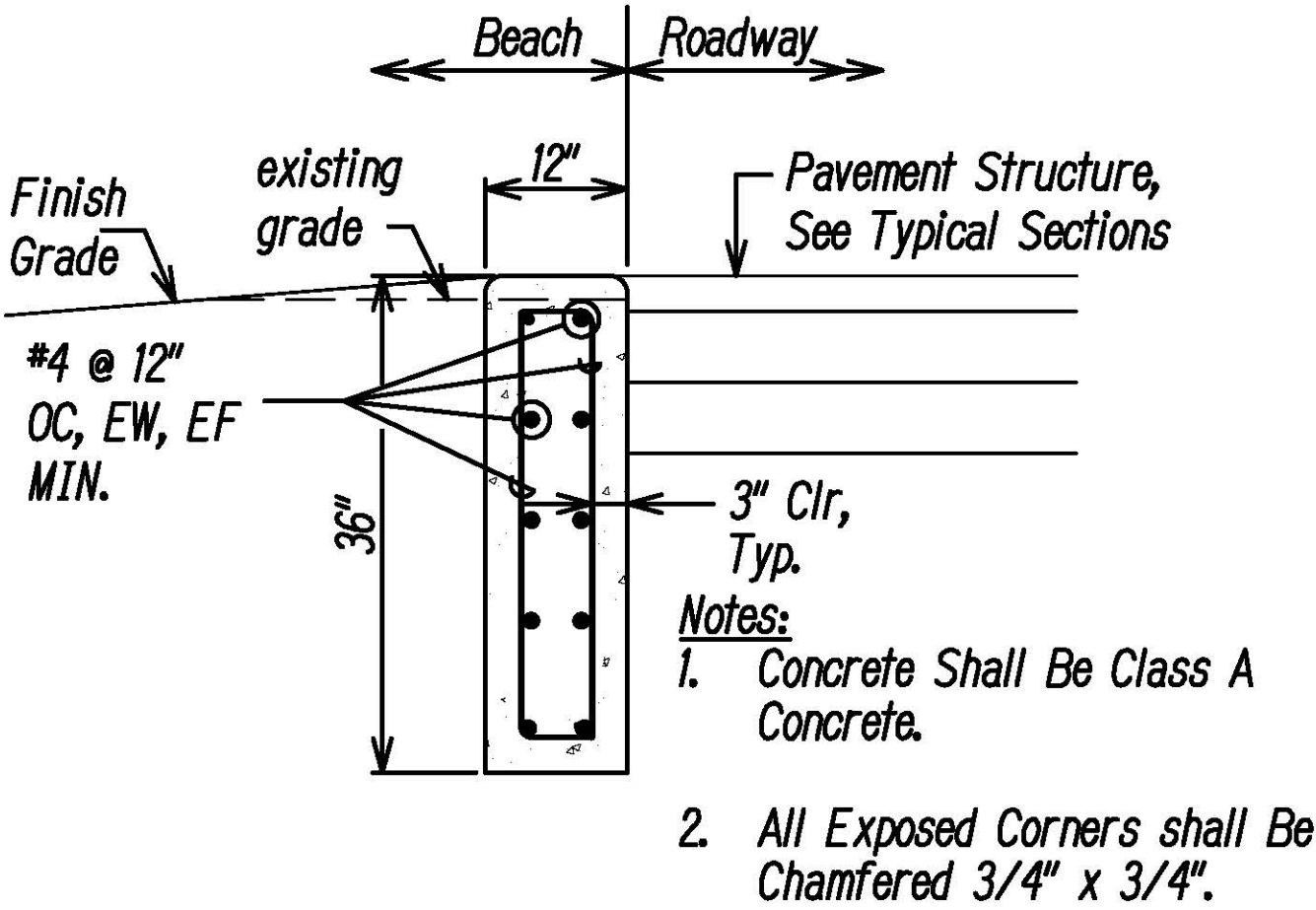
Scale: As Shown Date: December 2022

SHEET No. C-10 OF 32 SHEETS

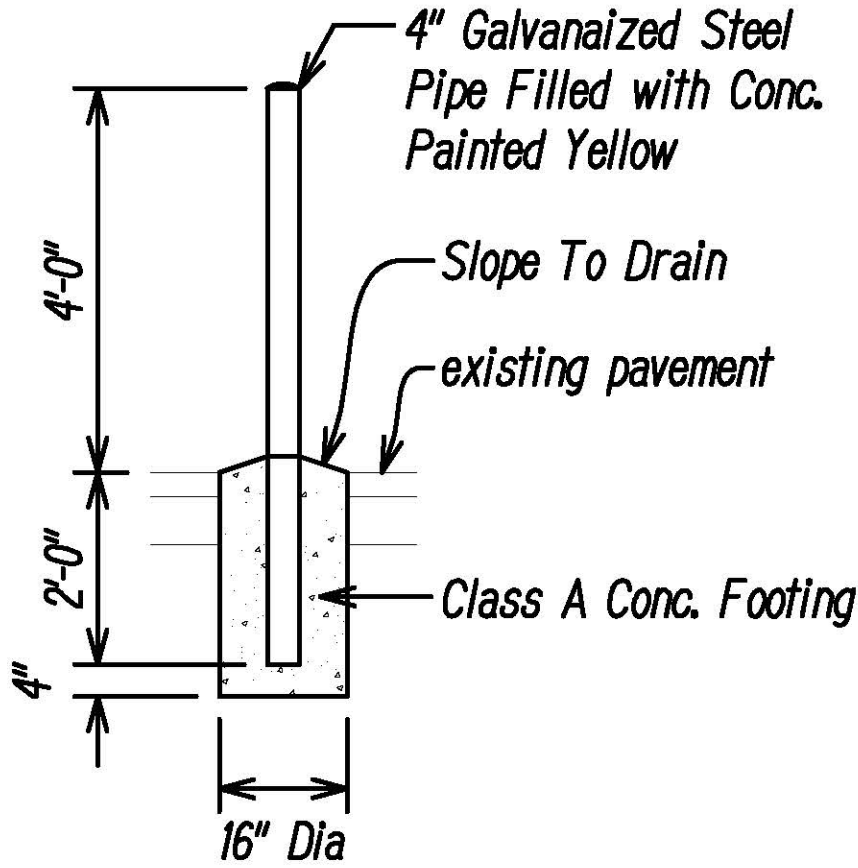
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	53	231



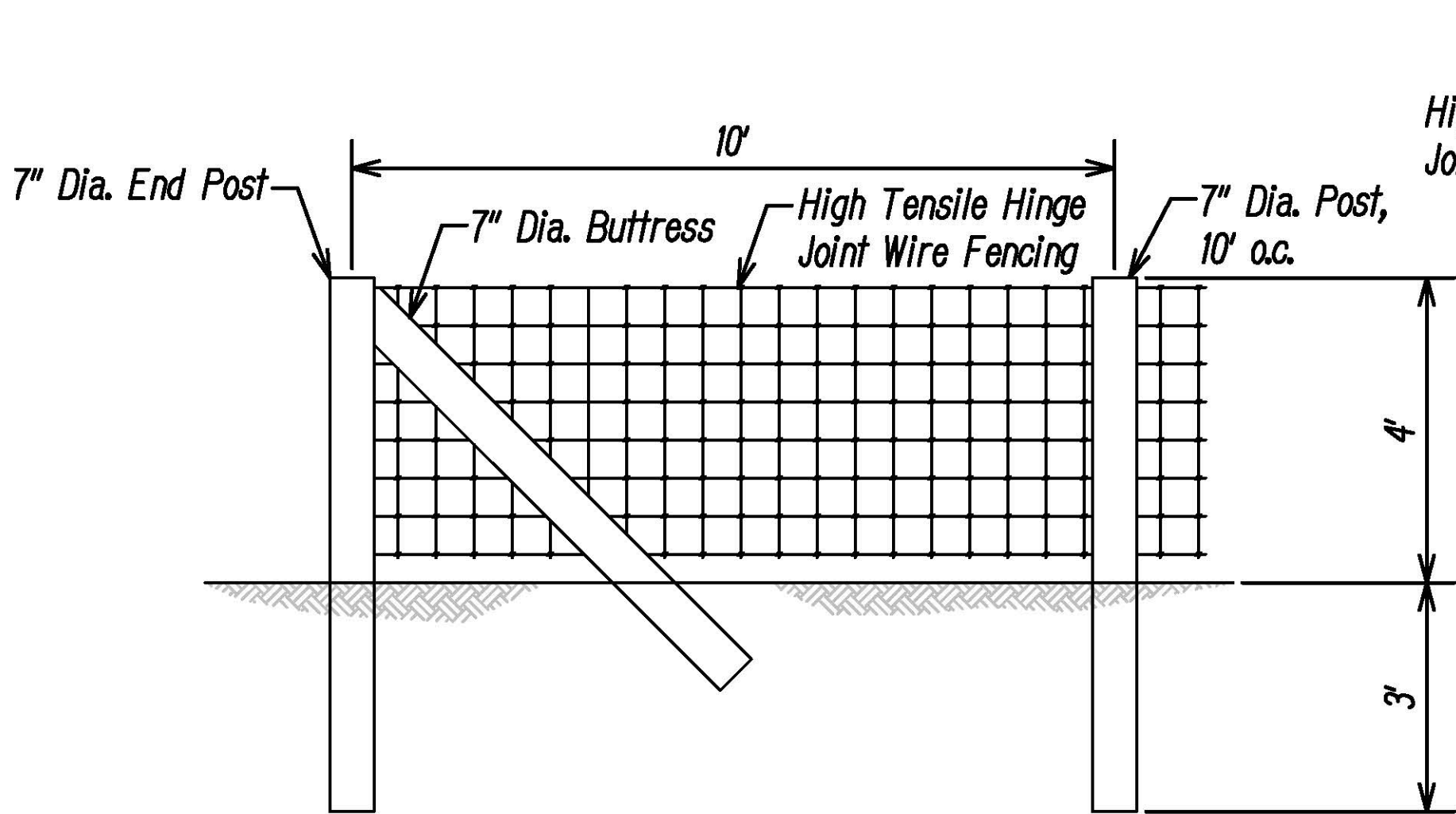
PAVEMENT TRANSITION DETAIL
Not to Scale



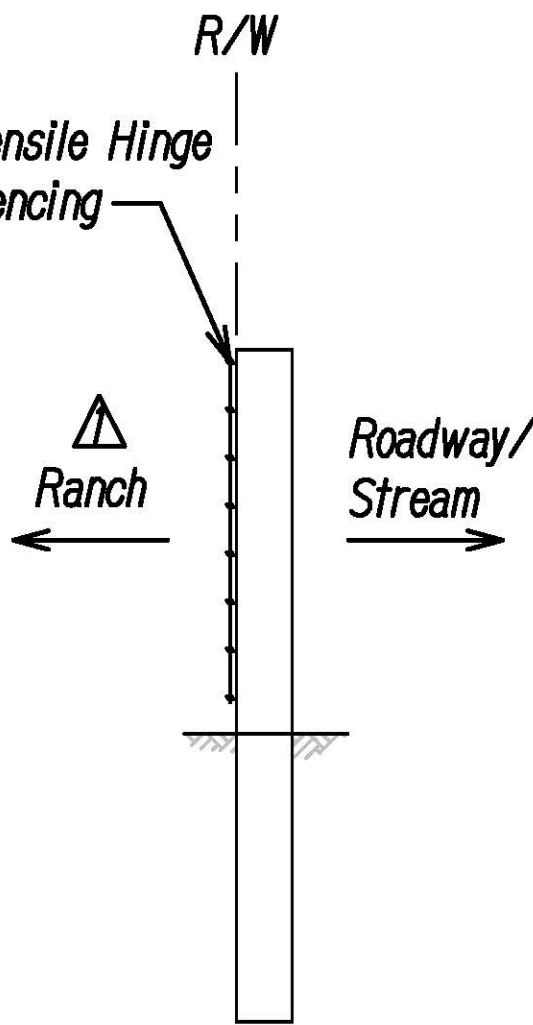
CUT-OFF WALL DETAIL
Scale 3/16"=1'-0"



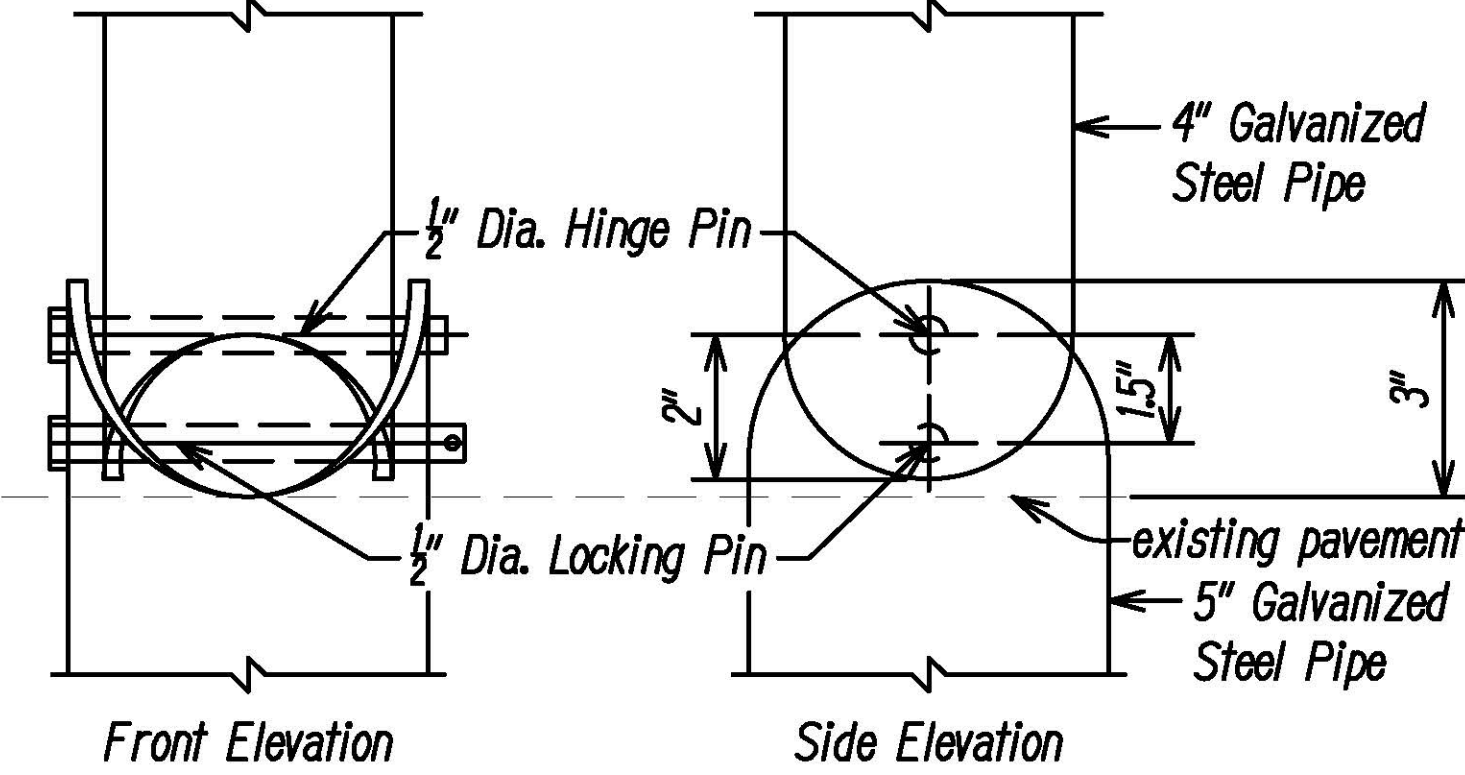
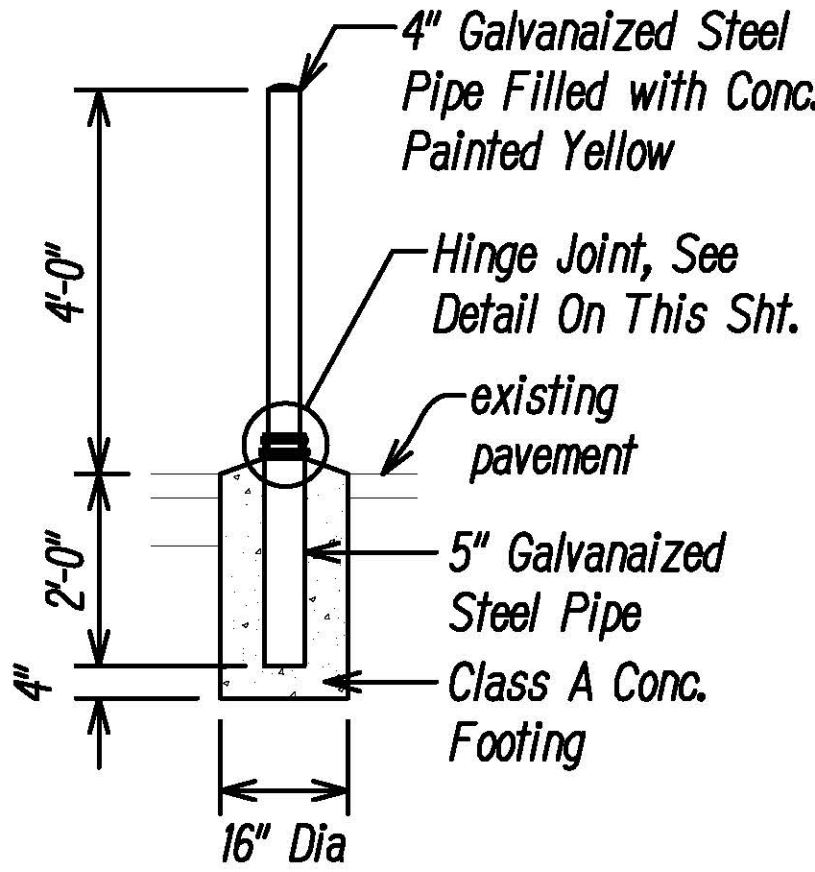
BOLLARD DETAIL
SCALE: 1/2"=1'-0"



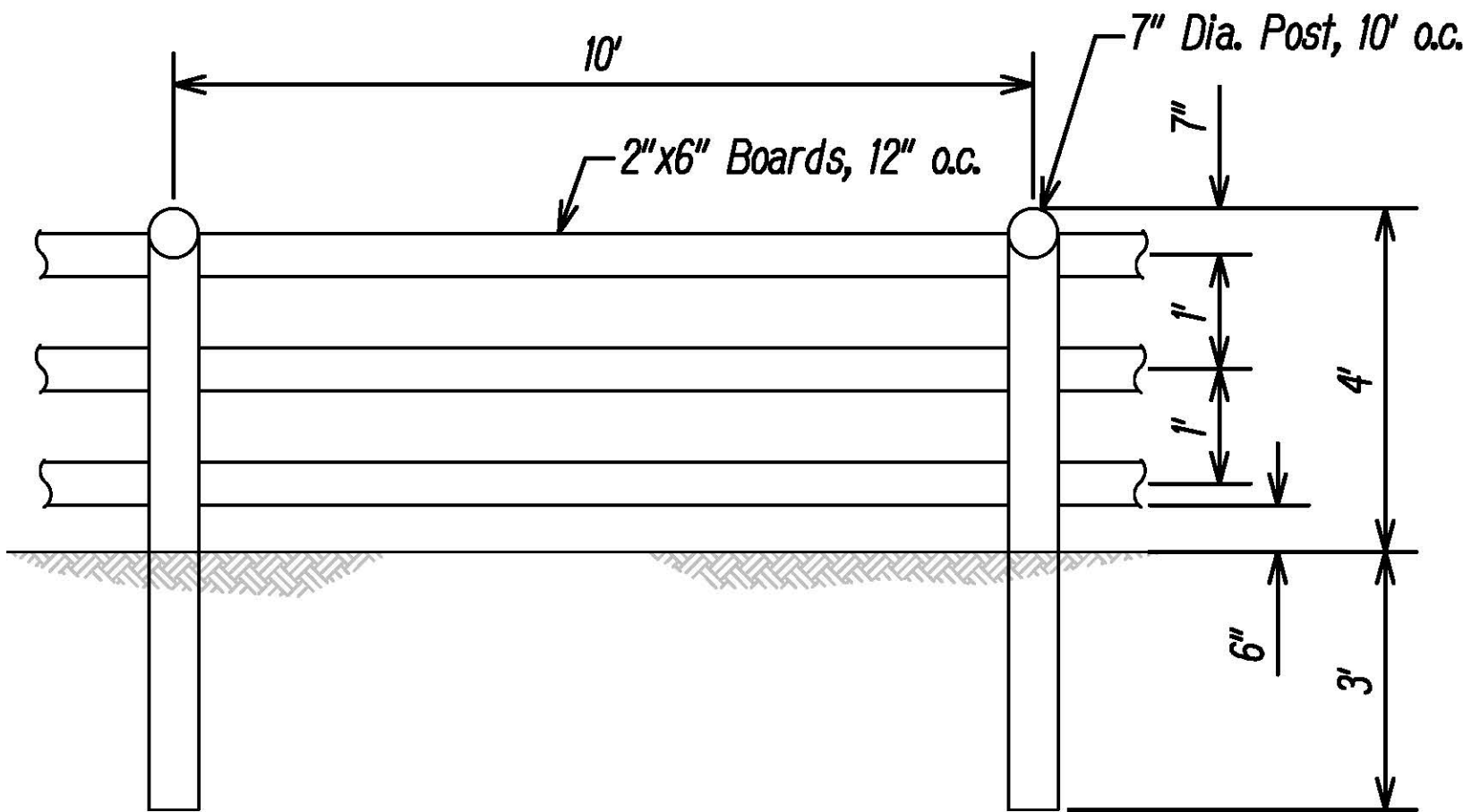
HIGH TENSILE HINGE JOINT FENCE DETAIL
Scale: 1"=2'



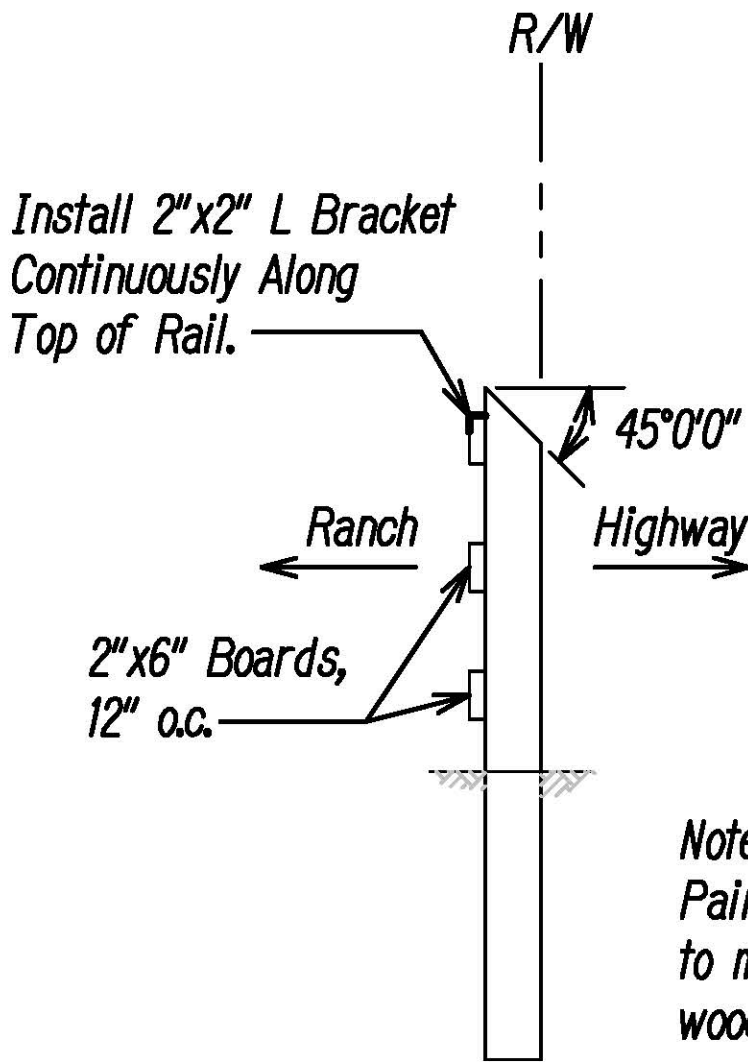
SECTION



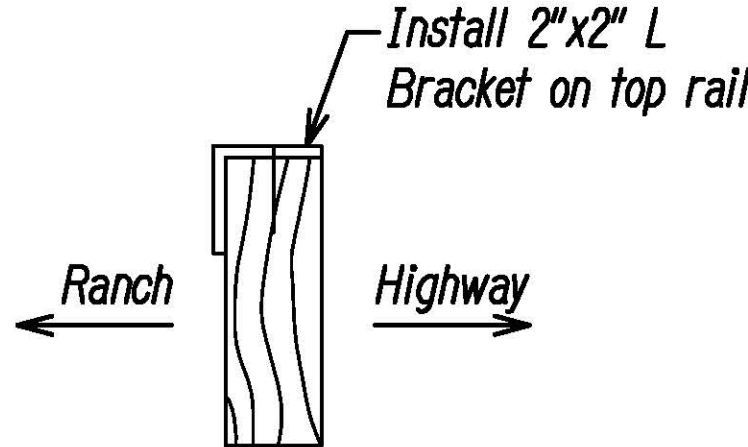
FOLDING BOLLARD DETAIL
SCALE: 1/2"=1'-0"



ELEVATION



SECTION

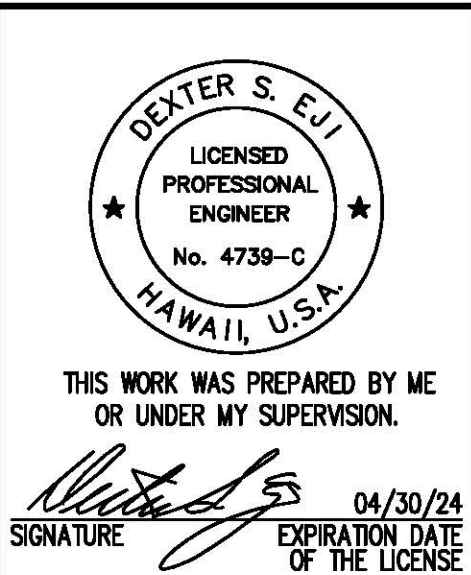


PLANK DETAIL

Note:
Paint fence white
to match existing
wood fence.

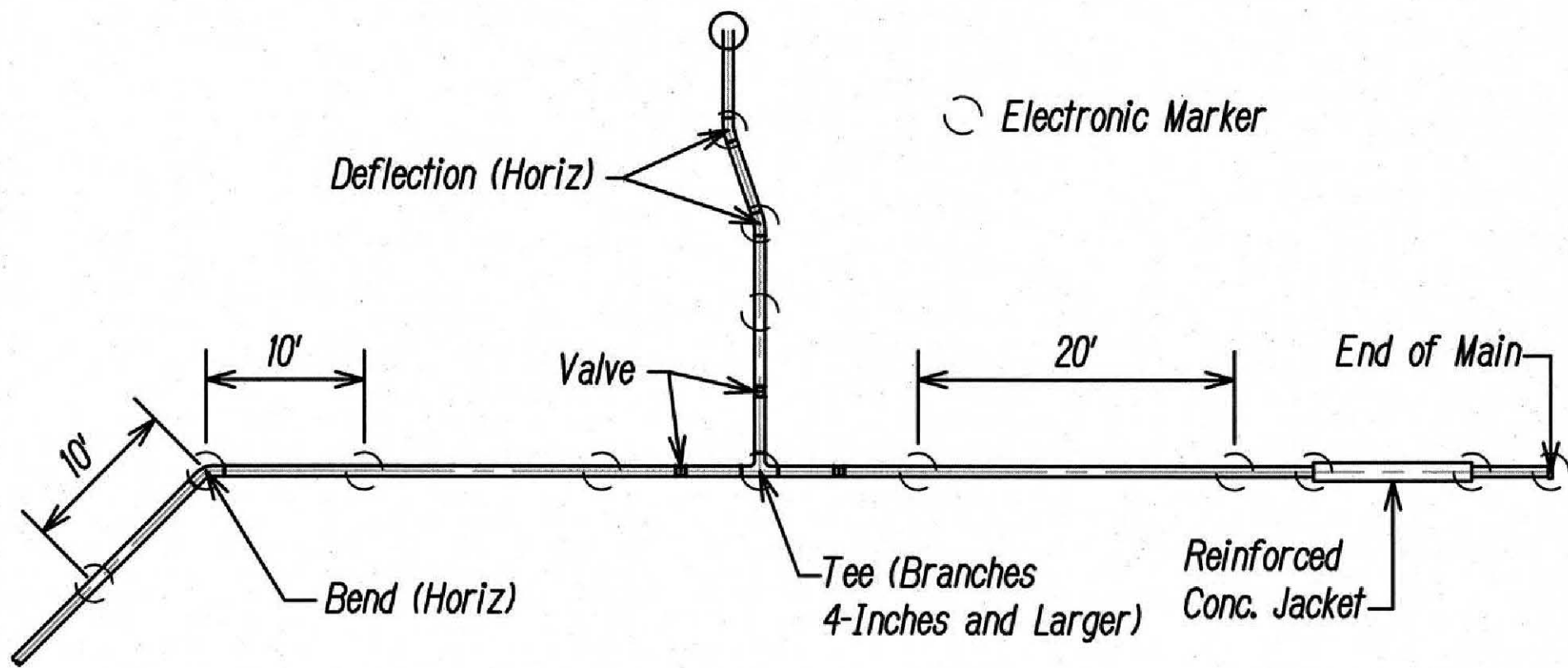
WOODEN FENCE DETAIL
Scale: 1"=2'

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

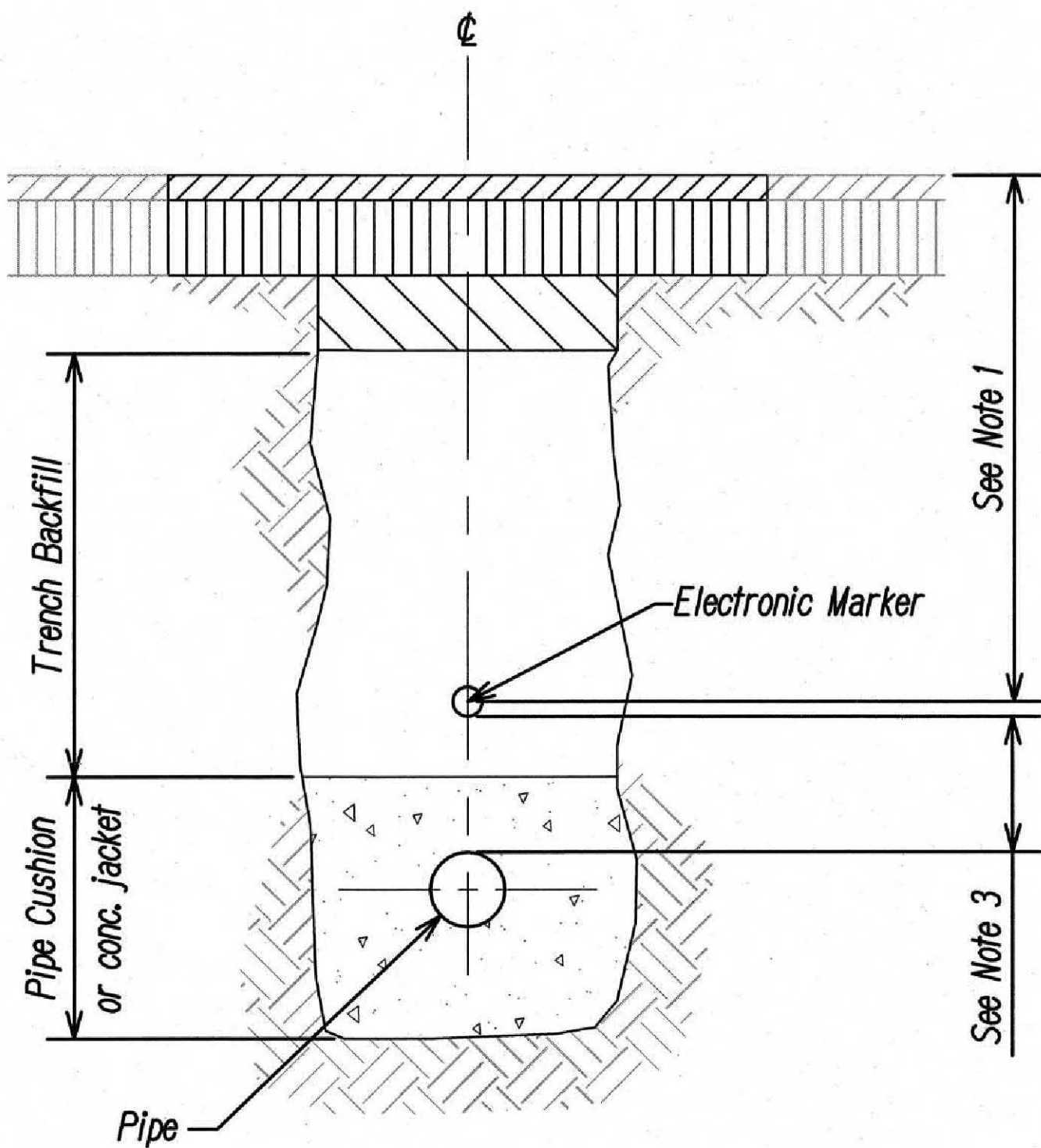


9/1/23	ADDENDUM 2 Revised Fence Detail
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
MISCELLANEOUS DETAILS	
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: As Shown	Date: December 2022
SHEET No. C-20 OF 32 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	55	231



PLAN VIEW

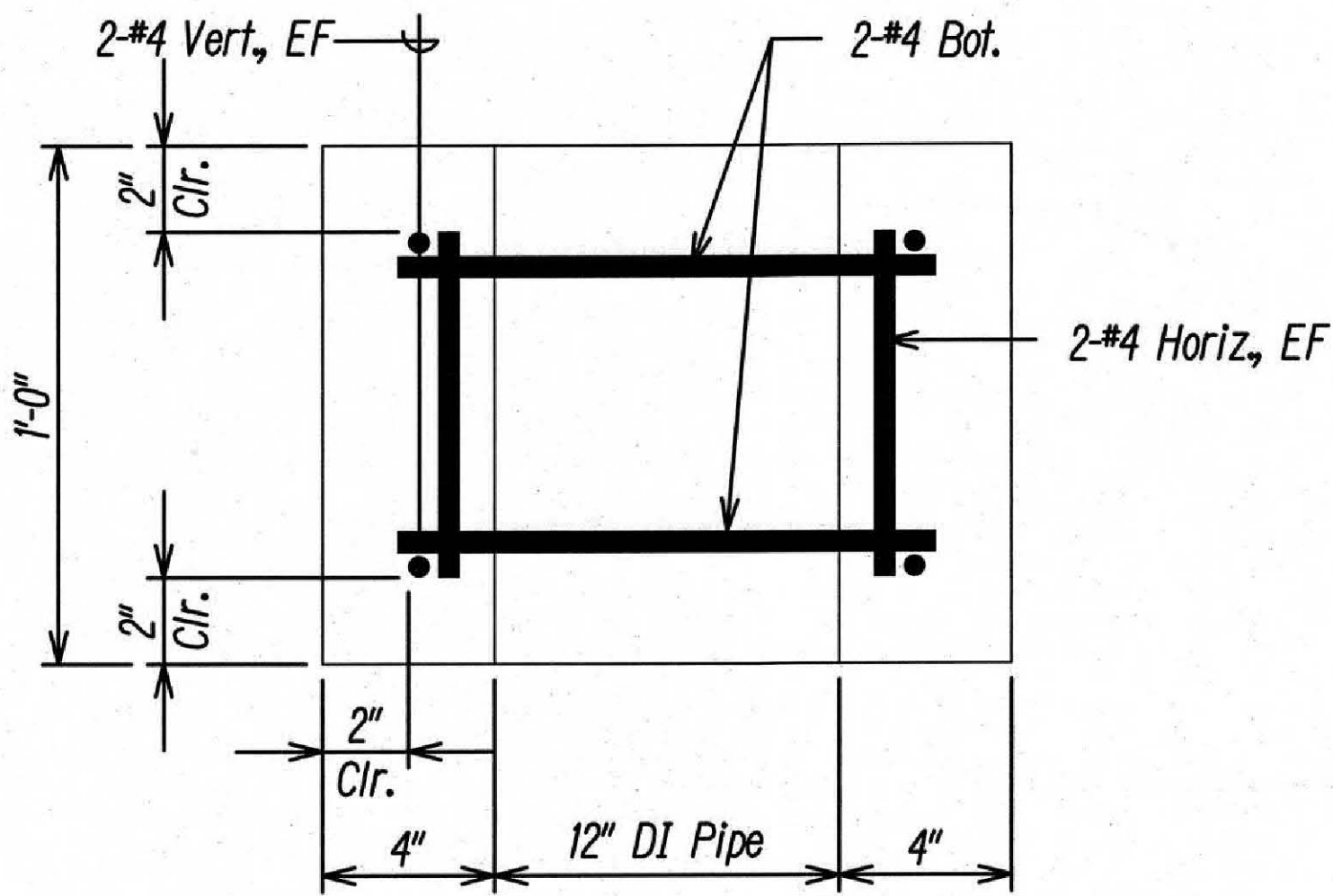


SECTION VIEW

TYPICAL ELECTRONIC MARKER INSTALLATION

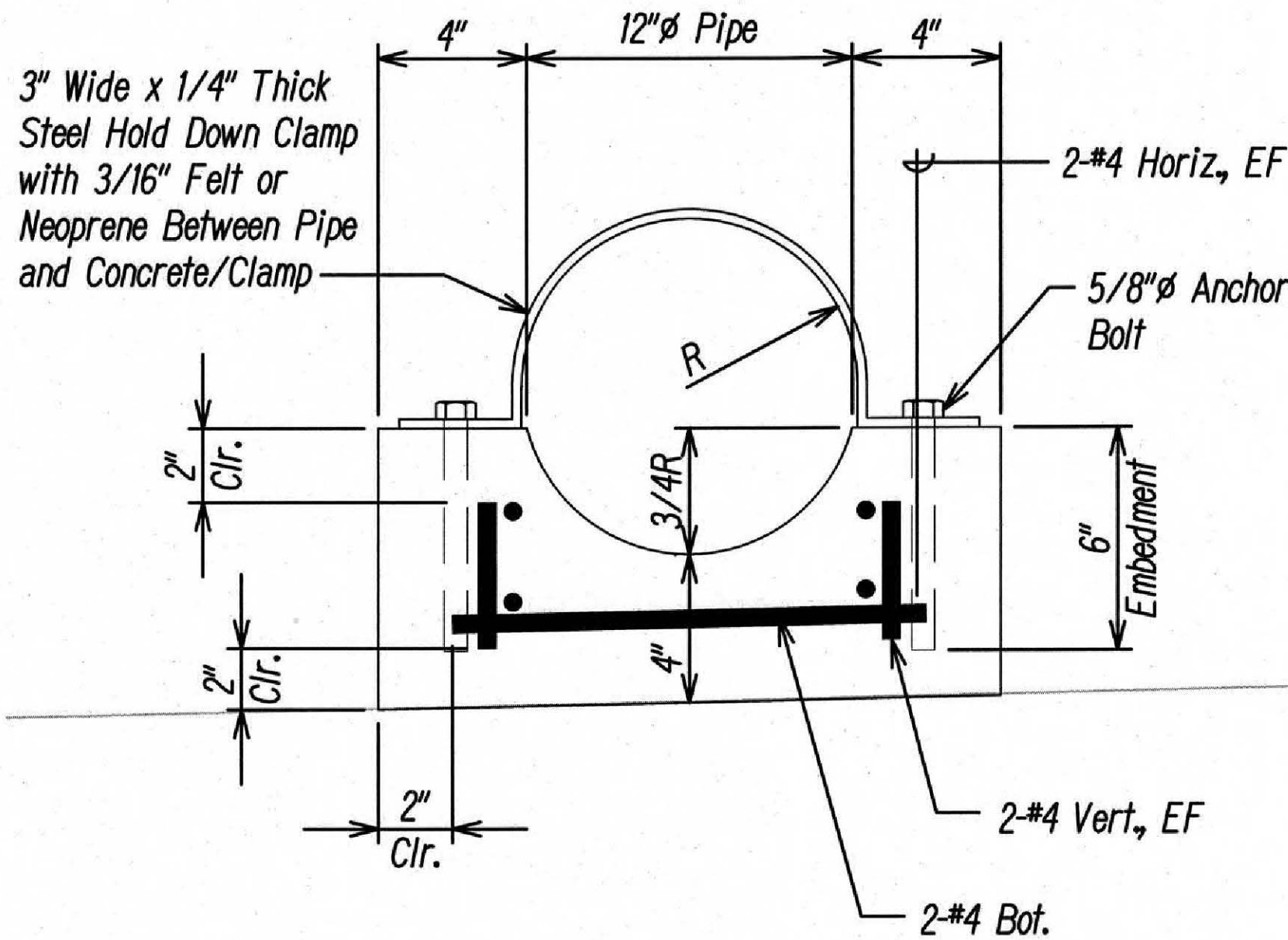
Not to Scale

- Note:
1. Install electronic marker over centerline of pipe at a minimum depth of 2 feet and a maximum depth of 3 feet from finish grade.
 2. Install trench backfill and pipe cushion material in accordance to the plans and specifications.
 3. Install electronic marker at a minimum clearance of 6-inches above the pipe or concrete jacket.



PIPE SUPPORT PLAN

Scale: 3" = 1'-0"



PIPE SUPPORT SECTION

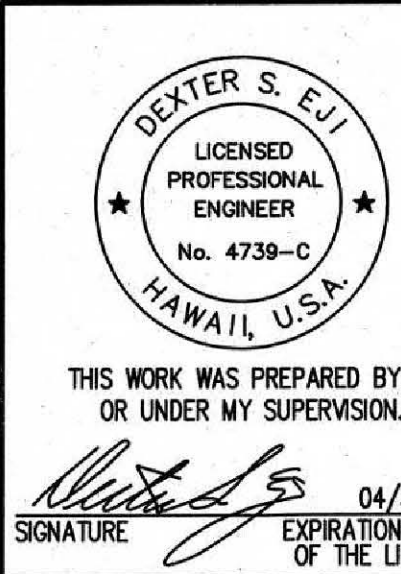
Scale: 3" = 1'-0"

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

Approved:

[Signature]
 Manager and Chief Engineer, BWS*
 (For Work Affecting BWS Facilities in
 City/State R/W and BWS Easements Only)

8/7/2023
 Date

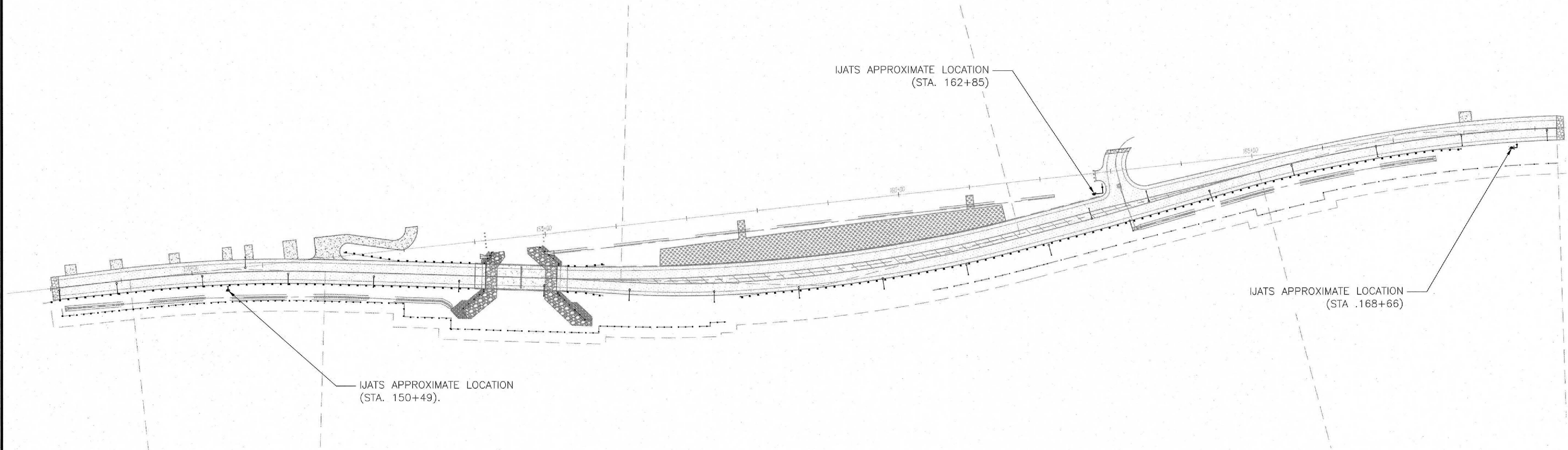


9/1/23	ADDENDUM 2 BWS SIGNATURE
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION PIPE SUPPORT DETAIL KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS VICINITY OF LANIAKEA BEACH (MP 3.06 TO MP 3.54) Project No. 83B-01-09 Scale: As Shown Date: December 2022 SHEET No. C-22 OF 32 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	56	231

NOTES:

1. ALL TEST STATIONS TO BE LOCATED BEHIND NEAREST CURB AND WITHIN 5 FT OF FIRE HYDRANT WHEN AVAILABLE.
2. ALL TEST STATIONS TO BE LOCATED IN AREAS NOT SUBJECT TO VEHICULAR TRAFFIC, SUCH AS SIDEWALKS.
3. IJTS STATIONING TAKEN FROM INSULATING JOINT.
4. ELECTRICALLY ISOLATE ALL METALLIC LATERAL PIPING (INCLUDING ARVs) FROM PROJECT PIPELINES. IF METALLIC LATERAL PIPING IS NOT PROPERLY ISOLATED FROM THE PROJECT PIPELINES, THEN THE CATHODIC PROTECTION SYSTEM COULD BE PREMATURELY DEPLETED.
5. THE CATHODIC PROTECTION SYSTEM DESIGN IS DEPENDENT ON THE DIP HAVING A BONDED DIELECTRIC COATING PER THE BWS WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS VOLUME 3, DATED 2021. IF THE DIP DOES NOT HAVE A BONDED DIELECTRIC COATING, THEN THE CATHODIC PROTECTION SYSTEM COULD BE PREMATURELY DEPLETED.



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

APPROVED:

[Signature]
MANAGER AND CHIEF ENGINEERING, BWS*
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE
RIGHT OF WAY AND BWS EASMENT ONLY)
DATE 8/1/2023

TEST STATION LOCATION PLAN VIEW

SCALE: 5/32" = 1'-0"

V&A
1000 Broadway, Suite 320
Oakland, CA 94607
Tel. (510) 903-6600, Fax (510) 903-6601
Project No. 23-0049

Exp: 4/30/24
GLENN H WILLSON
LICENSED PROFESSIONAL ENGINEER
No. 11304-C
HAWAII, USA
[Signature]

9/1/23	ADD	Addendum 2 BWS Signature
DATE		REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

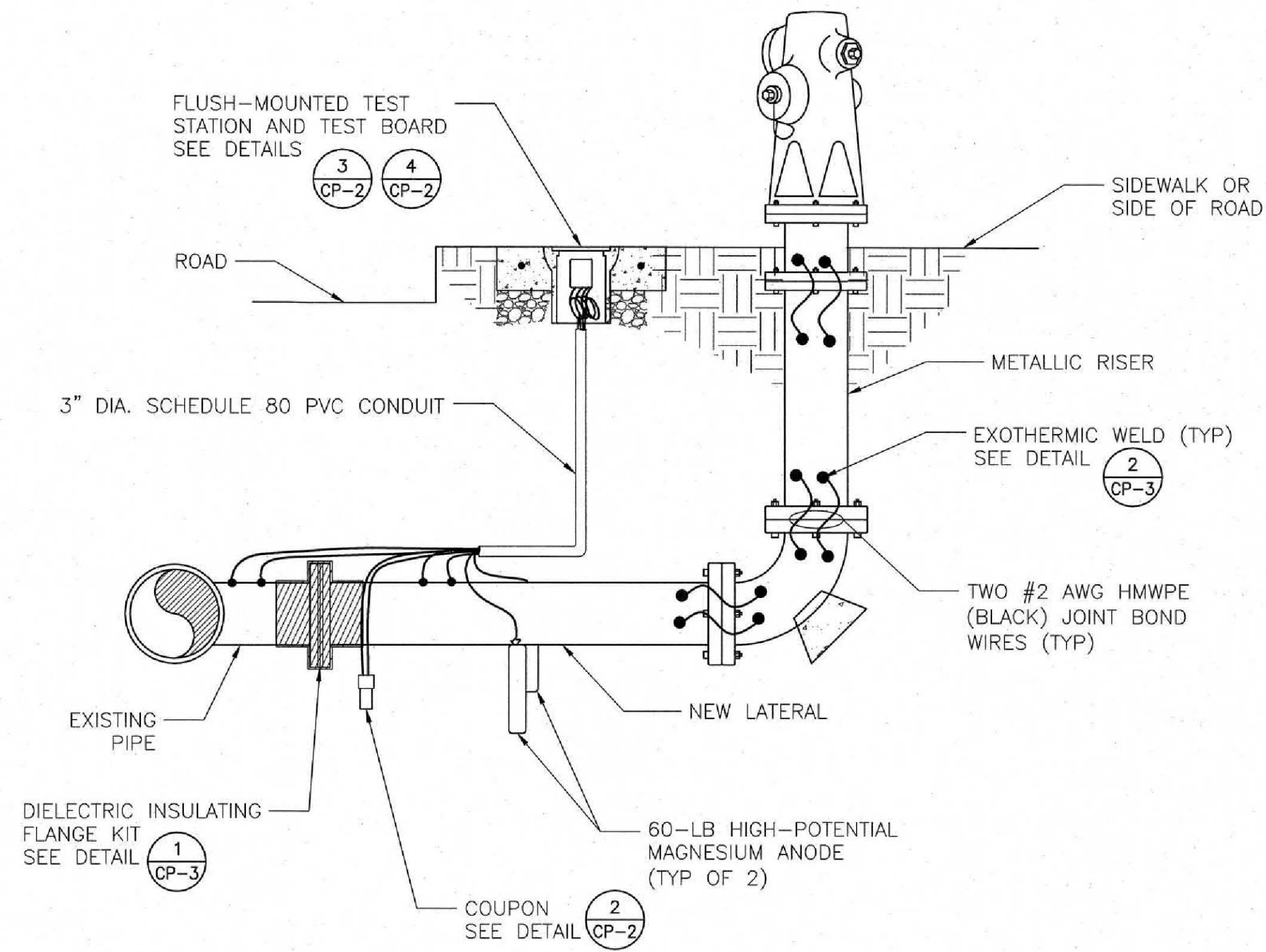
CATHODIC PROTECTION SITE PLAN
CP-1

KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS
Vicinity of Laniakoa Beach (MP 306 to MP 354)
Project No. 83B-01-09

Scale: As Shown Date: May 2023

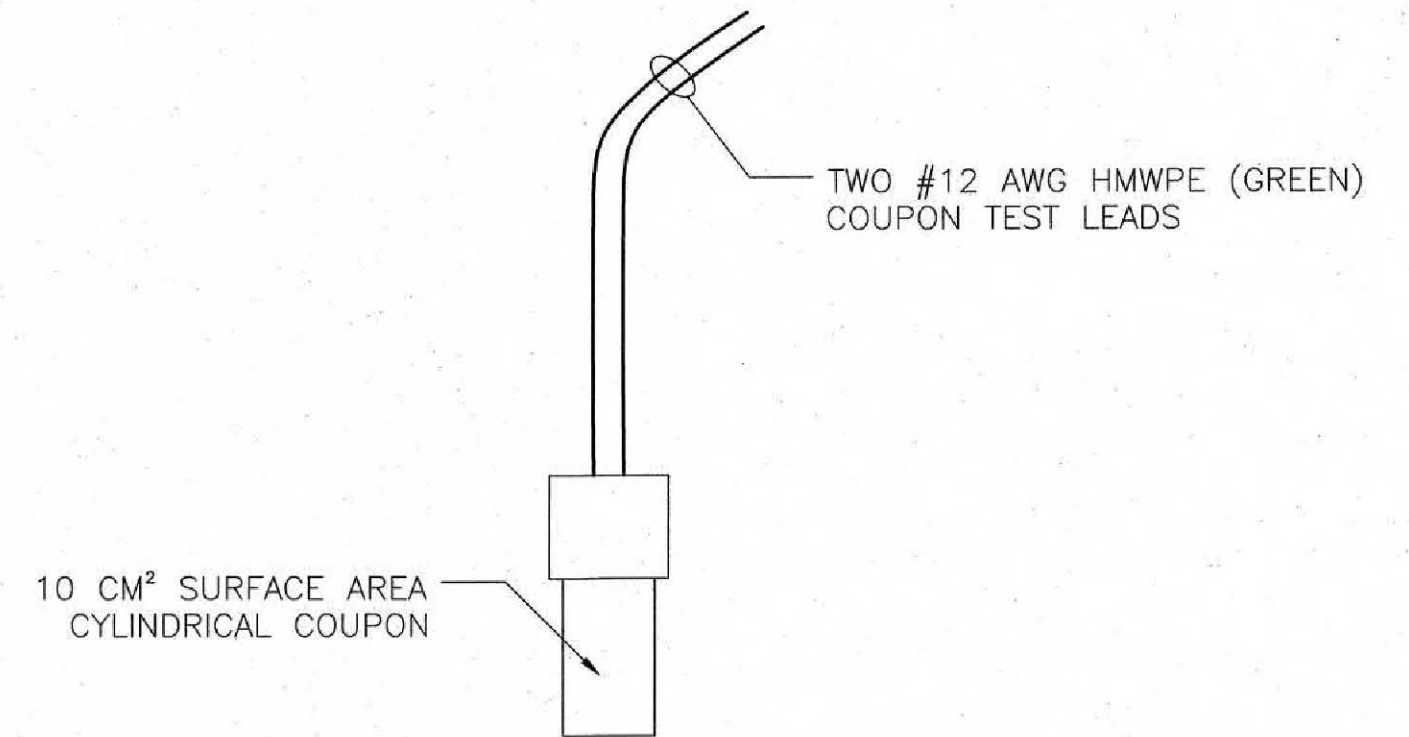
SHEET No. C-23 OF 32 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	57	231



NOTES:

1. NUMBER OF FLANGES MAY VARY. BOND TWO #2 AWG HMWPE (BLACK) JOINT BOND WIRES ACROSS ALL FLANGES.
2. ISOLATE EXISTING PIPE FROM NEW FIRE HYDRANT LATERAL WITH DIELECTRIC INSULATING FLANGE KIT.
3. COAT THE EXTERIOR OF THE INSULATING FLANGE WITH PETROLATUM WAX TAPE FOR A MINIMUM OF 3 FEET BEYOND THE GASKET WITH A MINIMUM OF 6 INCHES OF OVERLAP WITH THE FACTORY-APPLIED COATING ON THE PIPELINE.
4. PLACE TEST STATION WITHIN 5' OF FIRE HYDRANT.
5. TOP OF ANODE SHALL BE ALIGNED WITH THE BOTTOM OF THE PROJECT PIPELINE AND SPACED 5' FROM THE PIPELINE.
6. COUPON SHALL BE INSTALLED 4" TO 12" FROM PROJECT PIPELINE.



NOTE:

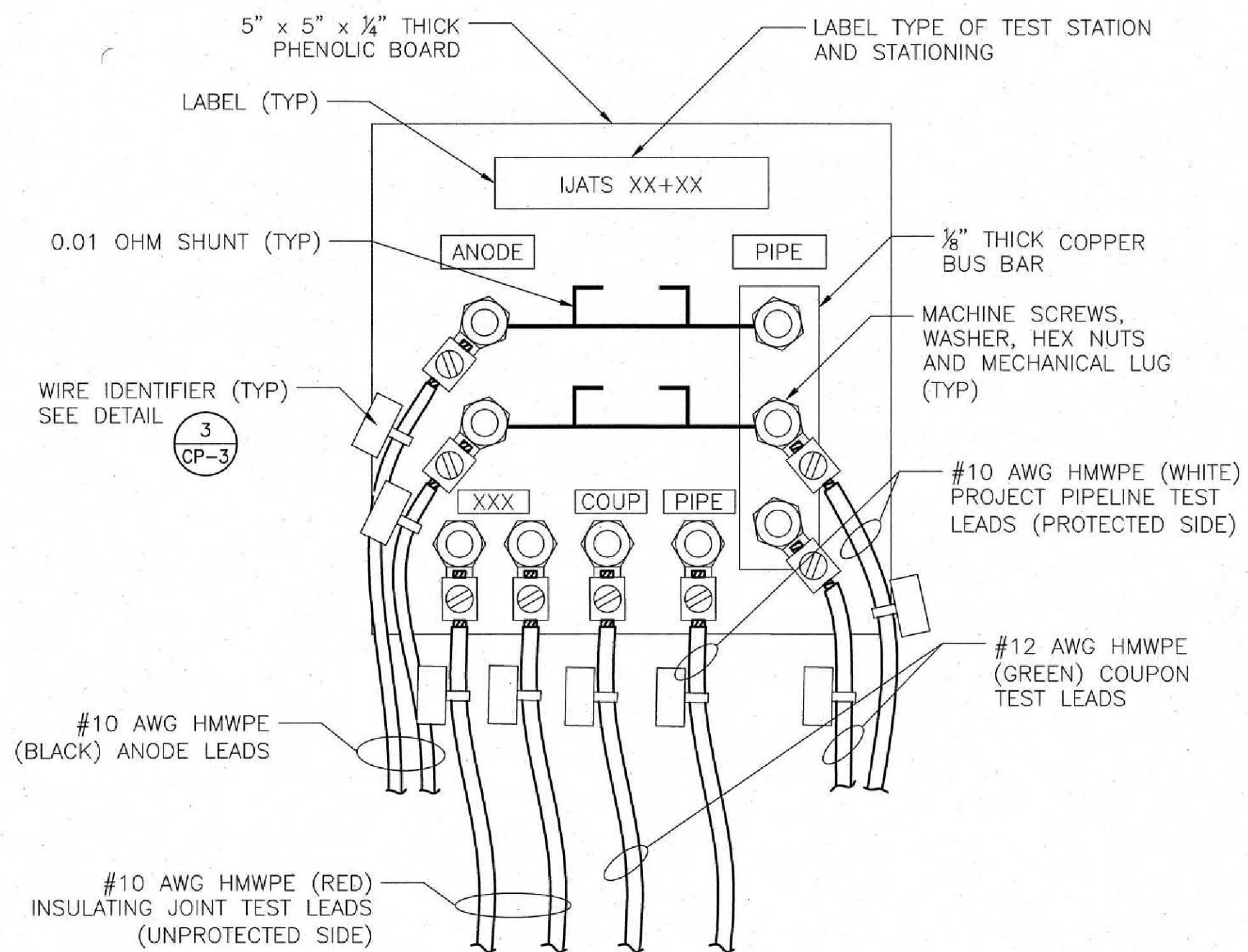
COUPON MATERIAL SHALL BE THE SAME AS THE PIPELINE.

ISOLATED FIRE HYDRANT
SCALE: NTS

1
CP-2

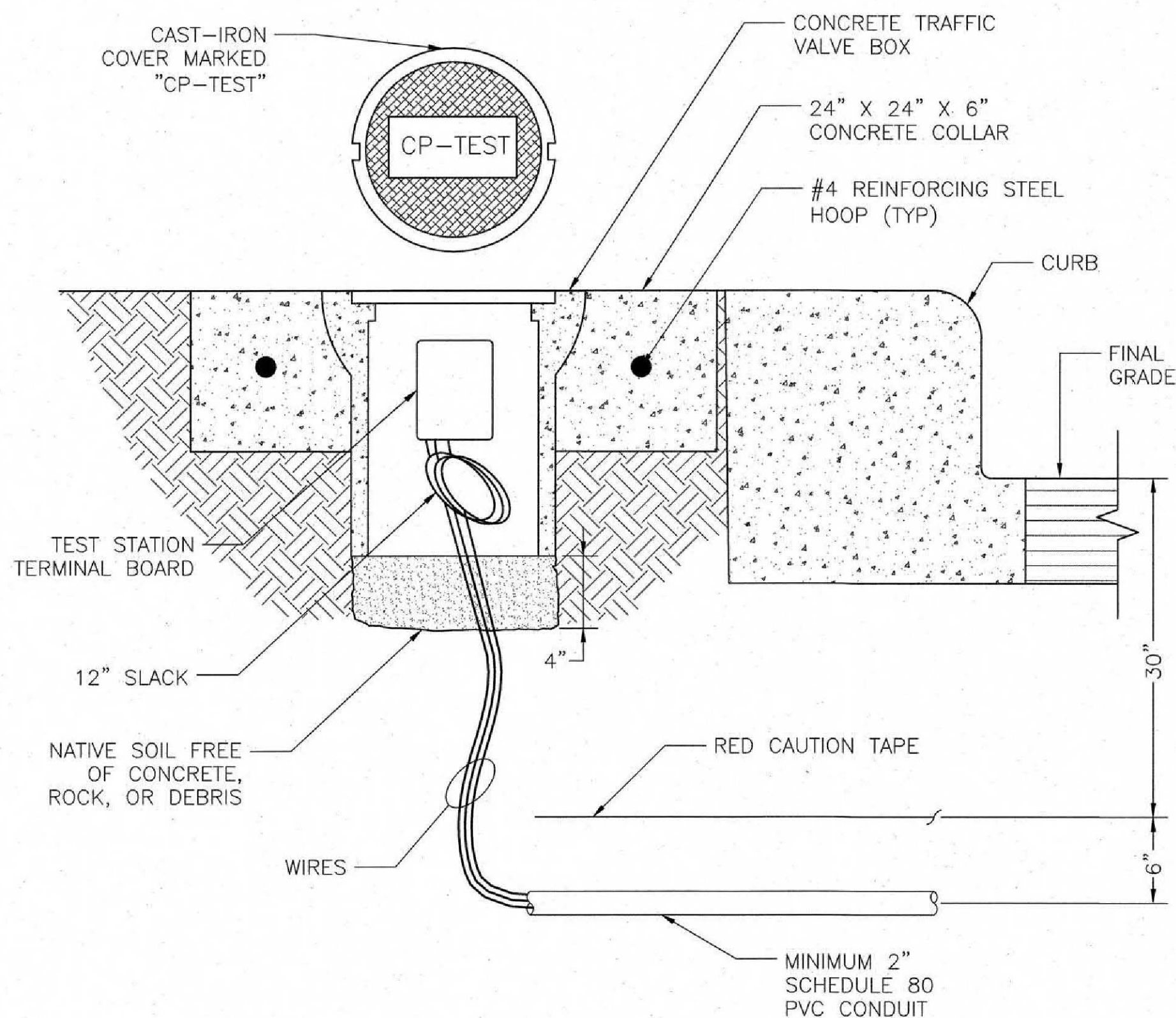
COUPON DETAIL
SCALE: NTS

2
CP-2



INSULATING JOINT ANODE TEST STATION (IJATS)
TERMINAL BOARD DETAIL
SCALE: NTS

3
CP-2



FLUSH-MOUNTED TEST STATION DETAIL
SCALE: NTS

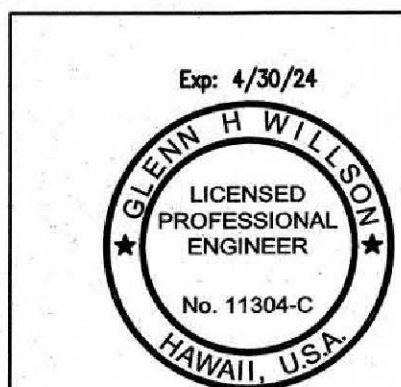
4
CP-2

APPROVED:

MANAGER AND CHIEF ENGINEERING, BWS
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE RIGHT OF WAY AND BWS EASMENT ONLY)
DATE: 8/7/2023

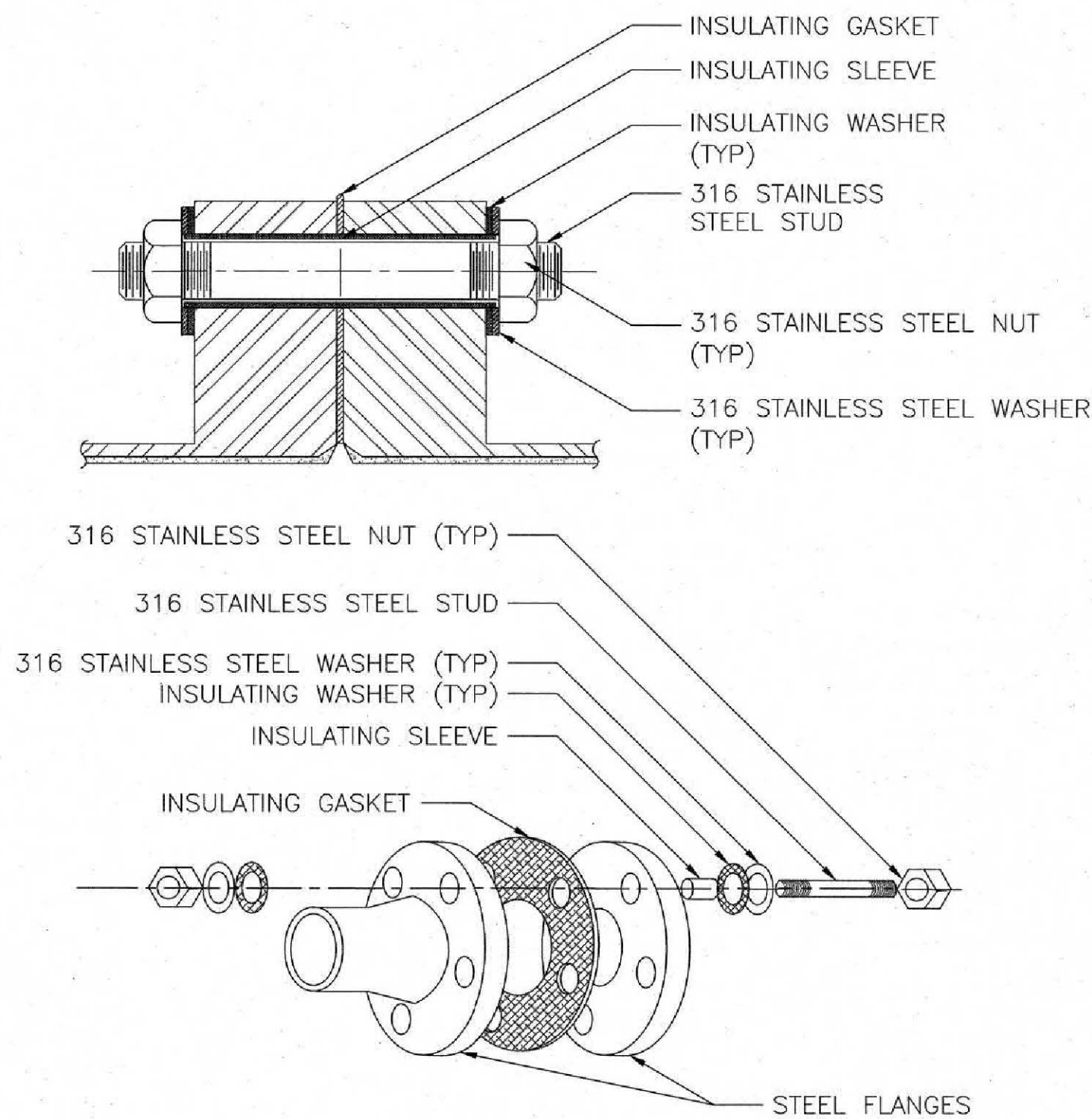
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTEBOOK	
No.	

V&A
1000 Broadway, Suite 320
Oakland, CA 94607
Tel. (510) 903-6600, Fax (510) 903-6601
Project No. 23-0049



9/1/23	ADDENDUM 2 BWS SIGNATURE
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION CATHODIC PROTECTION DETAILS (1 OF 2) CP-2 KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09 Scale: As Shown Date: May 2023	
SHEET No. C-24 OF 32 SHEETS	

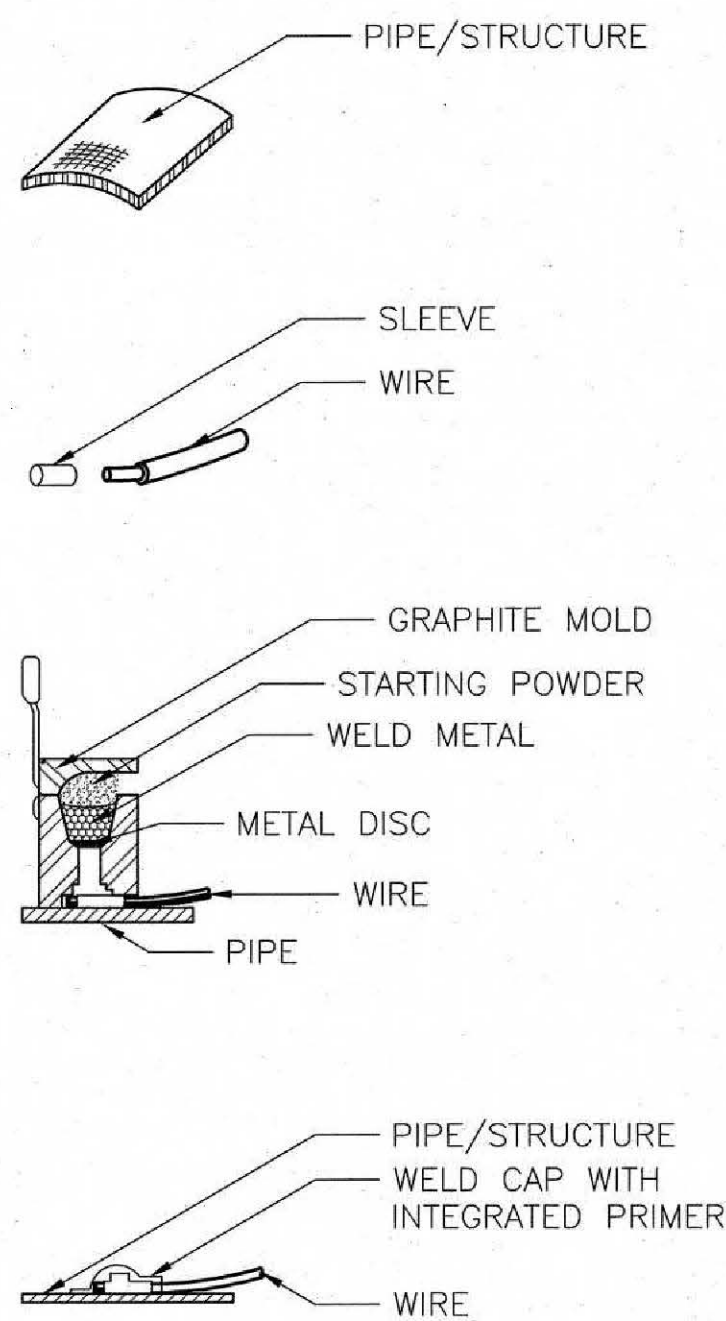
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	58	231



NOTE:
PETROLATUM WAX TAPE NOT SHOWN

DIELECTRIC INSULATING FLANGE KIT
DETAIL WITH SECTION VIEW
SCALE: NTS

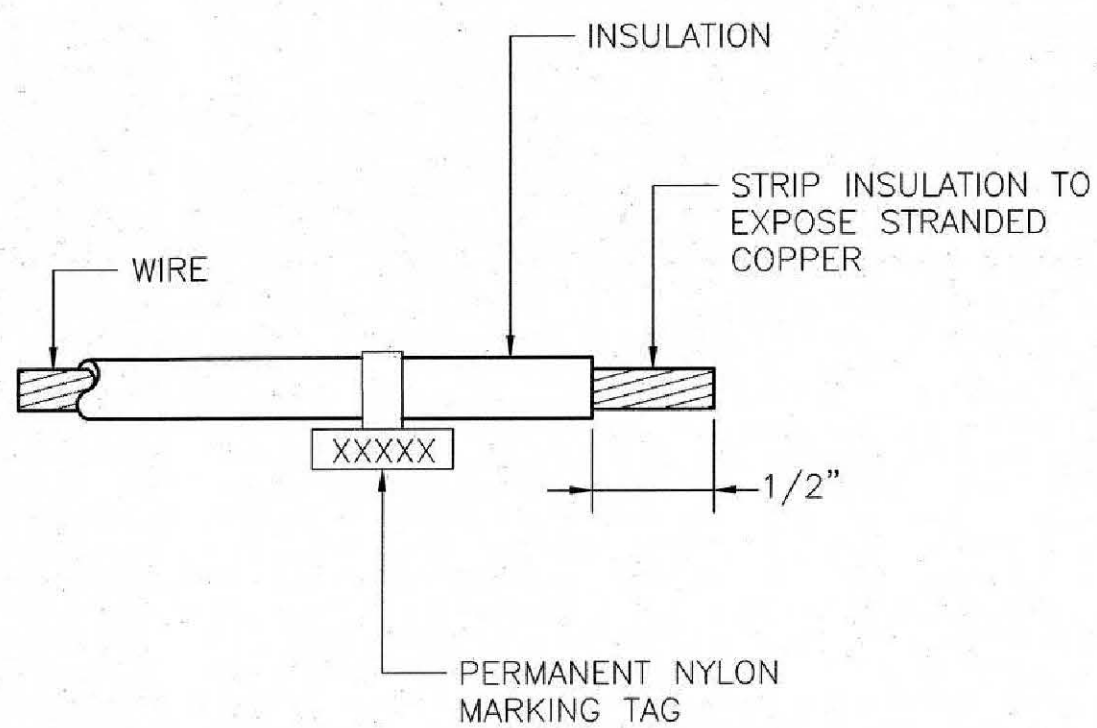
1
CP-3



1. ALL WELDS SHALL BE 6" APART AT MINIMUM.
2. GRIND PIPE/STRUCTURE TO BARE METAL AND CLEAN SURFACE. GROUND AREA SHALL BE LARGE ENOUGH FOR EXOTHERMIC WELD AND SMALL ENOUGH TO BE COMPLETELY COVERED BY WELD CAP.
3. STRIP INSULATION FROM WIRE AND ATTACH SLEEVE.
4. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR. IGNITE WITH FLINT GUN. REMOVE SLAG FROM CONNECTION WITH CHIPPING HAMMER. TEST WELD WITH 22 OZ HAMMER.
5. COVER CONNECTION WITH WELD CAP WITH INTEGRATED PRIMER. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH COATING AND LINING MANUFACTURER'S RECOMMENDATIONS.

EXOTHERMIC WELD DETAIL FOR
DUCTILE IRON PIPE
SCALE: NTS

2
CP-3



WIRE IDENTIFIER SCHEDULE	
STRUCTURE	LABEL
12" WATER	12" W
6" WATER	6" W
GALVANIC ANODE	ANODE
COUPON	COUP

WIRE IDENTIFIER DETAIL
SCALE: NTS

3
CP-3

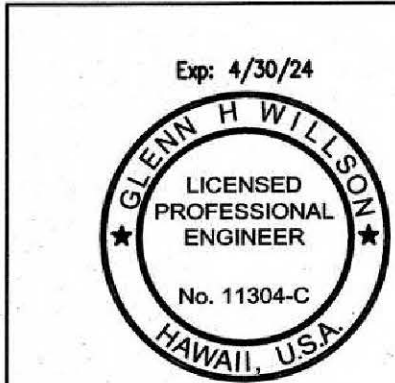
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

APPROVED:

[Signature]
MANAGER AND CHIEF ENGINEERING, BWS*
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE
RIGHT OF WAY AND BWS EASMENT ONLY)

8/7/2023
DATE

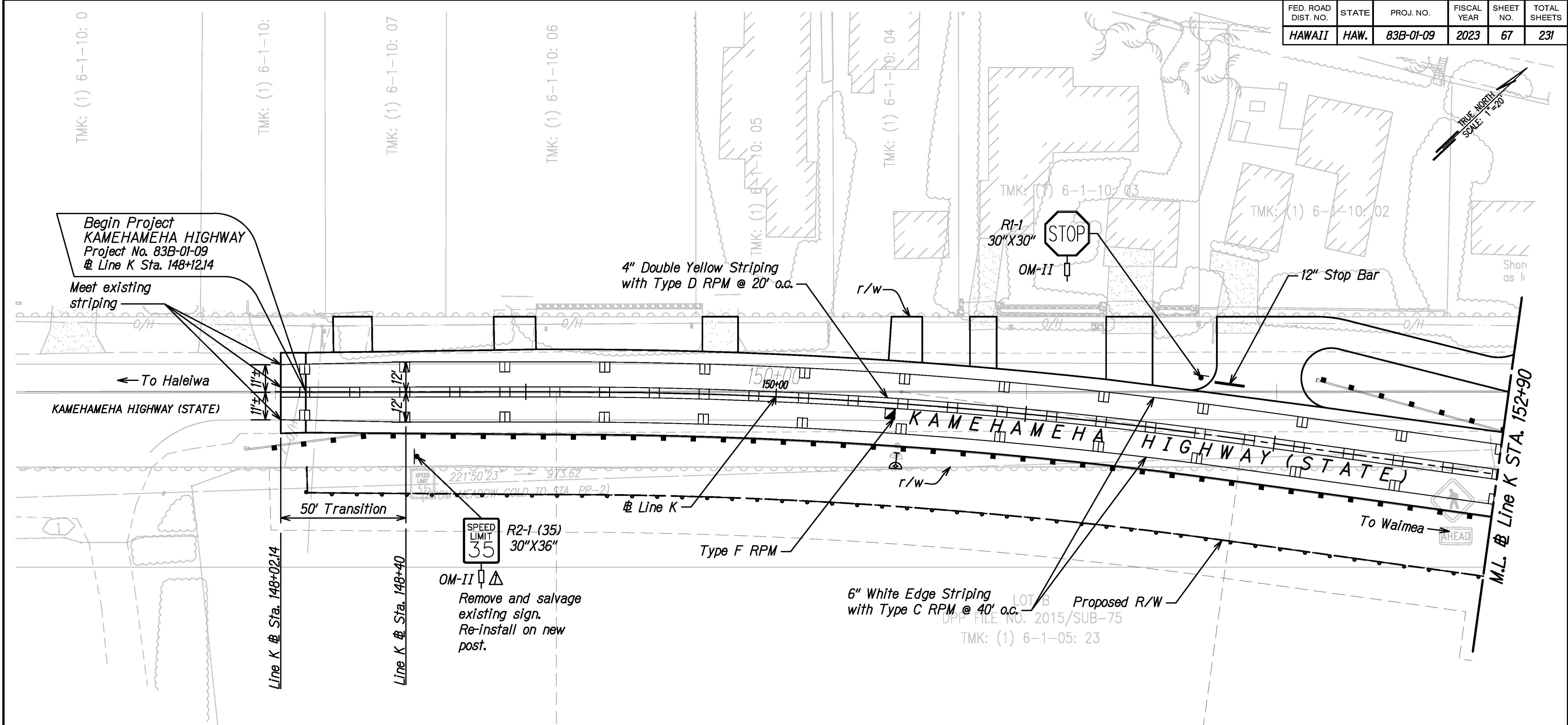
V&A
1000 Broadway, Suite 320
Oakland, CA 94607
Tel. (510) 903-6600, Fax (510) 903-6601
Project No. 23-0049



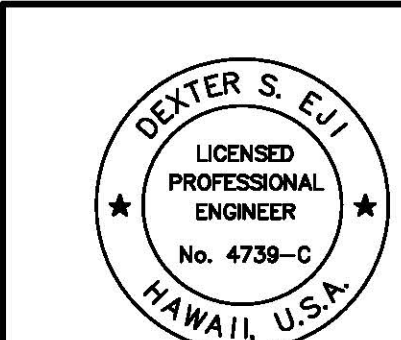
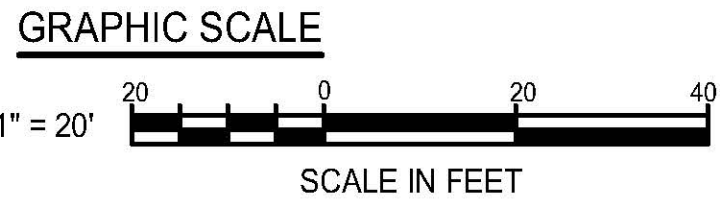
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9/1/23	ADDENDUM 2	Addendum 2 BWS Signature
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION CATHODIC PROTECTION DETAILS (2 OF 2) CP-3 KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakea Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09 Scale: As Shown Date: May 2023		
SHEET No. C-25 OF 32 SHEETS		

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	67	231



ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE: [Signature] EXPIRATION DATE OF THE LICENSE: 04/30/24

9/1/23	ADDENDUM 2 ADD TYPE-II OM
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

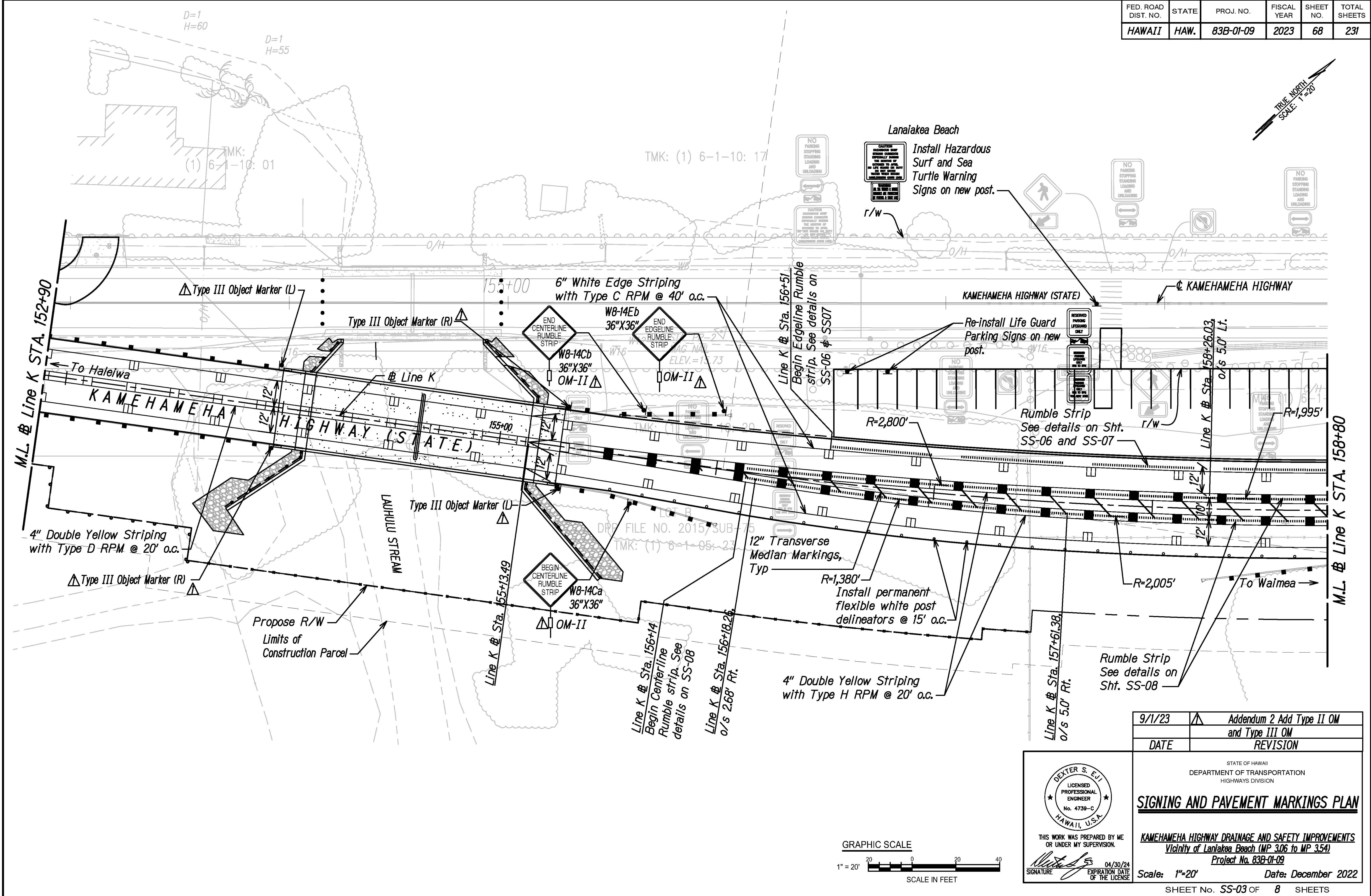
SIGNING AND PAVEMENT MARKINGS PLAN

KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS
Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54)
Project No. 83B-01-09

Scale: 1"=20' Date: December 2022

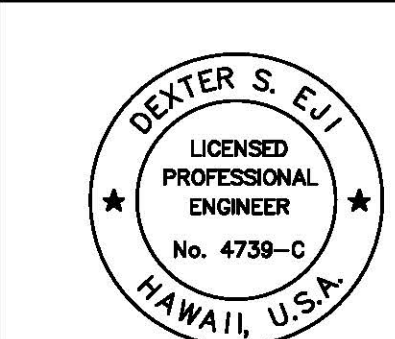
SHEET No. SS-02 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	68	231



QUANTITIES CHECKED BY	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	

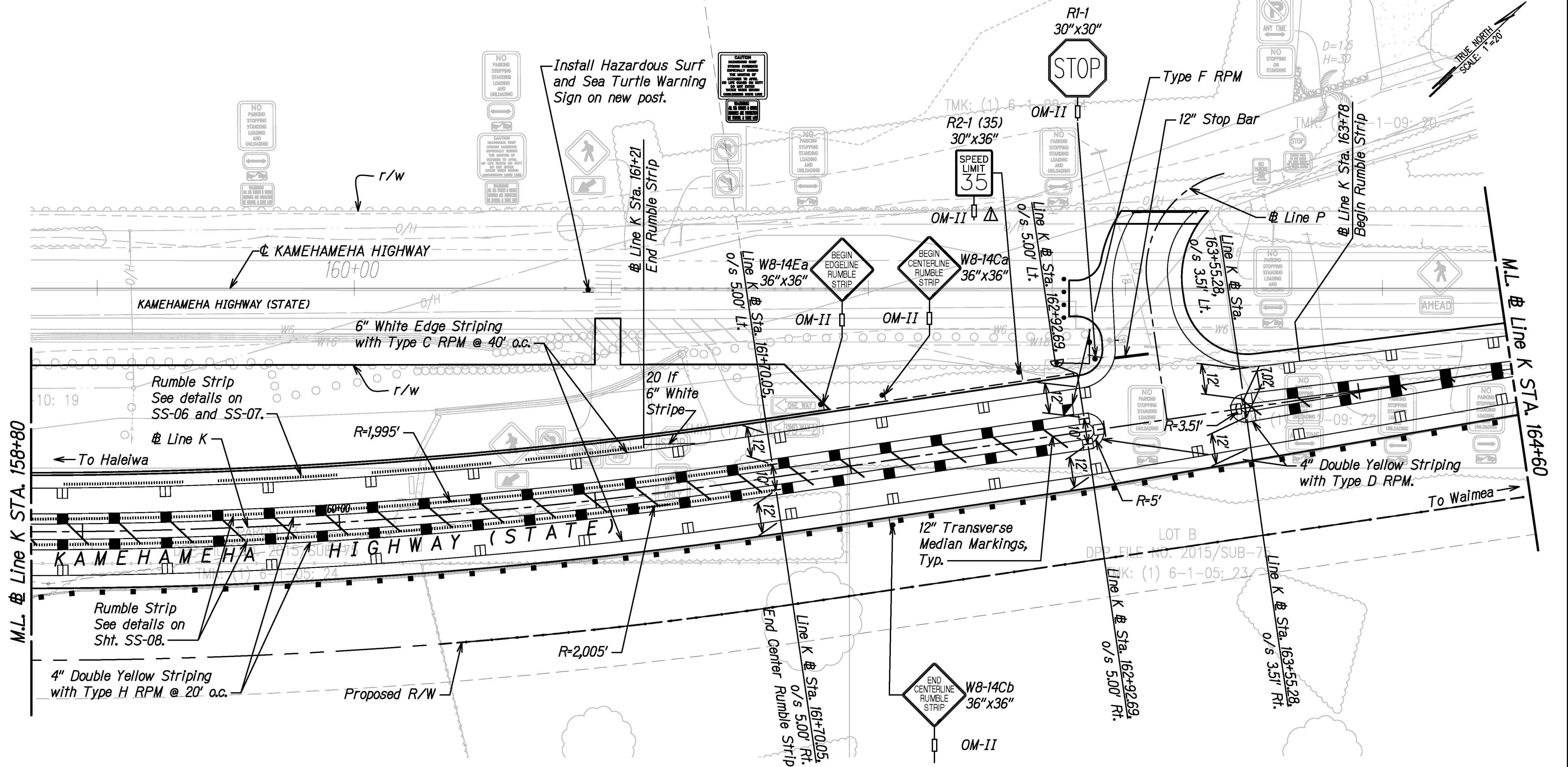
9/1/23	Addendum 2 Add Type II OM and Type III OM
DATE	REVISION



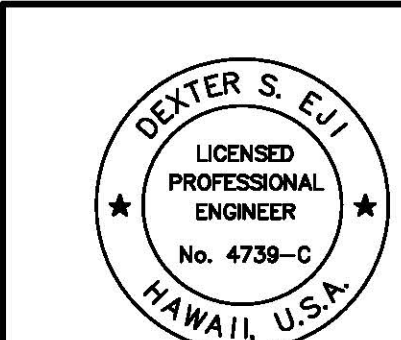
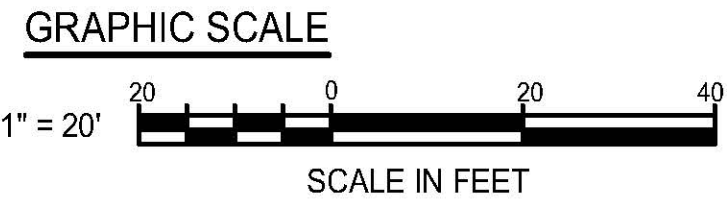
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE: [Signature]
EXPIRATION DATE OF THE LICENSE: 04/30/24

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
SIGNING AND PAVEMENT MARKINGS PLAN
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Lanaiakea Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09
Scale: 1"=20' Date: December 2022
SHEET No. SS-03 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	69	231



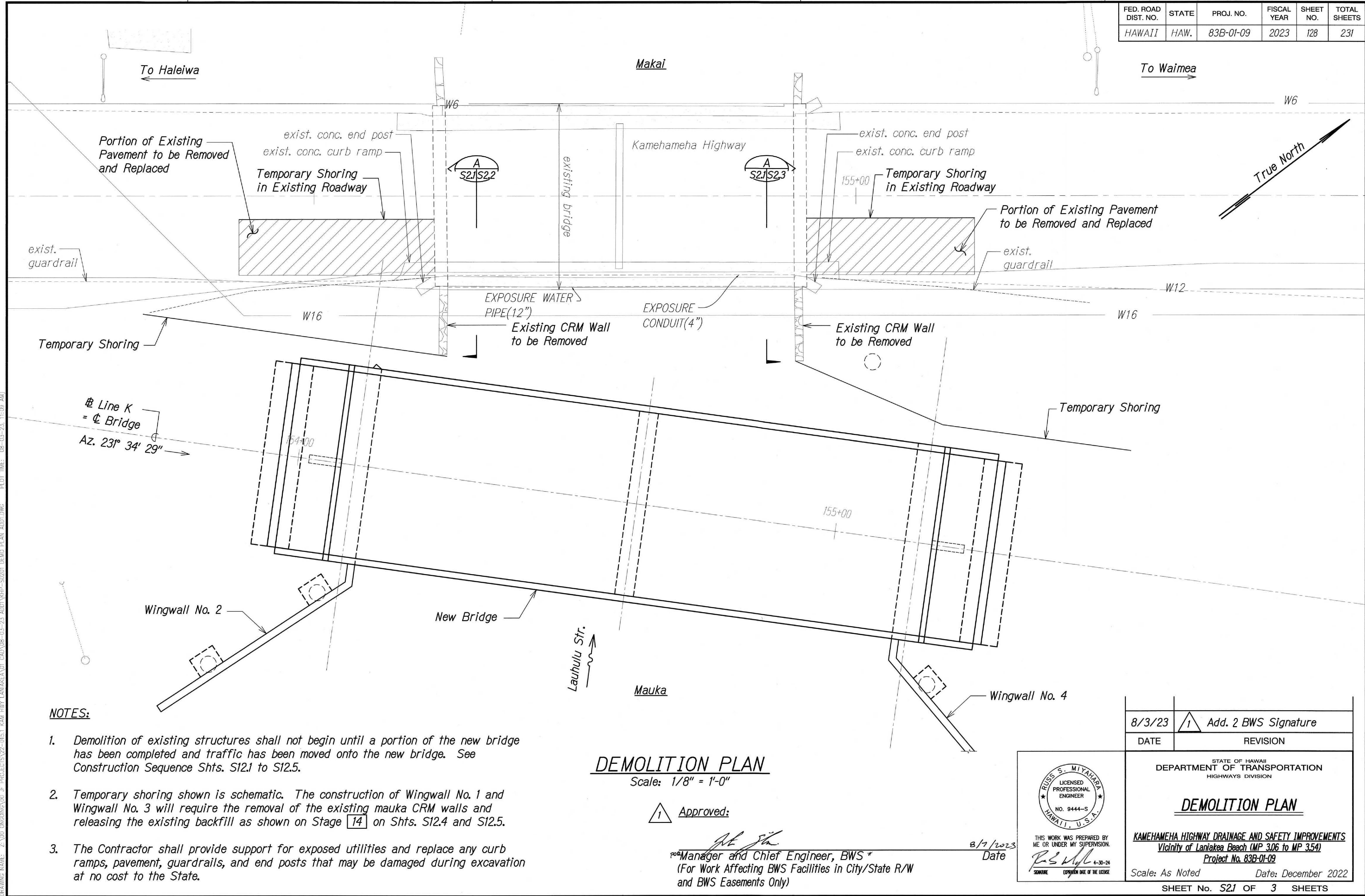
DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
NO.	_____



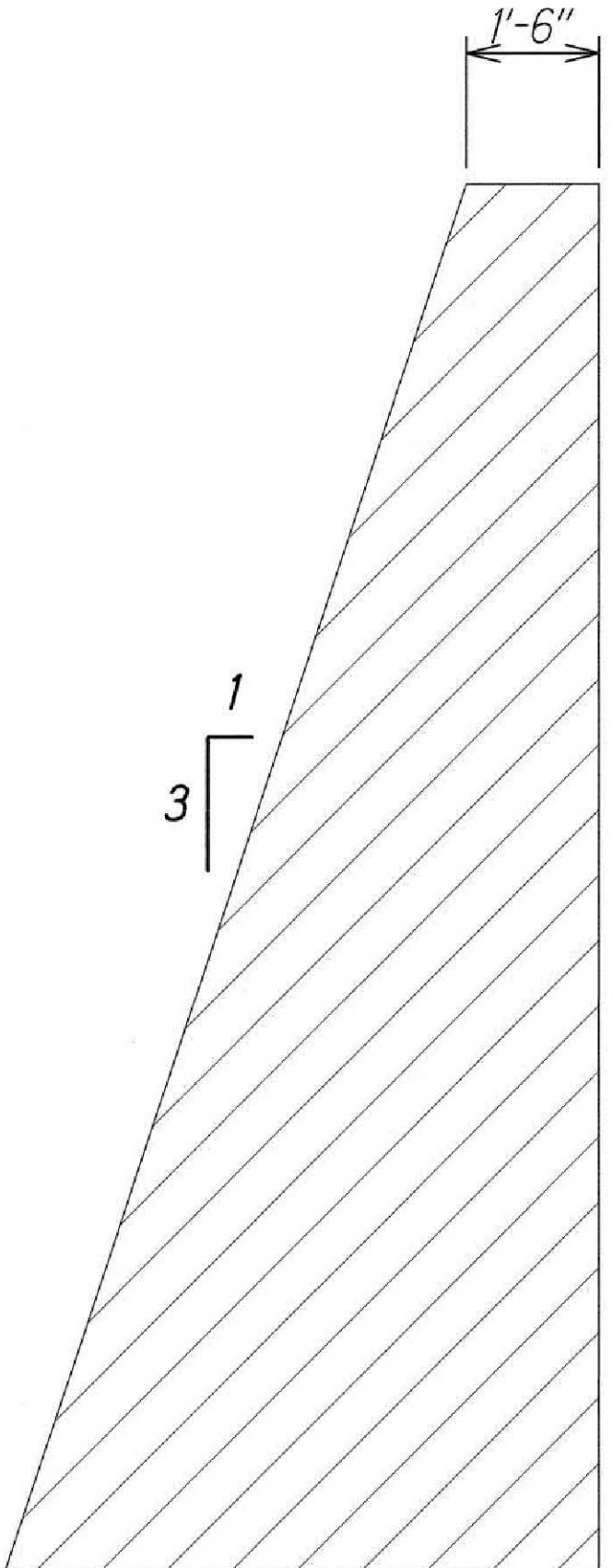
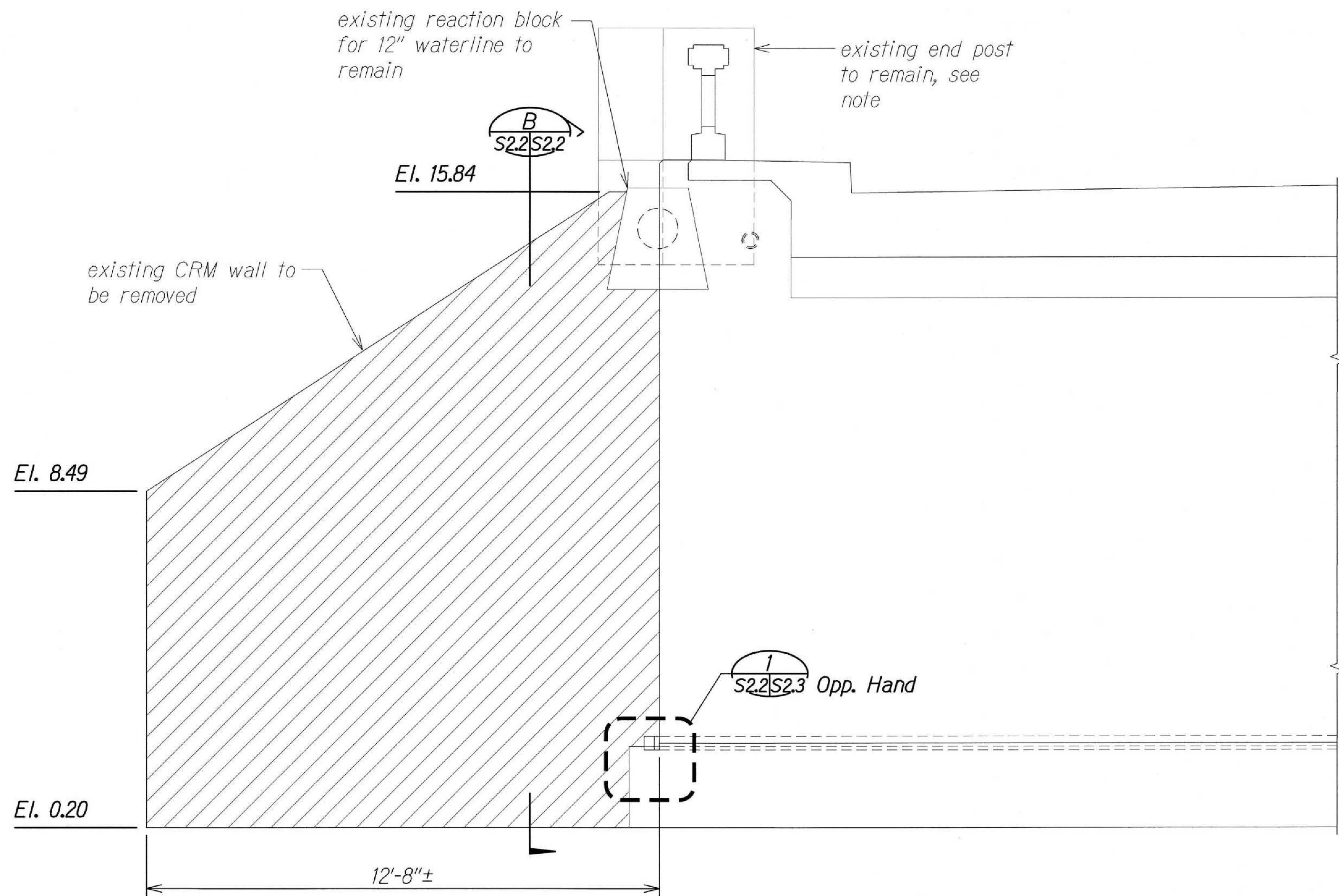
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
SIGNATURE: *[Signature]* 04/30/24
EXPIRATION DATE OF THE LICENSE

9/1/23	ADDENDUM 2 Add Type-II OM
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
SIGNING AND PAVEMENT MARKINGS PLAN	
KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Lanikaea Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09	
Scale: 1"=20'	Date: December 2022
SHEET No. SS-04 OF 8 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	128	231



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	129	231



HALEIWA DEMOLITION ELEVATION
Scale: 1/2" = 1'-0"
A
S2.1 S2.2

SECTION
Scale: 1/2" = 1'-0"
B
S2.2 S2.2

NOTE:

The Contractor shall take caution when excavating under the existing end post. The end post may not be properly supported by the abutment and any damage to the existing end post shall be avoided.

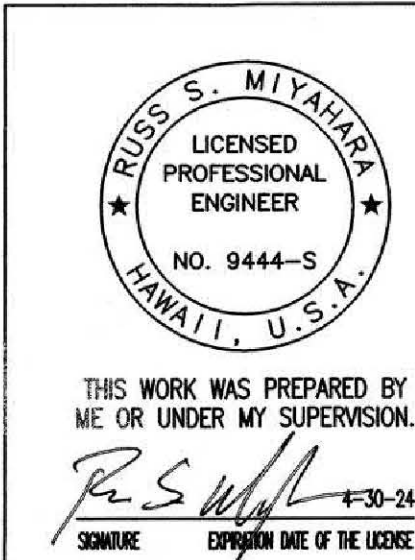
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: 2100 UNCLINGING OF PROJECTS S22-0151 KAW HWY LANIKAUAI CAD 08-03-23 ADD\KHP-S0202 DEMO SECT ADD.DWG PLOT TIME: 08-03-23, 11:08 AM

1 Approved:

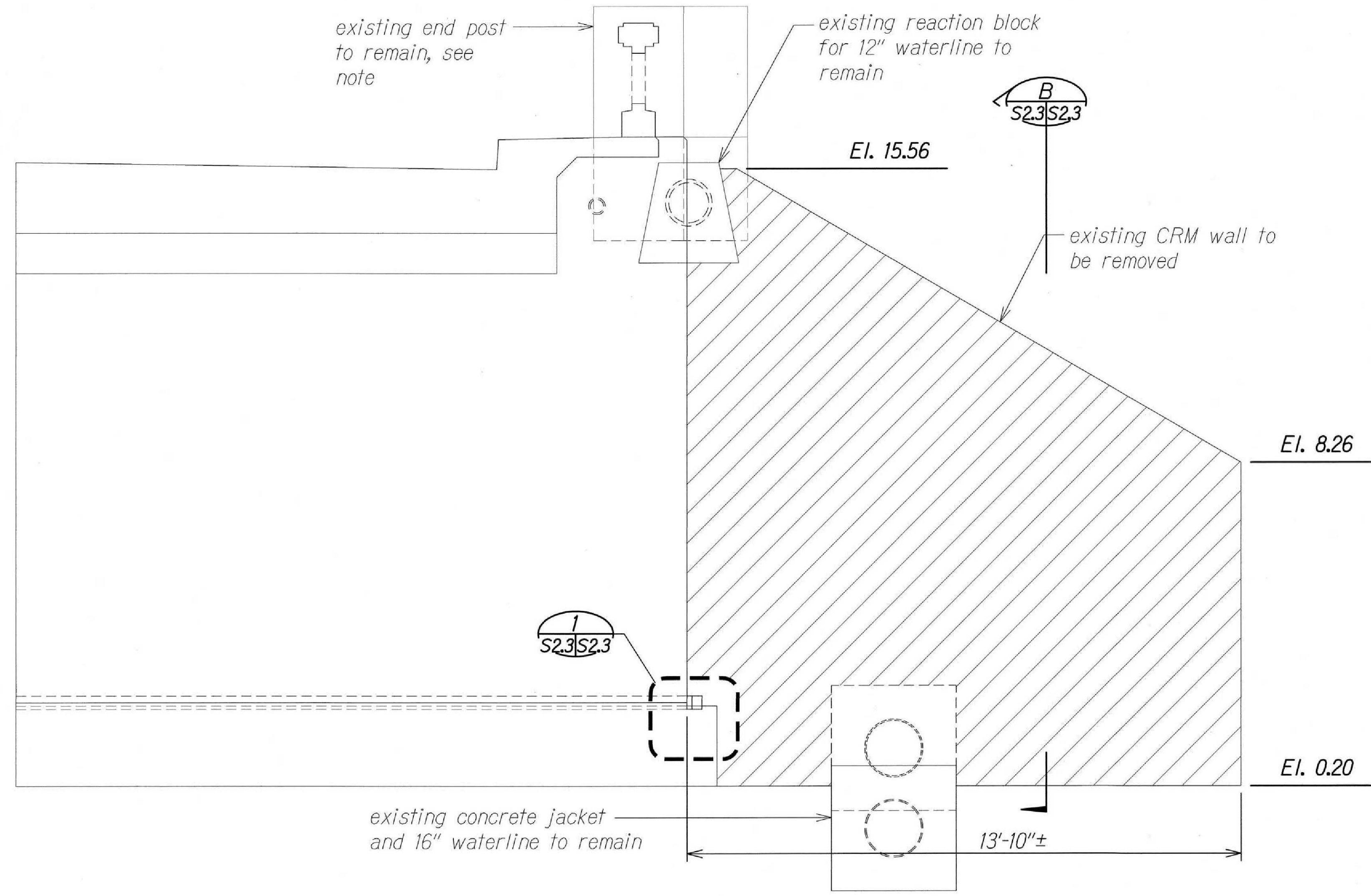
For Manager and Chief Engineer, BWS*
(For Work Affecting BWS Facilities in City/State R/W and BWS Easements Only)

8/1/2023 Date

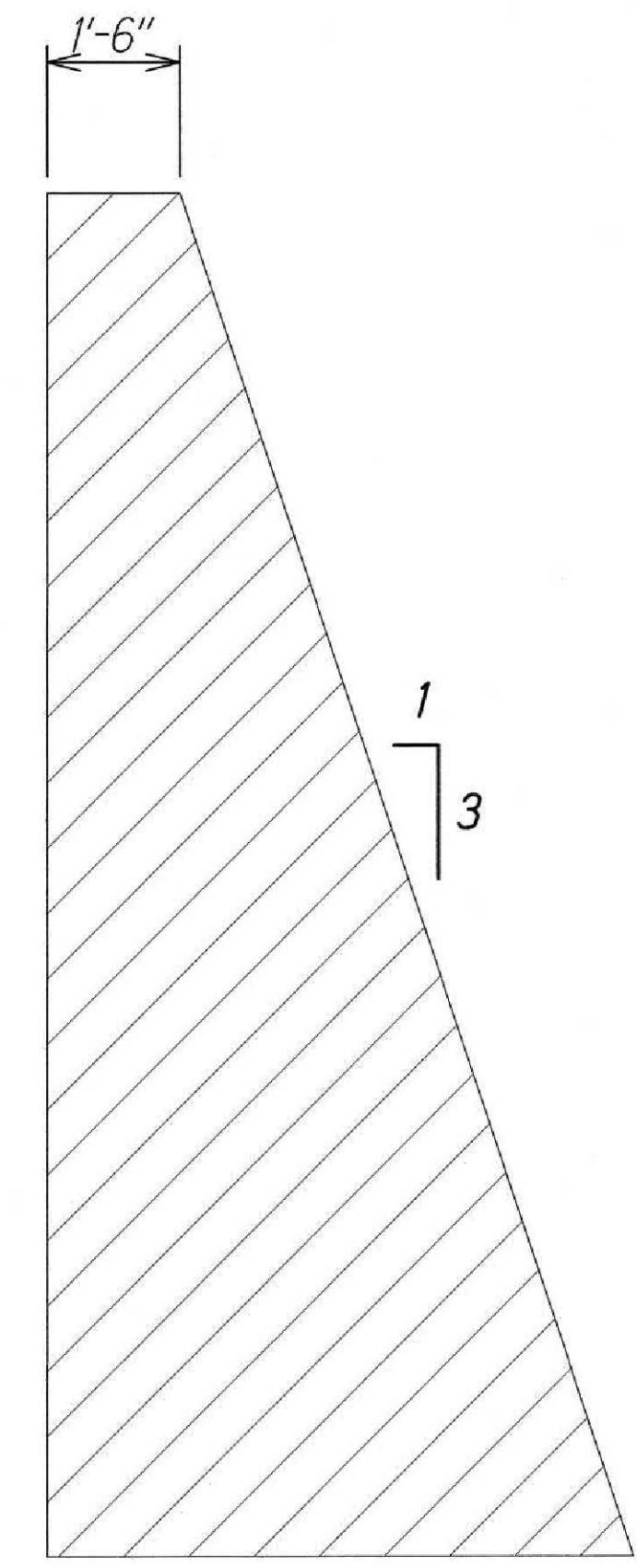


8/3/23	1 Add. 2 BWS Signature
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DEMOLITION ELEVATION AND SECTION KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09 Scale: As Noted Date: December 2022 SHEET No. S22 OF 3 SHEETS	

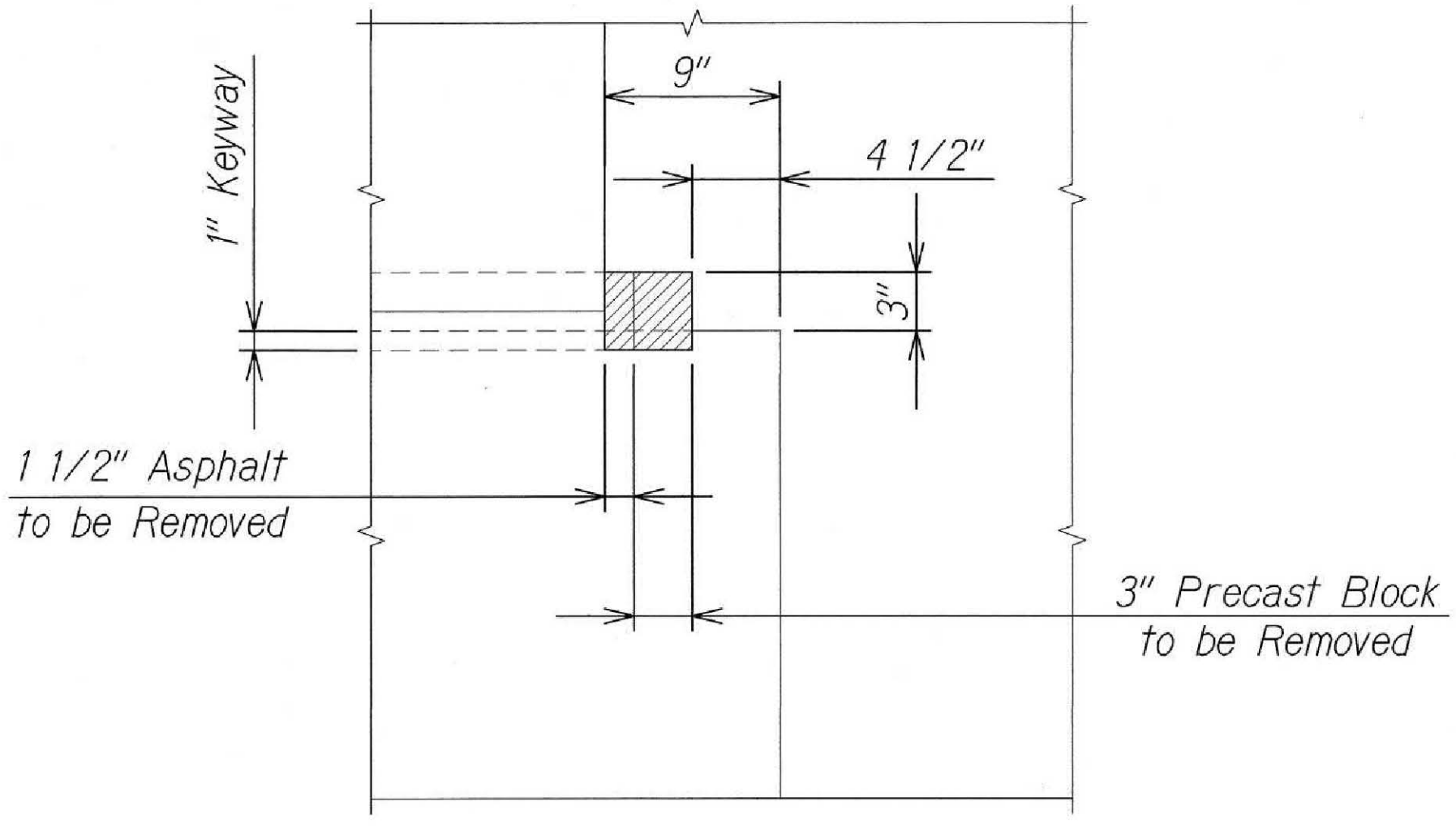
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83B-01-09	2023	130	231



WAIMEA DEMOLITION ELEVATION
Scale: 1/2" = 1'-0"
A S2.1 S2.3



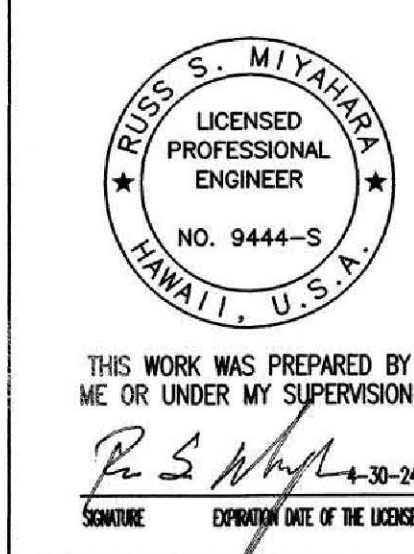
SECTION
Scale: 1/2" = 1'-0"
B S2.3 S2.3



DETAIL
Scale: 1 1/2" = 1'-0"
1 S2.2 S2.3

NOTE:
The Contractor shall take caution when excavating under the existing end post. The end post may not be properly supported by the abutment and any damage to the existing end post shall be avoided.

Approved:
Manager and Chief Engineer, BWS *
(For Work Affecting BWS Facilities in City/State R/W and BWS Easements Only)
Date: 8/7/2023



8/3/23	1 Add. 2 BWS Signature
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DEMOLITION ELEVATION, SECTION, AND DETAIL KAMEHAMEHA HIGHWAY DRAINAGE AND SAFETY IMPROVEMENTS Vicinity of Laniakaa Beach (MP 3.06 to MP 3.54) Project No. 83B-01-09 Scale: As Noted Date: December 2022 SHEET No. S2.3 OF 3 SHEETS	