

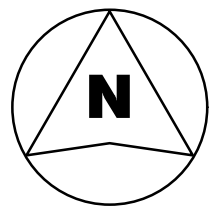
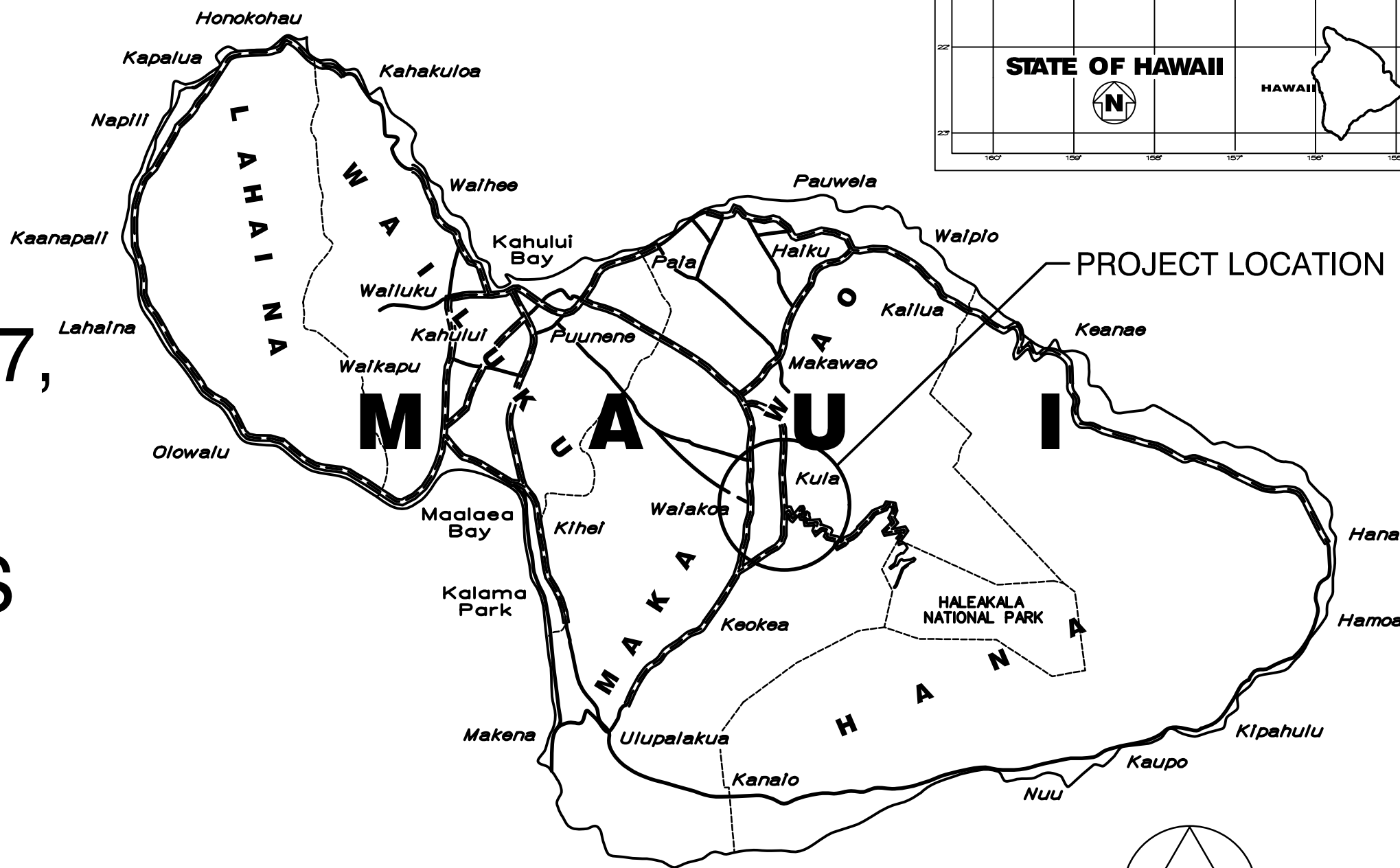
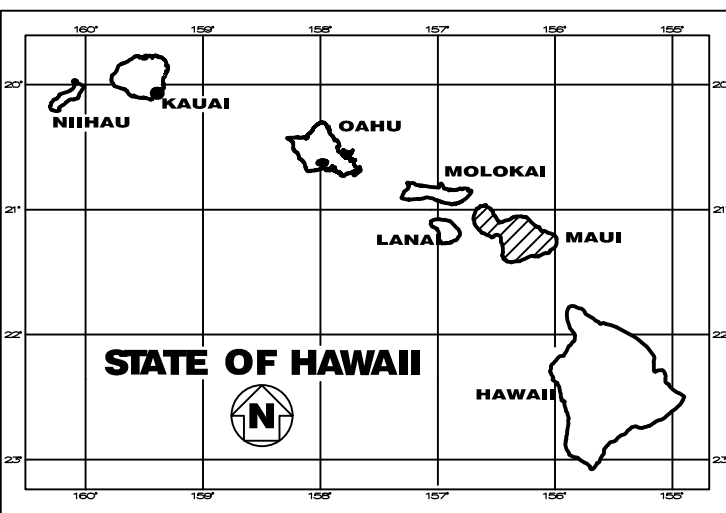
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU, HAWAII

PLANS FOR
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377,
WAIALE GULCH, ALAE (NAALAE GULCH),
AND PULEHU GULCH (POHAKUOKALA) BRIDGES
FEDERAL-AID PROJECT NO. STP-0377(008)

DISTRICT OF MAKAWAO
ISLAND OF MAUI

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	1	131



5 0 5 10
SCALE IN MILES

----- FEDERAL AID PROJECTS PREVIOUSLY CONSTRUCTED OR UNDER CONSTRUCTION

PROJECT SITES

WAIALE GULCH BRIDGE
MILE POST 3.71 TO MILE POST 3.74
ALAE (NAALAE GULCH) BRIDGE
MILE POST 8.53 TO MILE POST 8.56
PULEHU GULCH (POHAKUOKALA) BRIDGE
MILE POST 5.62 TO MILE POST 5.64

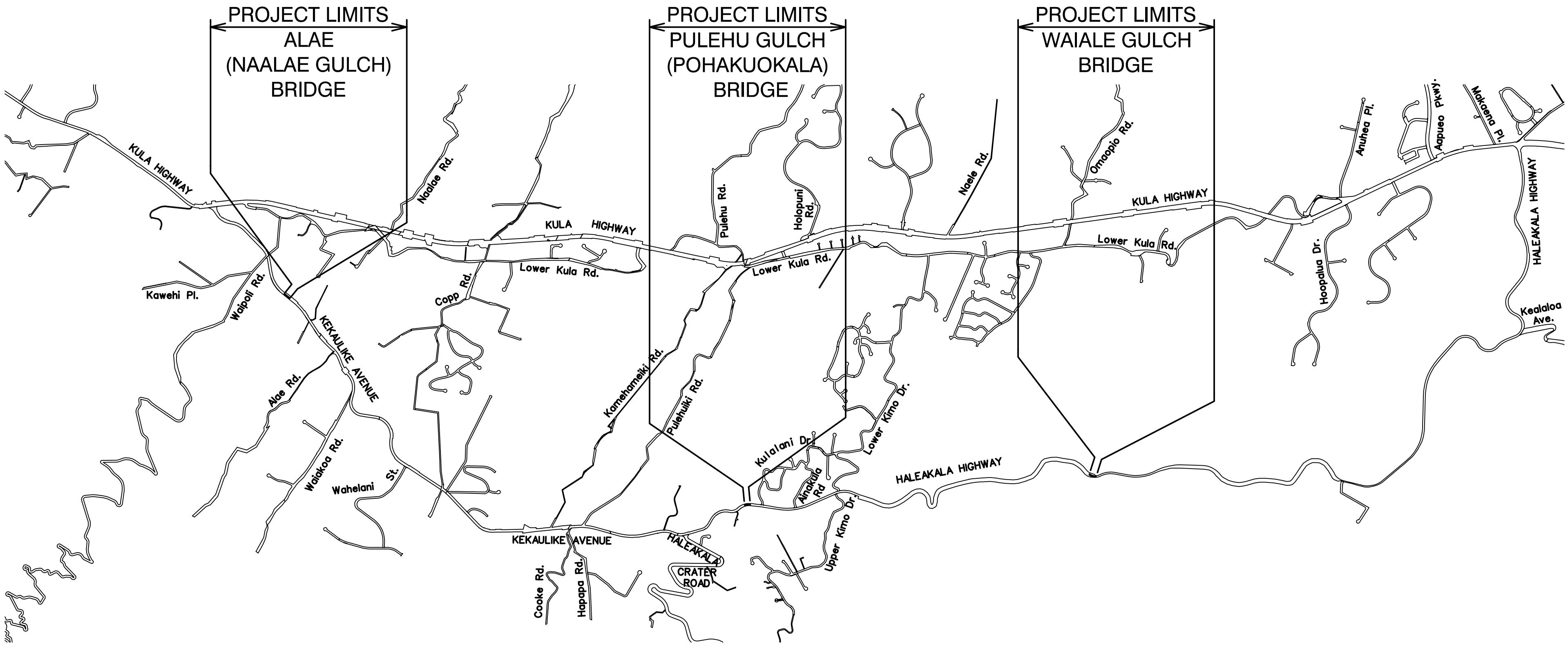
DESIGN DESIGNATION

Traffic Data	Haleakala Highway, Waiale Bridge - Waiale Gulch Kula Hwy to Haleakala Crater Road	Haleakala Highway, Pohakuokela Bridge - Pulehu Gulch Kula Hwy to Haleakala Crater Road	Kekaulike Avenue, Alae Bridge - Naalae Gulch Haleakala Crater Road to Kula Hwy
ADT (2024)	4,500	4,500	1,700
ADT (2034)	5,100	5,100	1,900
ADT (2044)	5,700	5,700	2,100
DHV (2034)	480	480	180
DHV (2044)	540	540	200
Design K	9.5	9.5	9.5
Design D	55/45	55/45	55/45
Design T	6.0	6.0	6.0
T24	6.0	6.0	6.0

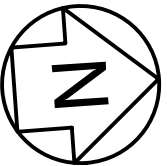
DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED:

HIGHWAYS ADMINISTRATOR 08/28/2026
DATE



LAYOUT PLAN



NOT TO SCALE
GROSS LENGTH OF PROJECT 5.00 MILES
NET LENGTH OF PROJECT 0.10 MILES

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

WSP USA DESIGNED BY
HWY-DD 808-692-7570 MAR. 2026
MANAGED BY PHONE DATE

STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	2	131

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-10 ·	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

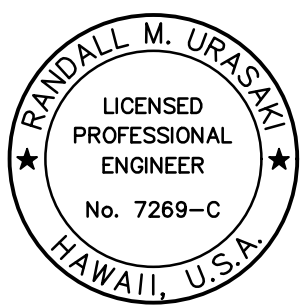
TE-01 ●	SIGN HEIGHT AND LOCATION	07/11/08
TE-1A ●	SIGN INSTALLATION	07/11/08
TE-02A ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A ·	GALVANIZED SQUARE TUBE 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.
Randall M. Urasaka 04/30/28
SIGNATURE EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLAN SUMMARY

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: None Date: July 2026

ORIGINAL PLAN	DRAWN BY	DATE

NOTE BOOK	QUANTITIES BY	_____

CHECKED BY	N°	_____

GENERAL NOTES:

- ORIGINAL PLAN

SURVEY PLOTTED BY

DRAWN BY

DATE

NOTE BOOK

TRACED BY

QUANTITIES BY

CHECKED BY

N#

1.

The scope of this project consists of seismic retrofit of the Waiale Gulch, Pohakuokala, and Alae bridges. Improvements include removal of debris from the piers; wrapping the piers with carbon fiber, removal of a portion of the backfill from behind the abutments and backfilling with controlled low strength material (CLSM) and tying the abutment to the CLSM backfill; replacement of the creep blocks at the bents; pier footing upgrades; installing pavement; installing pavement markers and temporary erosion control measures; installing scour countermeasures near Alae Bridge Pier 1; and traffic control.

2.

The Contractor shall reference the "Hawaii Standard Specifications for Road and Bridge, dated 2005."

3.

The Contractor is reminded of the requirements of Subsection 105.16(A) - Subcontract Requirements, which requires him to perform work to not less than 30 percent of the total contract cost less deductible items. Noncompliance with this Subsection may be grounds for rejection of bid.

4.

The Contractor's attention is directed to the following Sections of the Special Provisions: Subsection 104.09-Maintenance of Traffic; Subsection 105.09 - Coordination Between Contractors; Subsection 107.06 Contractor Duty Regarding Public Convenience, Subsection 107.11 - Safety: Accident Prevention; Subsection 107.12 - Protection of Persons and Property; and Section 645 - Work Zone Traffic Control.

5.

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.

6.

The existence and location of underground utilities, manholes, monuments, traffic signs 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 with the various utility companies and governmental agencies to verify the exact locations and depths of the existing utilities. The Contractor shall exercise proper care in excavating in the area. Whenever 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 excavating for the new lines. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

7.

The Contractor shall notify in writing, the Maui County Department of Transportation, Maui BUS, 2145 Kaohu Street #102, Wailuku, Maui, 96793 (Phone: 808 270-7511) two (2) weeks prior to any paving operations.

8.

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

9.

The Contractor shall remove and dispose of all existing raised pavement markers thermoplastic line markings, traffic tapes and epoxy adhesives prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to the various Asphalt Concrete Pavement items and will not be paid for separately.

10.

Smooth riding connections shall be constructed at all limits of project, including the beginning and end of project, connecting approaches, side streets, walkways and driveways as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to the various contract items and will not be paid for separately.

11.

Existing drainage system shall 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 and shall not be paid for separately.

12.

The Contractor shall provide for traffic and pedestrian access to and from all existing side streets at all times.

13.

All saw cutting work including vacuum of slurry shall be considered incidental to the various Asphalt Concrete Pavement items and will not be paid for separately.

14.

Contractor shall dispose or deliver any removed material at no cost to the State.

15.

At the location where the new pavements tie into the existing pavement, the Contractor shall check the existing and design grades to ensure a smooth riding connection. The Contractor shall saw cut the existing pavement in the transverse direction to provide a neat connection.

16.

Work required to complete the project but not itemized specifically in the proposal shall be considered incidental to the various contract items and shall not be paid for separately.

17.

The Contractor shall comply with the directives of the State of Hawaii Occupational Safety and Health Law (DOSH). Any citation (fine) received by the State for noncompliance by the Contractor shall be deducted from the progress payment.

18.

For verifying the location of underground ductlines and for assistance in providing proper support and protection of underground ductlines, the Contractor is to contact Maui Electric Co. Underground Division at 1-866-423-7287 a minimum of 72 hours in advance.

19.

The Contractor shall exercise extreme caution when the excavation and construction crosses or is in close proximity of underground telephone and signal cable facilities and shall maintain adequate clearance for his equipment while working close to and/or under overhead facilities. The Contractor shall be held liable for any damages incurred to the existing utilities as a result of his operations. All damaged portions shall be replaced in accordance with the Standards and Specifications of the affected utility company at the Contractor's expense.

20.

Tack Coat shall be incidental to the various Asphalt Concrete Pavement items and will not be paid for separately.

21.

When trench excavation is adjacent to existing structures or facilities, the Contractor is responsible for properly sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure from possible slides, cave-ins, and settlement, and facilities with beams, struts, or underpinning to fully protect it from damage. This work shall be considered incidental to various contract items.

22.

All existing utilities, whether or not shown on the plans, shall be protected at all times by the Contractor during construction unless specified on the plans to be abandoned. Any damage to the existing utilities shall be repaired and paid for by the Contractor.
- | | | | | | |
|---------------------|-------|-----------------------|-------------|-----------|--------------|
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
| HAWAII | HAW. | STP-0377(008) | 2026 | 3 | 131 |
- RANDALL M. URASAKI

LICENSED PROFESSIONAL ENGINEER

No. 7269-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE

EXPIRATION DATE OF THE LICENSE

04/30/28

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

GENERAL NOTES

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377

Waiale Gulch, Alae (Naalae Gulch) and

Pulehu Gulch (Pohakuokala) Bridges

Federal-Aid Project No. STP-0377(008)

Scale: None

Date: July 2026

SHEET No. GN-1 OF 11 SHEETS

3

STATE HISTORIC PRESERVATION NOTES:

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	7	131

1. In the event that historic resources (i.e. subsurface fire pits, artifacts, or human skeletal remains) are inadvertently uncovered during construction, all work shall cease in the immediate vicinity of the find. The find shall be protected from additional disturbance and the Contractor shall immediately contact the State Historic Preservation Division in Wailuku (Morgan Davis at 808 243-5169).
2. If previously unidentified non-burial historic properties, or unanticipated effects are discovered, the Contractor shall follow Hawaii Administrative Rules (HAR) § 13-280 "Rules Governing General Procedures for Inadvertent Discoveries of Historic Properties During a Project Covered by the Historic Preservation Review Process."
3. If human remains are discovered, HAR § 13-300 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains and the SHPD and the Police Department will be contacted. The appropriate process would then proceed in conformance with HAR § 13-300, Subchapter 4 "Procedures for Proper Treatment of Burial Sites and Human Skeletal Remains."

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 County may require supplementary measures as necessary.
3. The Contractor's attention is directed to Chapter 46, Public Health Regulations, Department of Health, State of Hawaii, "Community Noise Control" 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).

WASTE MANAGEMENT NOTES:

1. The Contractor shall develop and submit to the Engineer a Solid Waste Management Plan for the disposal of cleared and grubbed material from the project site during construction. Contractor shall coordinate with the Central Maui Landfill supervisor at 808 270-6153 regarding suitability of this material as landfill cover. This work shall be considered incidental to the various contract items.

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY _____	
	TRACED BY _____	
	NOTE BOOK QUANTITIES BY _____	
N ₄	CHECKED BY _____	

RANDALL M. URASAKI

LICENSED
PROFESSIONAL
ENGINEER

No. 7269-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

Randall M. Urasaki

SIGNATURE

04/30/28

EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: NoneDate: July 2026

SHEET No. GN-5 OF 11 SHEETS

7

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	13	131

ABBREVIATIONS:

ABAND.	Abandoned
A.C./AC	Asphalt Concrete
APPROX.	Approximate
ARV	Air Release Valve
BFP	Back Flow Preventer
#	Baseline
BMP	Best Management Practices
BOT.	Bottom
BC	Bottom Curb
BW	Bottom Wall
CATV	Cable Television
C.B.	Catch Basin
C.L.	Chain Link
Ch	Chord
CLR	Clearance
CLSM	Controlled Low Strength Material
CMU	Concrete Masonry Unit
C.O.	Clean Out
COL.	Column
COMM.	Communication
CONC.	Concrete
CRM	Concrete Rubble Masonry
D	Drain
D.I.	Drain Inlet
DIA	Diameter
D.S.	Down Spout
DWY.	Driveway
E/ELEC.	Electric
ELEV./EL.	Elevation
EMB	Embankment
es	Existing Edge of Shoulder
ES	Edge of Shoulder
ep	Existing Edge of Pavement
EP	Edge of Pavement
EXC	Excavation
EXIST.	Existing
F	Fuel
F.H.	Fire Hydrant
FM	Force Main
G	Gas
GAS	Gasoline
GDI	Grated Drain Inlet
GMH	Gas Manhole
GND.	Ground
G.P.	Guard Post/guy Pole/gate Post
GRP	Grouted Rubble Paving
GV	Gas Valve
G.W.	Guy Wire
H	Height
H.B.	Hose Bib
HECo.	Hawaiian Electric Company
HECo. BOX	Hawaiian Electric Company Box
HECo. MH	Hawaiian Electric Company Manhole

HH	Hand Hole
HMA	Hot Mix Asphalt
HTCo.	Hawaiian Telephone Company
HTCo. BOX	Hawaiian Telephone Company Box
HTCo. MH	Hawaiian Telephone Company Manhole
ICV	Irrigation Control Valve
INV.	Invert
Lc	Length of Curve
LF	Linear Feet
L.P.	Lamp Pole
Lt.	Left
MB	Meter Box
MH	Manhole
MIN.	Minimum
M.L.	Matchline
N	North
NB	Northbound
NTS	Not To Scale
o.c.	On Center
O/H	Overhead Electrical
OHWM	Ordinary High Water Mark
o/s	Offset
PAVT/PVMT	Pavement
P.C.	Point of Curvature
PCCP	Portland Cement Concrete Pavement
P.I.	Point of Intersection
PMA	Polymer Modified Asphaltic Concrete
P.P.	Power Pole
PRC	Point of Reverse Curve
PSL	Pedestrian Signal Light
P.T.	Point of Tangency
R	Radius
RD	Road
Rt.	Right
R/W	Right-of-Way
S	Sewer Or Spread
SB	Southbound
SDMH	Storm Drain Manhole
S.E.	Superelevation
SF	Square Feet
SHT/Sht.	Sheet
S.L.	Street Light
SLB	Street Light Box
SMH	Sewer Manhole
SPR.	Sprinkler
ST	Street
ST. NAME	Street Name
STA.	Station
STD	Standard
T	Tangent
TC	Top Curb
TDC	Top Drop Curb
TP	Top Pipe

TRC	Top Rolled Curb
TS	Top Stem
TSL	Traffic Signal Light
TSLB	Traffic Signal Light Box
TV	Top Valve
TW	Top Wall
TYP	Typical
UG	Under Ground
U.P.	Utility Pole
U.P./S.L.	Utility Pole W/street Light
VAR	Varies
W	Water
WM	Water Meter
WMH	Water Manhole
WV	Water Valve Box
X-WALK	Cross Walk

LEGEND:

At#t Mh	Signal Corps Mh
At#t Box	Sign
Back Flow Preventer	Street Light
Catv Box	Street Light Box
C.b./mh Or Sdmh	Sprinkler
Clean Out	Traffic Sensor
Column	Traffic Signal Light
Comm. Box	Traffic/pedestrian Signal Light
Drain Inlet	Traffic Signal Light Box
Dry Stand Pipe	Utility Pole W/street Light
Elec. Box Or Heco. Box	U.s. Postal Mailbox
Elec. Mh Or Heco. Mh	Water Mh
Fire Alarm Box	Water Meter
Fire Hydrant	Water Valve
Gas Mh	
Gas Valve	
Guard Rail	
Guy Wire	
Hose Bib	
Htco. Box	
Htco. Mh	
Icv Box	
Icv	
Lamp Pole	
Residential Mailbox	
Mtco. Mh	
Pedestrian Signal Light	
Sewer Mh	

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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CHECKED BY	NOTED BY	
N.		

RANDALL M. URASAKI

LICENSED PROFESSIONAL ENGINEER

No. 7269-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Randall M. Urasaki

04/30/28

SIGNATURE

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LEGEND AND ABBREVIATIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: None
Date: July 2026

SHEET No. GN-11 OF 11 SHEETS

13

WATER POLLUTION AND EROSION CONTROL NOTES:

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	15	131

A. GENERAL:

1. See Special Provisions Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment. In addition, Appendix A lists potential pollutant sources and corresponding BMPs used to mitigate the pollutants.
2. Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, "applicable bid documents" include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.
3. Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
4. The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
5. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.
6. If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
7. Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 21 calendar days of date of award. The Site-Specific BMP Review Checklist may be obtained from <http://www.stormwaterhawaii.com>.

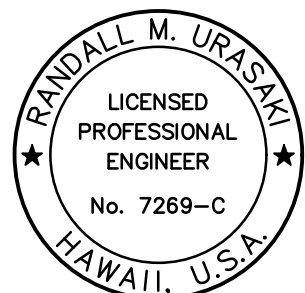
B. WASTE DISPOSAL:

1. Waste Materials
Collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the Engineer. The Contractor shall be responsible for seeing that these procedures are followed. Submit the Solid Waste Disclosure Form 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.
2. Hazardous Waste
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.

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

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. For projects with an NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.
2. For projects without an NPDES Permit for Construction Activities, inspect all control measures weekly.
3. Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "Immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.
4. Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.
5. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.
6. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
7. Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.
8. Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold-planed materials, dirt or rock tracked from the site. Do not hose down the street without containing or vacuuming wash water. Cover dump trucks hauling 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.
9. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.
10. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
11. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.



THIS WORK WAS PREPARED BY ME
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Randall M. Uraski 06/30/28
SIGNATURE EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WATER POLLUTION & EROSION CONTROL NOTES	
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377 Waiale Gulch, Alae (Naalae Gulch) and Pulehu Gulch (Pohakuokala) Bridges Federal Aid Project No. STP-0377(008)	
Scale: None	Date: July 2026
SHEET No. EC-1 OF 8 SHEETS	

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY _____	_____
	TRACED BY _____	_____
	NOTE BOOK QUANTITIES BY _____	_____
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WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	16	131

12. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Do not allow discharge into the drainage system or State waters.
13. For projects with 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.
14. For projects without an NPDES Permit for Construction Activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

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

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

- 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.

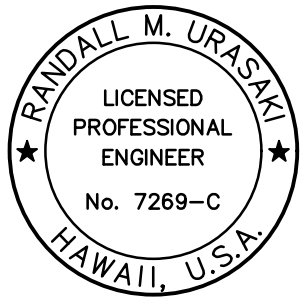
d. Concrete Trucks:

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 (808) 586-4309, and the Hawaii State Hospital Operator at (808) 247-2191 and the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately. The Contractor shall also provide to the Engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested.

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OR UNDER MY SUPERVISION.
Randall M. Urasaka
SIGNATURE
04/30/28
EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WATER POLLUTION &
EROSION CONTROL NOTES**

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: None
Date: July 2026

WATER POLLUTION AND EROSION CONTROL NOTES
(Cont.):

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 on the bid package compact disc.
2. Comply with all applicable State and Federal Permit conditions. Permits may include, but not limited to the following:
 - a. NPDES Permit for Construction Activities
 - b. Section 404 Army Corps of Engineer Permit

F. SITE-SPECIFIC BMP REQUIREMENTS:

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

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

Follow the requirements below:

1. Protect all Drainage Inlets receiving runoff from disturbed areas (SC-1).
2. Contain on-site runoff using Perimeter Sediment Controls
 - a. SC-7 Silt Fence or Filter Fabric Fence
 - b. SC-2 Vegetated Filter Strips and Buffers
 - c. SC-6 Compost Filter Berm/Sock
 - d. SC-8 Sandbag Barrier
 - e. SC-9 Brush or Rock Filter
3. Control offsite runoff from entering construction area
 - a. EC-3 Run-On Diversion
 - b. EC-5 Earth Dike, Swales, and Ditches
4. Incorporate applicable Site Management BMP
 - a. SM-1 Construction BMP Training
 - b. SM-2 Material Storage and Handling
 - c. SM-3 Stockpile Management
 - d. SM-6 Solid Waste Management
 - e. SM-7 Sanitary Waste Management
 - f. SM-9 Hazardous Materials and Waste Management
 - g. SM-10 Spill Prevention and Control
 - h. SM-11 Vehicle and Equipment Cleaning
 - i. SM-12 Vehicle and Equipment Maintenance
 - j. SM-13 Vehicle and Equipment Refueling
 - k. SM-14 Scheduling
 - l. SM-15 Location of Potential Sources of Sediment
 - m. SM-16 Staging Area
 - n. SM-17 Preservation of Existing Vegetation
 - o. SM-19 Dust Control

5. Contain pollutants within the Construction Staging/Storage Area BMP with applicable Perimeter Sediment Controls and Site Management BMP. Include a Stabilized Construction Entrance/Exit (SC-11) for all areas which exit onto a paved street. Restrict vehicle access to these points.
6. Manage Concrete Waste including installing a Concrete Washout Area (SM-4) and properly disposing of Concrete Curing Water (California Stormwater BMP Handbook NS-12 Concrete Curing).
7. Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

EROSION CONTROL/BEST MANAGEMENT PRACTICE
NOTES:

1. The Contractor, at his own expense, shall keep the project areas and surround areas free from dust nuisance. The work shall be done in conformance with air pollution control standards contained in Hawaii Administrative Rules: Chapter 11-60, "Air Pollution Control"
2. Measures to control erosion and other pollutants shall be in place before any grading work is initiated. These measures shall be properly constructed and maintained throughout the construction period of each site.
3. Construction shall be sequenced to avoid disturbance at all project site at one time and minimize exposure time of the demolition and reconstruction areas.
4. The Contractor shall observe and comply with the State Department of Health regarding storm water discharge.
5. Inlet protection shall be implemented at all storm drain inlets and catch basin as indicated to prevent any sediment laden runoff from leaving the site. Inlet protection devices shall be removed during any event where flooding could occur if devices remain in place and replaced after the event has passed.
6. Good Housekeeping shall be utilized to ensure protection of roadway from mud, dirt, and debris.
7. The Contractor shall provide erosion control measures for their construction, staging, and storage areas and shall inspect and monitor his construction, staging, and storage areas to ensure that non-storm water discharges are emitted. Id such sources are identified, the Contractor shall provide immediate mitigative measures.
8. No sediment laden runoff shall leave the site.
9. Water trucks shall be utilized to minimize the amount of airborne dust.
10. Contractor shall ensure the proper working order and conduct regular maintenance of all construction equipment. All construction equipment shall be serviced off-site, nd no oil or fuel shall be stored on the site.
11. The Contractor shall dispose of equipment and hydraulic oils off-site and in accordance with County, State, and Federal regulations.
12. At the end of construction, existing catch basins and drain inlets surrounding the project site shall be inspected and any accumulated sediment and debris found shall be removed. Flushing into the catch basins or drain inlets is prohibited.
13. Construction shall be staged and phased for large projects. Areas of one phase shall be stabilized before another phase is initiated. Stabilization shall be accomplished by temporary or permanent protecting the disturbed soil surface from rainfall impact and runoff.
14. Storm water flowing toward the construction area shall be diverted by using appropriate control measures, as practical.
15. Water must be discharged in a manner that the discharge shall not

cause or contribute to a violation of the basic water quality criteria as specified in the Hawaii Administrative Rules, Section 11-54-04.

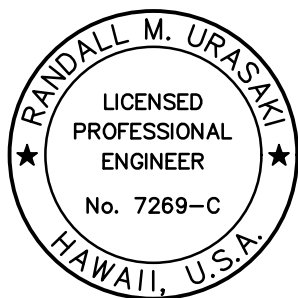
16. All grading work shall conform to Maui County Code Chapter 20.08 "Soil Erosion and Sediment Control", as amended and applicable provisions of Chapter 54, Water Quality Standards and Chapter 55, Water Pollution Control, Title II, Administrative Rules of the State Department of Health.

BEST MANAGEMENT PRACTICES FOR WORK IN OR
AROUND AQUATIC ENVIRONMENT:

1. 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 and weather conditions. The BMPs should occur 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.
2. All project construction-related materials and equipment (i.e., dredges, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to, aquatic fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, nonnative species introductions, or attraction of nonnative pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP - see <https://www.fws.gov/policy/AI750fwl.html>) can prevent attraction and introduction of nonnative species.
3. Project construction-related materials (i.e., 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 or rain.
4. Fueling of project-related vehicles and equipment should occur 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.
5. 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.

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	17	131

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



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Randall M. Uraska 04/30/28
SIGNATURE EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

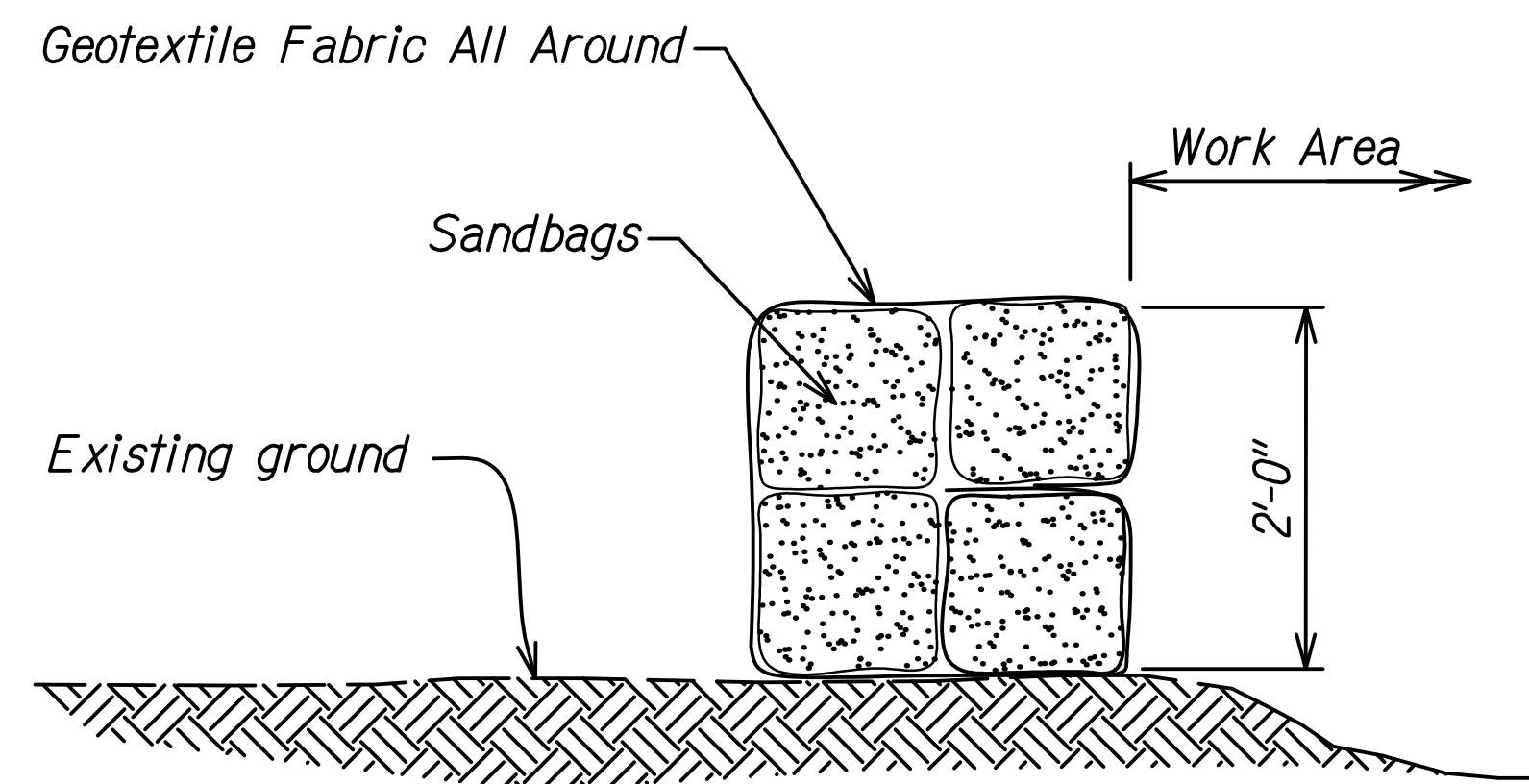
**WATER POLLUTION &
EROSION CONTROL NOTES**

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: None Date: July 2026

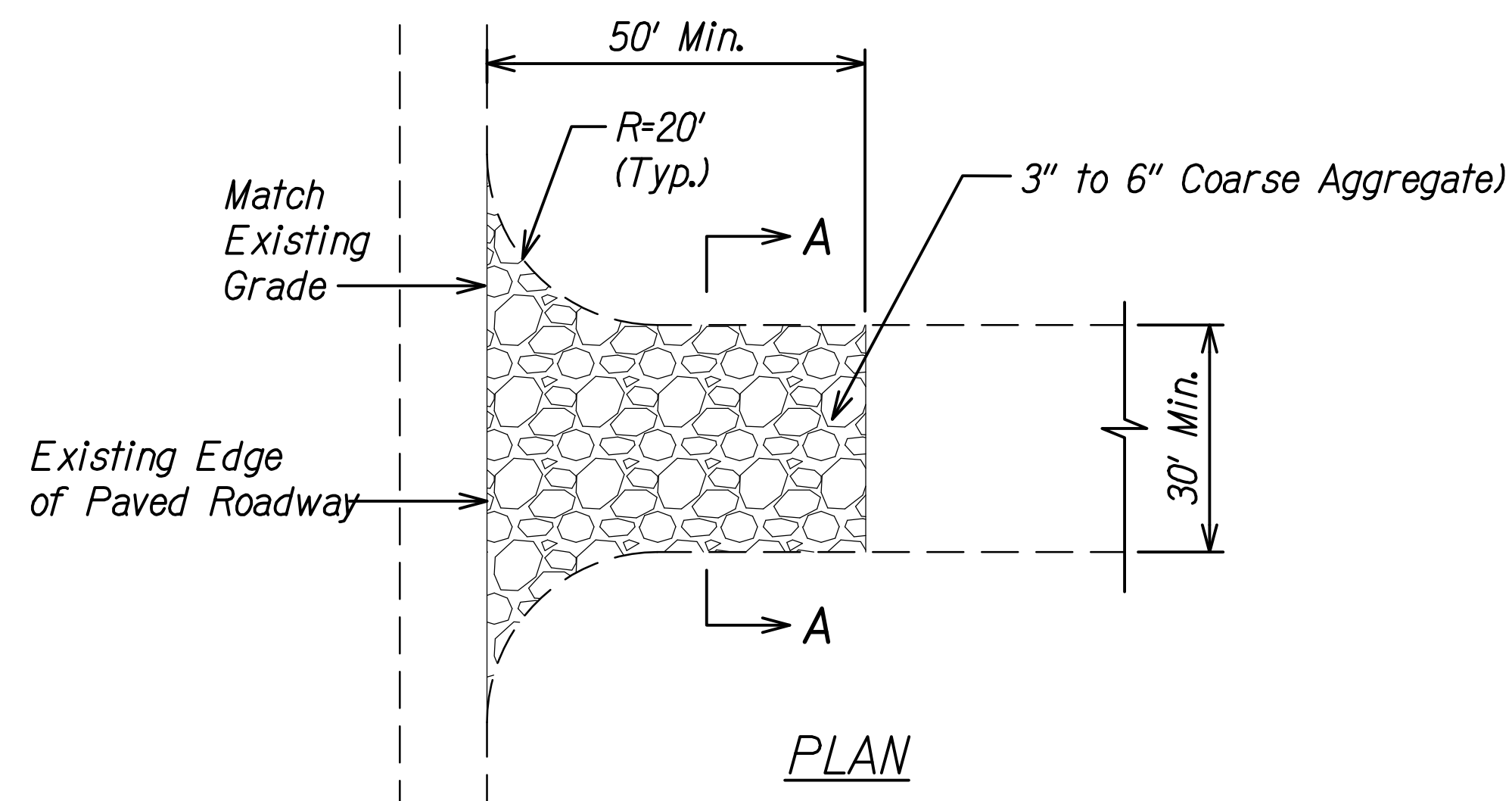
SHEET No. EC-3 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	18	131

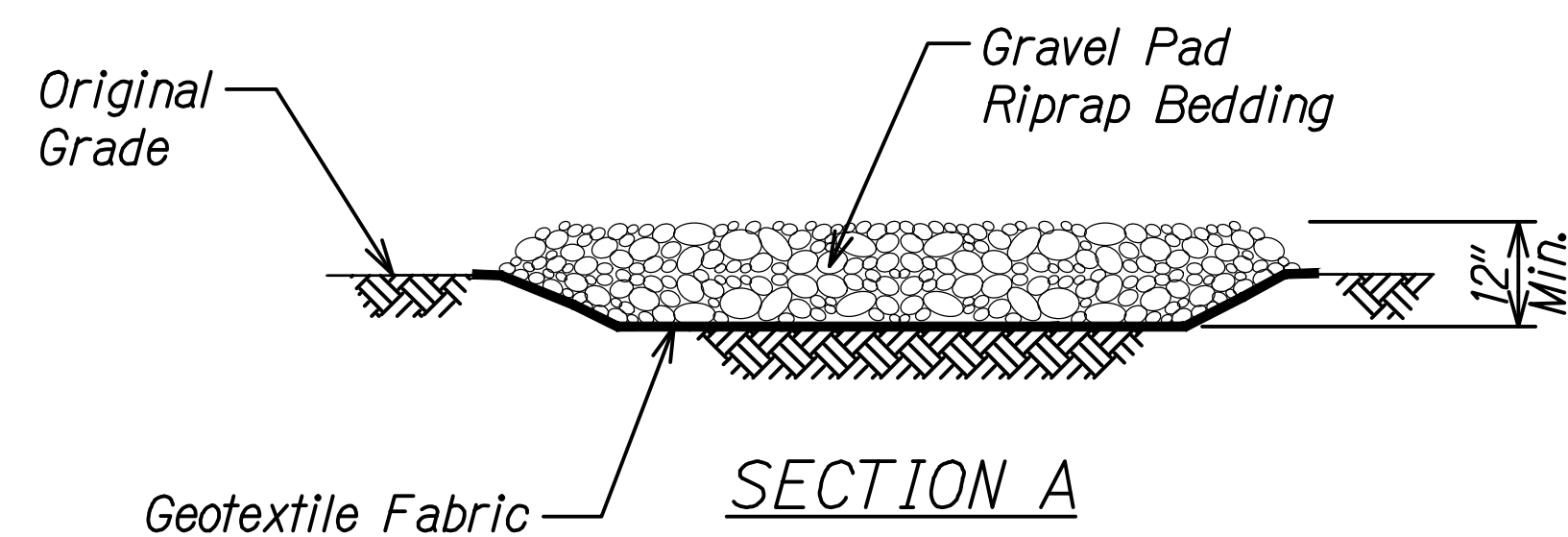


SANDBAG WRAPPED IN GEOTEXTILE FABRIC

Not to Scale



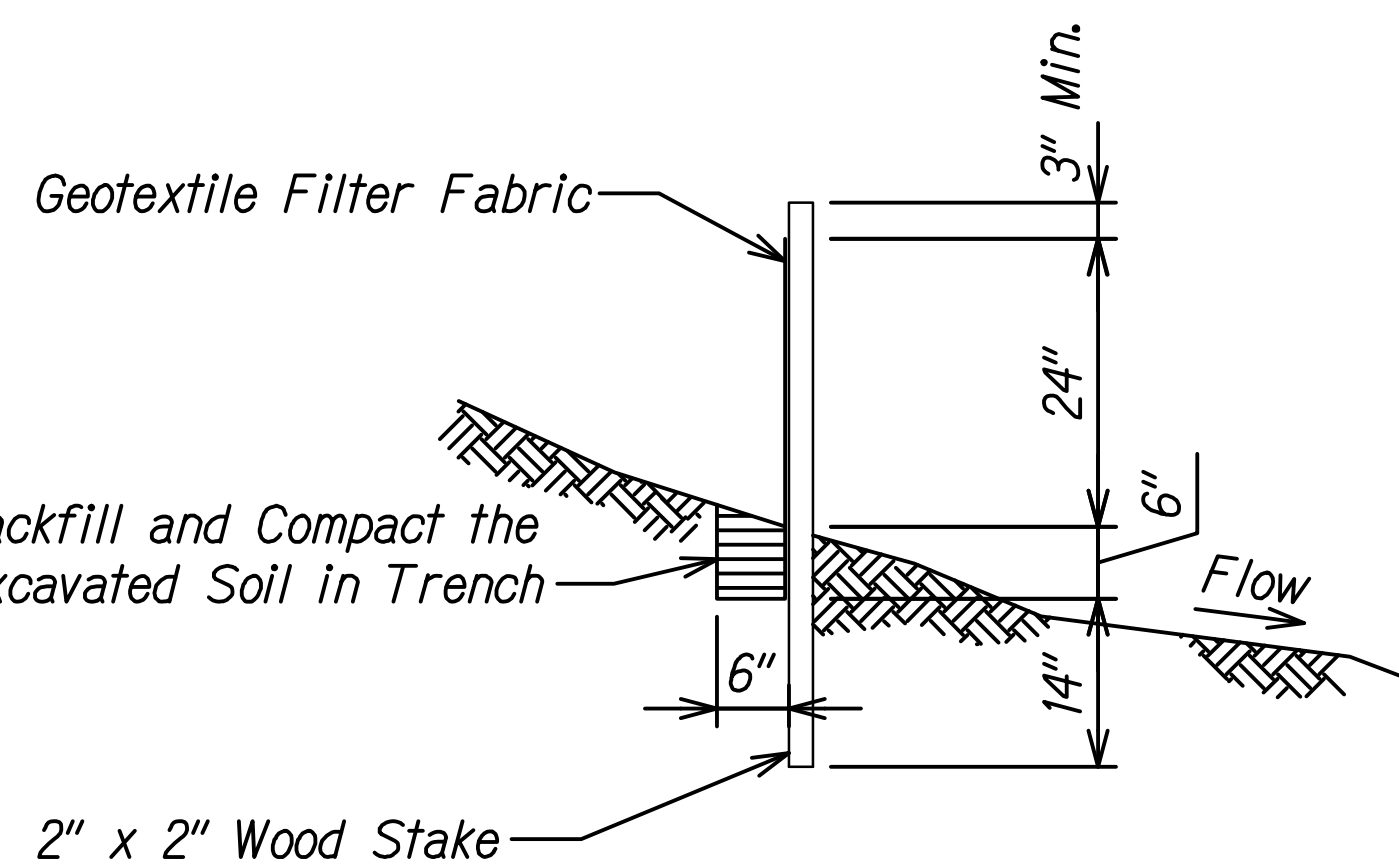
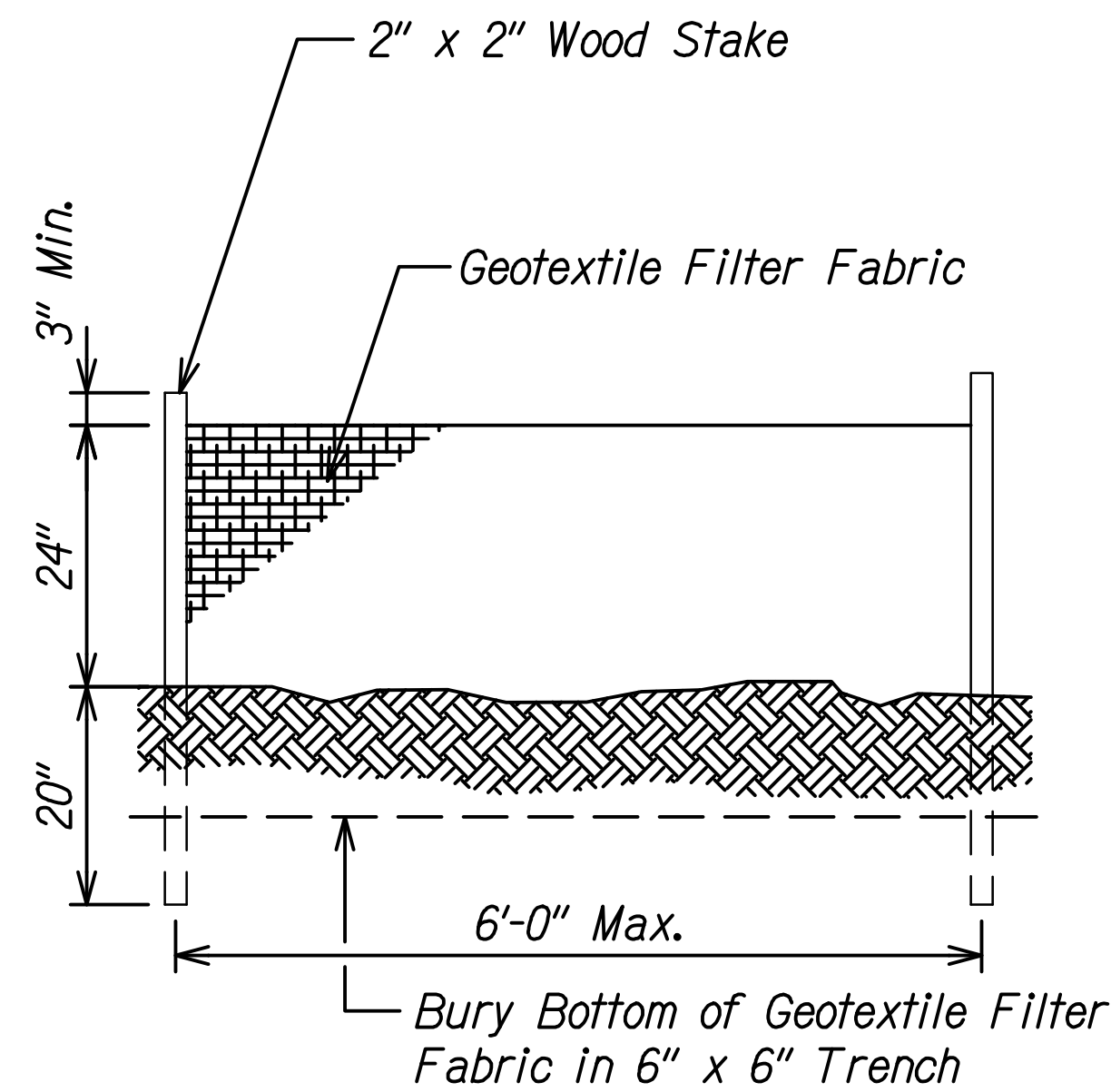
PLAN



SECTION A

TEMPORARY STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

Not to Scale



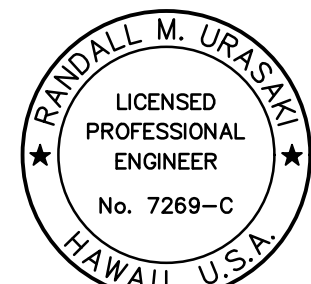
SILT FENCE DETAIL

Not to Scale

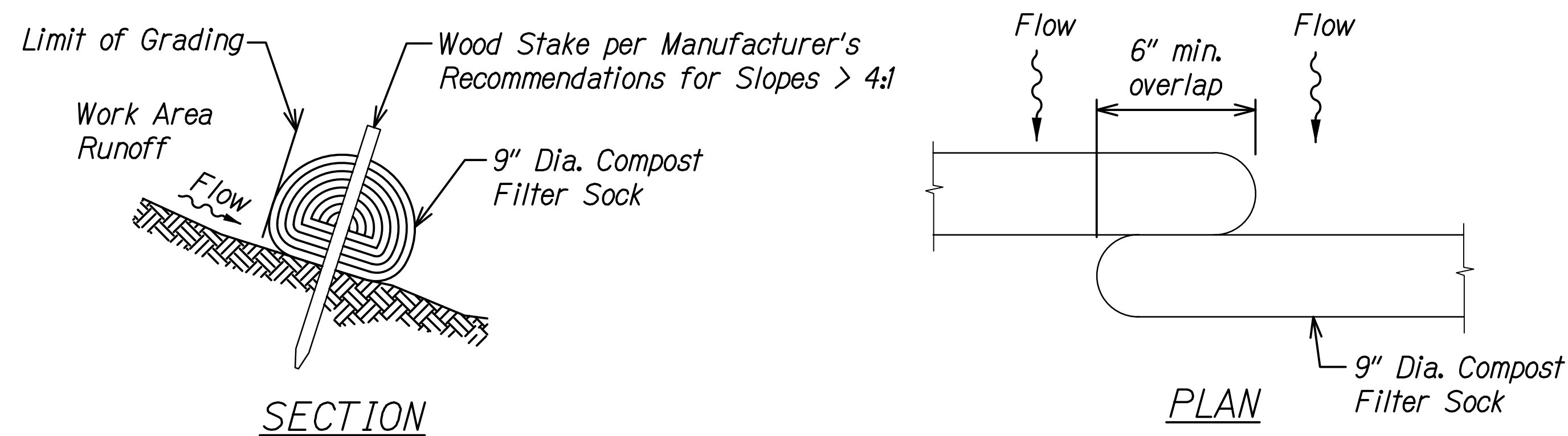
SILT FENCE NOTES:

1. The filter fabric shall be a minimum of 36 inches wide.
2. If silt fence is obtained from manufacturer as a package (i.e. fabric attached to post) the manufacturer's installation instructions shall be adhered to.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	N ^o .	

 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>Randall M. Urakami</i> 04/30/28 SIGNATURE EXPIRATION DATE OF THE LICENSE	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TEMPORARY EROSION CONTROL DETAILS SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377 Waiale Gulch, Alae (Naalae Gulch) and Pulehu Gulch (Pohakuokala) Bridges Federal Aid Project No. STP-0377(008) Scale: As Shown Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	19	131



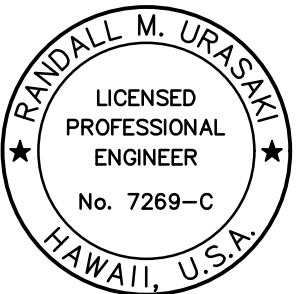
BIO SOCK COMPOST FILTER SOCK
PERIMETER CONTROL DETAIL

Not to Scale

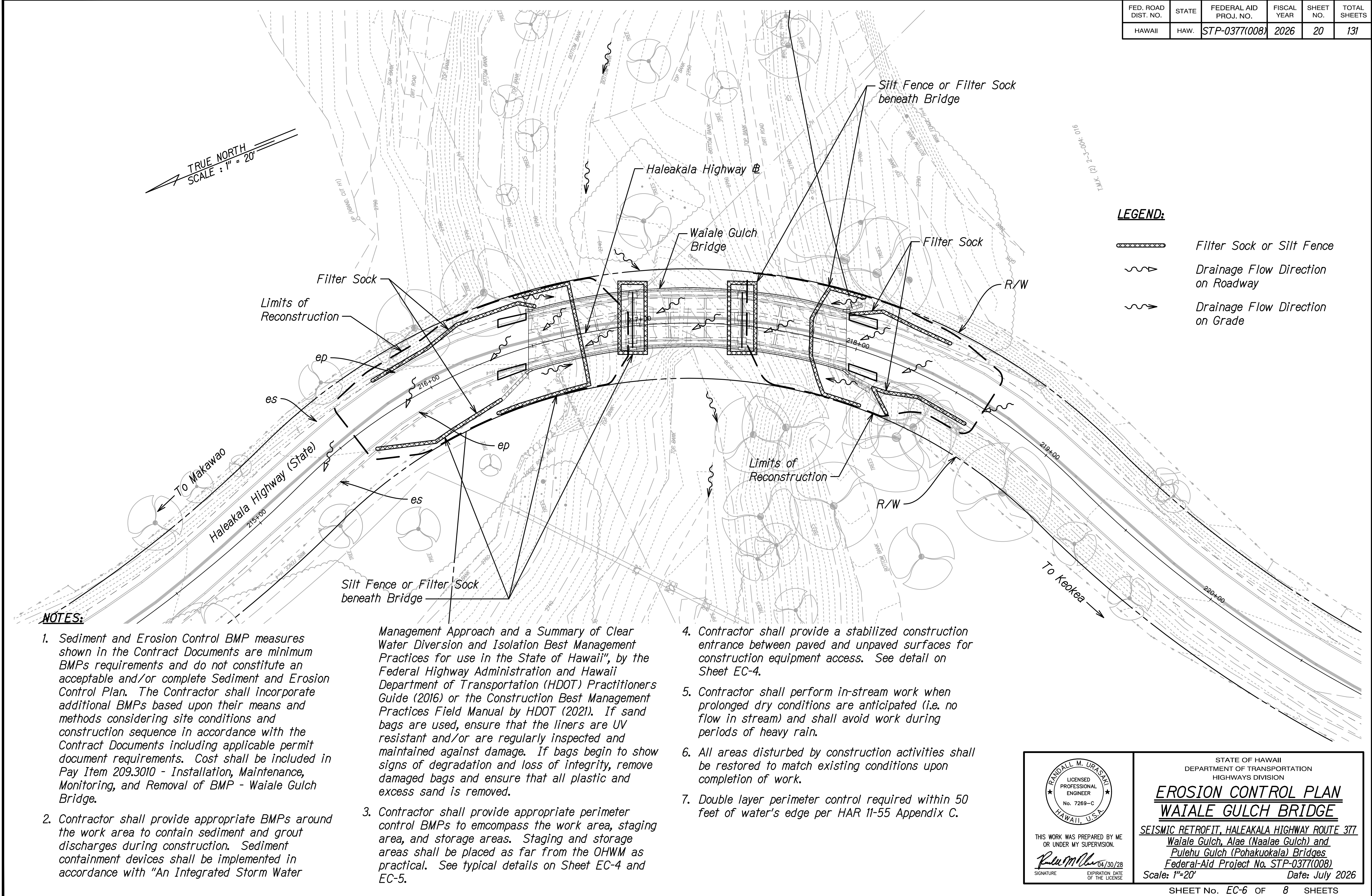
NOTES:

1. Compost filter socks should be either prefabricated or assembled at site.
2. Locate compost filter socks on level contours spaced as follows:
 - a. Slope inclination of 4:1 (H:V) or flatter. Compost filter and/or berms should be placed at a maximum interval of 20 ft.
 - b. Slope inclination between 4:1 and 2:1 (H:V). Compost filter socks (use of berms not recommended) should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
3. Turn the ends of the compost filter socks up slope to prevent runoff from going around the roll.
4. Stake compost filter socks with stakes with a minimum length of 14 in. and spaced 4 ft. on center, or as recommended by the manufacturer, whichever is greater.
5. If more than one compact filter socks is placed in a row, the rolls should be overlapped, not abutted.

SURVEY PLOTTED BY	DATE
DRAWN BY	
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QUANTITIES BY	
CHECKED BY	
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	<u>TEMPORARY</u>
	<u>EROSION CONTROL DETAILS</u>
	<u>SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377</u> <u>Waiale Gulch, Alae (Naalae Gulch) and</u> <u>Pulehu Gulch (Pohakuokala) Bridges</u> <u>Federal Aid Project No. STP-0377(008)</u>
	Scale: As Shown Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	20	131



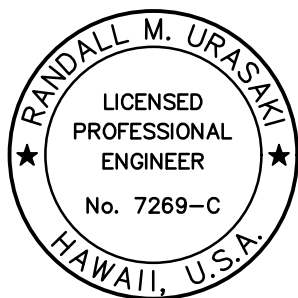
NOTES:

1. 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 209.3010 - Installation, Maintenance, Monitoring, and Removal of BMP - Waiale Gulch Bridge.
2. Contractor shall provide appropriate BMPs around the work area to contain sediment and grout discharges during construction. Sediment containment devices shall be implemented in accordance with "An Integrated Storm Water

Management Approach and a Summary of Clear Water Diversion and Isolation Best Management Practices for use in the State of Hawaii", by the Federal Highway Administration and Hawaii Department of Transportation (HDOT) Practitioners Guide (2016) or the Construction Best Management Practices Field Manual by HDOT (2021). If sand bags are used, ensure that the liners are UV resistant and/or are regularly inspected and maintained against damage. If bags begin to show signs of degradation and loss of integrity, remove damaged bags and ensure that all plastic and excess sand is removed.

3. Contractor shall provide appropriate perimeter control BMPs to encompass the work area, staging area, and storage areas. Staging and storage areas shall be placed as far from the OHWM as practical. See typical details on Sheet EC-4 and EC-5.

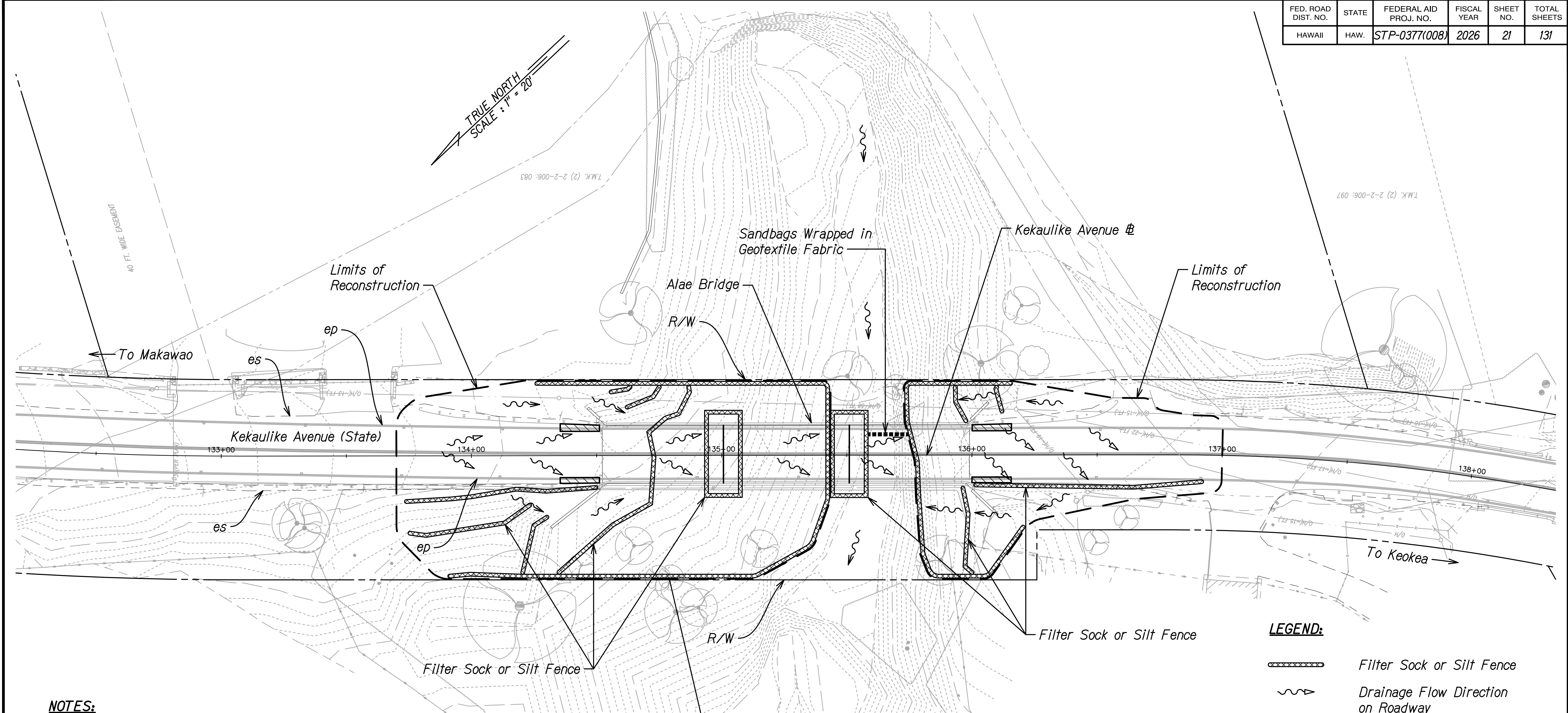
4. Contractor shall provide a stabilized construction entrance between paved and unpaved surfaces for construction equipment access. See detail on Sheet EC-4.
5. Contractor shall perform in-stream work when prolonged dry conditions are anticipated (i.e. no flow in stream) and shall avoid work during periods of heavy rain.
6. All areas disturbed by construction activities shall be restored to match existing conditions upon completion of work.
7. Double layer perimeter control required within 50 feet of water's edge per HAR 11-55 Appendix C.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EROSION CONTROL PLAN
WAIALE GULCH BRIDGE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	21	131



NOTES:

1. 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 209.1010 - Installation, Maintenance, Monitoring, and Removal of BMP - Alae Bridge.
2. Contractor shall provide appropriate BMPs around the work area to contain sediment and grout discharges during construction. Sediment containment devices shall be implemented in accordance with "An Integrated Storm Water Management Approach and a Summary of Clear

Water Diversion and Isolation Best Management Practices for use in the State of Hawaii", by the Federal Highway Administration and Hawaii Department of Transportation (HDOT) Practitioners Guide (2016) or the Construction Best Management Practices Field Manual by HDOT (2021). If sand bags are used, ensure that the liners are UV resistant and/or are regularly inspected and maintained against damage. If bags begin to show signs of degradation and loss of integrity, remove damaged bags and ensure that all plastic and excess sand is removed.

3. Contractor shall provide appropriate perimeter control BMPs to encompass the work area, staging area, and storage areas. Staging and storage areas shall be placed as far from the OHWM as practical. See typical details on Sheet EC-4 and EC-5.

4. Contractor shall provide a stabilized construction entrance between paved and unpaved surfaces for construction equipment access. See detail on Sheet EC-4.
5. Contractor shall perform in-stream work when prolonged dry conditions are anticipated (i.e. no flow in stream) and shall avoid work during periods of heavy rain.
6. All areas disturbed by construction activities shall be restored to match existing conditions upon completion of work.
7. Double layer perimeter control required within 50 feet of water's edge per HAR 11-55 Appendix C.

LEGEND:

- Filter Sock or Silt Fence
- Drainage Flow Direction on Roadway
- Drainage Flow Direction on Grade
- Sandbags Wrapped in Geotextile Fabric

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
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Randall M. Urasaka 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

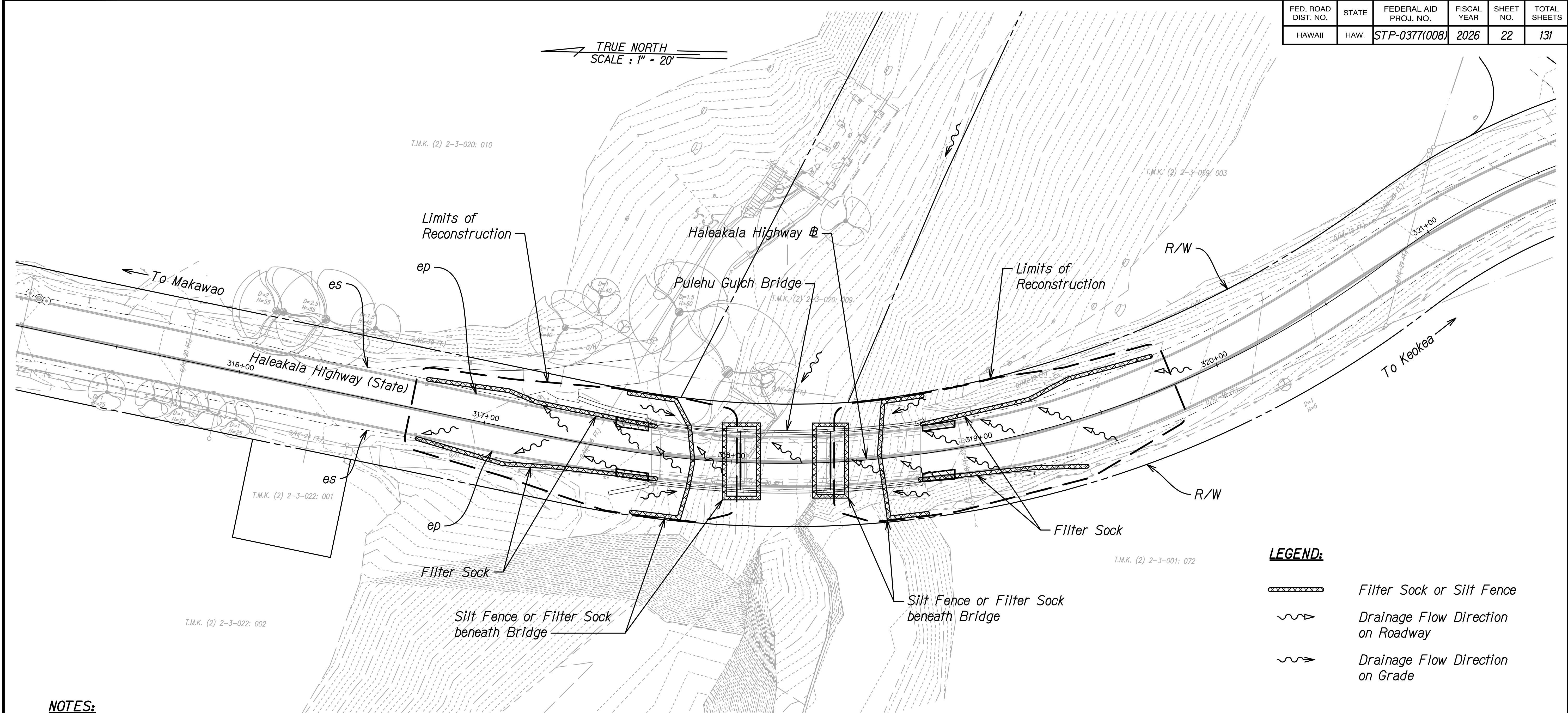
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN
ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	22	131



LEGEND:	
	Filter Sock or Silt Fence
	Drainage Flow Direction on Roadway
	Drainage Flow Direction on Grade

NOTES:

1. 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 209.2010 - Installation, Maintenance, Monitoring, and Removal of BMP - Pulehu Gulch Bridge.
2. Contractor shall provide appropriate BMPs around the work area to contain sediment and grout discharges during construction. Sediment containment devices shall be implemented in accordance with "An Integrated Storm Water

Management Approach and a Summary of Clear Water Diversion and Isolation Best Management Practices for use in the State of Hawaii", by the Federal Highway Administration and Hawaii Department of Transportation (HDOT) Practitioners Guide (2016) or the Construction Best Management Practices Field Manual by HDOT (2021). If sand bags are used, ensure that the liners are UV resistant and/or are regularly inspected and maintained against damage. If bags begin to show signs of degradation and loss of integrity, remove damaged bags and ensure that all plastic and excess sand is removed.

3. Contractor shall provide appropriate perimeter control BMPs to encompass the work area, staging area, and storage areas. Staging and storage areas shall be placed as far from the OHWM as practical. See typical details on Sheet EC-4 and EC-5.

4. Contractor shall provide a stabilized construction entrance between paved and unpaved surfaces for construction equipment access. See detail on Sheet EC-4.
5. Contractor shall perform in-stream work when prolonged dry conditions are anticipated (i.e. no flow in stream) and shall avoid work during periods of heavy rain.
6. All areas disturbed by construction activities shall be restored to match existing conditions upon completion of work.
7. Double layer perimeter control required within 50 feet of water's edge per HAR 11-55 Appendix C.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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TRACED BY	_____	_____
NOTE BOOK	_____	_____
QUANTITIES BY	_____	_____
CHECKED BY	_____	_____
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN
PULEHU GULCH BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	23	131

CURVE DATA (A)

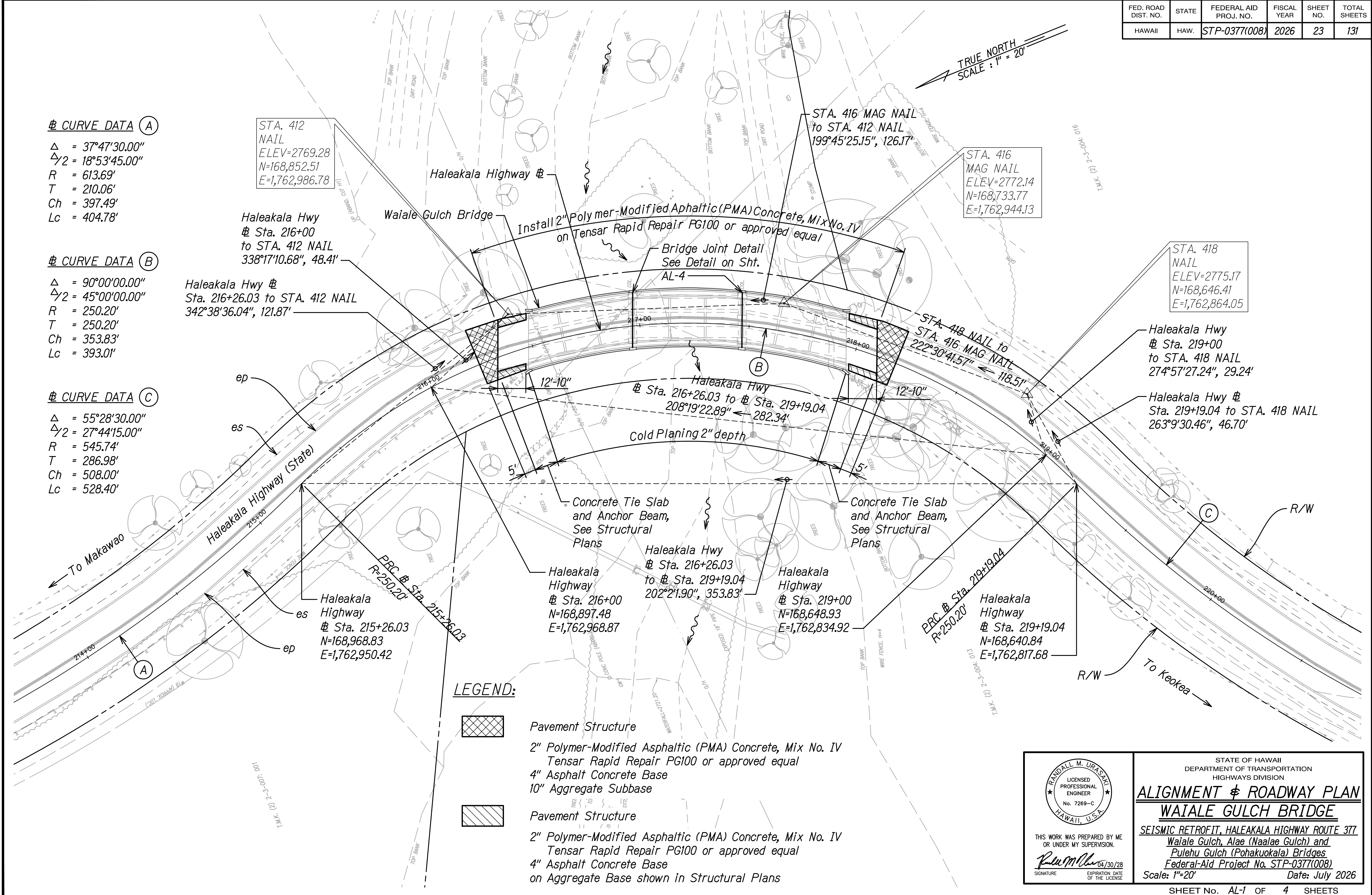
$\Delta = 37^{\circ}47'30.00''$
 $\Delta/2 = 18^{\circ}53'45.00''$
 $R = 613.69'$
 $T = 210.06'$
 $Ch = 397.49'$
 $Lc = 404.78'$

CURVE DATA (B)

$\Delta = 90^{\circ}00'00.00''$
 $\Delta/2 = 45^{\circ}00'00.00''$
 $R = 250.20'$
 $T = 250.20'$
 $Ch = 353.83'$
 $Lc = 393.01'$

CURVE DATA (C)

$\Delta = 55^{\circ}28'30.00''$
 $\Delta/2 = 27^{\circ}44'15.00''$
 $R = 545.74'$
 $T = 286.98'$
 $Ch = 508.00'$
 $Lc = 528.40'$



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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	QUANTITIES BY	
	CHECKED BY	
	N.	

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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Signature: *Randall M. Urasaki* 04/30/28
EXPIRATION DATE OF THE LICENSE

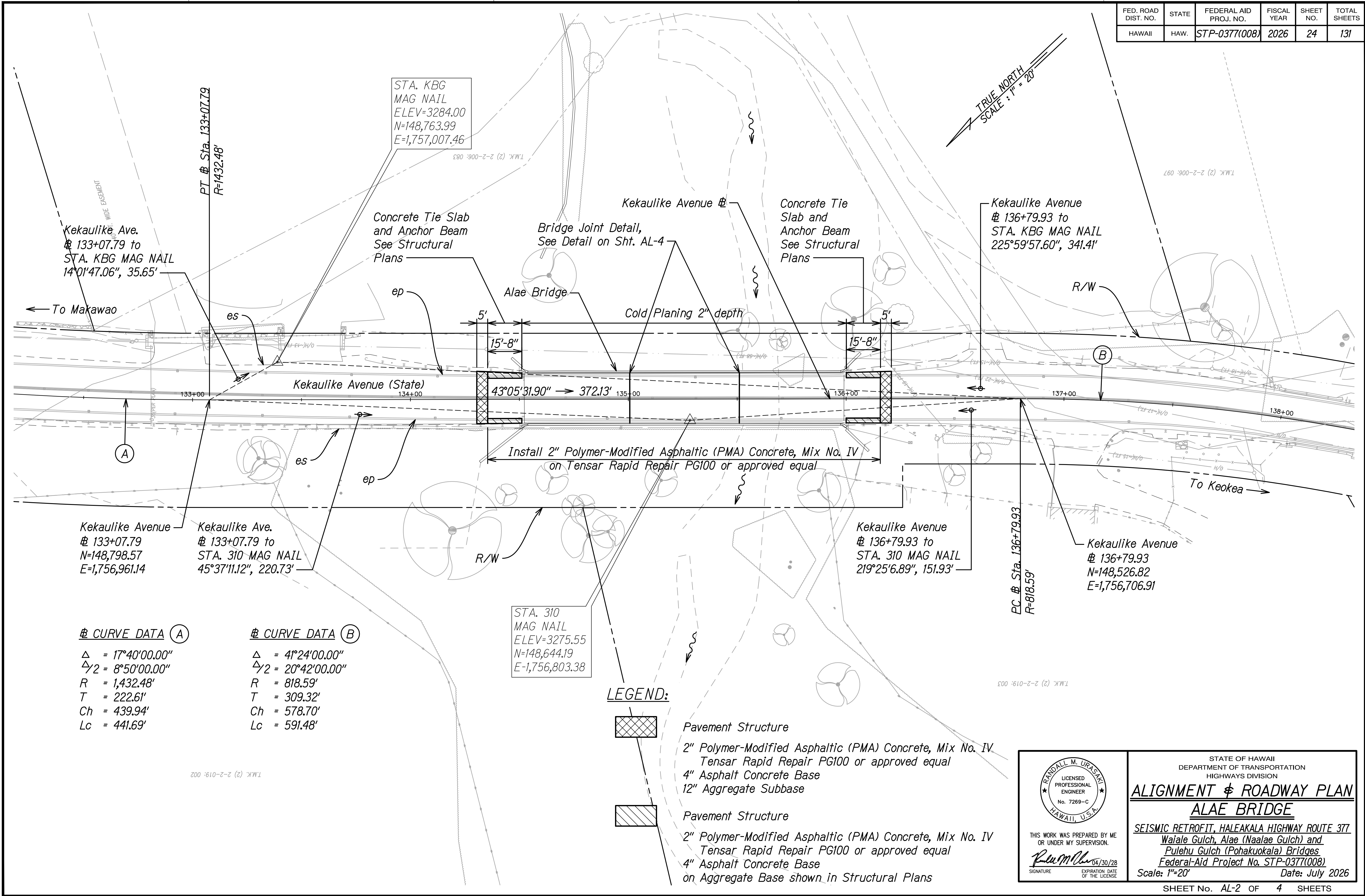
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT & ROADWAY PLAN
WAIKALE GULCH BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	24	131



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

¢ CURVE DATA (A)

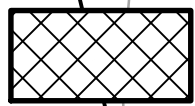
Δ = 17°40'00.00"
Δ/2 = 8°50'00.00"
R = 1,432.48'
T = 222.61'
Ch = 439.94'
Lc = 441.69'

¢ CURVE DATA (B)

Δ = 41°24'00.00"
Δ/2 = 20°42'00.00"
R = 818.59'
T = 309.32'
Ch = 578.70'
Lc = 591.48'

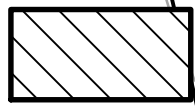
STA. 310
MAG NAIL
ELEV=3275.55
N=148,644.19
E=1,756,803.38

LEGEND:



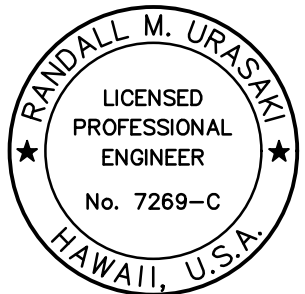
Pavement Structure

2" Polymer-Modified Asphaltic (PMA) Concrete, Mix No. IV
Tensor Rapid Repair PG100 or approved equal
4" Asphalt Concrete Base
12" Aggregate Subbase



Pavement Structure

2" Polymer-Modified Asphaltic (PMA) Concrete, Mix No. IV
Tensor Rapid Repair PG100 or approved equal
4" Asphalt Concrete Base
on Aggregate Base shown in Structural Plans



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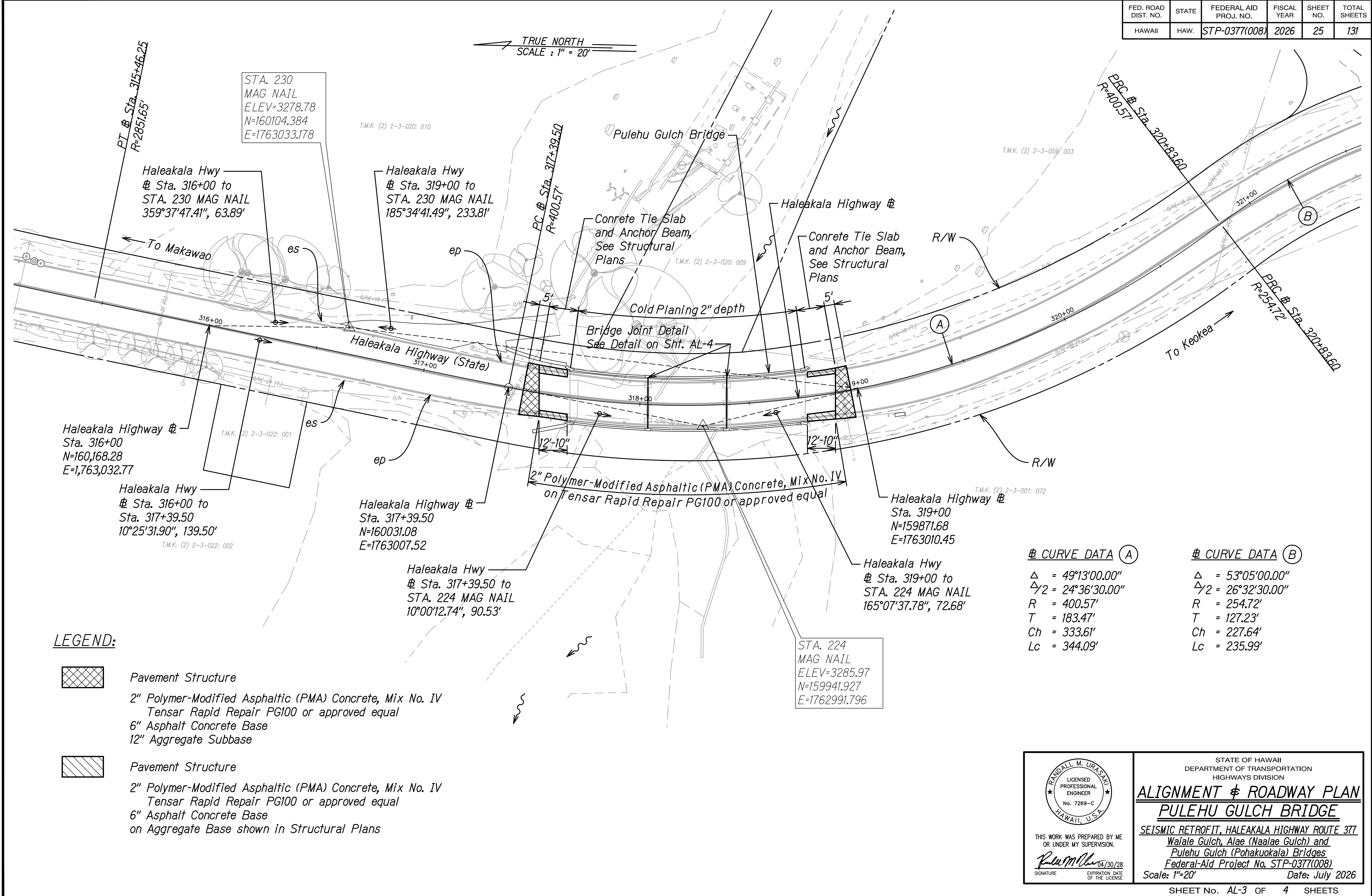
Randall M. Urasaka
SIGNATURE EXPIRATION DATE
OF THE LICENSE 04/30/28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT & ROADWAY PLAN
ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	25	131

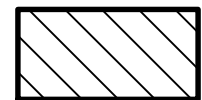


LEGEND:



Pavement Structure

2" Polymer-Modified Asphaltic (PMA) Concrete, Mix No. IV
Tensor Rapid Repair PG100 or approved equal
6" Asphalt Concrete Base
12" Aggregate Subbase



Pavement Structure

2" Polymer-Modified Asphaltic (PMA) Concrete, Mix No. IV
Tensor Rapid Repair PG100 or approved equal
6" Asphalt Concrete Base
on Aggregate Base shown in Structural Plans

ⓐ CURVE DATA ⓐ

Δ	= 49°13'00.00"
$\Delta/2$	= 24°36'30.00"
R	= 400.57'
T	= 183.47'
Ch	= 333.61'
Lc	= 344.09'

ⓑ CURVE DATA ⓑ

Δ	= 53°05'00.00"
$\Delta/2$	= 26°32'30.00"
R	= 254.72'
T	= 127.23'
Ch	= 227.64'
Lc	= 235.99'

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
N ^o .	_____

RANDALL M. URASAKA
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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Randall M. Urasaka 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

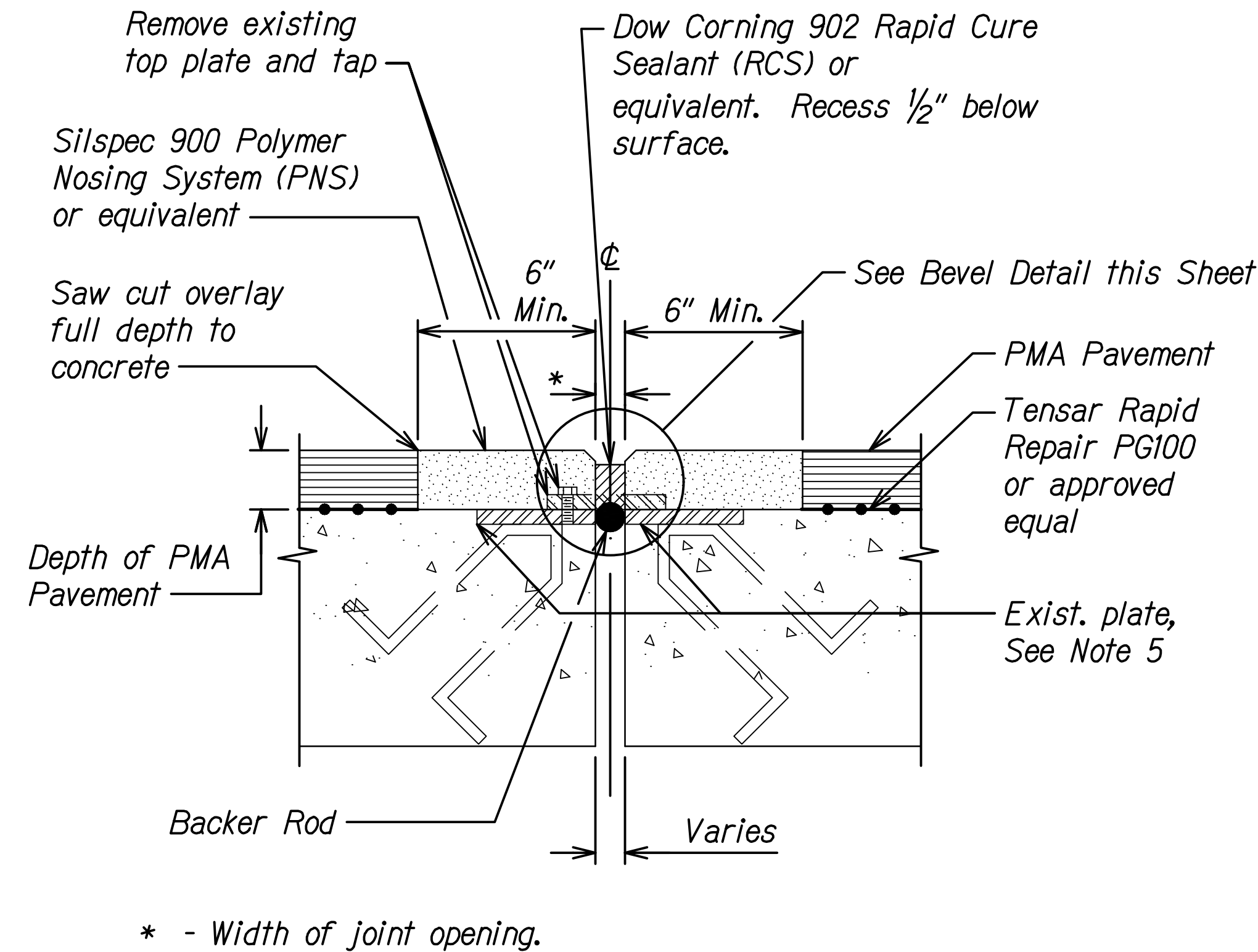
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT & ROADWAY PLAN
PULEHU GULCH BRIDGE

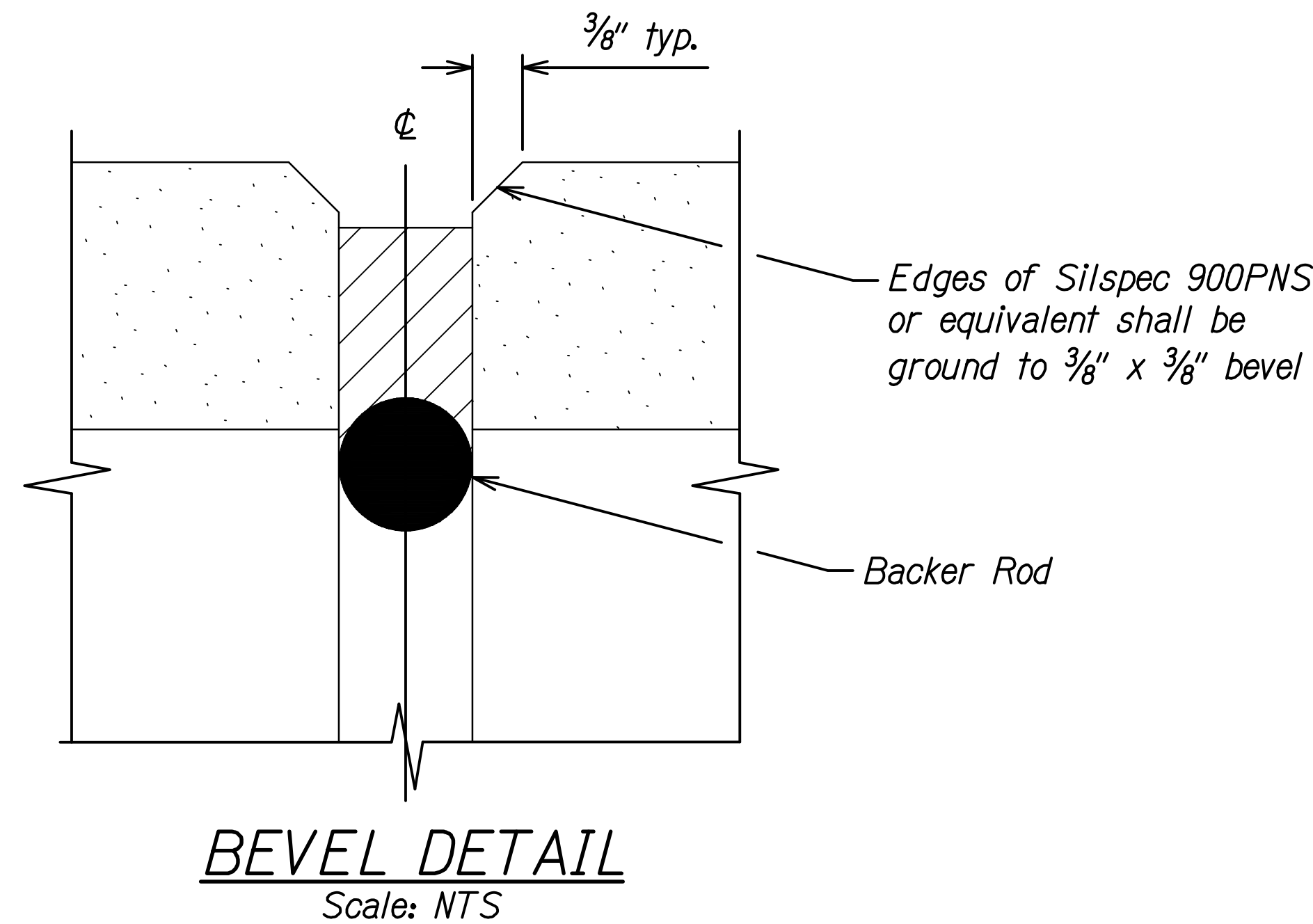
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	26	131



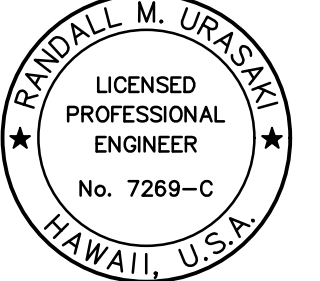
BRIDGE JOINT DETAIL
Scale: NTS



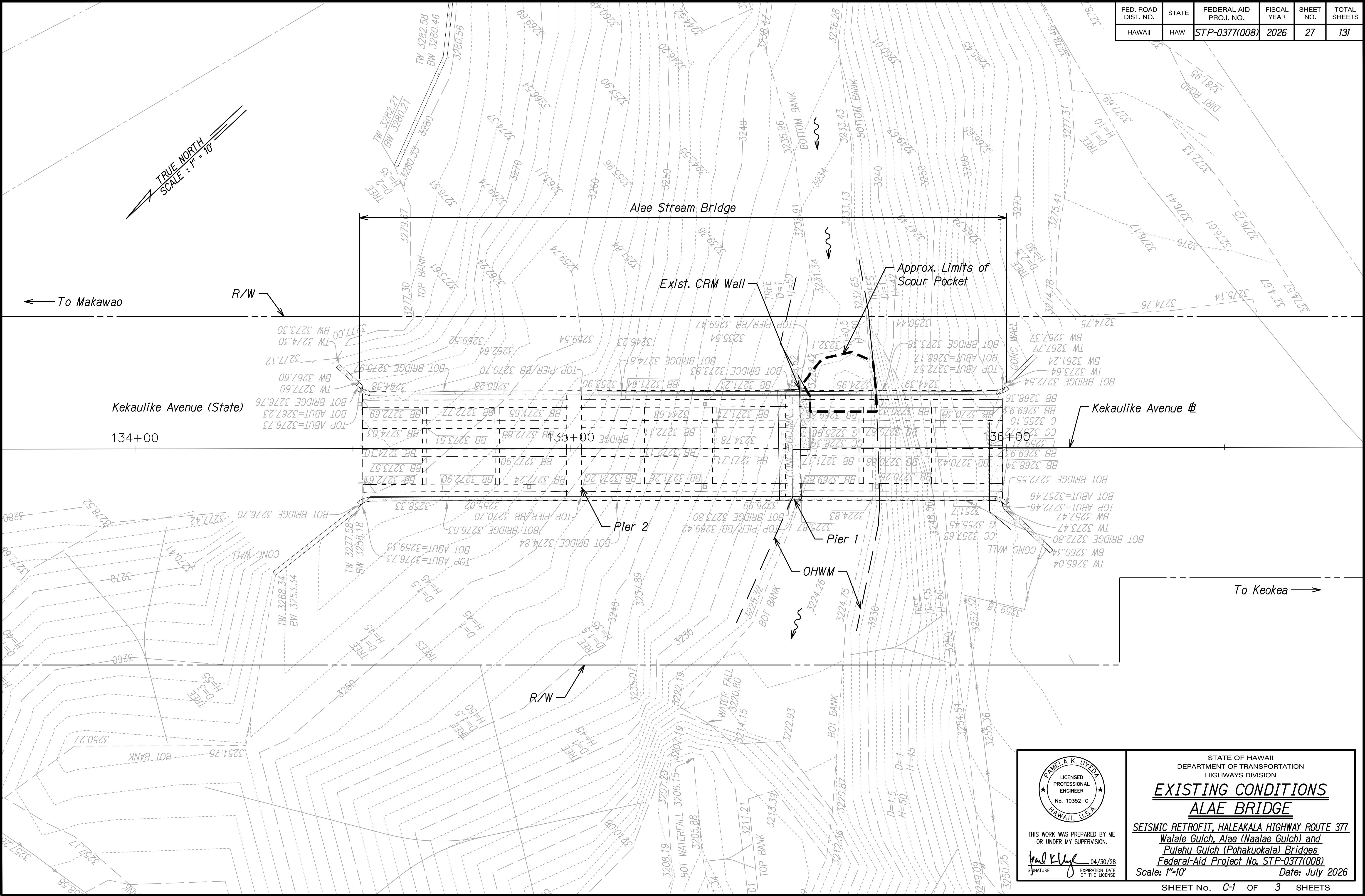
NOTES FOR JOINT DETAILS AT BRIDGE DECK:

1. Remove asphalt concrete overlay and clean block-out per manufacturer's procedures.
2. Measure actual joint gaps prior to ordering of material.
3. Remove any cracked or weakened concrete sections exposed after the asphalt concrete overlay has been removed using methods as approved by the Engineer.
4. Inspect plate irons for any defects, especially for soundness of underlying concrete. If accepted by the Engineer as sound, the plate irons may remain in place. Otherwise, remove plate irons and any underlying damaged concrete using methods as accepted by the Engineer. Repair work shall be done on a force account basis with payment under appropriate bridge pay item:
 - 520.3200 Removal and Repair of the Bottom Plate Irons - Waiale Gulch Bridge
 - 520.1200 Removal and Repair of the Bottom Plate Irons - Alae Bridge
 - 520.2200 Removal and Repair of the Bottom Plate Irons - Pulehu Gulch Bridge
5. Use caution to avoid cutting any reinforcing steel. If any reinforcing steel is accidentally cut, immediately report the incident to the Engineer.
6. Repair all chipped, spalled, or damaged concrete in joint areas using methods as accepted by the Engineer. Repair work shall be done on a force account basis with payment under appropriate bridge pay item:
 - 520.3200 Removal and Repair of the Bottom Plate Irons - Waiale Gulch Bridge
 - 520.1200 Removal and Repair of the Bottom Plate Irons - Alae Bridge
 - 520.2200 Removal and Repair of the Bottom Plate Irons - Pulehu Gulch Bridge
7. Install Silspec 900 Polymer Nosing System or equivalent and Dow Corning 902 Rapid Cure Sealant or equivalent per manufacturers' recommendations.
8. A representative of the Polymer Nosing manufacturer shall be present at the start of work to demonstrate proper cleaning and installation techniques.
9. All work necessary for the complete installation of each joint system, including but not limited to ordering of materials, preparation of joints, installation of Silspec 900 Polymer Nosing System or equivalent, installation of Dow Corning 902 Rapid Cure Sealant or equivalent, installation of backer rod, clean up, disposal of debris, and furnishing of all materials, equipment, and labor (including expenses for manufacturer's representative) shall be paid under appropriate bridge pay item:
 - 520.3100 Bridge Joint Repair - Waiale Gulch Bridge
 - 520.1100 Bridge Joint Repair - Alae Bridge
 - 520.2100 Bridge Joint Repair - Pulehu Gulch Bridge

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>Randall M. Urashima</i> SIGNATURE EXPIRATION DATE OF THE LICENSE 04/30/28	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION BRIDGE JOINT REPAIR DETAILS SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377 Waiale Gulch, Alae (Naalae Gulch) and Pulehu Gulch (Pohakuokala) Bridges Federal Aid Project No. STP-0377(008) Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	27	131



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

PAMELA K. UYEDA

LICENSED PROFESSIONAL ENGINEER

No. 10352-C

HAWAII, U.S.A.

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Signature

04/30/28

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

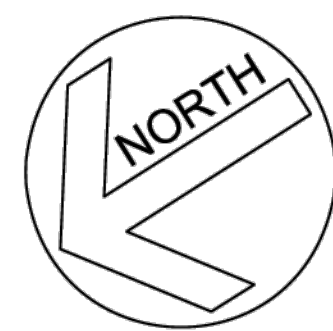
EXISTING CONDITIONS
ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

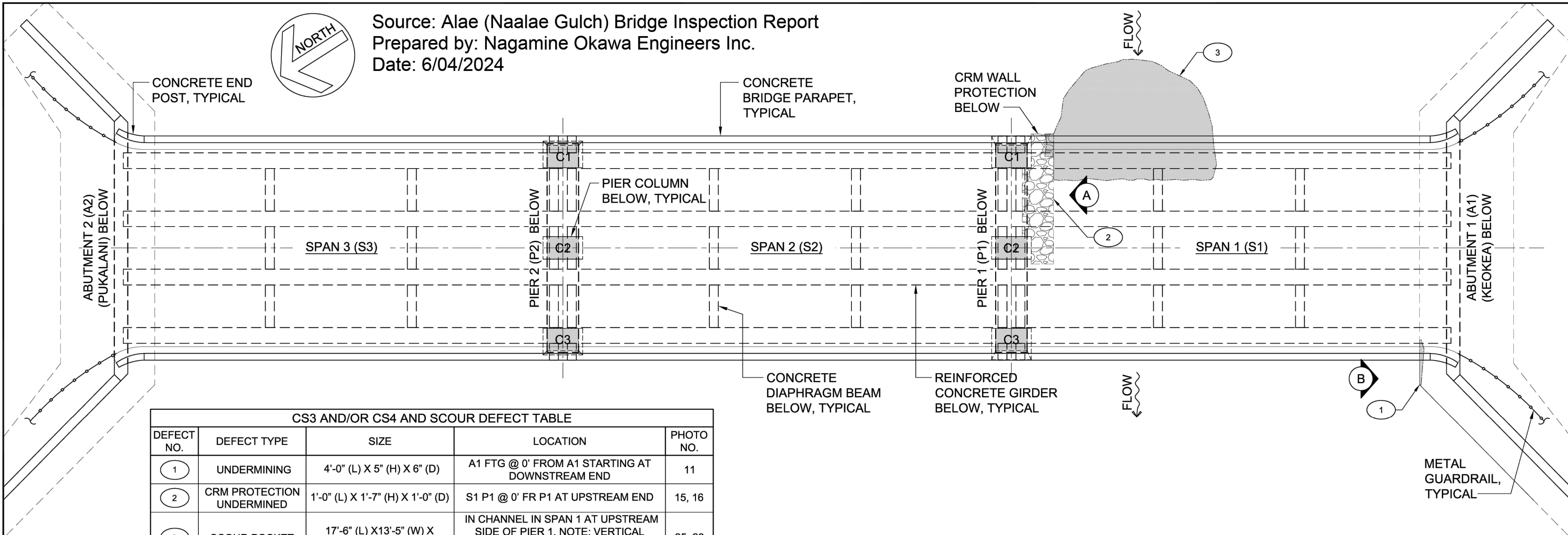
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SHEET No. C-1 OF 3 SHEETS

27

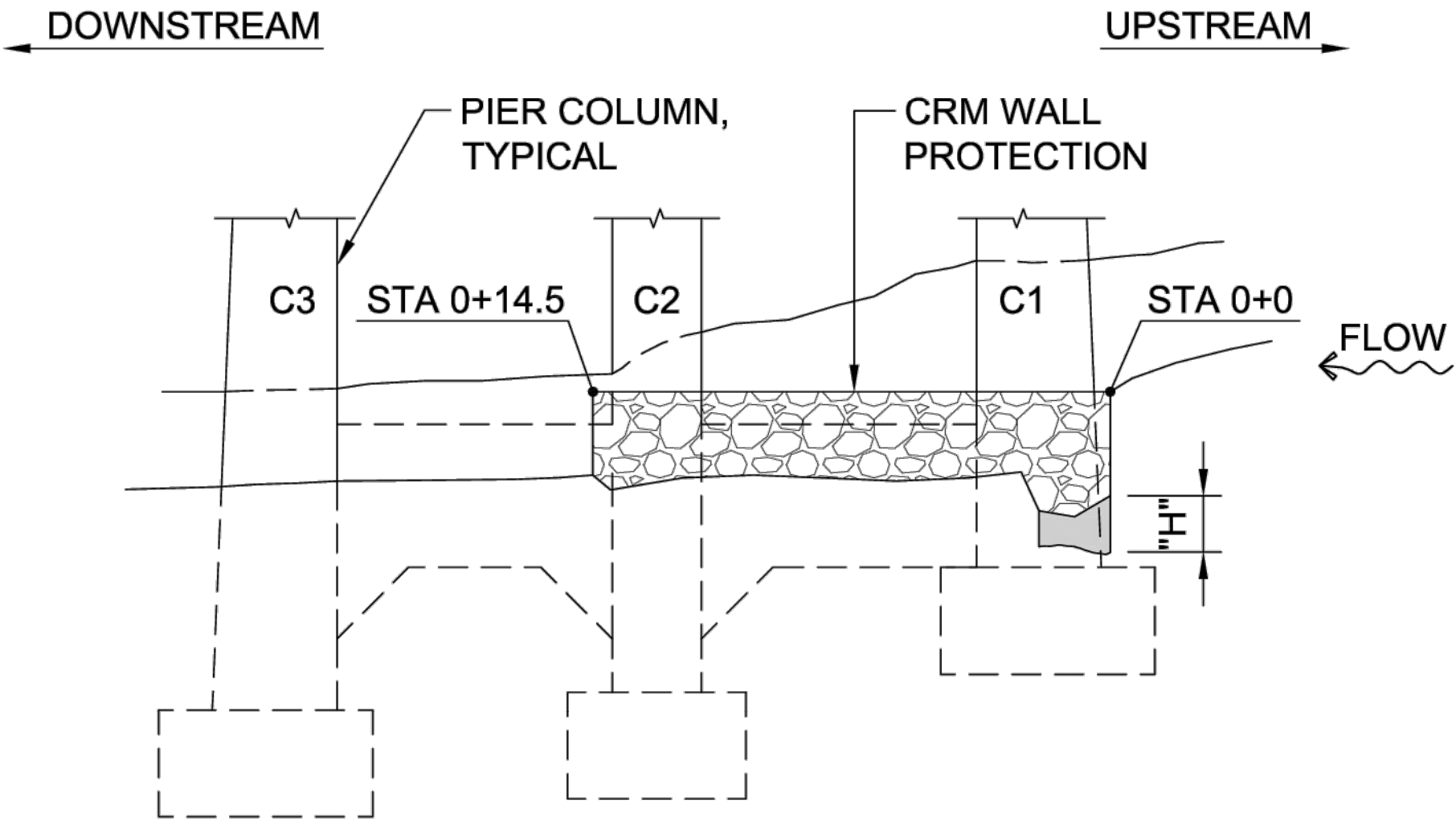


Source: Alae (Naalae Gulch) Bridge Inspection Report
Prepared by: Nagamine Okawa Engineers Inc.
Date: 6/04/2024



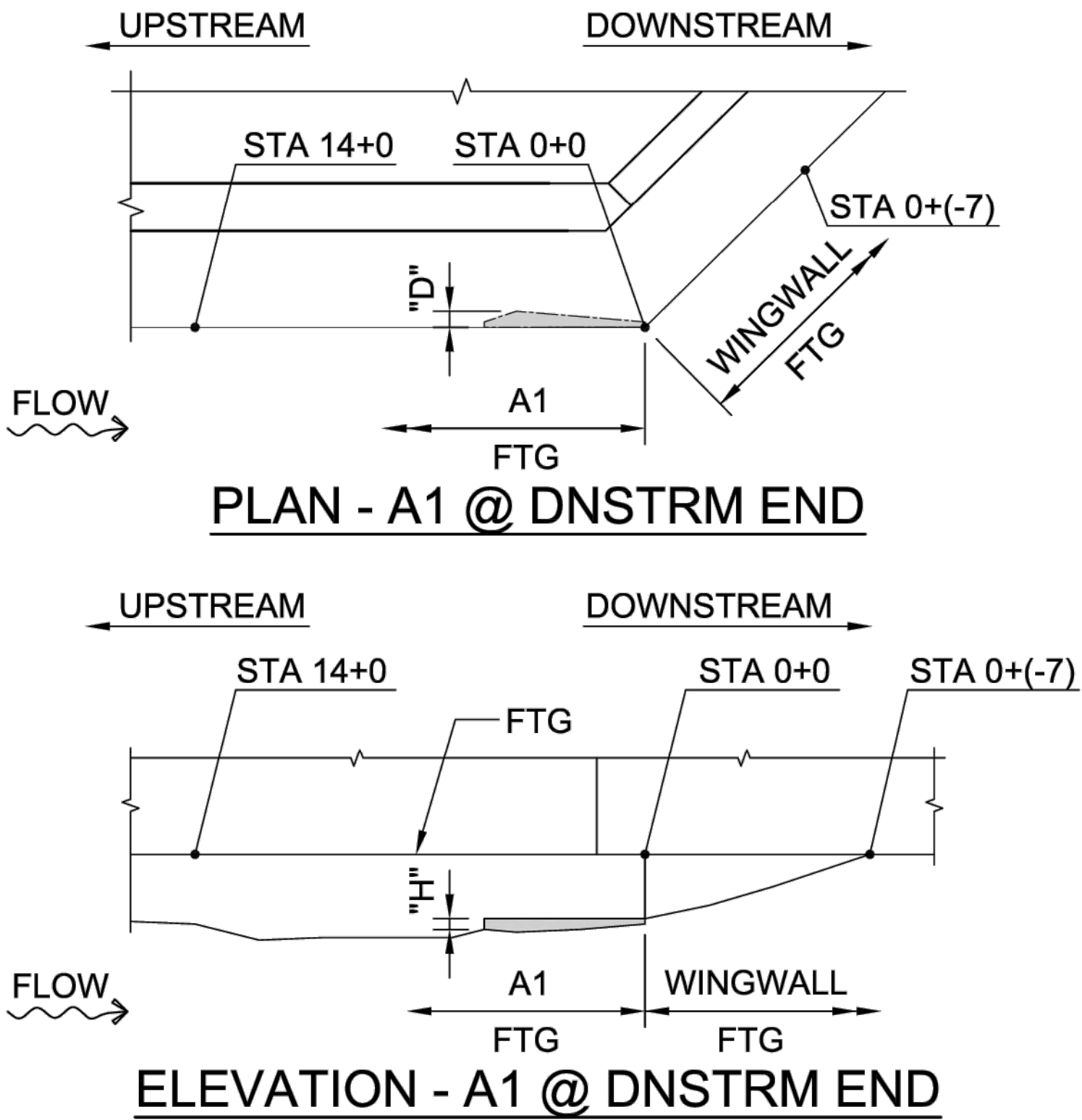
CS3 AND/OR CS4 AND SCOUR DEFECT TABLE				
DEFECT NO.	DEFECT TYPE	SIZE	LOCATION	PHOTO NO.
1	UNDERMINING	4'-0" (L) X 5" (H) X 6" (D)	A1 FTG @ 0' FROM A1 STARTING AT DOWNSTREAM END	11
2	CRM PROTECTION UNDERMINED	1'-0" (L) X 1'-7" (H) X 1'-0" (D)	S1 P1 @ 0' FR P1 AT UPSTREAM END	15, 16
3	SCOUR POCKET	17'-6" (L) X 13'-5" (W) X 6'-9" (H)	IN CHANNEL IN SPAN 1 AT UPSTREAM SIDE OF PIER 1. NOTE: VERTICAL SCOUR DIMENSION MEASURED FROM TOP OF CRM PROTECTION	25, 26

PIER 1 CRM PROTECTION SCOUR DIMENSIONS TABLE			
STATION (FEET)	"H" (HEIGHT)	"D" (DEPTH)	PHOTO
0	1'-7"	1'-0"	15, 16
1	10"	9"	
2	-	-	
2.5	1'-0"	1'-0"	
4	-	-	
6	-	-	
8	-	-	
10	-	-	
12	-	-	
14	-	-	
14.5	-	-	



A SCOUR DETAIL @ P1 CRM PROTECTION

A1 FTG @ DNSTRM END SCOUR DIMENSIONS TABLE				
NOTE	STATION (FEET)	"H" (HEIGHT)	"D" (DEPTH)	PHOTO
WINGWALL FTG	-7	0"	-	11, 12
	-6	4"	-	
	-4	1'-0"	-	
	-2	1'-7"	-	
A1 FTG	0	2'-0"	2"	
	2	2'-0"	4"	
	4	2'-0"	5"	
	5	2'-0"	4"	
	6	2'-7"	-	
	8	2'-7"	-	
	10	2'-7"	-	
	12	2'-8"	-	
	14	2'-2"	-	



B SCOUR DETAIL @ A1 FTG DNSTRM END

BRIDGE PLAN (DEFECTS AND SCOUR DETAILS)

Bridge Name: ALAE (NAALAE GULCH) BRIDGE

MONITOR
INSPECTION

State of Hawaii
Department of Transportation,
Maui District

Structure No. : 009003770500058

Scale: NTS

Route No.: 00377

Date of Inspection: 06/04/2024

TMK: 2-2-006

Mile Post: 8.57

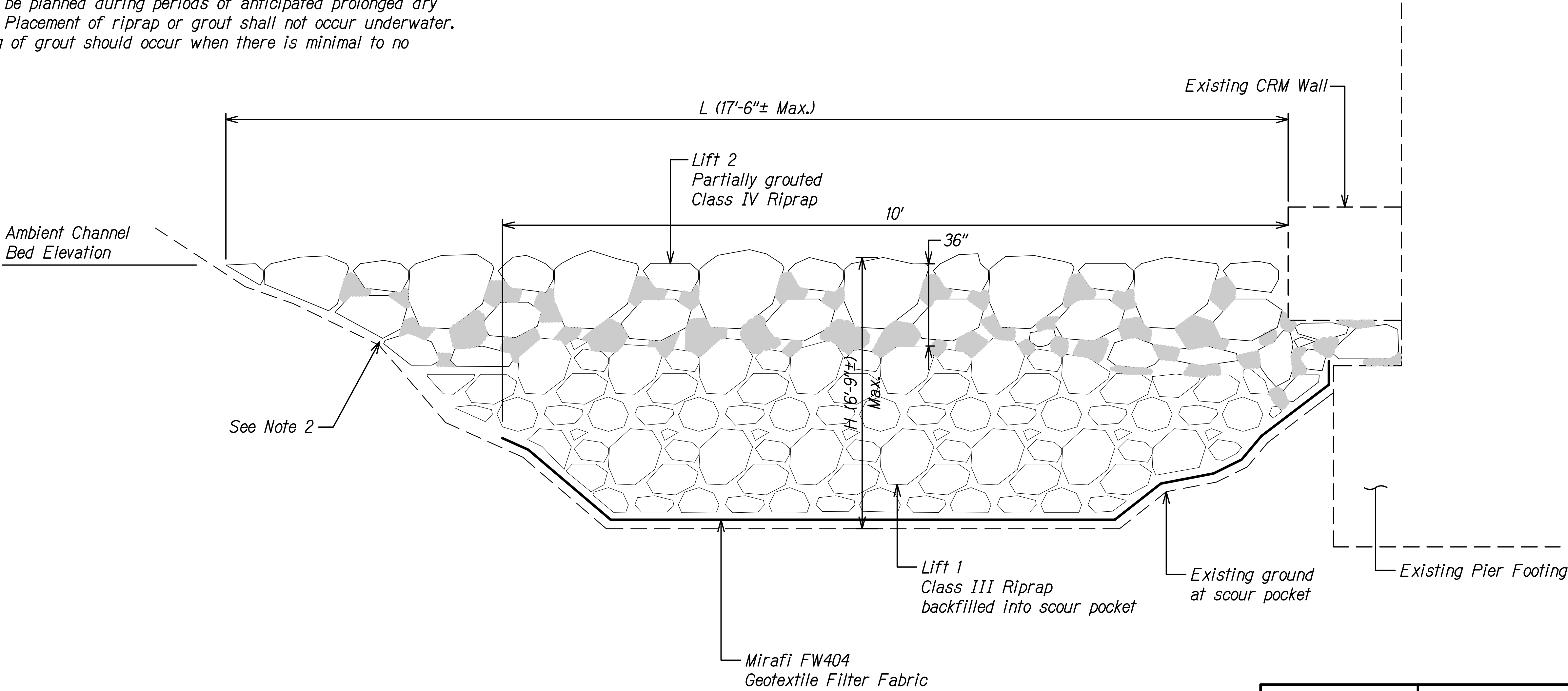
FOR REFERENCE ONLY

SHEET No. C-2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	29	131

NOTES:

1. Contractor can manufacture rock with concrete, provided the gradation is per the class of riprap specified and the individual rock elements are irregular in shape to simulate the interlocking characteristics of natural boulders.
2. Remove sediment and loose material in scour pocket prior to placement of riprap. Incorporate existing GRP matting where feasible. Dispose of excess material off-site at a DOH-permitted facility.
3. Top of riprap layer shall be flush with the ambient channel bed elevation. Do not mound riprap around pier.
4. Construction shall be planned during periods of anticipated prolonged dry stream conditions. Placement of riprap or grout shall not occur underwater. In addition, curing of grout should occur when there is minimal to no stream flow.



SCOUR PROTECTION DETAIL
Not to Scale

PAMELA K. UYEDA
LICENSED PROFESSIONAL ENGINEER
No. 10352-C
HAWAII, U.S.A.

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Pamela K. Uyeda 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

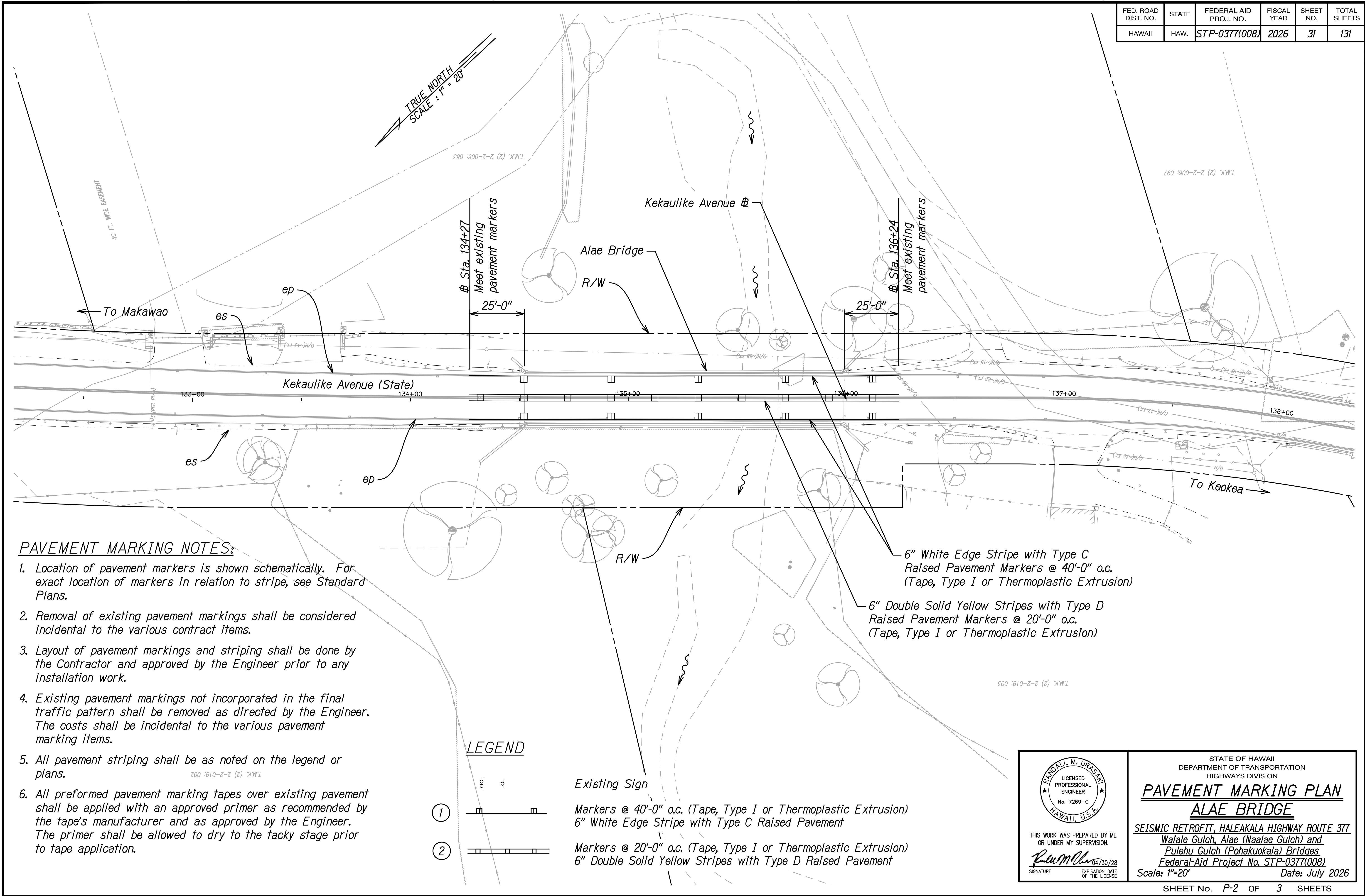
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SCOUR PROTECTION DETAIL
ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: NTS Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	31	131



PAVEMENT MARKING NOTES:

1. Location of pavement markers is shown schematically. For exact location of markers in relation to stripe, see Standard Plans.
2. Removal of existing pavement markings shall be considered incidental to the various contract items.
3. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
4. Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. The costs shall be incidental to the various pavement marking items.
5. All pavement striping shall be as noted on the legend or plans.
6. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape's manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.

LEGEND

- ① Markers @ 40'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
6" White Edge Stripe with Type C Raised Pavement
- ② Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
6" Double Solid Yellow Stripes with Type D Raised Pavement

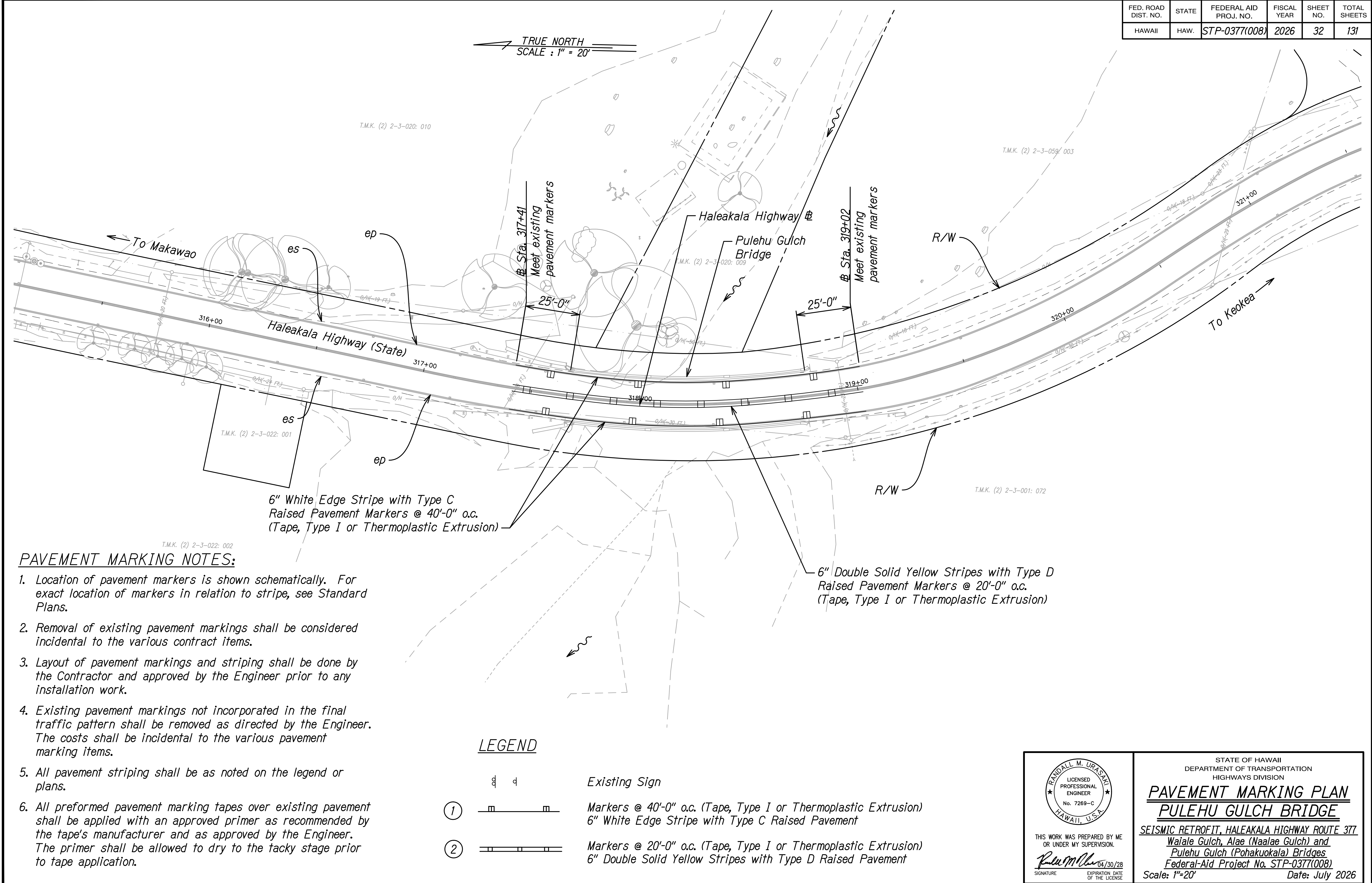
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Randall M. Urasaka 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT MARKING PLAN
ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: 1"=20' Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	32	131



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY	TRACED BY	
NOTE BOOK	QUANTITIES BY	
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GENERAL NOTES FOR TRAFFIC CONTROL PLAN

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	33	131

- Only Traffic Control Plans for major construction activities are shown. The Contractor shall develop his own Traffic Control Plans in accordance with Section 645 of the Special Provisions for activities to complete work not covered by the Traffic Control Plans. The Contractor shall submit the Traffic Control Plans to the Engineer for acceptance. Payment for development and implementation of the Traffic Control Plans shall be under the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge
- All lane closures and traffic pattern changes (detours) not shown on the plan shall be submitted to the Engineer for acceptance 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 Subsection 107.03 - Working Hours; Night Work and Section 645 - Work Zone Traffic Control.
- 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 shall be placed first. The others shall then be placed progressively toward the work area.
- Flaggers and/or police officers shall be in sight of each other or in direct communications at all times.
- Sign spacings (L), taper lengths (T), and spacings of cones or delineators shall be as shown in Table 645-1 - For Traffic Control Plan of Section 645 in the Specifications, unless otherwise noted on HDOT's Traffic Control Plans.
- All traffic lanes shall be a minimum of 10 feet wide.
- All signs shall be promptly removed or covered whenever the message is not applicable or not in use.
- The backs of all signs for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
- Replace permanent pavement markings and traffic signs that are missing, damaged, or have been removed upon completion of each day's work. Payment for replacing permanent pavement markings and signs shall be considered incidental to the various contract items.
- At the end of each day's work or as soon as the 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.
- The locations of pavement markings, signs, and delineators used in the Traffic Control shall be as shown on the plans, Contractor's accepted Traffic Control Plans, and/or as determined in the field by the Engineer.
- Damage to signs, pavement markers, and delineators caused by the public or Contractor's negligence shall be repaired or replaced by the Contractor at no cost to the State.
- The Contractor shall provide all sign supports, barrier mounting brackets, and/or posts for construction warning signs.

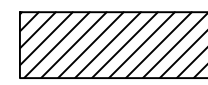
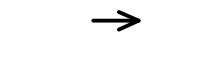
- The Contractor shall provide and maintain three (3) portable message boards to provide advanced warning of the lane closures. The message boards' location to be determined by the Engineer for each construction phase. Message boards shall display closure dates and times and shall be operational 24 hours a day for three (3) days prior to the first lane closure. Signs shall remain for the duration of the project. The Contractor shall provide appropriate traffic control devices (barricades, cones, etc.) to protect the message boards. Installation, maintenance, and removal of message boards shall be paid under the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge
- The Contractor shall furnish, install, maintain, and remove all traffic control devices shown on the traffic control plans. Payment for all work shown, including furnishing all police officers shown on the traffic control plans, shall be under the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge
- The Contractor shall sequence the work to allow access to the driveways and side streets. The Contractor shall provide all traffic control devices, including police officers, necessary to maintain driveway and side street access. In the case where a landowner has multiple vehicle access points that are internally connected, one access point may be temporarily shut down with two week notice to the landowner/lessee. The Contractor shall submit the Traffic Control Plans to the Engineer for acceptance. Payment for development and implementation of the Traffic Control Plans shall be included in the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge
- Cones or delineators shall be installed at 10' o.c. maximum.
- See Special Provisions Section 645 - Traffic Control for allowable lane closure hours.

GENERAL NOTES FOR TRAFFIC CONTROL PLAN
(WITHIN COUNTY R/W)

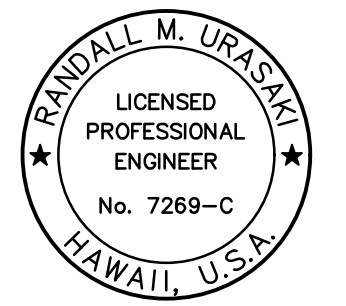
- The Permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc. to fit field conditions.
- Cones or delineators shall be extended to a point where they are visible to approaching traffic.
- Traffic control devices shall be installed such that the sign or device farthest 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.
- Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
- 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 not applicable or not in use.

- The backs of all signs for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
- Lane closure shall be limited only to the extent of accomplishing each day's work. As soon as each day's work is completed, the Permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation. Existing faded or obliterated pavement markings that are necessary for safe traffic flow in the construction area shall be replaced with temporary or permanent markings before opening the roadway to public traffic each day.
- Permanent pavement markings and traffic signs shall be replaced upon completion of each phase of work.
- Cones or delineators shall be installed at 10' o.c. maximum.
- Driveways shall be kept open unless the owners of the property using the driveway are otherwise provided for satisfactorily. Further, the Permittee shall control traffic going into and out of driveways.
- Buffer and taper area on approach to any work area shall be kept clear of vehicles and equipment.
- Allowable lane closure hours shall be limited to Monday thru Friday between 8:30 am and 3:00 p.m. Night work shall not be allowed.

Legend:

-  Work Area
-  Traffic Cones
-  Sign
-  Flashing Arrow Signal
-  Portable Message Board
-  Direction of Traffic
-  Police Officer and Police Vehicle with Visible Blue Light

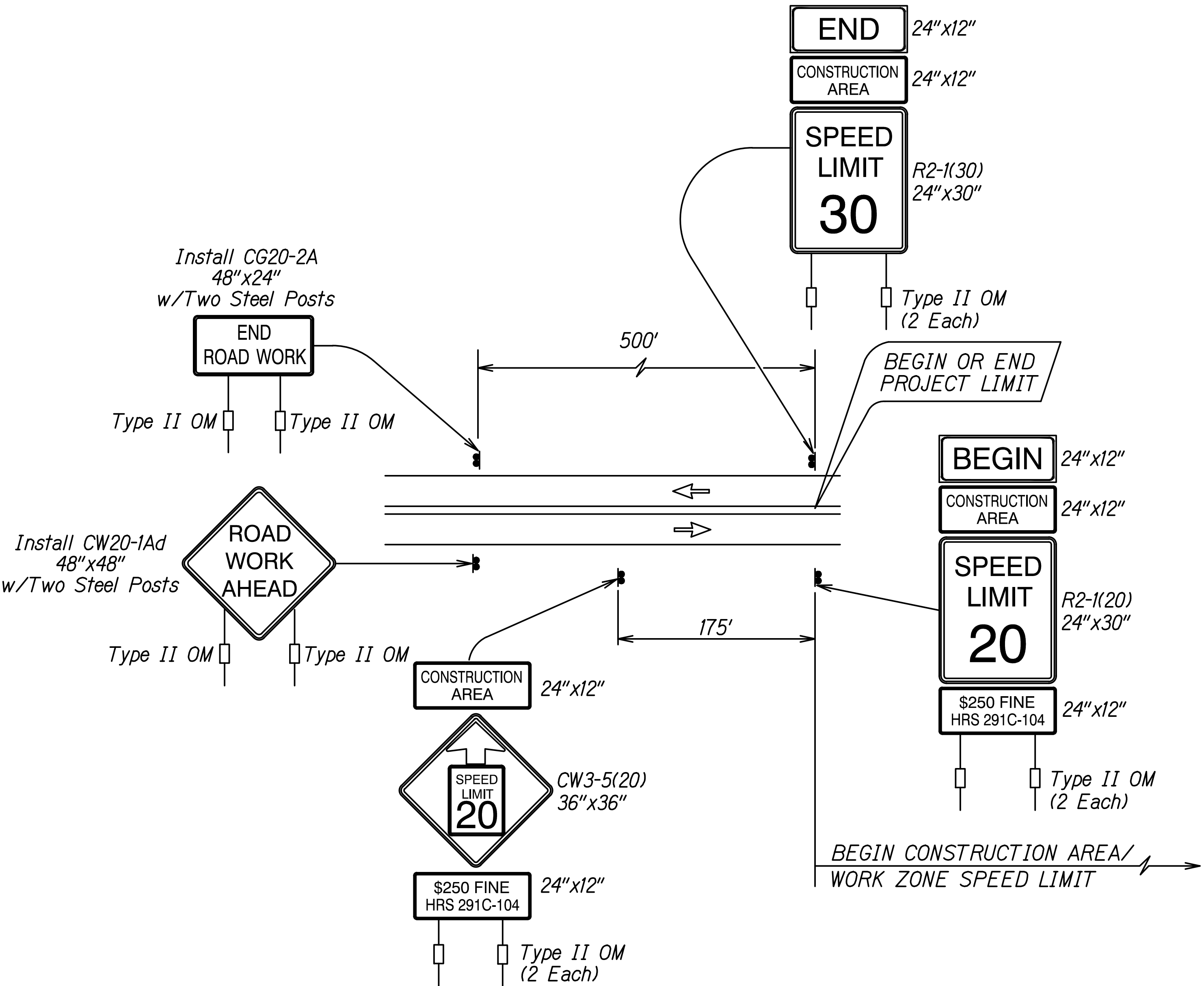
ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTE BOOK	DRAWN BY _____	
	TRACED BY _____	
	QUANTITIES BY _____	
	CHECKED BY _____	
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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>Randall M. Urasaka</i> SIGNATURE 04/30/28 EXPIRATION DATE OF THE LICENSE	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TRAFFIC CONTROL NOTES AND LEGEND SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377 Waiale Gulch, Alae (Naalae Gulch) and Pulehu Gulch (Pohakuokala) Bridges Federal-Aid Project No. STP-0377(008) Scale: NTS Date: July 2026
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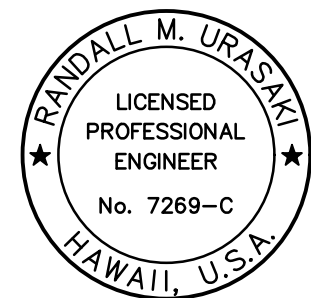
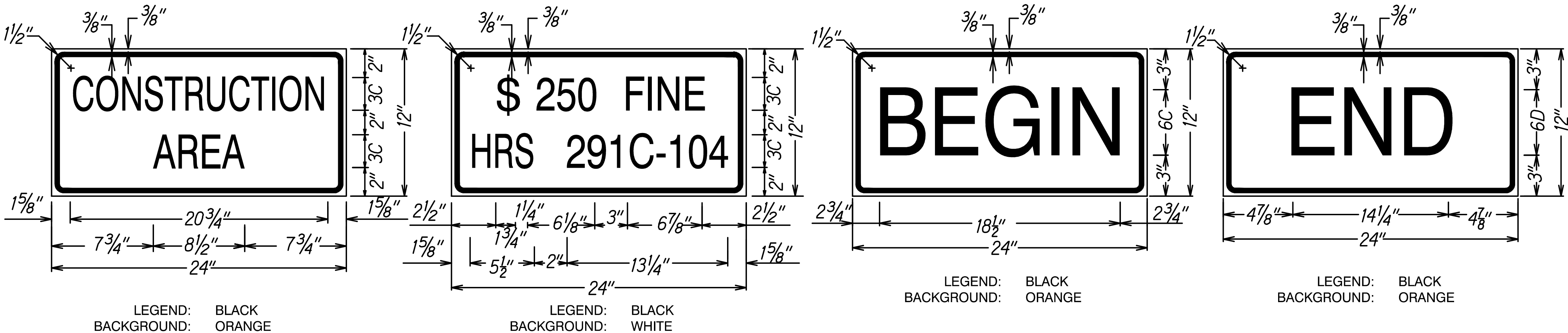
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	34	131

Work Zone Note:

1. This Work Zone Sign Plan is intended for use on long-term stationary work zones/construction phases (3 days or more). All work zones or construction phases less than 3 days duration will use Traffic Control Plans shown in Section 645 of the Special Provisions.
2. All existing regulatory speed limit signs with posts within the work zone/project limits shall be removed and replaced with work zone speed limit sign assemblies (R2-1(20) and R2-1(30) with "CONSTRUCTION AREA" and "\$250 FINE HRS 291C-104" Supplemental Signs).
3. Construction sign assemblies shall be installed on both the approaching and trailing ends of each work zone as shown on this plan.
4. Each construction warning sign shall have a minimum of two (2) Type II OM. Each work zone speed limit assembly shall have a minimum of one (1) Type II OM. Installation of each Type II OM shall be paid for under the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge
5. Upon the completion of all physical work or as directed by the Engineer, all construction signs and work zone speed limit assemblies shall be removed. All speed limit signs and posts that were existing at the start of the project within the work zone/project limits shall be restored back to their original locations and configurations.
6. Placement of construction signs shall not obstruct the path of pedestrians and bicyclists.
7. The removal and restoration of existing regulatory speed limit signs shall be considered incidental to the various contract pay items and shall not be paid for separately.
8. The installation, maintenance and removal of work zone speed limit signs shall be paid for under the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge
9. The work zone speed limit signs shall be new and become the property of the Contractor.
10. The Contractor shall adjust the locations of work zone signs to correspond with the beginning and end of work zone limits for each phase. Relocation of work zone signs shall be paid for under the appropriate bridge pay item:
 - 645.3010 Traffic Control - Waiale Gulch Bridge
 - 645.1010 Traffic Control - Alae Bridge
 - 645.2010 Traffic Control - Pulehu Gulch Bridge



TYPICAL DETAIL FOR CONSTRUCTION SIGNS
ON TWO LANE OR MULTILANE UNDIVIDED LOW SPEED HIGHWAY



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OR UNDER MY SUPERVISION.
SIGNATURE: *Randall M. Urakawa* 04/30/28
EXPIRATION DATE OF THE LICENSE

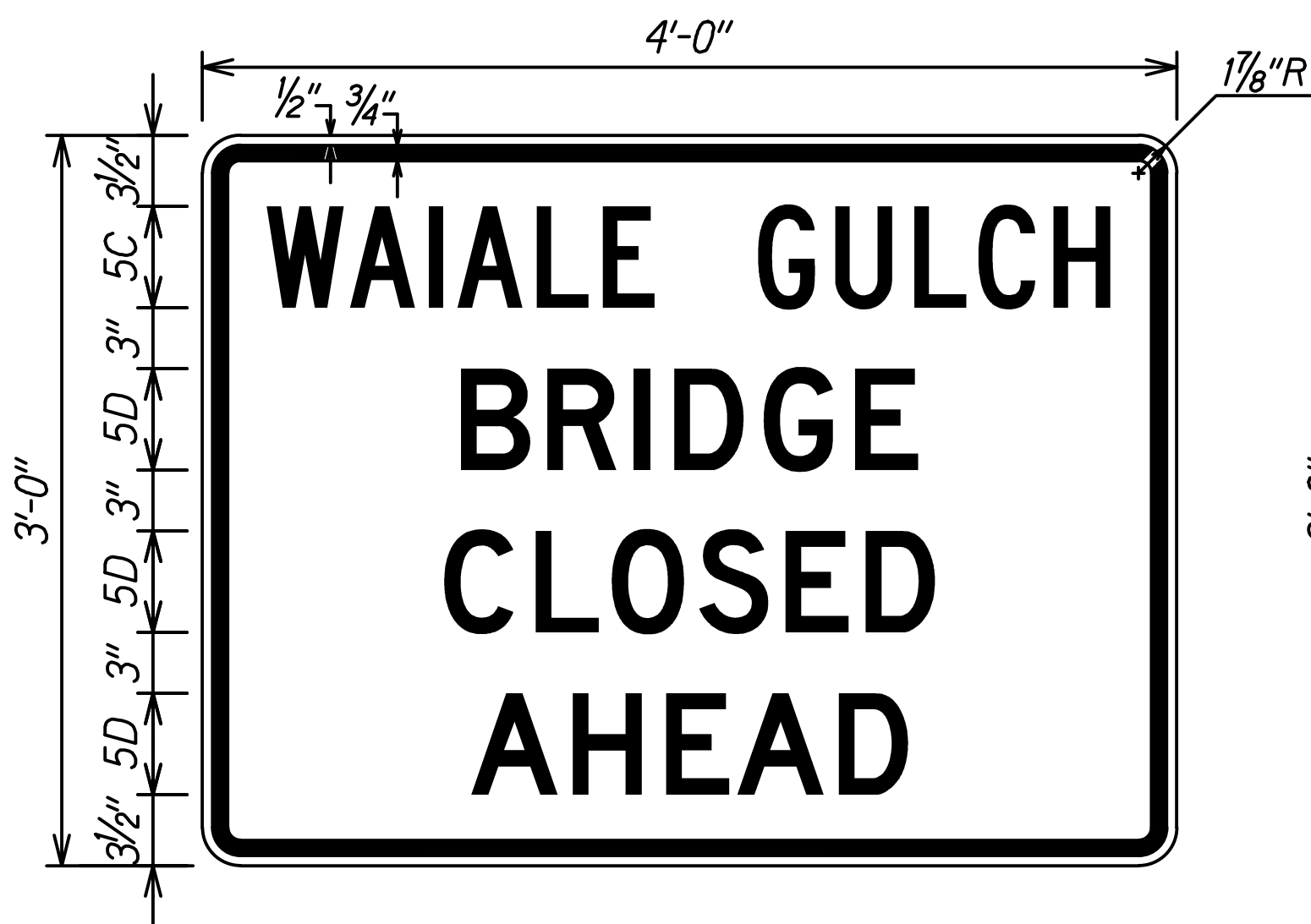
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**LOW SPEED UNDIVIDED HIGHWAY
WORKZONE SIGNING PLAN, NOTES & DETAILS**

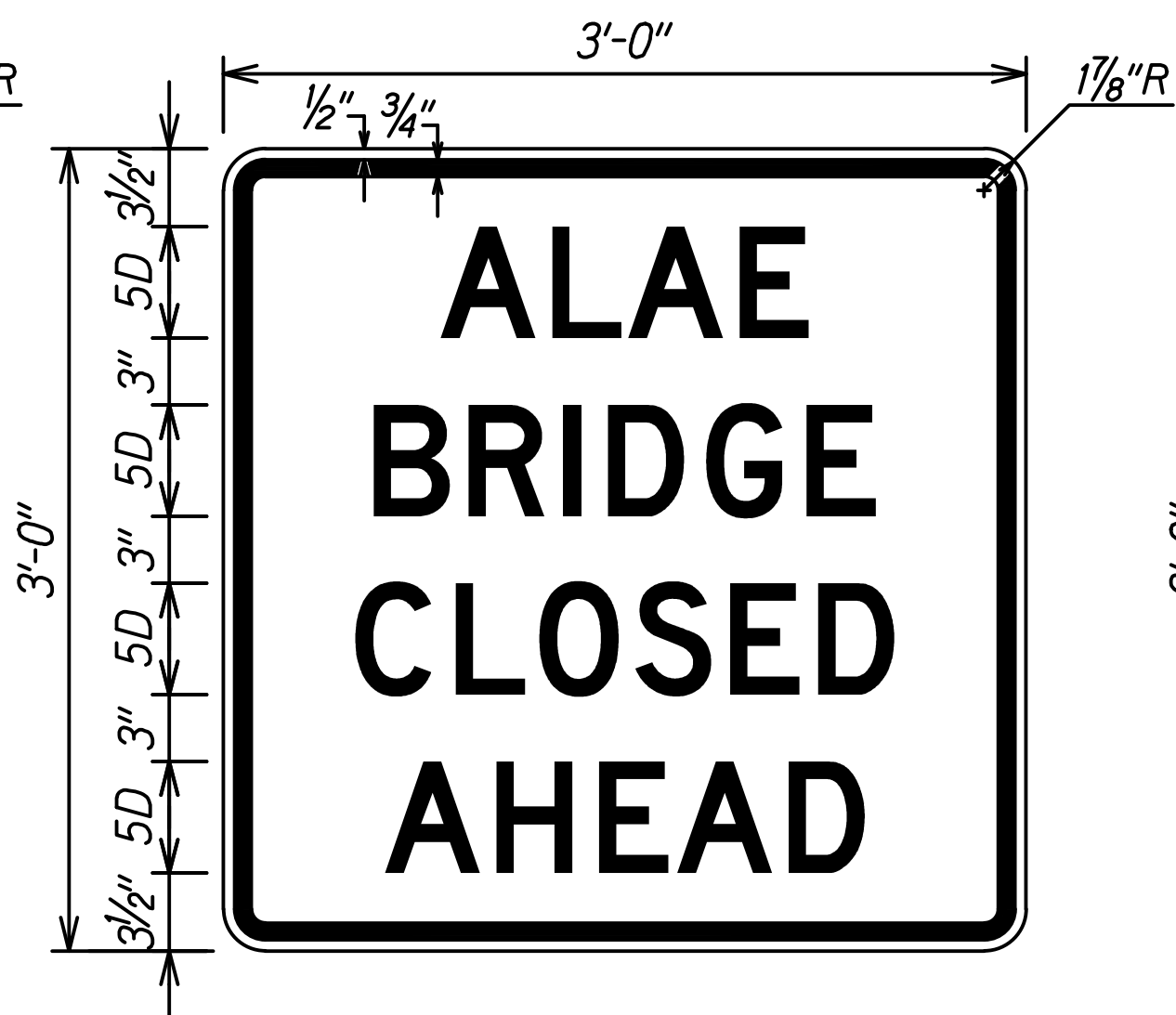
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: None Date: July 2026

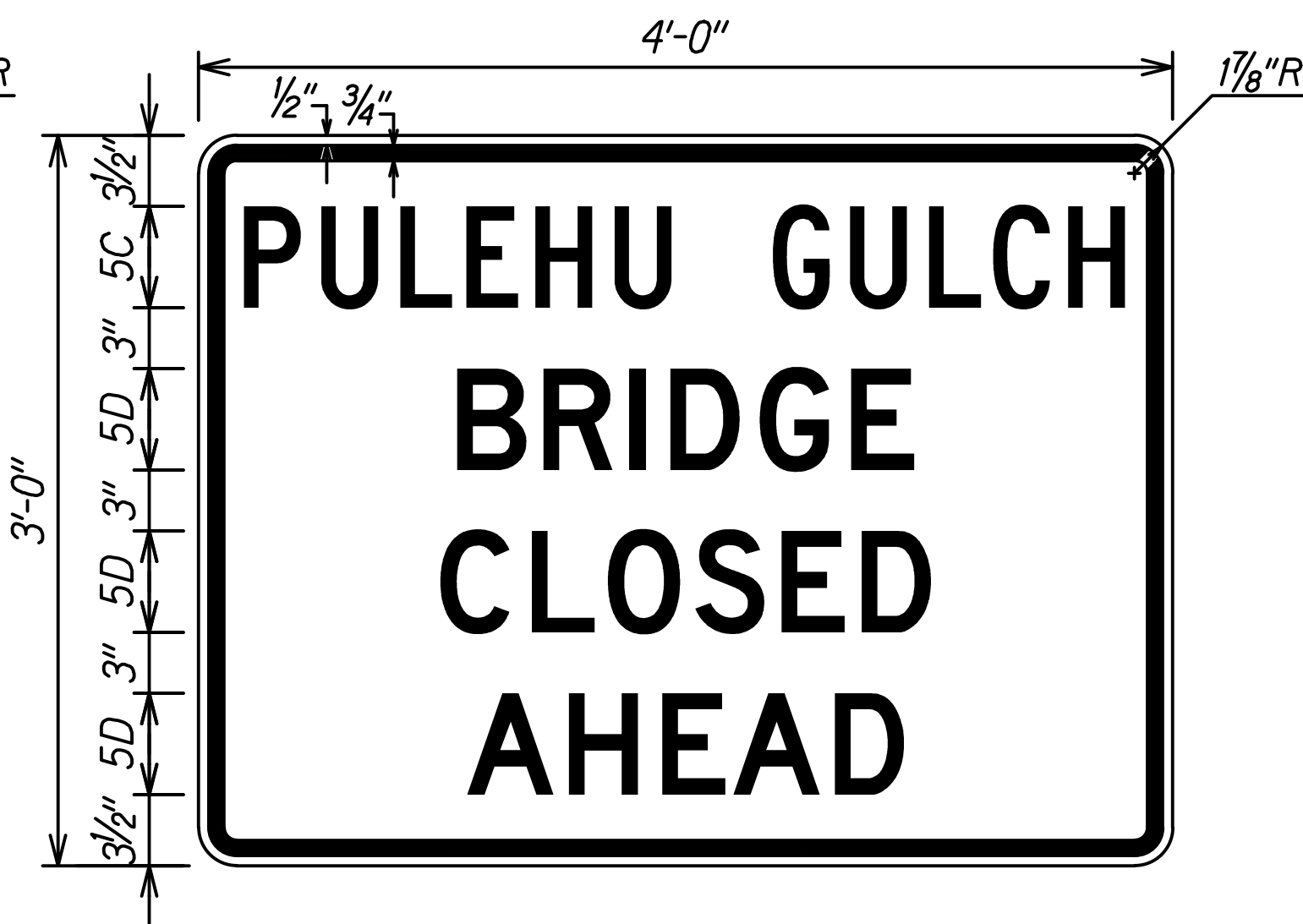
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HAWAII	HAW.	STP-0377(008)	2026	35	131



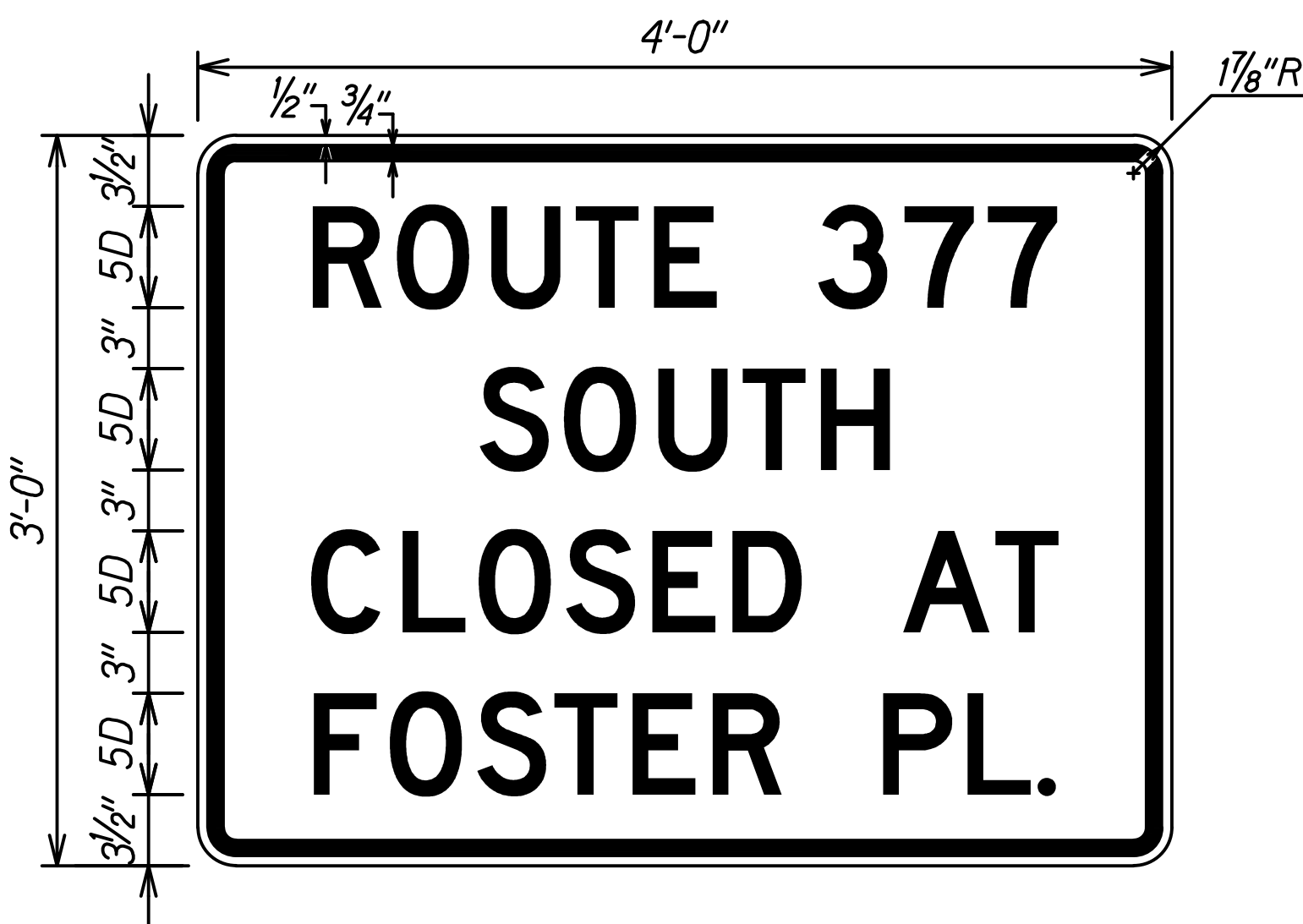
R11-4 ModA
Not to Scale



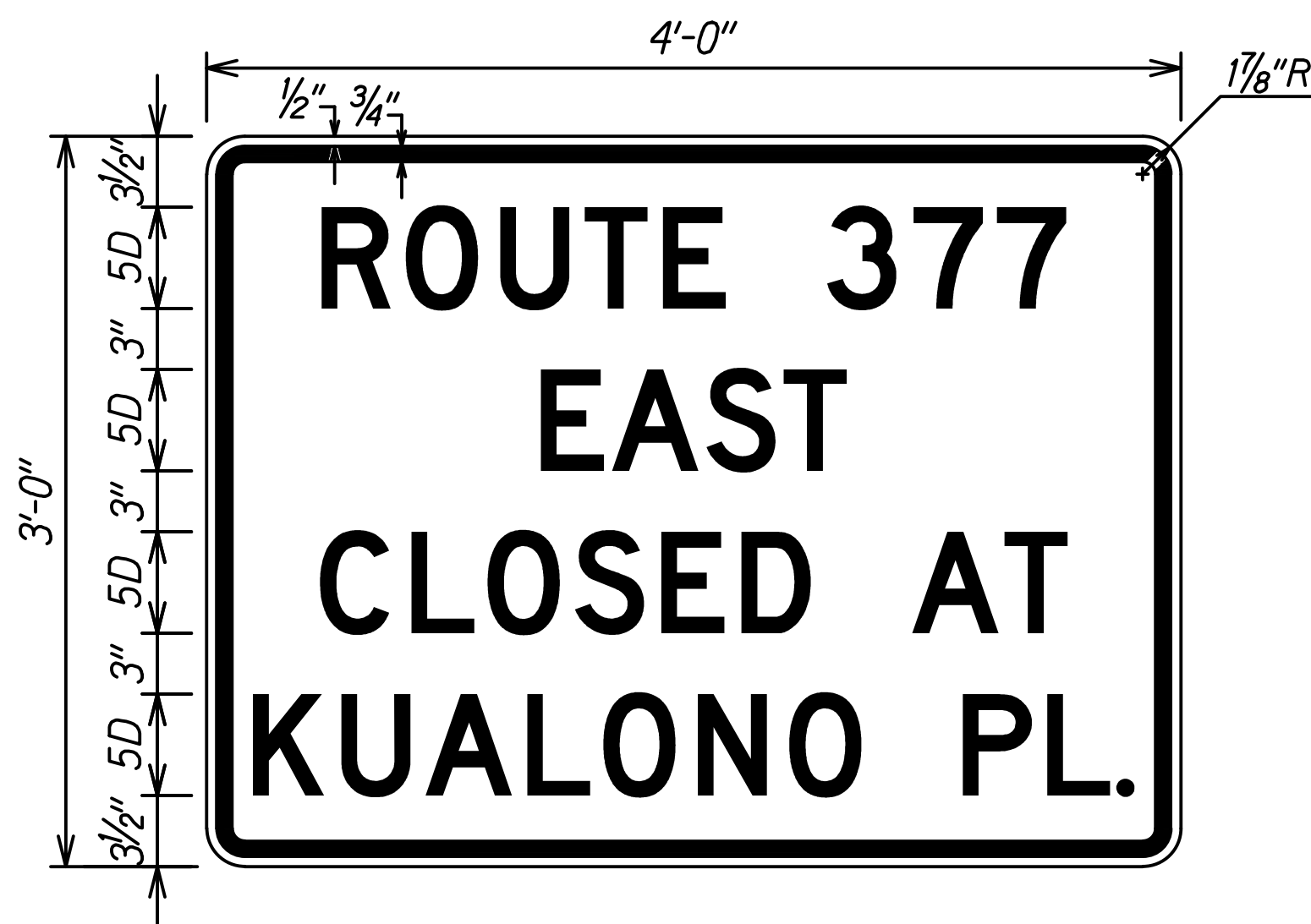
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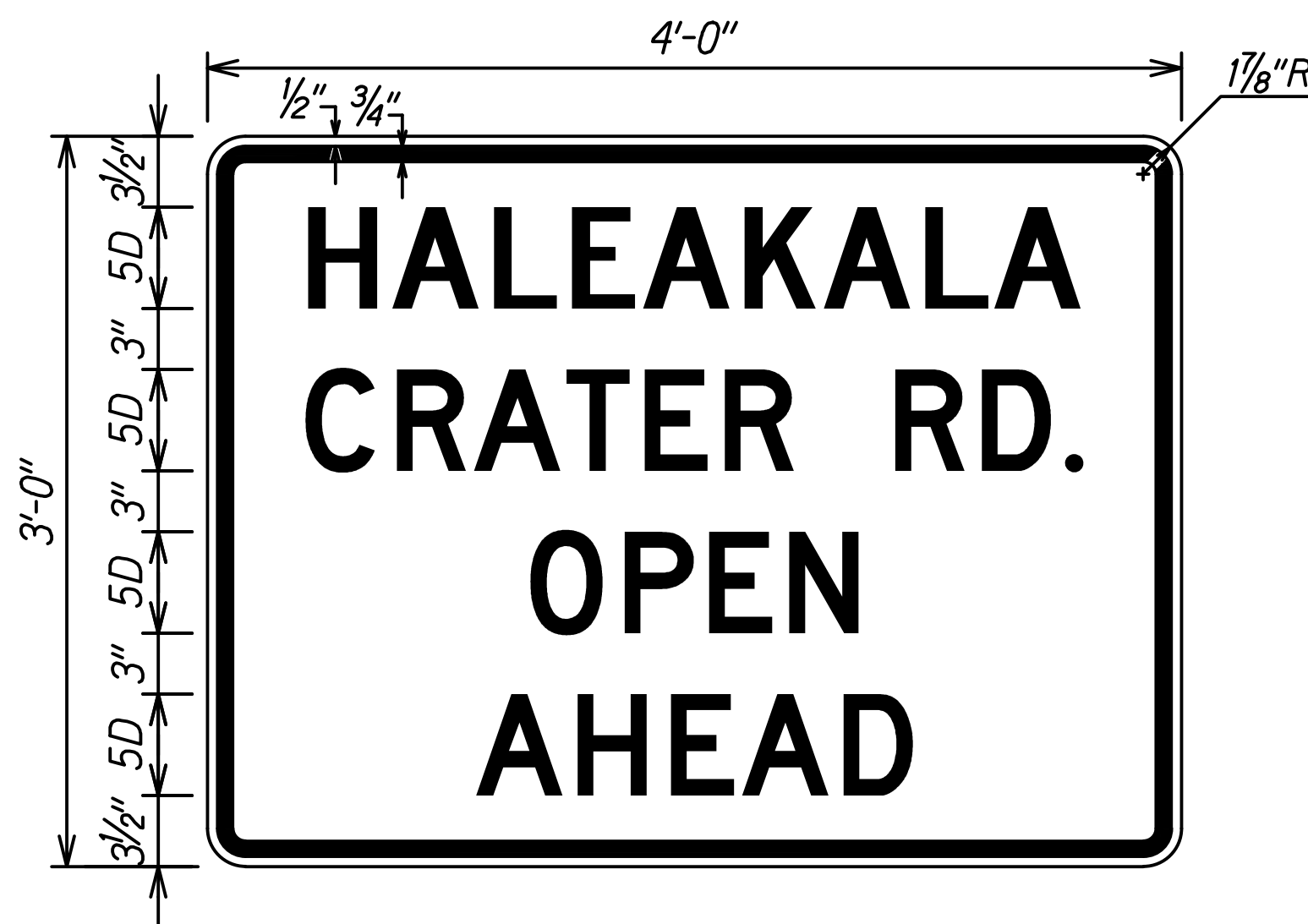
R11-4 ModC
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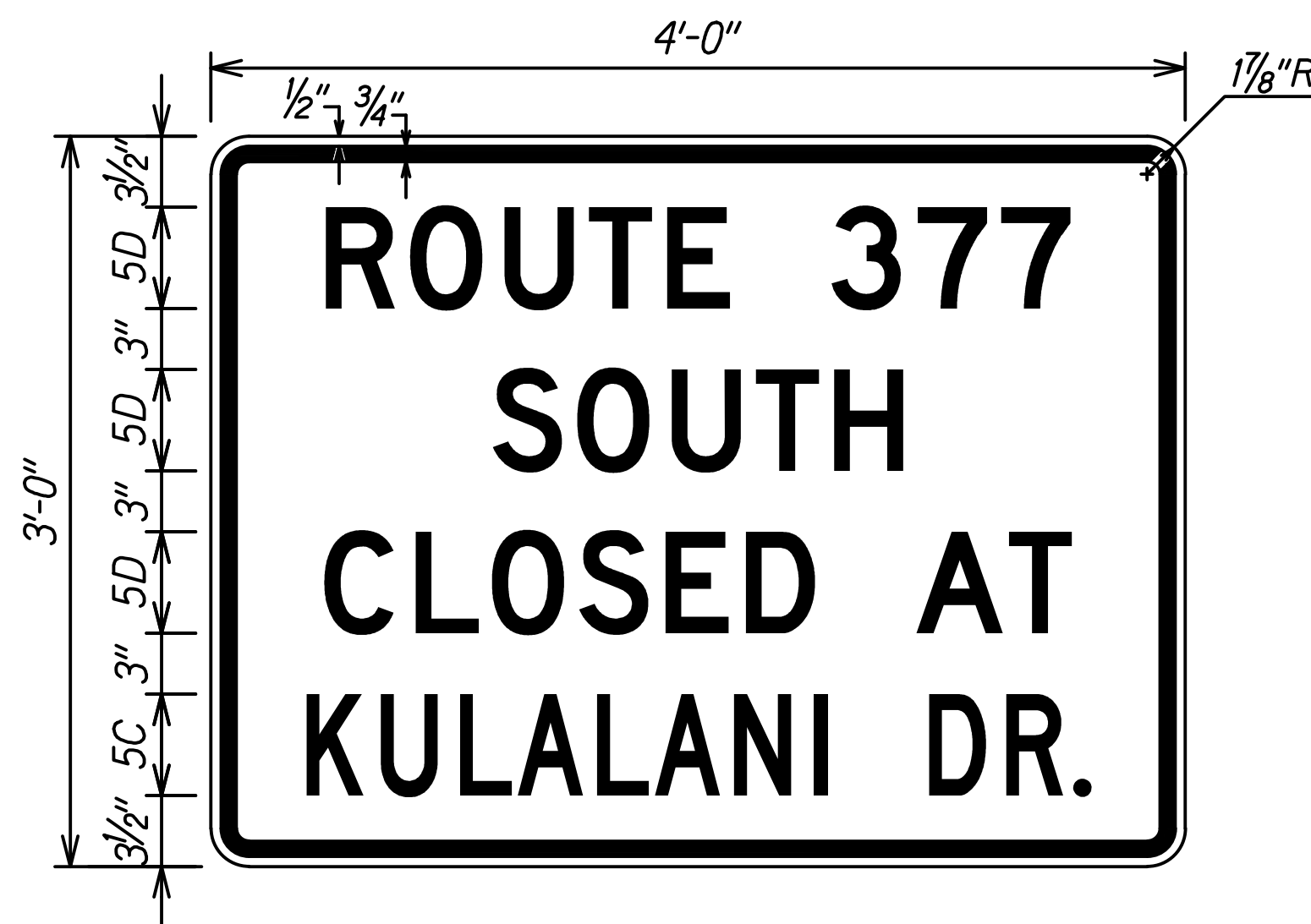
R11-4 ModD
Not to Scale



R11-4 ModE
Not to Scale



R11-4 ModF
Not to Scale



R11-4 ModG
Not to Scale

NOTE:
Black Lettering
White Background

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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	QUANTITIES BY	
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OR UNDER MY SUPERVISION.
Randall M. Urasaka
SIGNATURE EXPIRATION DATE
OF THE LICENSE 04/30/28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC CONTROL
SIGN DETAILS**

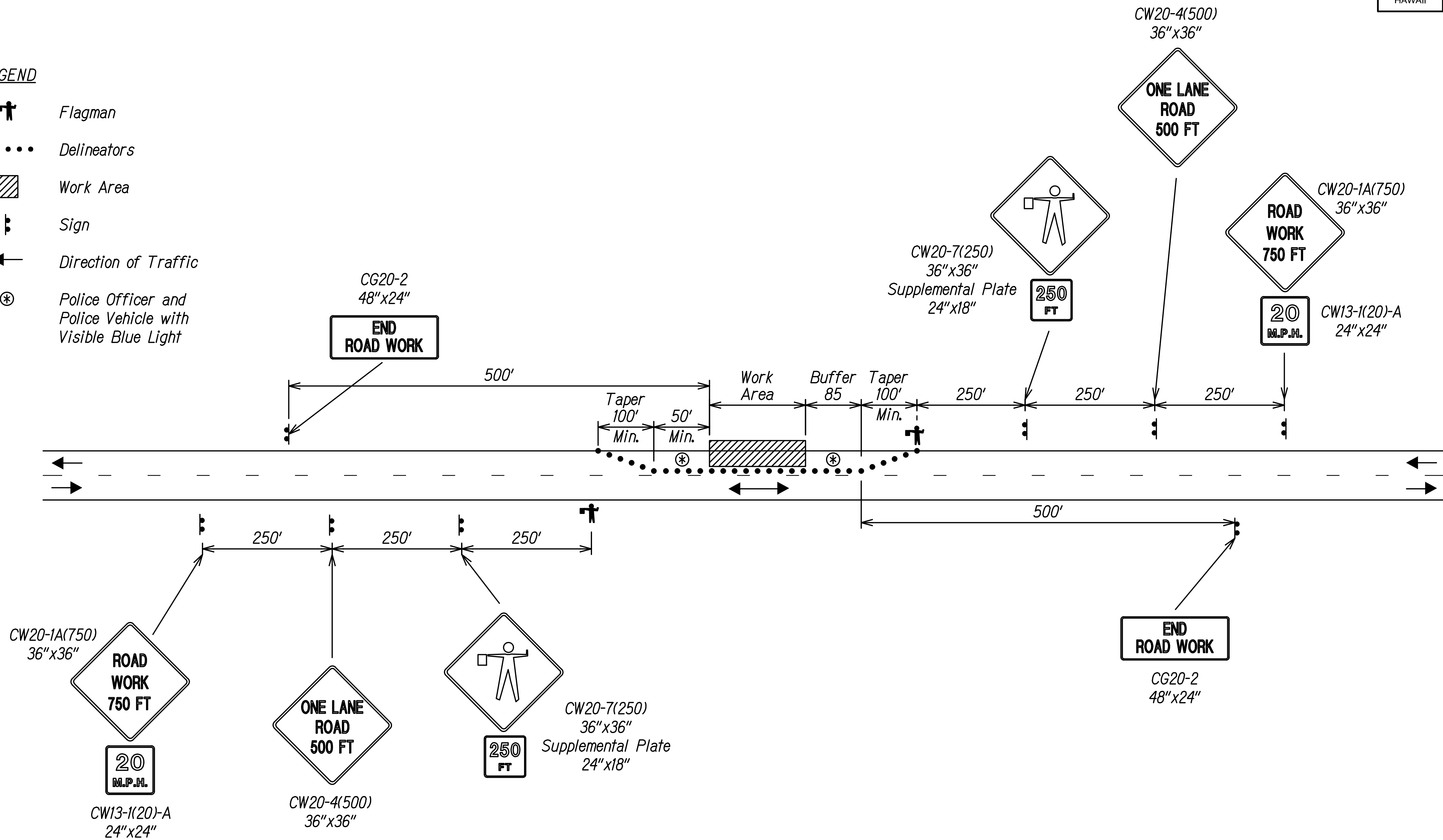
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
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HAWAII	HAW.	STP-0377(008)	2026	36	131

LEGEND

- ✚ Flagman
..... Delineators
▨ Work Area
⌚ Sign
← Direction of Traffic
⊕ Police Officer and Police Vehicle with Visible Blue Light

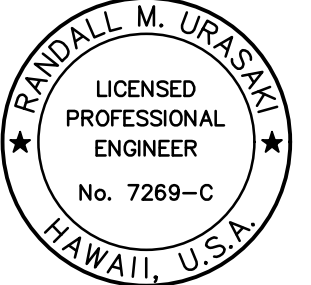


TYPICAL TRAFFIC CONTROL PLAN
FOR ONE LANE CLOSURE
ALONG TWO-LANE ROADWAY
Not to Scale

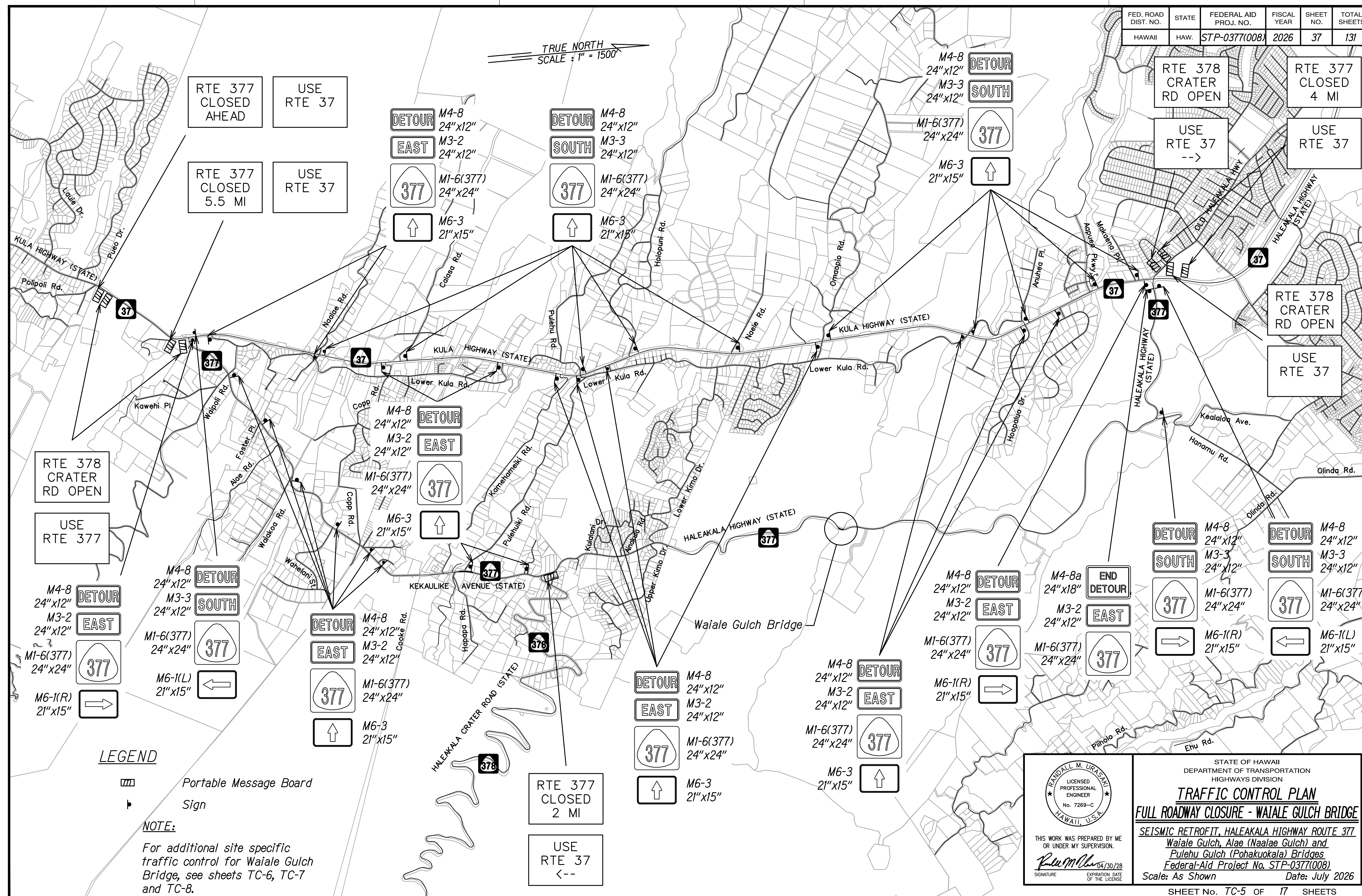
NOTES:

1. See sheet TC-2 for construction area reduced speed limit signs.
2. Delineator spacing shall be at 10' o.c. max.
3. Cover signs that are in conflict with traffic control signs.

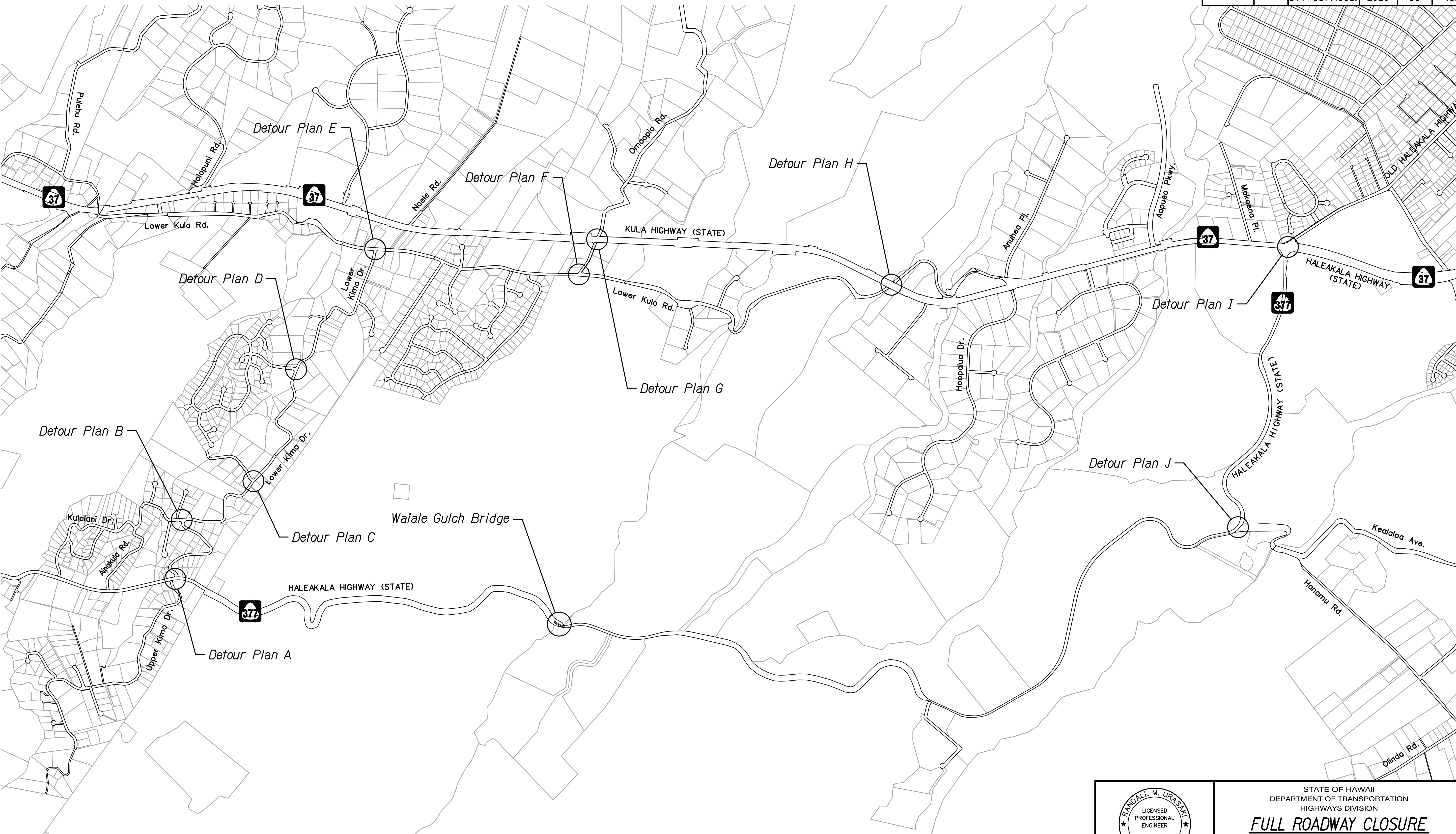
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	
	N ^o .	

 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>Randall M. Urashima</i> SIGNATURE EXPIRATION DATE OF THE LICENSE 04/30/28	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TRAFFIC CONTROL PLAN ONE LANE CLOSED SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377 Waiale Gulch, Alae (Naalae Gulch) and Pulehu Gulch (Pohakuokala) Bridges Federal Aid Project No. STP-0377(008) Scale: NTS Date: July 2026
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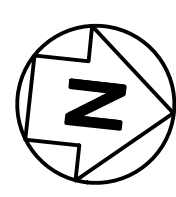
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	37	131



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	38	131



NOTE:
See sheets TC-7 and TC-8
for intersection plans.



DETOUR PLAN
Not to Scale

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

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Randall M. Urasky 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

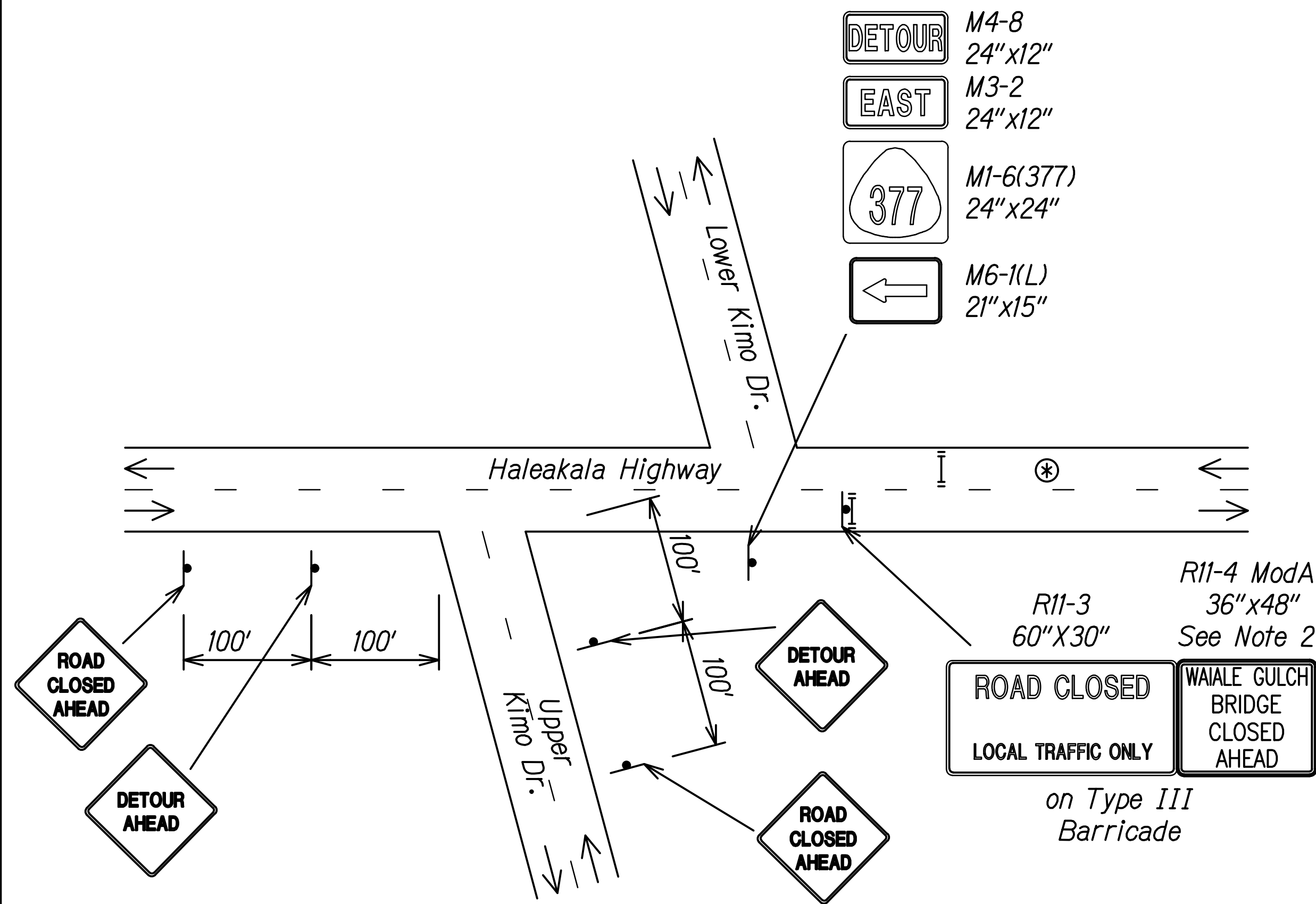
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**FULL ROADWAY CLOSURE
DETOUR PLAN - WAIALE GULCH BRIDGE**

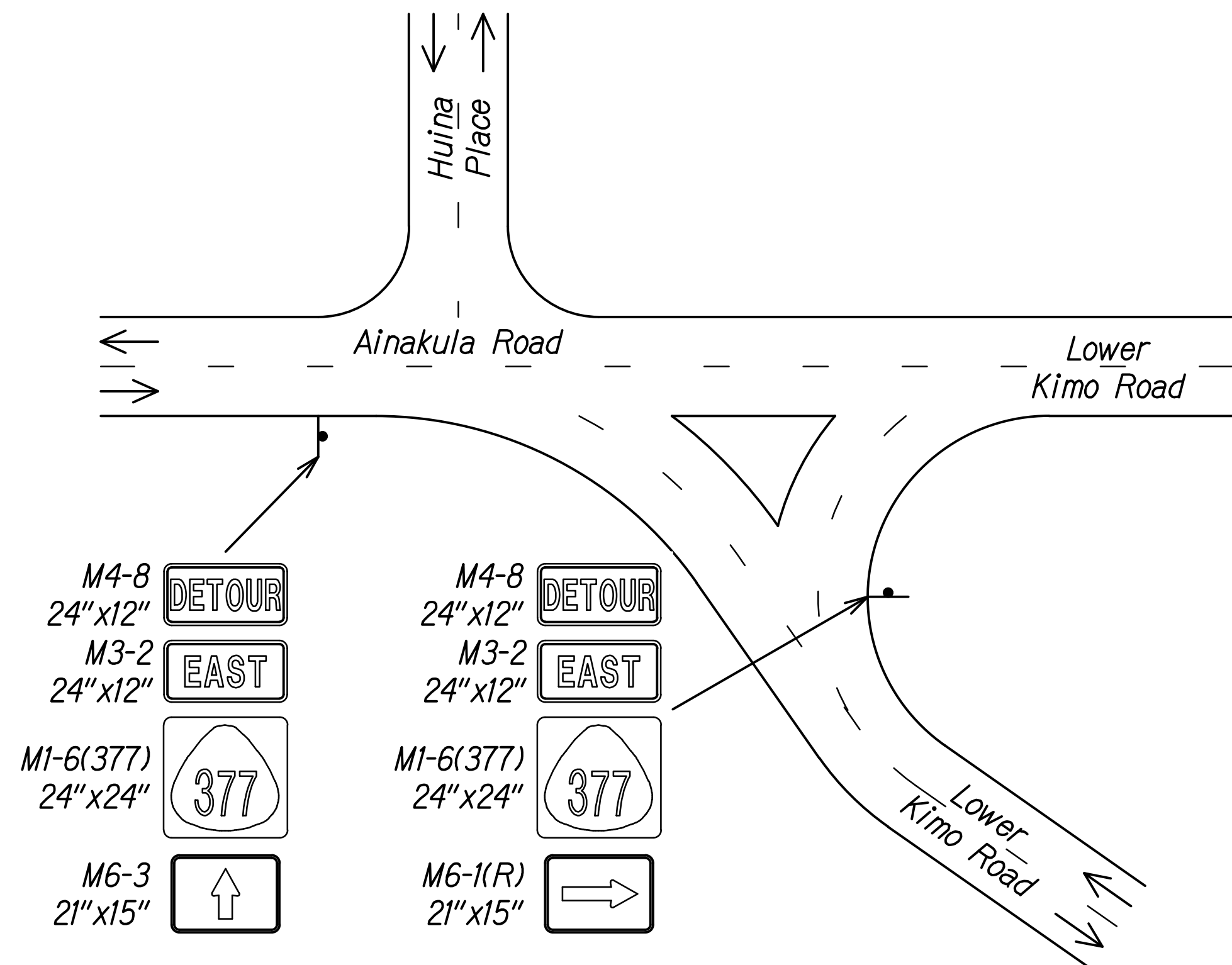
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Shown Date: July 2026

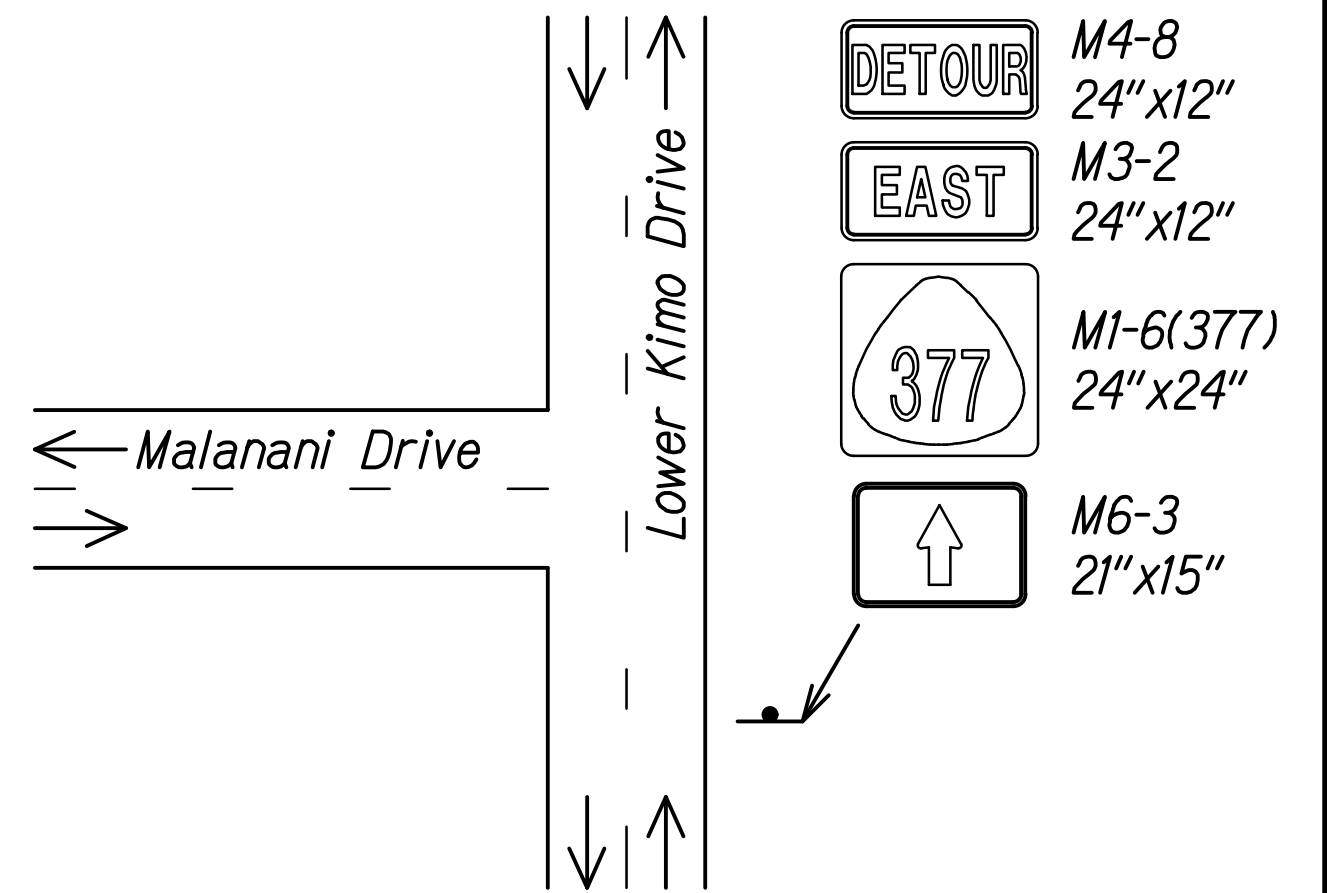
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	39	131



DETOUR PLAN "A"



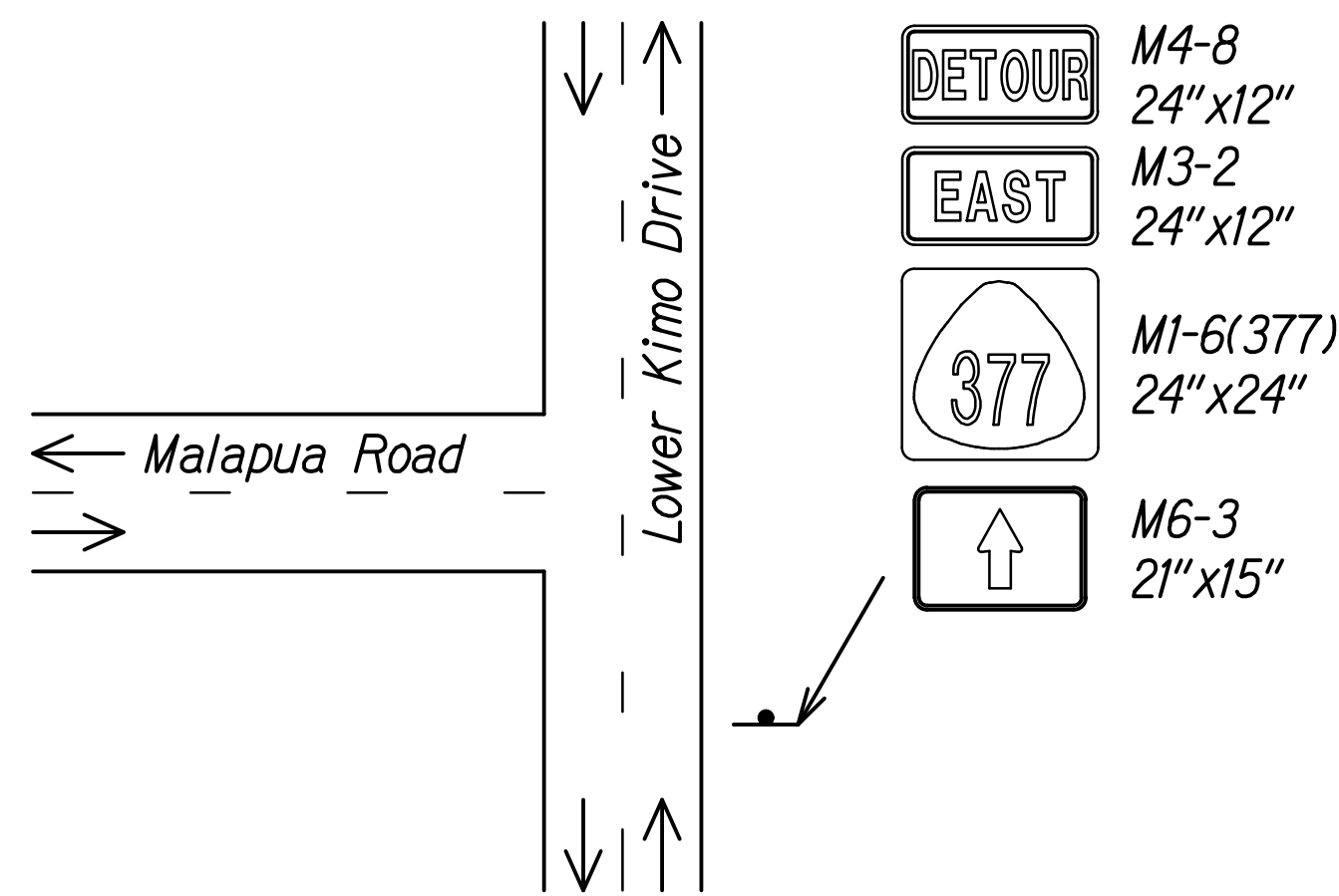
DETOUR PLAN "B"



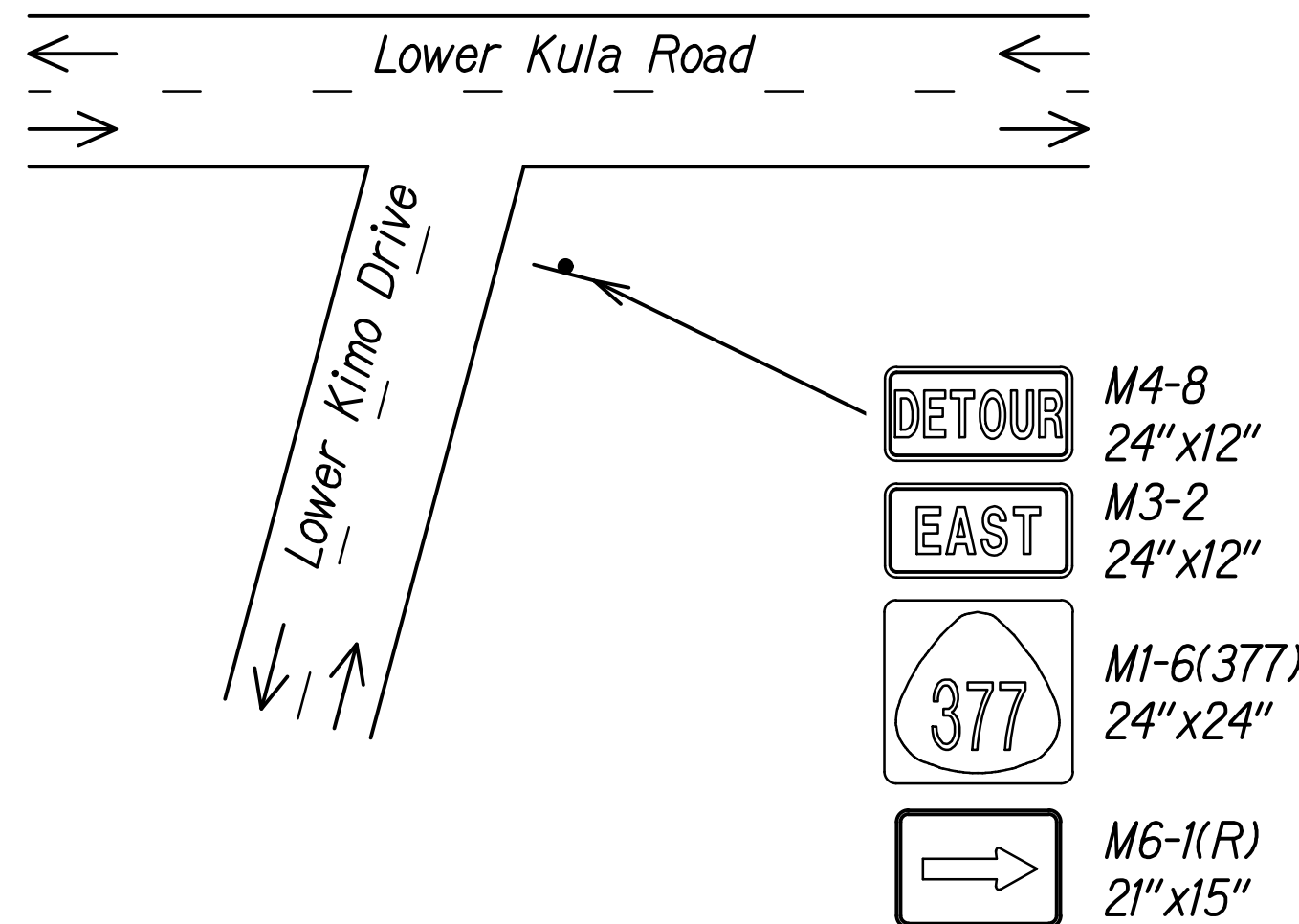
DETOUR PLAN "C"

LEGEND

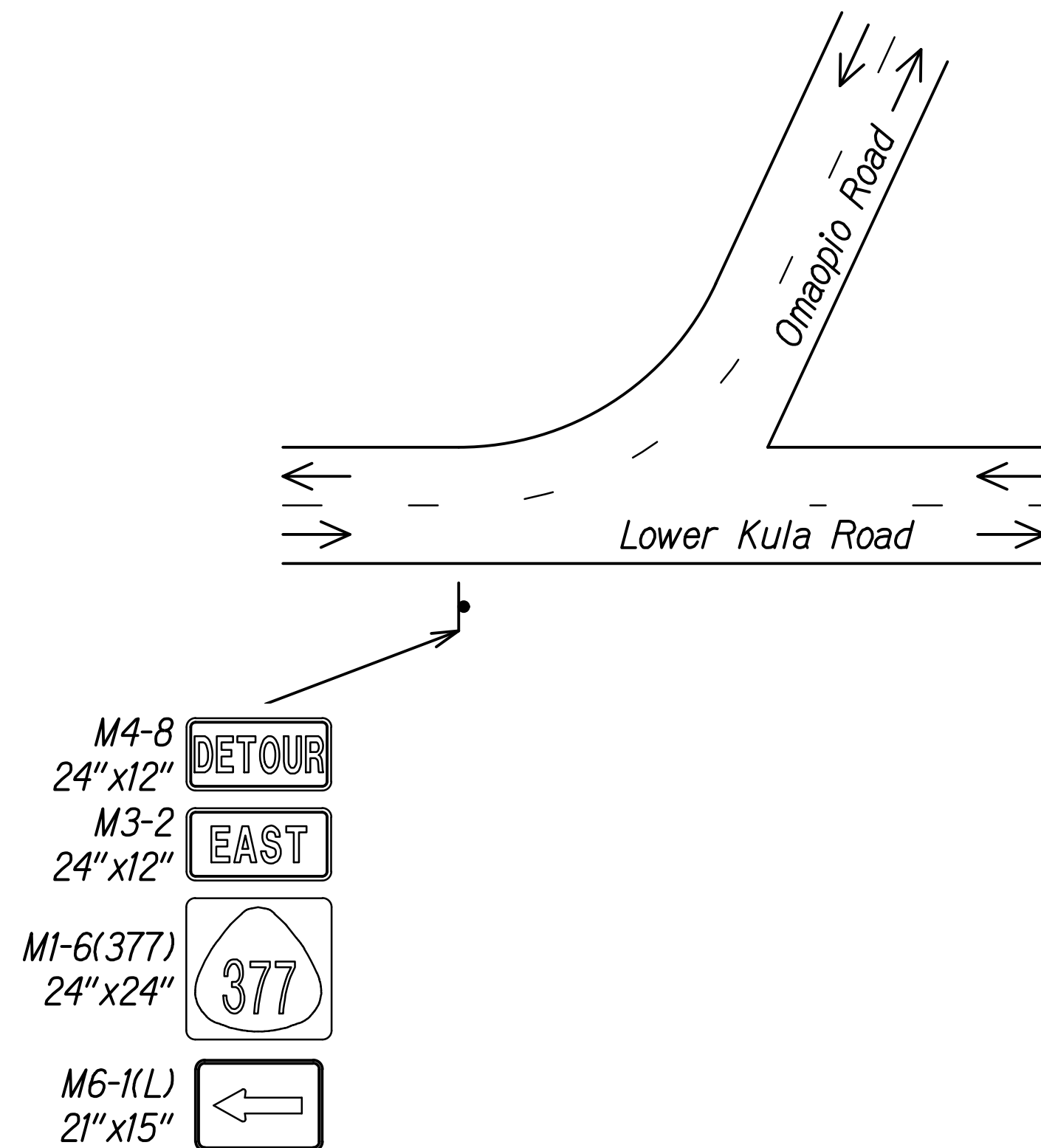
- ← Direction of Traffic
- Sign
- ⏏ Type III Barricade
- ⊙ Police Officer and Police Vehicle with Visible Blue Light



DETOUR PLAN "D"



DETOUR PLAN "E"



DETOUR PLAN "F"

NOTES:

- Contractor shall place message boards at the following intersections during detours, see sheet TC-5:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
- See sheet TC-3 for sign detail.

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

RANDALL M. URASAKI

LICENSED PROFESSIONAL ENGINEER

No. 7269-C

HAWAII, U.S.A.

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Randall M. Urasaki

SIGNATURE

04/30/28

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

FULL ROADWAY CLOSURE

DETOUR PLAN - WAIALE GULCH BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377

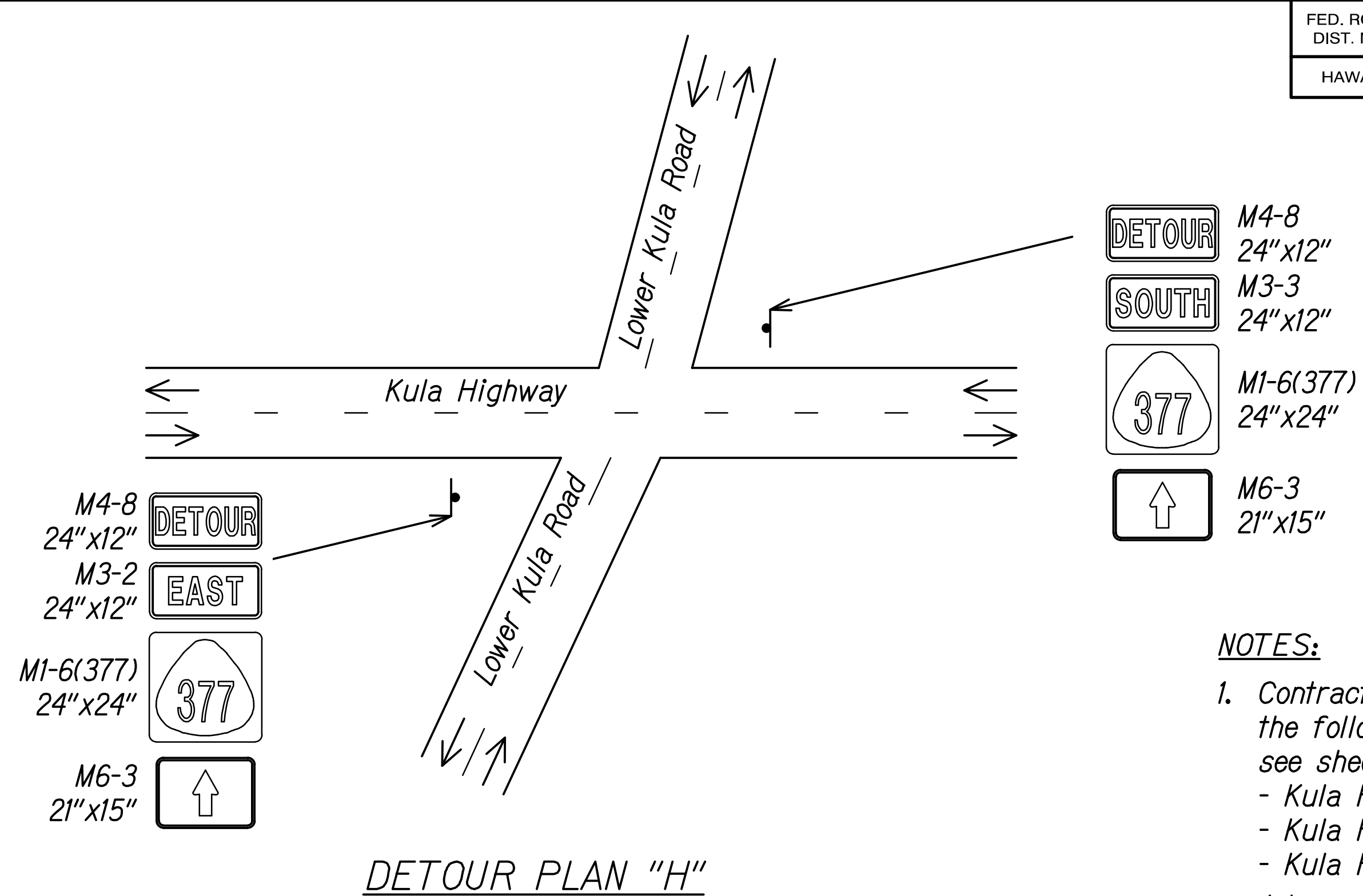
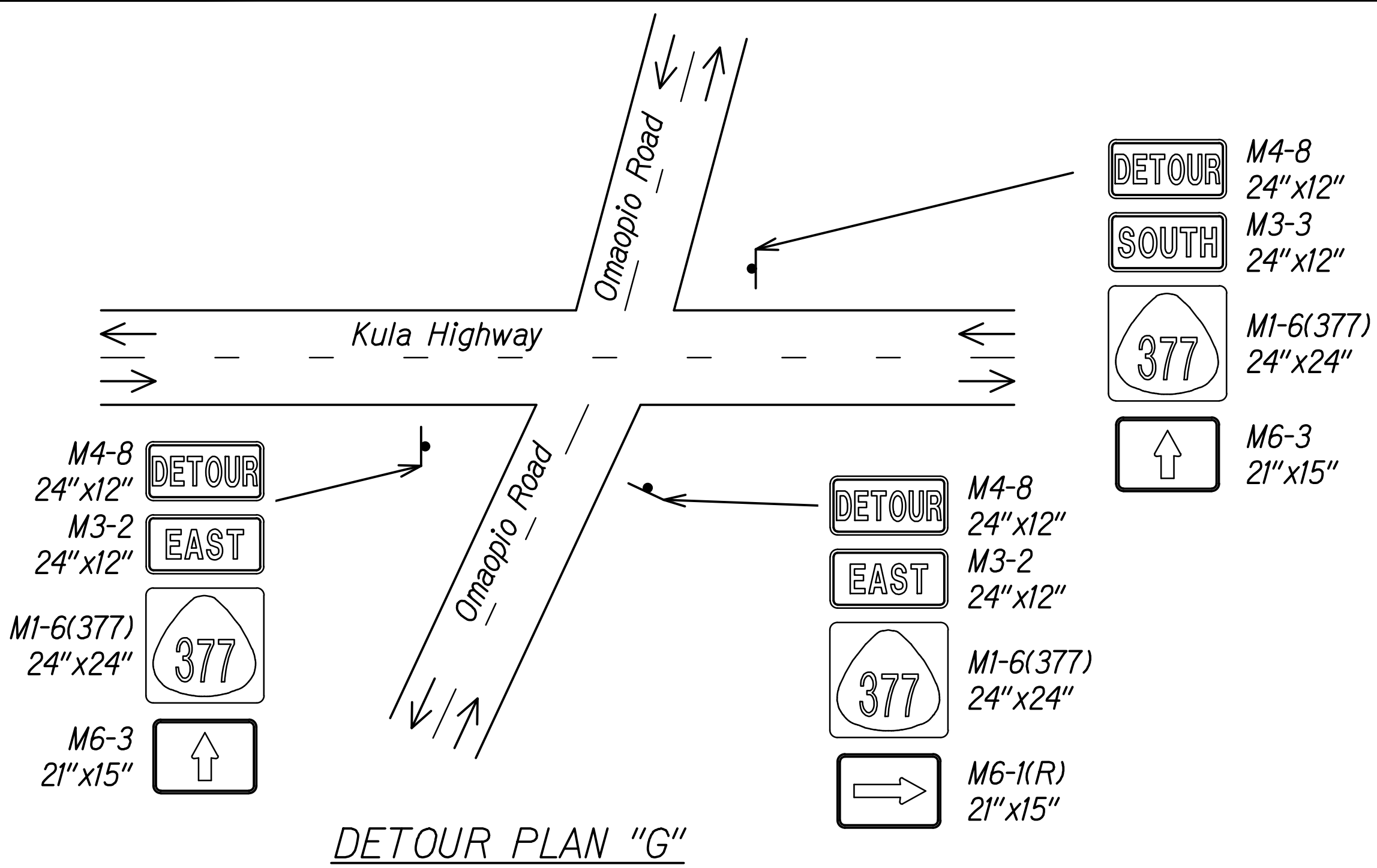
Waiale Gulch, Alae (Naalae Gulch) and Pulehu Gulch (Pohakuokala) Bridges

Federal Aid Project No. STP-0377(008)

Scale: As Shown

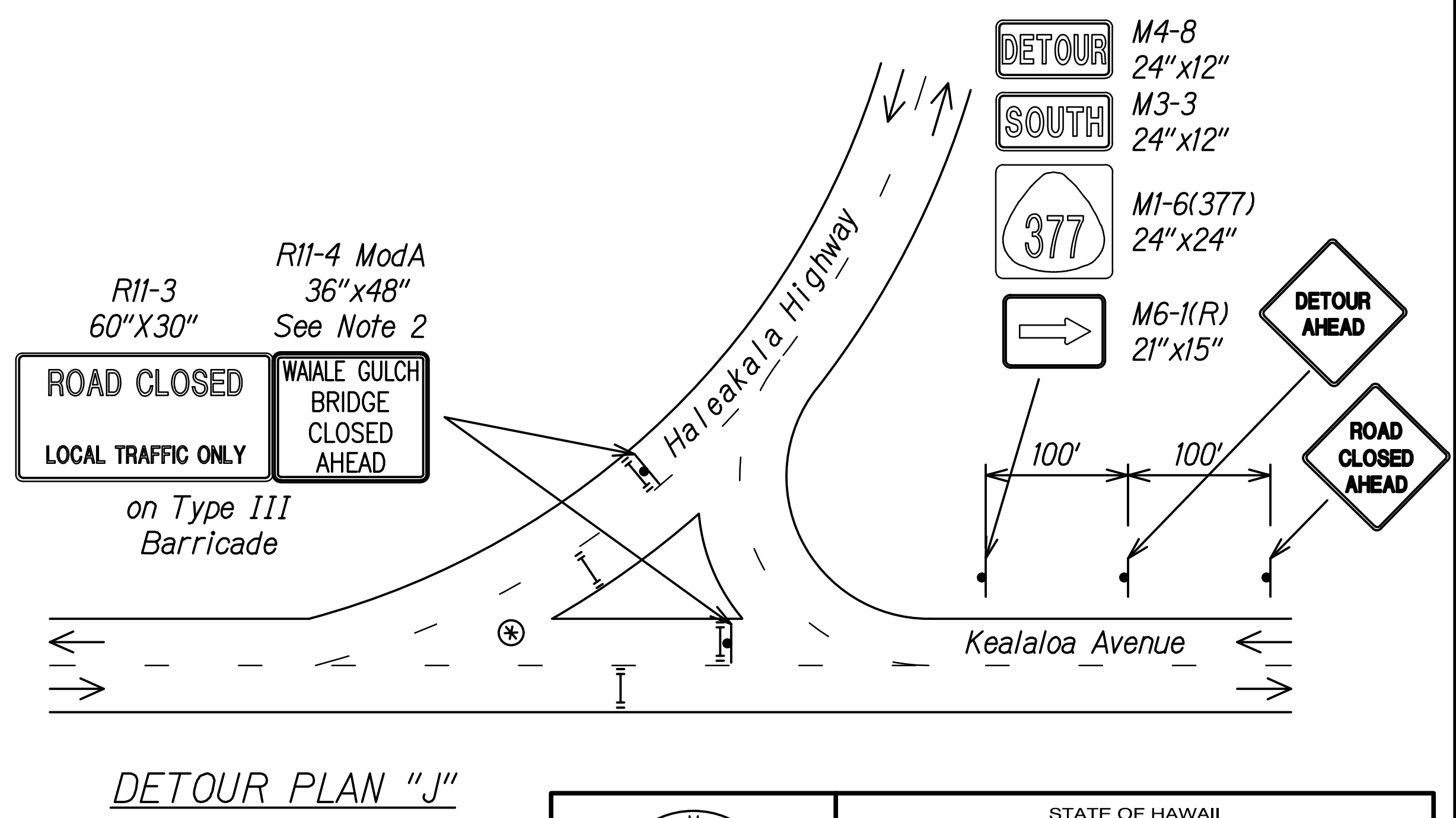
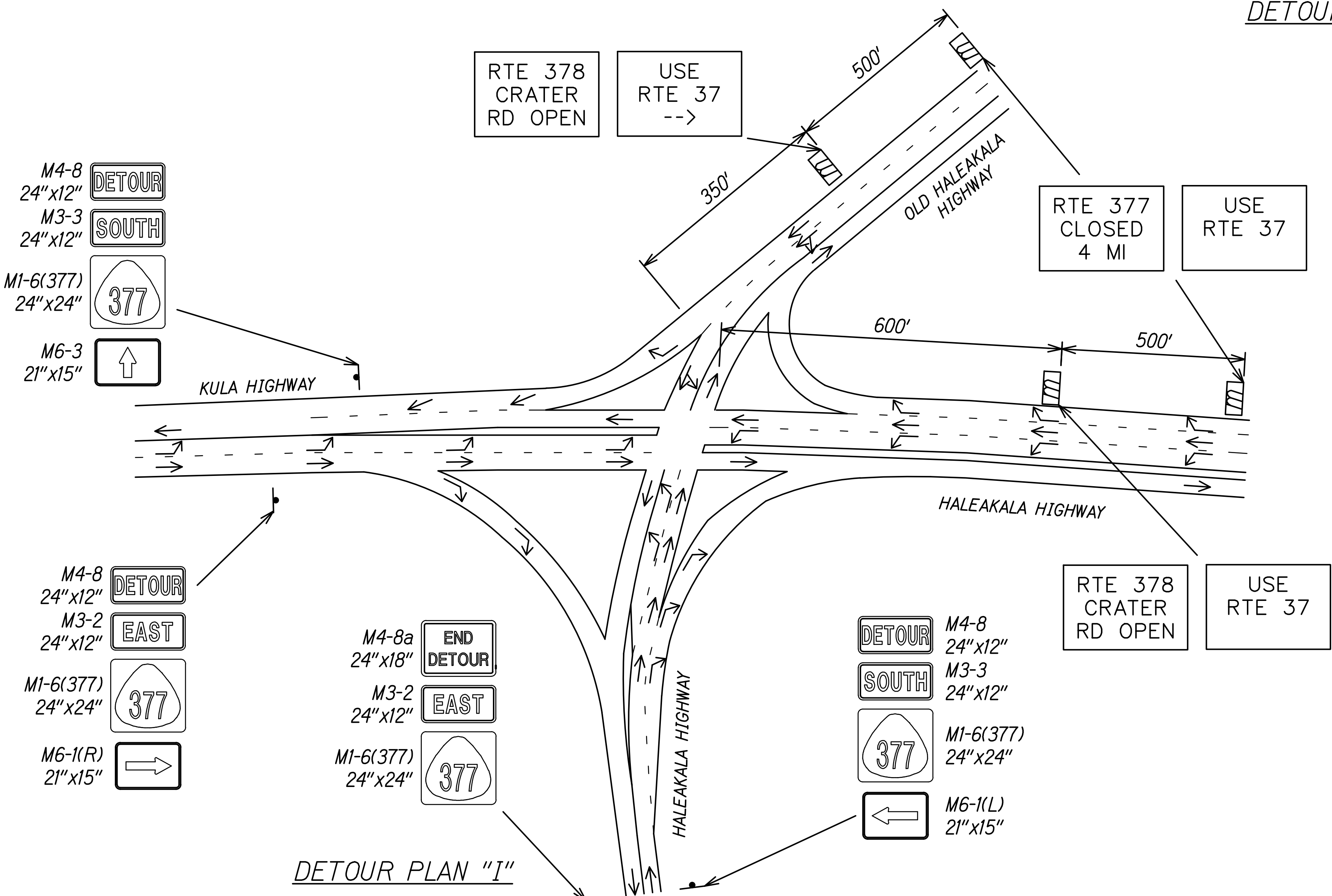
Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	40	131



- LEGEND**
- ← Direction of Traffic
 - ⊥ Sign
 - ⊥ Type III Barricade
 - ⊙ Police Officer and Police Vehicle with Visible Blue Light

- NOTES:**
- Contractor shall place message boards at the following intersections during detours, see sheet TC-5:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
 - See sheet TC-3 for sign detail.



DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
N _o .	_____

RANDALL M. URASAKA
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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Randall M. Urasaka
SIGNATURE
04/30/28
EXPIRATION DATE OF THE LICENSE

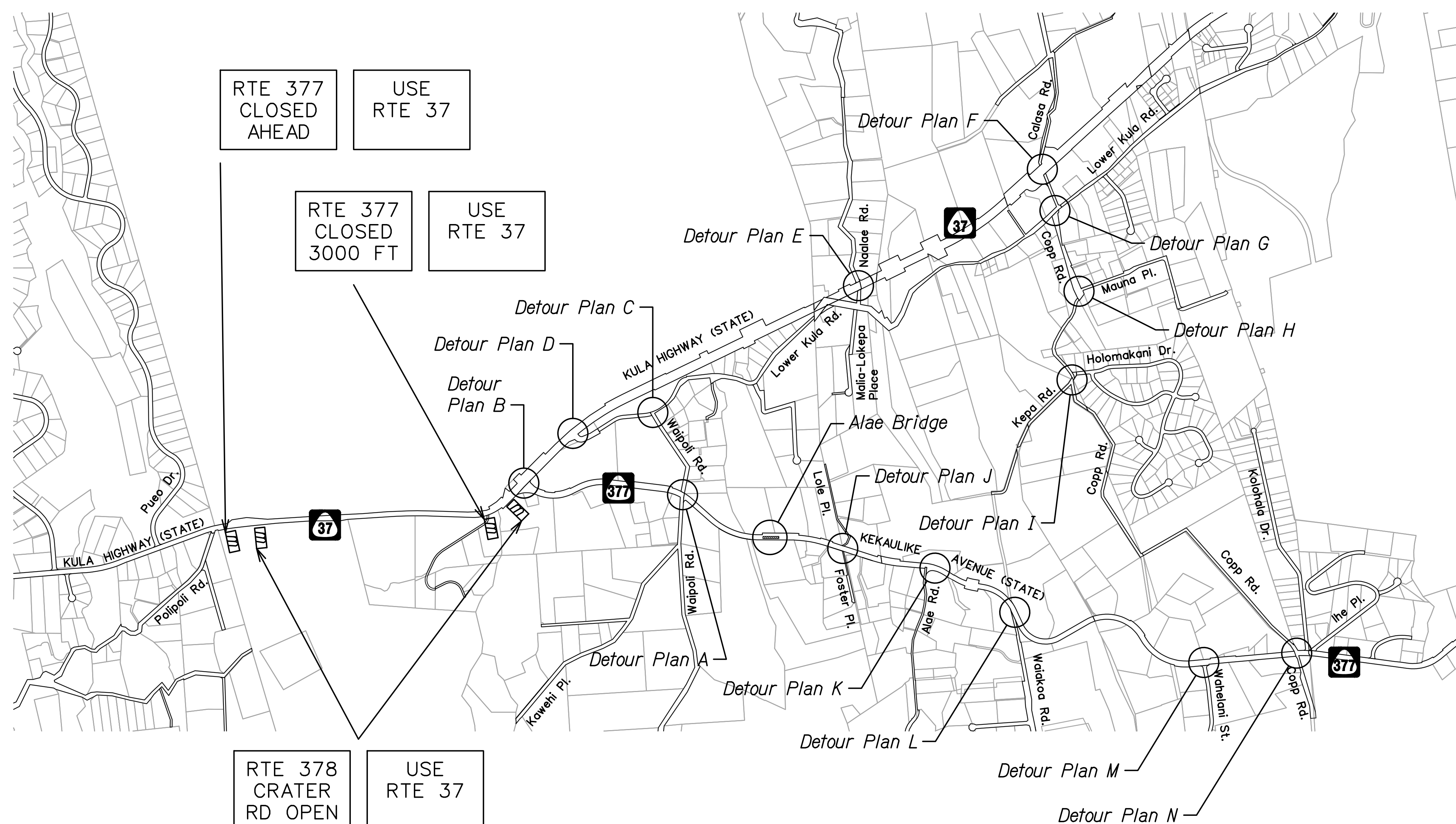
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**FULL ROADWAY CLOSURE
DETOUR PLAN - WAI'ALE GULCH BRIDGE**

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Wai'ale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: As Shown
Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	42	131



NOTE:

See sheets TC-11, TC-12 and TC-13
for intersection plans.

 DETOUR PLAN
Not to Scale

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



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OR UNDER MY SUPERVISION.

Randall M. Urasaki 04/30/28
SIGNATURE EXPIRATION DATE OF THIS LICENSE

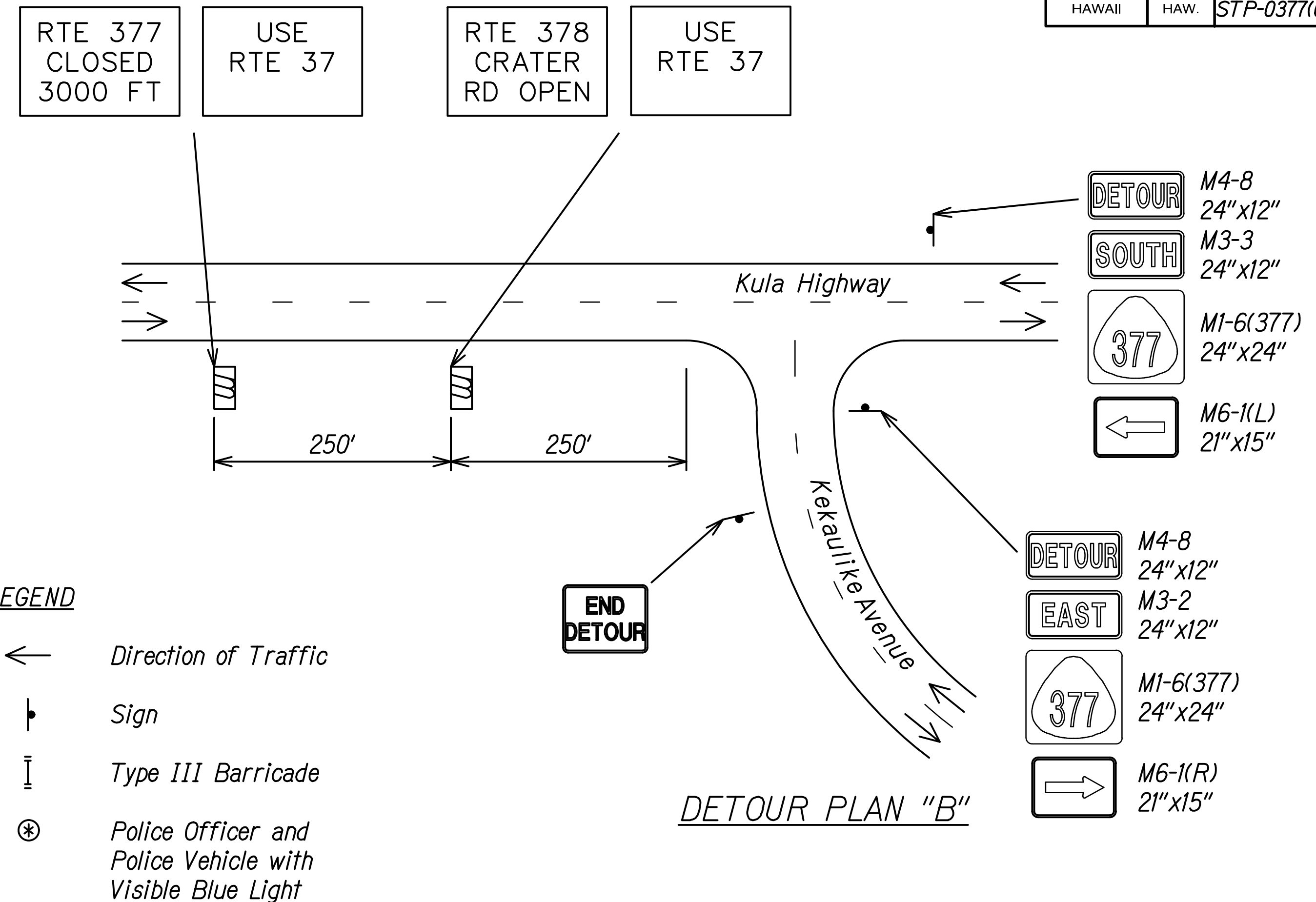
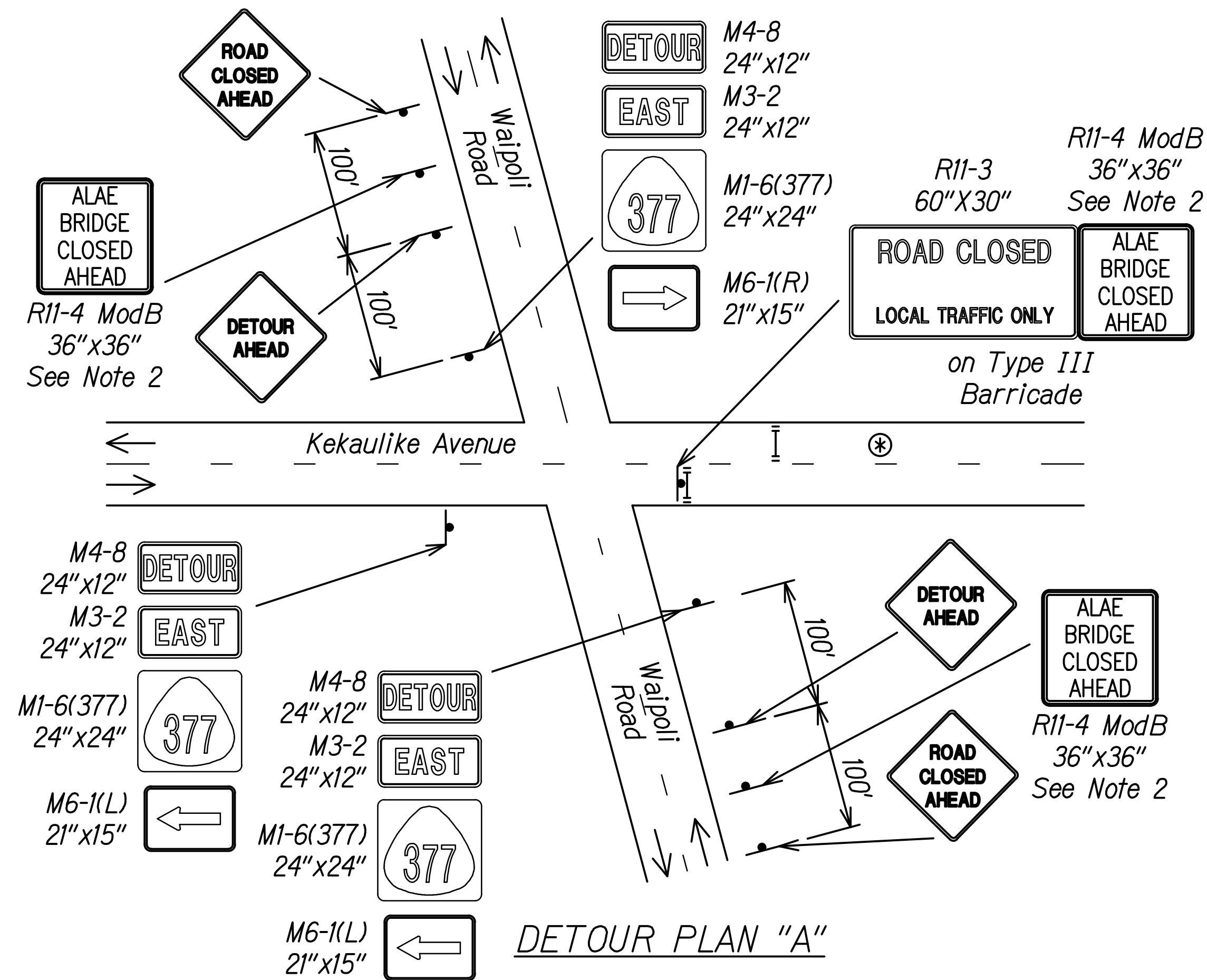
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FULL ROADWAY CLOSURE
DETOUR PLAN - ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

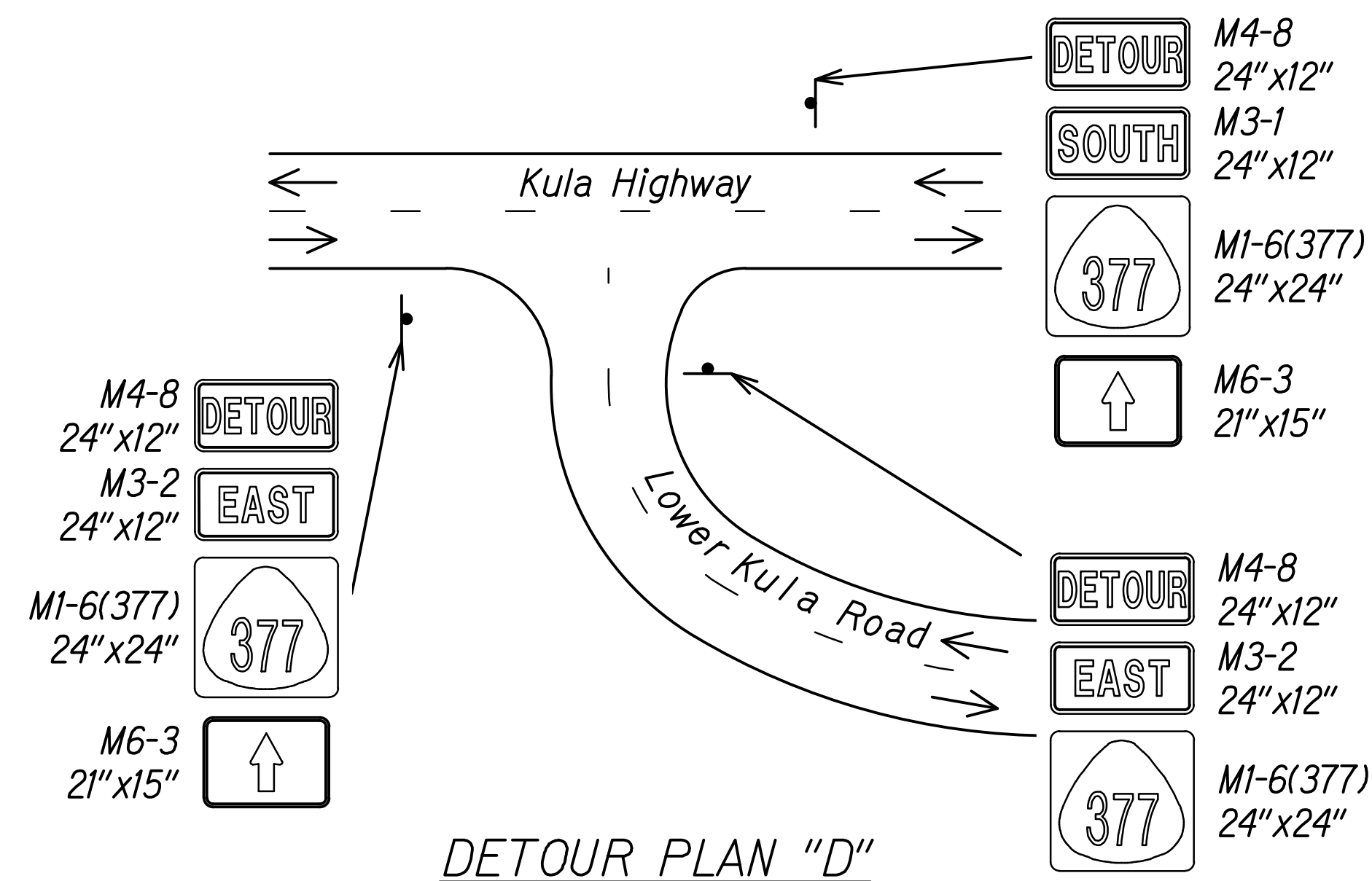
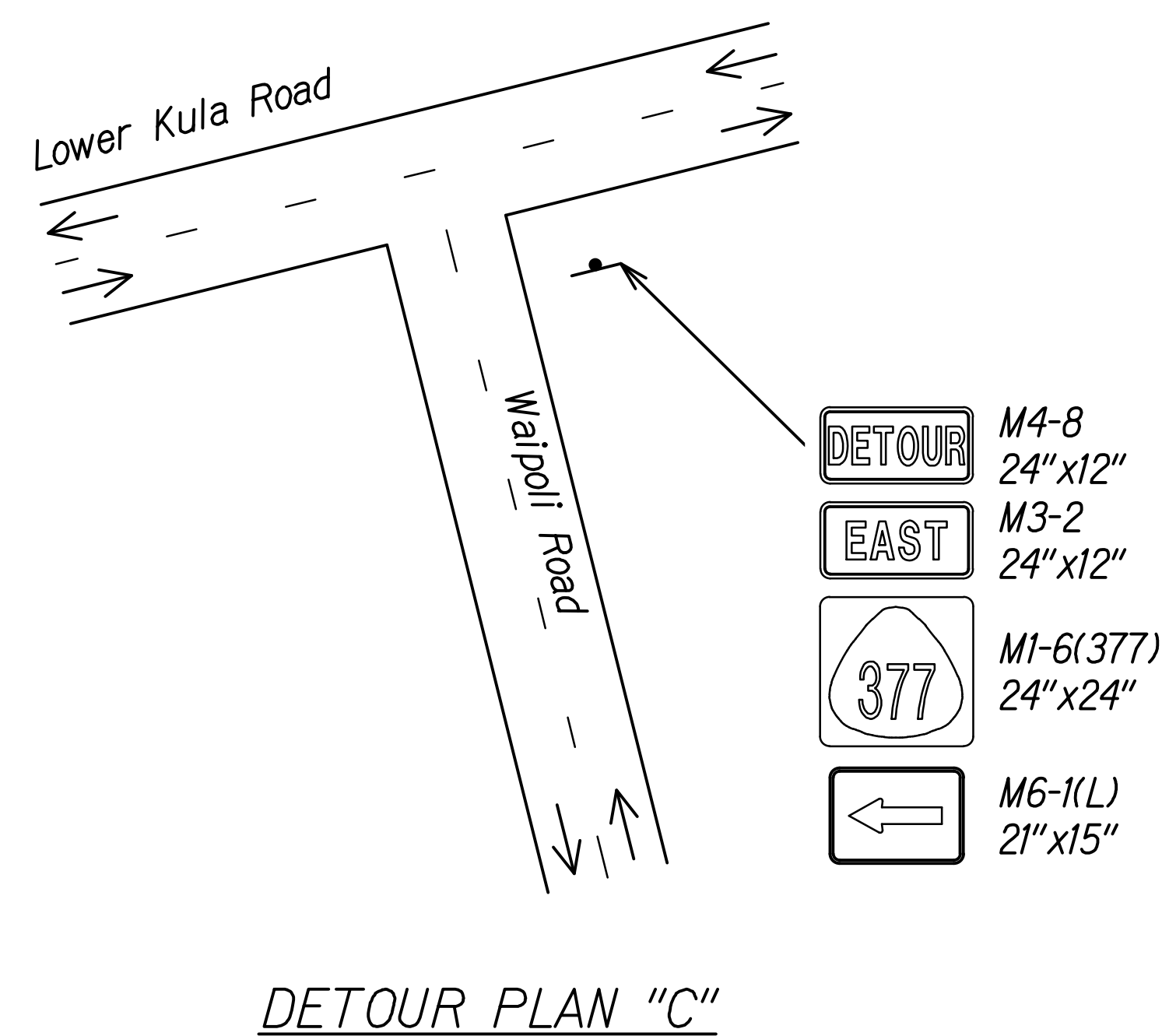
Scale: As Shown Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	43	131



LEGEND

- ← Direction of Traffic
- Sign
- I Type III Barricade
- ⊙ Police Officer and Police Vehicle with Visible Blue Light



- NOTES:**
- Contractor shall place message boards at the following intersections during detours, see sheet TC-9:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
 - See sheet TC-3 for sign detail.

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

RANDALL M. URASAKA
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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SIGNATURE EXPIRATION DATE OF THE LICENSE

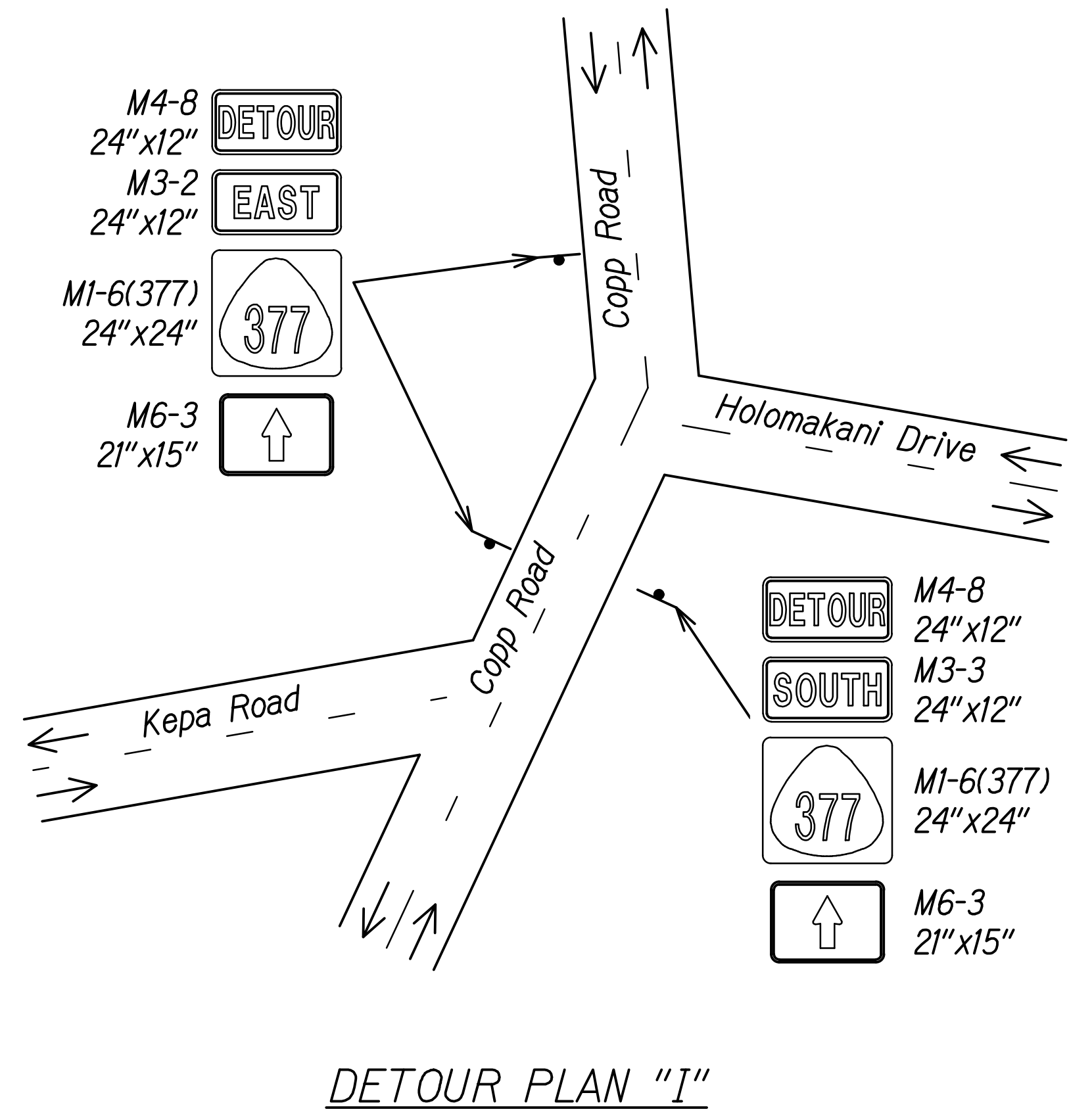
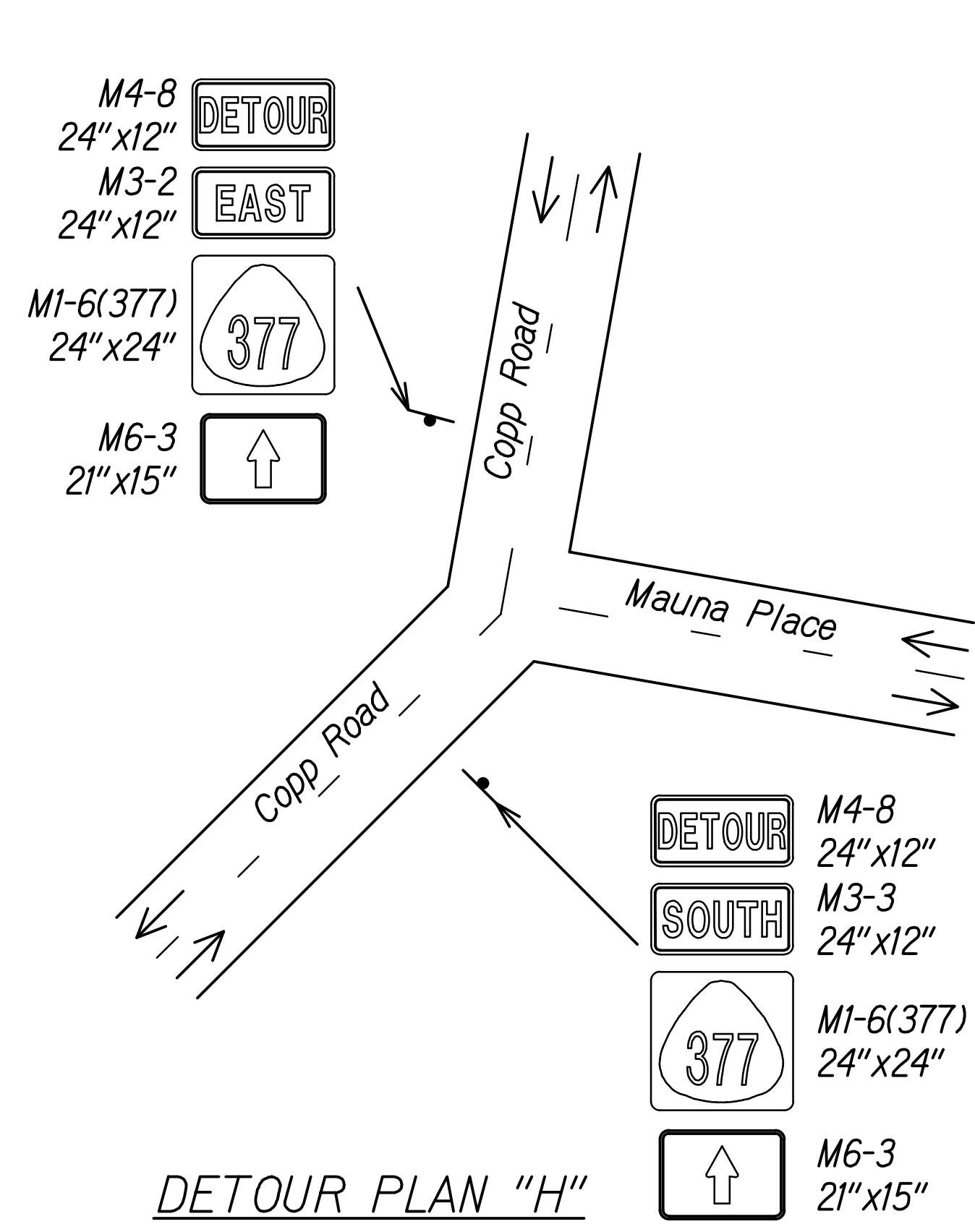
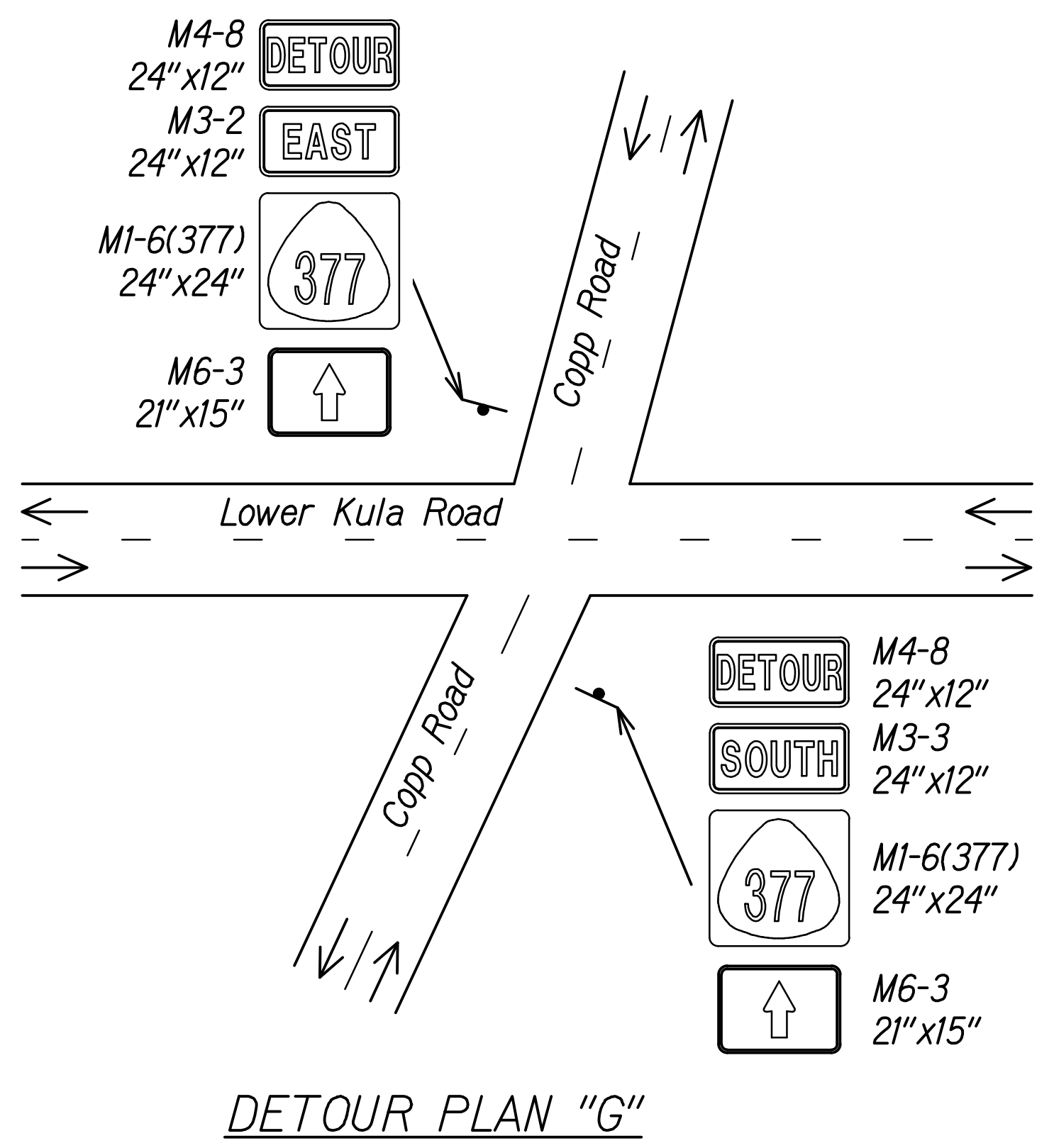
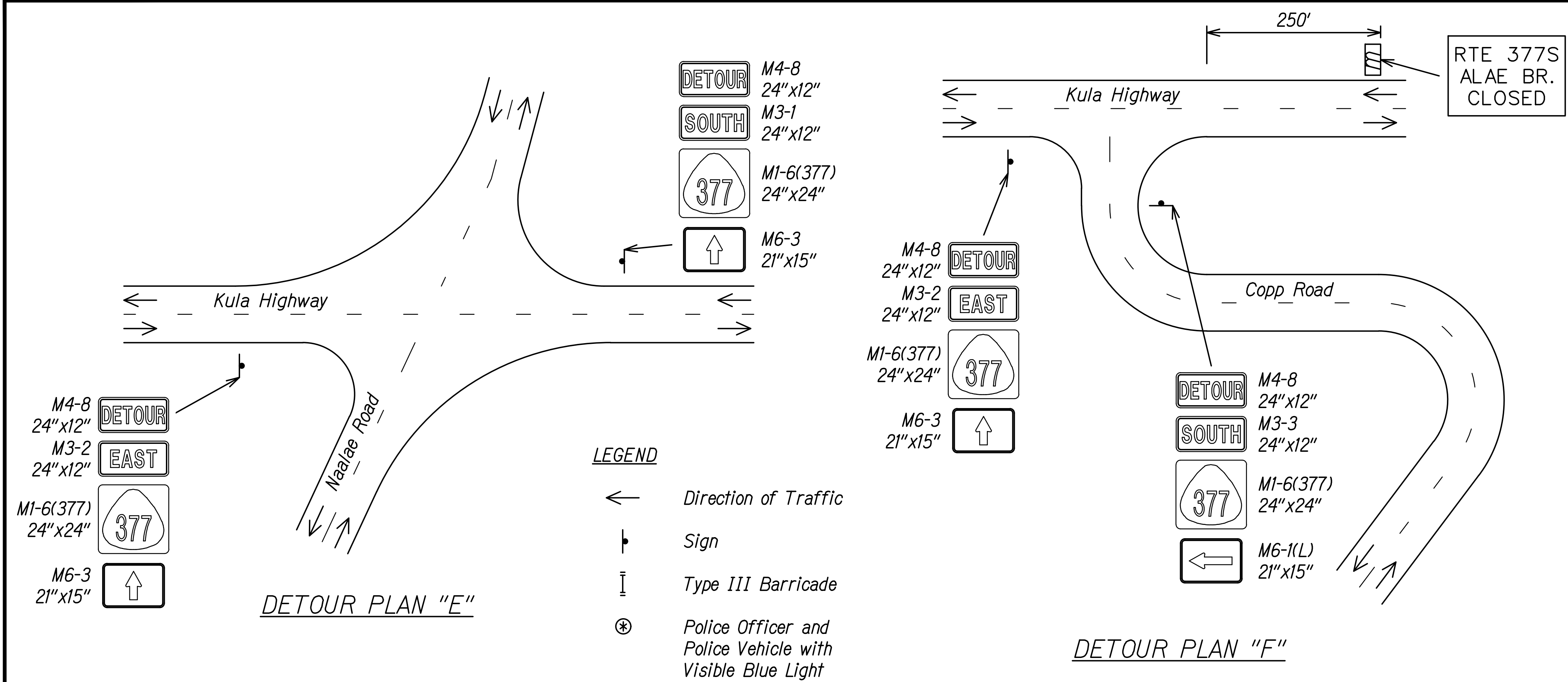
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**FULL ROADWAY CLOSURE
DETOUR PLAN - ALAE BRIDGE**

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Shown Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	44	131



- NOTES:**
- Contractor shall place message boards at the following intersections during detours, see sheet TC-9:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
 - See sheet TC-3 for sign detail.

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

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Randall M. Uraska 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

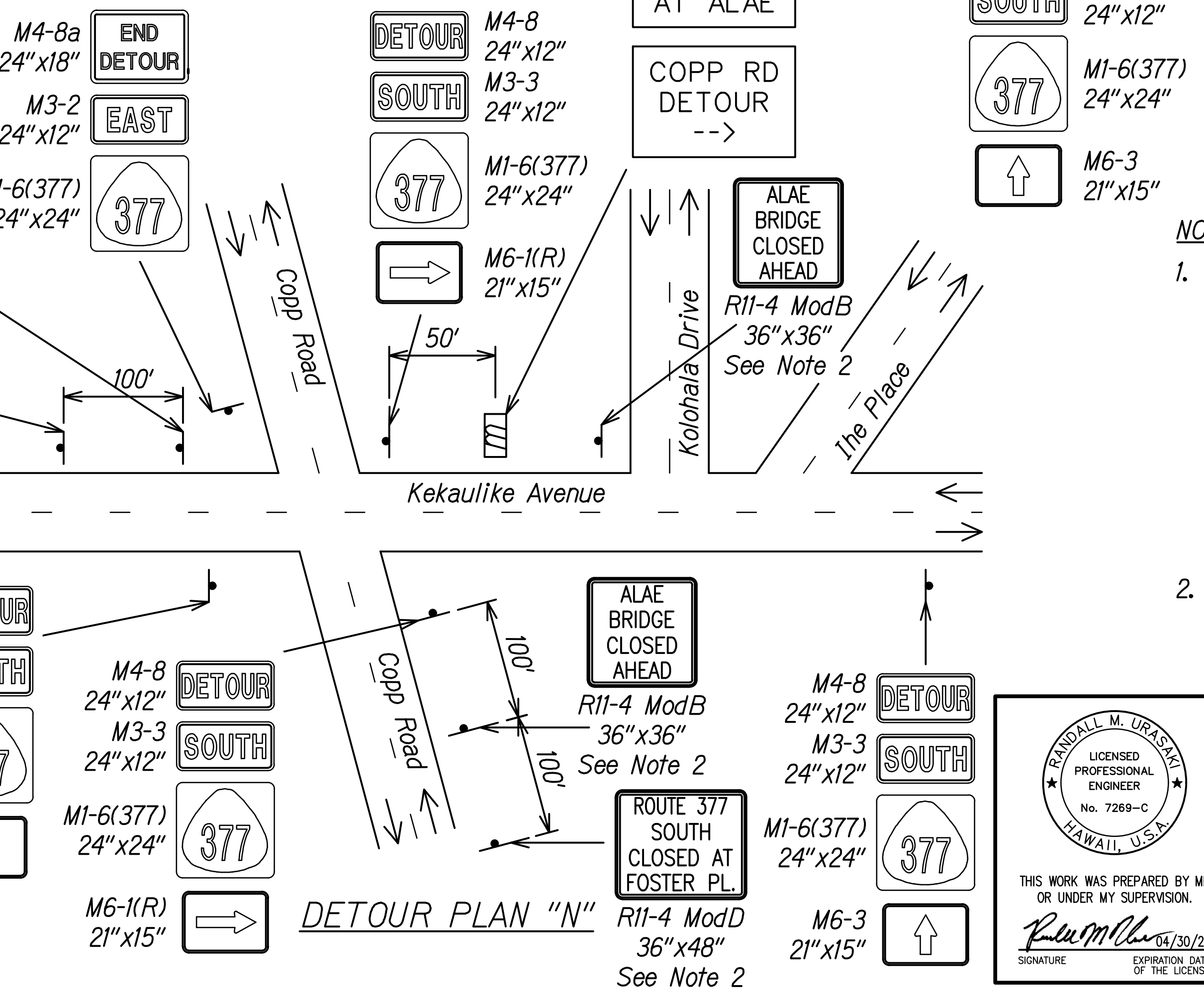
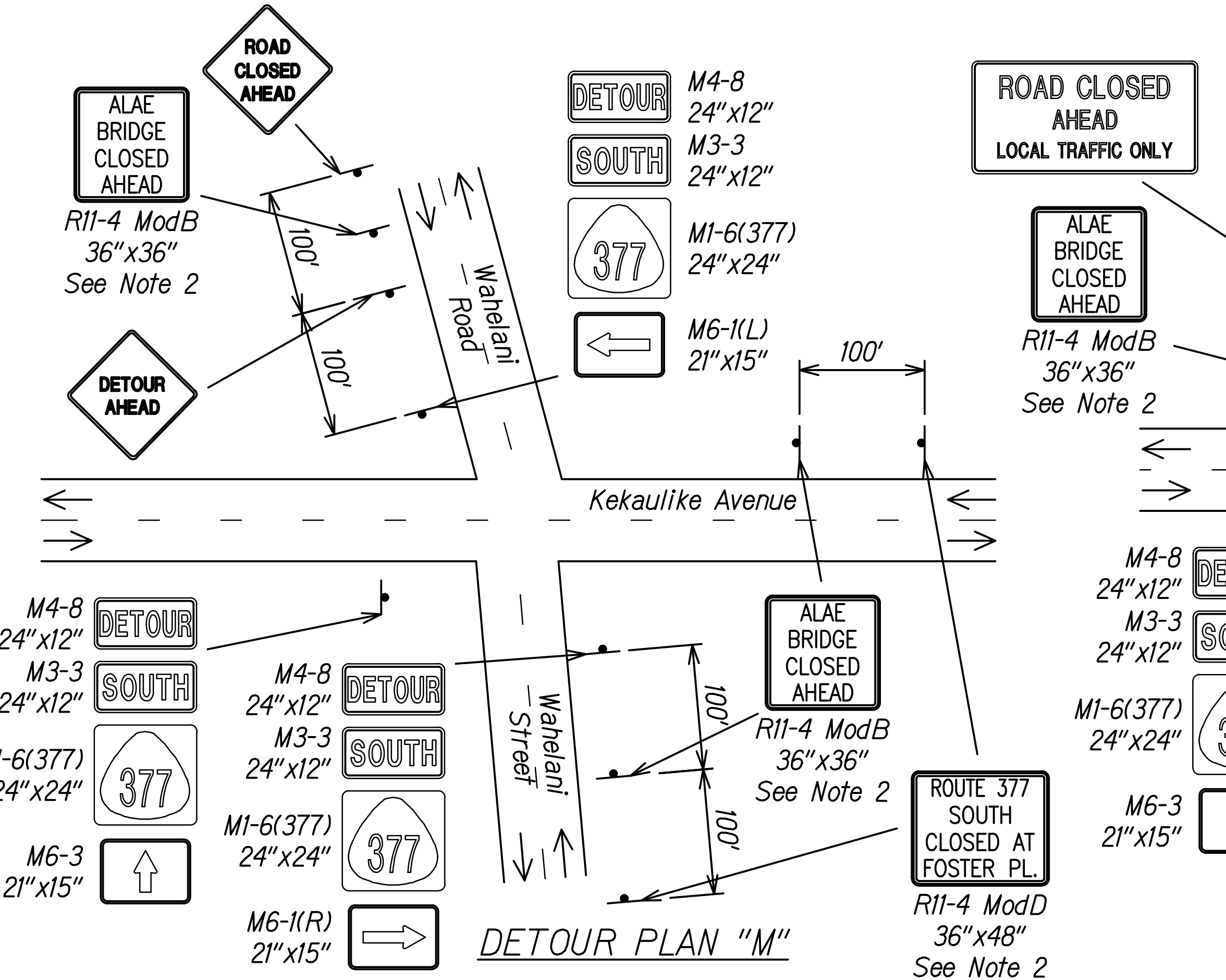
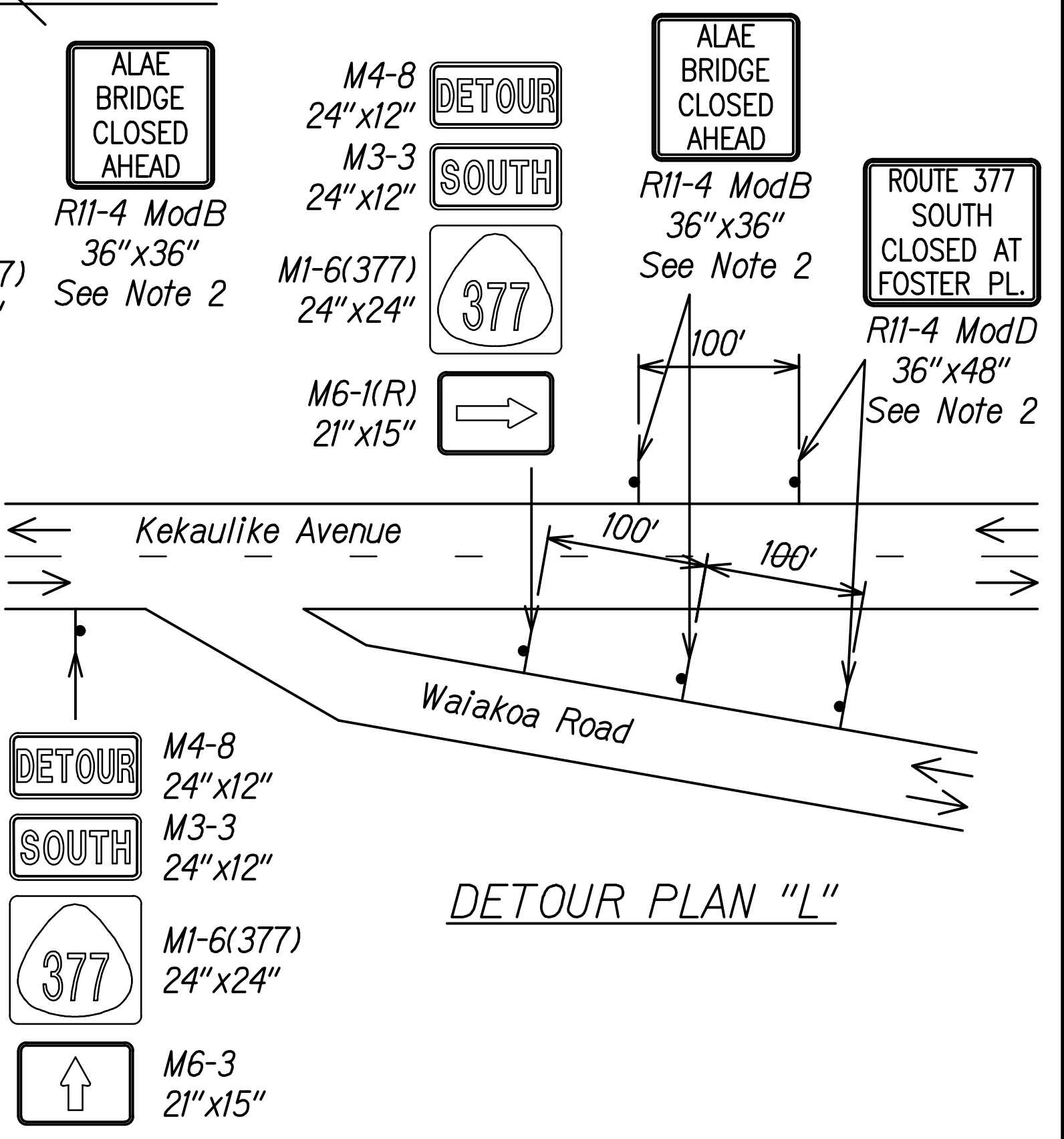
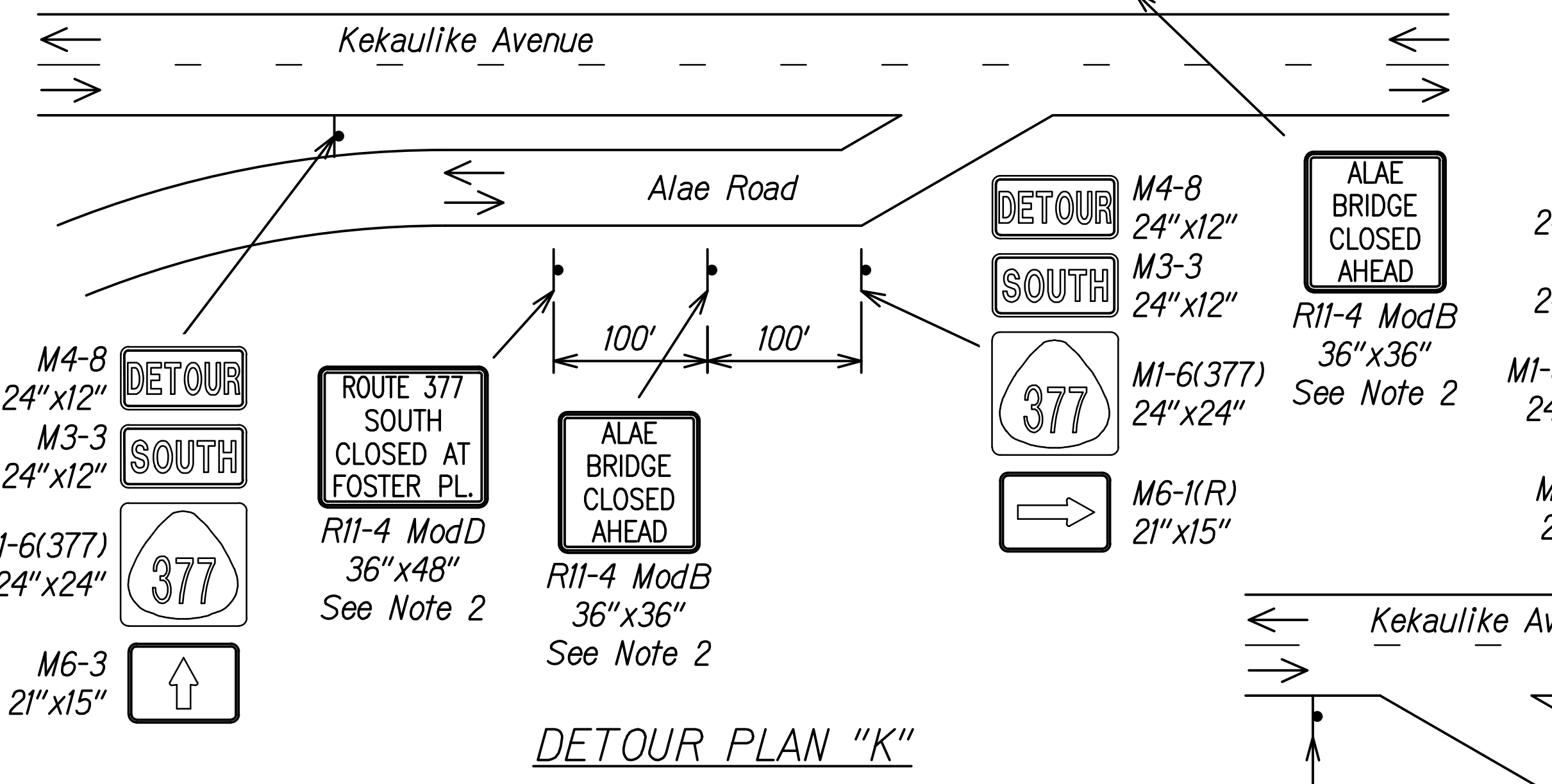
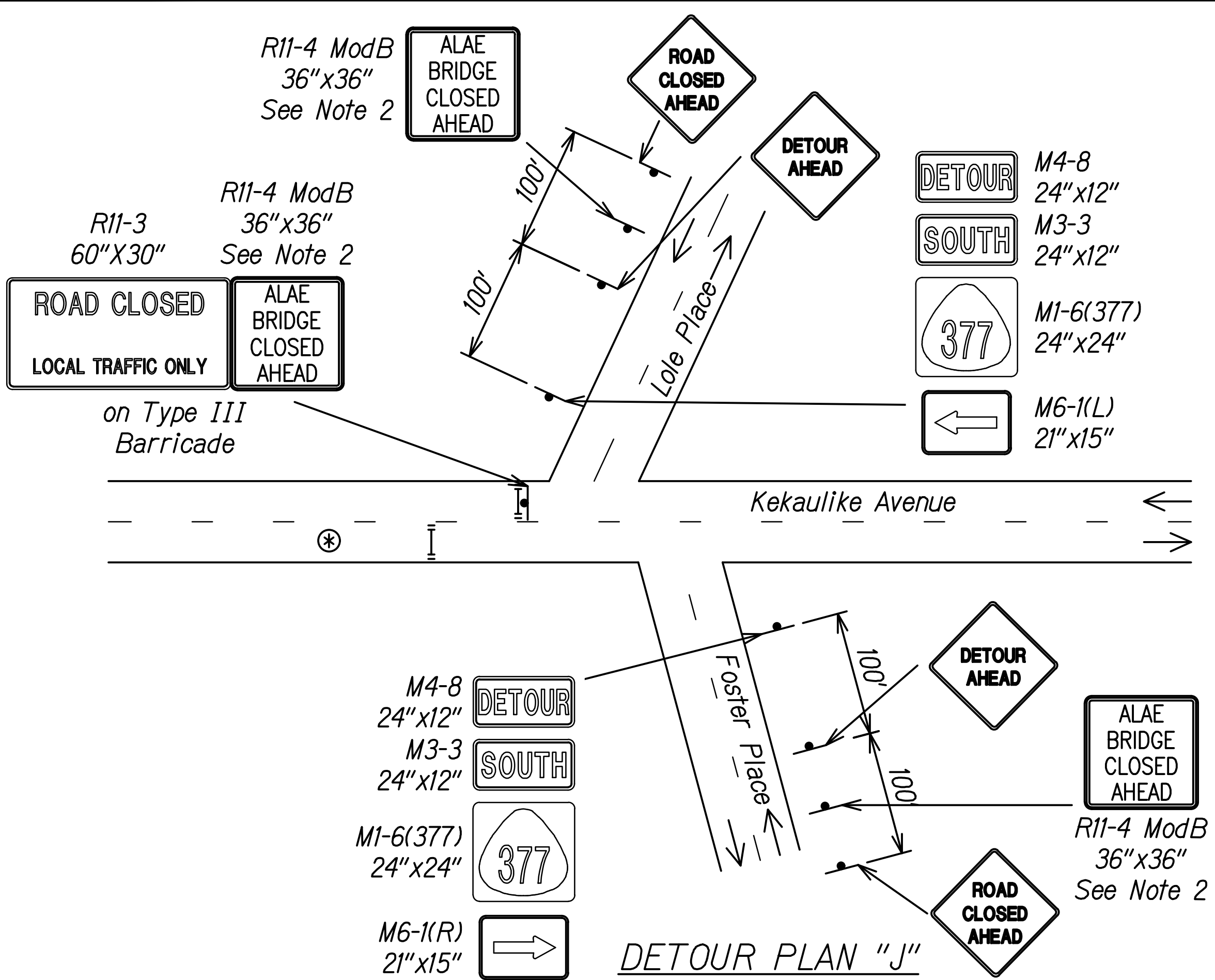
**FULL ROADWAY CLOSURE
DETOUR PLAN - ALAE BRIDGE**

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: As Shown Date: July 2026

SHEET No. TC-12 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	45	131



- NOTES:
- Contractor shall place message boards at the following intersections during detours, see sheet TC-9:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
 - See sheet TC-3 for sign detail.

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____

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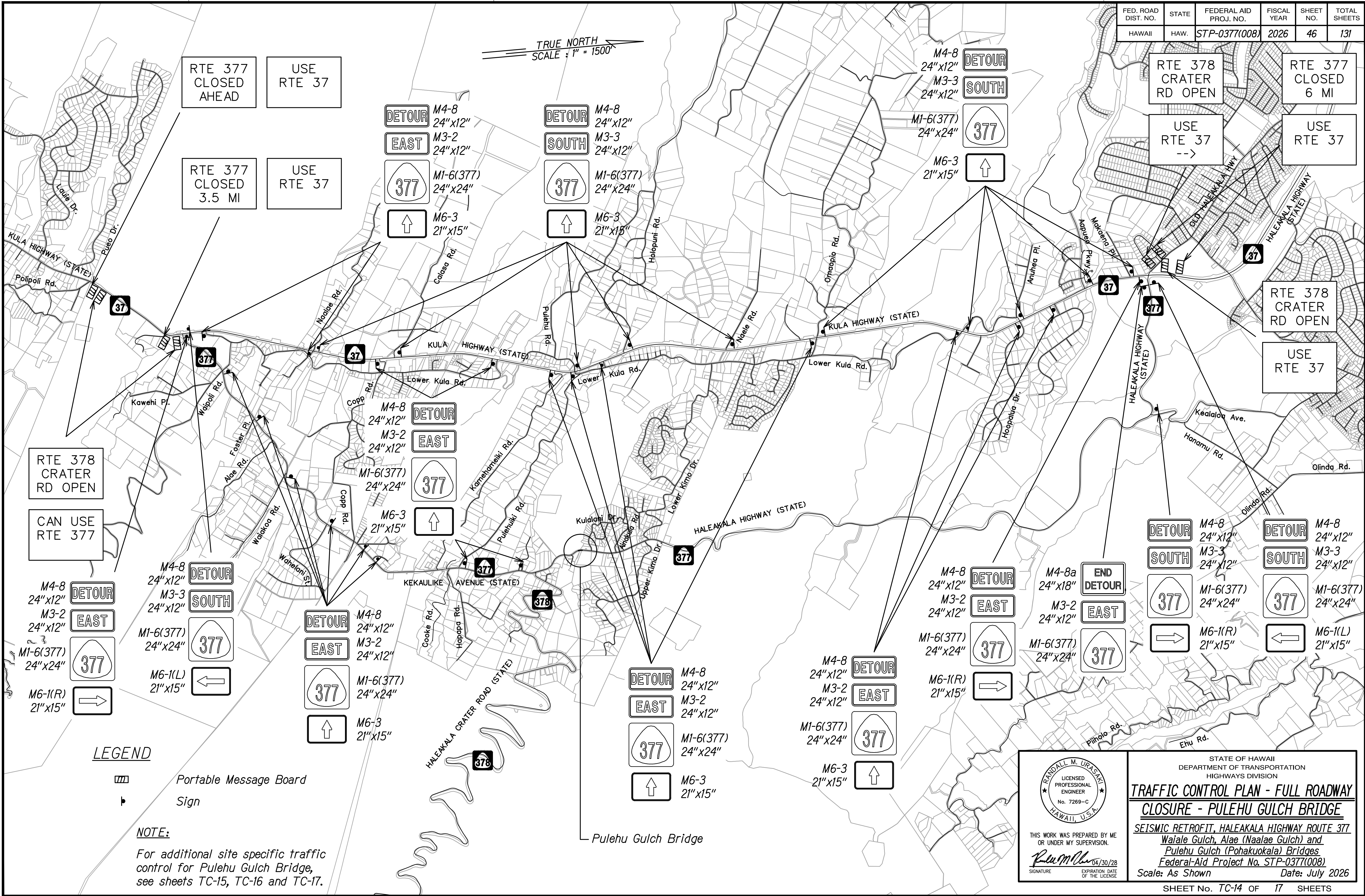
Randall M. Urasaka 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

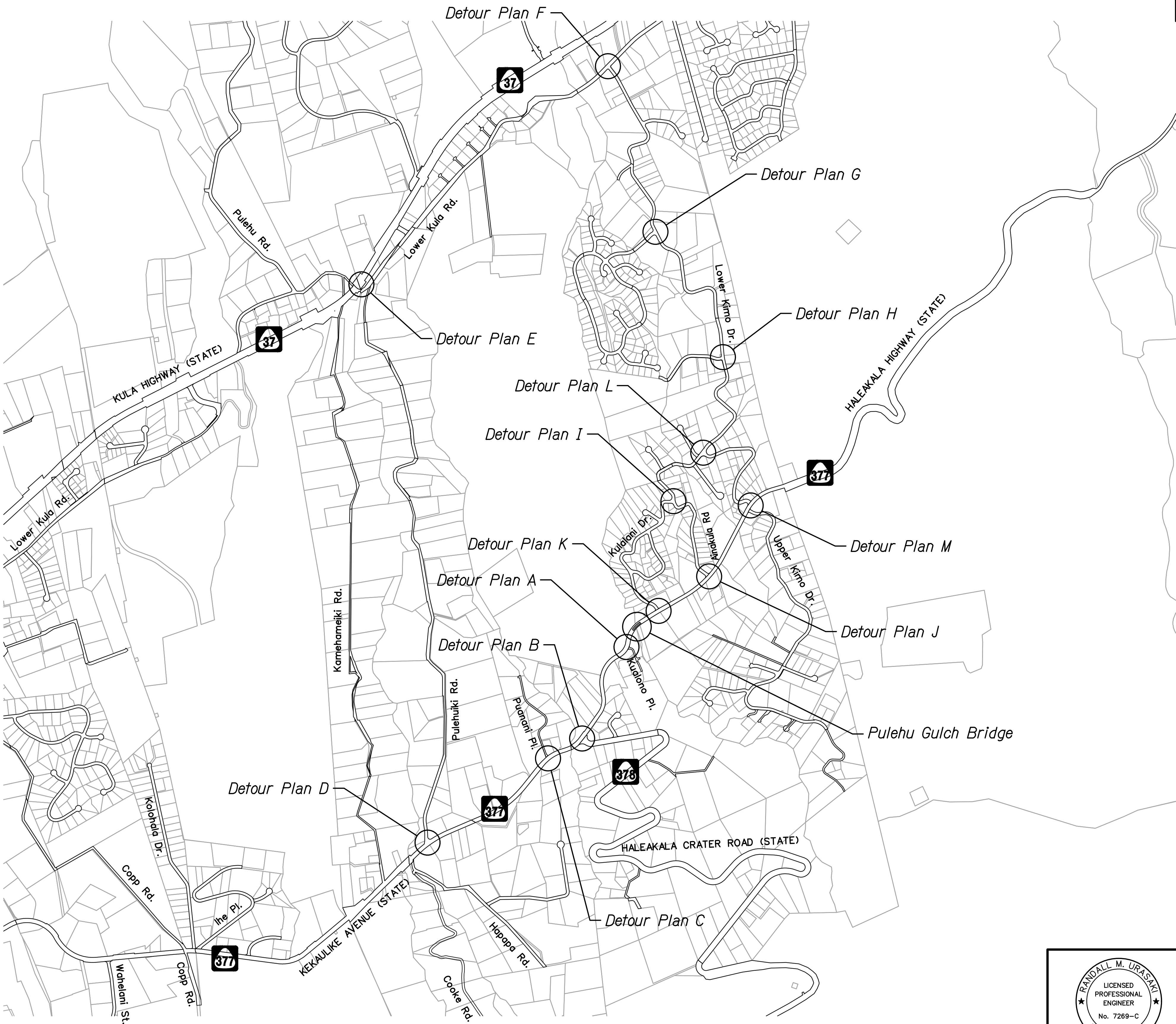
**FULL ROADWAY CLOSURE
DETOUR PLAN - ALAE BRIDGE**

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Shown Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	46	131

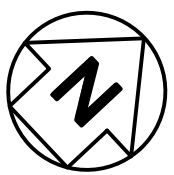


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	47	131



NOTE:

See sheets TC-16 and TC-17
for intersection plans.



DETOUR PLAN
Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY		
TRACED BY		
NOTE BOOK		
QUANTITIES BY		
CHECKED BY		
N ^o .		

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Randall M. Urasaka 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

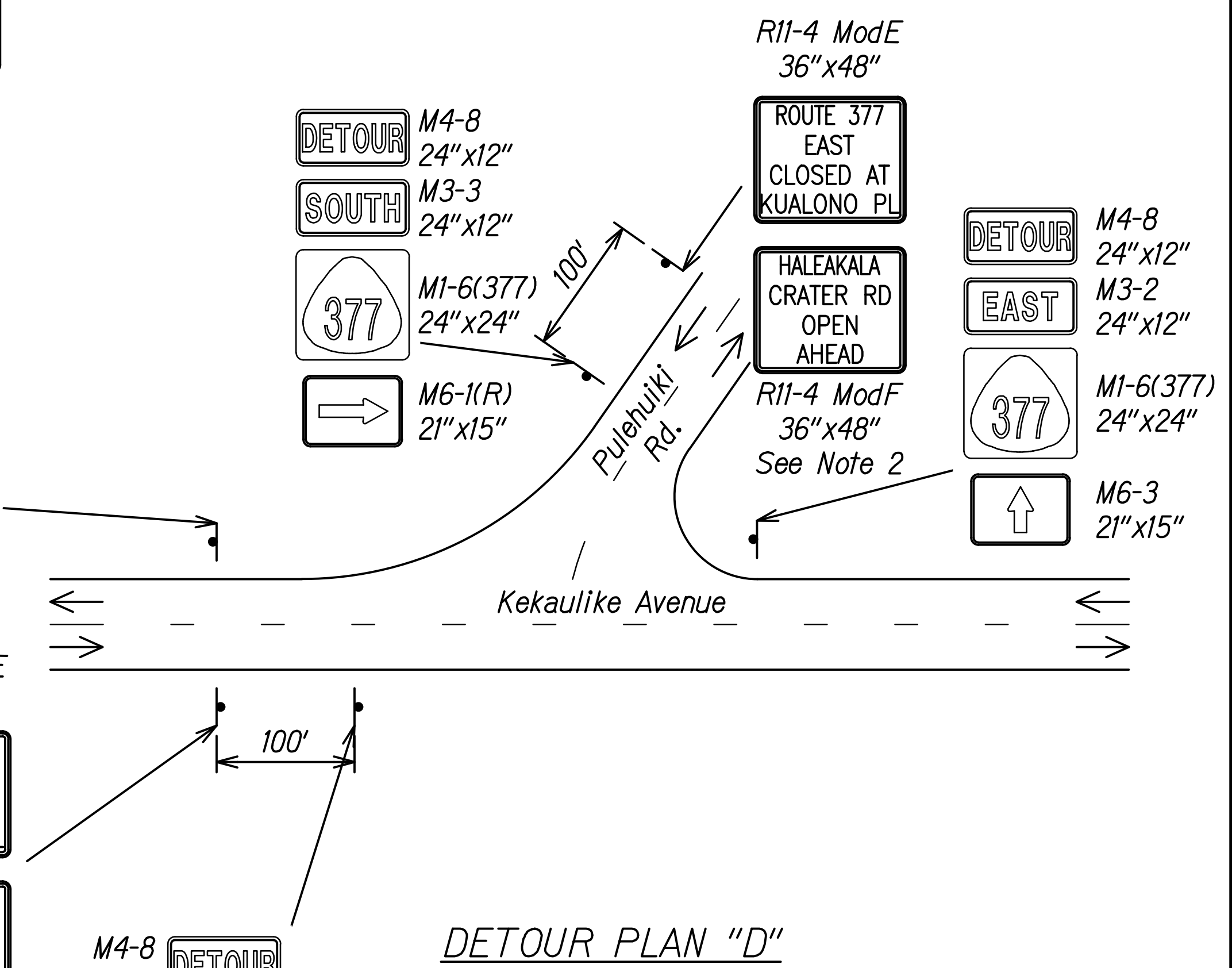
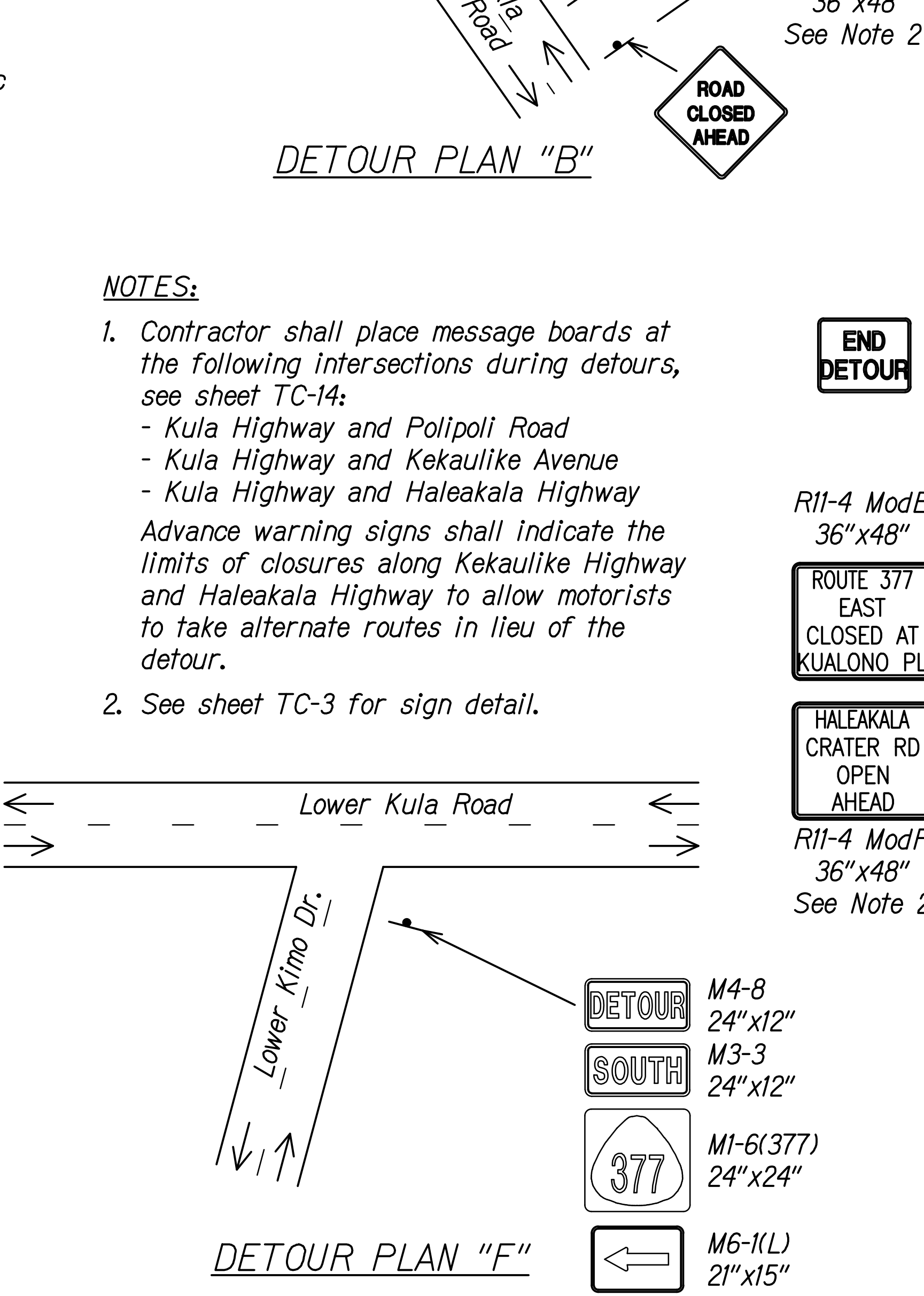
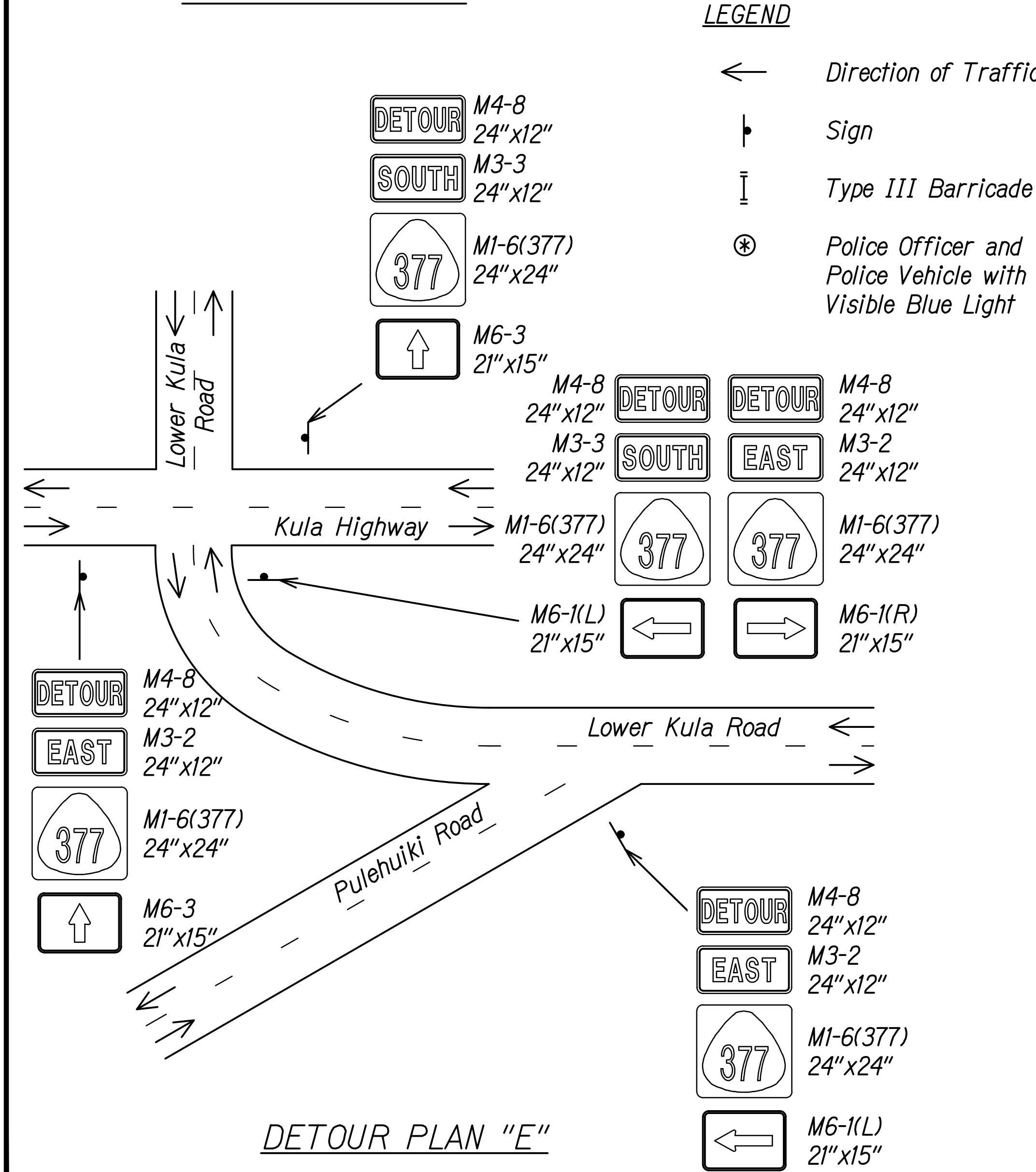
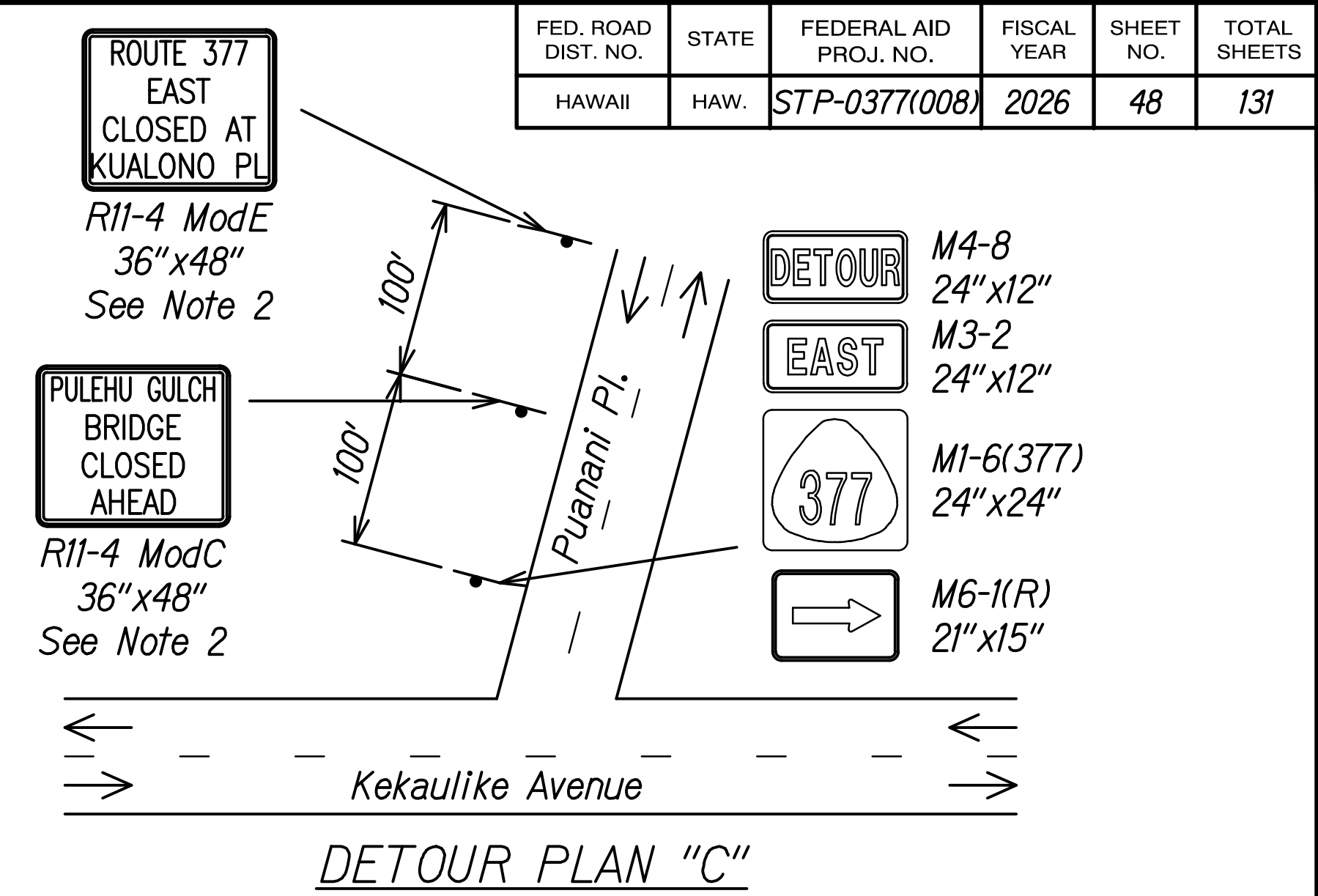
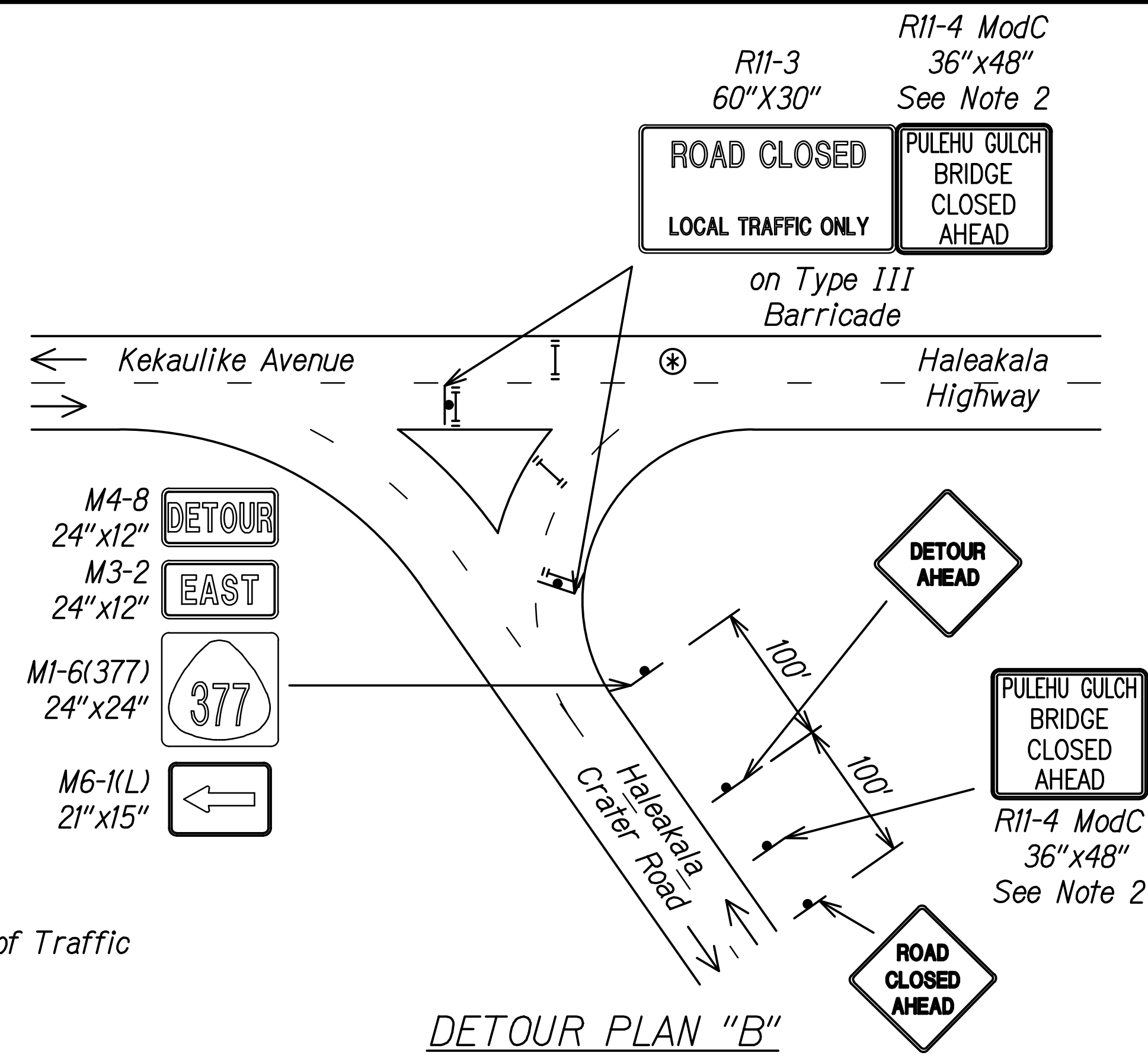
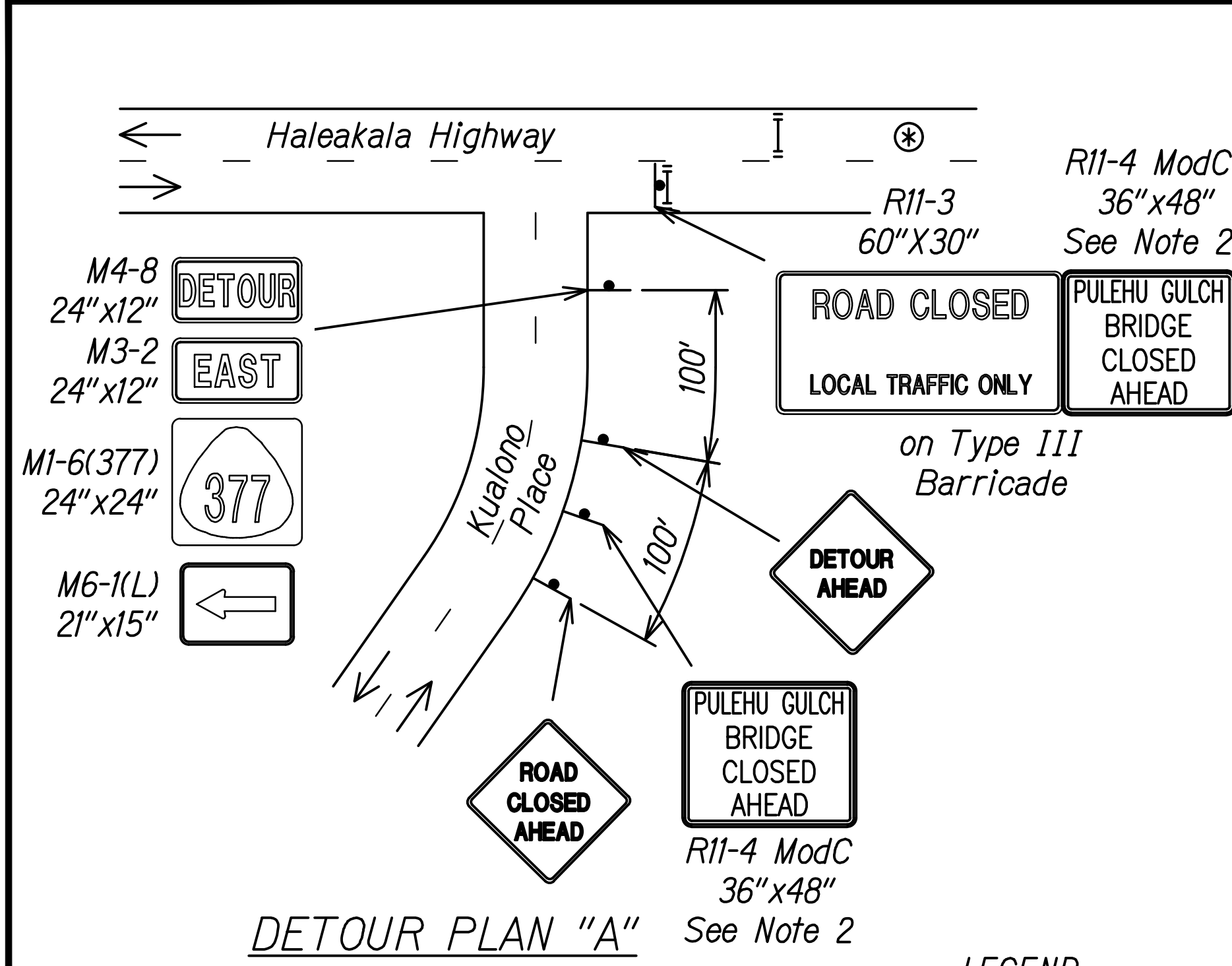
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FULL ROADWAY CLOSURE - DETOUR PLAN
PULEHU GULCH BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Shown Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	48	131



- LEGEND
- ← Direction of Traffic
 - ▬ Sign
 - ▬ Type III Barricade
 - ⊙ Police Officer and Police Vehicle with Visible Blue Light

- NOTES:
- Contractor shall place message boards at the following intersections during detours, see sheet TC-14:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
 - See sheet TC-3 for sign detail.

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

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Randall M. Urasky 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

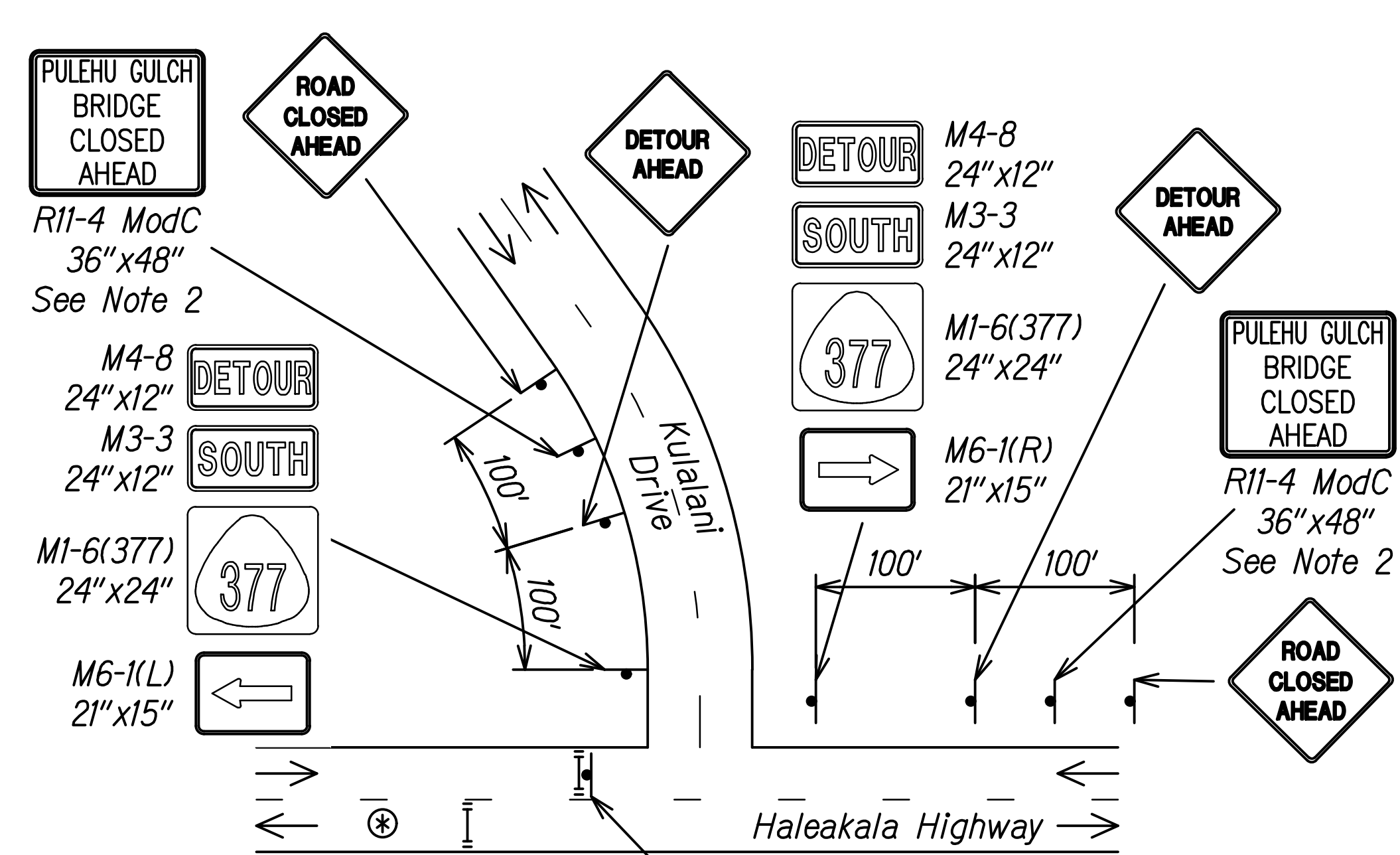
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FULL ROADWAY CLOSURE - DETOUR PLAN
PULEHU GULCH BRIDGE

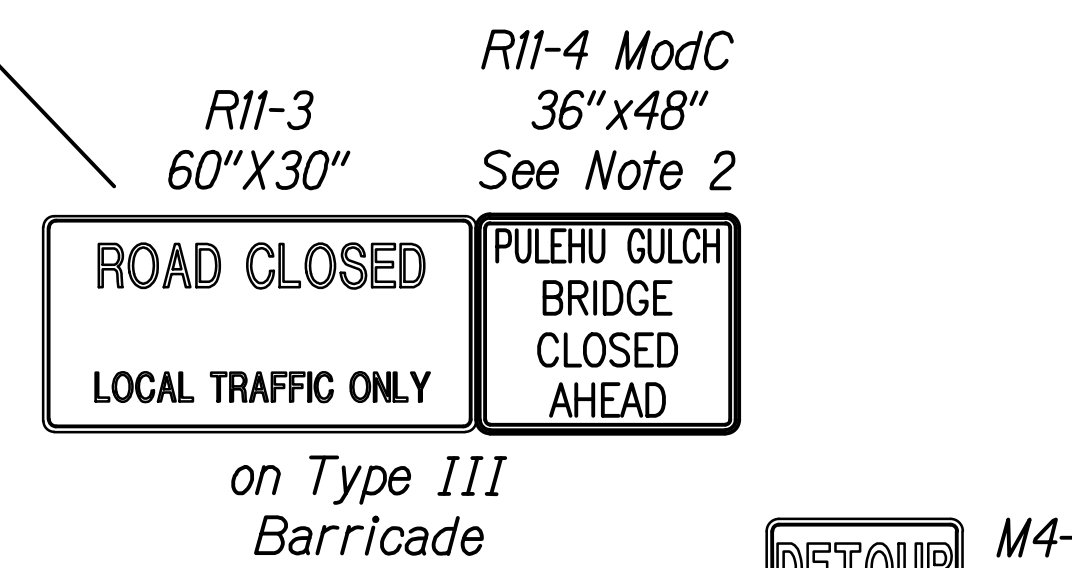
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: As Shown Date: July 2026

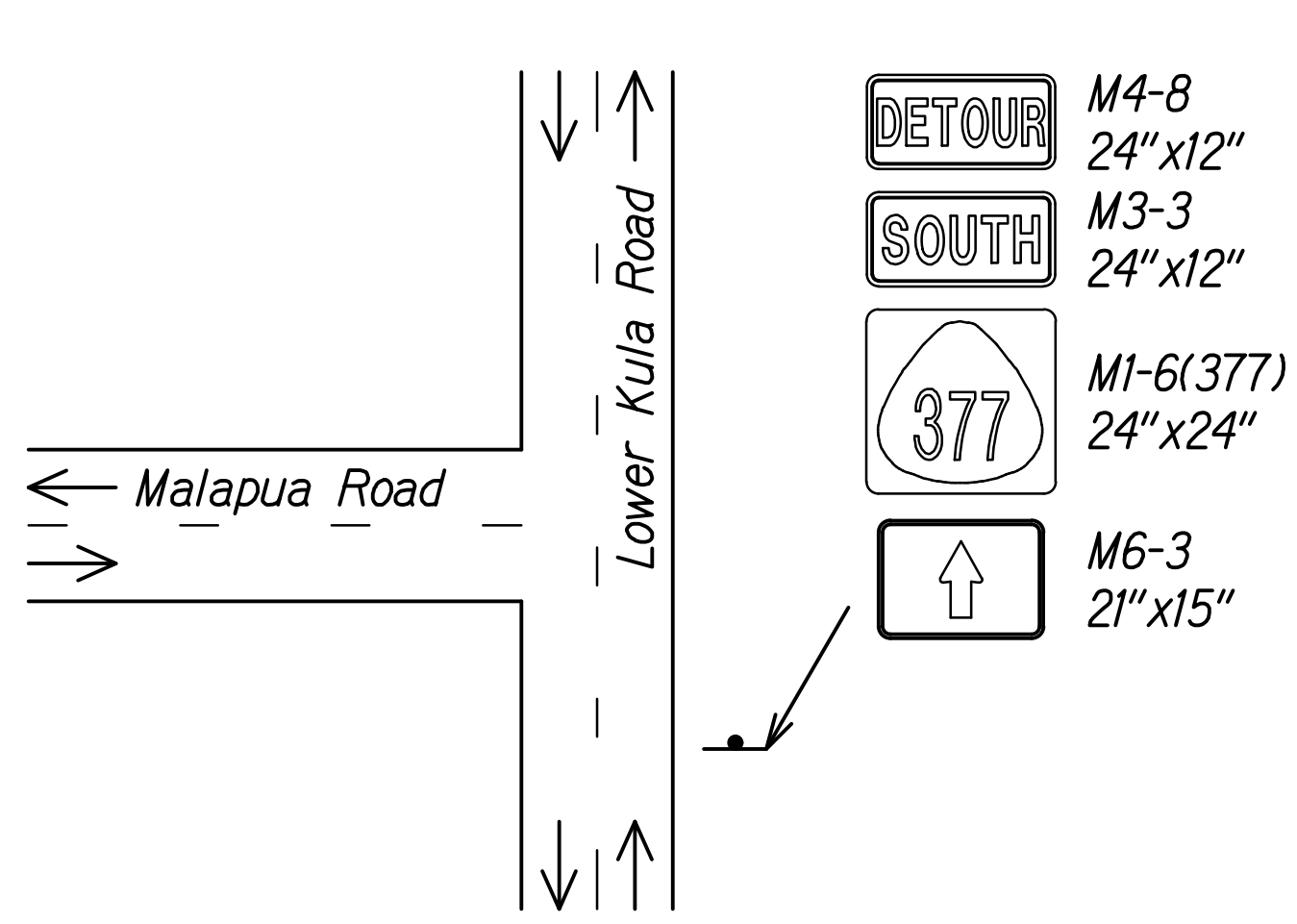
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	49	131



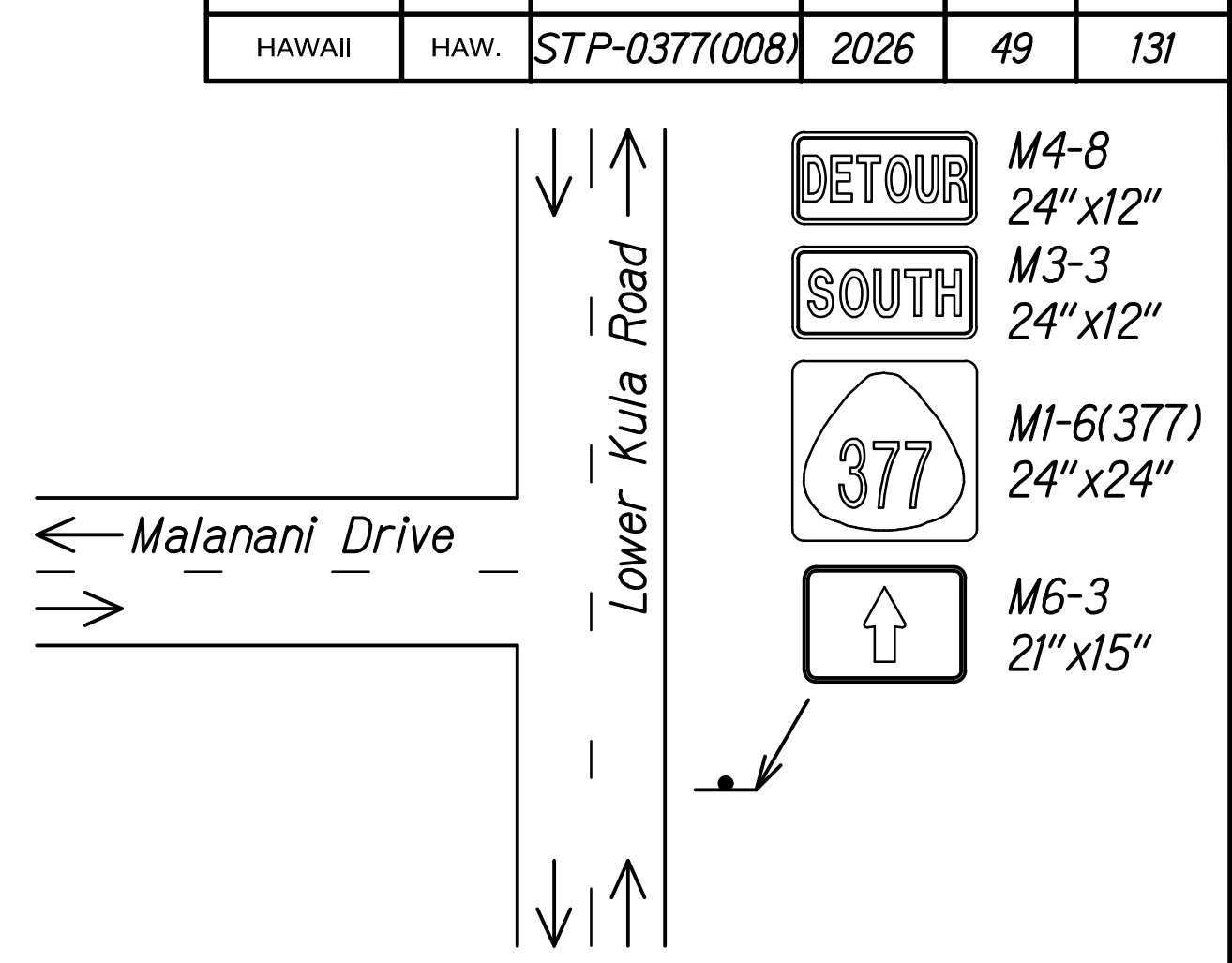
DETOUR PLAN "K"



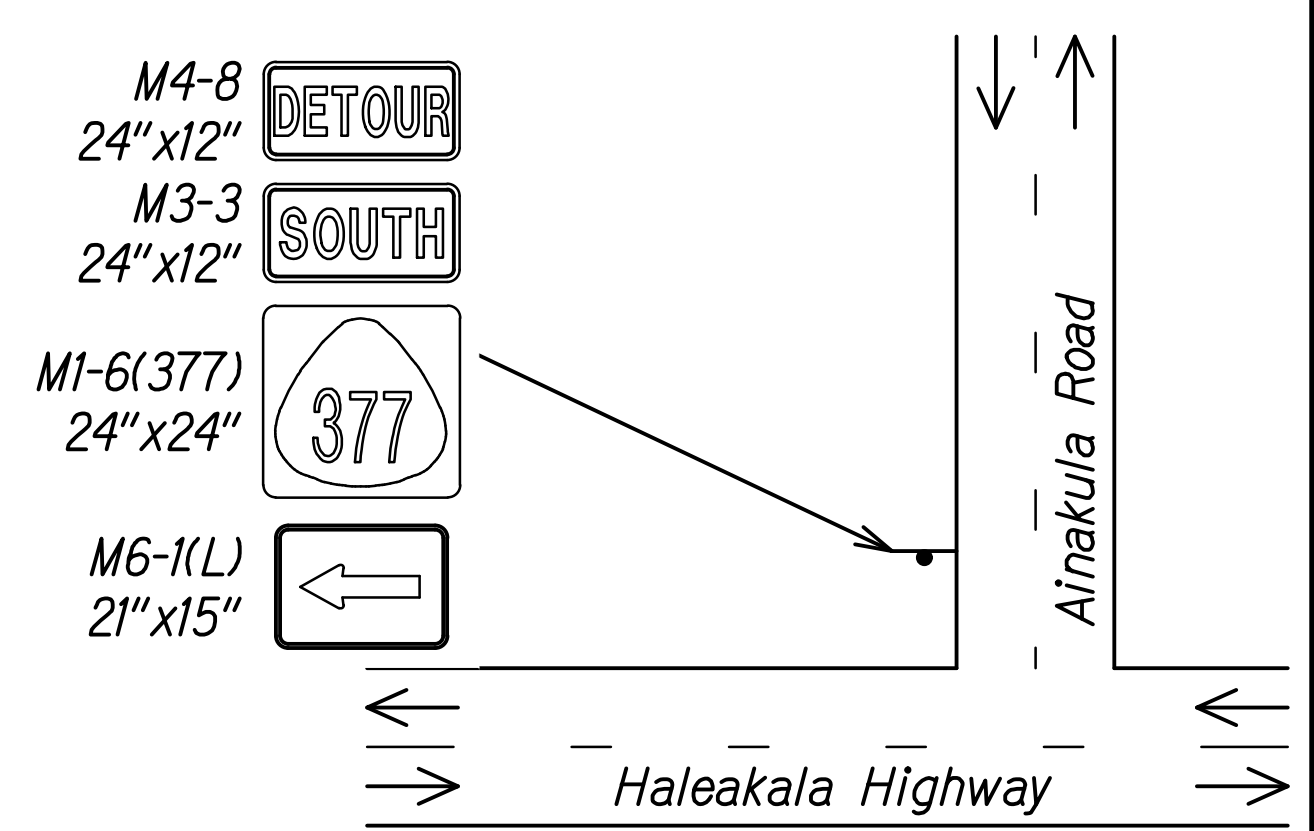
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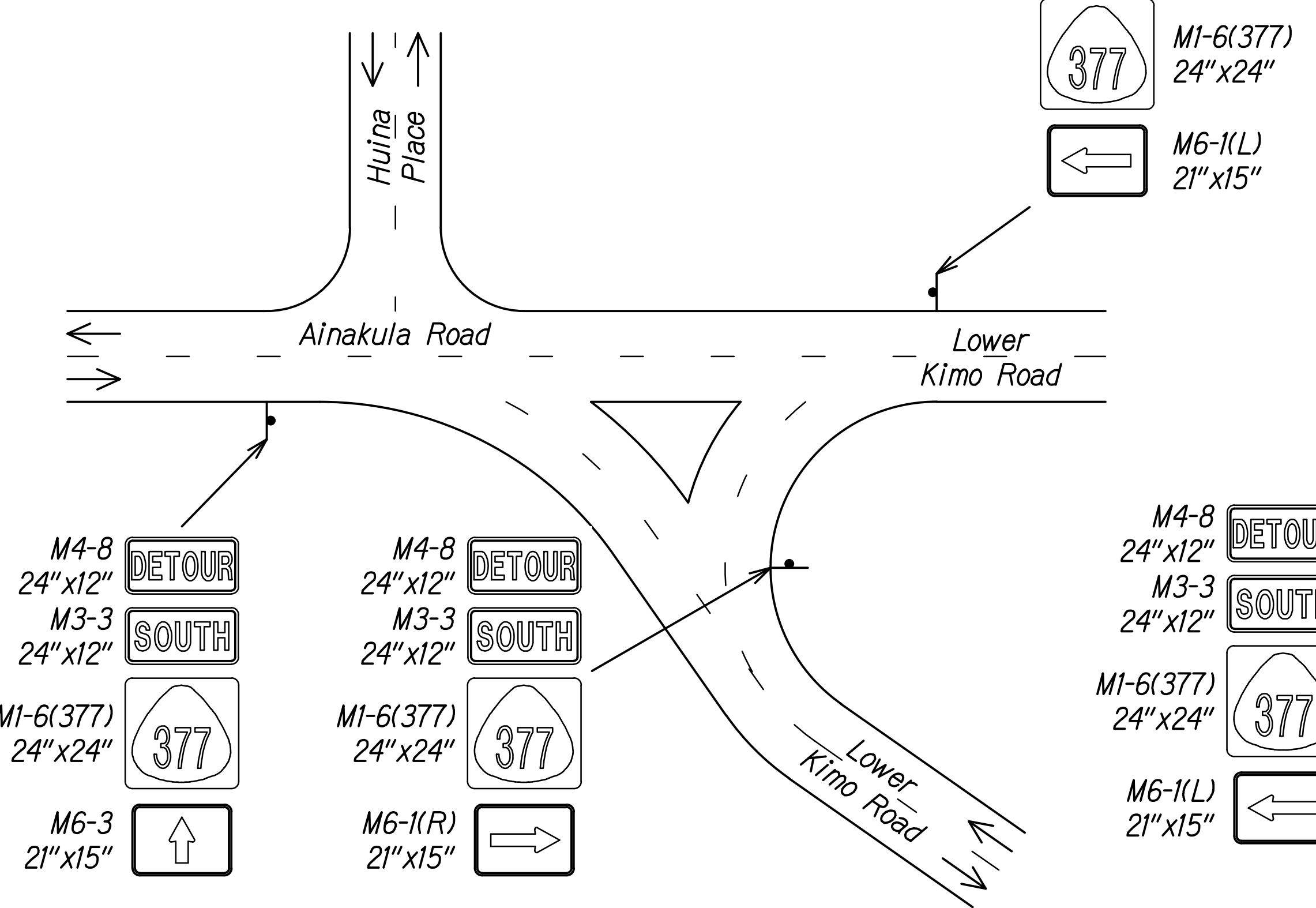
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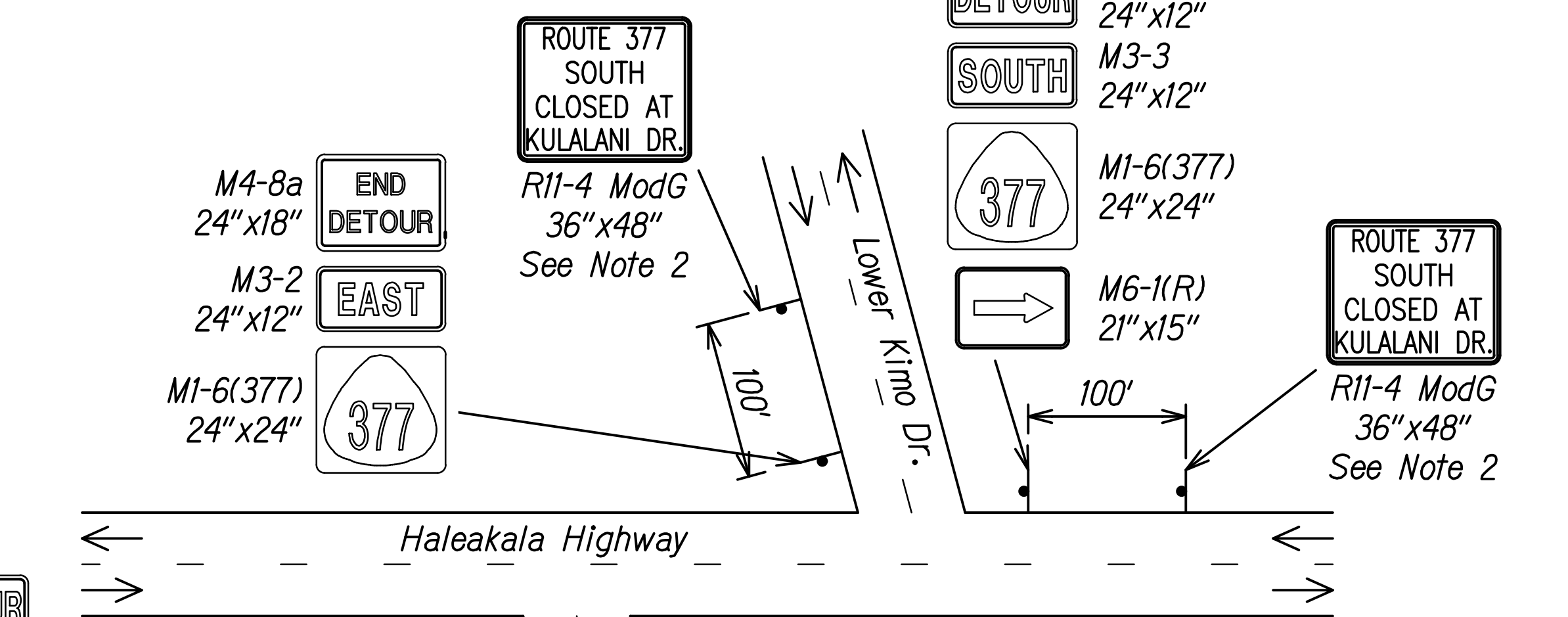
DETOUR PLAN "H"



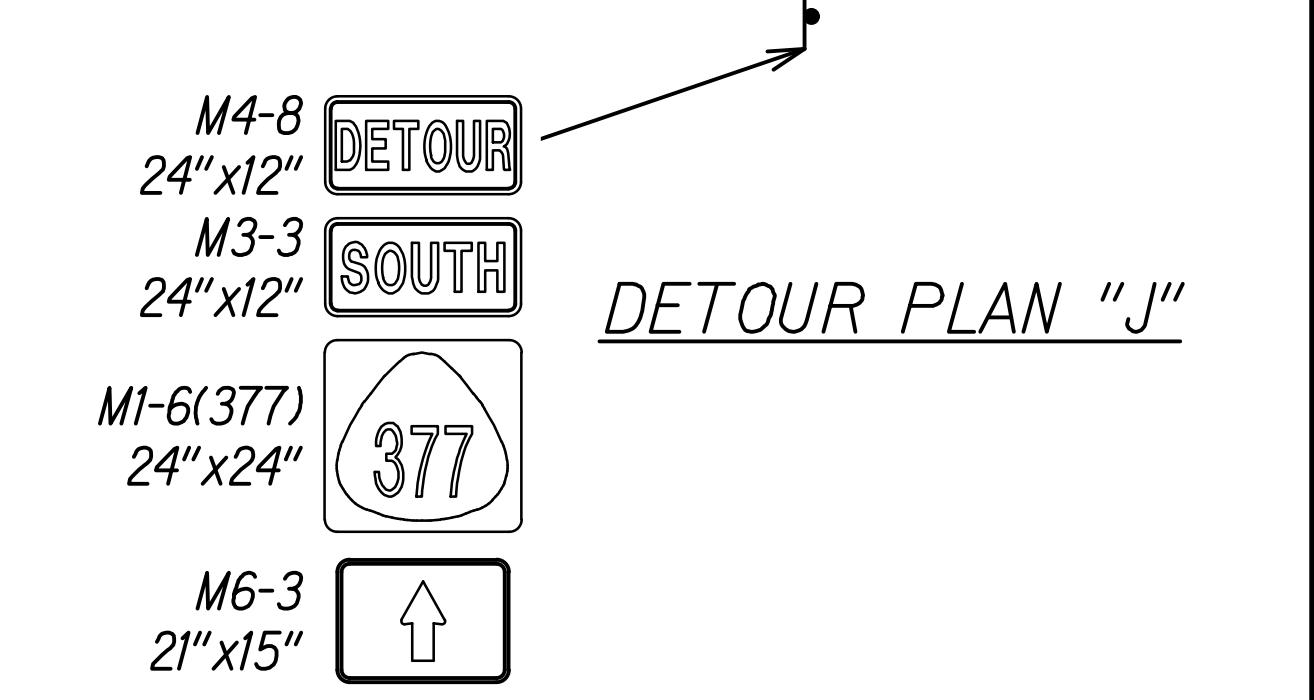
DETOUR PLAN "J"



DETOUR PLAN "L"



DETOUR PLAN "M"



- NOTES:**
- Contractor shall place message boards at the following intersections during detours, see sheet TC-14:
 - Kula Highway and Polipoli Road
 - Kula Highway and Kekaulike Avenue
 - Kula Highway and Haleakala HighwayAdvance warning signs shall indicate the limits of closures along Kekaulike Highway and Haleakala Highway to allow motorists to take alternate routes in lieu of the detour.
 - See sheet TC-3 for sign detail.

- LEGEND**
- ← Direction of Traffic
 - Sign
 - Type III Barricade
 - ⊙ Police Officer and Police Vehicle with Visible Blue Light

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Randall M. Urasaka
SIGNATURE EXPIRATION DATE OF THE LICENSE 04/30/28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FULL ROADWAY CLOSURE - DETOUR PLAN
PULEHU GULCH BRIDGE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: As Shown Date: July 2026

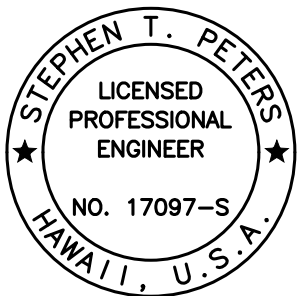
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	50	131

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SA3.7	WAIALE GULCH BRIDGE BENT NO. 1 REINFORCING SECTION
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SB2.6	ALAE BRIDGE ABUTMENT NO. 2 SECTION
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SB5.3	ALAE BRIDGE CONSTRUCTION SEQUENCE

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

DRAWING NAME: Z:\\$000\00G010623-009.3-3 MAUI BRIDGES SEISMIC RETROFIT\INSPIR01 CAD\07-16-26 BID SET\3MB-S001 INDEX.DWG PLOT TIME: 07-16-26, 12:39 PM



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Stephen T. Peters
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INDEX TO STRUCTURAL DRAWINGS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: None Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	52	131

STRUCTURAL GENERAL NOTES

1. General Specifications:

- A. Hawaii Department of Transportation (HDOT) 2005 "Standard Specifications for Road and Bridge Construction", together with Special Provisions prepared for this project.

2. Design Specifications:

- A. American Association of State Highway and Transportation Officials (AASHTO) "LRFD Bridge Design Specifications", 9th Edition as amended by HDOT document dated August 8, 2014 with the subject title "Design Criteria for Bridges and Structures".
- B. HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures" and HDOT memorandum dated January 8, 2018 with subject title "Changes to Design Criteria for Bridges and Structures".
- C. "Seismic Retrofit Guidelines for Bridges in California", California Department of Transportation (Caltrans) Memo 20-4, June 2016.

3. Loads:

- A. Dead Load: 160 PCF for concrete elements
- B. Live Load: AASHTO HL-93 Truck Loading
- C. Seismic Loads:

Design Earthquake = 7% Probability of Exceedance in 75 years (1,000 year Return Period)

Waiale Gulch Bridge

PGA = 0.259 g F_{PGA} = 1.14 As = 0.296 g
S_s = 0.591 g Fa = 1.17 S_{DS} = 0.687 g
S₁ = 0.171 g Fv = 1.63 S_{DI} = 0.279 g
Site Class = C Seismic Zone = 2

Alae Bridge

PGA = 0.258 g F_{PGA} = 1.14 As = 0.294 g
S_s = 0.585 g Fa = 1.17 S_{DS} = 0.681 g
S₁ = 0.171 g Fv = 1.63 S_{DI} = 0.279 g
Site Class = C Seismic Zone = 2

Pulehu Gulch Bridge

PGA = 0.259 g F_{PGA} = 1.14 As = 0.296 g
S_s = 0.589 g Fa = 1.16 S_{DS} = 0.687 g
S₁ = 0.172 g Fv = 1.63 S_{DI} = 0.279 g
Site Class = C Seismic Zone = 2

4. Concrete:

- A. All concrete strengths shall be as noted below:

Item No.	Structural Parts	Compressive Strength, f'c (28 Days)	Maximum Water/Cementitious (W/C)	Maximum Cementitious Material Content (lbs./cy)	Included Admixtures (See Notes Below in This Section)
(1)	Bent Cap, Diaphragms	5,000 psi	0.45	670	C, D, E
(2)	Creep Blocks	6,000 psi	0.40	670	C, E
(3)	Tie Slab	5,000 psi	0.45	670	C, D, E
(4)	Anchor Beam and Corbel	5,000 psi	0.45	670	C, D
(5)	Except as Noted Otherwise, All Others	4,000 psi	-	-	C

- B. The use of any calcium chloride in any concrete is prohibited.
- C. Amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal shall be added at a dosage of 24 ounces per cubic yard.
- D. Shrinkage reducing admixture such as Masterlife SRA 35 or approved equal shall be added at a dosage of 128 ounces per cubic yard or as recommended by the manufacturer.
- E. Alkali resistant structural glass fiber such as CEMFIL ANTI-CRAK HP67/36 or approved equal shall be added to the concrete mix. The dosage rate shall be 15 lbs per cubic yard for CEMFIL or the equivalent amount of approved equal to achieve similar properties as the glass dosage. The fiber shall be added to the concrete as recommended by the Manufacturer during the mixing process.
- F. Contractor is not limited to only adding admixtures listed on these notes. Other admixtures may be added upon approval of the Engineer.
- G. All concrete exposed within 7 days of placement shall be cured using Sinak Lithium Cure 1000 or approved equal at a coverage rate of no less than 400 sq. ft. per gallon.
- H. Cure concrete as specified in the Contract documents. Remove curing that may affect binding from all areas requiring future bonding unless a curing agent such as Sinak Lithium Cure 1000 or accepted equal that does not affect bond and provide equal or better curing is used.
- I. The Contractor has the option to design the concrete for all items to be pumpable and flowable. All concrete shall be designed for minimum segregation and separation.

5. Reinforcement:

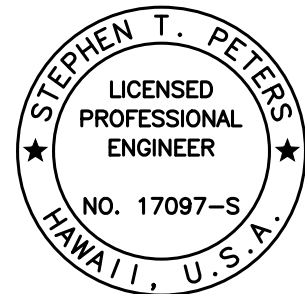
- A. All reinforcing steel shall be ASTM A 706 Grade 60 unless otherwise noted.
- B. Reinforcing steel shall be ASTM A 955 Type 2205 (UNS S31803) where stainless steel bars are required.

5. Reinforcement (Cont.)

- C. Threaded reinforcing placed in PT ducts shall be ASTM A615 Grade 75 bar with a continuous rolled rounded coarse thread form. Hex nuts shall be provided by the bar manufacturer.
- D. The minimum cover measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:

(1) Concrete cast against and permanently exposed to earth = 3"

(2) All others unless otherwise noted = 2".
- E. Reinforcing bars shall be detailed in accordance with the latest edition of the "ACI Detailing Manual" unless otherwise noted.
- F. Reinforcing bars shall be placed and installed in accordance with the "CRSI Manual of Standard Practice" and "CRSI Placing Reinforcing Bars", unless otherwise noted.
- G. Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than one foot in each direction, in which case alternate intersections shall be tied.
- H. Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate or 1 1/2".
- I. All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.
- J. Dissimilar metals in contact shall be avoided where possible. If unavoidable, wrap contact surface with several layers of a dielectric tape such as Teflon or polypropylene. Any type of reinforcing steel in contact with stainless steel shall be considered a dissimilar metal contact.
- K. Mechanical bar couplers shall be a headed-sleeve type capable of developing both 125% of the specified yield strength and 100% of the specified ultimate tensile strength of the reinforcement. The system shall be classified as a Type 2 mechanical splice per ACI 318 and the headed reinforcement shall be in accordance with ASTM A970. Installation shall be performed by hand-tightening in accordance with the Manufacturer's ICC-ES evaluation report. No rotation of the reinforcing bars shall be required for assembly. System shall be HRC-500/510 Xtender or approved equal.
- L. Glass Fiber Reinforced Polymer (GFRP) rebar shall conform to ASTM D7957 and ASTM D8505.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: None Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	53	131

STRUCTURAL GENERAL NOTES

5. Reinforcement (Cont.)

- M. Concrete cover for the GFRP rebars shall be 1 1/2" unless otherwise noted.
- N. The GFRP rebars may be cut in the field with a masonry or diamond blade

6. Soil Nails:

- A. Grout for soil nails shall be a pre-bagged neat cement, non-shrink grout with silica fume admixture and anti-washout additive in conformance with ASTM C 1107. Grout shall achieve minimum 7,000 psi compressive strength at 28-days such as Target 1118 Grout or approved equal.
- B. Temperature of grout shall not exceed 85° F at the end of the grouting hose coupling to fill tube.
- C. Soil nails shall be Triple Corrosion Protected. Each threaded steel bar shall be ASTM A615 Grade 75 and shall be hot-dip zinc galvanized in accordance with ASTM A123 and pre-grouted in a corrugated PVC or HDPE sheathing.

PregROUT, provided by manufacturer, shall contain an amine carboxylate corrosion inhibiting water-based admixture, Cortec MCI 2005 NS or approved equivalent corrosion inhibitor and shall be added at a dose of 24 oz. per cubic yard. Soil nails that are damaged shall either not be used or shall be repaired in accordance with manufacturer's recommendations.

- D. Bearing plates, nuts, and welded shear connectors:

- (1) Bearing plates: AASHTO M183/ASTM A36
- (2) Nuts: AASHTO M291, Grade B, Hexagonal
- (3) Washers: ASTM F436

- E. All hardware for soil nails, such as plates, nuts, and washers, shall be hot-dip zinc galvanized after fabrication in accordance with ASTM A 123 and ASTM A 153, respectively.

7. Materials:

- A. Steel Reinforced Elastomeric Bearing Pads shall be manufactured and installed in accordance with the Contract drawings and Special Provisions Section 506 - STEEL REINFORCED ELASTOMERIC BEARINGS.
- B. Anchoring adhesive for all post-installed threaded anchors and reinforcing bars shall conform to ASTM C 881 and carry a current ICC-ES Evaluation Service Report such as Simpson Strong-Tie SET-3G or approved equal. All cored and hammer-drilled holes shall be cleaned in accordance with adhesive Manufacturer's Printed Installation Instructions (MPII).

7. Materials (Cont.)

- C. Leveling grout beneath bearings shall be a high performance, three component, pre-packaged epoxy grout capable of developing a minimum compressive strength of 9,000 psi in 1 day and 15,000 psi in 7 days in accordance with ASTM C579 at 75°F. Compressive Modulus of Elasticity shall be a minimum of 2,100,000 psi in accordance with ASTM C579. Material shall be FasTrac CE815 Epoxy Grout or approved equal.
- D. Premolded joint filler shall be permanent, waterproof, self-healing, and asphalt impregnated meeting the requirements of AASHTO M33.
- E. Lightweight Cellular Concrete (LCC) Backfill shall have an in-place density of less than 45 pounds per cubic foot and a maximum 28-day compressive strength of 90 pounds per square inch. See Special Provisions Section 627 - LIGHTWEIGHT CELLULAR CONCRETE (LCC) FILL.
- F. LCC Backfill shall be placed in lifts not exceeding 2'-0" in height for every 24 hours.
- G. Equipment and vehicles shall not be allowed to drive on LCC for a minimum of 32 hours after placement.
- H. The carbon fiber reinforced polymer (CFRP) composite system shall consist of a uni-directional high-strength carbon fiber fabric bonded to the existing concrete substrate using a structural epoxy via the wet-layup method. The CFRP shall meet the following minimum test value material properties:

- (1) Composite Gross Laminate Properties of one layer
- (a) Tensile Strength - 130,000 psi ASTM D3039
- (b) Tensile Modulus - 12.6 x 10⁶ psi - ASTM D3039
- (c) Elongation at Break - 0.9% - ASTM D3039
- (d) Nominal Laminate Thickness - 0.04 in. ASTM D1777

- I. Concrete repair mortar shall be pre-blended, pre-bagged, shrinkage compensated, polymer-modified, fiber-reinforced material with an internal corrosion inhibitor capable of developing 4,5000 psi in 24-hours and 9,000 psi in 28-days, such as FasTrac V/O Mortar or approved equal.
- J. Grout used in PT ducts shall be a high-flow, unsanded cementitious grout meeting the requirements of PTI M55 Class C Grout. Compressive strength at 28-days shall be minimum 12,000 psi such as Target 1121 Grout or approved equal.

8. Construction Notes:

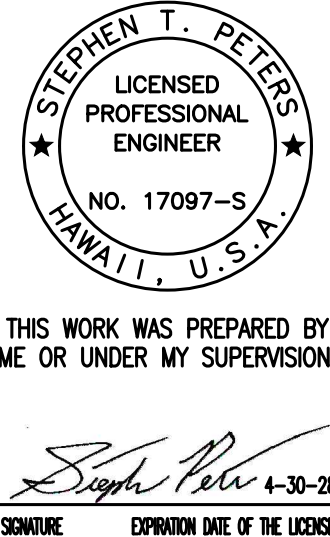
- A. The Contractor shall verify all dimensions and site conditions and not rely upon these plans for existing concrete element sizes, existing reinforcing steel placement, stream channel location, wingwall locations, guardrail placement, edge of pavement, etc. Existing dimensions and conditions shown on the plans are for the Contractor's convenience and may differ from actual site conditions. Report any discrepancies in writing to the Engineer before commencing work or ordering materials.

8. Construction Notes (Cont.)

- B. The Contractor shall be solely responsible for the protection of adjacent properties, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.
- C. The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.
- D. The existing concrete surfaces, which new concrete is poured against, shall be roughened to a full amplitude of 1/4 of an inch, pressure washed clean, and saturated surface dry (SSD)
- E. Unless otherwise noted, all finish grades shall match existing grades.
- F. Except as otherwise noted, all vertical dimensions are measured plumb.
- G. For concrete finish see Standard Specifications and Special Provisions Section 503 - CONCRETE STRUCTURES.
- H. Construction joints may be relocated or additional ones added subject to the approval of the Engineer.
- I. Unless otherwise noted, all exposed concrete edges shall be chamfered 3/4" x 3/4".
- J. The Contractor shall scan all surfaces of existing concrete, using appropriate ground penetrating radar technology to locate all existing reinforcing bars prior to performing post-installed drilling work.
- K. All post-installed threaded anchors and reinforcing bars shall be performed by ACI certified installers and shall be installed under the supervision of an ACI certified inspector.
- L. 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 be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
- M. 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.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, A'ao (Na'alea Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: None Date: July 2026

SHEET No. 53.4 OF 6 SHEETS

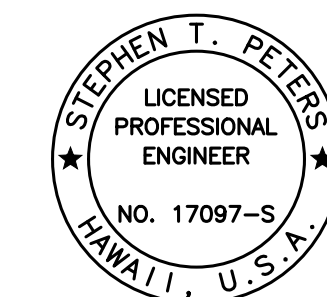
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	<i>STP-0377(008)</i>	<i>2026</i>	<i>54</i>	<i>131</i>

- N. *Existing drainage system on and off the bridge and within the construction work area shall 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 the various contract items.*
- O. *The Contractor shall provide for access to and from all existing nearby private driveways at all times.*
- P. *No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way except at locations designated in writing and approved by the Engineer. If use of location is approved by the Engineer, the Contractor shall obtain a permit to use the property within the highway right-of-way from the State Right-of-Way Branch at telephone no. (808) 692-7332.*
- Q. *All items not listed in the proposal schedule shall be incidental to the various items of work and will not be paid for separately.*
- R. *Standard detail drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.*
- S. *As-built plans for the existing structures are available from the Highways Design Branch located at the Department of Transportation, Highways Division, Kakuhihewa Building, Room 609, 601 Kamokila Boulevard, Kapolei, HI 96707. The telephone no. is (808) 692-7583.*
- T. *The Contractor shall submit comprehensive working drawings and calculations for the proposed hydraulic jacking and shoring of the bridge superstructure that is needed to replace the bearings. Installation of jacks, shoring, dunnage, etc. shall not interfere with placement of reinforcing steel or concrete for work at the bent caps. Existing bridge elements shall be checked for structural adequacy against the revised temporary bearing locations. All drawings and calculations shall be prepared and stamped by a State of Hawaii licensed Structural Engineer. The above work, including working drawings and calculations, shall be incidental to the removal of existing bearings work. The drawings and calculations shall be found acceptable by the Engineer before any construction work is to proceed.*
- U. *The Contractor shall anticipate potential existing granular backfill behind abutments during excavation activities.*

A. The geotechnical parameters are based on the report titled: "Final Submission Geotechnical Engineering Exploration Waiale, Pohakuokala, and Alae Bridges Seismic Retrofit, Kula, Maui, Hawaii" dated March 25, 2026, and prepared by Geolabs, Inc.

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

DRAWING NAME: Z:\\$00 ONGOING\23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (WSP)\\$01 CAD\207-16-26 BID SET\\$3MB-S0003 GENNOTES.DWG PLOT TIME: 07-16-26, 12:42 PM



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Joseph Petr 4-30-28
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: None Date: July 2026

SHEET No. **50.5** OF **6** SHEETS

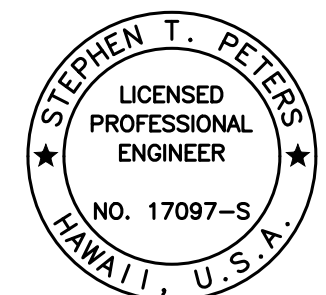
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SYMBOLS AND ABBREVIATIONS

¢	And	Dbl.	Double	GFRP	Glass Fiber Reinforced Polymer Rebar	Opn'g	Opening	Str.	Straight
@	At	Demol.	Demolition			O/S	Offset	Struct.	Structure
∅	Diameter	Det.	Detail	Gr.	Grade	OHWM	Ordinary High Water Mark	SY	Square Yard
≥	Greater Than or Equal to	DI	Drain Inlet, Ductile Iron	Grd.	Ground			Symm.	Symmetrical
≤	Less Than or Equal to	Dia.	Diameter	GRP	Grouted Rubble Pavement	PB	Pull Box		
#	Number	Diaph.	Diaphragm			PL	Plate		
		Dim.	Dimension	(H)	Hinge	PCCP	Portland Cement Concrete Pavement	T	Top
AB	Anchor Bolt	Dist.	Distance	HDPE	High Density Polyethylene			T±B	Top and Bottom
Abut.	Abutment	Dn.	Down	HDOT	State of Hawaii Department of Transportation	PC	Point of Curvature	Tan.	Tangent
Abbr.	Abbreviation	DO	Ditto			PCF	Pounds per Cubic Foot	TCE	Top of Column (and Bent Cap Soffit) Elevation
AC	Asphaltic Concrete	DS	Drilled Shaft	HECO	Hawaiian Electric Company	P(e)	Effective Prestress Force After All Losses	Temp.	Temporary
Add.	Additional	Dwg., Dwgs.	Drawing, Drawings	Horiz., H	Horizontal			Term.	Terminal
Alt.	Alternate	Dwls.	Dowels	Ht.	Height	Perf.	Perforated	TFE	Top of Footing Elevation
Approx.	Approximate			HS	High strength	PI	Point of Intersection of Tangents	Thk.	Thick
Az.	Azimuth	e	Existing					TOD	Top of Deck
		E	East	IB	Inbound	PIVC	Point of Intersection of Vertical Curve	TOP	Top of Pier
Bal.	Balance	EA, Ea., ea.	Each	ID	Inside Diameter			Tot.	Total
¢	Baseline	EF	Each Face	IF	Inside Face	PLF, plf	Pounds per Linear Foot	Transv.	Transverse
Bet.	Between	EFH	Each Face Horizontal	In.	Inch	PMA	Polymer Modified Asphalt	TS	Structural Tubing
BF	Both Faces	EFV	Each Face Vertical	Int.	Interior	PPM	Parts Per Million	TSS	Tendon For Girder in Simply Supported Condition
BFE	Bottom of Footing Elevation	EJ	Expansion Joint	Inv.	Invert	PRC	Point of Reverse Curvature		
Bk.	Back	EI., Elev.	Elevation			PVC	Polyvinyl Chloride	Typ.	Typical
Blt.	Bolt	Elec.	Electrical	Jt.	Joint	Prestr.	Prestressed		
Bm.	Beam	Emb.	Embankment			P/S	Prestressed Strands		
BOF	Bottom of Footing	EPE	Existing Edge of Pavement	K	Kips	PSF, psf	Pounds per Square Foot	Undergrd.	Underground
Bot., Bott., B	Bottom	EPS	Expanded Polystyrene	KF	Kip Foot	PSI, psi	Pounds per Square Inch		
Br.	Bridge	Eq.	Equal	KLF	Kips Per Linear Foot			Var.	Varies
Brg., Brgs.	Bearing, Bearings	ES	Edge of Shoulder	KSF	Kips Per Square Foot	PT	Point of Tangency	VC	Vertical Curve
BVC	Beginning of Vertical Curve	Est.	Estimated	KSI, ksi	Kips Per Square Inch	Pt., Pts.	Point, Points	VESLMC	Very Early Strength Latex Modified Concrete
BW	Both Ways	EVC	End of Vertical Curve			R, Rad.	Radius		
		EW	Each Way	L	Length	Rebar	Reinforcing Bar	Vert., V	Vertical
Cant.	Cantilever	Exc.	Excavation	lb., lbs., LBS.	Pound, Pounds	Ref.	Reference		
CBW	Concrete Barrier Wall	Excl.	Excluding	LCC	Lightweight Cellular Concrete	Reinf.	Reinforced, Reinforcing, Reinforcement	W	West
cc	Center to Center	Exist., Ex.	Existing	LF, Lin. Ft.	Linear Feet/Foot			w/	With
CF	Cubic Feet	Exp., (E)	Expansion	Longit.	Longitudinal	Req'd.	Required	W/C	Water/Cementitious
CFCW	Continuous Flashing Compound Waterproofing	Ext.	Exterior	LS	Lump Sum	Ret.	Retaining	WP	Work Point, Working Point
				Ltg. Std.	Lighting Standard	RF	Rear Face	WS	Water Surface
CG	Center of Gravity	(F)	Fixed			ROW	Right of Way	WW	Wingwall
CIP	Cast Iron Pipe, Cast in Place	FA	Force account	M	Modified	Rdwy.	Roadway	WWF	Welded Wire Fabric
CJ	Construction Joint	FB	Flat Bar	Max.	Maximum				
¢	Center line	FC	Compression Stresses	MH	Manhole	S	South	Yr.	Year
Cl.	Class	f'c	Specified Compressive Strength of Concrete at 28 days	Min.	Minimum	SBD	Special Bridge Deck Mix		
Clr.	Clearance			Misc.	Miscellaneous	SE	Super Elevation		
CLSM	Controlled Low Strength Material	f'ci	Specified Compressive Strength of Concrete at Time of Initial Prestress	MPH	Miles Per Hour	Sect.	Section		
				MSL	Mean Sea Level	SF, sq. ft.	Square Feet		
CFRP	Carbon Fiber Reinforced Polymer	FF	Far Face, Front Face	N	North	Sht.	Sheet		
CMU	Concrete Masonry Unit	Fig.	Figure	NF	Near Face	Sim.	Similar		
Cntl. Jt.	Control Joint	Fin. Gr.	Finish Grade	NIC	Not in Contract	Sl.	Slope		
CO	Clean Out	FRP	Fiberglass Reinforced Polymer	No.	Number	Spcs., Spg.	Spaces, Spacing		
Col.	Column	FT	Tensile Stresses	NTS	Not to Scale	Spec.	Specification		
Conc.	Concrete	Ft.	Feet, Foot			Sprd.	Spread		
Conn.	Connection	Ftg.	Footing	OB	Outbound	SRW	Segmental Retaining Wall		
Const.	Construction			oc, o.c.	On Center	SS	Stainless Steel		
Cont.	Continuous	G, Gir.	Girder	OD	Outside Diameter	Std.	Standard		
CSL	Crosshole Sonic Logging	Ga.	Gage, Gauge	OG	Outside Girder, Outbound Girder	Sta.	Station		
CRM	Cement Rubble Masonry	Galv.	Galvanized			Stiff.	Stiffener		
CY, Cu. Yd.	Cubic Yard	GDI	Grated Drain Inlet			Stirr.	Stirrup		
						Stl.	Steel		

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	55	131



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SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

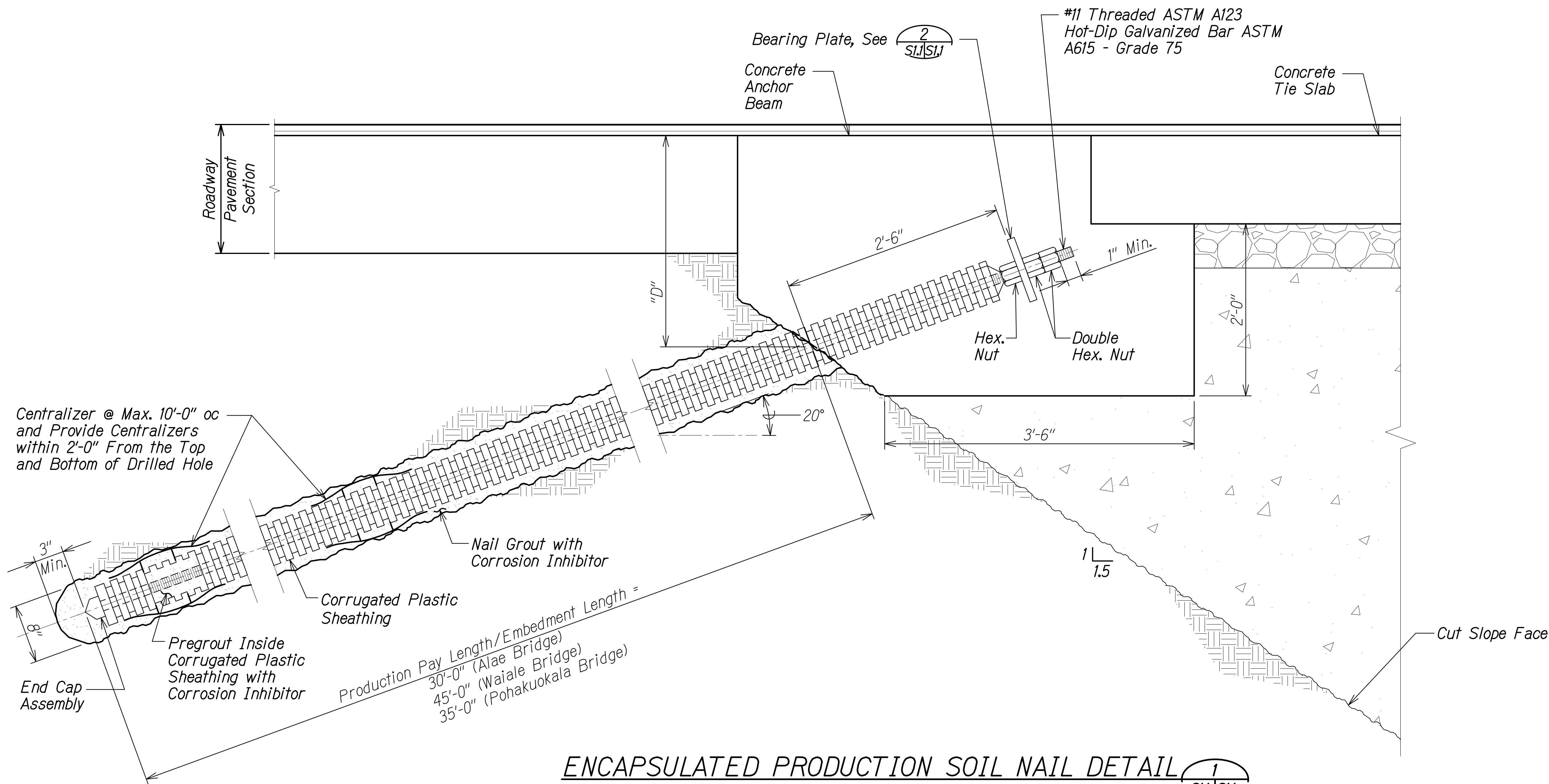
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYMBOLS AND ABBREVIATIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: None Date: July 2026

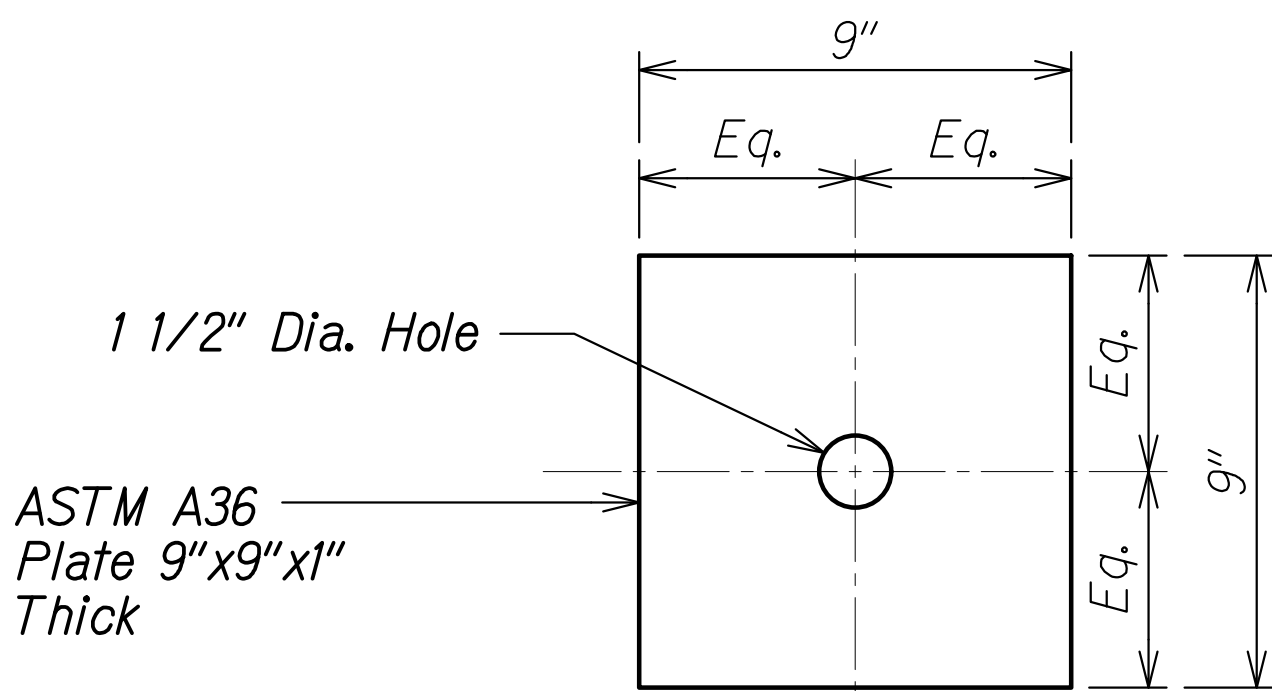
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HAWAII	HAW.	STP-0377(008)	2026	56	131



ENCAPSULATED PRODUCTION SOIL NAIL DETAIL 1 SIJ SIJ
Scale: 1 1/2" = 1'-0"

NOTES:

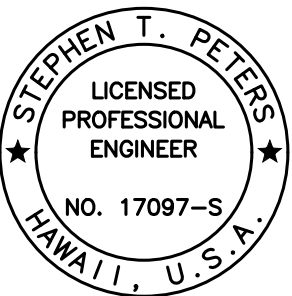
- Difficult drilling conditions may be encountered during the installation of the soil nails due to the potential of cobbles and boulders within the fill materials anticipated behind the abutments and variations of basalt rock within the subsurface. The Contractor shall take this into consideration during bidding.
- The Contractor shall be responsible for maintaining an open hole throughout the soil nail installation process.
- All nuts and bearing plates shall be hot-dip galvanized after fabrication in accordance with ASTM A153 and A123, respectively.
- Design Test Load (DTL): 40 kips
- "D" = 2'-6", Typ.
= 2'-0" Alae Abut. No. 2 and Pulehu Gulch Abut. No. 1



BEARING PLATE DETAIL 2 SIJ SIJ
Scale: 3" = 1'-0"

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT INSPIRO CAD\$07-16-26 BID SET\$3MB-SOILDWG PLOT TIME: 07-16-26, 12:44 PM



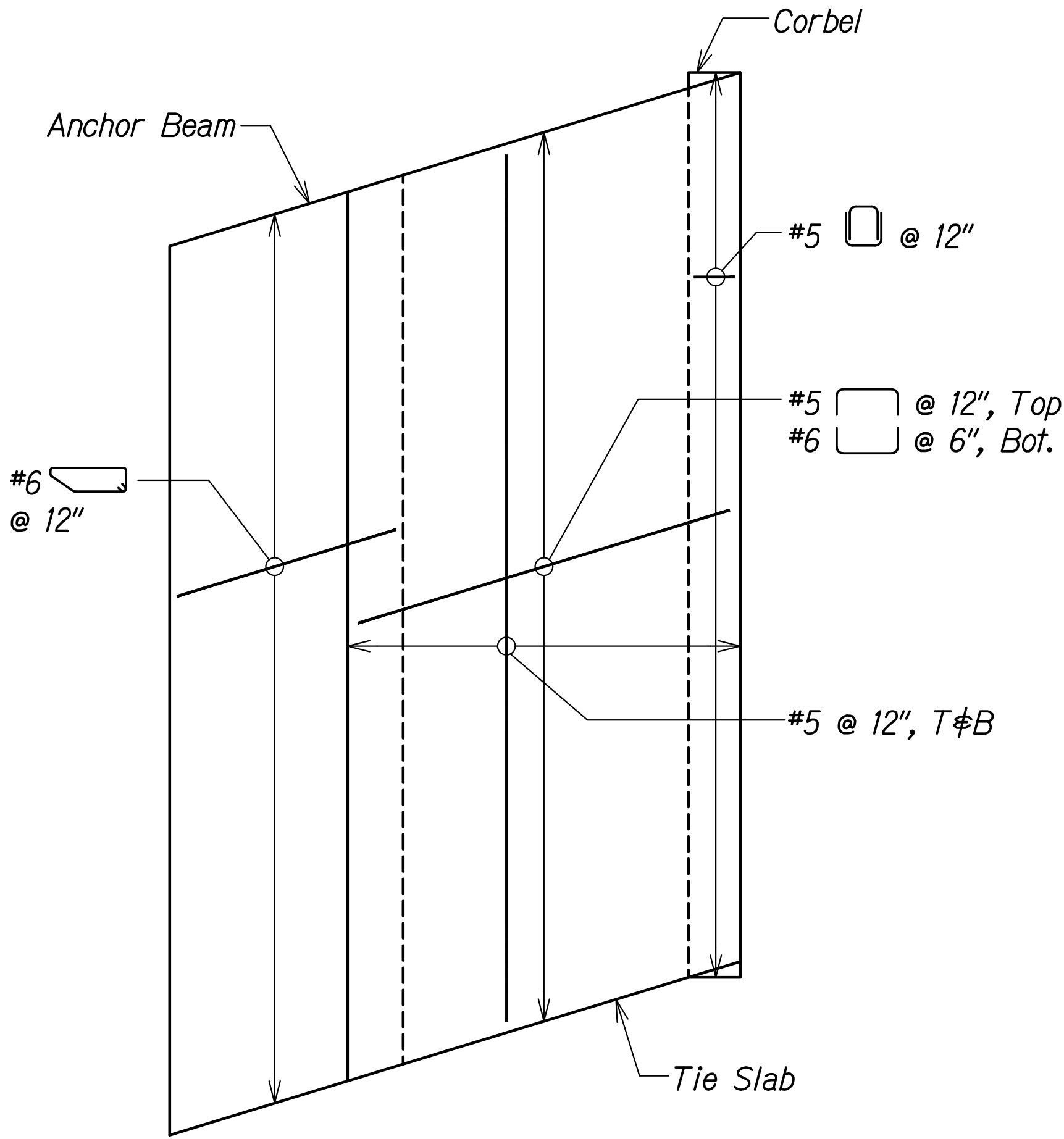
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *Stephen T. Peters*
EXPIRATION DATE OF THE LICENSE: 4-30-28

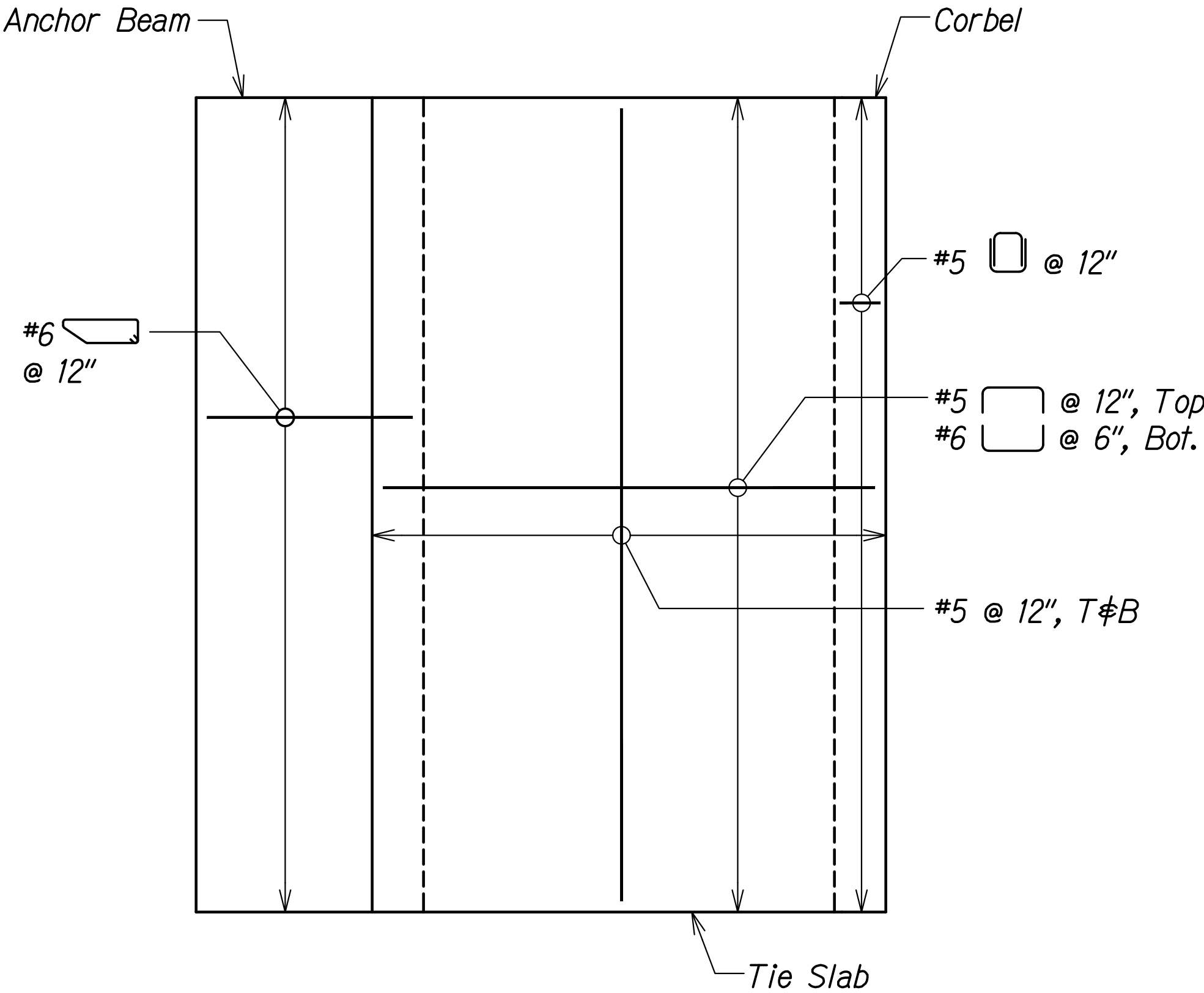
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL
SOIL NAIL DETAILS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

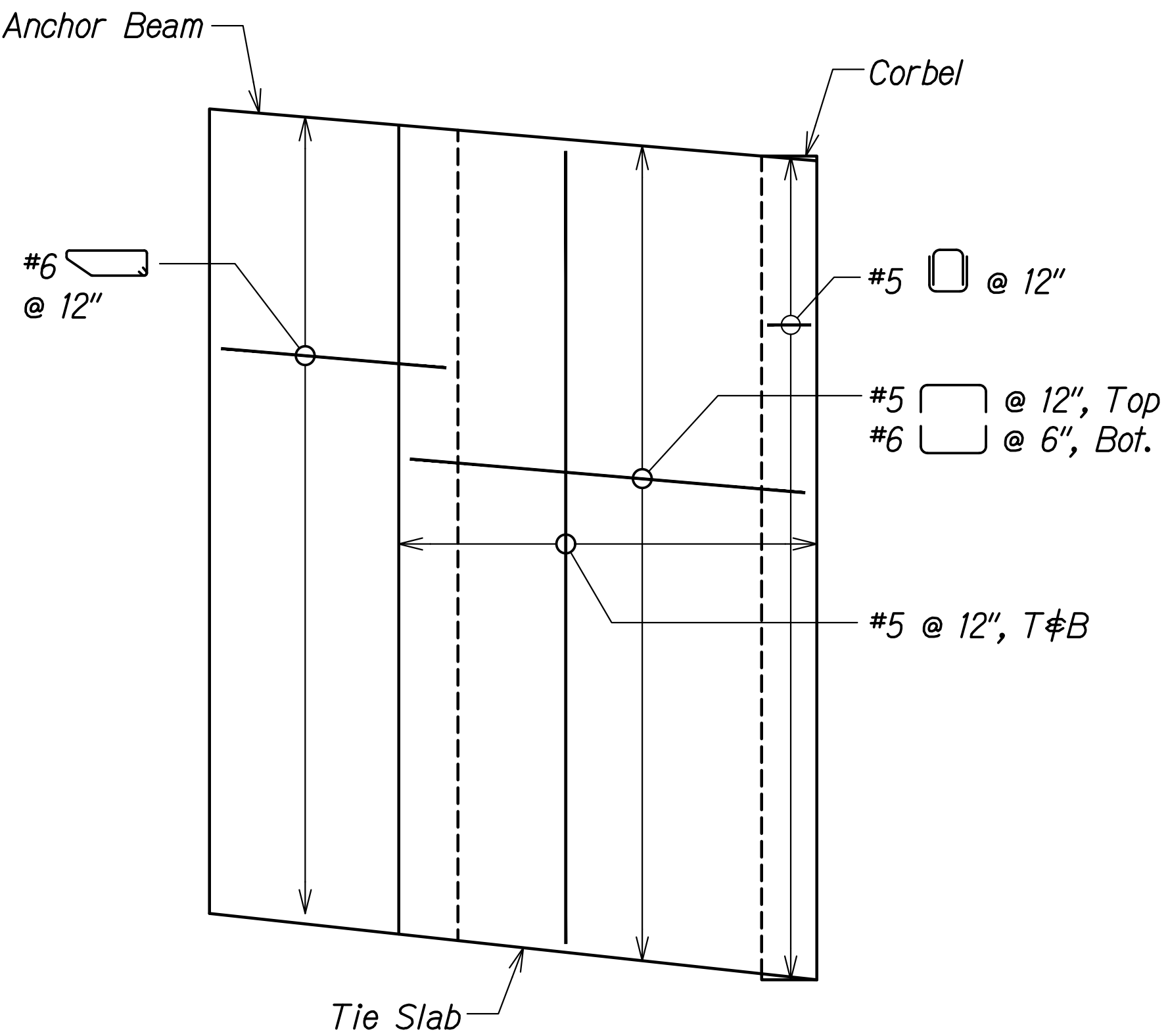
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	58	131



WAIALE GULCH BRIDGE



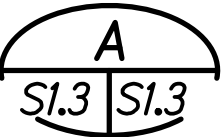
ALAE BRIDGE



PULEHU GULCH BRIDGE

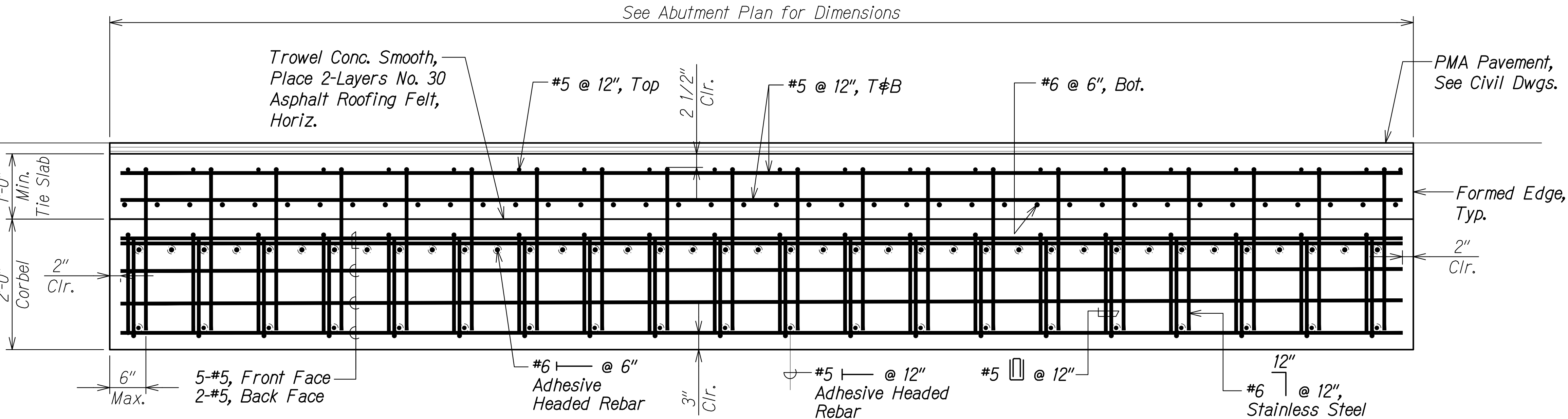
TIE SLAB REINFORCING PLAN

Scale: 3/8" = 1'-0"



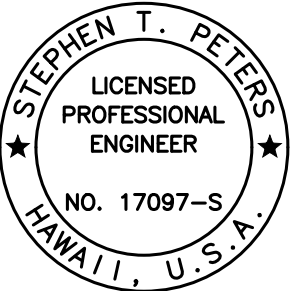
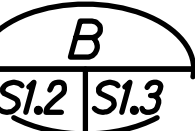
NOTES:

- #6 Continuous Bundled, E.S. of dowel, GFRP not shown for clarity.
- Tie Slab is shown level. See SA2.2, SA2.5, SB2.2, SB2.5, SC2.2 and SC2.5 for specific roadway crown/superelevation geometry



REINFORCING SECTION

Scale: 1" = 1'-0"



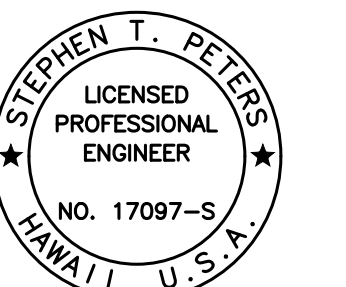
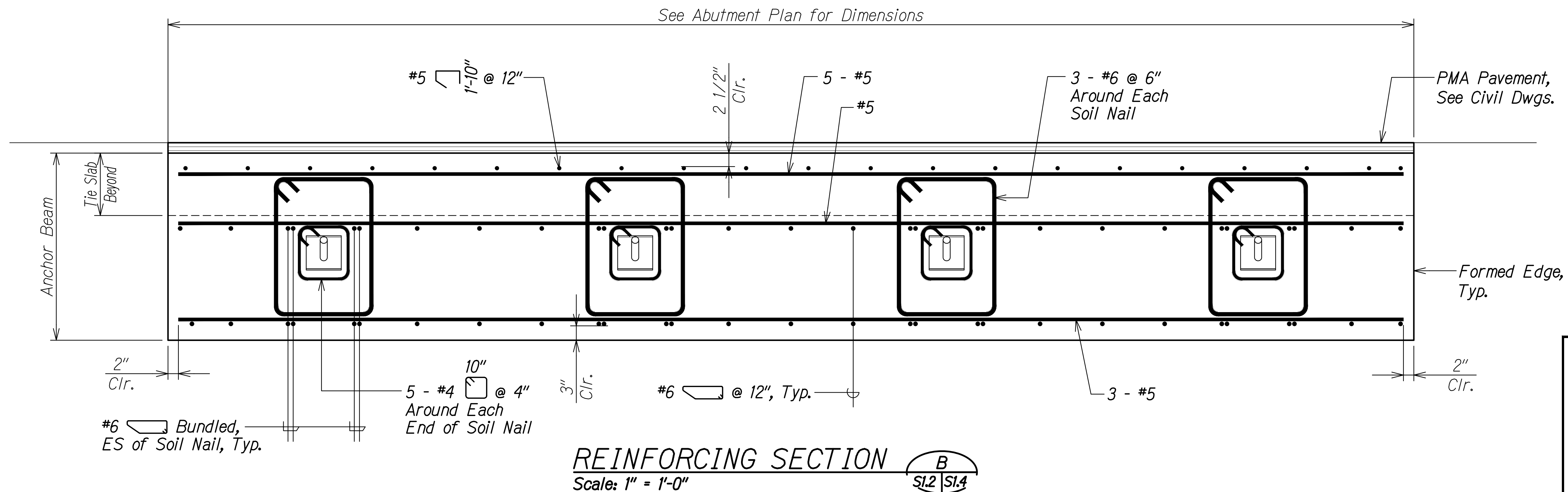
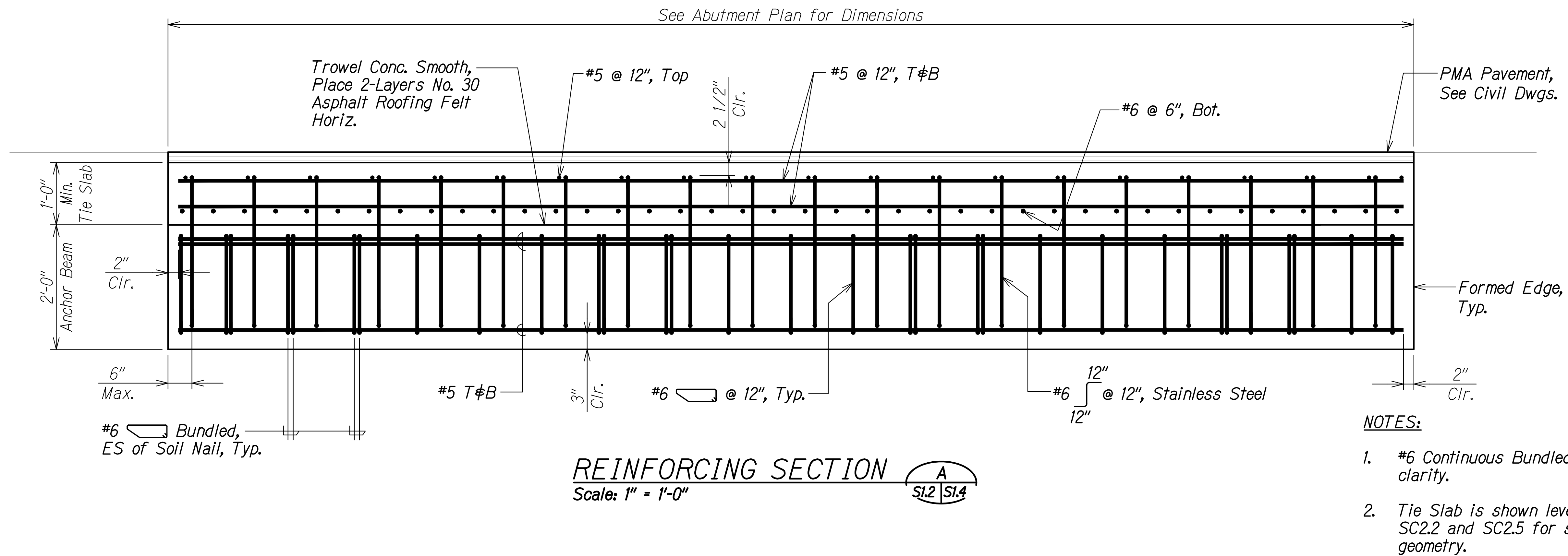
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Signature: Stephen T. Peters
Date: 4-30-28
Signature: Stephen T. Peters
Date: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL TIE SLAB AND CORBEL
REINFORCING PLAN AND SECTION**
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	59	131



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Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

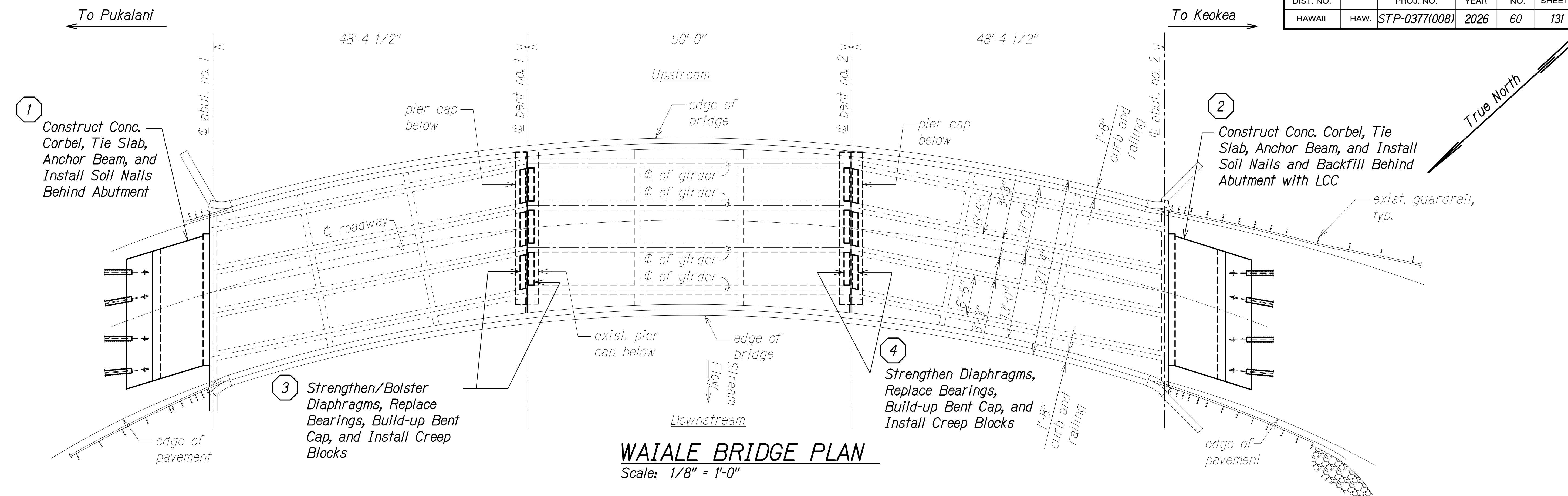
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL TIE SLAB AND ANCHOR
BEAM REINFORCING SECTIONS**

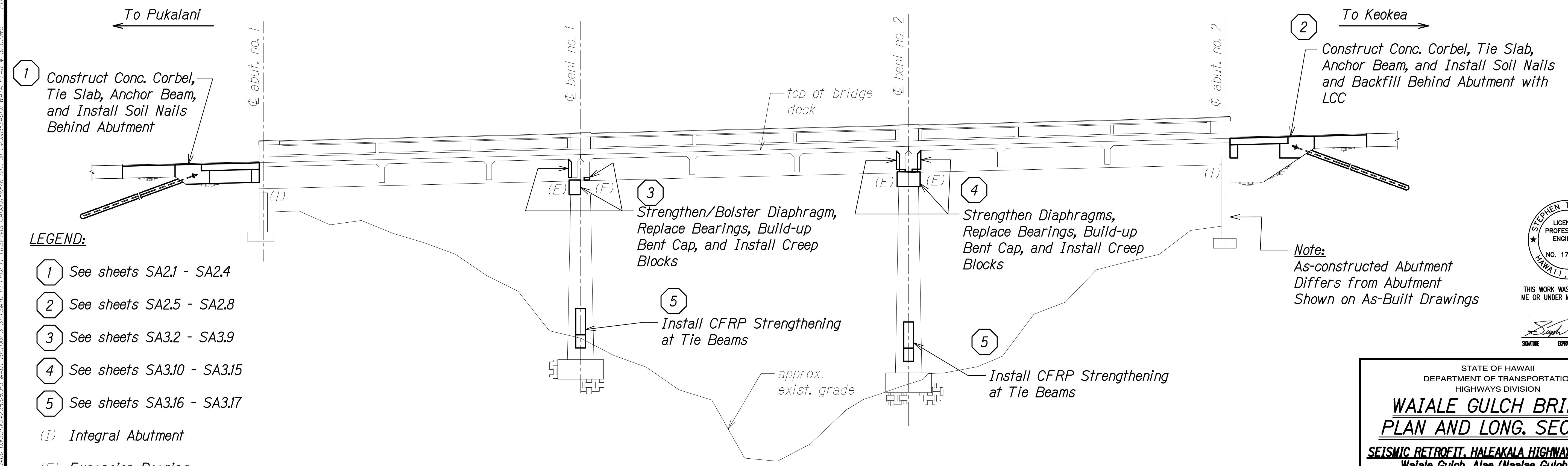
**SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Aiea (Naalee Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)**

Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	60	131



WAIALE BRIDGE PLAN
Scale: 1/8" = 1'-0"



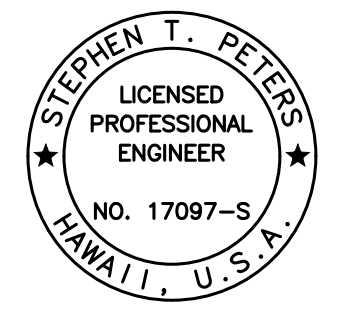
WAIALE BRIDGE DOWNSTREAM LONGITUDINAL SECTION
Scale: 1/8" = 1'-0"

LEGEND:

- 1 See sheets SA2.1 - SA2.4
- 2 See sheets SA2.5 - SA2.8
- 3 See sheets SA3.2 - SA3.9
- 4 See sheets SA3.10 - SA3.15
- 5 See sheets SA3.16 - SA3.17
- (I) Integral Abutment
- (E) Expansion Bearing
- (F) Fixed Bearing

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

DRAWING NAME: Z-800 ONGOING 2023-09-30 MAUI BRIDGES SEISMIC RETROFIT (NSP) 101 CAD 807-16-26 BID SET 3 MB-SAD001 WAIA PLAN & SECTION PLOT TIME: 07-16-26 12:45 PM



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Signature: *Stephen T. Peters*
EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALE GULCH BRIDGE
PLAN AND LONG. SECTION

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

SHEET No. **SA11** OF **1** SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	61	131

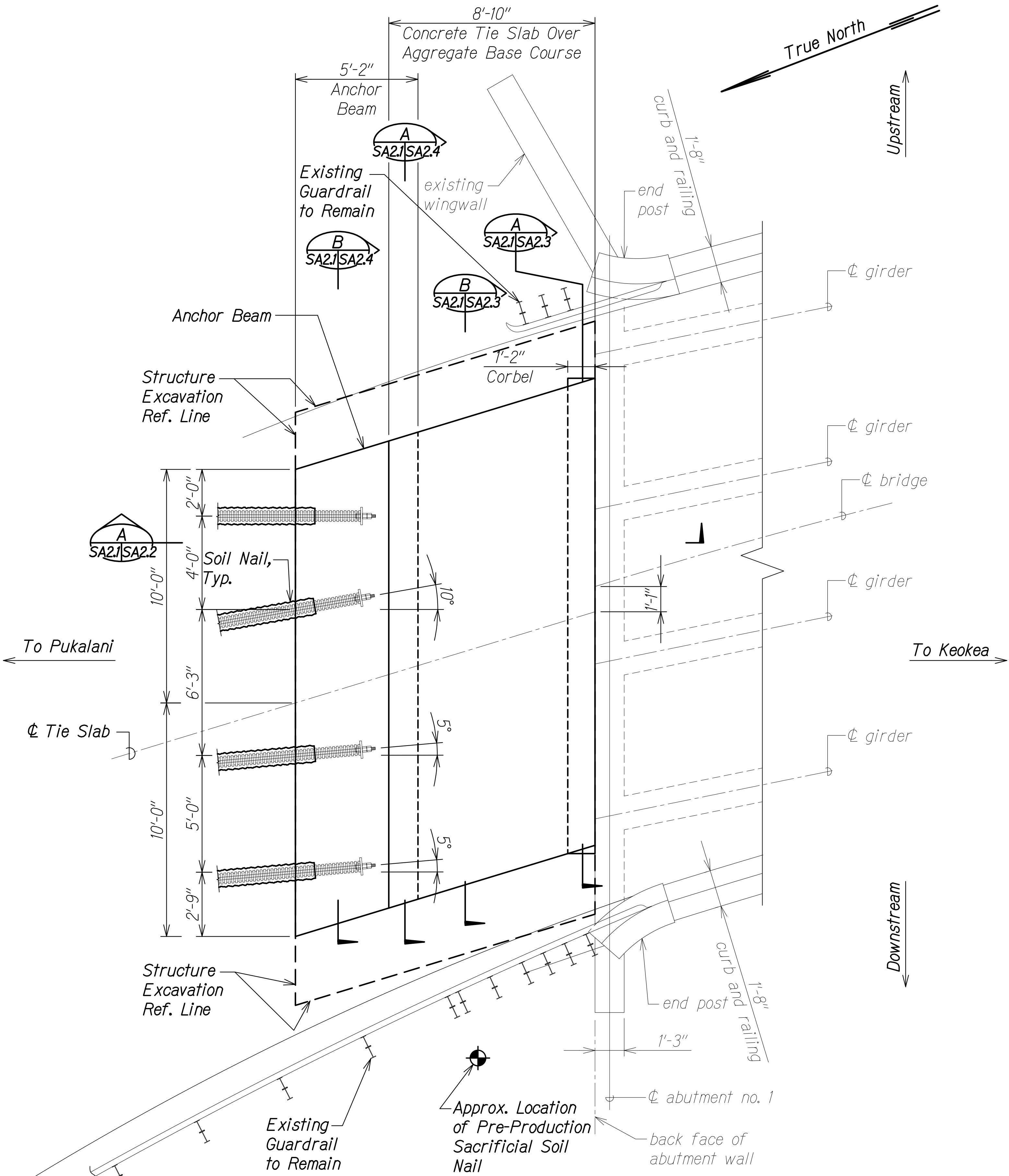
NOTE:

Structure excavation line is shown for reference only. The Contractor shall be responsible for methods of excavation at the abutment to maintain a stable cut face and to avoid undermining the existing metal guardrails. Existing granular backfill material shall be anticipated. Temporary shoring/bracing necessary to perform work shall be taken into consideration at the time of bid.

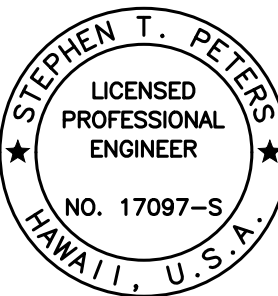
LEGEND:



Pre-Production Sacrificial Soil Nail



ABUTMENT NO. 1 PLAN
Scale: 3/8" = 1'-0"



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Signature: [Signature]
EXPIRATION DATE OF THE LICENSE

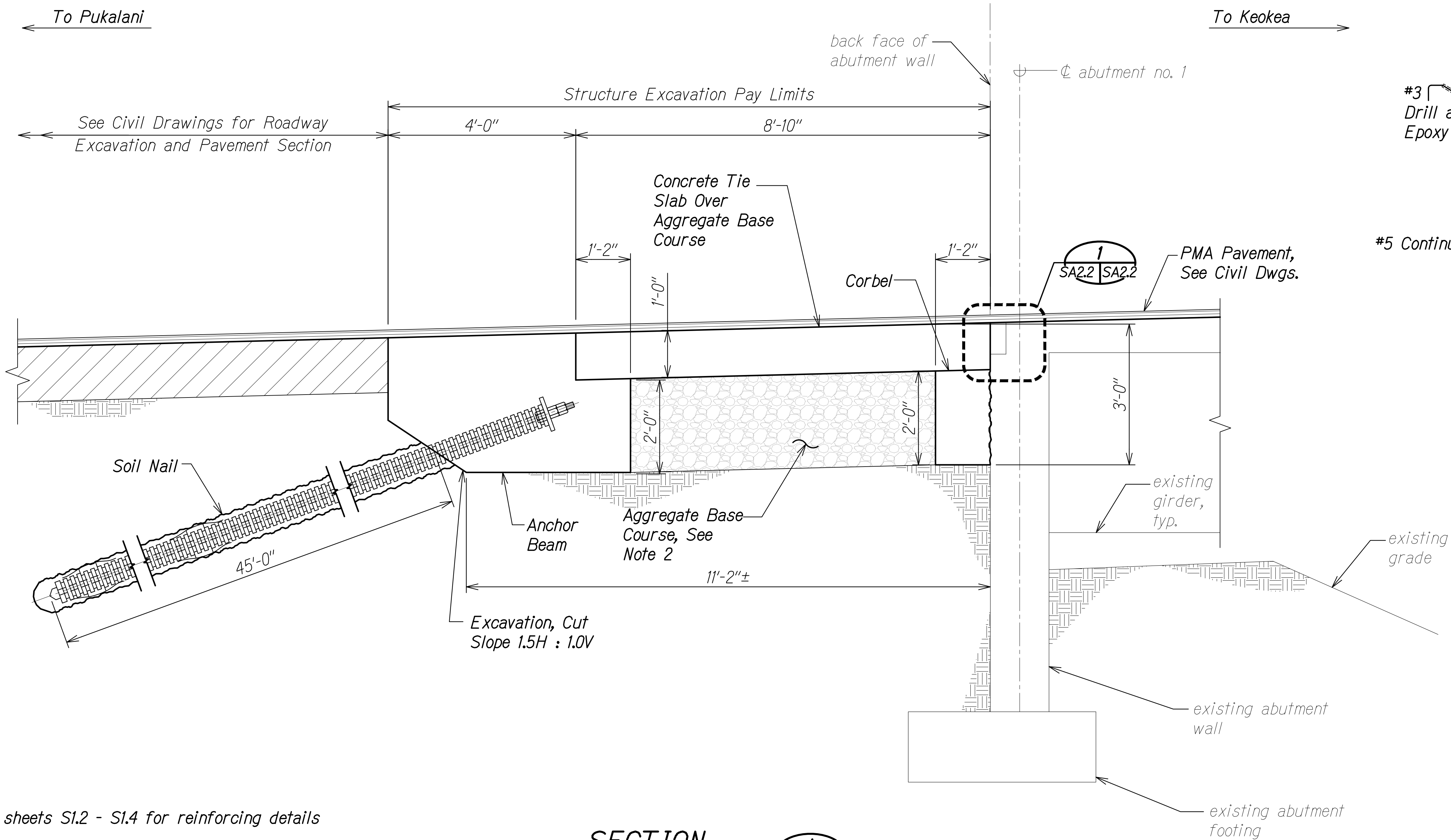
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALE GULCH BRIDGE
ABUTMENT NO. 1 PLAN

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	62	131



DETAIL
Scale: 1" = 1'-0"
SA2.2 SA2.2
SA2.6

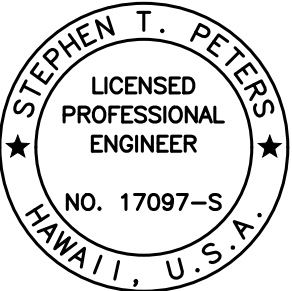
NOTES:

- See sheets S1.2 - S1.4 for reinforcing details
- Aggregate base course shall meet the material, placement, and compaction requirements of Standard Specification Section 304 - AGGREGATE BASE COURSE. Measurement and Payment shall not apply. Cost to be incidental to Concrete Tie Slab work.

SECTION
Scale: 3/4" = 1'-0"
SA2.1 SA2.2

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

DRAWING NAME: Z-800 ONGOING23-003.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP) BID SET-3MB-SA0201 WAIA ABUT.DWG PLOT TIME: 07:16:26, 12:49 PM

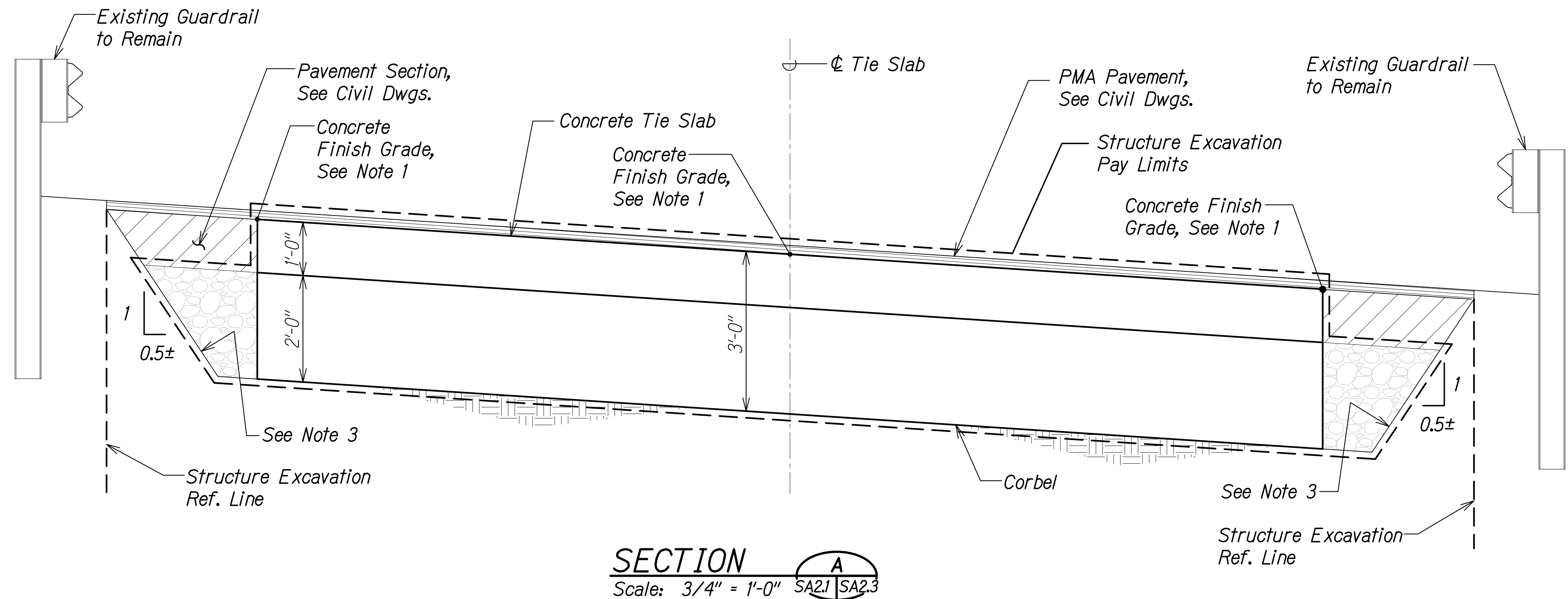


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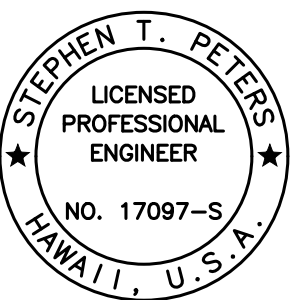
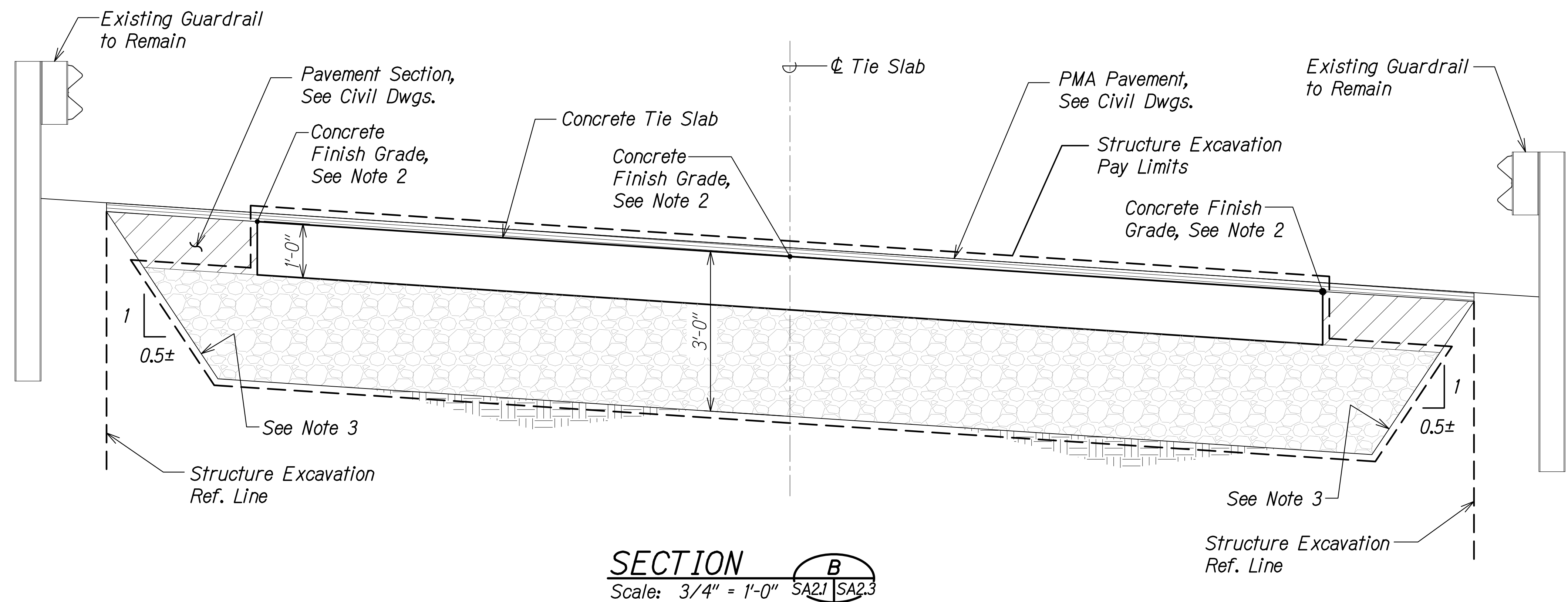
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
ABUTMENT NO. 1 SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	63	131



NOTES:

1. Top of concrete tie slab shall be constructed with a superelevation. Finish grade shall match top of concrete bridge deck.
2. Top of concrete tie slab shall be constructed 2" below roadway finish grade. See Civil Drawings.
3. Contractor shall be responsible for providing a stable cut soil face as needed to prevent loss of soil around Guardrail posts.



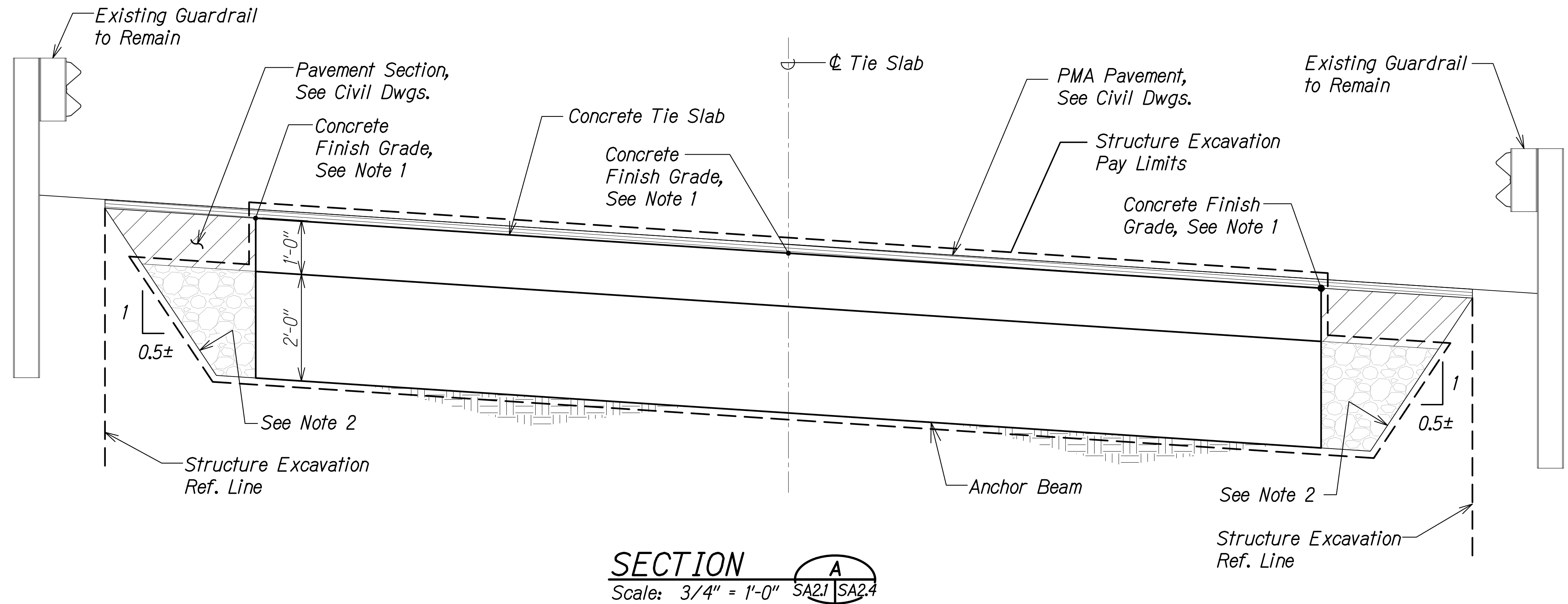
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Signature: *Stephen T. Peters*
EXPIRATION DATE OF THE LICENSE: 4-30-28

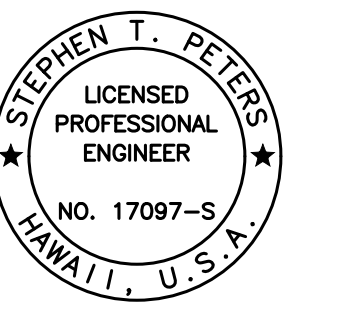
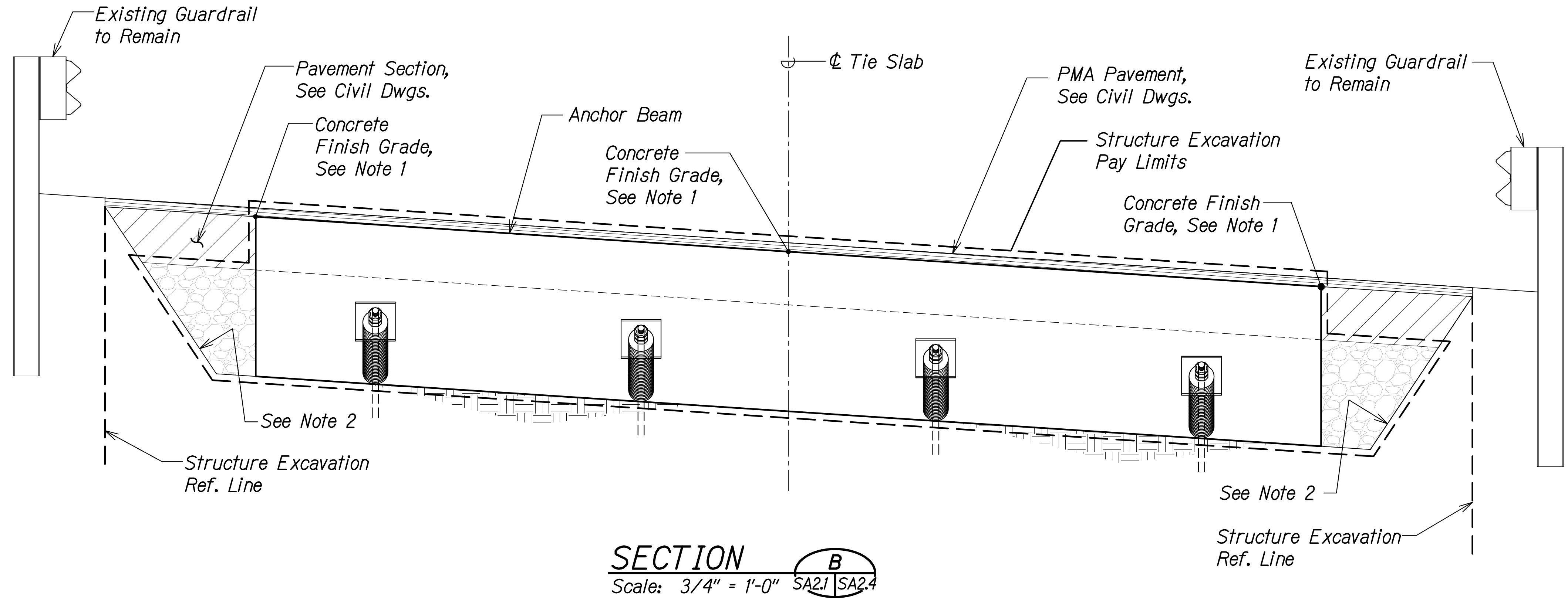
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WAIKALE GULCH BRIDGE
ABUTMENT NO. 1 SECTIONS**
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA2.3 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	64	131



- NOTES:**
- Top of concrete tie slab/anchor beam finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
 - Contractor shall be responsible for providing a stable cut soil face as needed to prevent loss of soil around Guardrail posts.



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EXPIRATION DATE OF THE LICENSE: 4-30-28

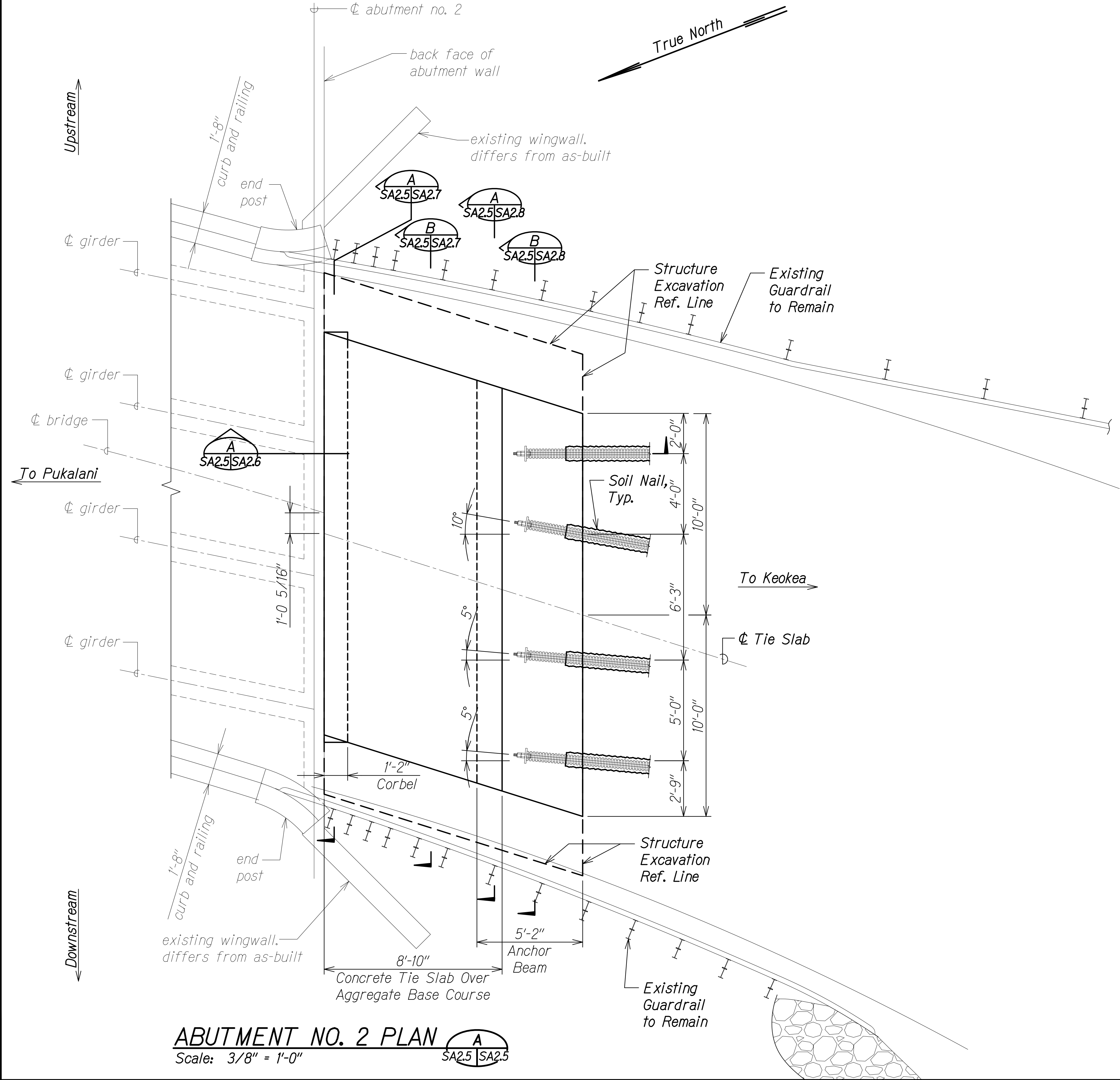
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WAIALE GULCH BRIDGE
ABUTMENT NO. 1 SECTIONS**

**SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)**

Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	65	131

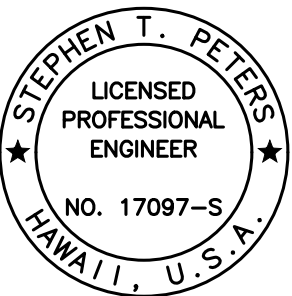


NOTE:

Structure excavation line is shown for reference only. The Contractor shall be responsible for methods of excavation at the abutment to maintain a stable cut face and to avoid undermining the existing metal guardrails. Existing granular backfill material shall be anticipated. Temporary shoring/bracing necessary to perform work shall be taken into consideration at the time of bid.

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

DRAWING NAME: Z:\\$00 ONGOING\23-009-3-3 MAUI BRIDGES SEISMIC RETROFIT\WSP\801 CAD\809-04-26 BID SET FINAL\3MB-SA0201 WAIA ABUTS.DWG PLOT TIME: 09-04-26, 2:51 PM

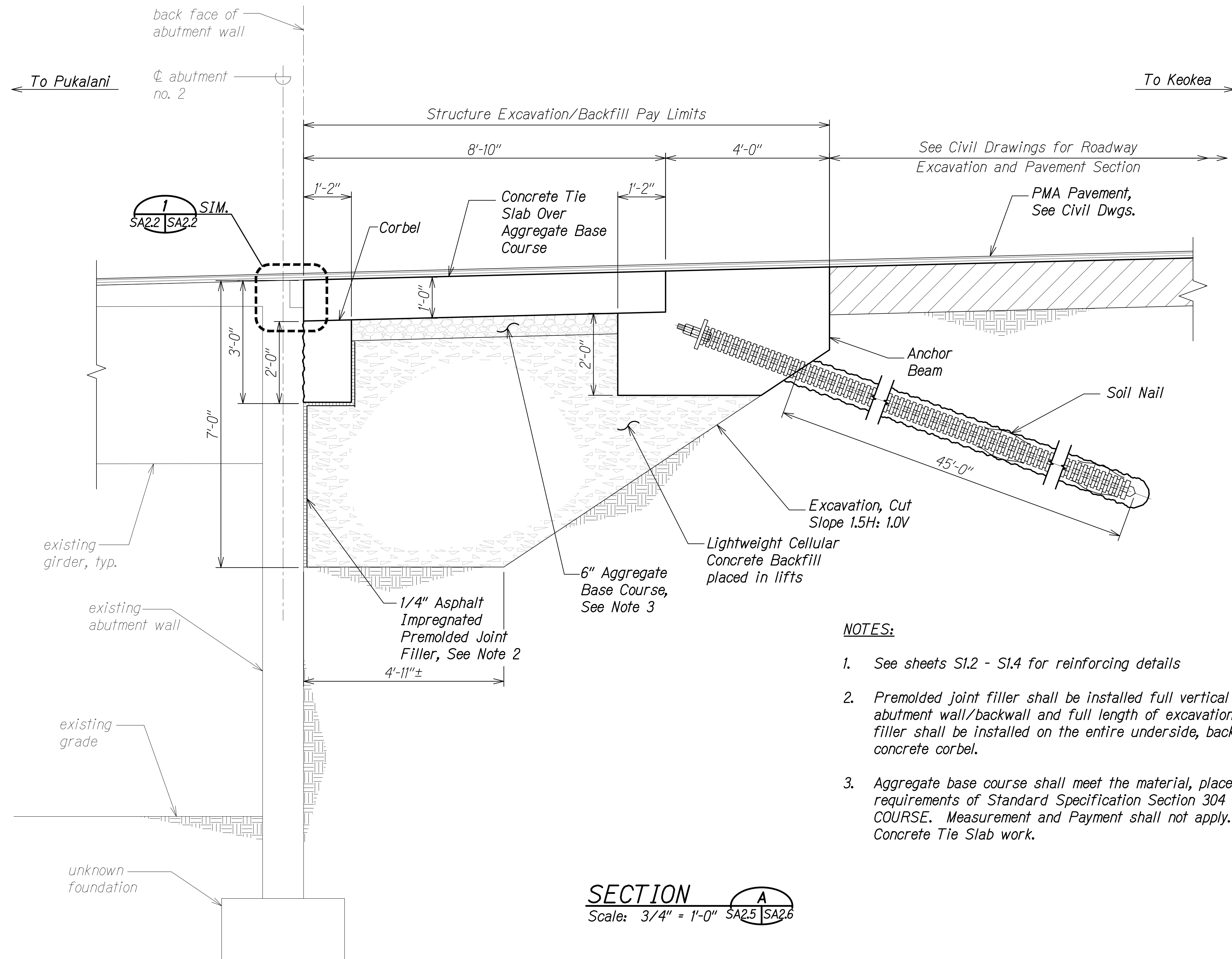


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SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
ABUTMENT NO. 2 PLAN
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

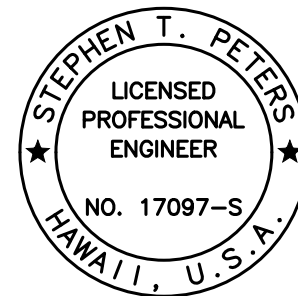
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	66	131



NOTES:

- See sheets S1.2 - S1.4 for reinforcing details
- Premolded joint filler shall be installed full vertical height of exposed abutment wall/backwall and full length of excavation limits. Premolded joint filler shall be installed on the entire underside, backface, and sides of the concrete corbel.
- Aggregate base course shall meet the material, placement, and compaction requirements of Standard Specification Section 304 - AGGREGATE BASE COURSE. Measurement and Payment shall not apply. Cost to be incidental to Concrete Tie Slab work.

SECTION
Scale: 3/4" = 1'-0" SA2.5 SA2.6



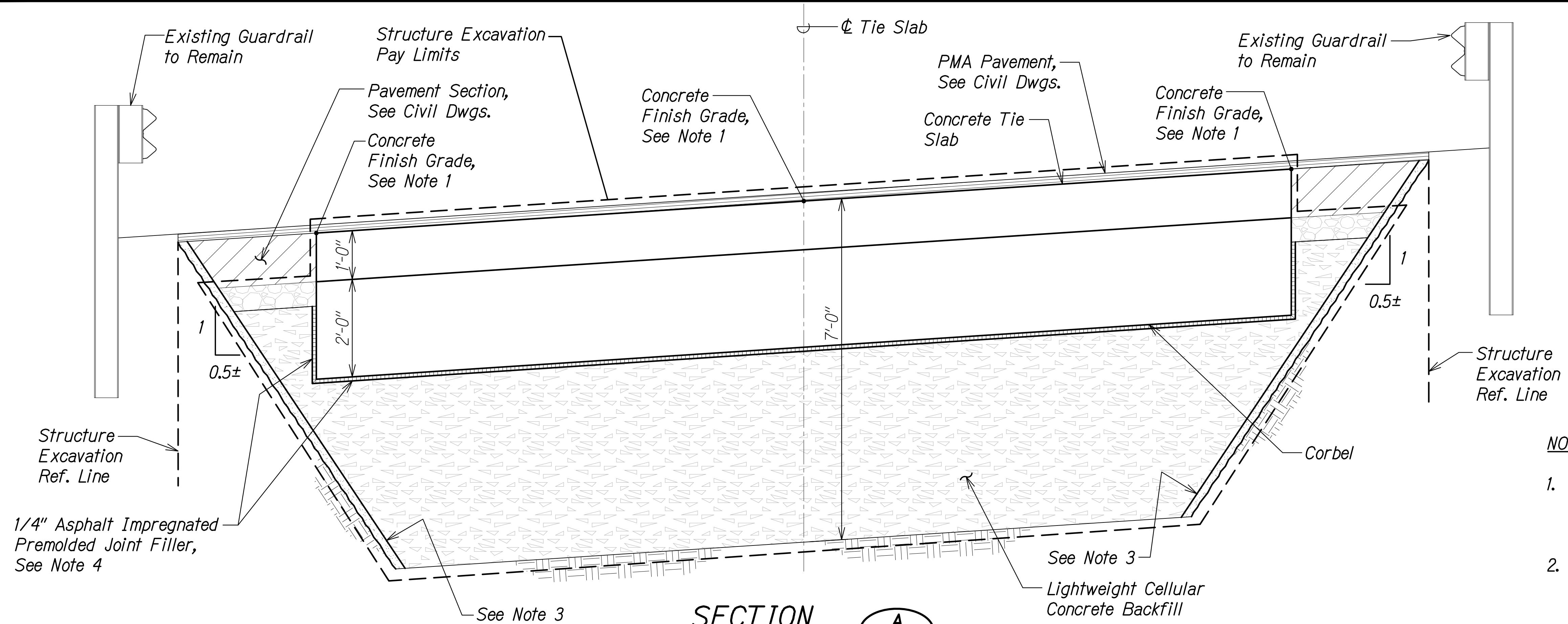
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

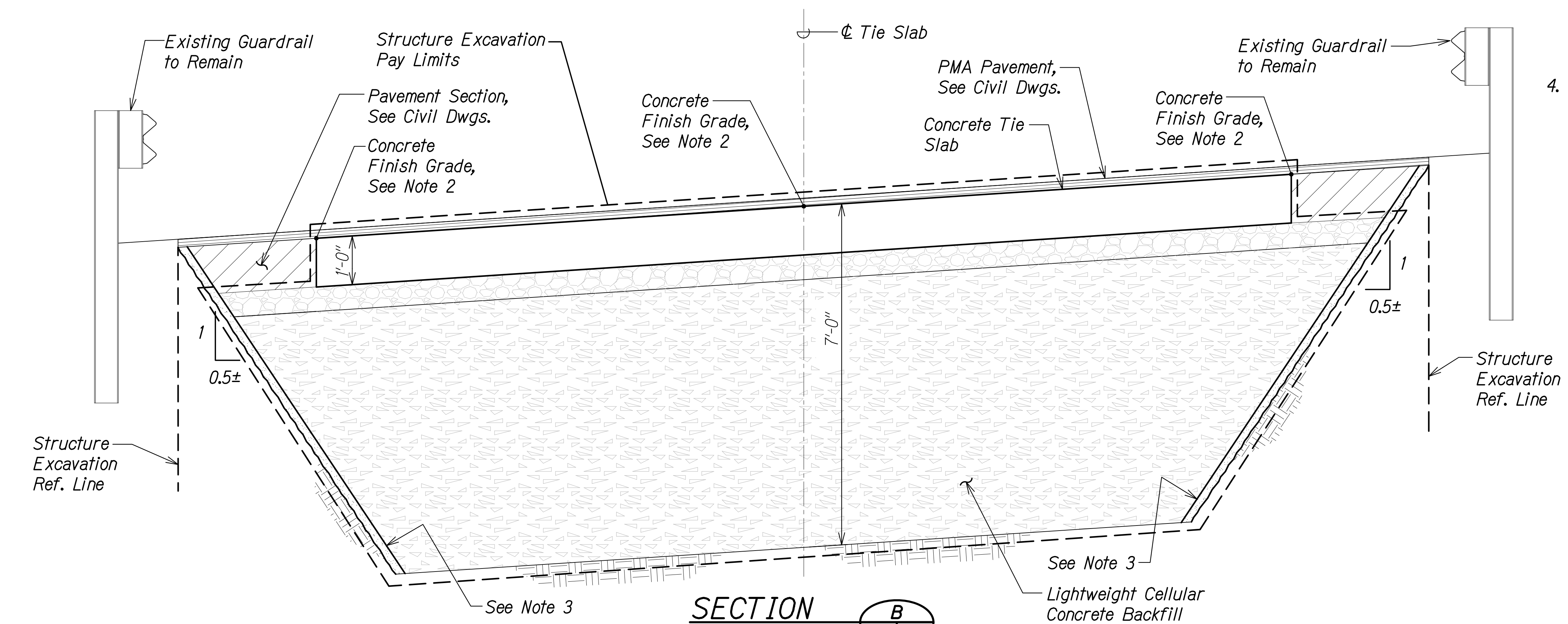
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
ABUTMENT NO. 2 SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA2.6 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	67	131



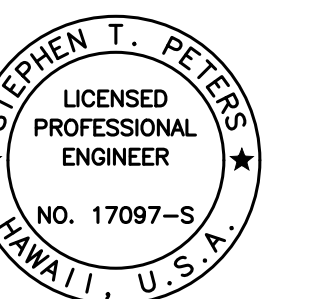
SECTION A
Scale: 3/4" = 1'-0" SA2.5 | SA2.7



SECTION B
Scale: 3/4" = 1'-0" SA2.5 | SA2.7

NOTES:

- Top of concrete tie slab shall be constructed with a superelevation. Finish grade shall match top of concrete bridge deck.
- Top of concrete tie slab finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
- A flash coat of shotcrete shall be applied on the face of the cut slope in front of the guard rails. Additional efforts to stabilize or brace the face shall be the responsibility of the Contractor.
- Premolded joint filler shall be installed on the entire underside, backface, and sides of concrete corbel.



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SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

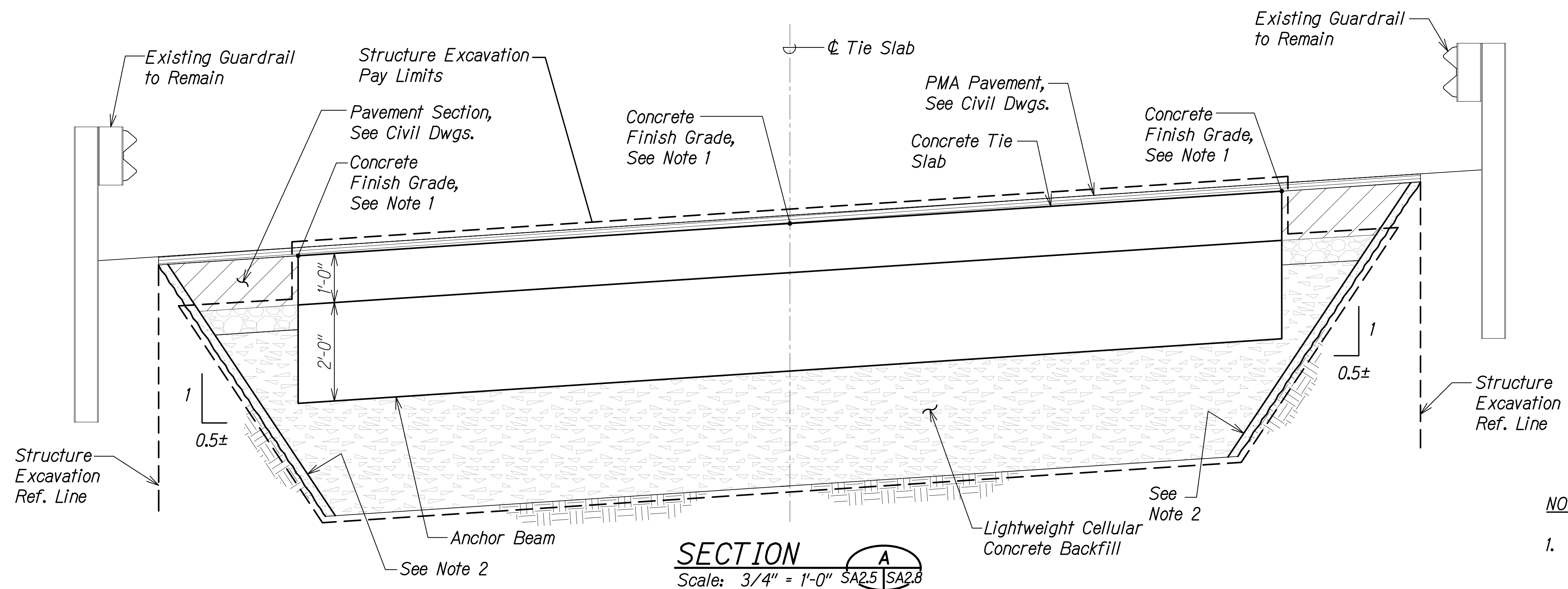
**WAIKALE GULCH BRIDGE
ABUTMENT NO. 2 SECTIONS**

**SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)**

Scale: As Noted Date: July 2026

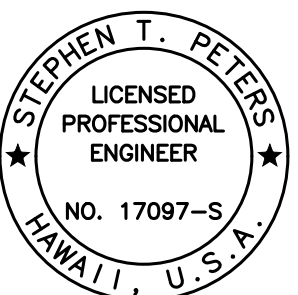
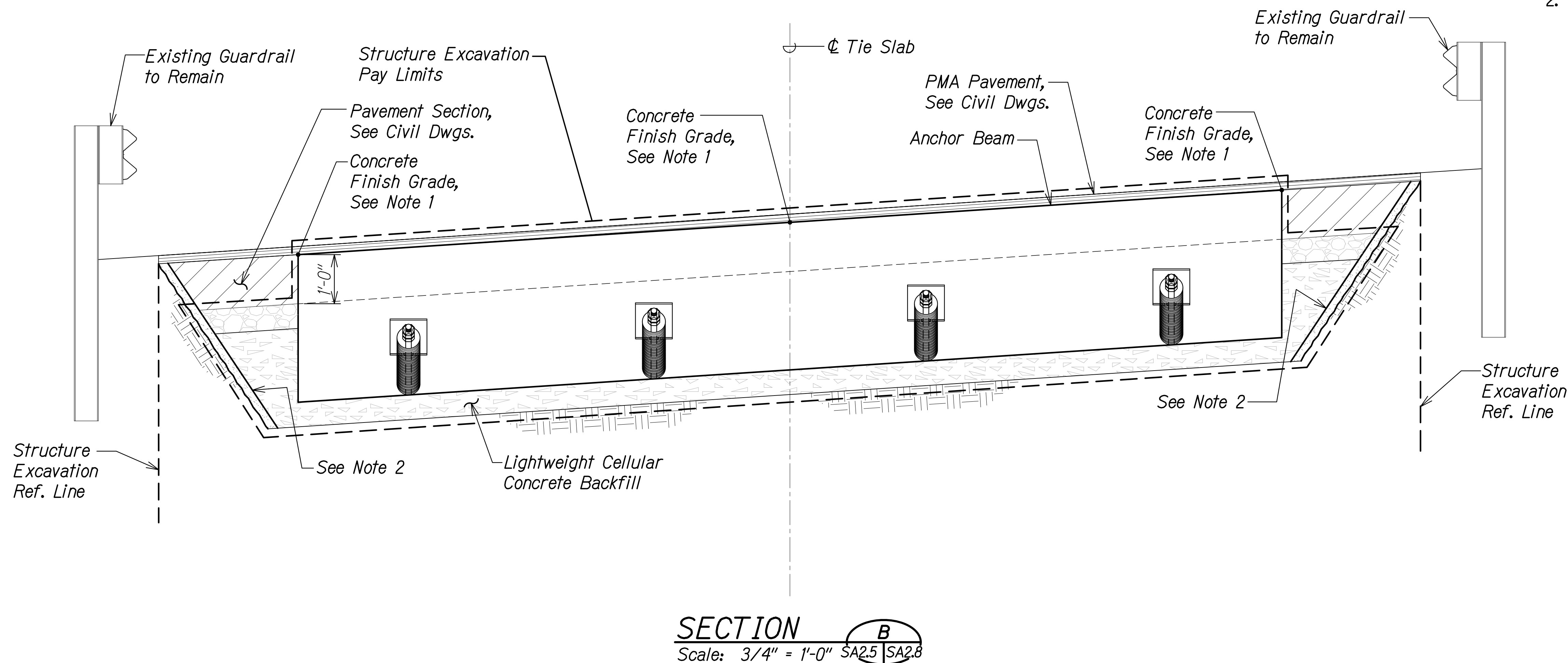
SHEET No. SA2.7 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	68	131



NOTES:

1. Top of concrete tie slab/anchor beam finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
2. A flash coat of shotcrete shall be applied on the face of the cut slope in front of the guard rails. Additional efforts to stabilize or brace the face shall be the responsibility of the Contractor.



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Signature: *Stephen T. Peters*
 EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

WAIALE GULCH BRIDGE
ABUTMENT NO. 2 SECTIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

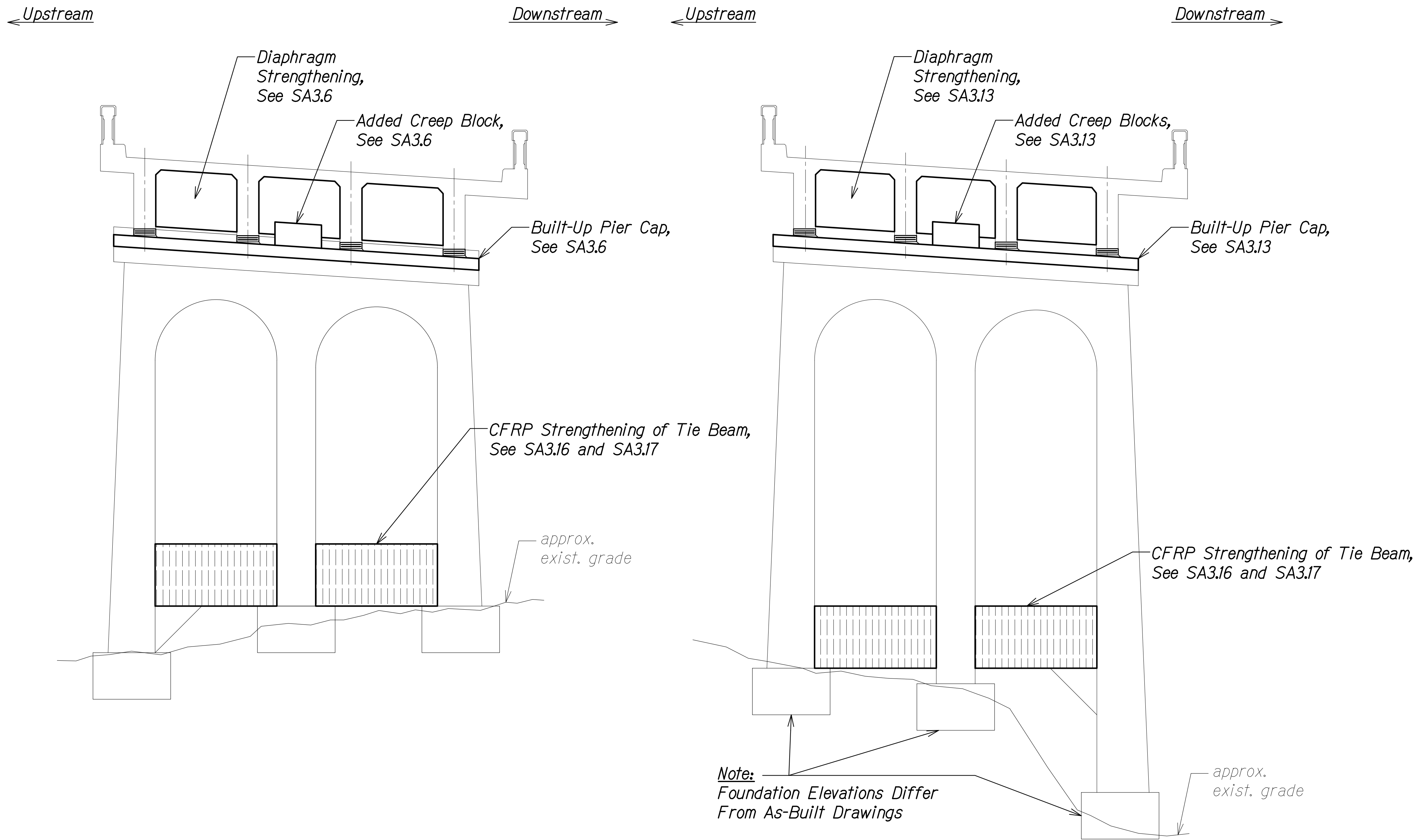
Scale: As Noted Date: July 2026

SHEET No. SA2.8 OF 8 SHEETS

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP) BID SET-3MB-SA0201 WAI ALE GULCH PLOT TIME: 07-16-26 12:51 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	69	131

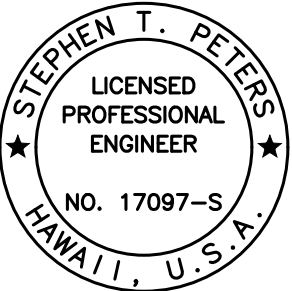


ELEVATION - BENT NO. 1
 Scale: 1/4" = 1'-0"

ELEVATION - BENT NO. 2
 Scale: 1/4" = 1'-0"

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SA0301 WATA BENT'S ELEV.DWG. PLOT TIME: 07-16-26, 12:52 PM



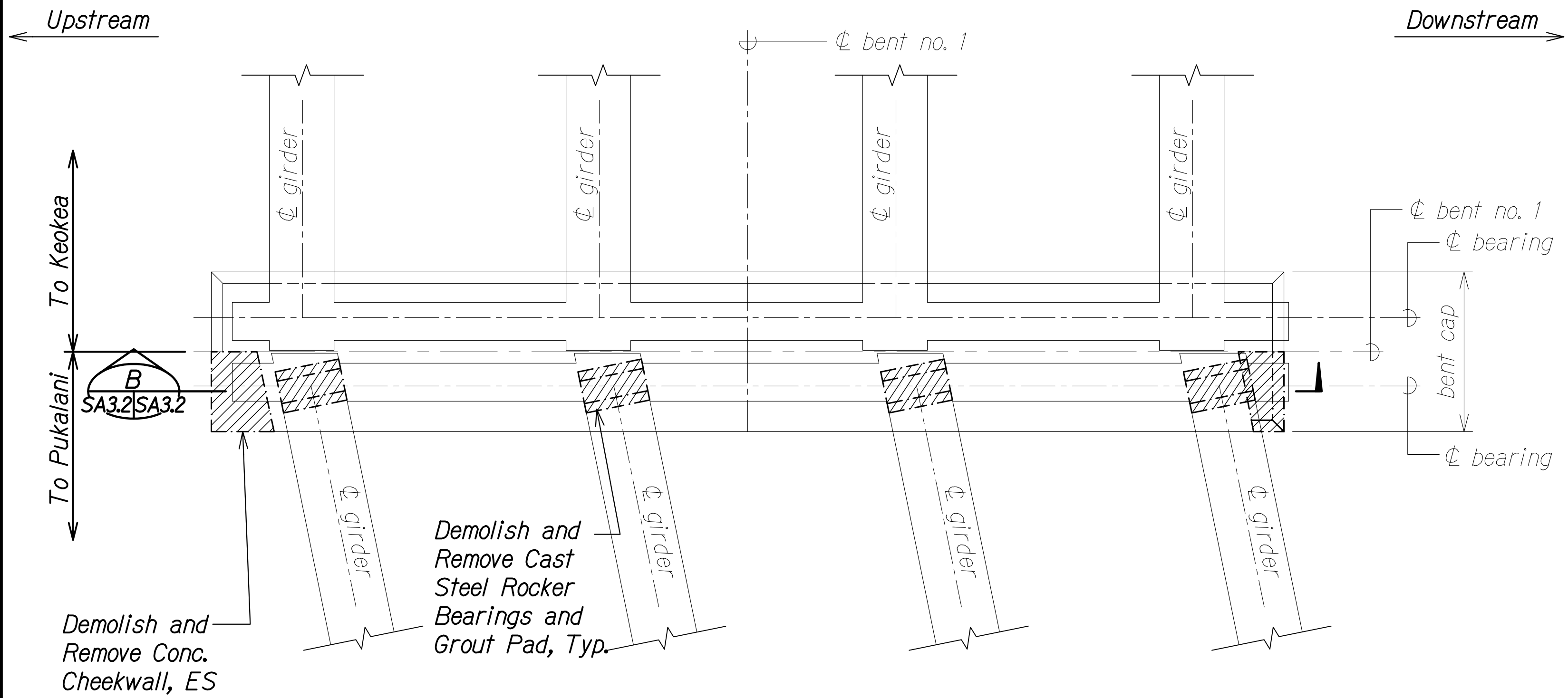
THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION.

Stephen T. Peters
 SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALE GULCH BRIDGE
BENT NO. 1 & NO. 2 ELEVATIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

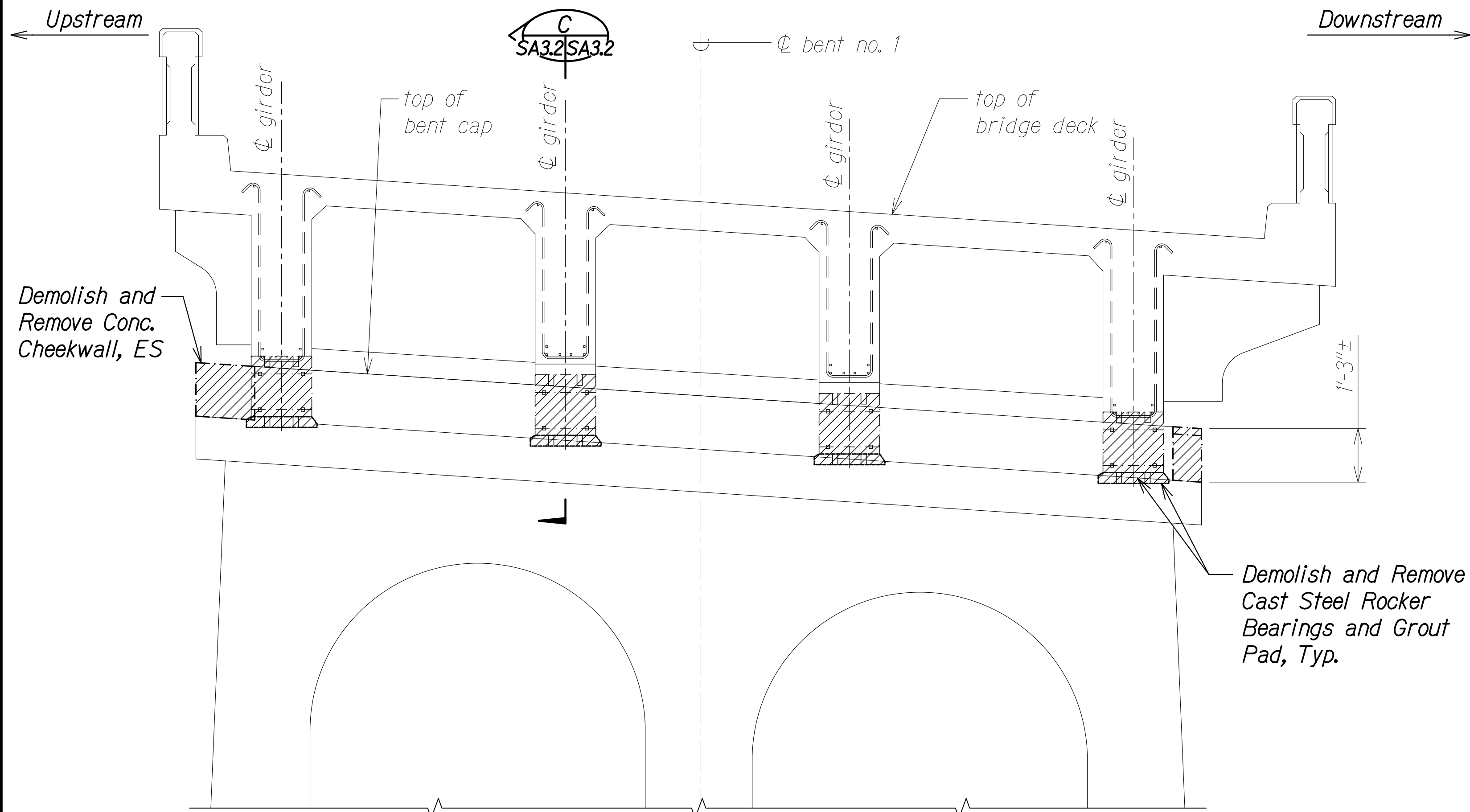
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	70	131



DEMOLITION PLAN - BENT CAP NO. 1

Scale: 1/2" = 1'-0"

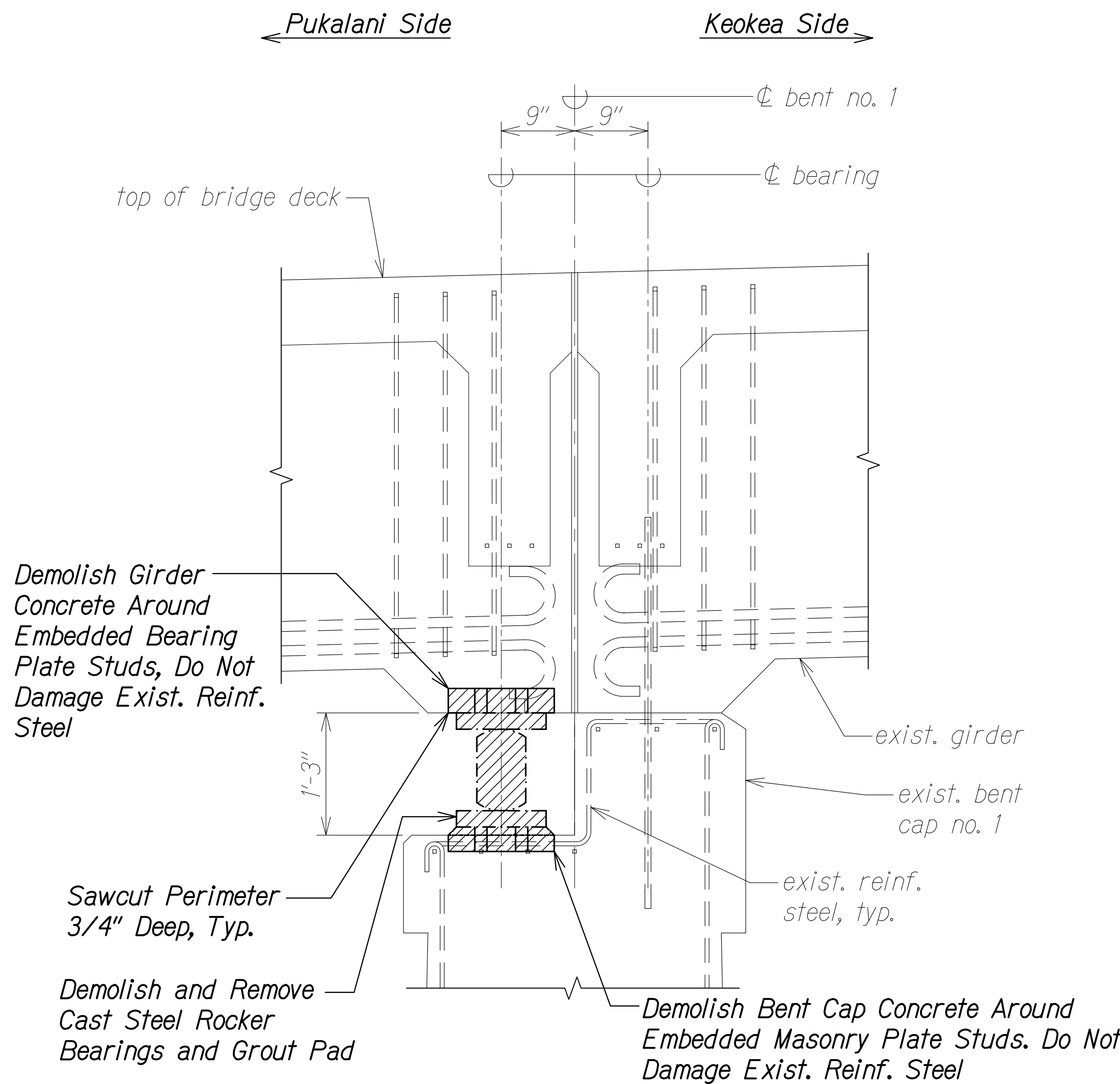
SA3.2|SA3.2



DEMOLITION SECTION - BENT CAP NO. 1

Scale: 1/2" = 1'-0"

SA3.2|SA3.2



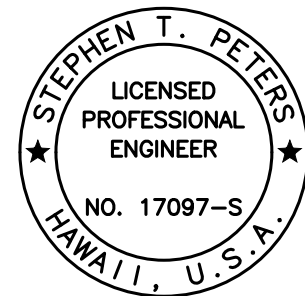
DEMOLITION SECTION AT BENT NO. 1

Scale: 1" = 1'-0"

SA3.2|SA3.2

NOTES:

- Demolition work for cheek walls shall be incidental to removal of existing bearings.
- Do not damage any existing reinforcing steel.
- All concrete removed at this girder and bent cap shall be patched with an approved polymer modified repair mortar. Work shall be incidental to removal of existing bearings.



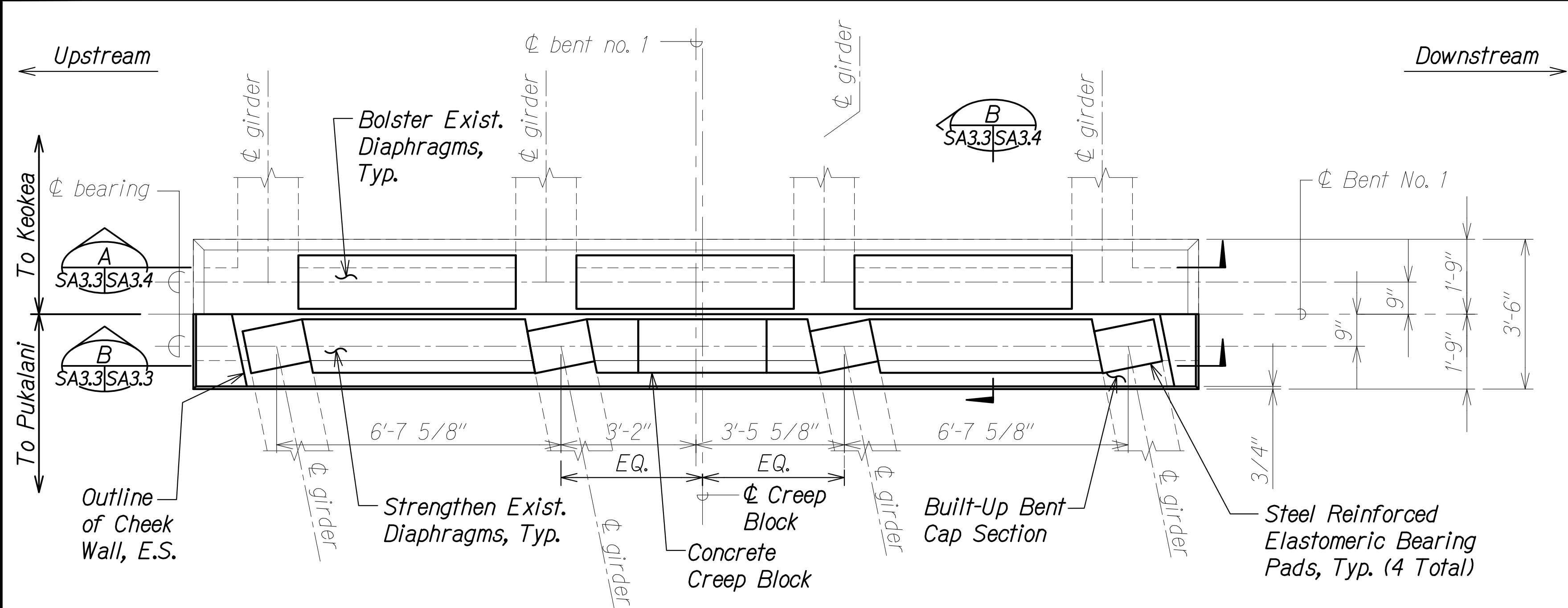
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

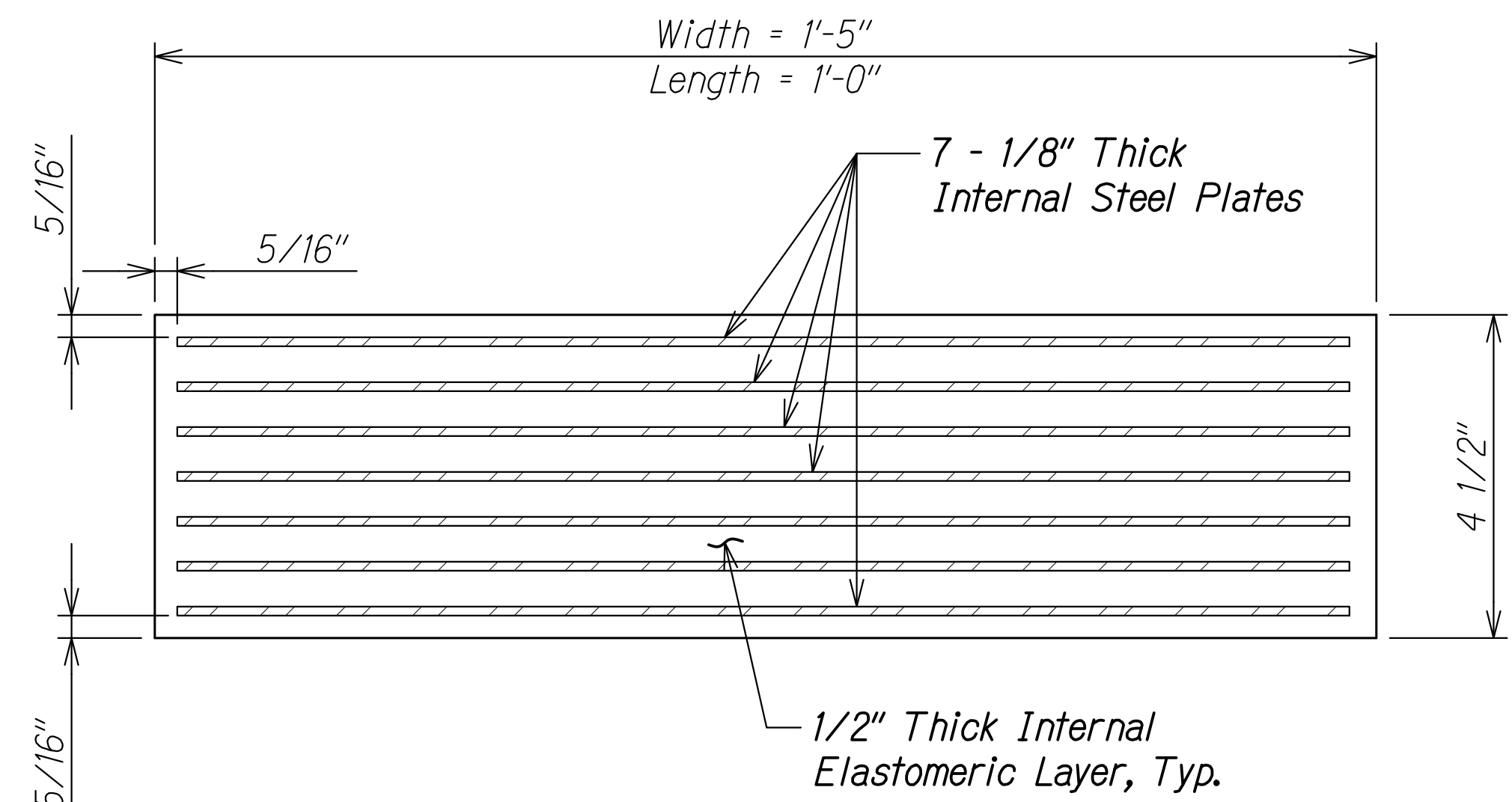
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WAIALE GULCH BRIDGE BENT NO. 1
DEMOLITION PLAN AND SECTIONS**
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.2 OF 17 SHEETS

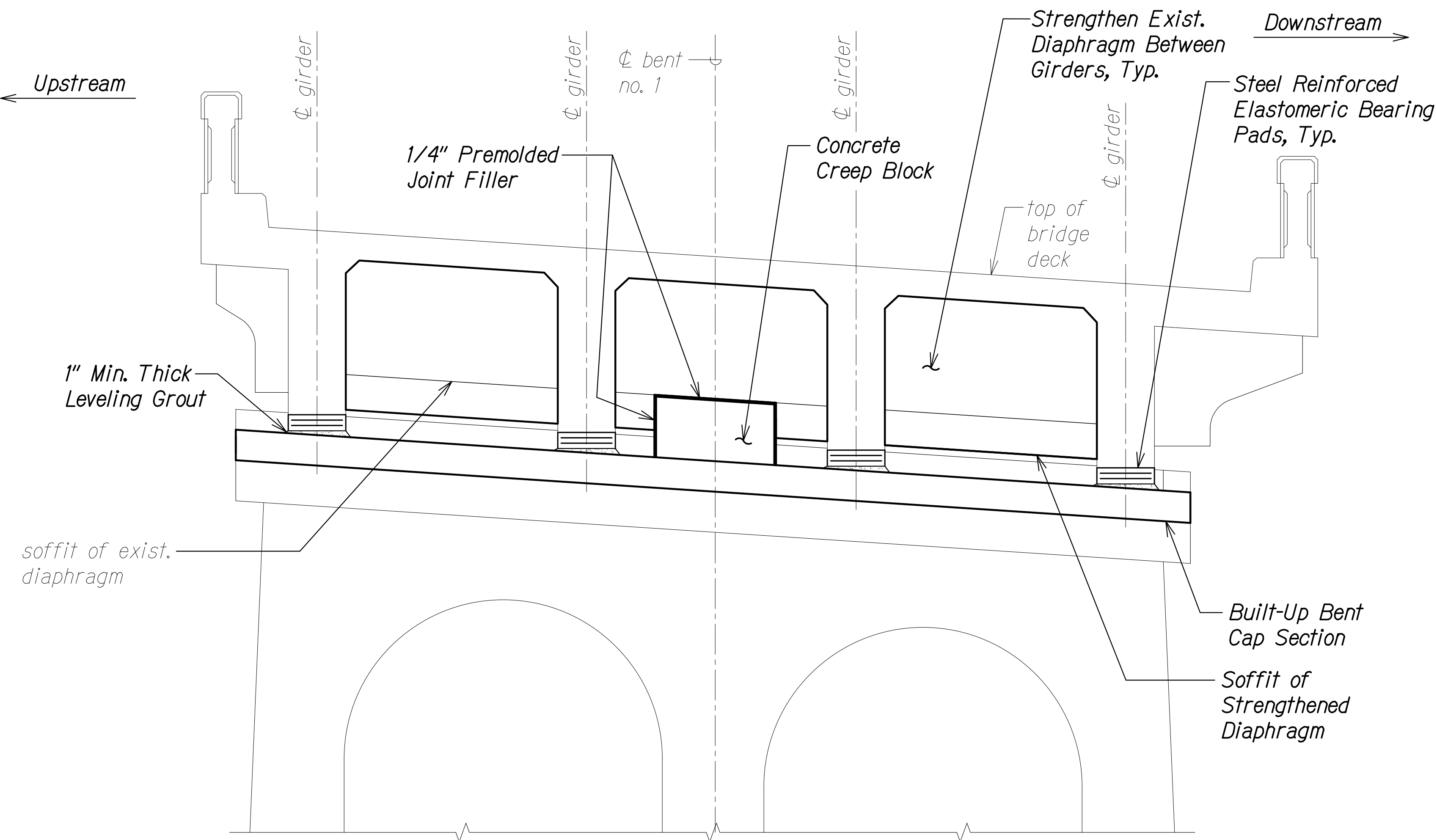
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	71	131



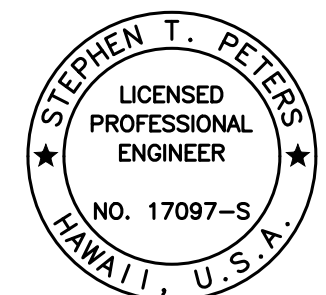
BENT NO. 1 - BENT CAP PLAN
 Scale: 1/2" = 1'-0"



ELASTOMERIC BEARING DETAIL
 Scale: 6" = 1'-0"



BENT NO. 1 - SECTION
 Scale: 1/2" = 1'-0"



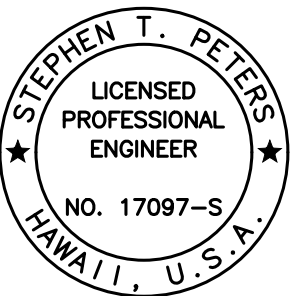
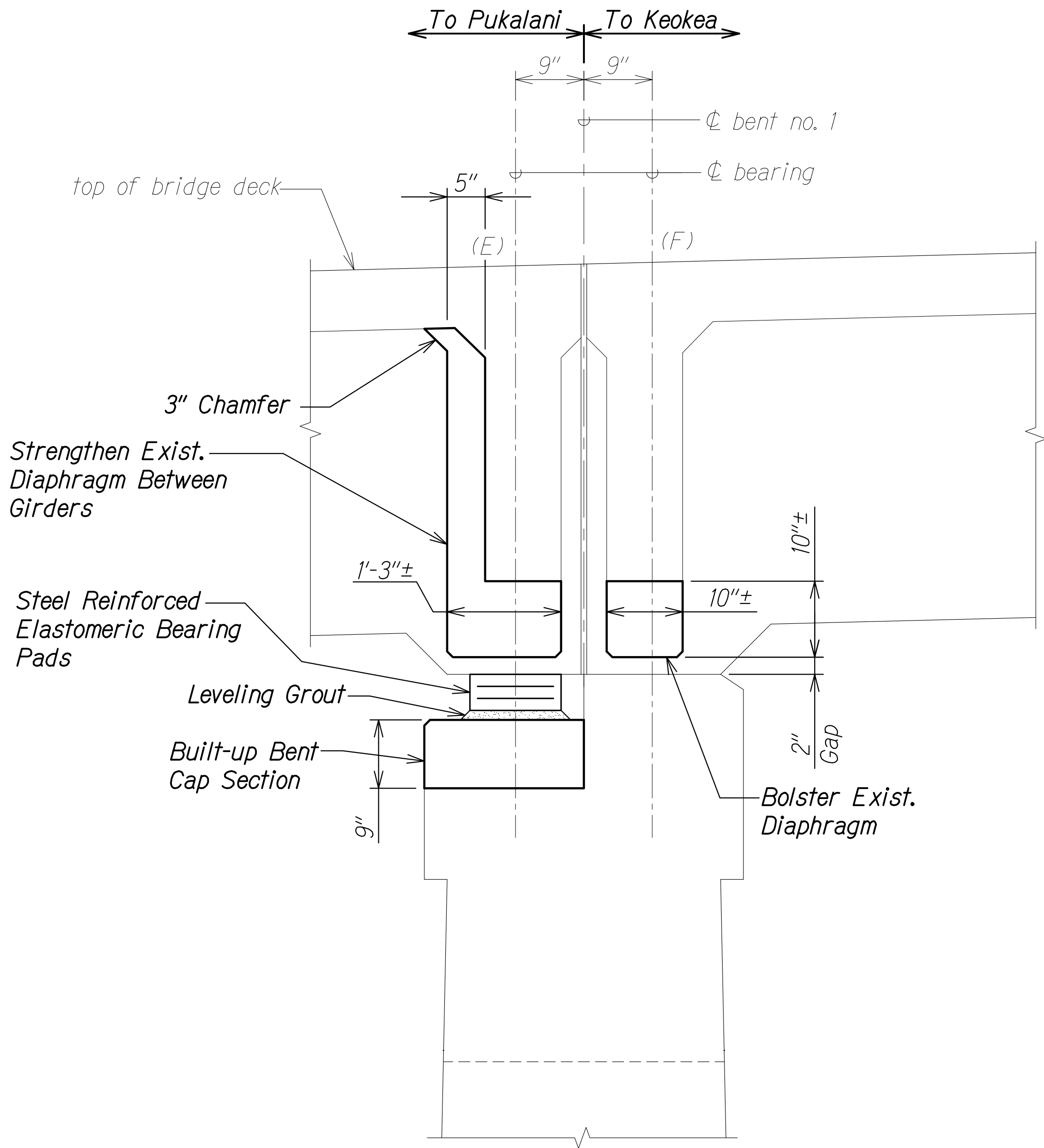
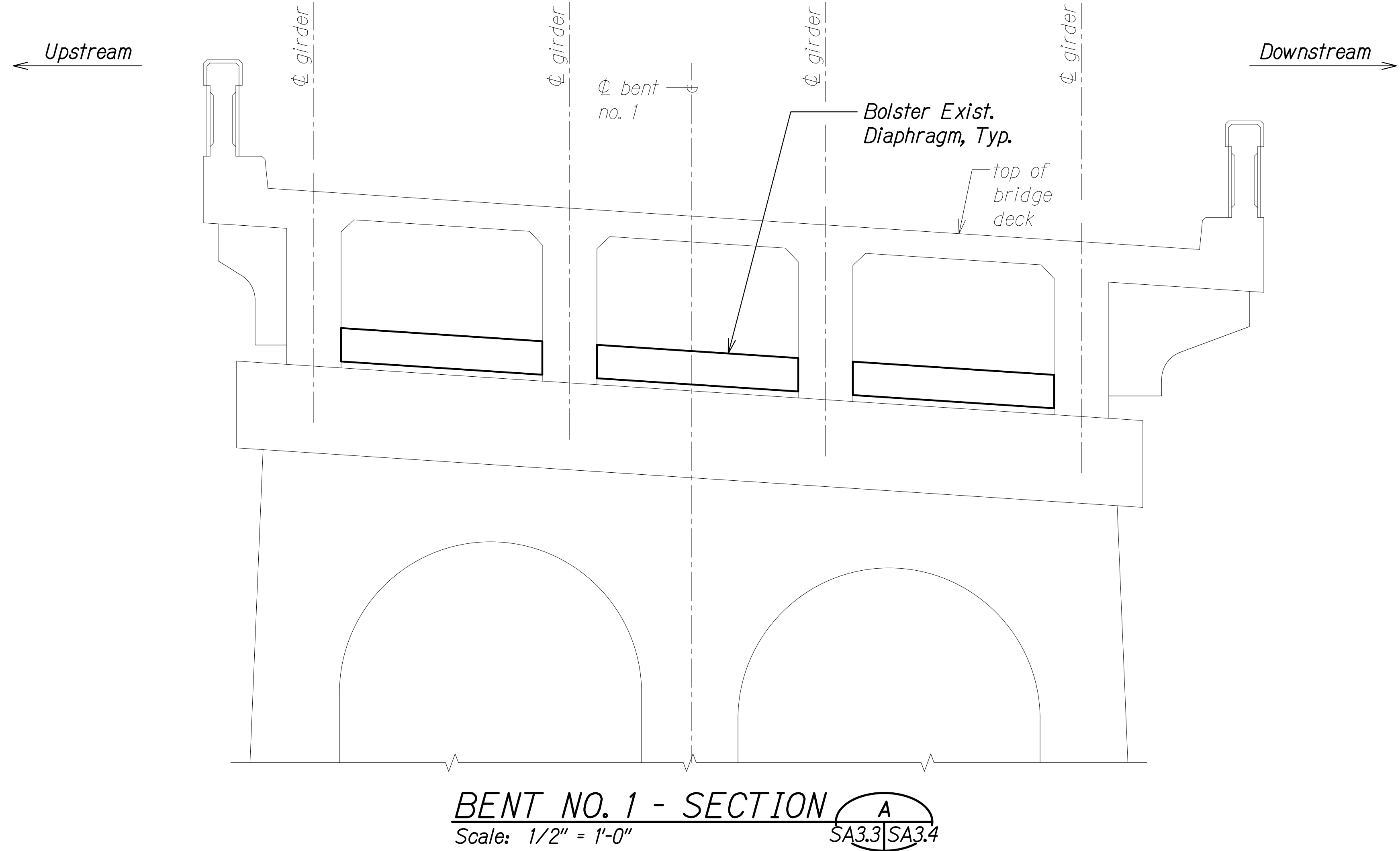
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

Stephen T. Peters
 SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALE GULCH BRIDGE BENT NO. 1
PLAN, SECTION, AND DETAIL
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	72	131



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ME OR UNDER MY SUPERVISION.

Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

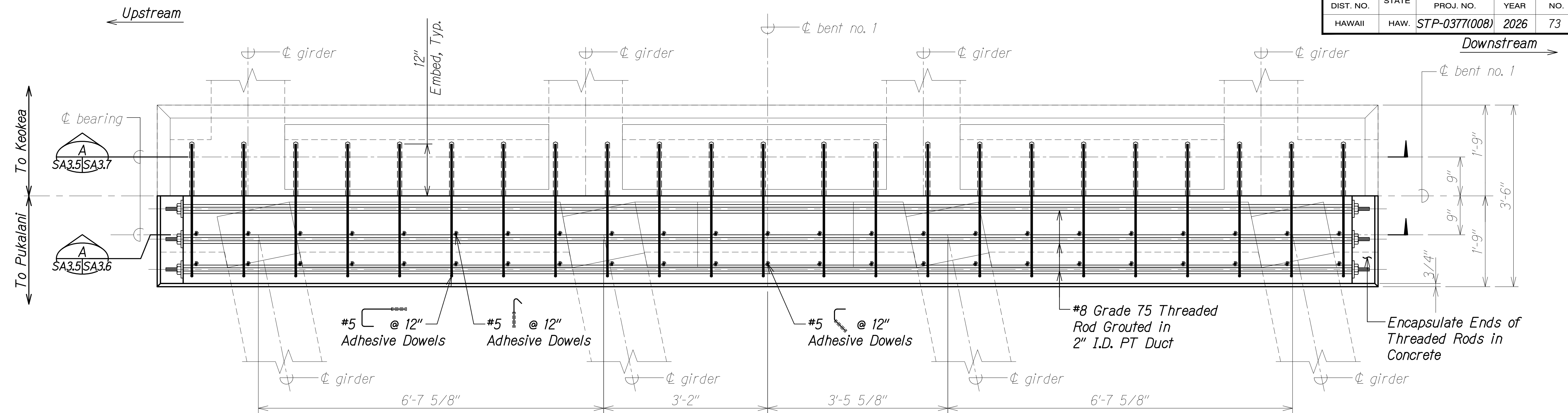
WAIALE GULCH BRIDGE
BENT NO. 1 SECTIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Aiea (Naalea Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

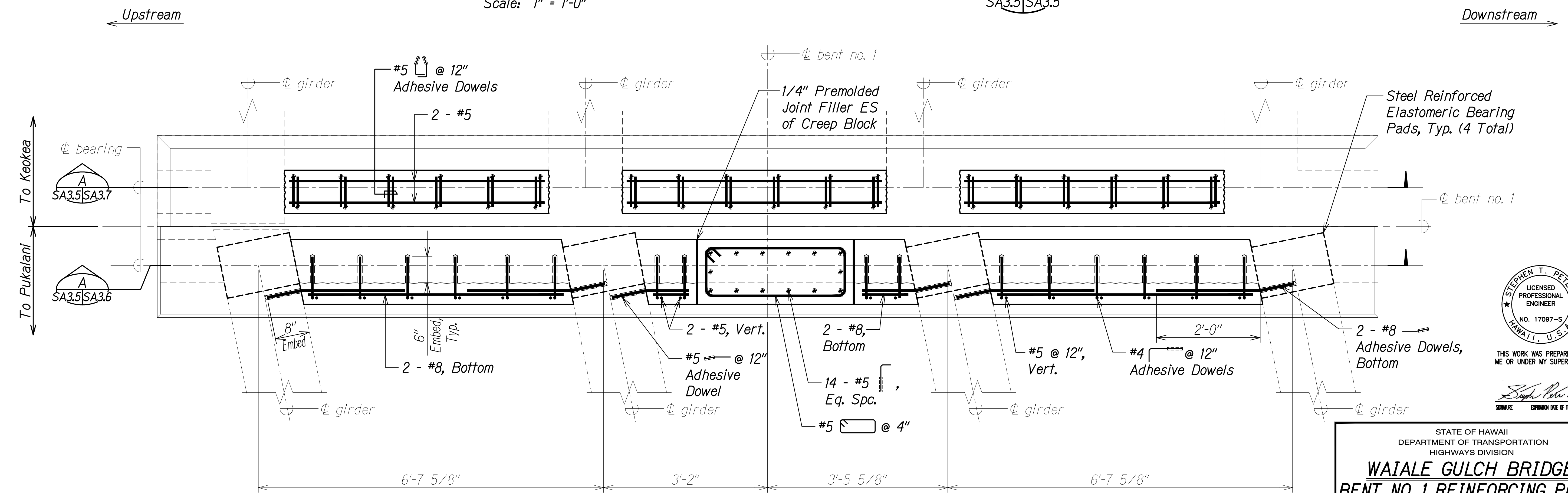
Scale: As Noted Date: July 2026

SHEET No. SA3.4 OF 17 SHEETS

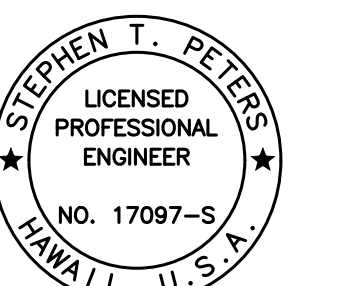
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	73	131



BENT NO. 1 - BENT CAP REINFORCING PLAN
Scale: 1" = 1'-0"
SA3.5|SA3.5



BENT NO. 1 - DIAPHRAGM/CREEP BLOCK REINFORCING PLAN
Scale: 1" = 1'-0"
SA3.5|SA3.5



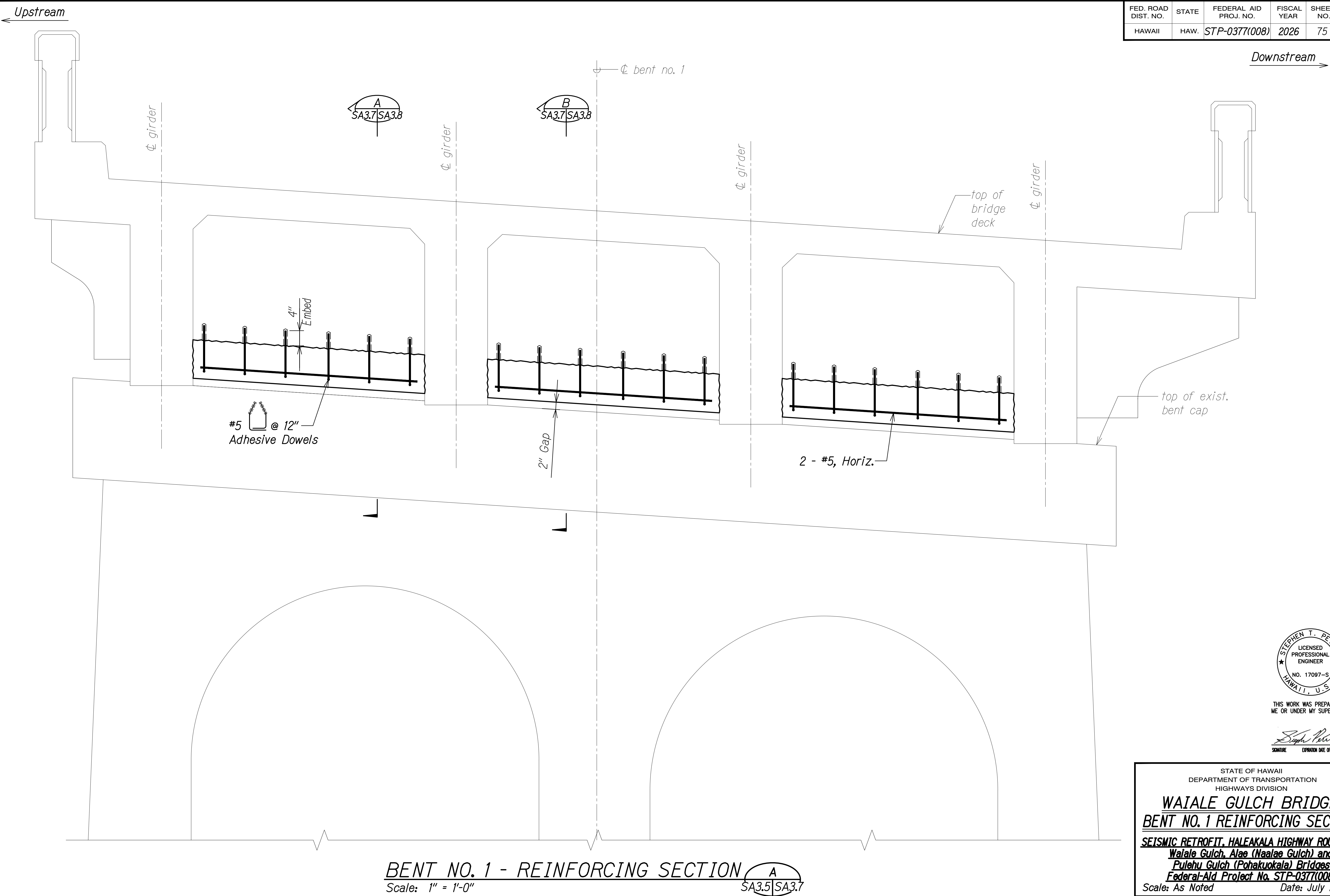
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *Stephen T. Peters*
Date: 4-30-28
Signature: _____
Date: _____

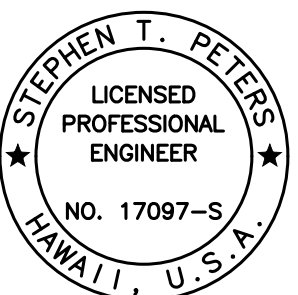
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
BENT NO. 1 REINFORCING PLANS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.5 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	75	131



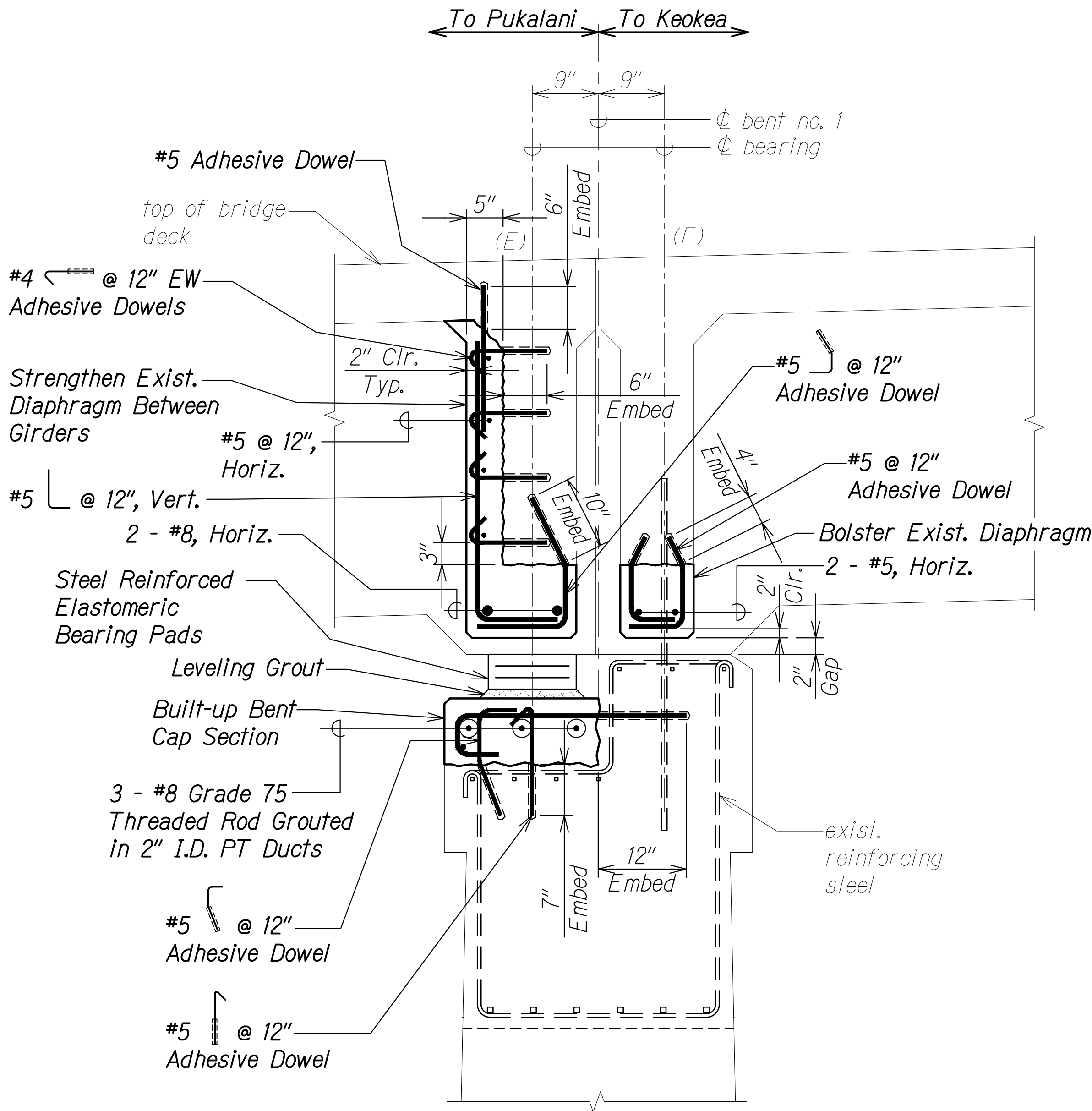
DRAWING NAME: Z-800 ONGOING#23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP) BID SET#3MB-SA0307 WAIA BENT 1 REINFORCING SECTION PLOT TIME: 07-16-26, 12:55 PM



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Signature: *Stephen T. Peters*
EXPIRATION DATE OF THE LICENSE: 4-30-28

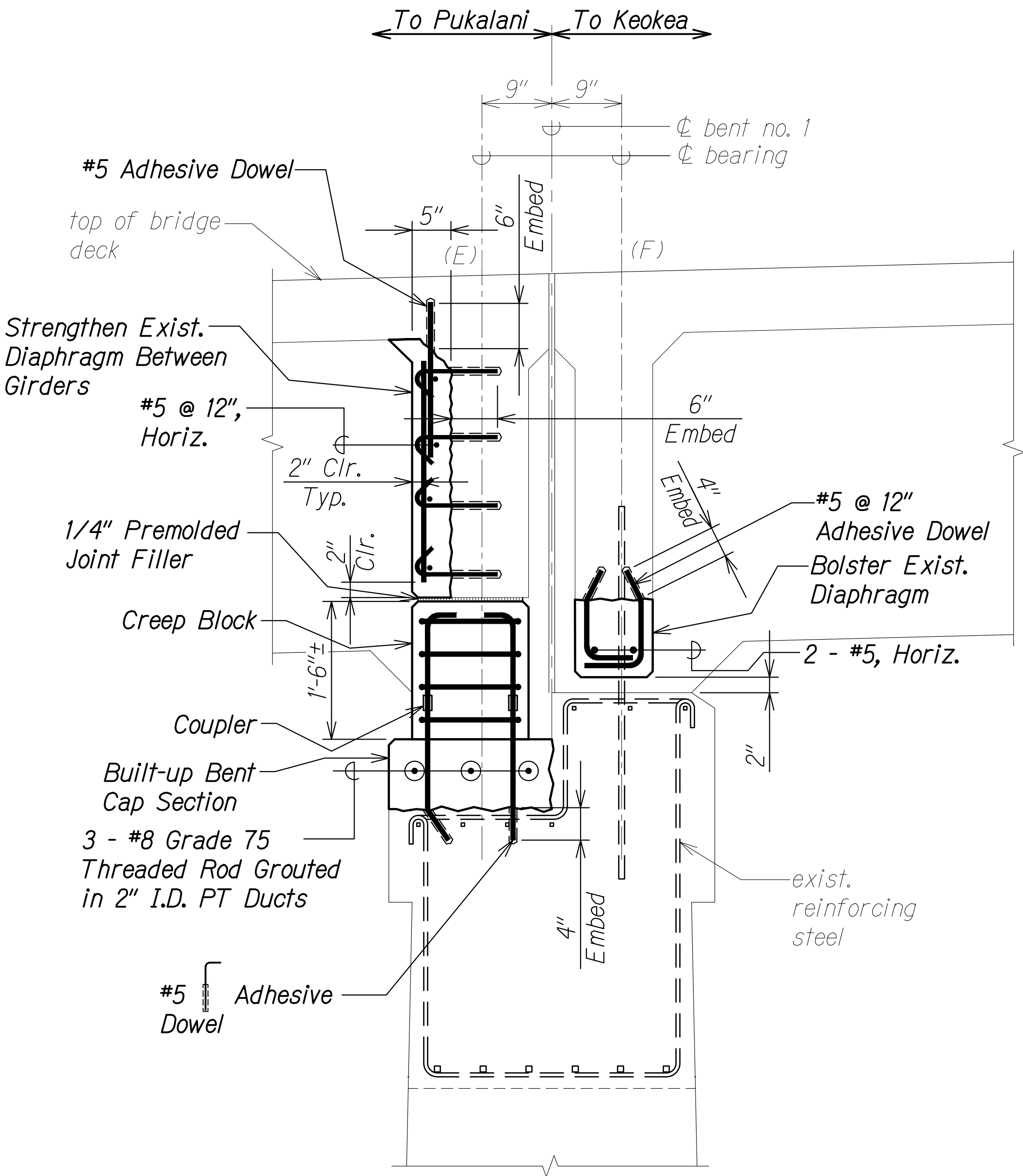
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	76	131



BENT NO. 1 - REINFORCING SECTION

Scale: 1" = 1'-0"

SA3.6
SA3.7
SA3.8



BENT NO. 1 - REINFORCING SECTION

Scale: 1" = 1'-0"

SA3.6
SA3.7
SA3.8

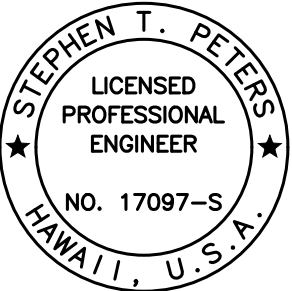
NOTE:

Adhesive dowels in built-up bent cap section not shown for clarity.

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP) BID SET 3MB-SA0308 WAIA BENT 1 REINFORCING

PLOT TIME: 07-16-26, 12:57 PM



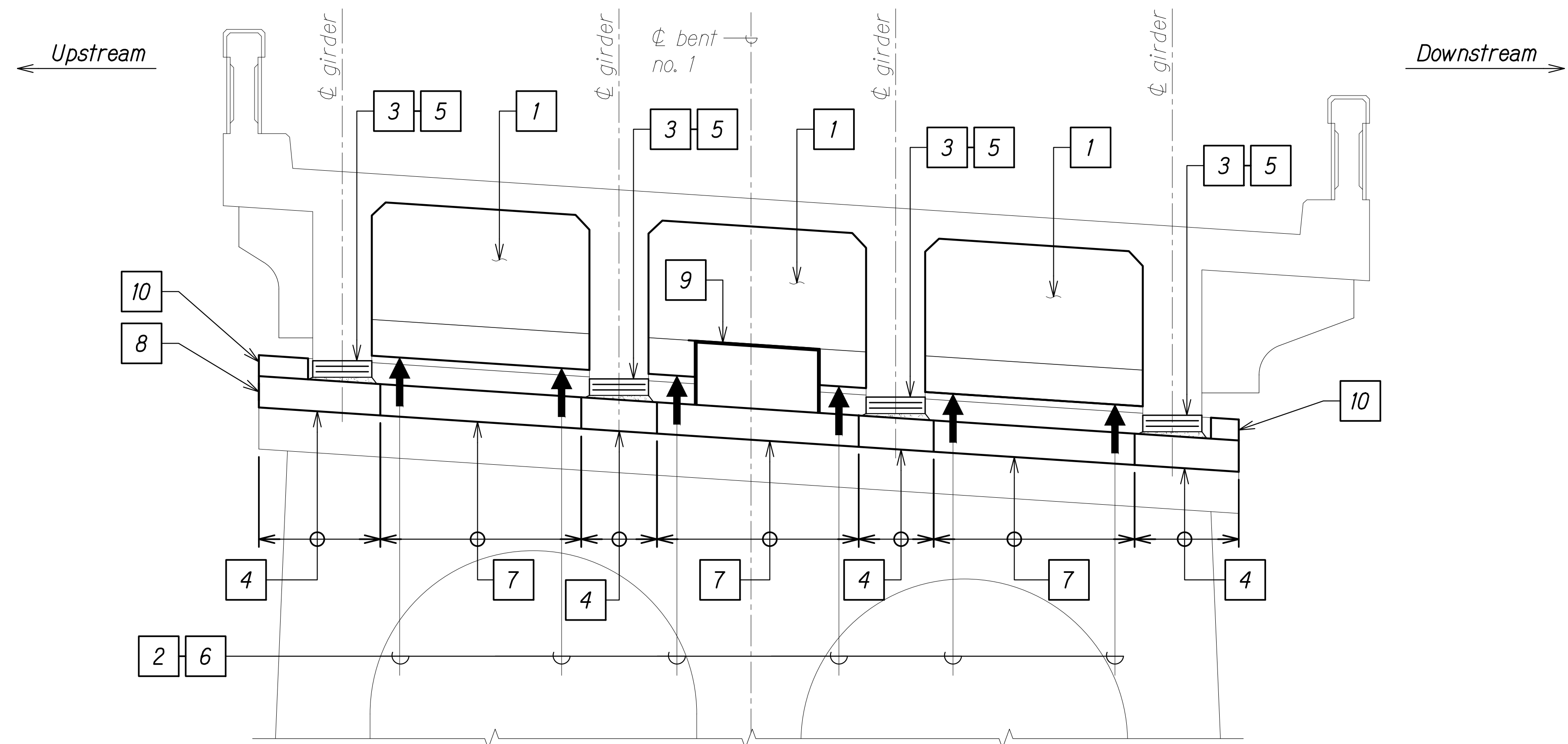
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *Stephen T. Peters*
EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
BENT NO. 1 REINFORCING SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.8 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	77	131



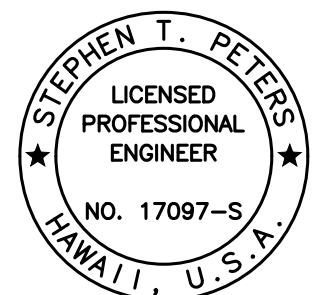
BENT NO. 1 CONSTRUCTION SEQUENCE

CONSTRUCTION SEQUENCE:

- 1 Install Reinforcing Steel and Pour Concrete to Strengthen Existing Diaphragm
- 2 Install Hydraulic Jacks, Raise Bridge No More than 1/8"
- 3 Demolish Existing Cast Steel Bearing. Perform Concrete Repairs on Bottom of Girder and Top of Bent Cap at seat locations.
- 4 Install Ducts, Reinforcing Steel, and Pour Concrete at Built-up Bent Cap Sections
- 5 Install Steel Reinforced Elastomeric Bearings and Leveling Grout
- 6 Release Hydraulic Jacks and Remove
- 7 Couple Ducts, Install Reinforcing Steel, and Pour Concrete at Remaining Locations of Built-Up Bent Cap Sections
- 8 Install Reinforcing Steel Through Ducts and Grout
- 9 Install Reinforcing Steel and Pour Concrete at Creep Block
- 10 Install Reinforcing Steel and Pour Concrete at Cheek Walls

NOTES:

1. Construction Sequence applies to Pukalani side of Bent No. 1.
2. All work required for the temporary jacking of the bridge shall be done during times of full bridge traffic control closures. Jacking work shall be incidental to the removal of existing bearings.
3. All temporary jacking shall be done from the strengthened diaphragms and in-line with the existing bearings.



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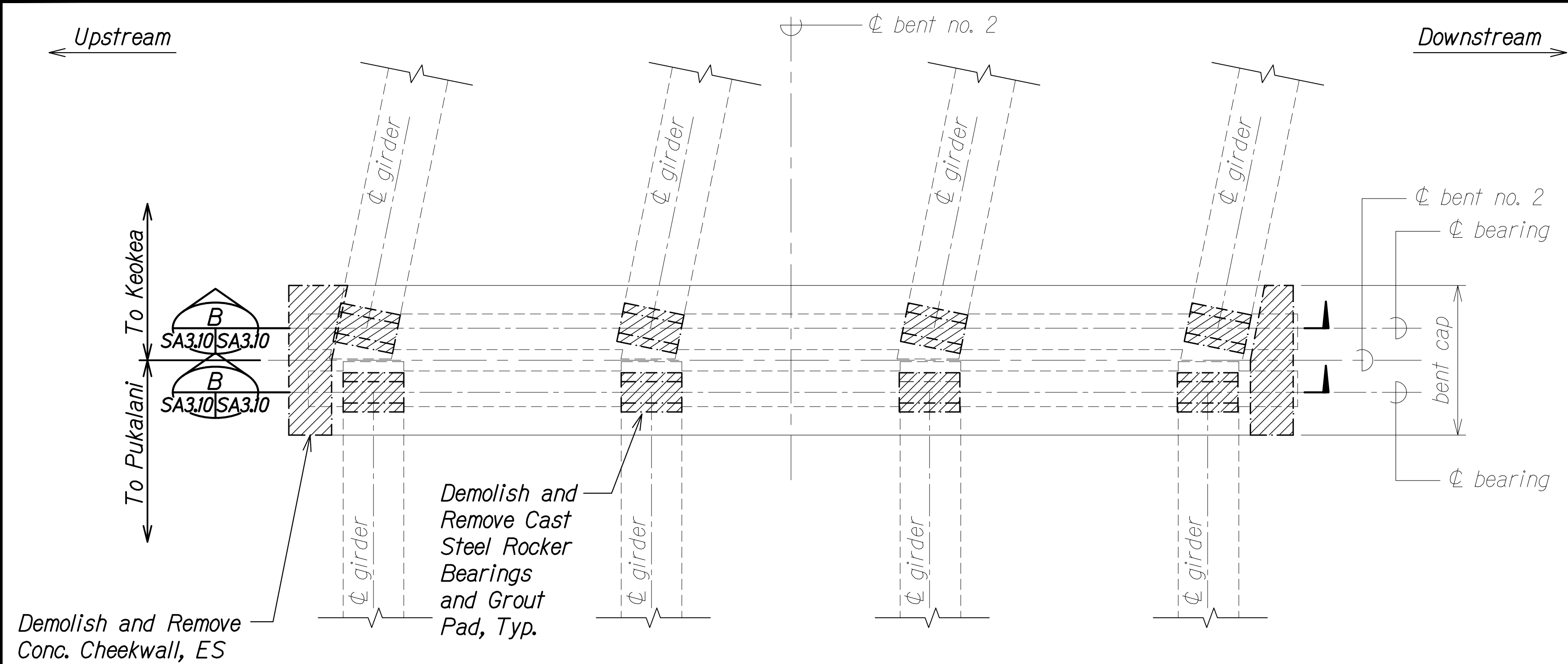
Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE BENT NO. 1
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

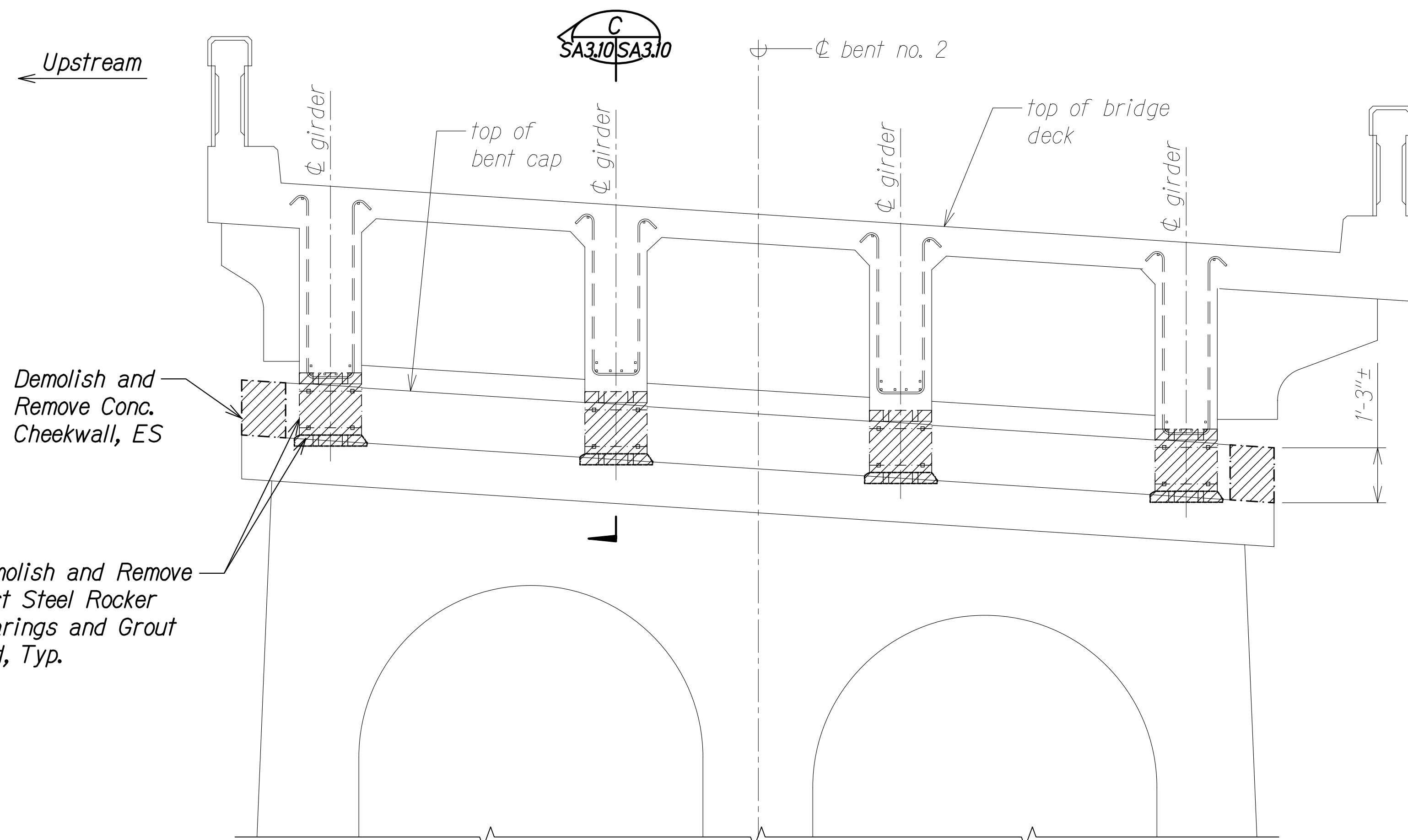
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z-800 ONGOING23-003.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$09-04-26 BID SET FINAL\$3MB-S40309 WAIALE BENT 1 SEQUING PLOT TIME: 09-04-26 12:46 PM

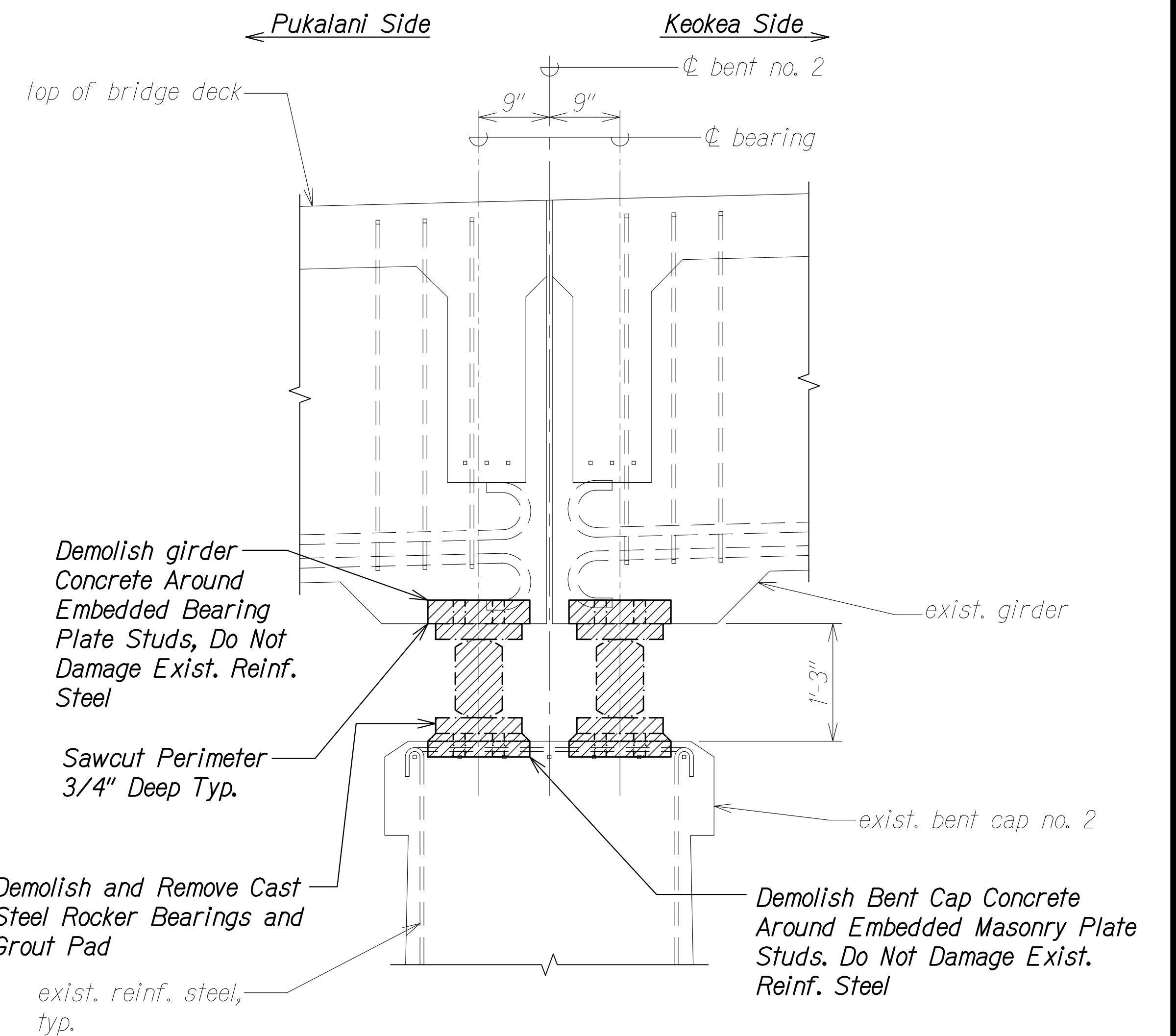
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	78	131



DEMOLITION PLAN - BENT CAP NO. 2 A
Scale: 1/2" = 1'-0" SA3.10 SA3.10



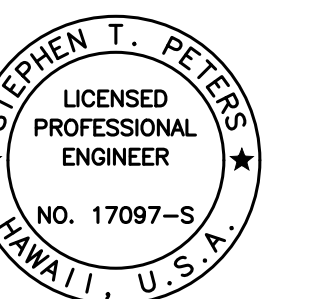
DEMOLITION SECTION - BENT CAP NO. 2 B
Scale: 1/2" = 1'-0" SA3.10 SA3.10



DEMOLITION SECTION AT BENT NO. 2 C
Scale: 1" = 1'-0" SA3.10 SA3.10

NOTES:

1. Demolition work for cheek walls shall be incidental to removal of existing bearings.
2. Do not damage any existing reinforcing steel.
3. All concrete removed at this girder and bent cap shall be patched with an approved polymer modified repair mortar. Work shall be incidental to removal of existing bearings.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *Stephen T. Peters* 4-30-28
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

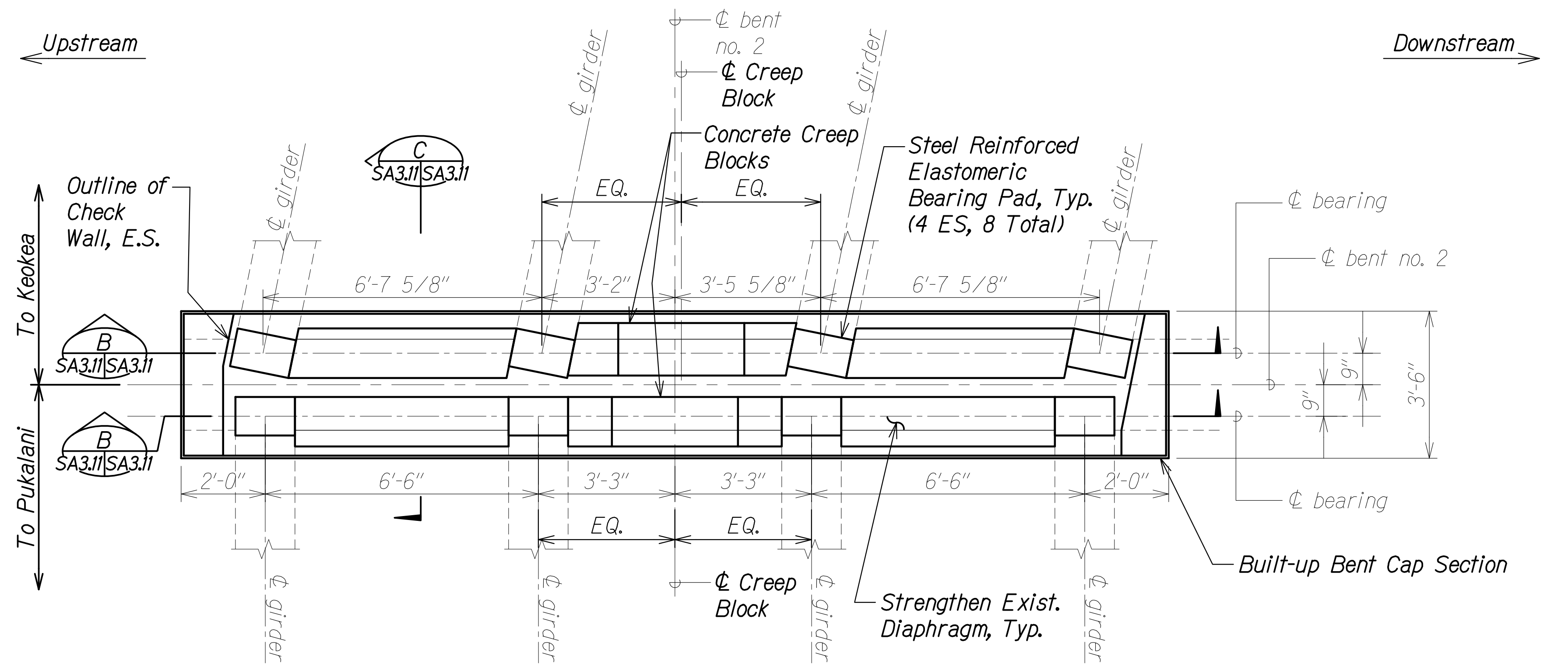
**WAIALE GULCH BRIDGE BENT NO. 2
DEMOLITION PLAN AND SECTIONS**

**SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)**

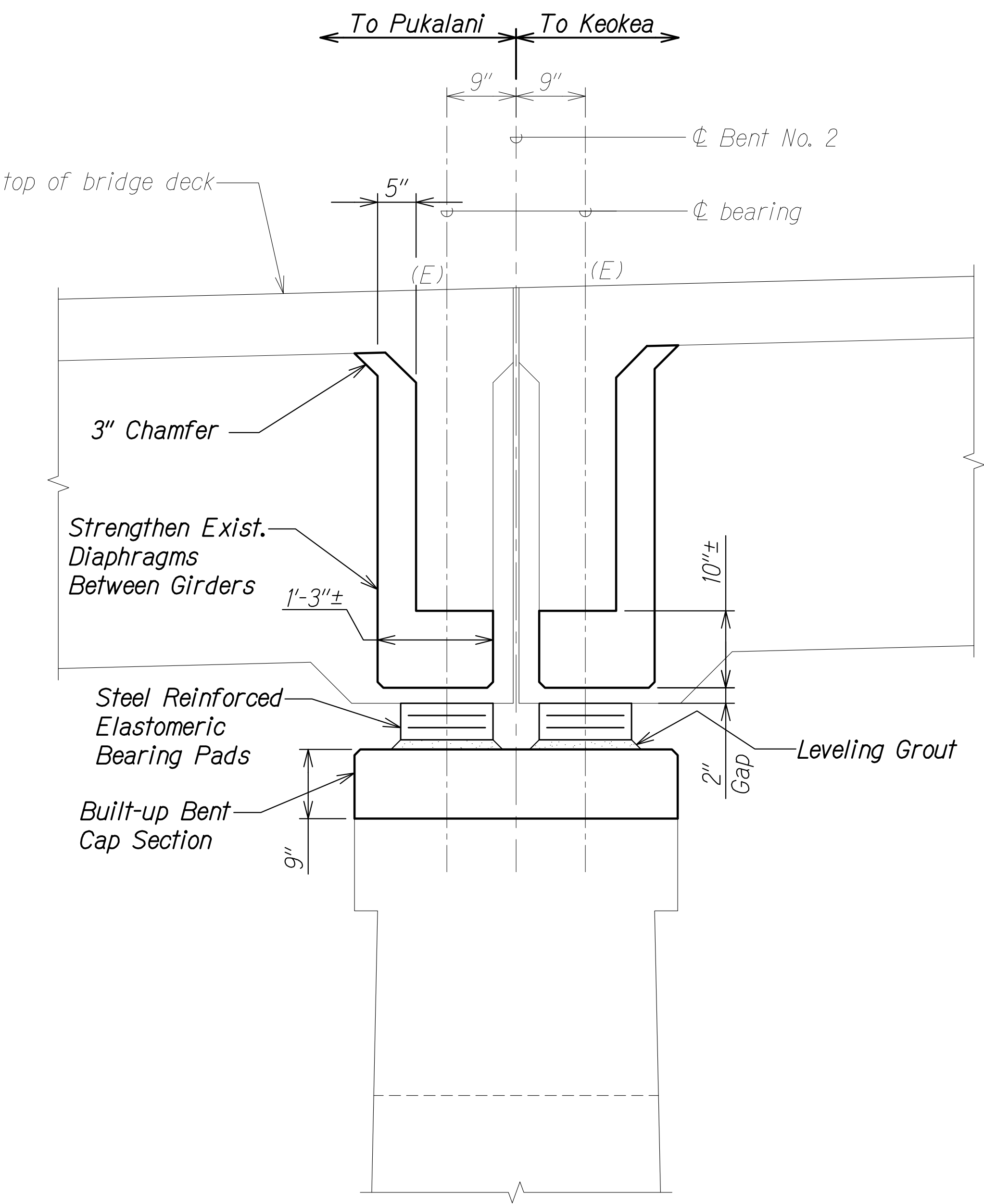
Scale: As Noted Date: July 2026

SHEET No. SA3.10 OF 17 SHEETS

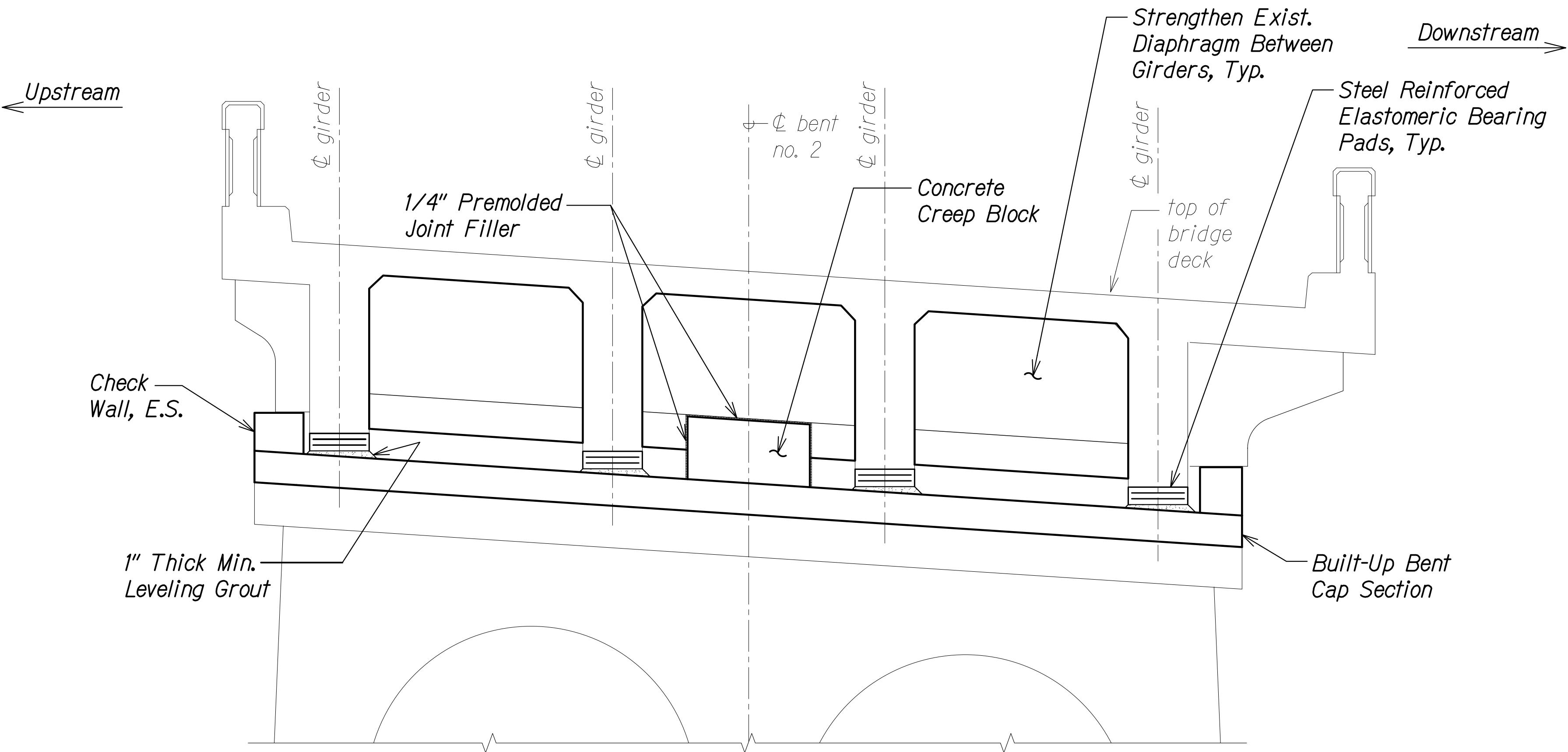
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	79	131



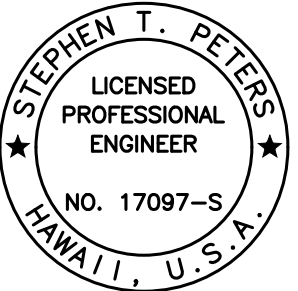
BENT NO. 2 - BENT CAP PLAN
Scale: 1/2" = 1'-0"



BENT NO. 2 - SECTION
Scale: 1" = 1'-0"



BENT NO. 2 - SECTION
Scale: 1/2" = 1'-0"



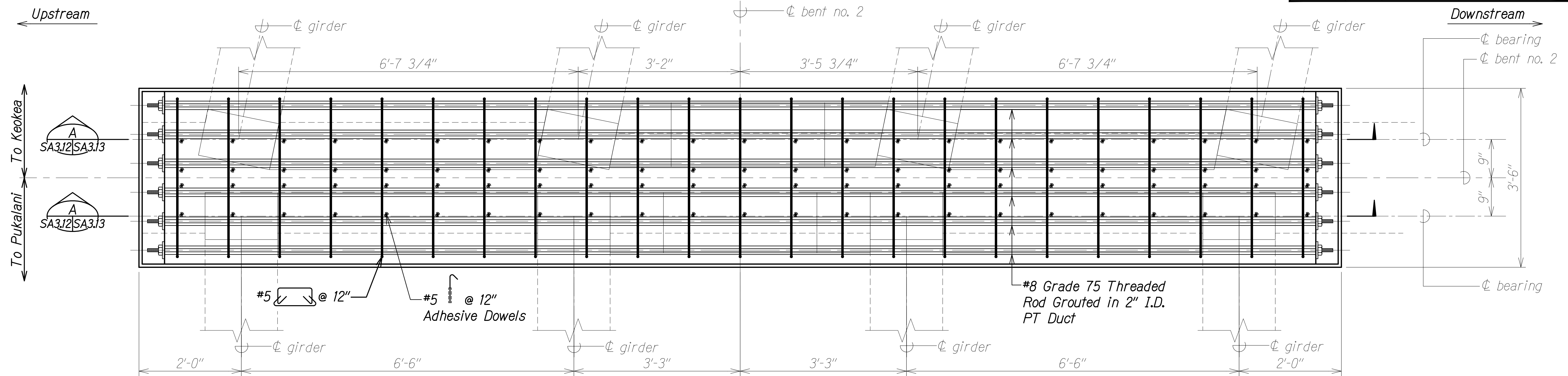
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *Stephen T. Peters*
Date: 4-30-28
Expiration Date of the License

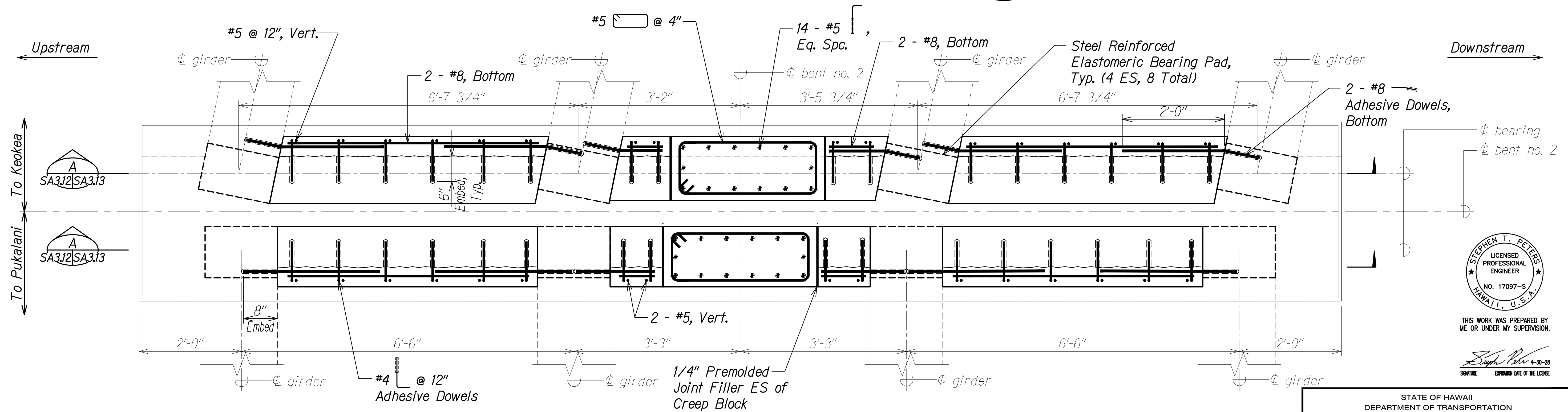
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
BENT NO. 2 PLAN AND SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.11 OF 17 SHEETS

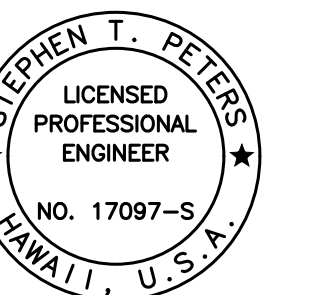
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	80	131



BENT NO. 2 - BENT CAP REINFORCING PLAN A
 Scale: 1" = 1'-0" SA3.12 | SA3.12



BENT NO. 2 - DIAPHRAGM/CREEP BLOCK REINFORCING PLAN B
 Scale: 1" = 1'-0" SA3.12 | SA3.12



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Stephen T. Peters
 SIGNATURE EXPIRATION DATE OF THE LICENSE

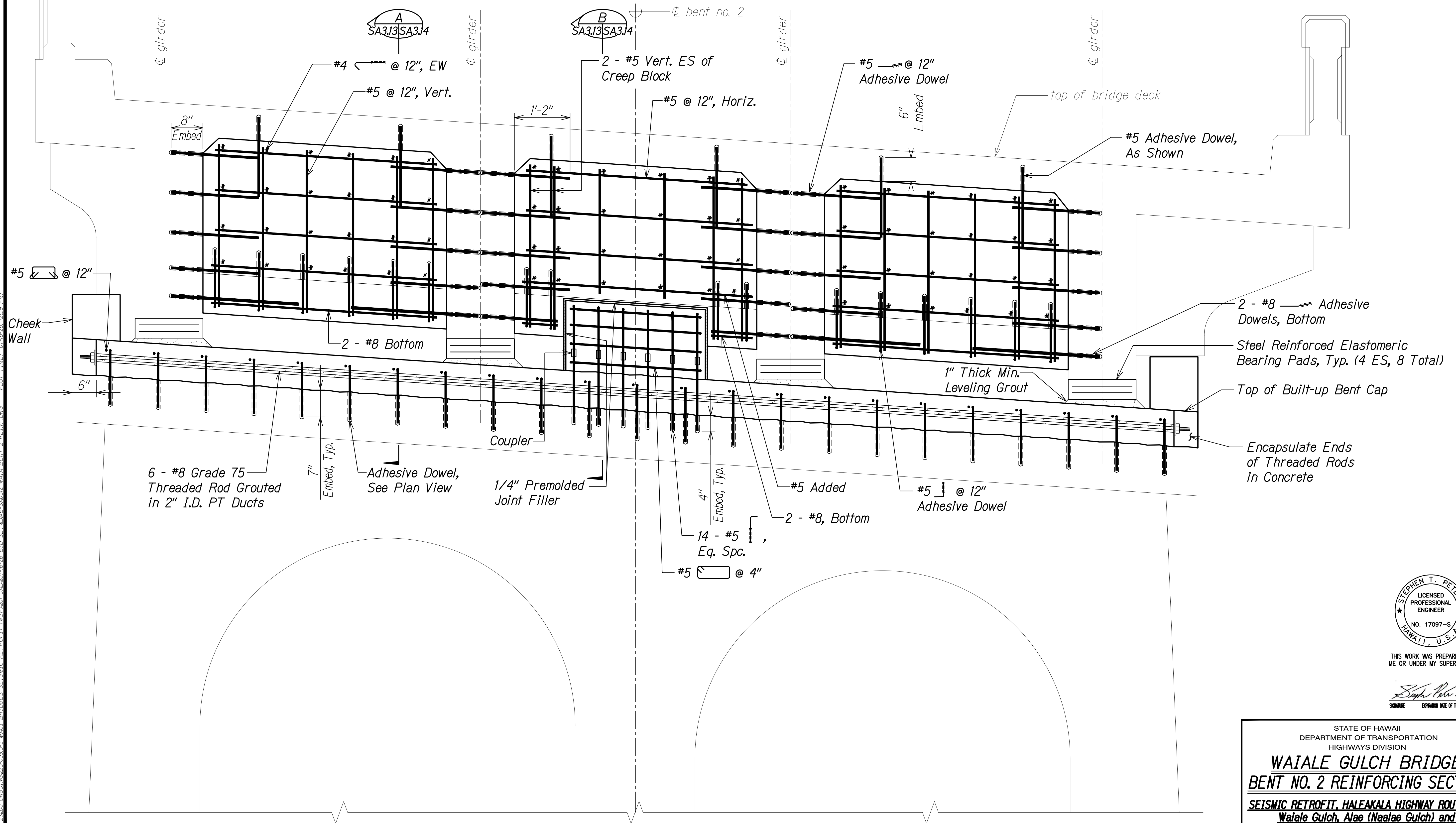
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
BENT NO. 2 REINFORCING PLANS
SEISMIC RETROFIT, HALEKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
 Scale: As Noted Date: July 2026

SHEET No. SA3.12 OF 17 SHEETS

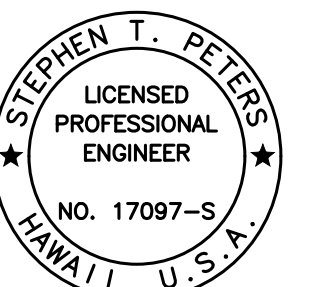
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	81	131

Upstream

Downstream



BENT NO. 2 - REINFORCING SECTION
Scale: 1" = 1'-0"



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Signature: *Stephen T. Peters*
Date: 4-30-28

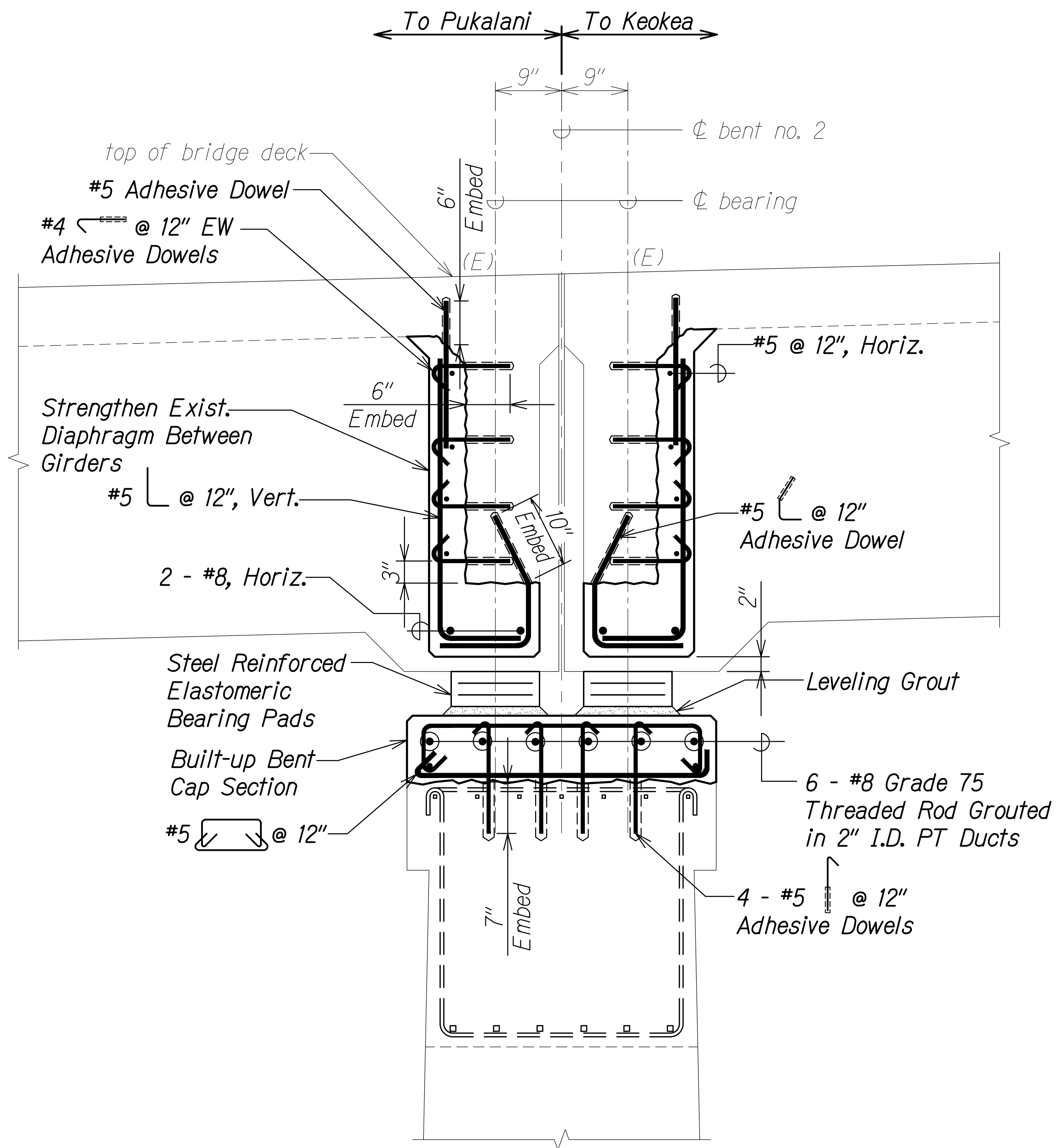
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALE GULCH BRIDGE
BENT NO. 2 REINFORCING SECTION

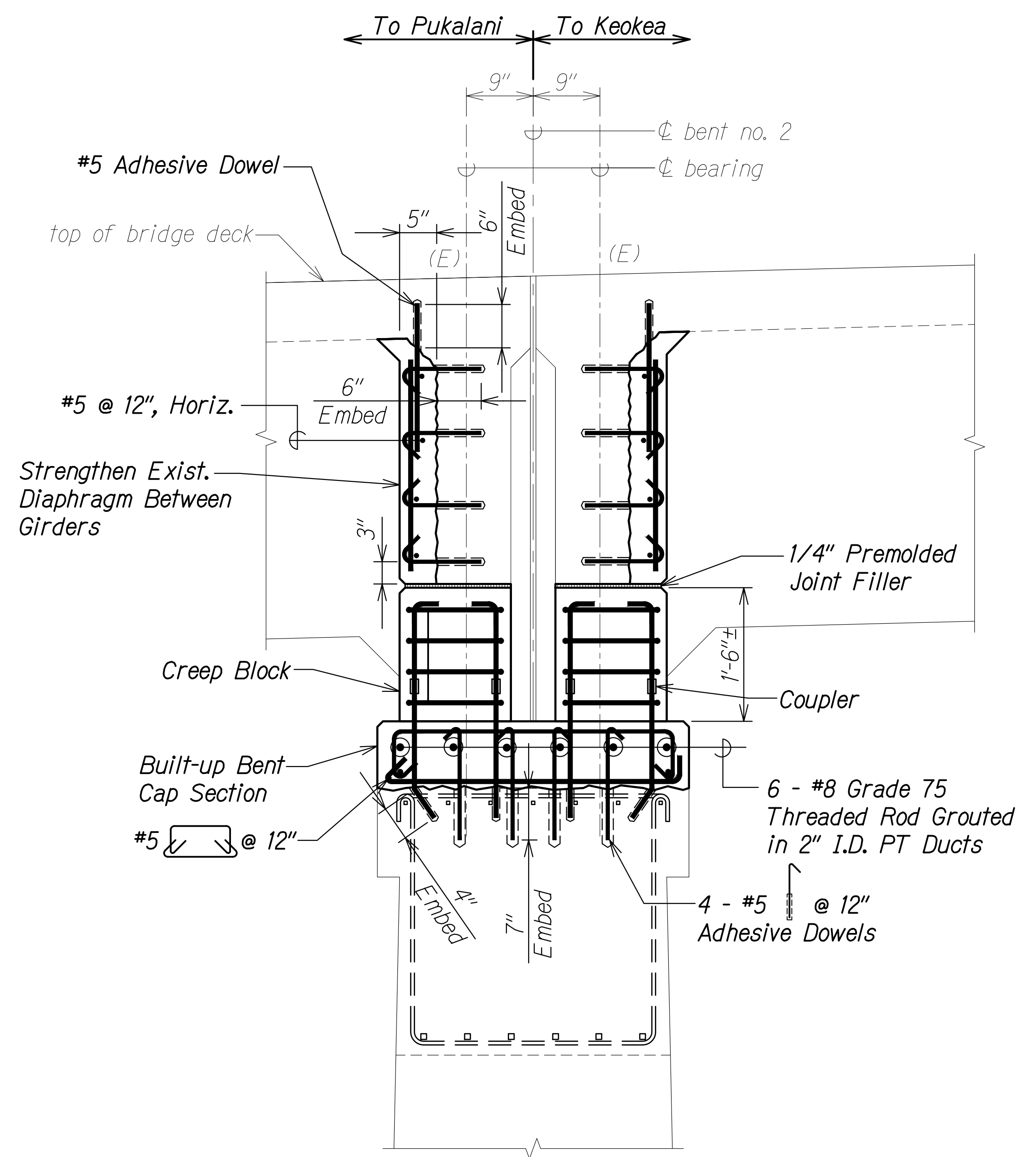
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

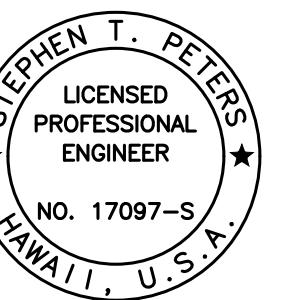
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	82	131



BENT NO. 2 - REINFORCING SECTION A
Scale: 1" = 1'-0" SA3.13 SA3.14



BENT NO. 2 - REINFORCING SECTION B
Scale: 1" = 1'-0" SA3.13 SA3.14



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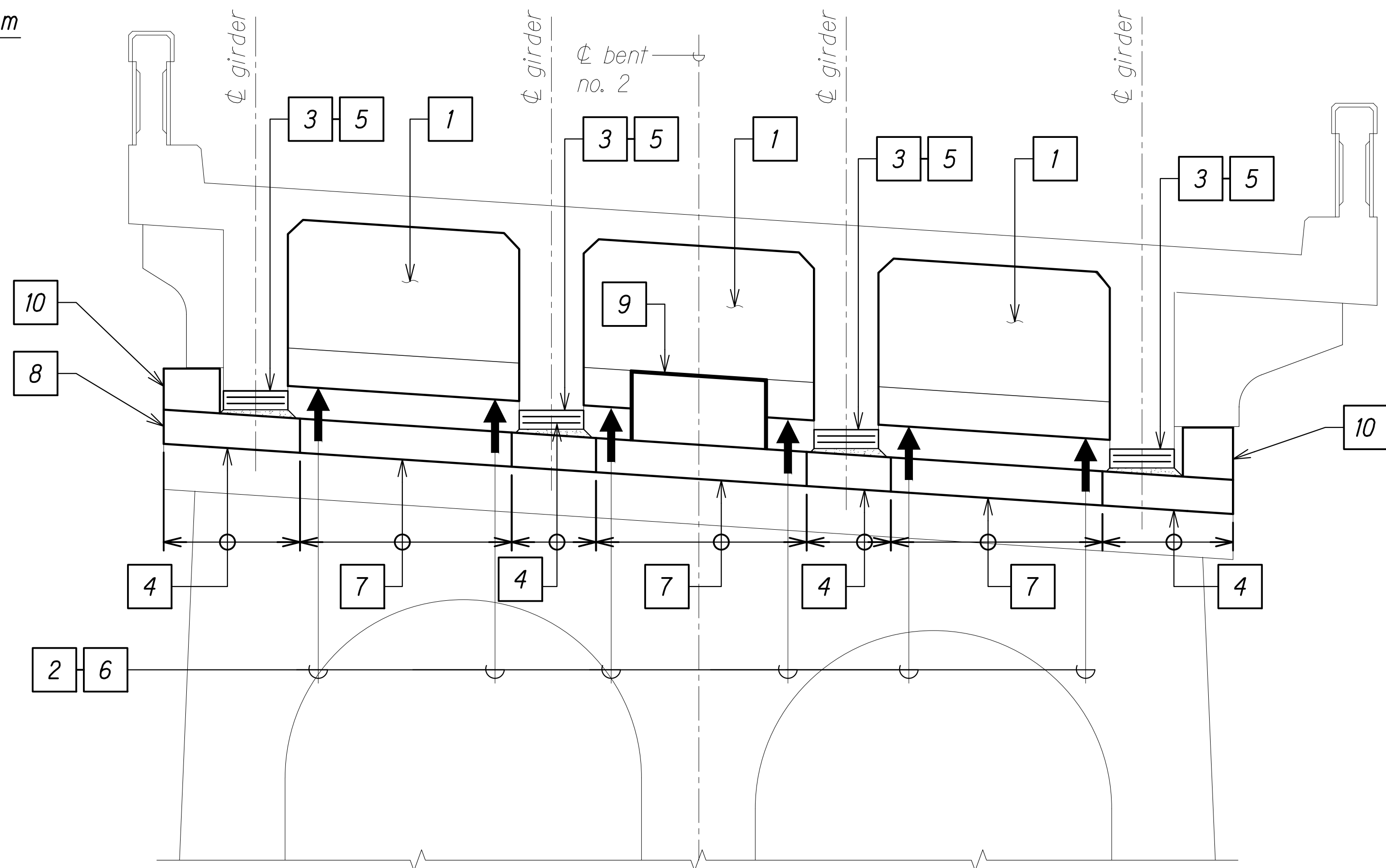
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
BENT NO. 2 REINFORCING SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.14 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	83	131

Upstream

Downstream



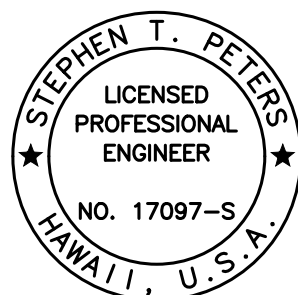
BENT NO. 2 CONSTRUCTION SEQUENCE

CONSTRUCTION SEQUENCE:

- 1 Install Reinforcing Steel and Pour Concrete to Strengthen Existing Diaphragm
- 2 Install Hydraulic Jacks, Raise Bridge No More than 1/8"
- 3 Demolish Existing Cast Steel Bearing. Perform Concrete Repairs on Bottom of Girder and Top of Bent Cap at seat locations.
- 4 Install Ducts, Reinforcing Steel, and Pour Concrete at Built-up Bent Cap Sections
- 5 Install Steel Reinforced Elastomeric Bearings and Leveling Grout
- 6 Release Hydraulic Jacks and Remove
- 7 Couple Ducts, Install Reinforcing Steel, and Pour Concrete at Remaining Locations of Built-Up Bent Cap Sections
- 8 Install Reinforcing Steel Through Ducts and Grout
- 9 Install Reinforcing Steel and Pour Concrete at Creep Block
- 10 Install Reinforcing Steel and Pour Concrete at Cheek Walls

NOTES:

1. Construction Sequence applies to Pukalani Side and Keokea Side of Bent No. 2.
2. All work required for the temporary jacking of the bridge shall be done during times of full bridge traffic control closures. Jacking work shall be incidental to removal of existing bearings.
3. All temporary jacking shall be done from the strengthened diaphragms and in-line with the existing bearings.



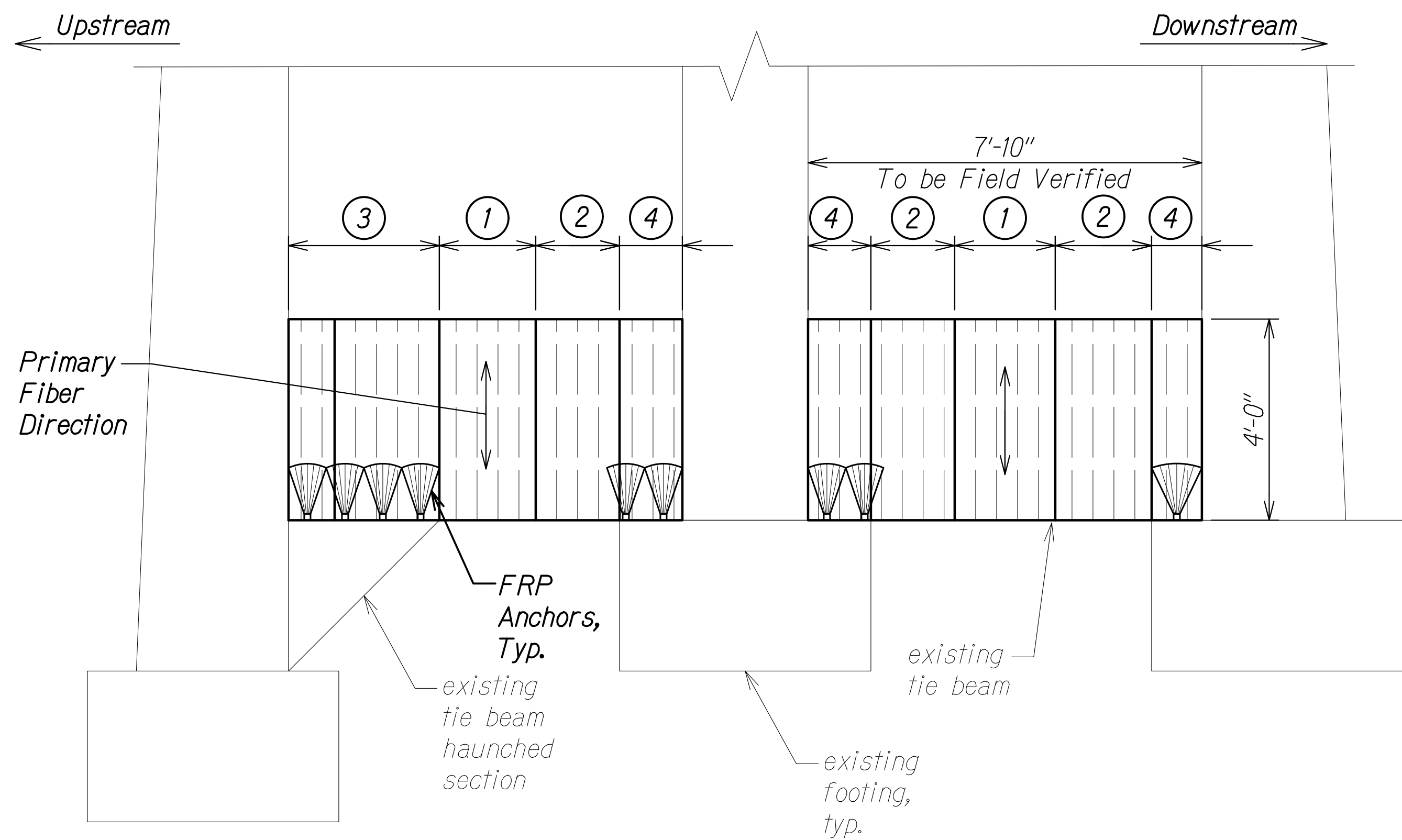
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
BENT NO. 2 CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA315 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	84	131



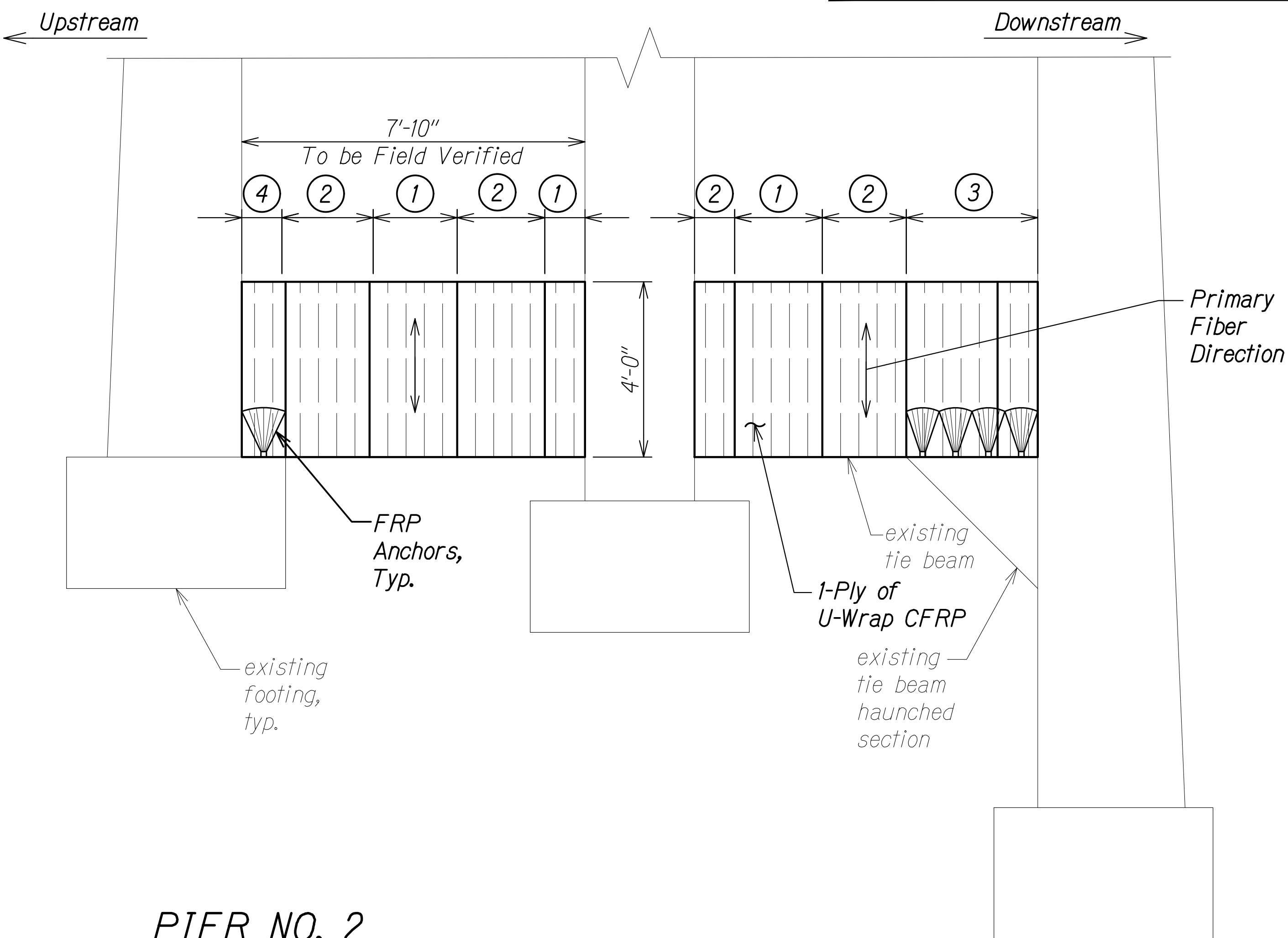
PIER NO. 1
CFRP STRENGTHENING DETAIL OF TIE BEAM A
Scale: 1/2" = 1'-0" SA3.16 SA3.16

LEGEND:

- ① TYPE 1 - CFRP Fully Wrapped Bottom Lap
- ② TYPE 2 - CFRP Fully Wrapped Top Lap
- ③ TYPE 3 - CFRP U-Wrap with FRP Anchors
- ④ TYPE 4 - CFRP U-Wrap with FRP Anchors

NOTES:

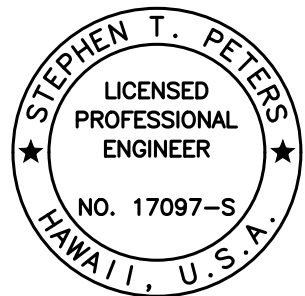
- See sheet SA3.17 for Sections
- All materials shall be Carbon Fiber Reinforced Polymer (FRP) Composite installed via the wet-layup method.
- All concrete surfaces to which FRP will be bonded shall be considered "Bond Critical". See Special Provisions Section 577 for additional information.
- Each layer of FRP shall have a minimum thickness per layer of 0.04 inches. Use of a product having a thickness of 0.08 inches per layer is acceptable providing the minimum cumulative thickness (number of layers x 0.04 inches) as shown on these details is installed.



PIER NO. 2
CFRP STRENGTHENING DETAIL OF TIE BEAM B
Scale: 1/2" = 1'-0" SA3.16 SA3.16

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)01 CAD\$07-16-26 BID SET\$3MB-SA036 WAIA BENT TIE BRIDG PLOT TIME: 07-16-26, 1:01 PM



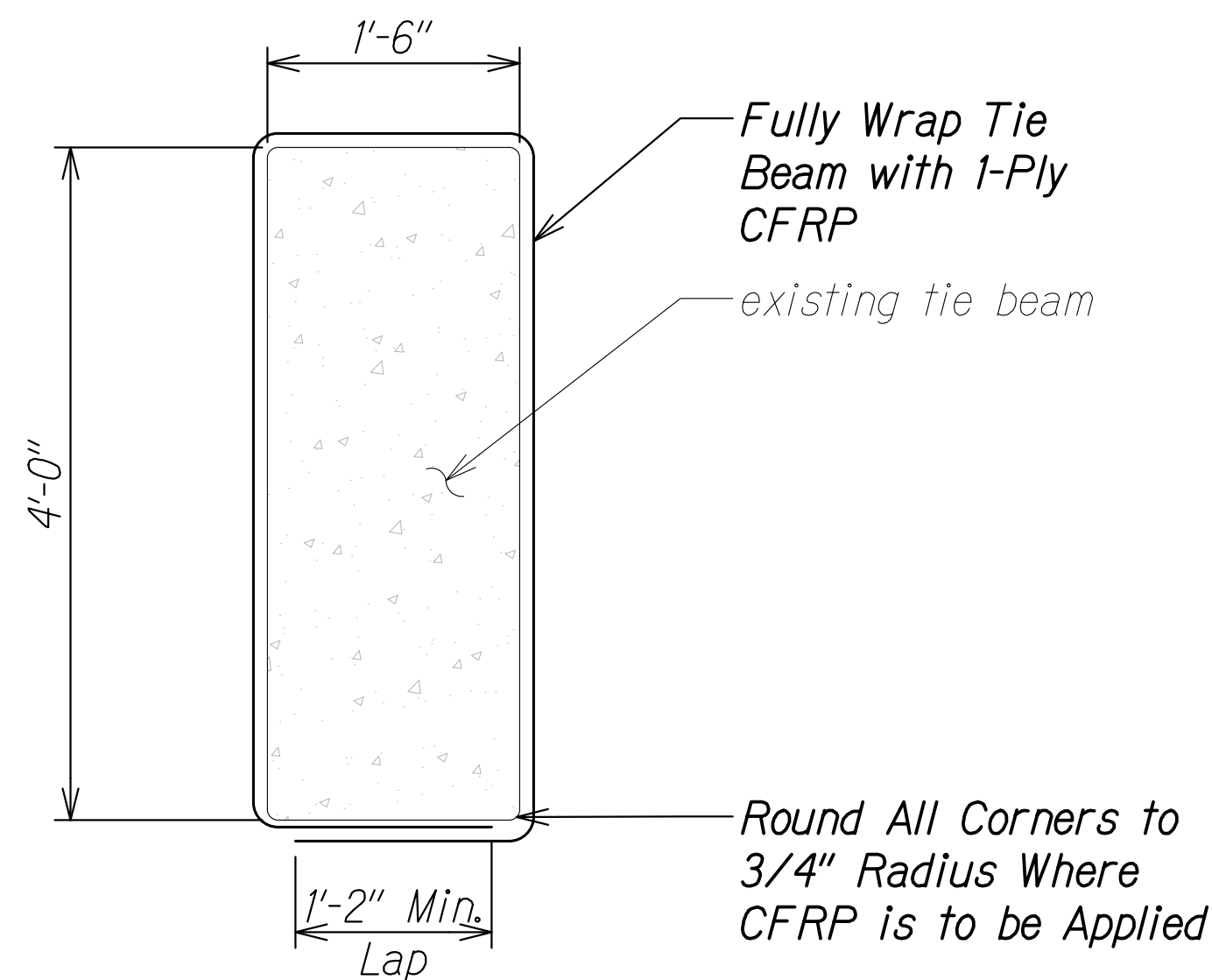
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
WAIALE GULCH BRIDGE
TIE BEAM CFRP DETAILS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.16 OF 17 SHEETS

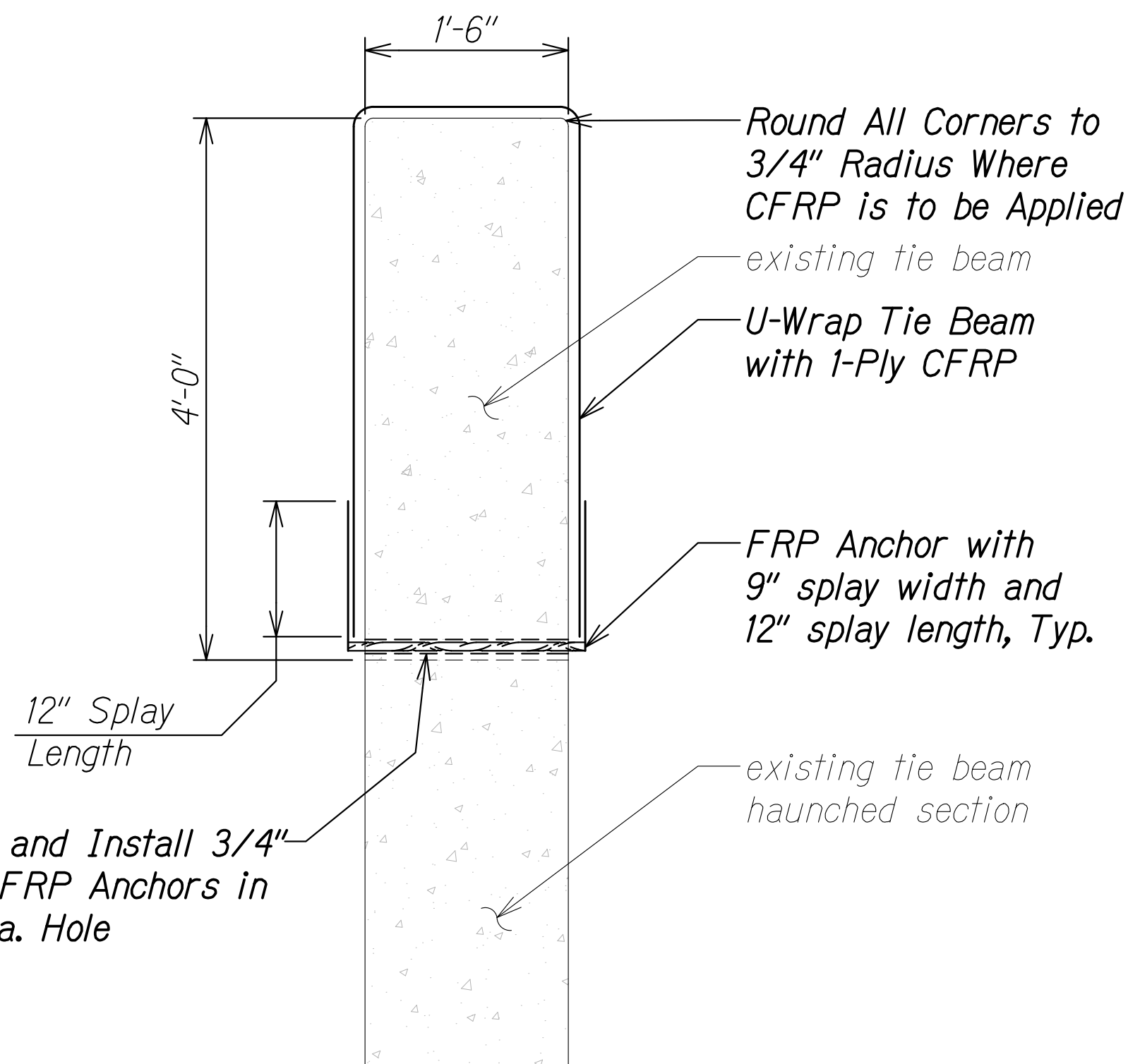
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	85	131



TYPE 1 SECTION

Scale: 1" = 1'-0"

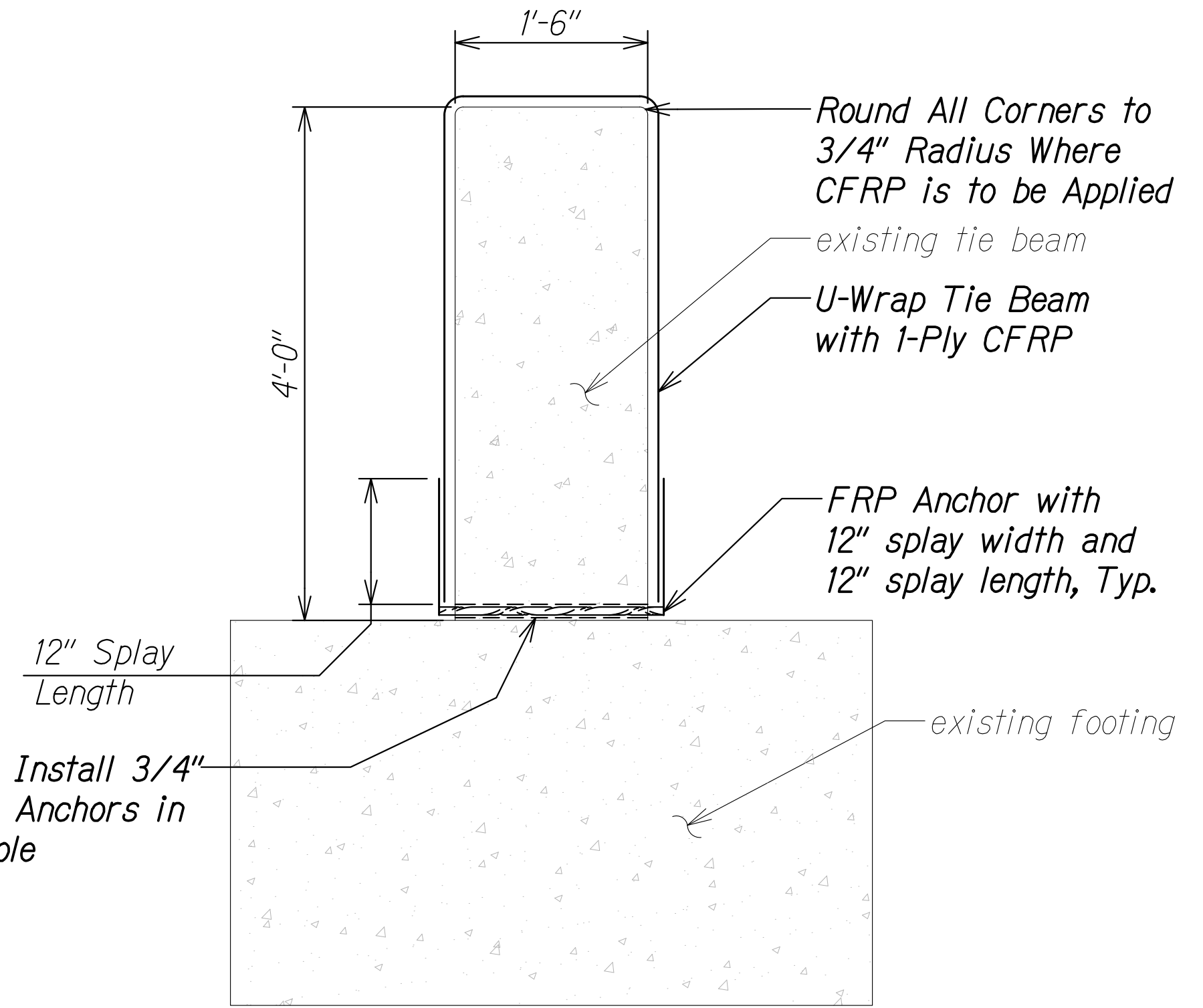
A
SA3.17 SA3.17



TYPE 3 SECTION

Scale: 1" = 1'-0"

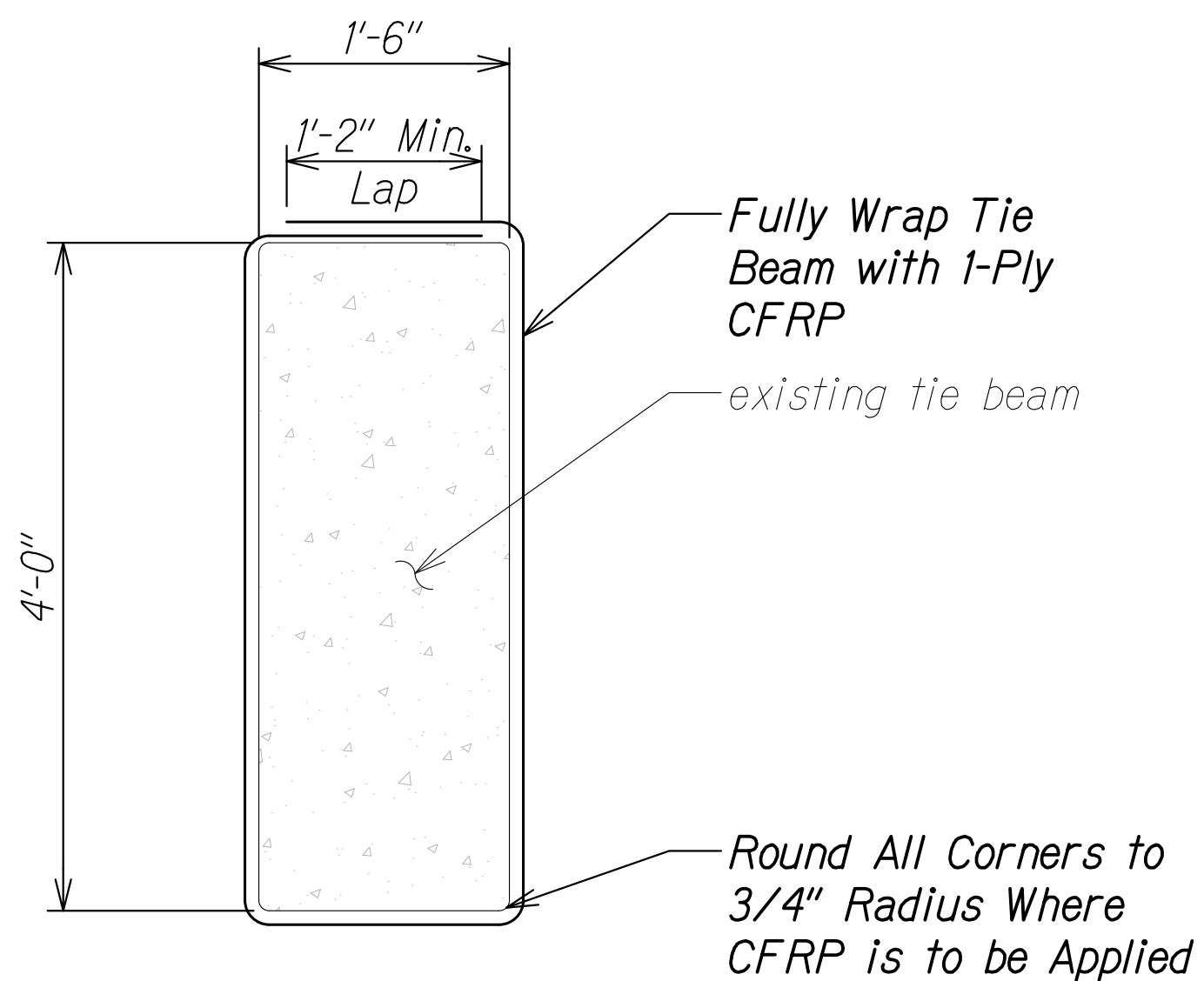
C
SA3.17 SA3.17



TYPE 4 SECTION

Scale: 1" = 1'-0"

D
SA3.17 SA3.17



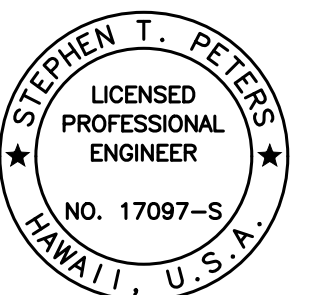
TYPE 2 SECTION

Scale: 1" = 1'-0"

B
SA3.17 SA3.17

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SA0306 WAIA BENT TIE BRDG PLOT TIME: 07-16-26, 1:01 PM



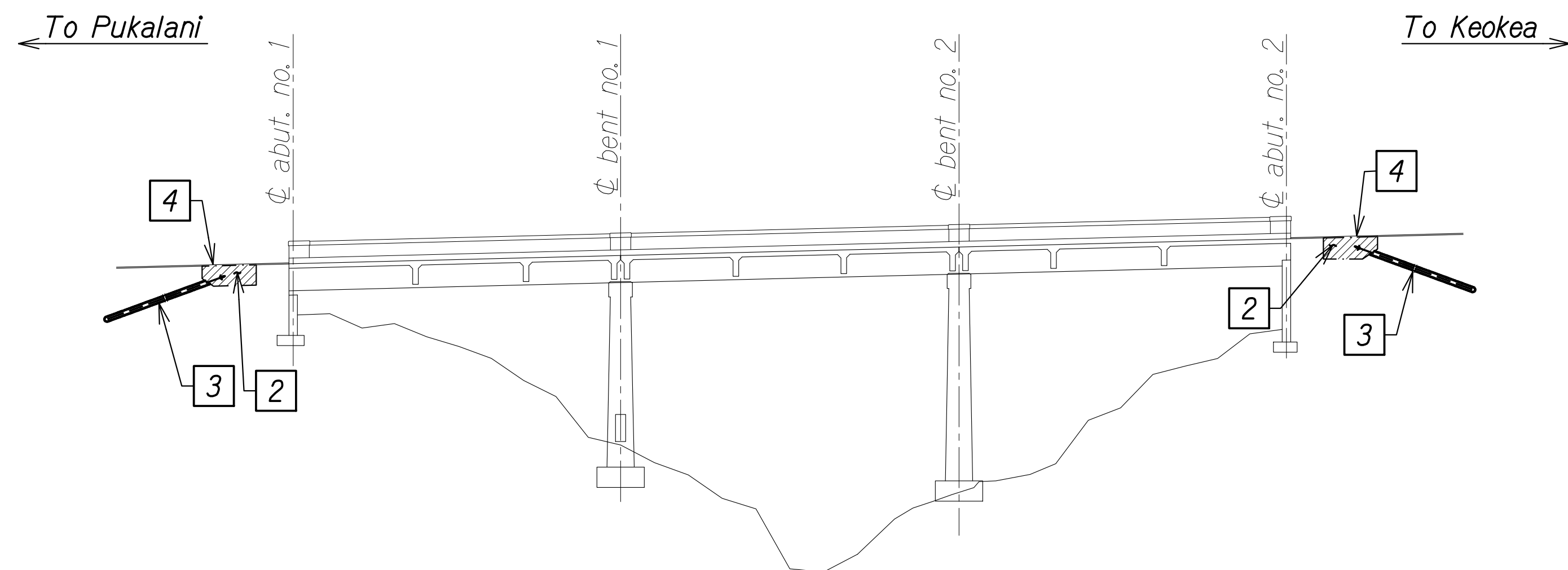
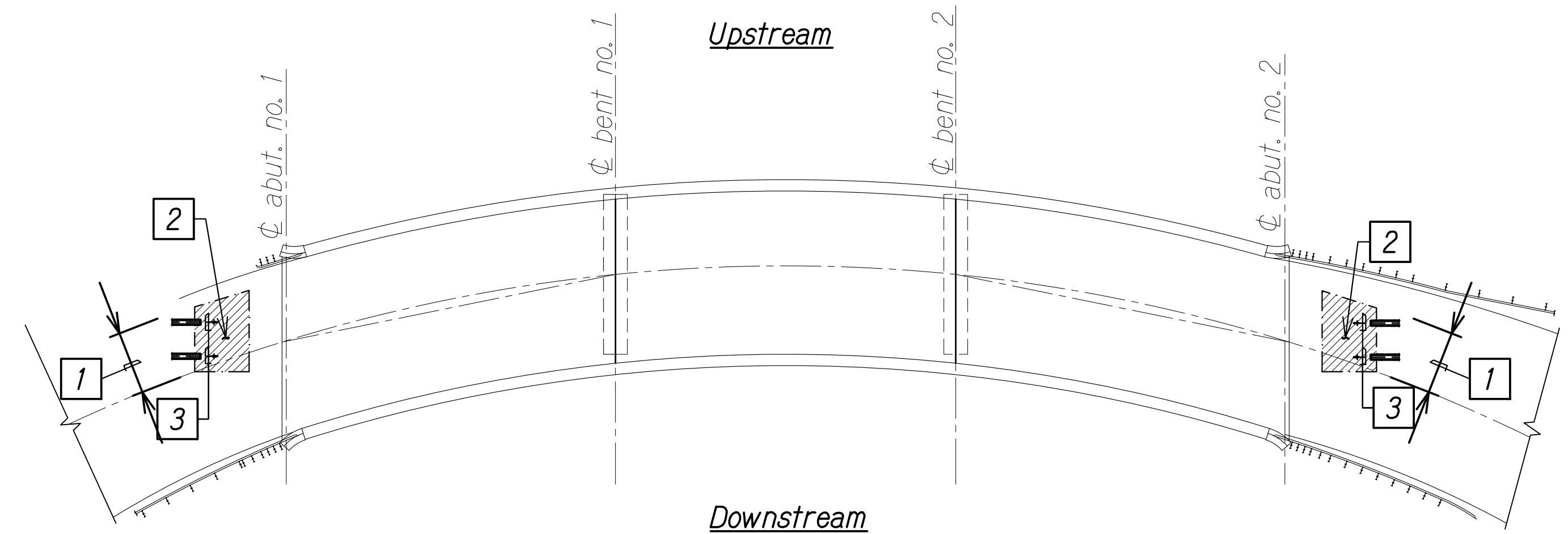
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: Stephen T. Peters
EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WAIALE GULCH BRIDGE
TIE BEAM CFRP DETAILS**
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Aiea (Naalea Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA3.17 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	86	131



CONSTRUCTION SEQUENCE - STAGE 1 (UPSTREAM CLOSURE)

Scale: 1/8" = 1'-0"

CONSTRUCTION STAGE 1 (UPSTREAM LANE CLOSURE)

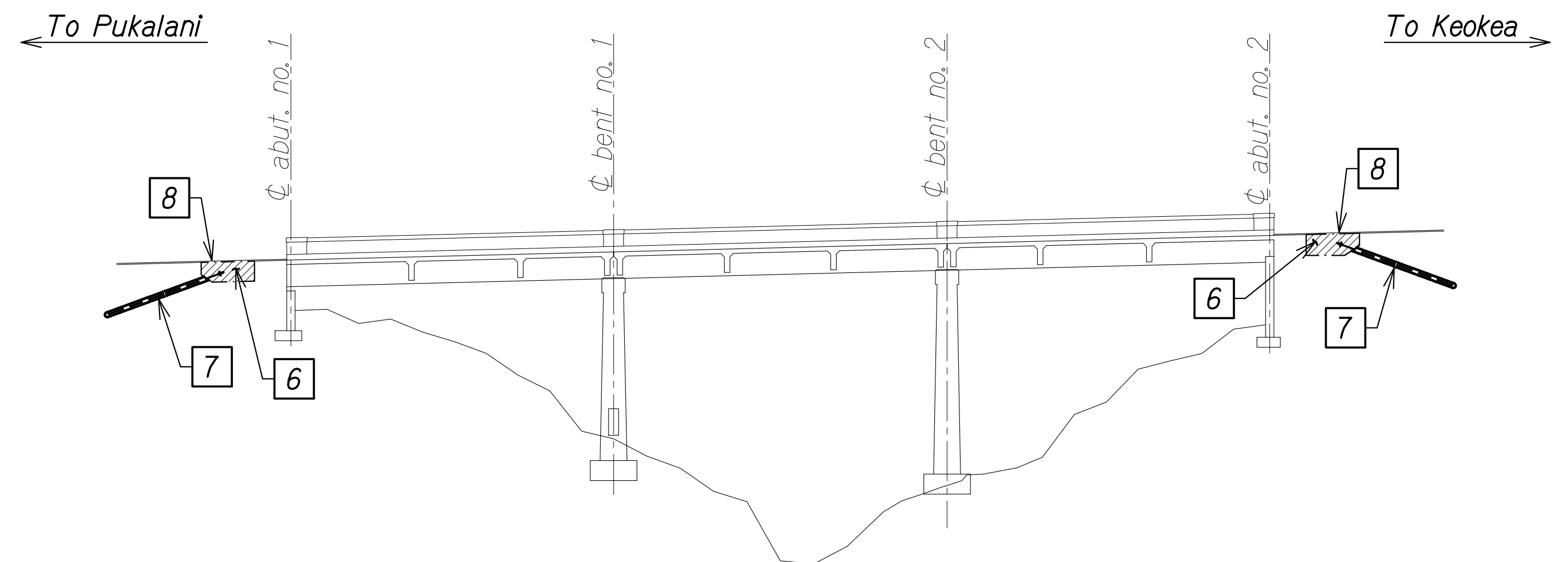
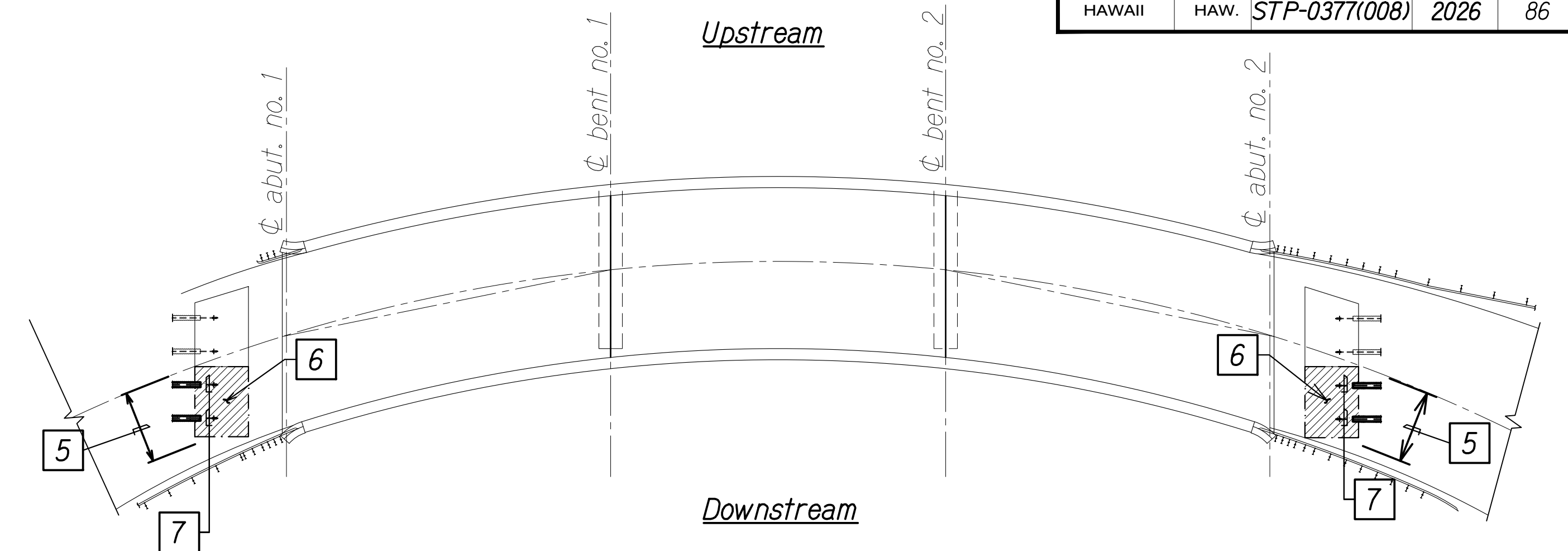
- 1 Install traffic control for Upstream side lane closure (see Civil drawings)
- 2 Excavate roadway on the backside of Abutments as needed
- 3 Drill, install soil nails, grout, and perform necessary proof testing in Upstream side lane
- 4 Install steel road plates over trench during non-working hours and open Upstream side lane to traffic

LEGEND

 Excavate and Dispose

NOTE:

1. Construction sequence is suggested. The Contractor may propose an alternative plan that allows for all work to be completed within the allotted full bridge closure timeframe.
2. Due to the curve in the bridge, the contractor will need to verify that drilling equipment does not affect vehicular traffic on the downstream side lane.
3. Pre-Production Sacrificial Soil Nail Installation and Testing Shall be completed prior to any Structure/Roadway Excavation.

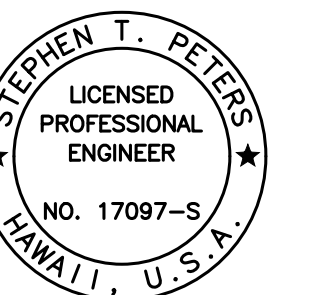


CONSTRUCTION SEQUENCE - STAGE 2 (DOWNSTREAM CLOSURE)

Scale: 1/8" = 1'-0"

CONSTRUCTION STAGE 2 (DOWNSTREAM LANE CLOSURE)

- 5 Install traffic control for Downstream side lane closure (See Civil drawings)
- 6 Excavate roadway on the backside of Abutments as needed
- 7 Drill, install soil nails, grout, and perform necessary proof testing in Downstream side lane
- 8 Install steel road plates over trench during non-working hours and open Downstream side lane to traffic



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SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

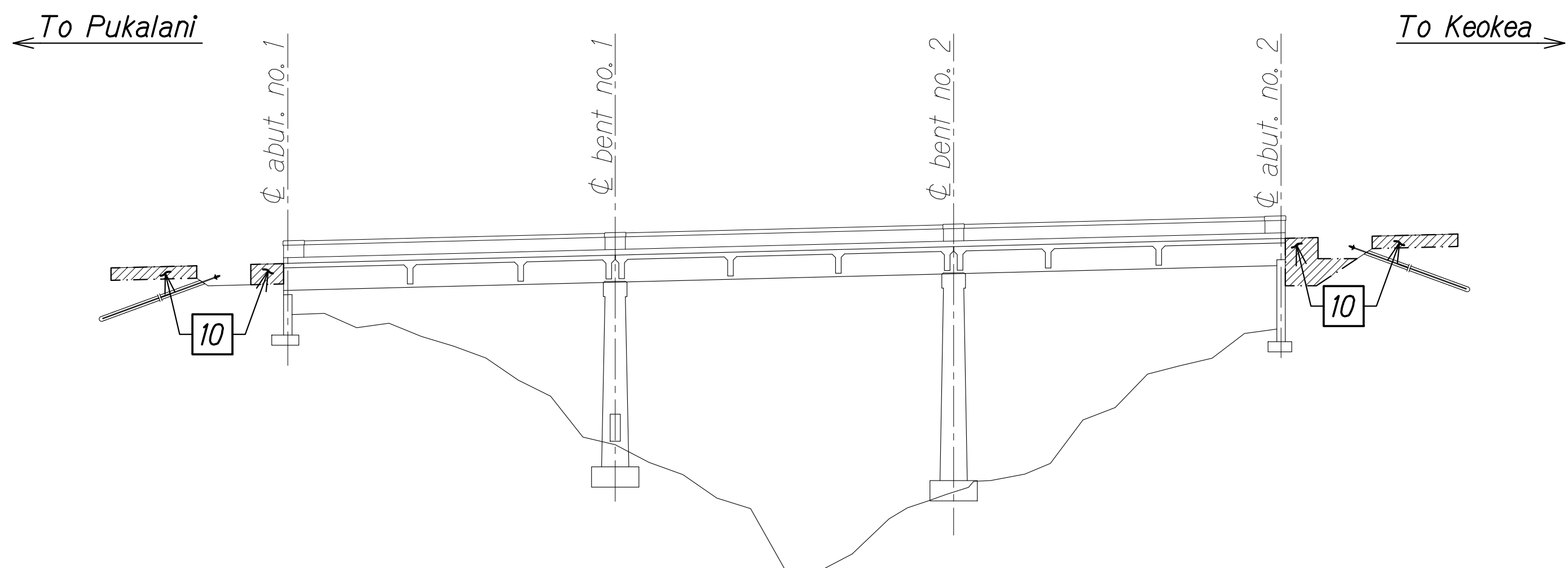
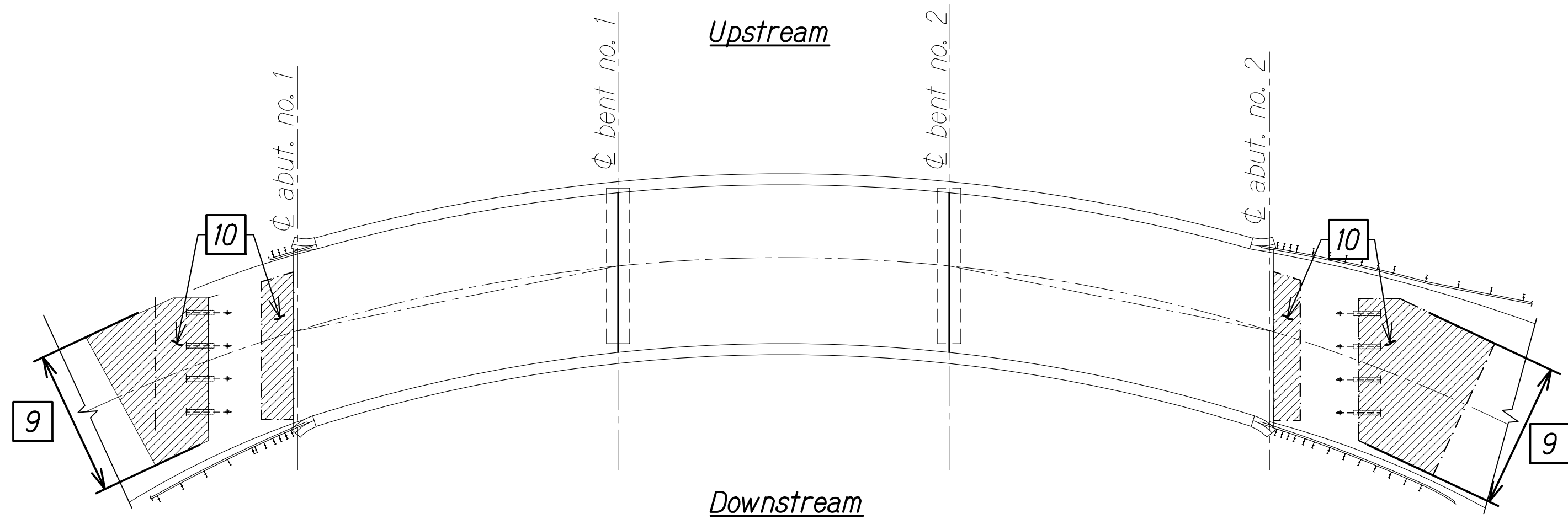
WAIALE GULCH BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. **SA41** OF **3** SHEETS

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

DRAWING NAME: Z-800 ONGOING22-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP) BID SET-3MB-SA401 WAI SECDWG PLOT TIME: 07-16-26 1:02 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	87	131



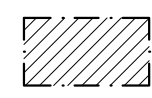
CONSTRUCTION SEQUENCE - STAGE 3 (FULL CLOSURE)

Scale: 1/8" = 1'-0"

CONSTRUCTION STAGE 3 (FULL BRIDGE CLOSURE)

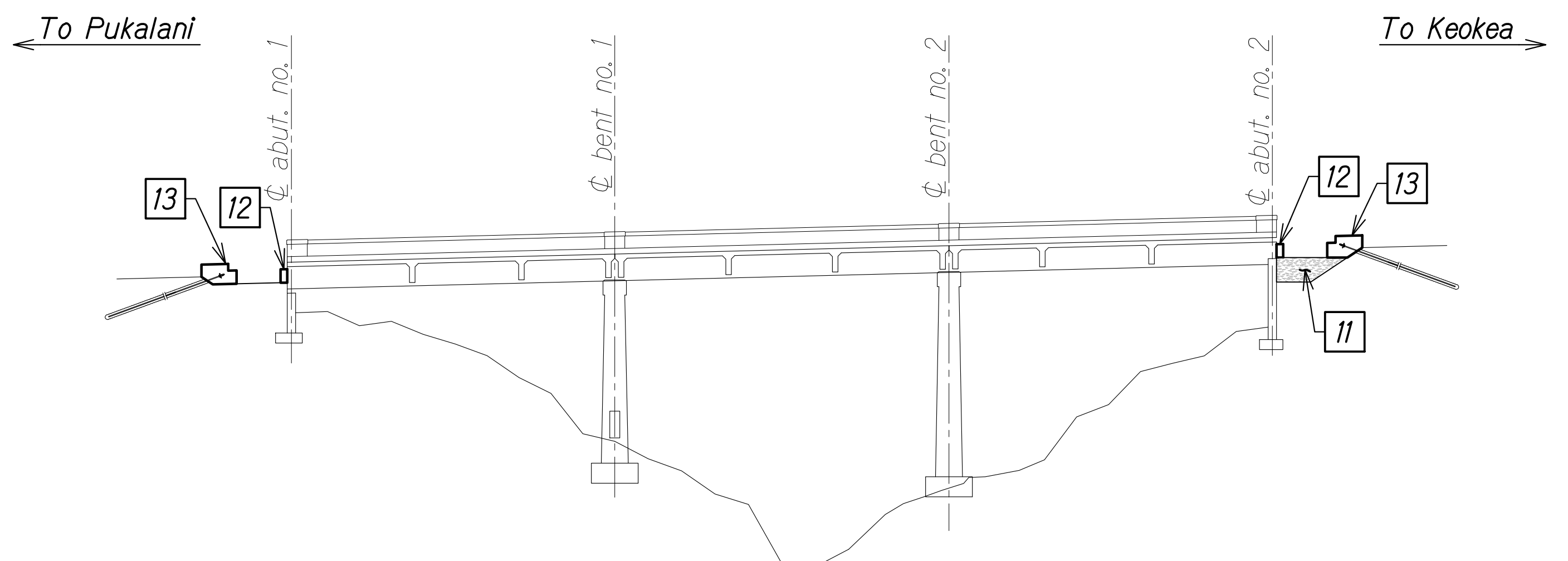
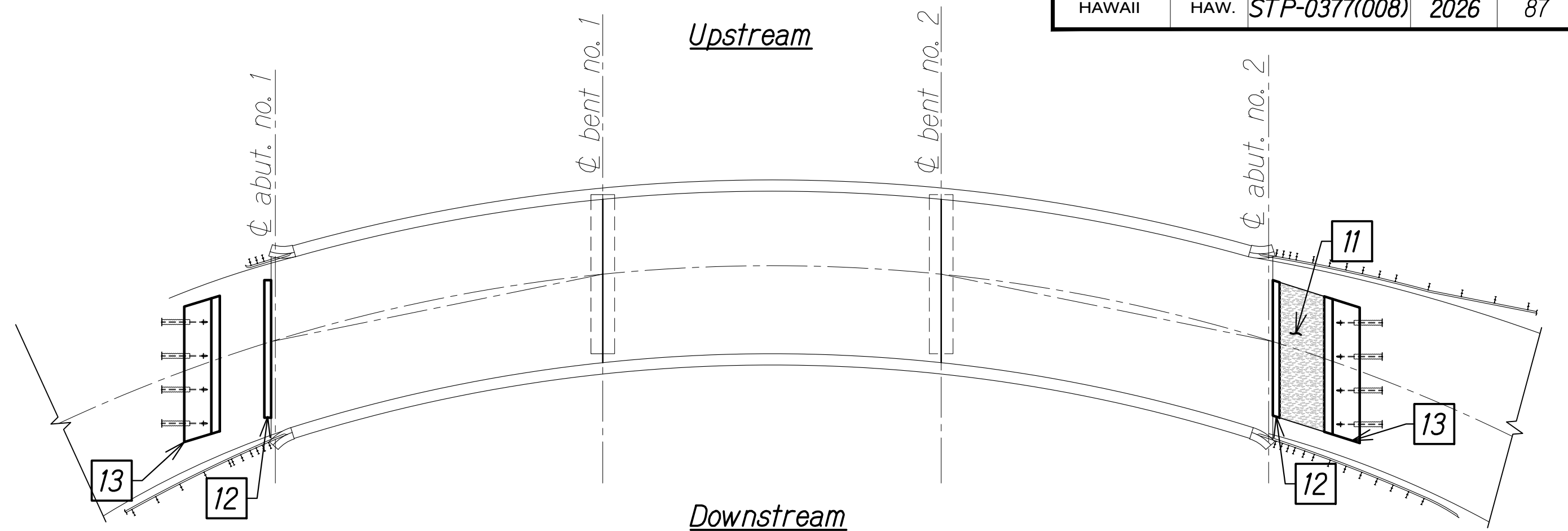
- 9 Install traffic control for full bridge closure
- 10 Excavate remaining roadway to limits as shown on contract drawings

LEGEND

-  Excavate and Dispose
-  LCC Backfill

NOTE:

During full bridge closure times, the Contractor shall perform all work at Abut. No. 1 and Abut. No. 2 simultaneously

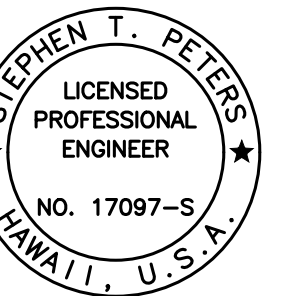


CONSTRUCTION SEQUENCE - STAGE 4 (FULL CLOSURE)

Scale: 1/8" = 1'-0"

CONSTRUCTION STAGE 4 (FULL BRIDGE CLOSURE)

- 11 Place LCC backfill to the bottom of the corbel and anchor beam
- 12 Drill and epoxy dowels, install reinforcing steel, and pour concrete corbel
- 13 Install reinforcing steel and pour concrete anchor beam



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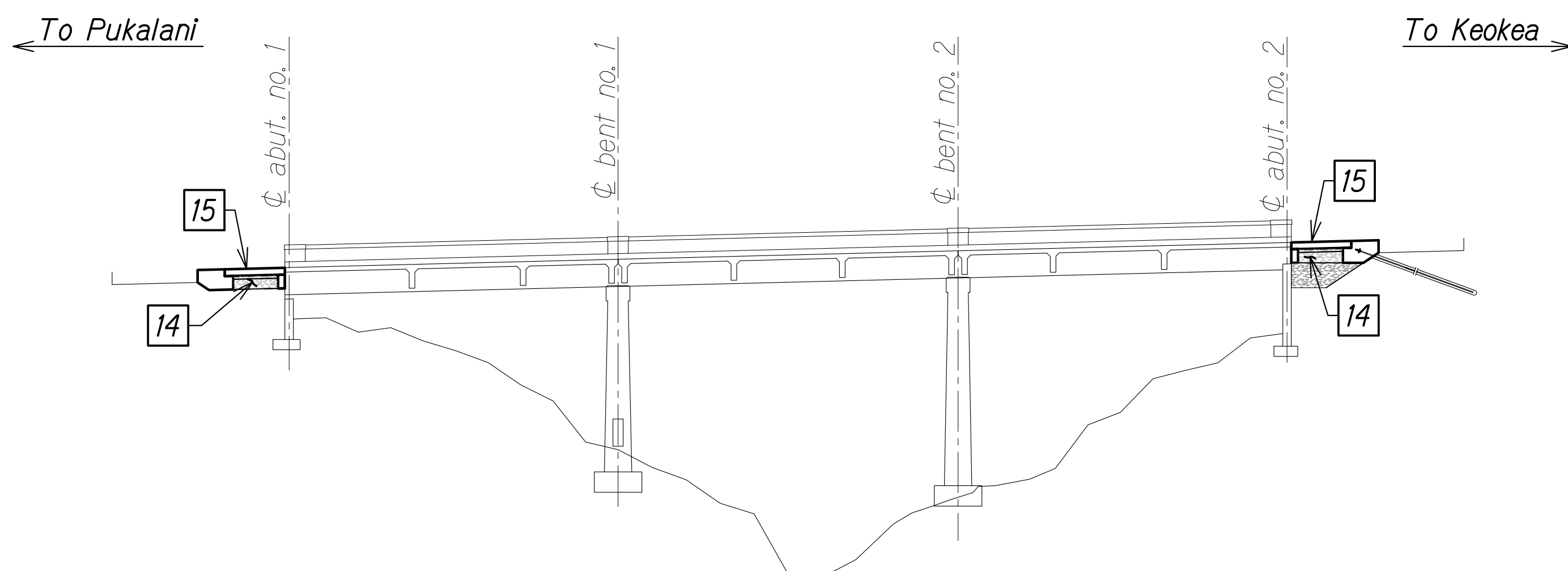
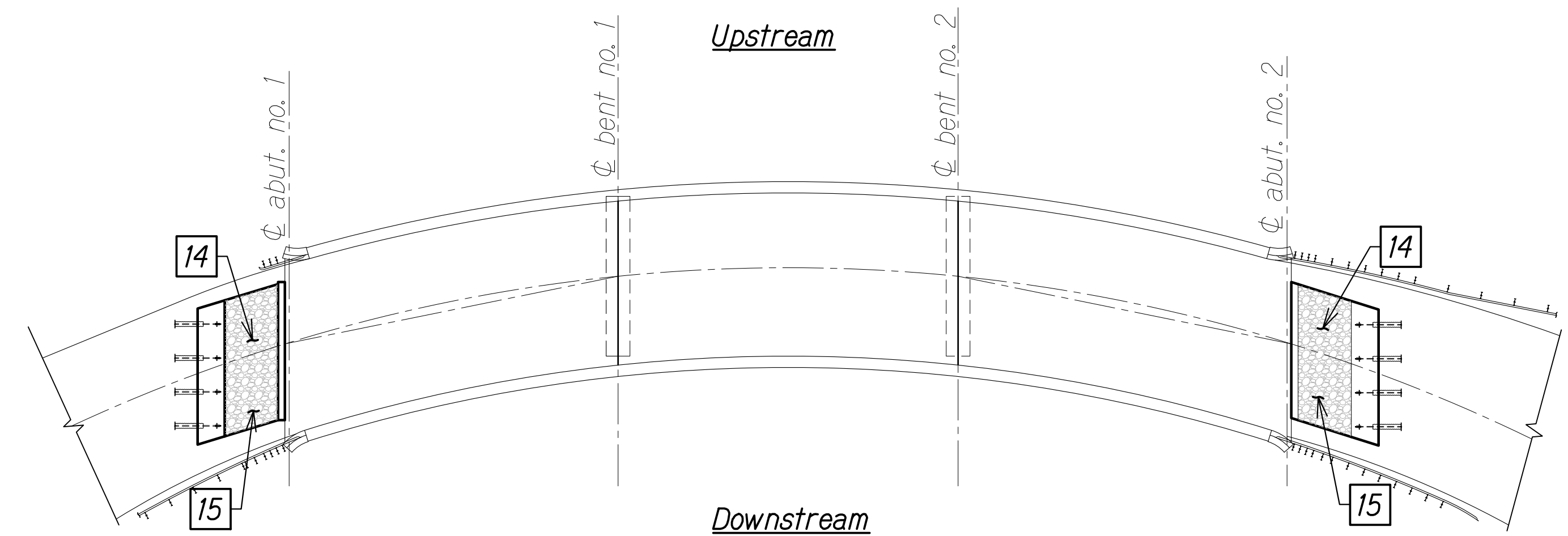
Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALE GULCH BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SA4.2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	88	131



CONSTRUCTION SEQUENCE - STAGE 5 (FULL CLOSURE)

Scale: 1/8" = 1'-0"

CONSTRUCTION STAGE 5 (FULL BRIDGE CLOSURE)

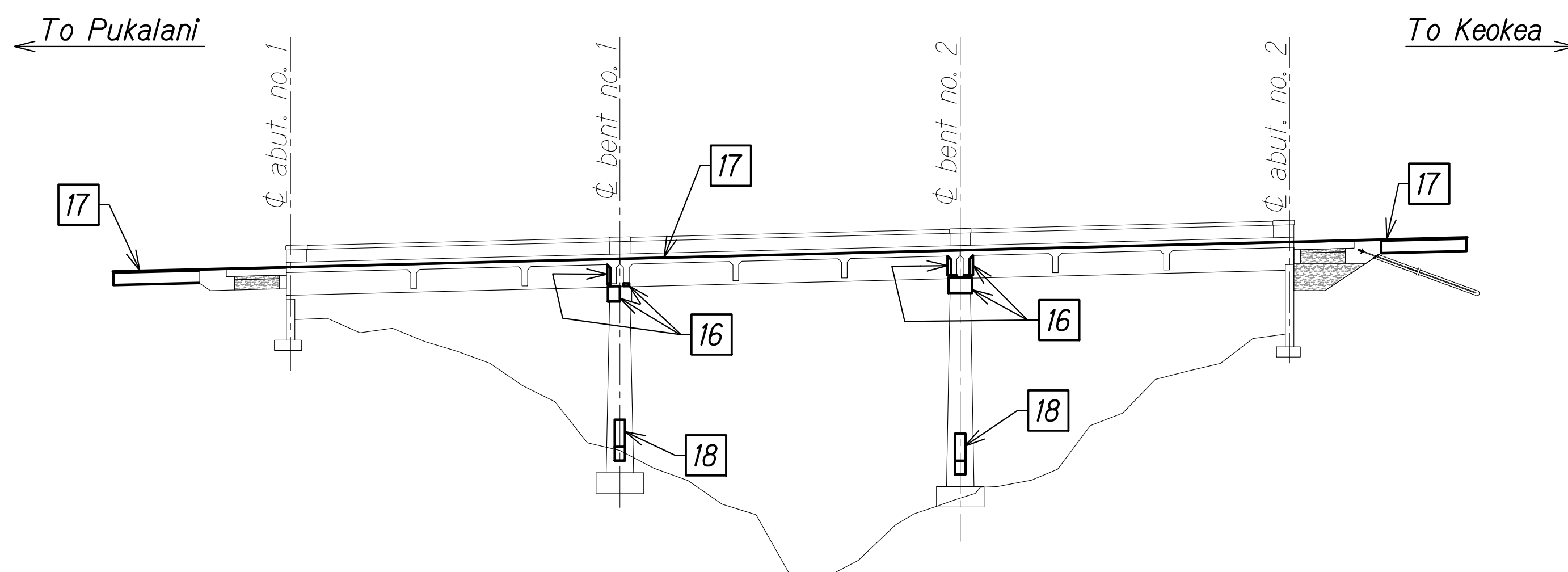
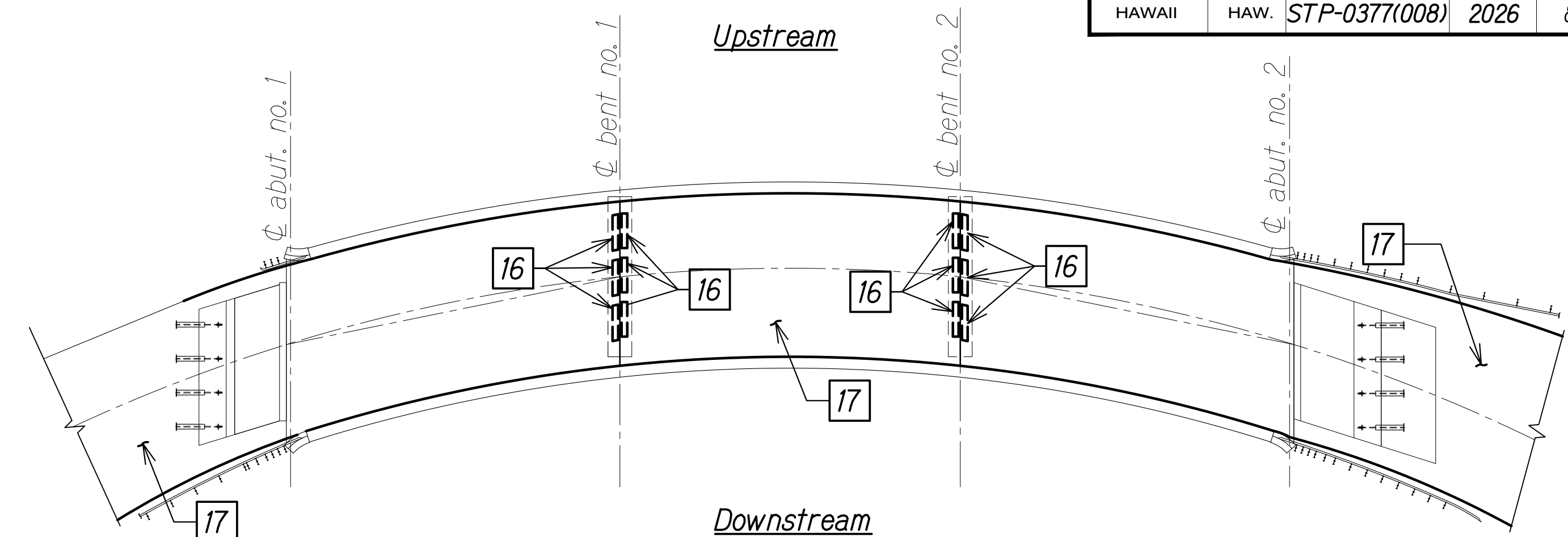
- 14 Place remaining LCC backfill and aggregate base course beneath tie slab
- 15 Install reinforcing steel and pour concrete tie slab

LEGEND

- LCC Backfill
- Base Course

NOTE:

During full bridge closure times, the Contractor shall perform all work at Abut. No. 1 and Abut. No. 2 simultaneously

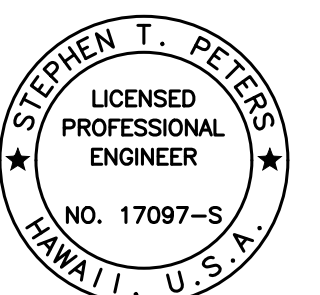


CONSTRUCTION SEQUENCE - STAGE 6 (FULL CLOSURE)

Scale: 1/8" = 1'-0"

CONSTRUCTION STAGE 6 (FULL BRIDGE CLOSURE)

- 16 Demolish exist. bearings, jack and shore the bridge, install reinforcing steel, and pour concrete diaphragms and creep blocks
- 17 Reconstruct roadway pavement sections and place PMA pavement across bridge deck (See Civil Drawings)
- 18 Install FRP reinforcing at tie beams (This work may be performed during times outside of full bridge closure)



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SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

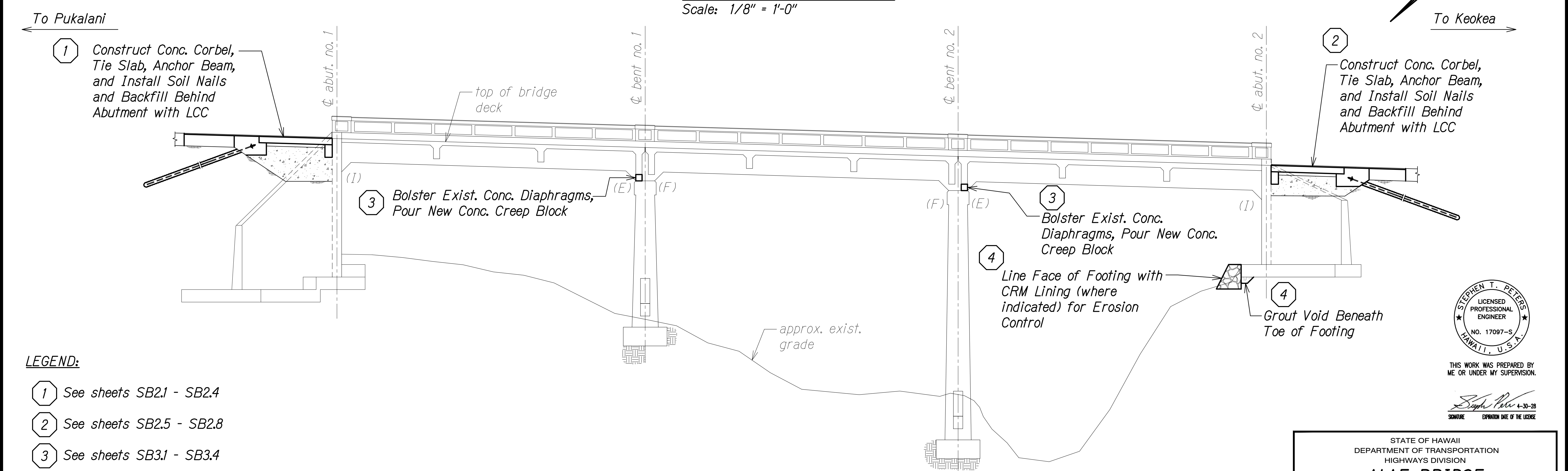
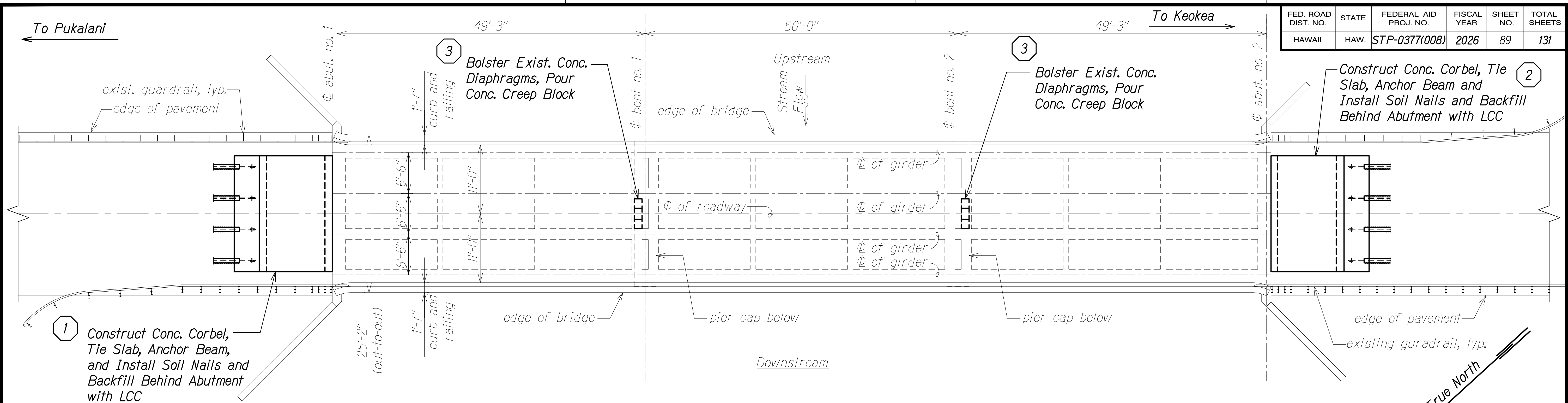
WAIALE GULCH BRIDGE
CONSTRUCTION SEQUENCE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

SHEET No. SA4.3 OF 3 SHEETS

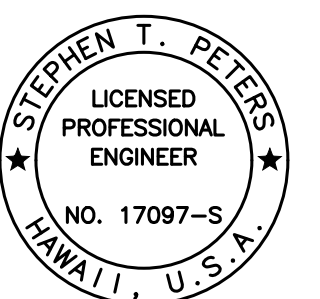
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	89	131



LEGEND:

- 1 See sheets SB2.1 - SB2.4
- 2 See sheets SB2.5 - SB2.8
- 3 See sheets SB3.1 - SB3.4
- 4 See sheet SB4.1

- (I) Integral Abutment
- (E) Expansion Bearing
- (F) Fixed Bearing



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Signature: *Stephen T. Peters*
Date: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
PLAN AND LONG. SECTION

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

SHEET No. **SBI.1** OF **1** SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	90	131

NOTE:

Structure excavation line is shown for reference only. The Contractor shall be responsible for methods of excavation at the abutment to maintain a stable cut face and to avoid undermining the existing metal guardrails. Existing granular backfill material shall be anticipated. Temporary shoring/bracing necessary to perform work shall be taken into consideration at the time of bid.

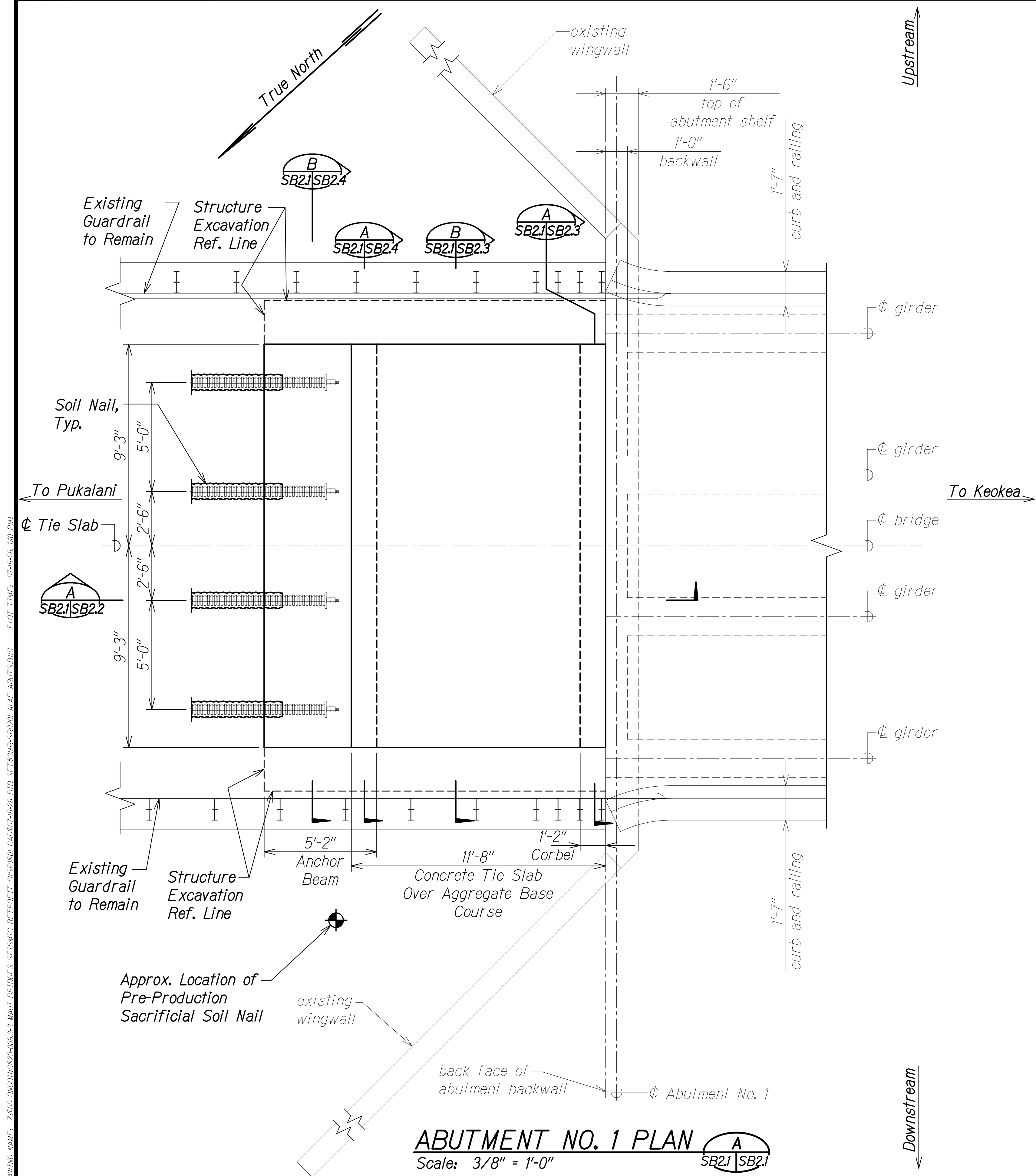
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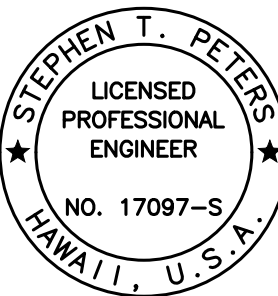
Pre-Production Sacrificial Soil Nail

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SB201 ALAE ABUTS.DWG PLOT TIME: 07-16-26 1:00 PM

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



ABUTMENT NO. 1 PLAN
Scale: 3/8" = 1'-0"



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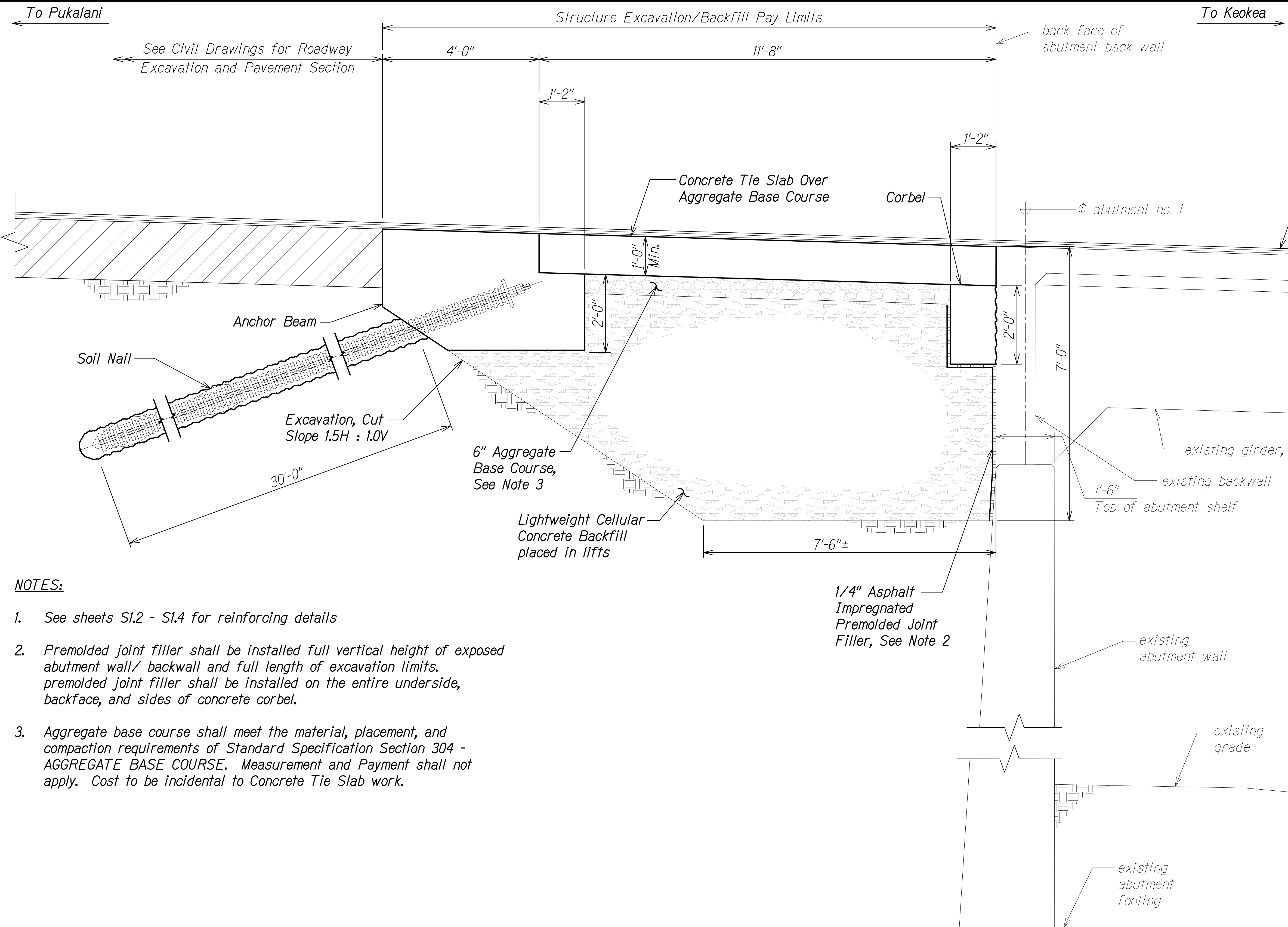
SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
ABUTMENT NO. 1 PLAN

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	91	131

- NOTES:**
- See sheets S1.2 - S1.4 for reinforcing details
 - Premolded joint filler shall be installed full vertical height of exposed abutment wall/ backwall and full length of excavation limits. premolded joint filler shall be installed on the entire underside, backface, and sides of concrete corbel.
 - Aggregate base course shall meet the material, placement, and compaction requirements of Standard Specification Section 304 - AGGREGATE BASE COURSE. Measurement and Payment shall not apply. Cost to be incidental to Concrete Tie Slab work.

SECTION
Scale: 3/4" = 1'-0" **SB2.1** **SB2.2**

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
ABUTMENT NO. 1 SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

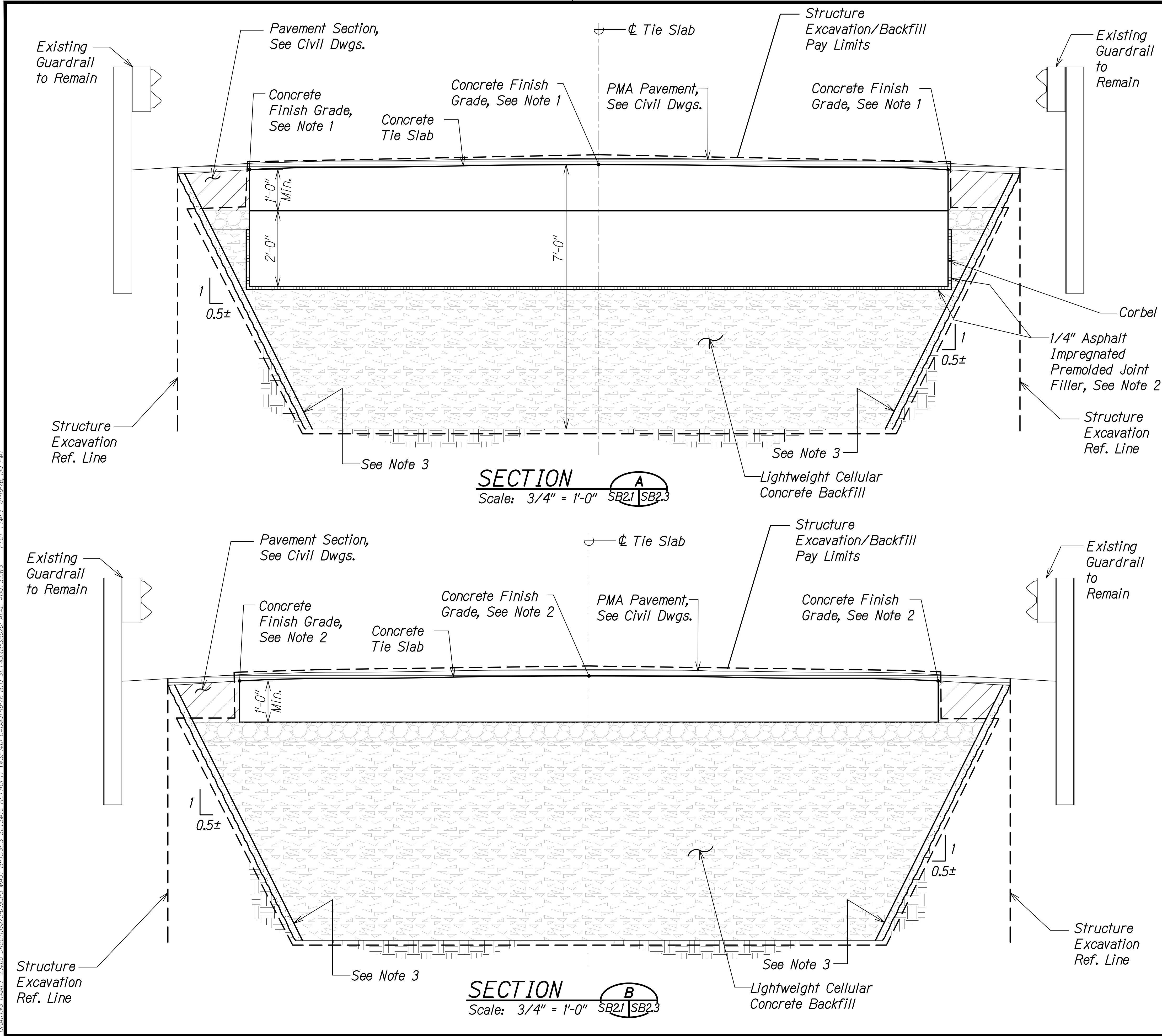
SHEET No. **SB2.2** OF **8** SHEETS

STEPHEN T. PETERS
LICENSED PROFESSIONAL ENGINEER
NO. 17097-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
SIGNATURE EXPIRATION DATE OF THE LICENSE

ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

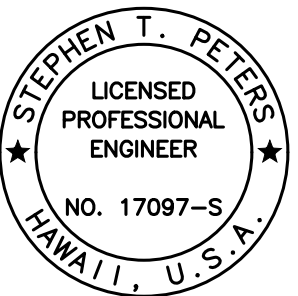
DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)001 CAD\$07-16-26 BID SET\$3MB-SB201 ALAE ABUTS.DWG PLOT TIME: 07-16-26 1:00 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	92	131



NOTES:

1. Top of concrete tie slab shall be constructed with a parabolic crown. Finish grade shall match top of concrete bridge deck.
2. Top of concrete tie slab finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
3. A flash coat of shotcrete shall be applied on the face of the cut slope in front of the guard rails. Additional efforts to stabilize or brace the face shall be the responsibility of the Contractor.
4. Premolded joint filler shall be installed on the entire underside, backface, and sides of concrete corbel.



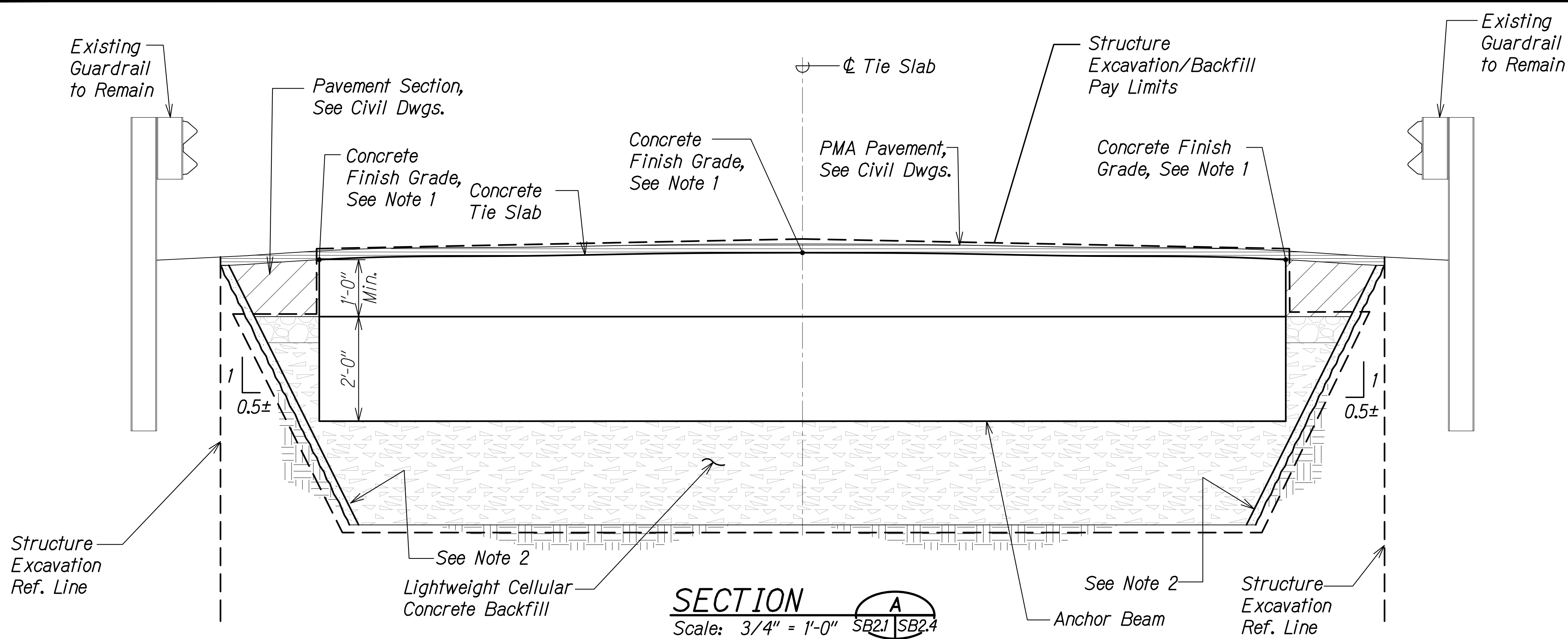
THIS WORK WAS PREPARED BY
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Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ALAE BRIDGE
ABUTMENT NO. 1 SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

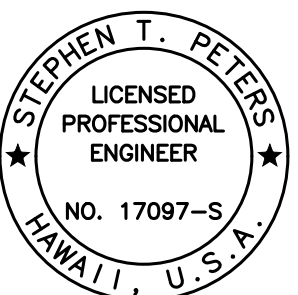
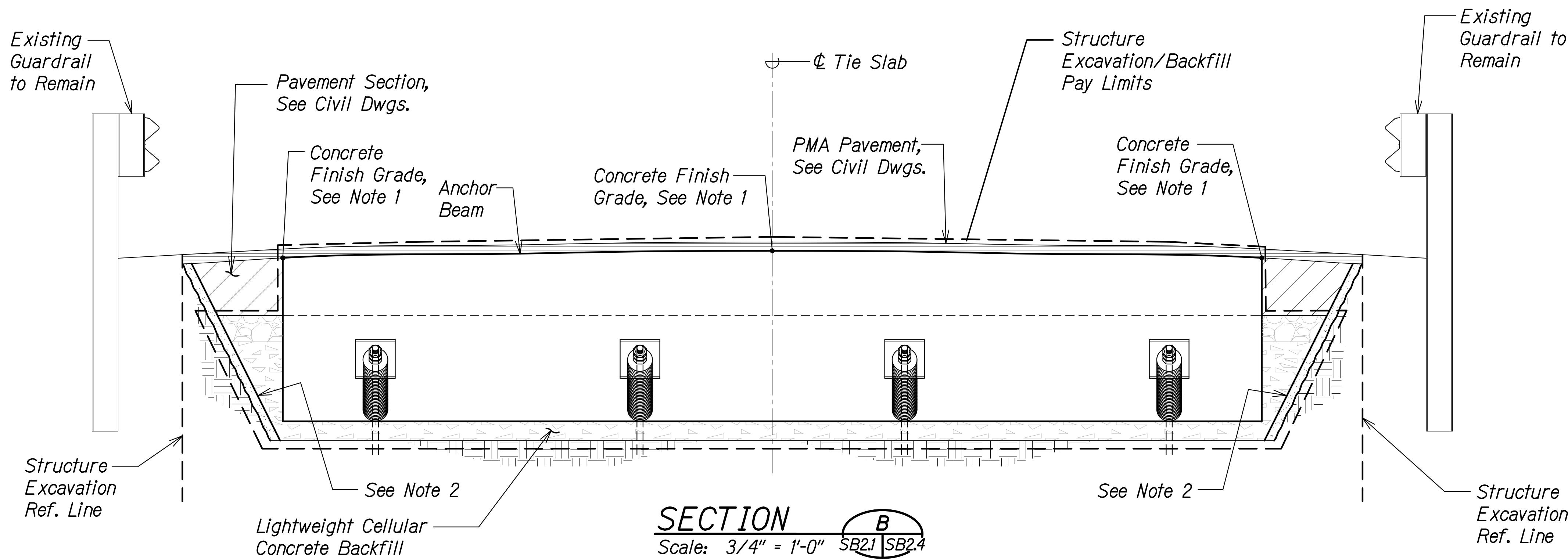
SHEET No. SB2.3 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	93	131



NOTES:

- Top of concrete tie slab/anchor beam finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
- A flash coat of shotcrete shall be applied on the face of the cut slope in front of the guard rails. Additional efforts to stabilize or brace the face shall be the responsibility of the Contractor.



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Signature: *Stephen T. Peters* 4-30-28
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
ALAE BRIDGE
ABUTMENT NO. 1 SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
 Scale: As Noted Date: July 2026

SHEET No. SB2.4 OF 8 SHEETS

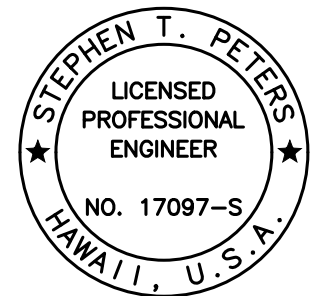
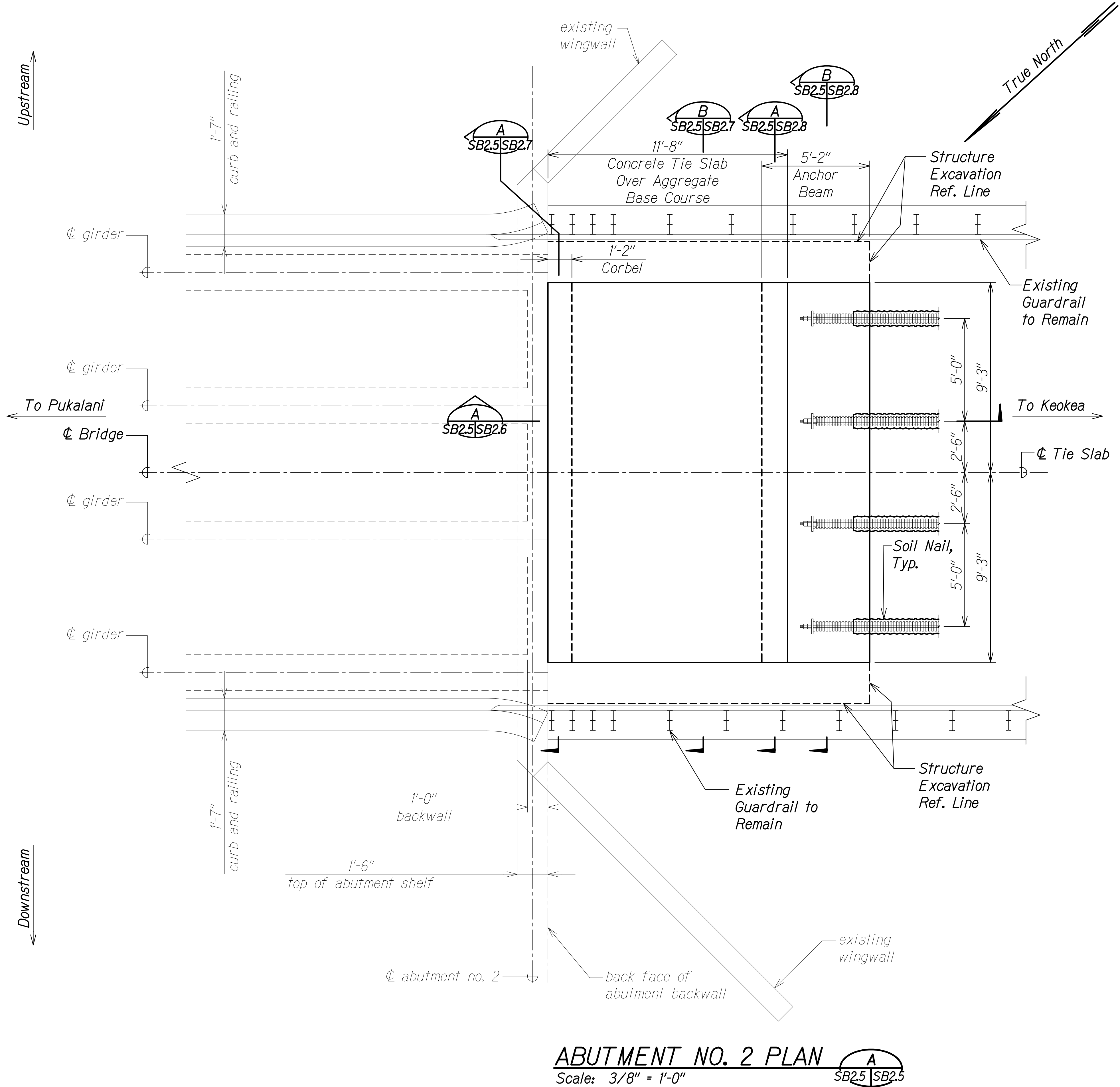
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	94	131

NOTE:

Structure excavation line is shown for reference only. The Contractor shall be responsible for methods of excavation at the abutment to maintain a stable cut face and to avoid undermining the existing metal guardrails. Existing granular backfill material shall be anticipated. Temporary shoring/bracing necessary to perform work shall be taken into consideration at the time of bid.

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SB201 ALAE ABUTS.DWG PLOT TIME: 07-16-26 101 PM

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



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Signature: *Stephen T. Peters*
EXPIRATION DATE OF THE LICENSE: 4-30-28

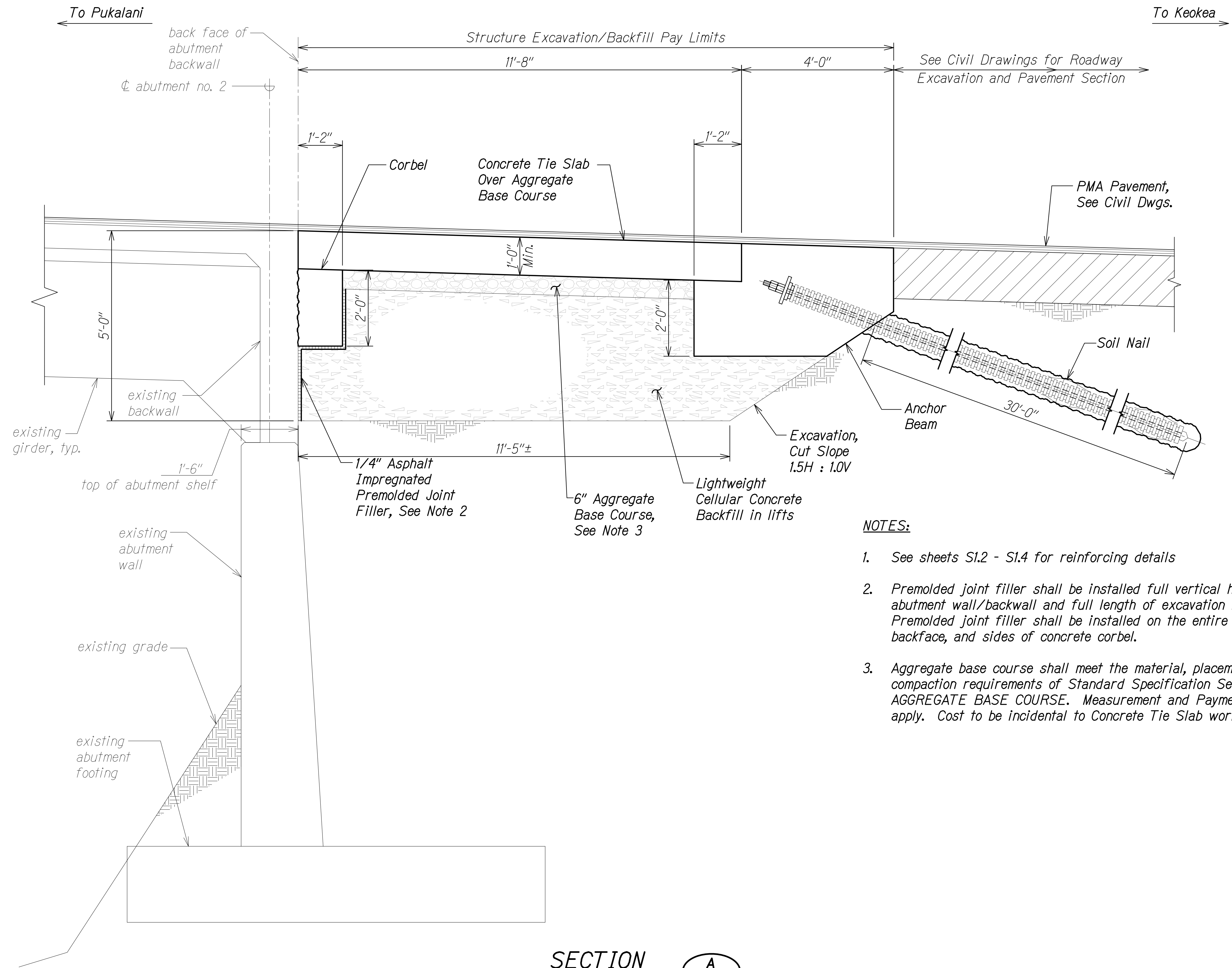
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
ABUTMENT NO. 2 PLAN

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

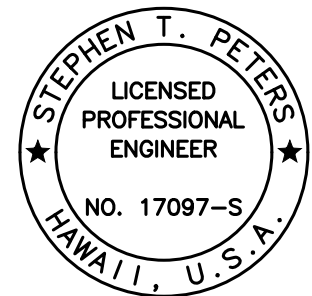
Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	95	131



NOTES:

1. See sheets S1.2 - S1.4 for reinforcing details
2. Premolded joint filler shall be installed full vertical height of exposed abutment wall/backwall and full length of excavation limits. Premolded joint filler shall be installed on the entire underside, backface, and sides of concrete corbel.
3. Aggregate base course shall meet the material, placement, and compaction requirements of Standard Specification Section 304 - AGGREGATE BASE COURSE. Measurement and Payment shall not apply. Cost to be incidental to Concrete Tie Slab work.



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SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
ABUTMENT NO. 2 SECTION

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

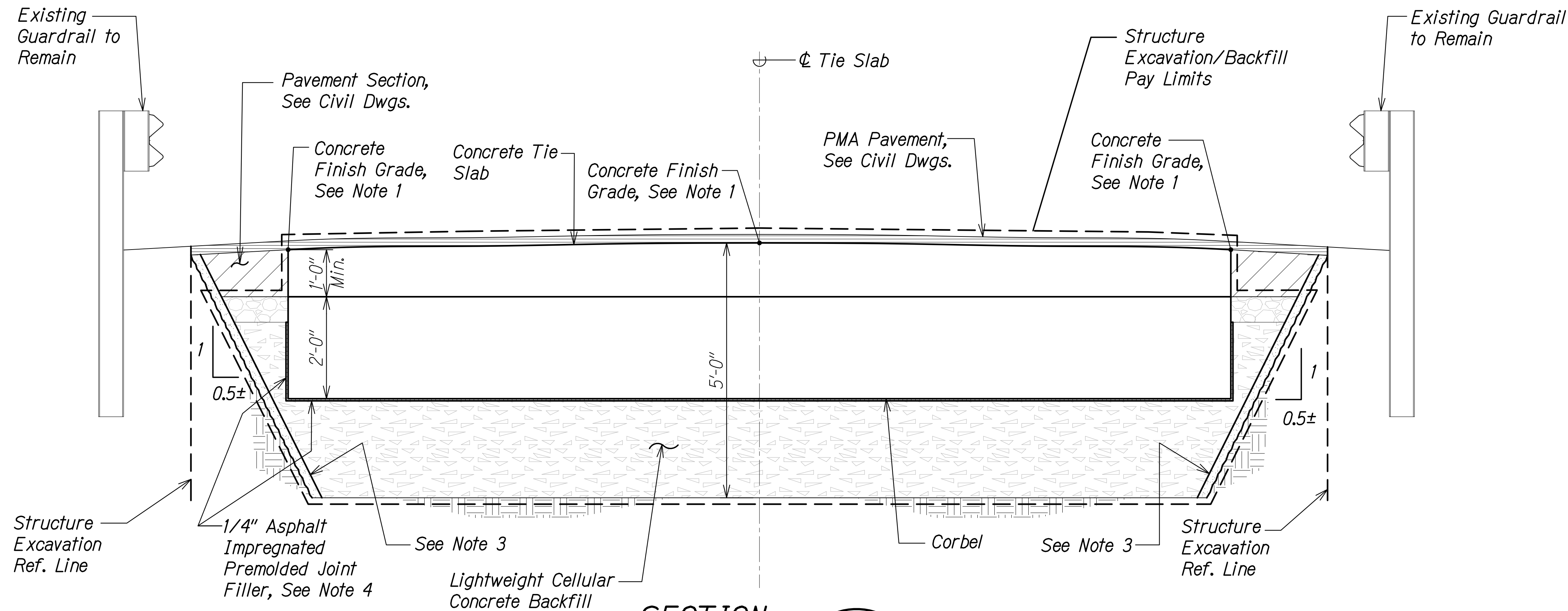
Scale: As Noted Date: July 2026

SECTION A
Scale: 3/4" = 1'-0" SB2.5 | SB2.6

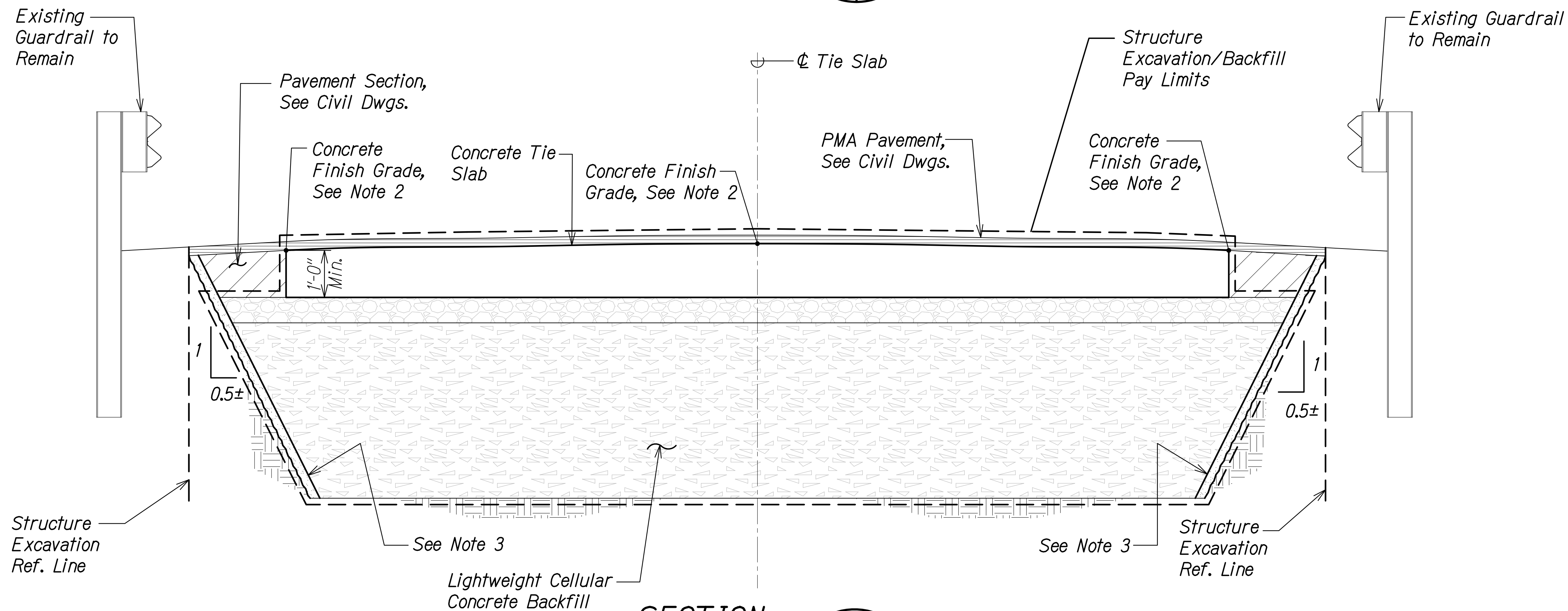
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\800 ONGOING\23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT\INSP\801 CAD\807-16-26 BID SET\3MB-SB201 ALAE ABUTS.DWG PLOT TIME: 07-16-26 101 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	96	131

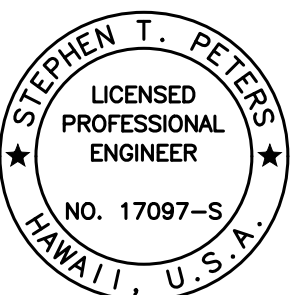


SECTION A
Scale: 3/4" = 1'-0" SB2.5 | SB2.7



SECTION B
Scale: 3/4" = 1'-0" SB2.5 | SB2.7

- NOTES:**
- Top of concrete tie slab shall be constructed with a parabolic crown. Finish grade shall match top of concrete bridge deck.
 - Top of concrete tie slab finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
 - A flash coat of shotcrete shall be applied on the face of the cut slope in front of the guard rails. Additional efforts to stabilize or brace the face shall be the responsibility of the Contractor.
 - Premolded joint filler shall be installed on the entire underside, backface, and sides of concrete corbel.



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SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
ABUTMENT NO. 2 SECTIONS

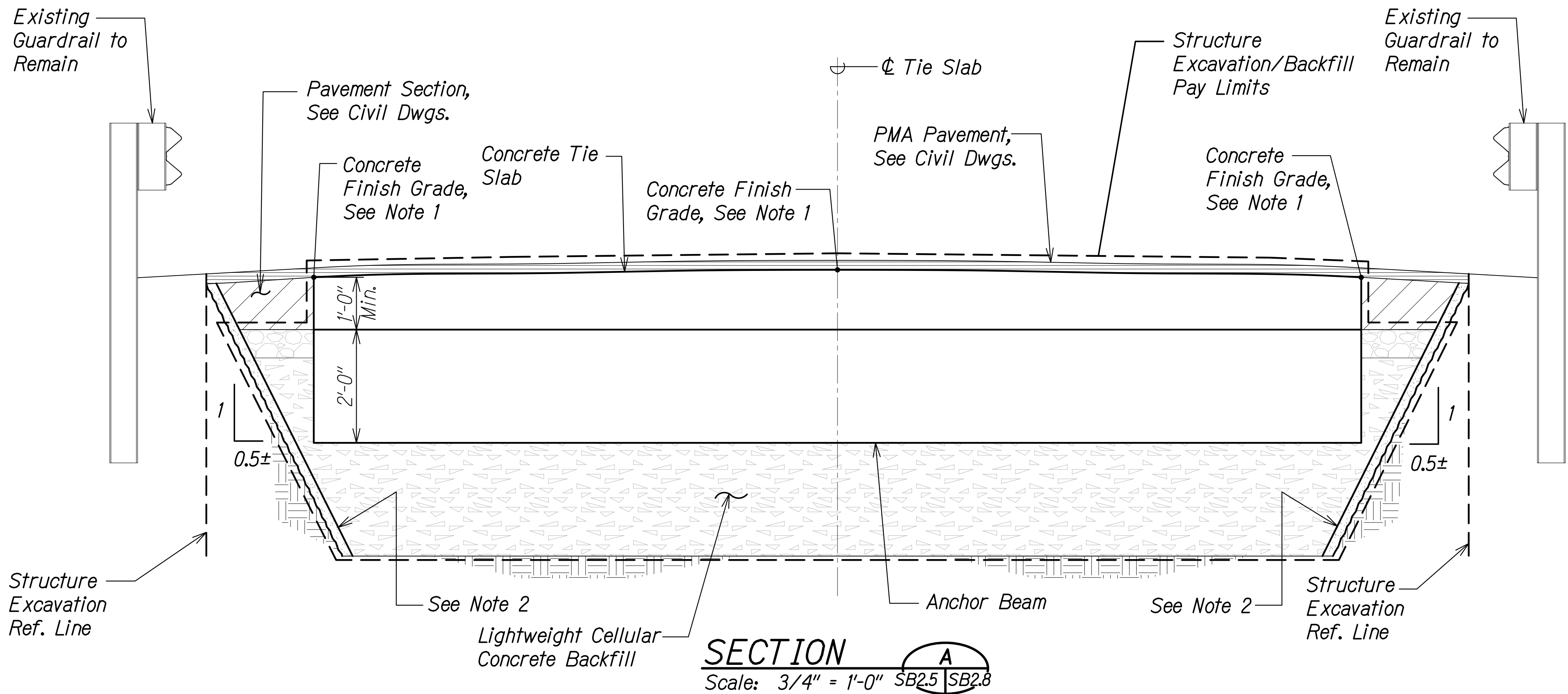
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	97	131

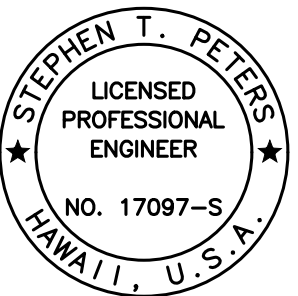
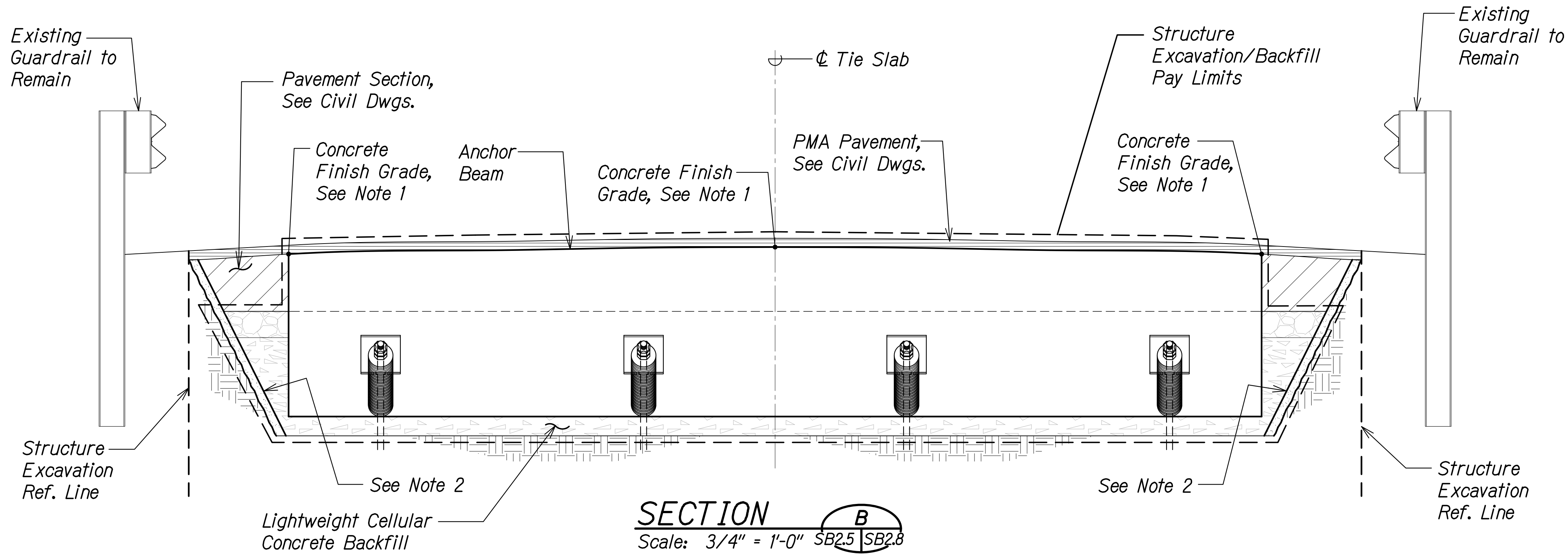
DRAWING NAME: Z-800 ONGOING SB2.5-3.3 MAUI BRIDGES SEISMIC RETROFIT (NSP) CAD\$07-16-26 BID SET\$3MB-SB2.5 ALAE ABUT.DWG PLOT TIME: 07-16-26 10:2 PM

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



NOTES:

1. Top of concrete tie slab/anchor beam finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
2. A flash coat of shotcrete shall be applied on the face of the cut slope in front of the guard rails. Additional efforts to stabilize or brace the face shall be the responsibility of the Contractor.



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SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

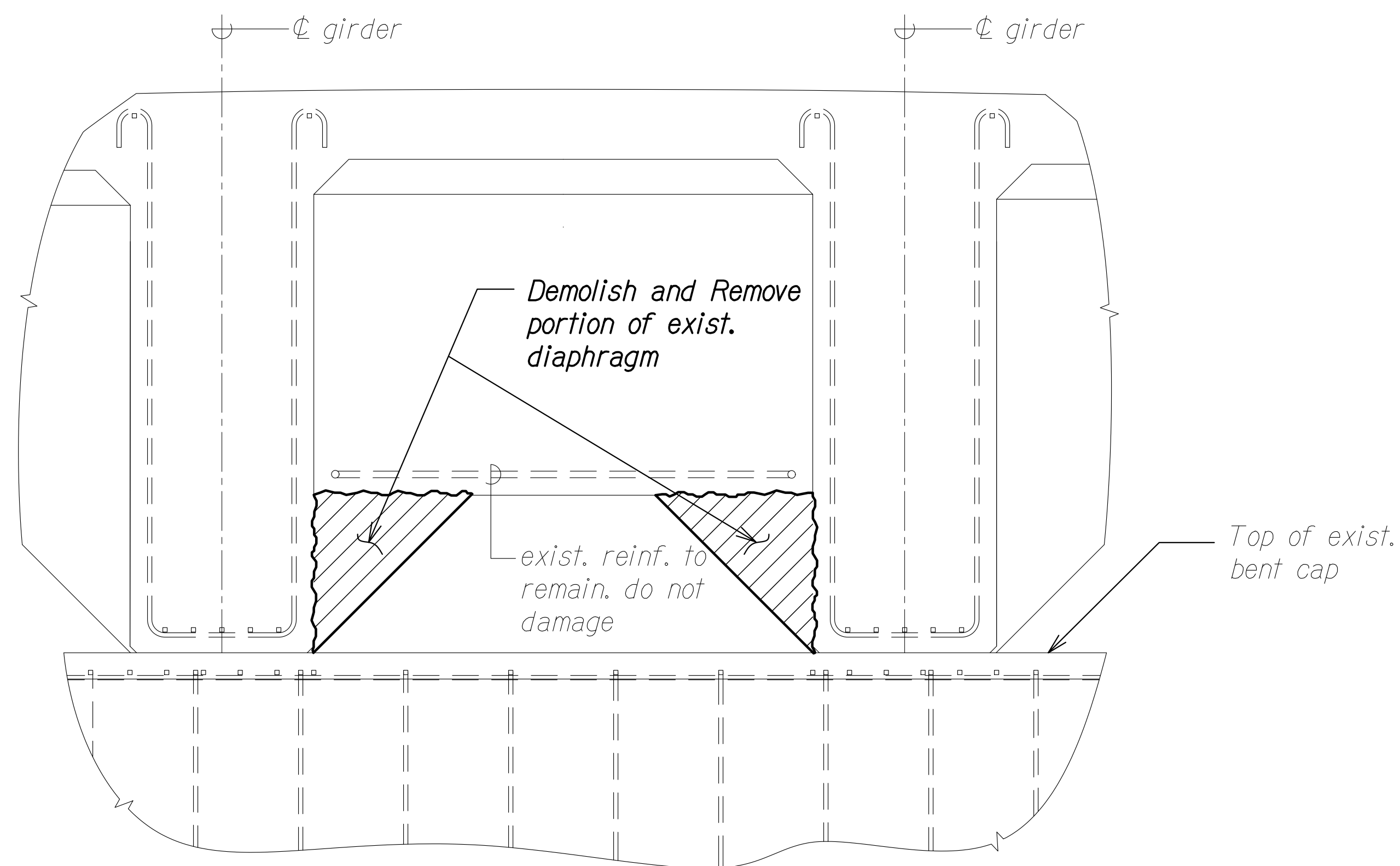
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE
ABUTMENT NO. 2 SECTIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

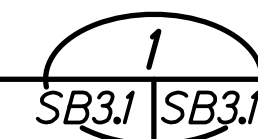
Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	98	131



**DIAPHRAGM
DEMOLITION DETAIL**

Scale: 1" = 1'-0"

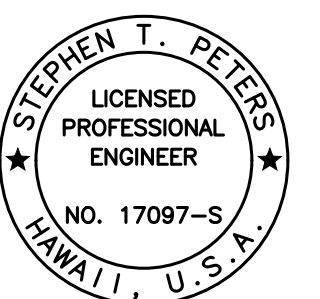


NOTE:

- Demolition work shall be performed with no greater than 15-lb pneumatic demolition hammer
- Roughen exist. concrete surfaces to 1/4" amplitude
- The Contractor shall inform the Engineer if Reinforcing Steel is Encountered that is not shown on the plans.

LEGEND:

 Demolish and Remove



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

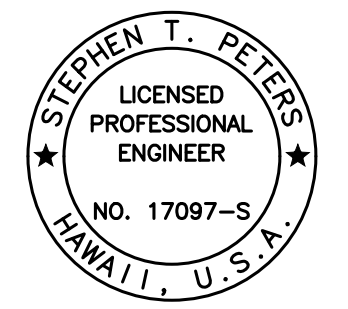
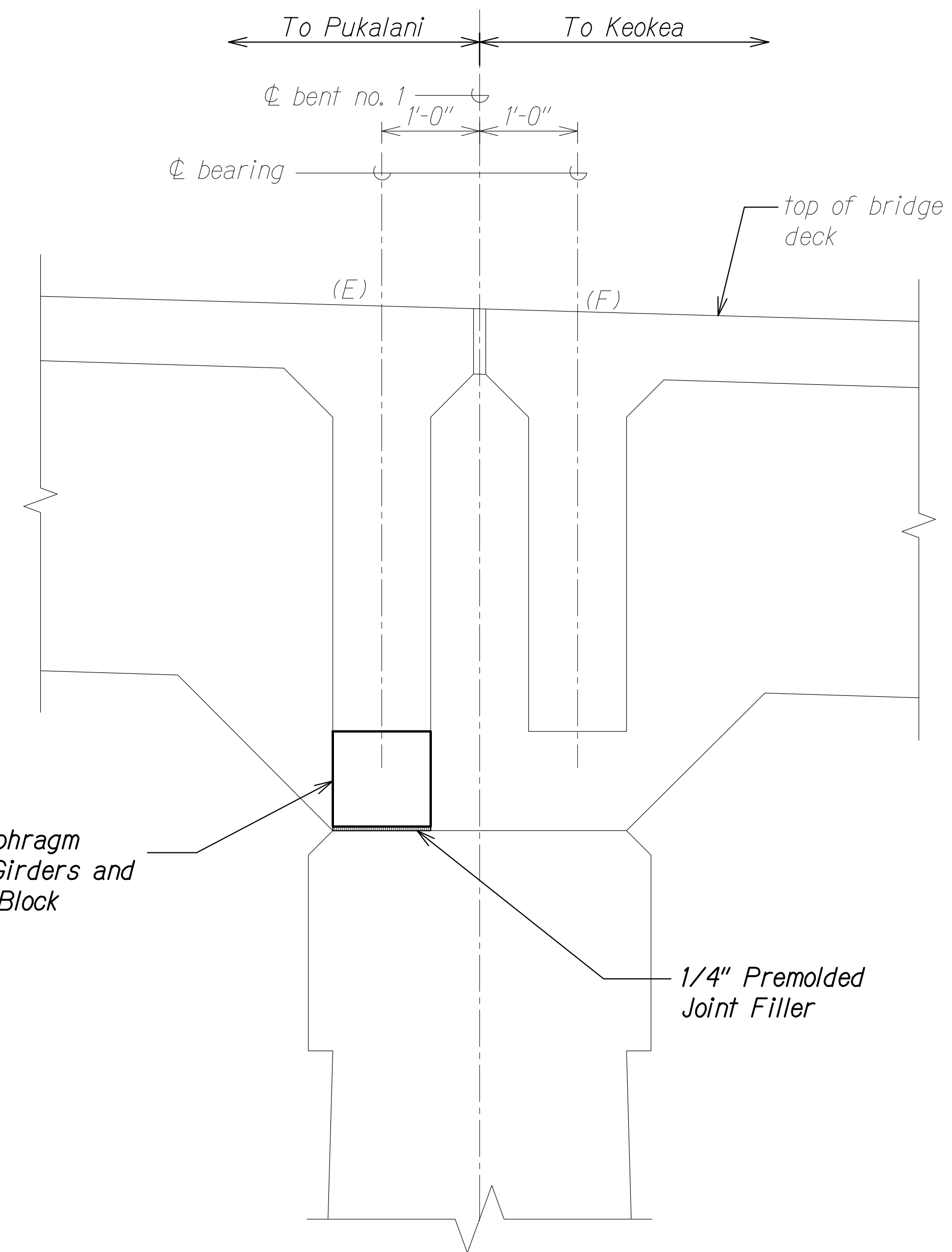
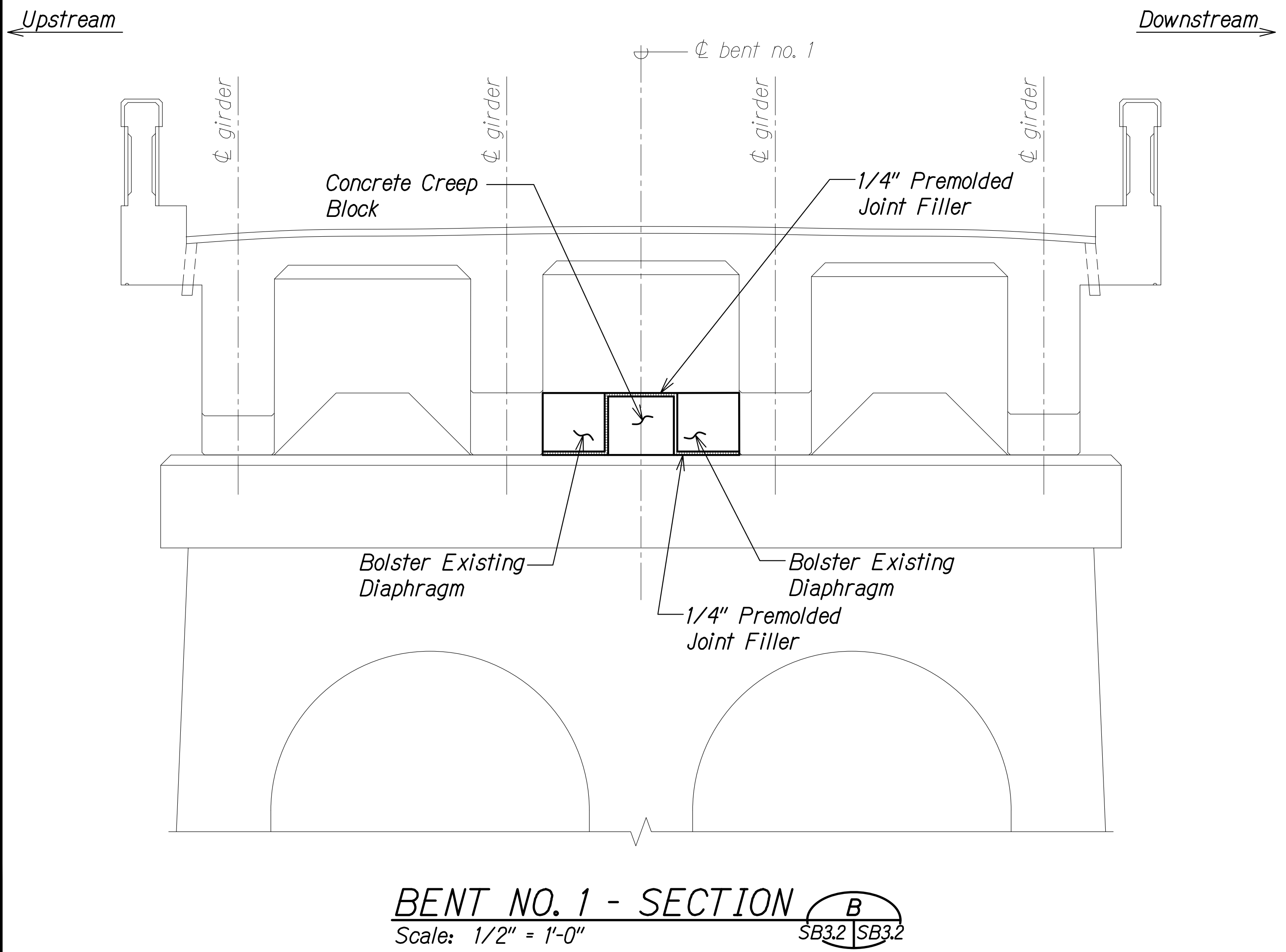
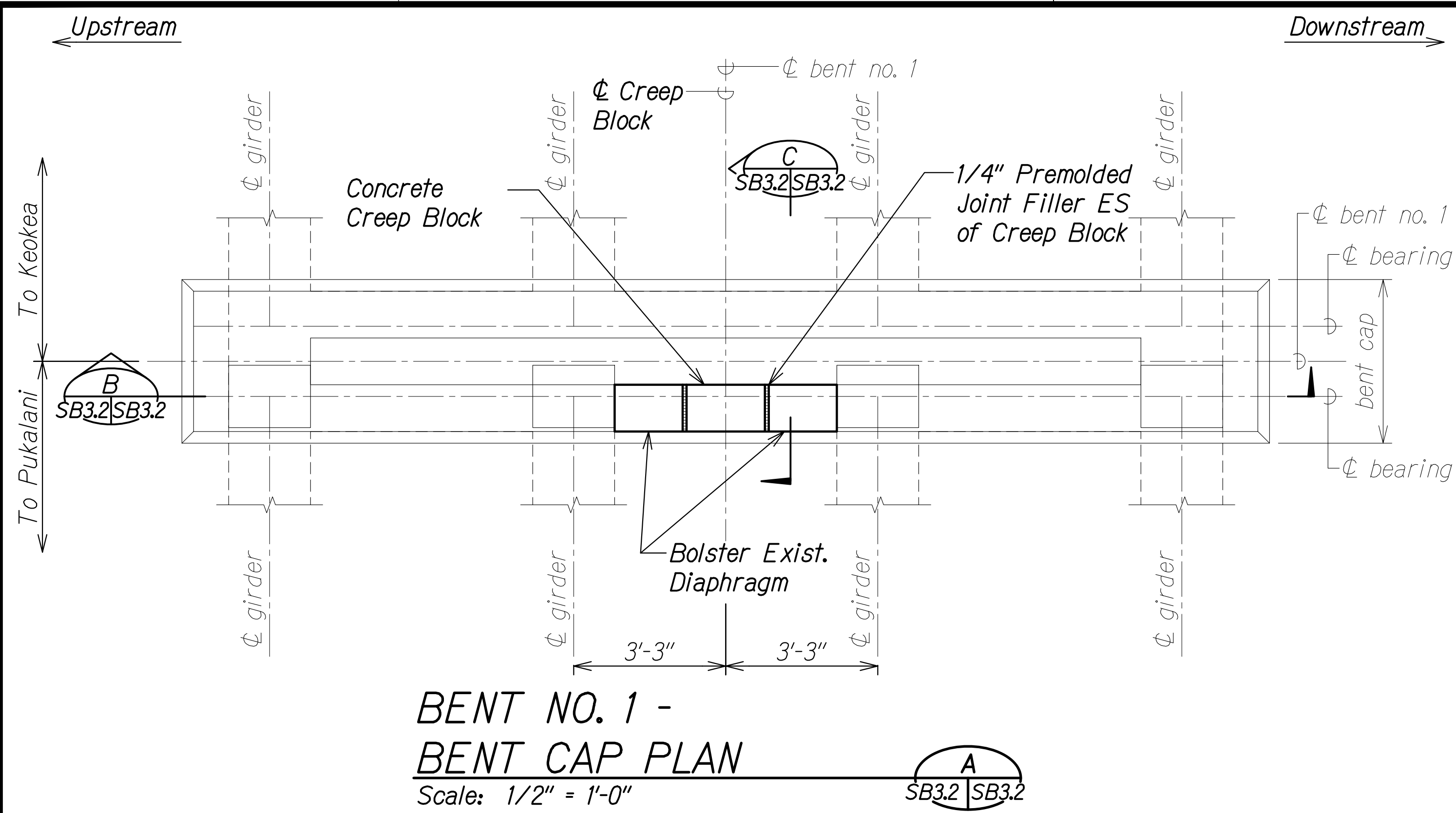
**ALAE BRIDGE DIAPHRAGM
DEMOLITION DETAILS**

**SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)**

Scale: As Noted Date: July 2026

SHEET No. SB3.1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	99	131

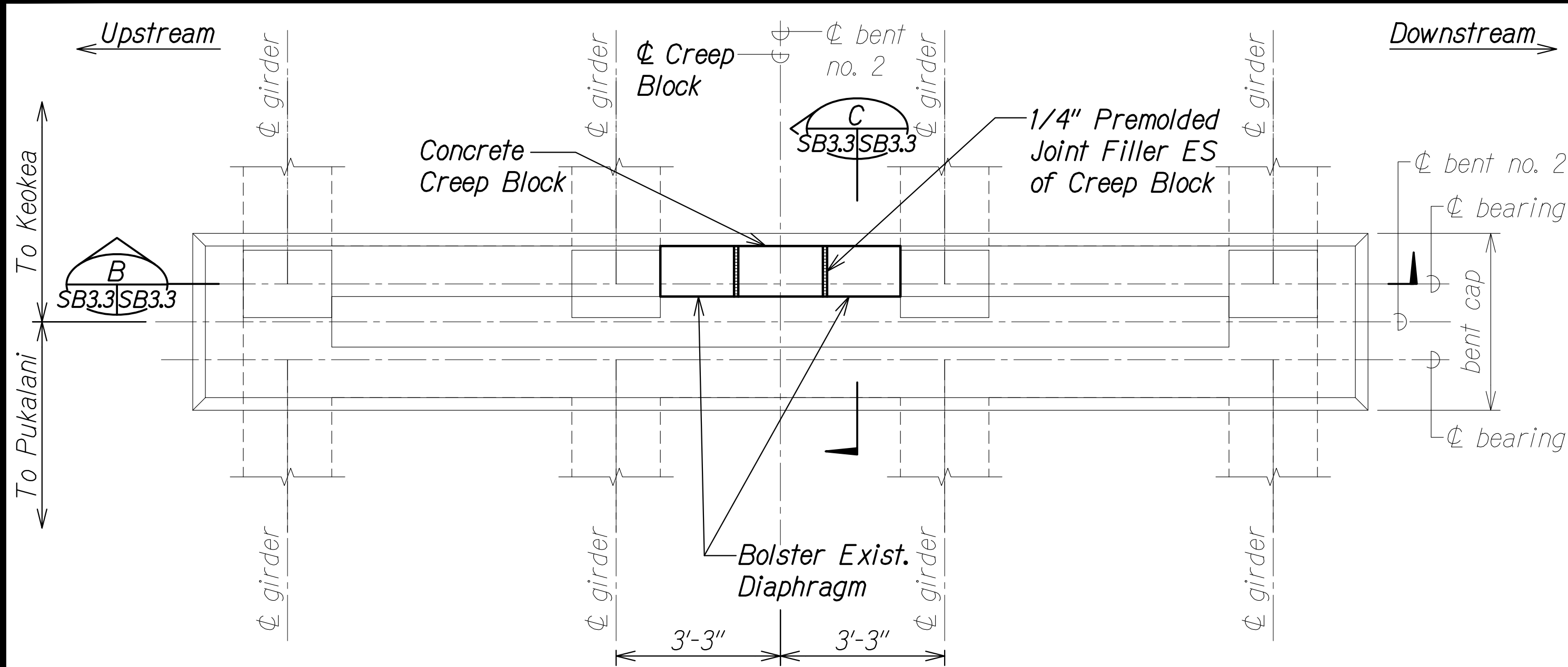


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

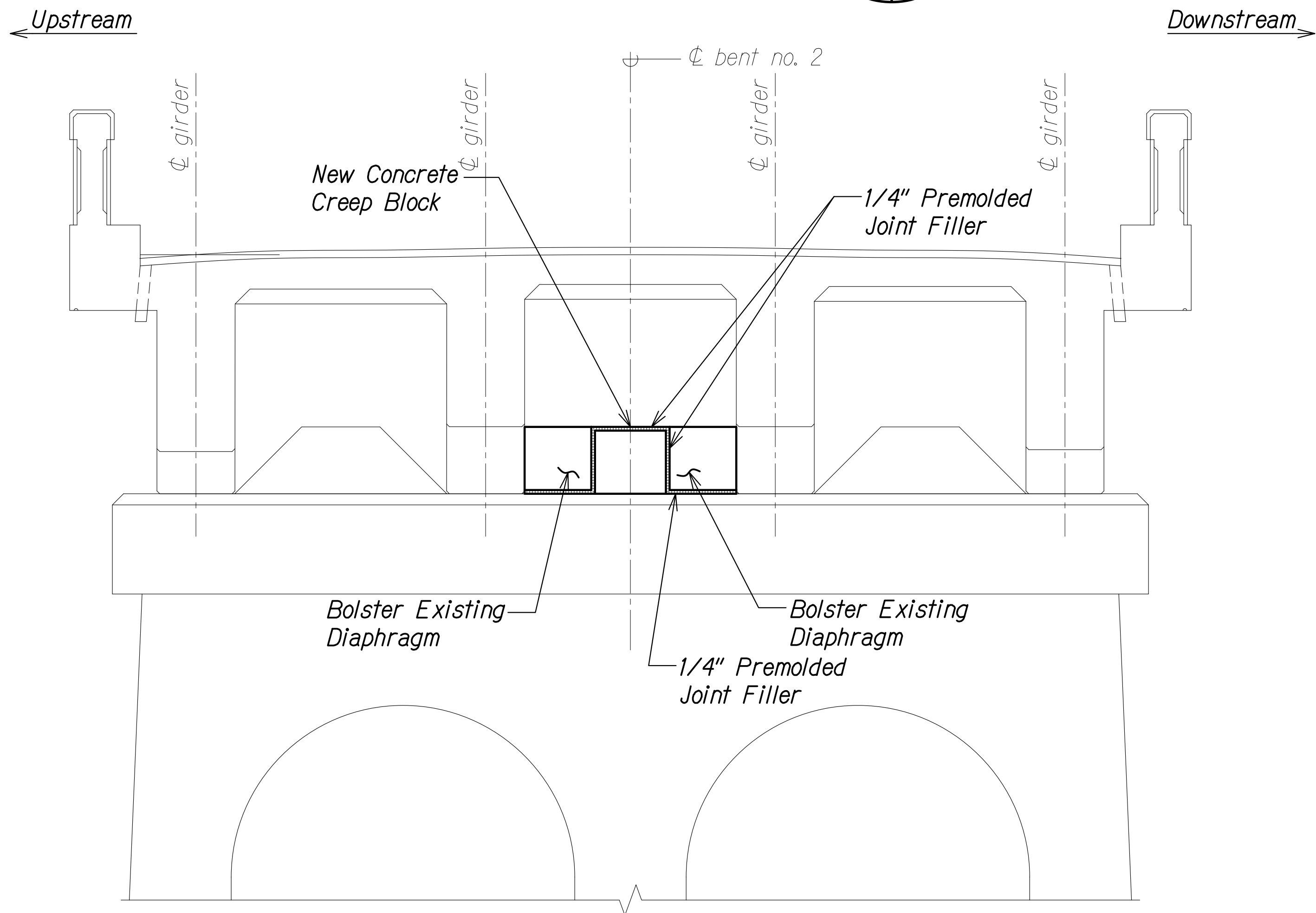
Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ALAE BRIDGE BENT NO. 1
PLAN AND SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

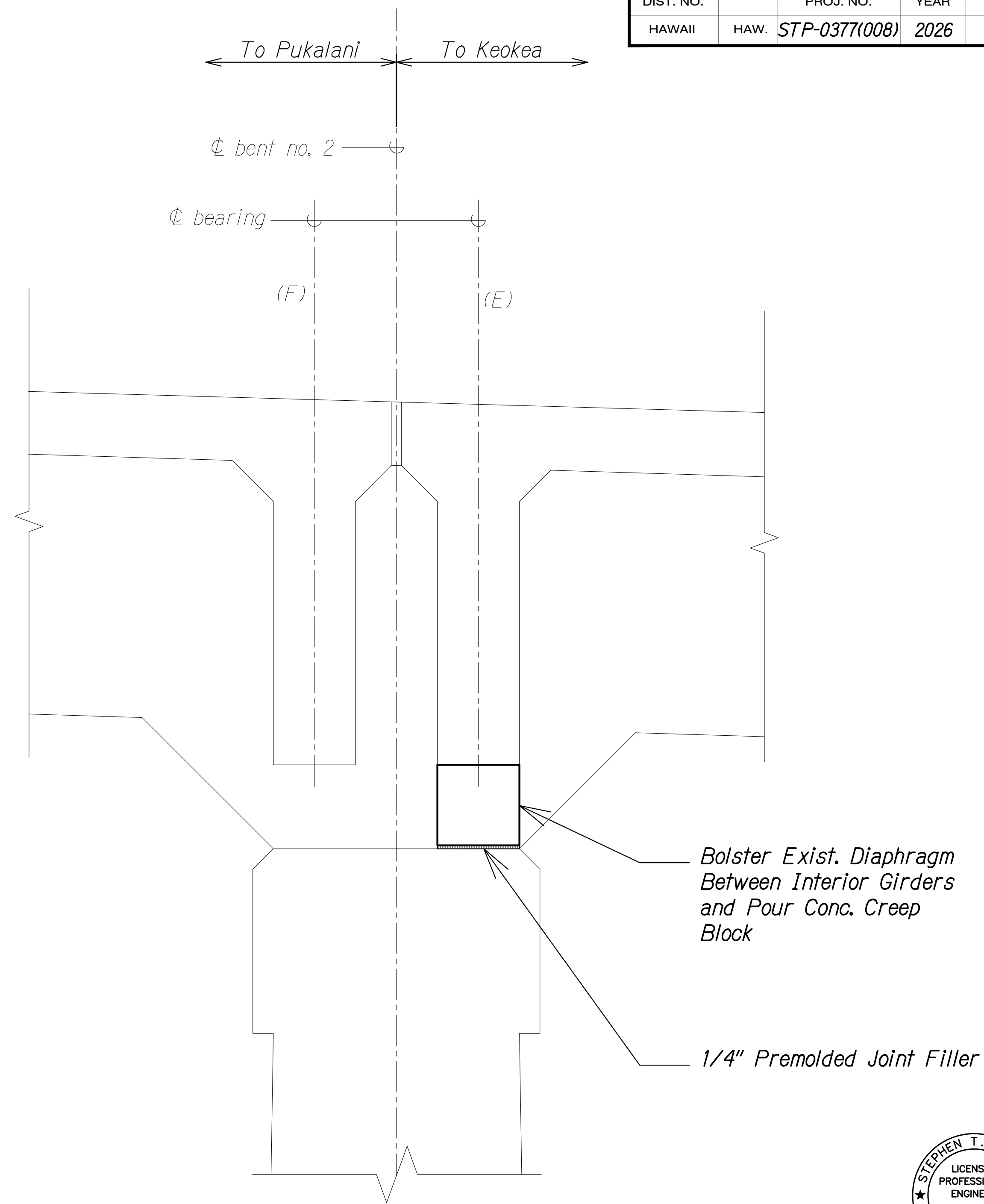
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	100	131



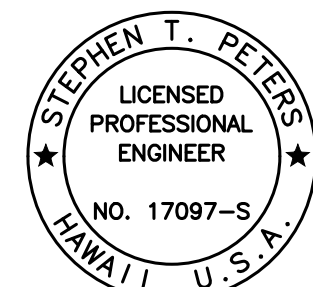
**BENT NO. 2 -
BENT CAP DETAIL PLAN**
Scale: 1/2" = 1'-0"



BENT NO. 2 - SECTION
Scale: 1/2" = 1'-0"



BENT NO. 2 - SECTION
Scale: 1" = 1'-0"

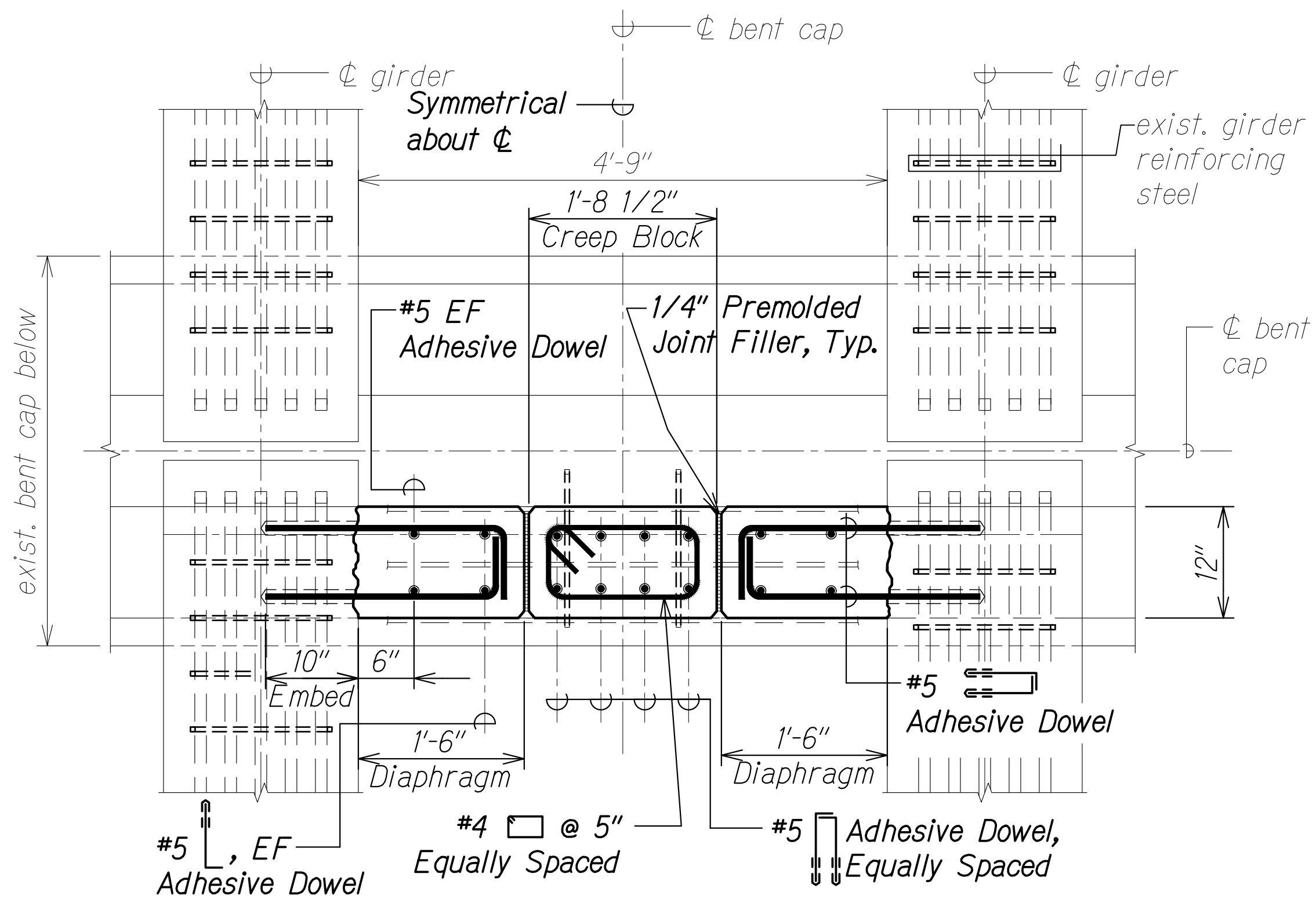


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SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ALAE BRIDGE BENT NO. 2
PLAN AND SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

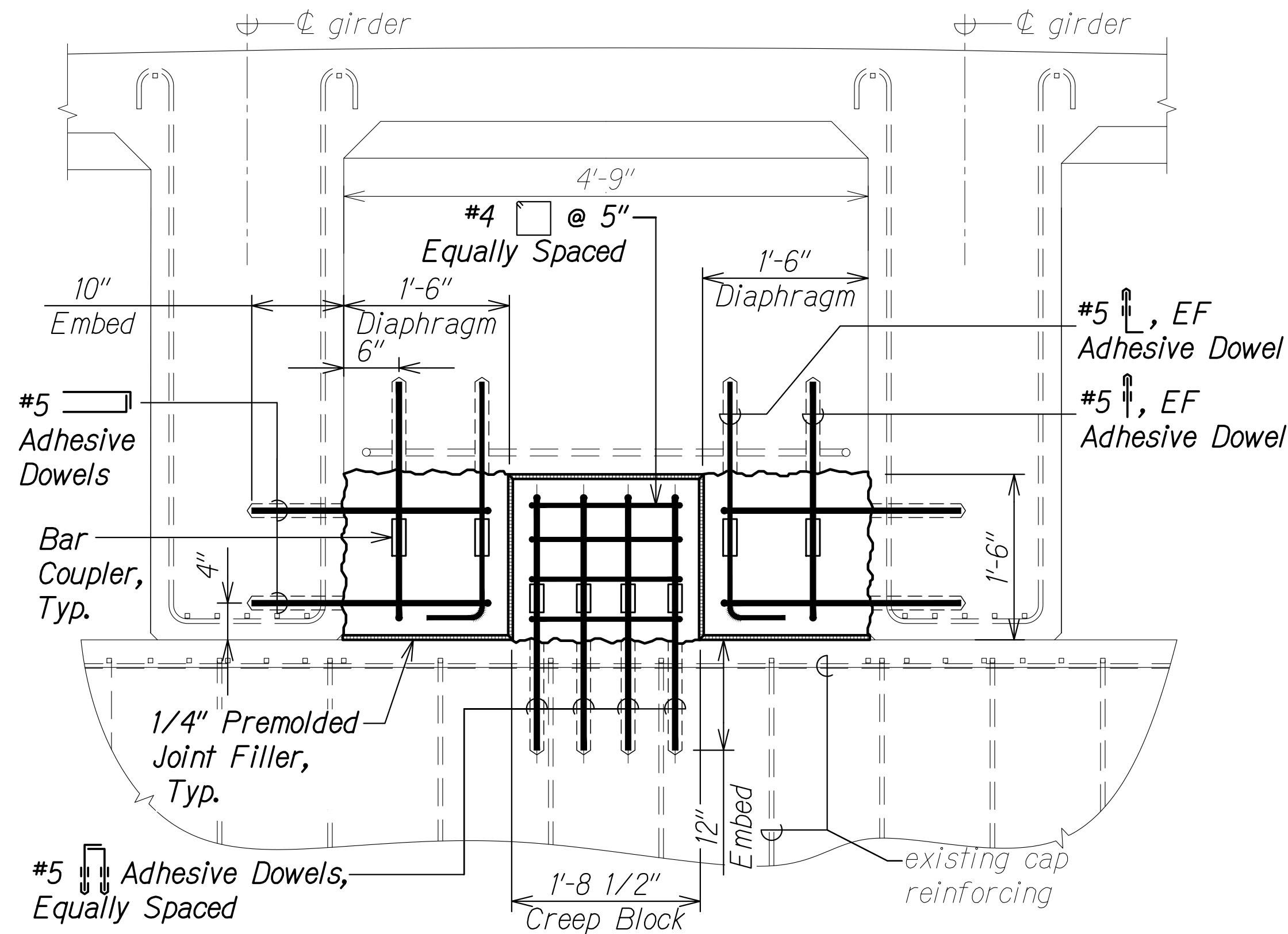
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	101	131



**DIAPHRAGM/CREEP BLOCK
REINFORCING PLAN**

Scale: 1" = 1'-0"

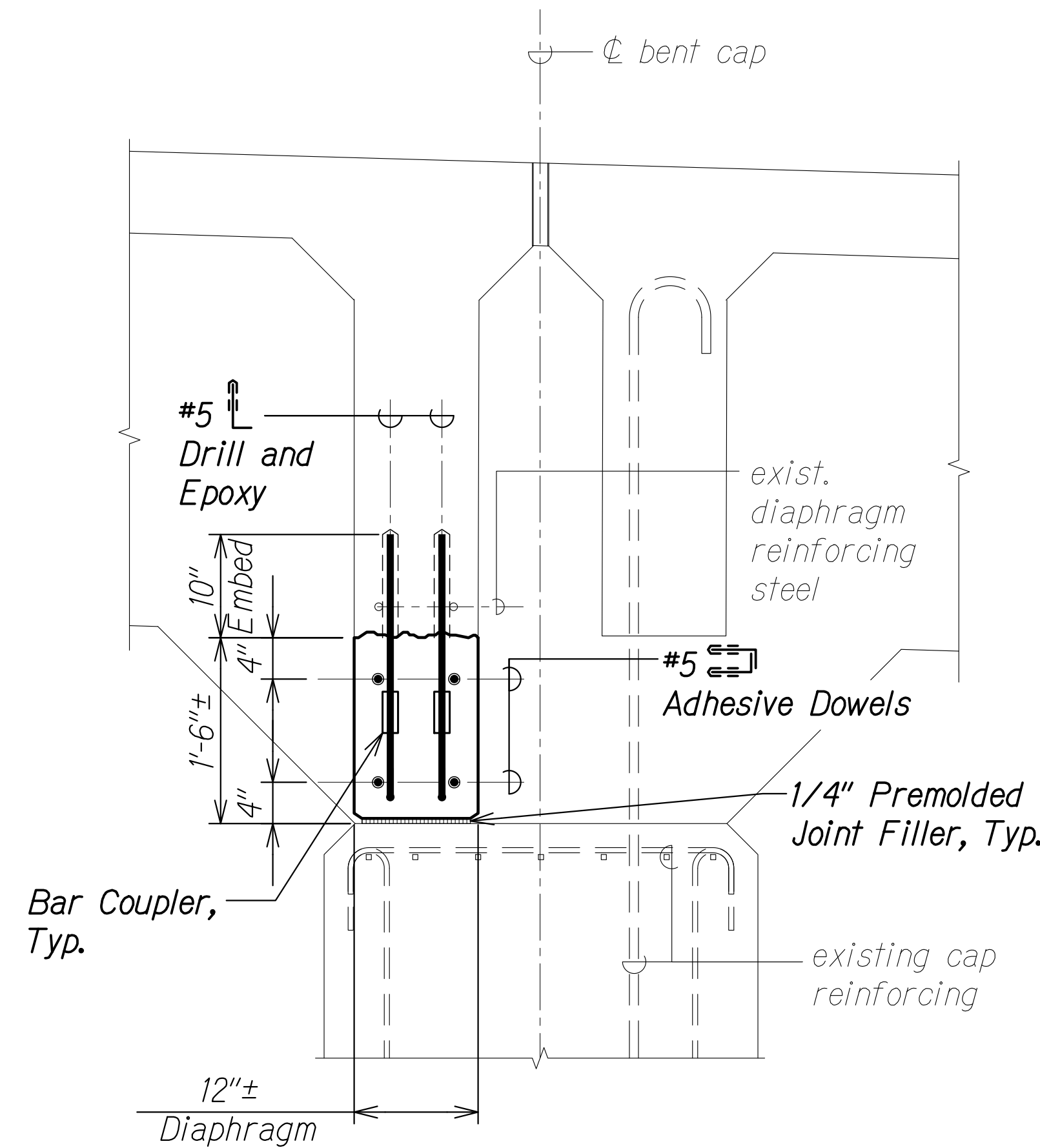
A
SB3.4 | SB3.4



**DIAPHRAGM/CREEP BLOCK
REINFORCING SECTION**

Scale: 1" = 1'-0"

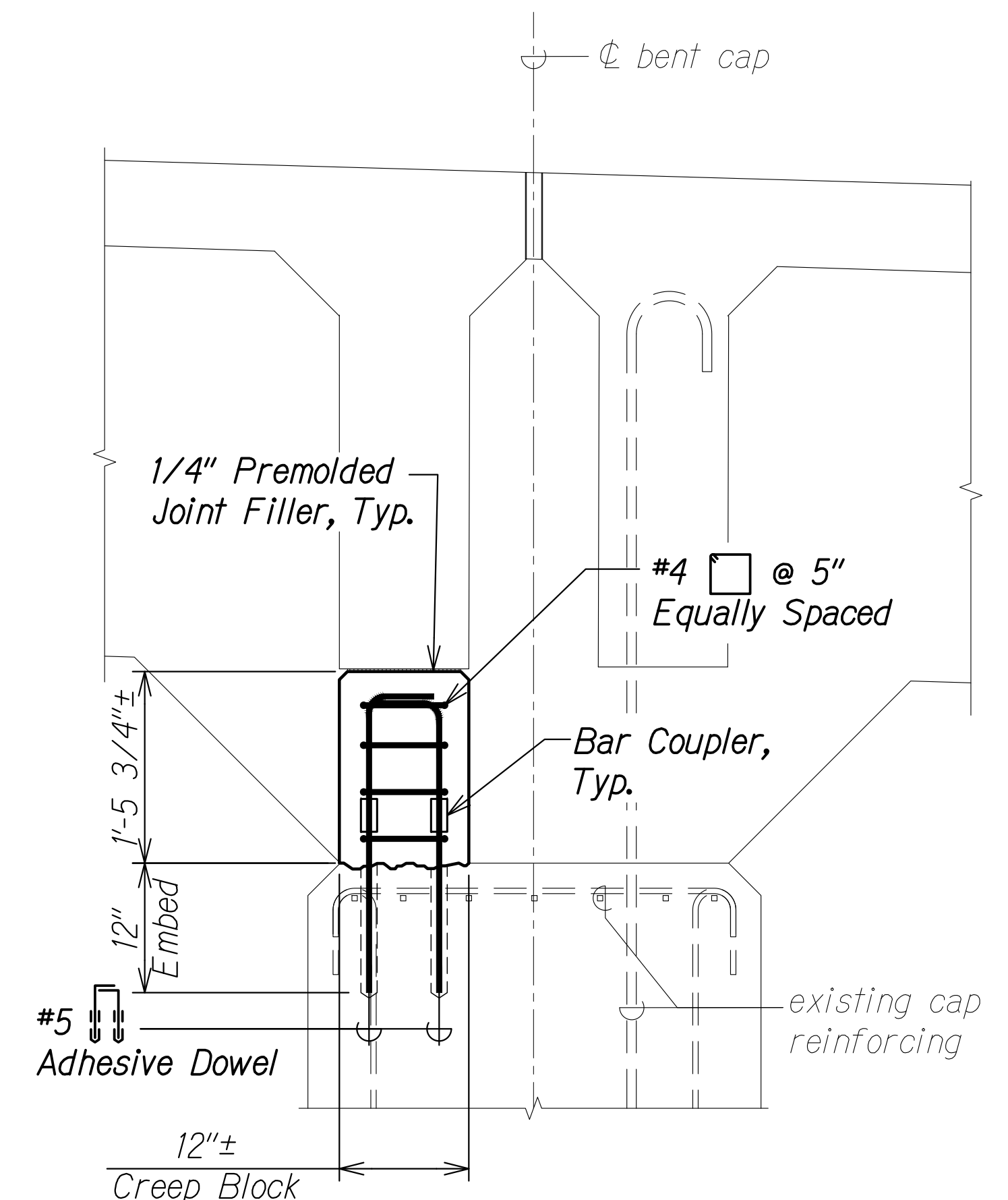
B
SB3.4 | SB3.4



**DIAPHRAGM
REINFORCING SECTION**

Scale: 1" = 1'-0"

C
SB3.4 | SB3.4



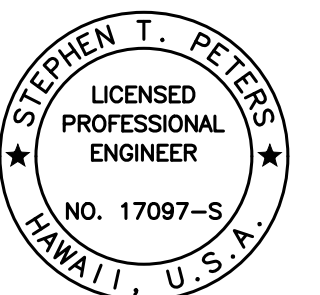
**CREEP BLOCK
REINFORCING SECTION**

Scale: 1" = 1'-0"

D
SB3.4 | SB3.4

NOTES:

1. The surface of all existing concrete substrates shall be roughened to a 1/4" amplitude, cleaned, and SSD prior to placement of subsequent concrete pour.
2. All reinforcing steel clearances to face of concrete shall be 2".
3. The Contractor shall scan the surfaces of all exist bent caps, girders, and diaphragms with a ground penetrating radar device, or approved equal, to locate exist. reinforcing steel prior to drilling holes.
4. Dimensions to be field verified by the Contractor.



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SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

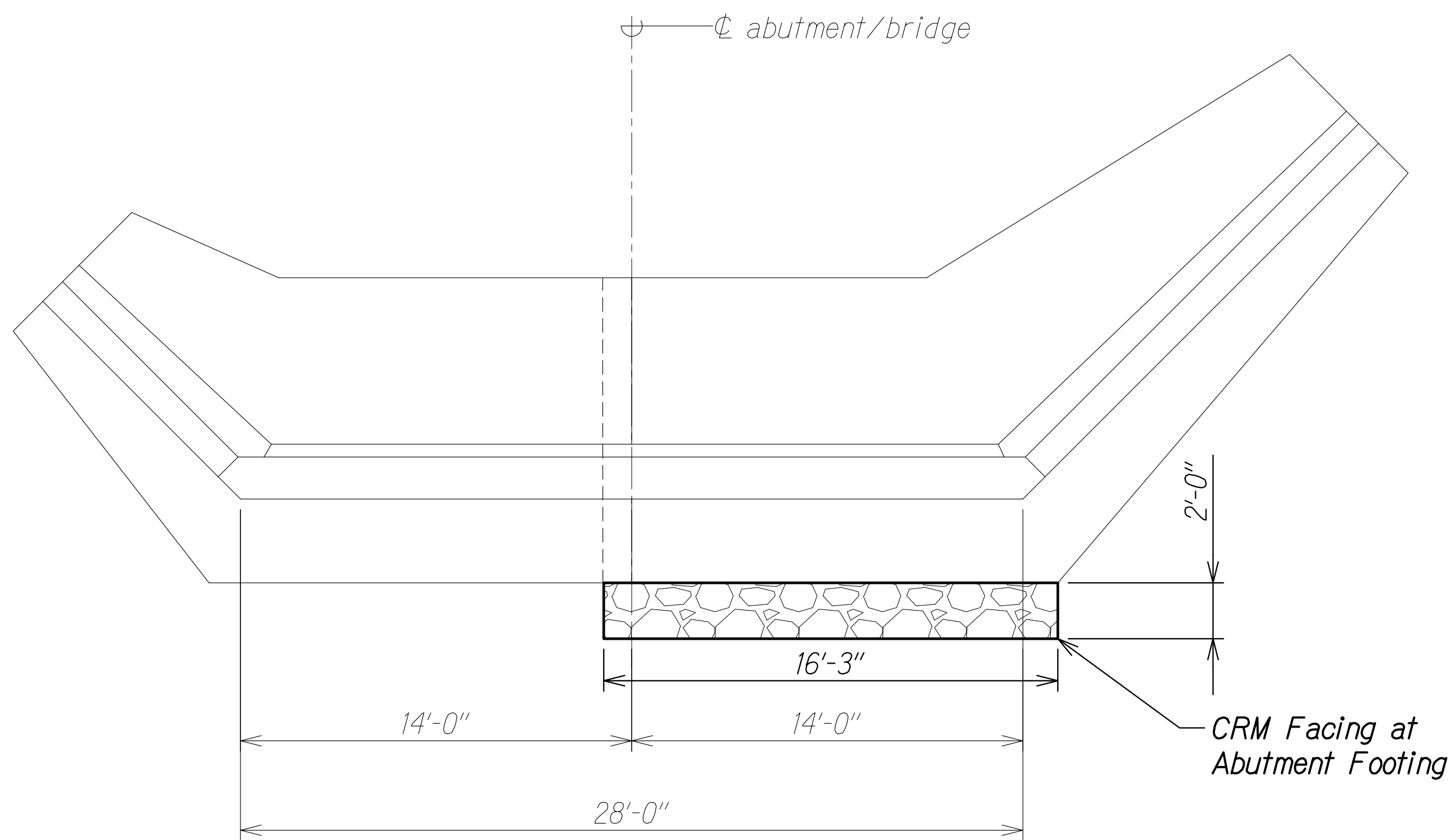
**ALAE BRIDGE DIAPHRAGM/CREEP
BLOCK REINFORCING PLAN AND SECTIONS**

**SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)**

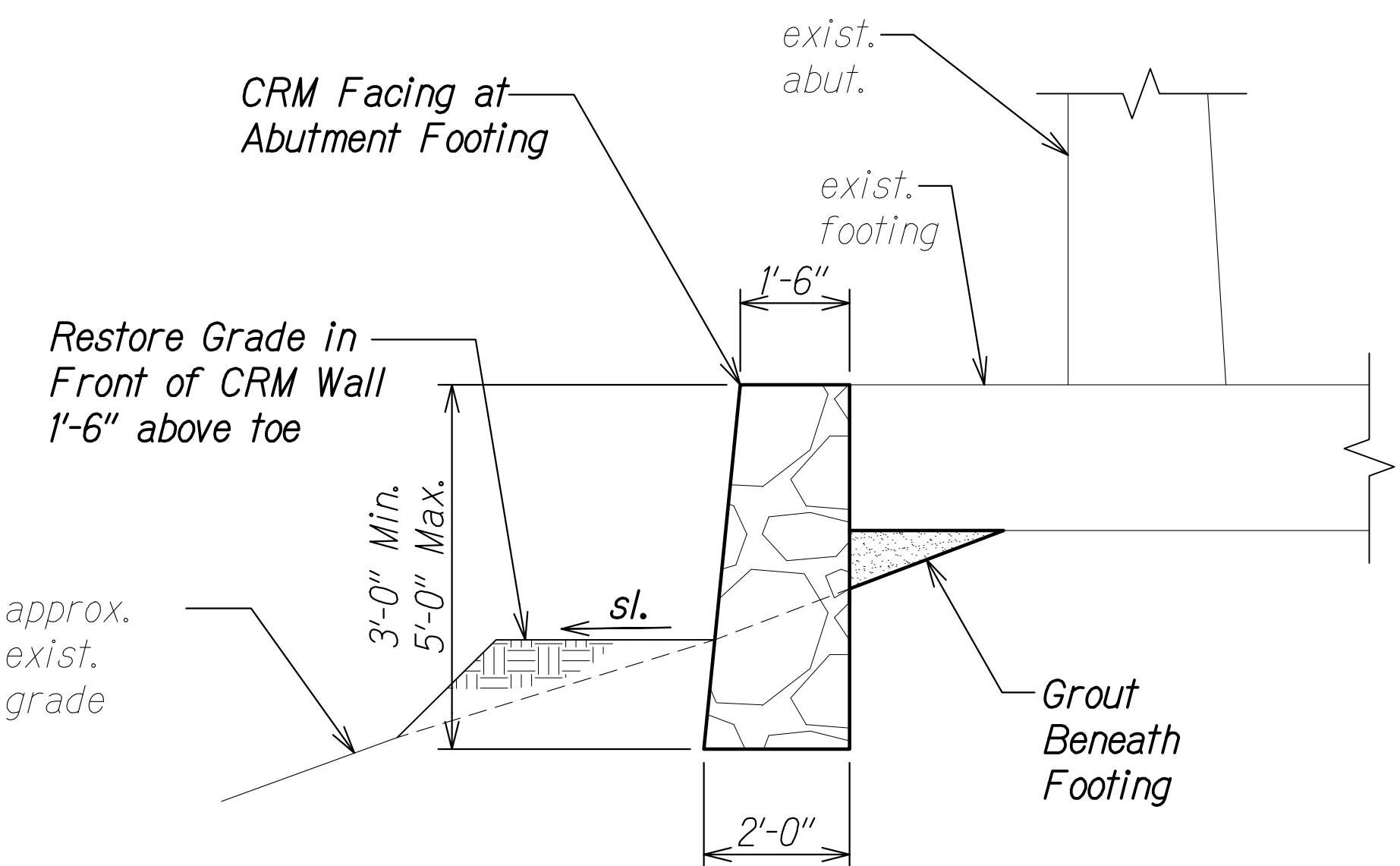
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SHEET No. SB3.4 OF 4 SHEETS

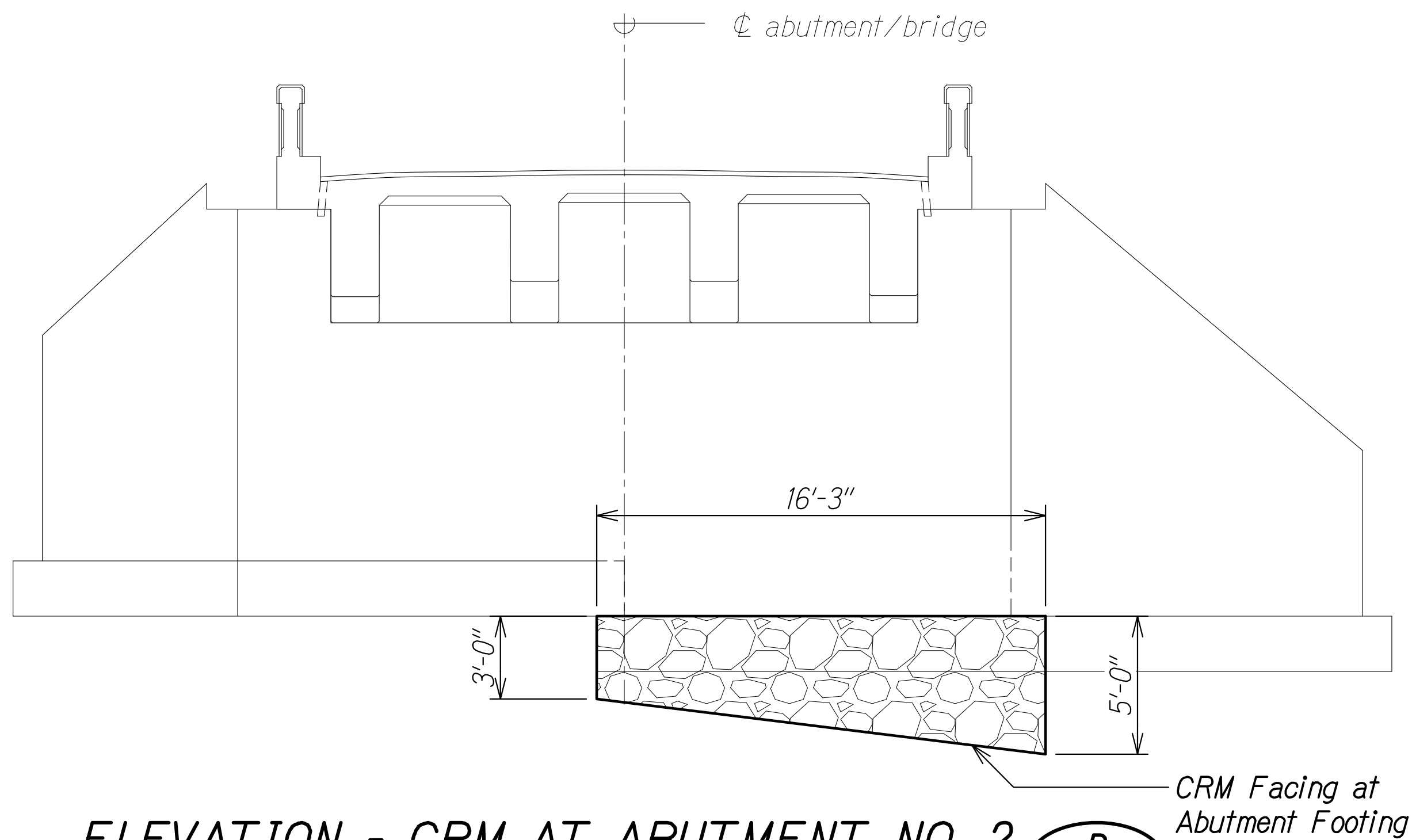
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	102	131



PLAN - CRM AT ABUTMENT NO. 2
Scale: 1/4" = 1'-0"

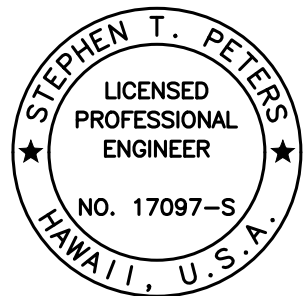


SECTION - CRM AT ABUTMENT NO. 2
Scale: 1/2" = 1'-0"



ELEVATION - CRM AT ABUTMENT NO. 2
Scale: 1/4" = 1'-0"

NOTE:
CRM work shall be paid for under Pay Item 508.1000 - Cement Rubble Masonry. Grouting work beneath footing shall be incidental.



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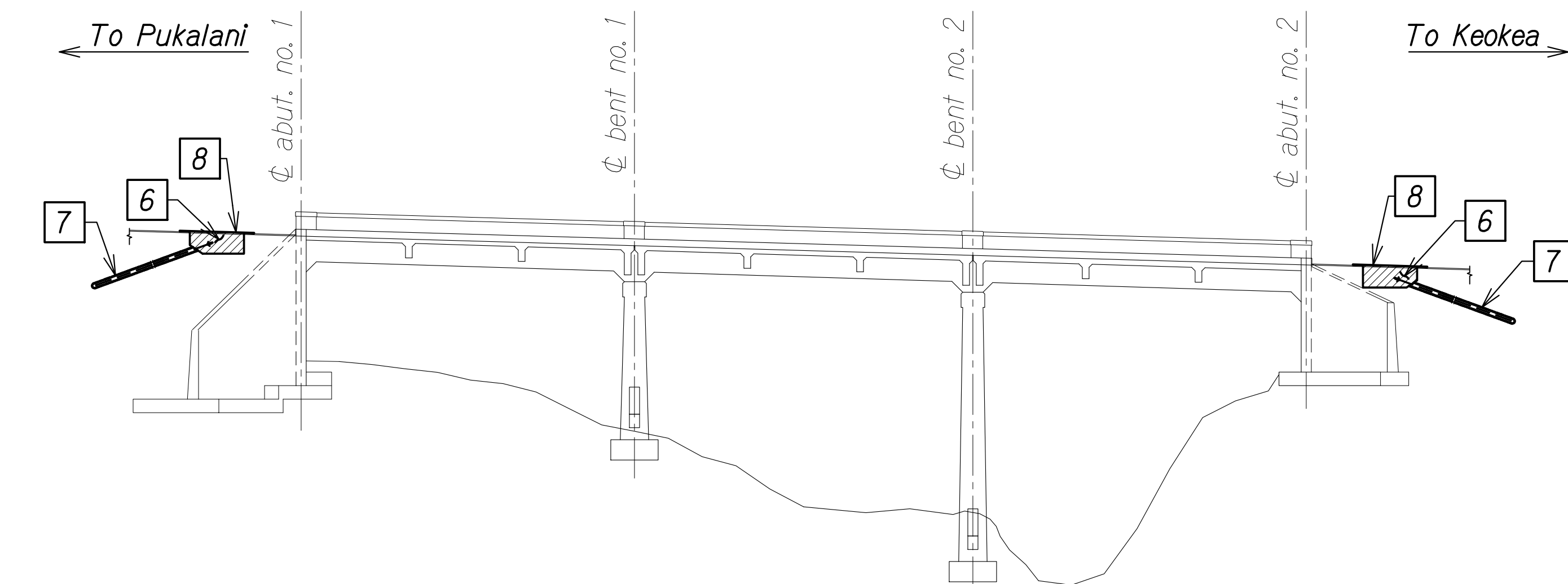
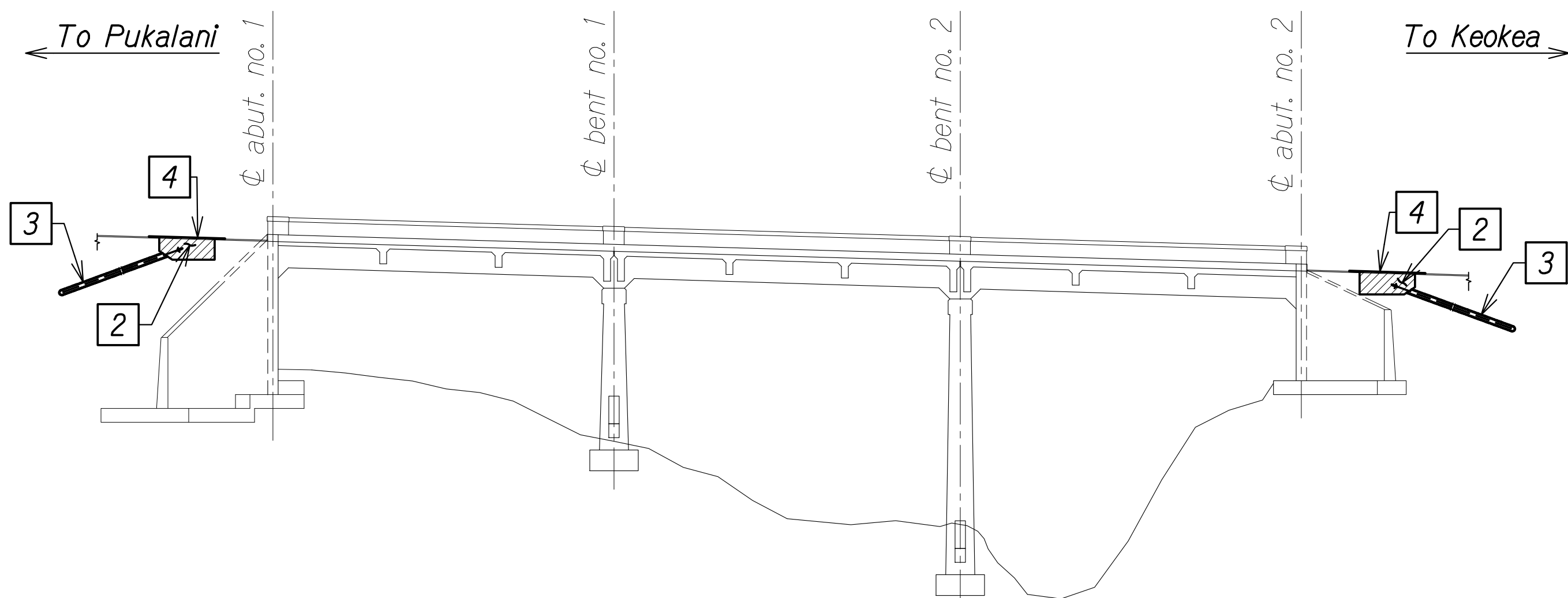
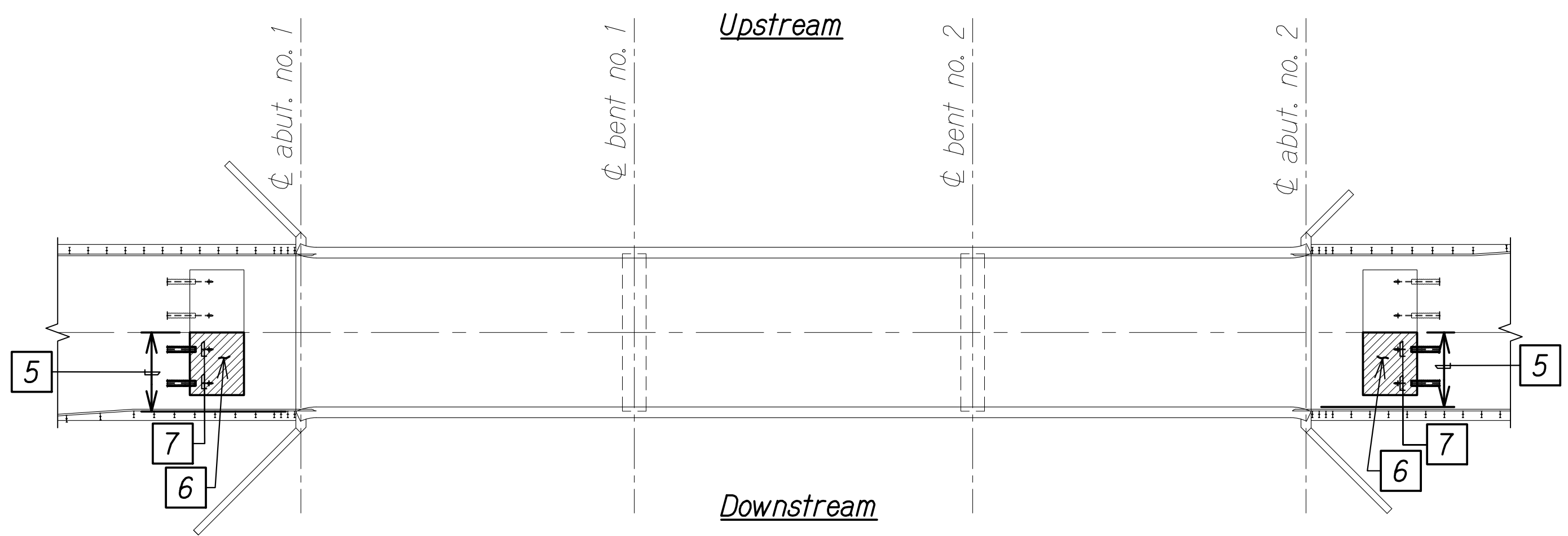
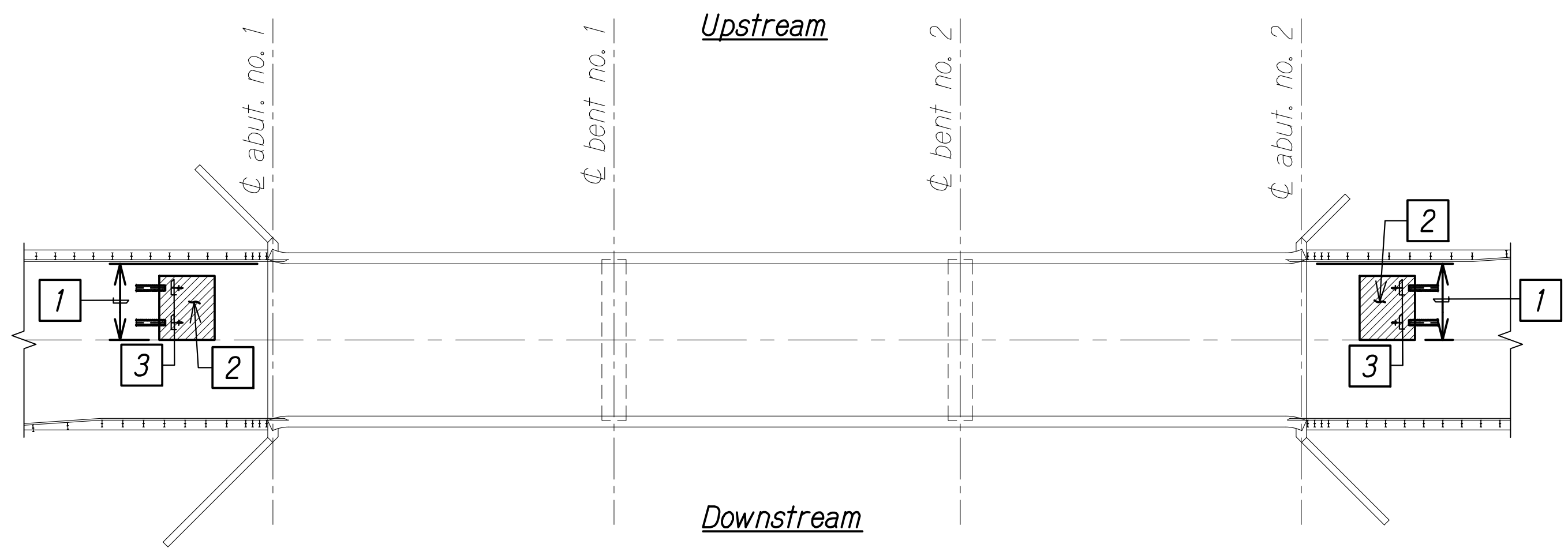
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE ABUTMENT NO. 2
EROSION PROTECTION DETAILS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

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

DRAWING NAME: Z-800 OINGOLING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SB401 EROSIONG PLOT TIME: 07-16-26, 1:04 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	103	131



CONSTRUCTION SEQUENCE - STAGE 1 (UPSTREAM CLOSURE)

CONSTRUCTION SEQUENCE - STAGE 2 (DOWNSTREAM CLOSURE)

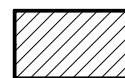
CONSTRUCTION STAGE 1 (UPSTREAM LANE CLOSURE)

1. Install traffic control for Upstream side lane closure (see Civil drawings)
2. Excavate roadway on the backside of Abutments as needed
3. Drill, install soil nails, grout, and perform necessary proof testing of Upstream side soil nails
4. Install steel road plates over trench during non-working hours and open Upstream side lane to traffic

CONSTRUCTION STAGE 2 (DOWNSTREAM LANE CLOSURE)

5. Install traffic control for Downstream side lane closure (See Civil drawings)
6. Excavate roadway on the backside of Abutments as needed
7. Drill, install soil nails, grout, and perform necessary proof testing of Downstream side soil nails
8. Install steel road plates over trench during non-working hours and open Downstream side lane to traffic

LEGEND

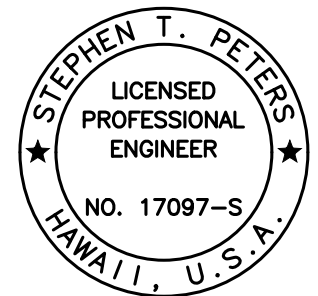
 Excavate and Dispose

NOTES:

1. Construction sequence is suggested. The Contractor may propose an alternative plan that allows for all work to be completed within the allotted full bridge closure timeframe.
2. Pre-Production Sacrificial Soil Nail Installation and Testing shall be completed prior to any Structure/Roadway Excavation

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)01 CAD\$07-16-26 BID SET\$3MB-SE0501 ALAE SEEDING PLOT TIME: 07-16-26 1:05 PM



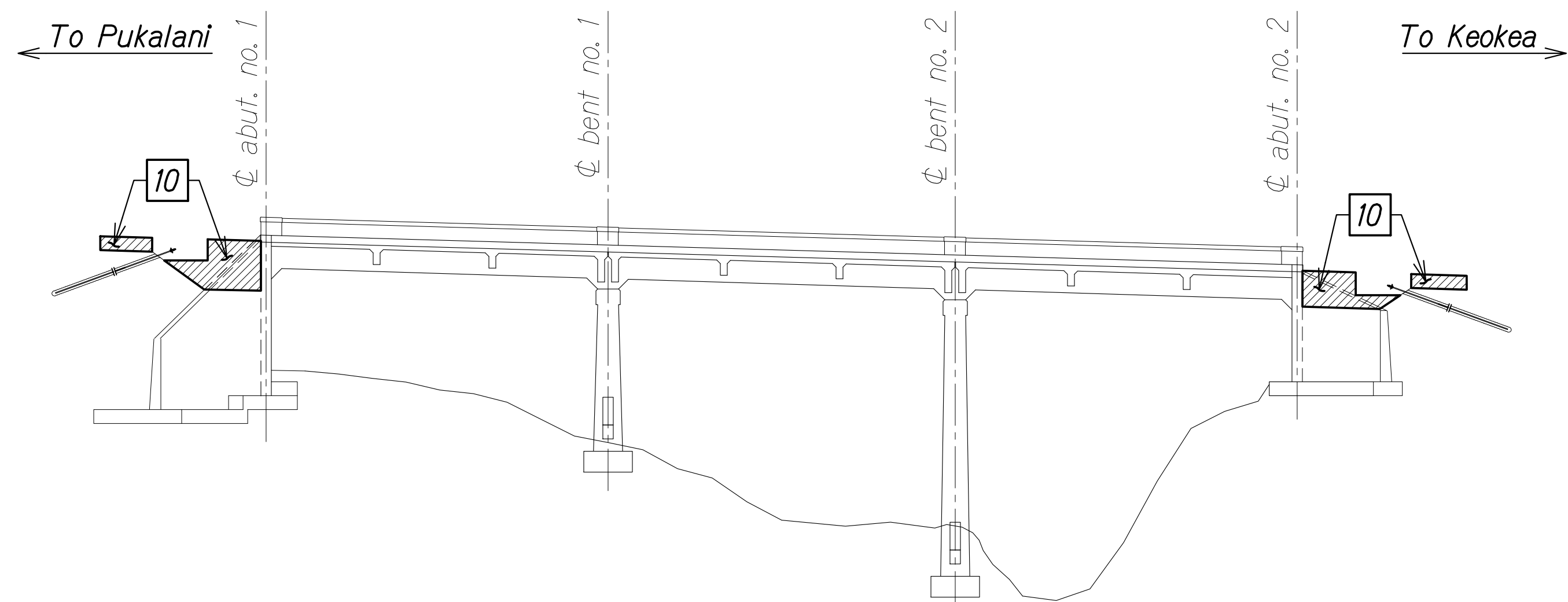
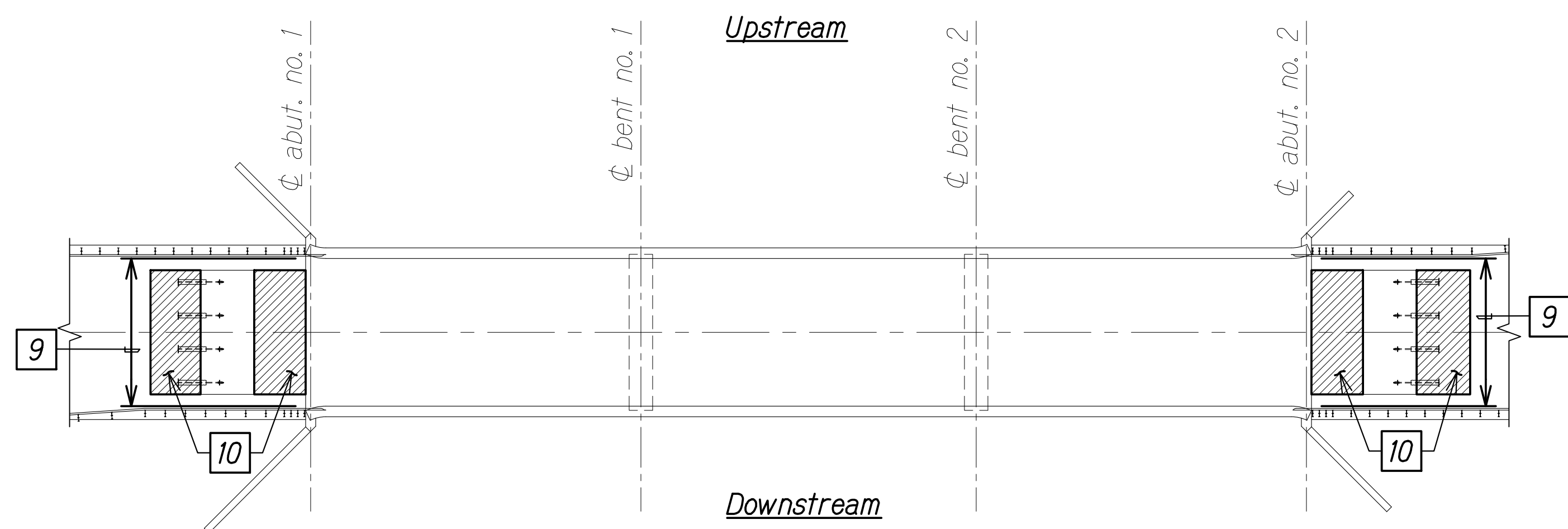
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ALAE BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: None Date: July 2026

SHEET No. SB5.1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	104	131



CONSTRUCTION SEQUENCE - STAGE 3 (FULL CLOSURE)

CONSTRUCTION STAGE 3 (FULL BRIDGE CLOSURE)

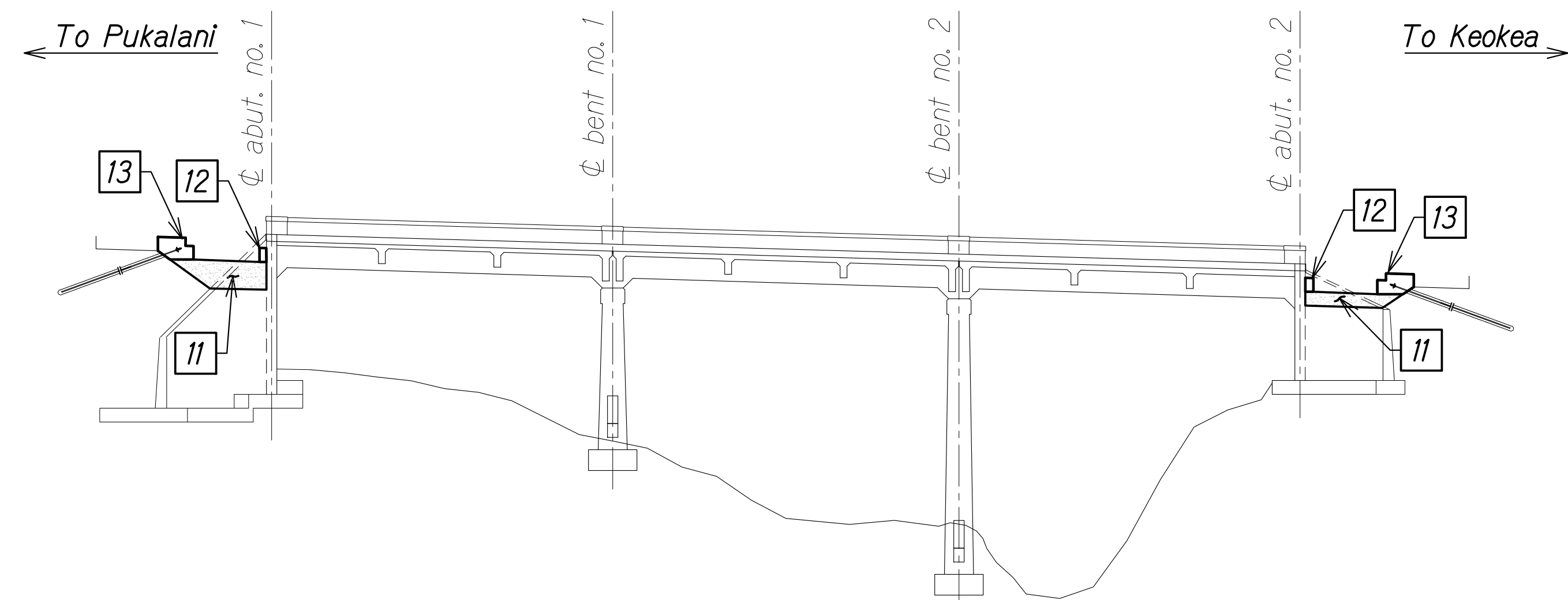
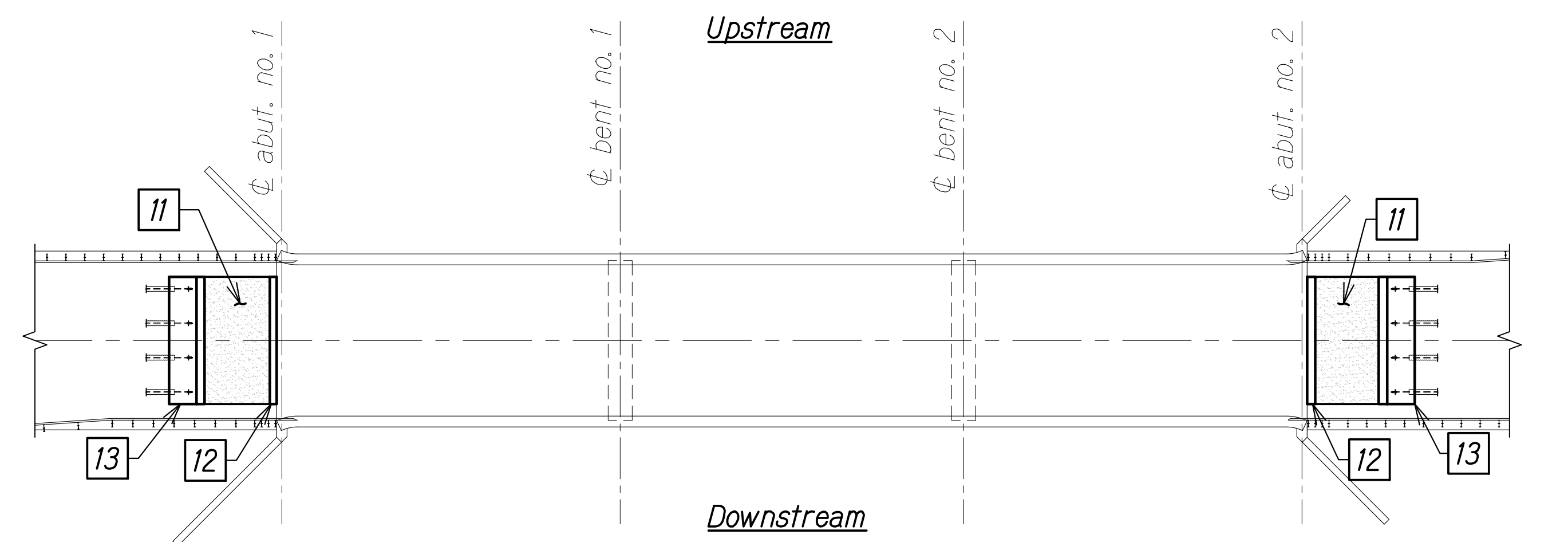
- 9 Install traffic control for full bridge closure (See Civil Drawings)
- 10 Excavate remaining roadway to limits as shown on contract drawings

LEGEND

- Excavate and Dispose
- LCC Backfill

NOTE:

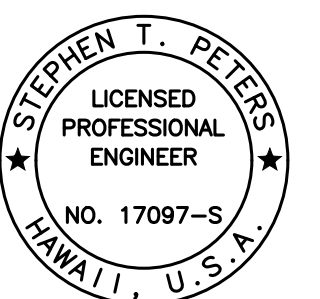
During full bridge closure times, the Contractor shall perform all work at Abut. No. 1 and Abut. No. 2 simultaneously



CONSTRUCTION SEQUENCE - STAGE 4 (FULL CLOSURE)

CONSTRUCTION STAGE 4 (FULL BRIDGE CLOSURE)

- 11 Place LCC backfill to the bottom of the corbel and anchor beam
- 12 Drill and epoxy dowels, install reinforcing steel, and pour concrete corbel
- 13 Install reinforcing steel and pour concrete anchor beam

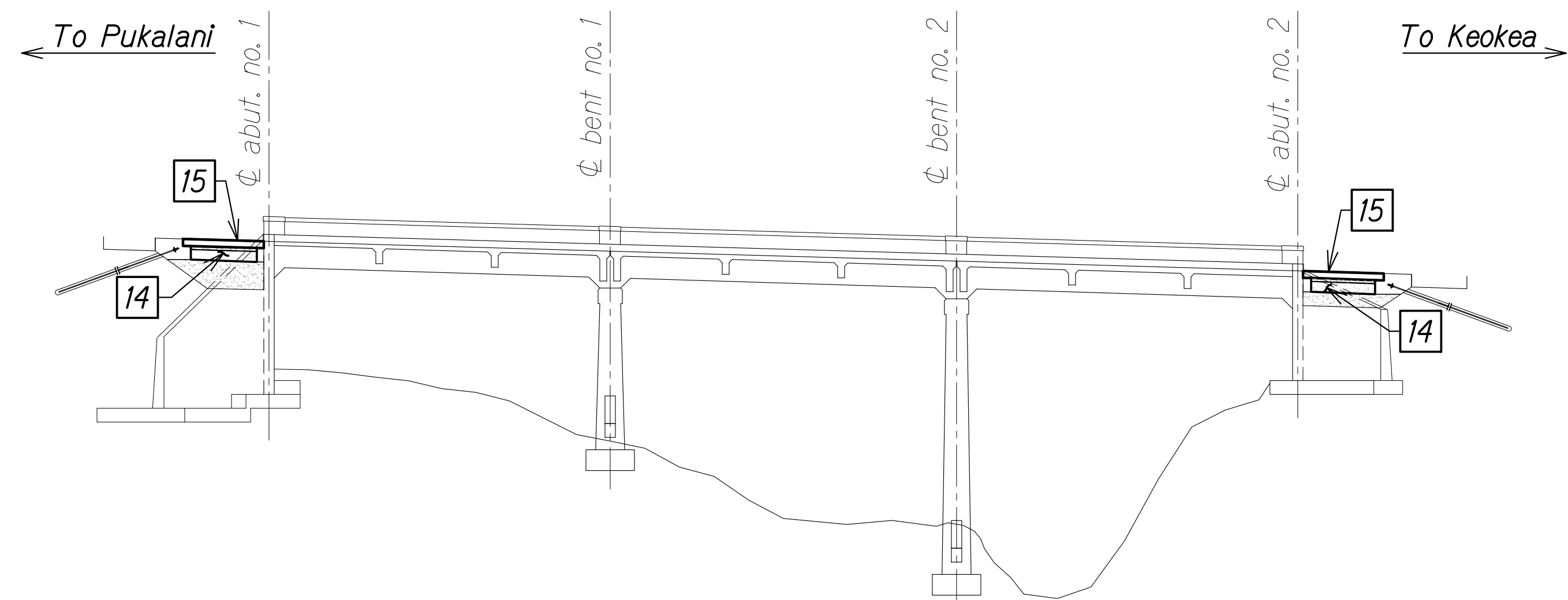
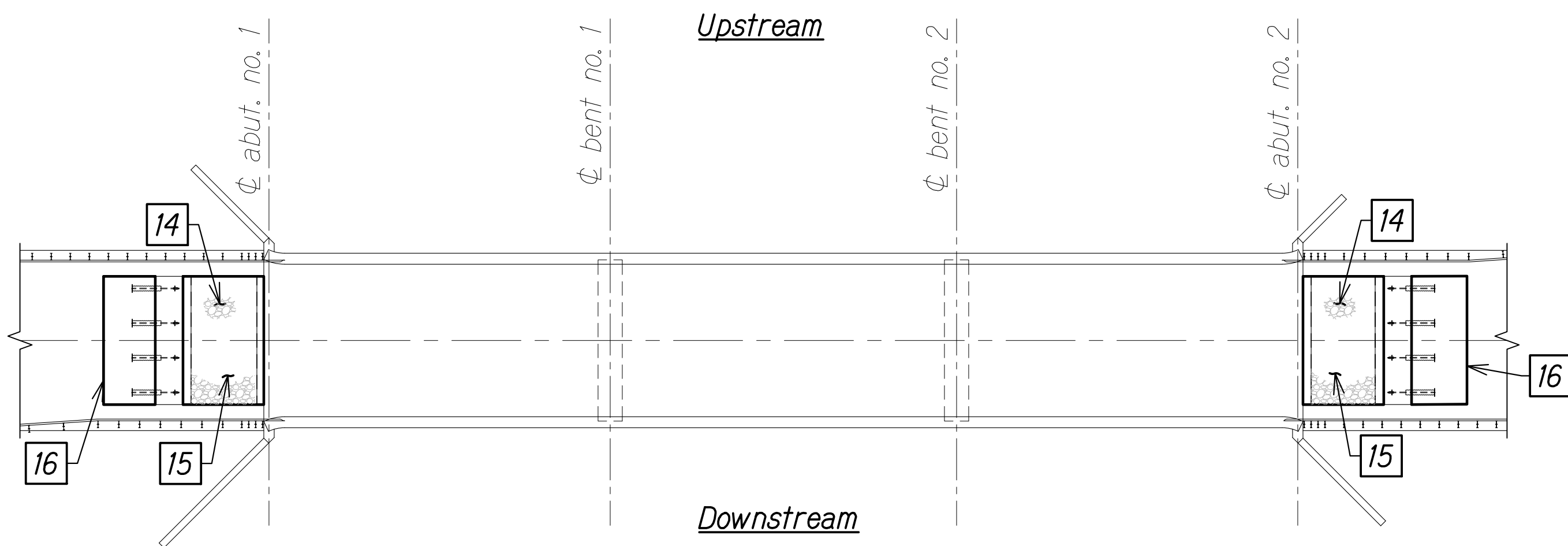


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Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ALAE BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: None Date: July 2026
SHEET No. SB5.2 OF 3 SHEETS

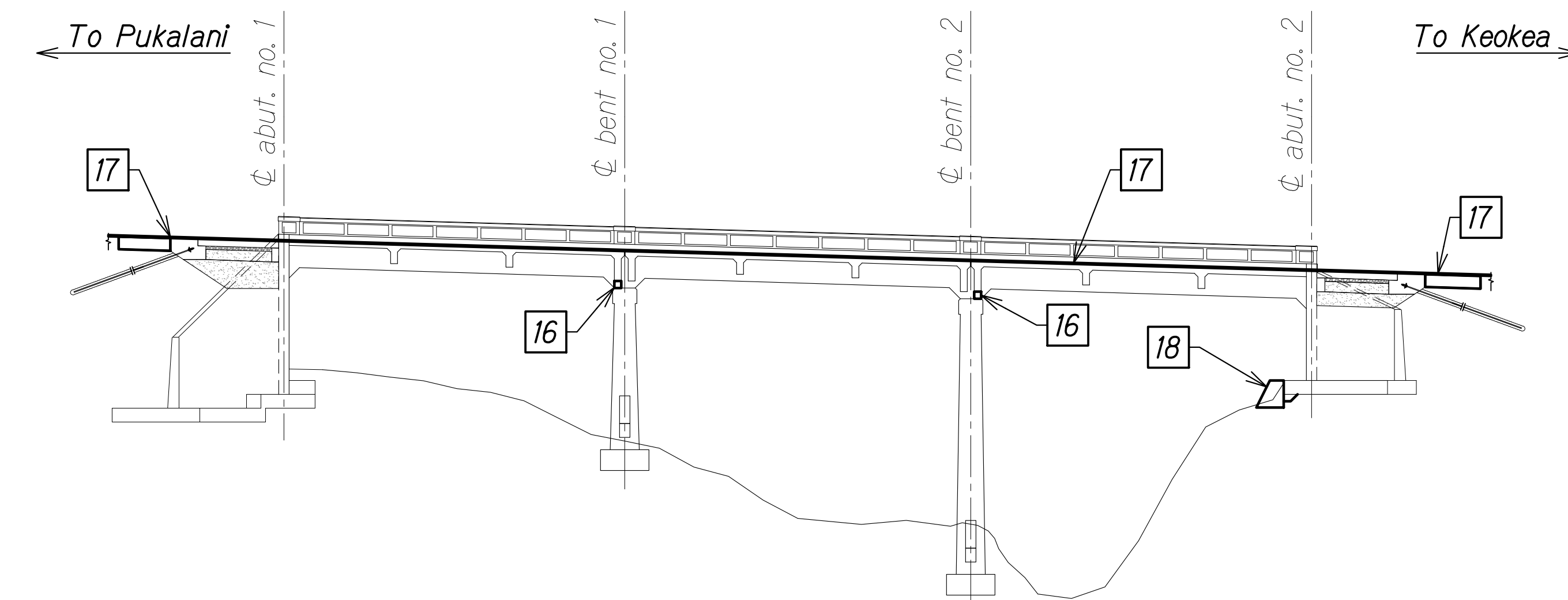
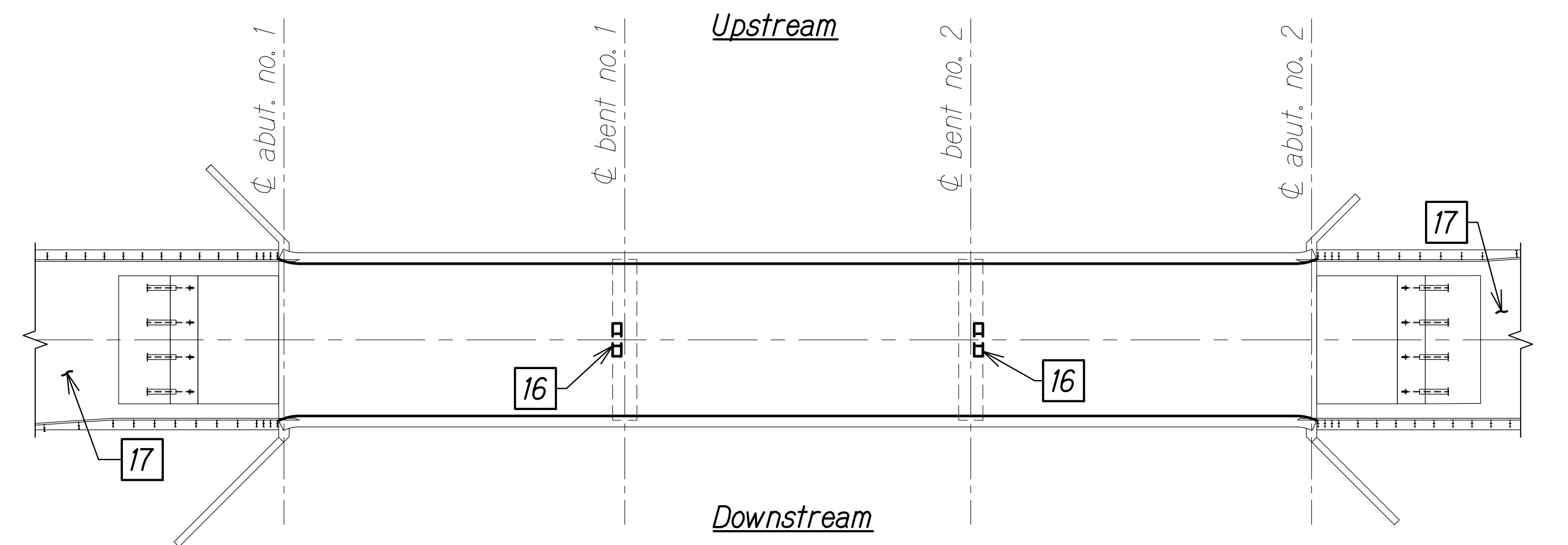
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	105	131



CONSTRUCTION SEQUENCE - STAGE 5 (FULL CLOSURE)

CONSTRUCTION STAGE 5 (FULL BRIDGE CLOSURE)

- 14 Place remaining LCC backfill and aggregate base course beneath tie slab
- 15 Install reinforcing steel and pour concrete tie slab



CONSTRUCTION SEQUENCE - STAGE 6 (FULL CLOSURE)

CONSTRUCTION STAGE 6 (FULL BRIDGE CLOSURE)

- 16 Demolish portion of exist. diaphragms, install reinforcing steel and pour concrete diaphragms and creep blocks
- 17 Reconstruct roadway pavement section and place PMA pavement across bridge deck (See Civil Drawings)
- 18 Grout voids beneath footing and construct CRM erosion control facing (This work may be performed during times outside of full bridge closure)

LEGEND

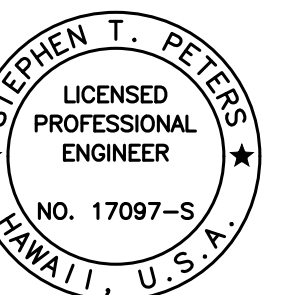
- LCC Backfill
- Base Course

NOTE:

During full bridge closure times, the Contractor shall perform all work at Abut. No. 1 and Abut. No. 2 simultaneously

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)01 CAD\$07-16-26 BID SET\$3MB-SE0501 ALAE SECDWG PLOT TIME: 07-16-26 1:05 PM



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALAE BRIDGE

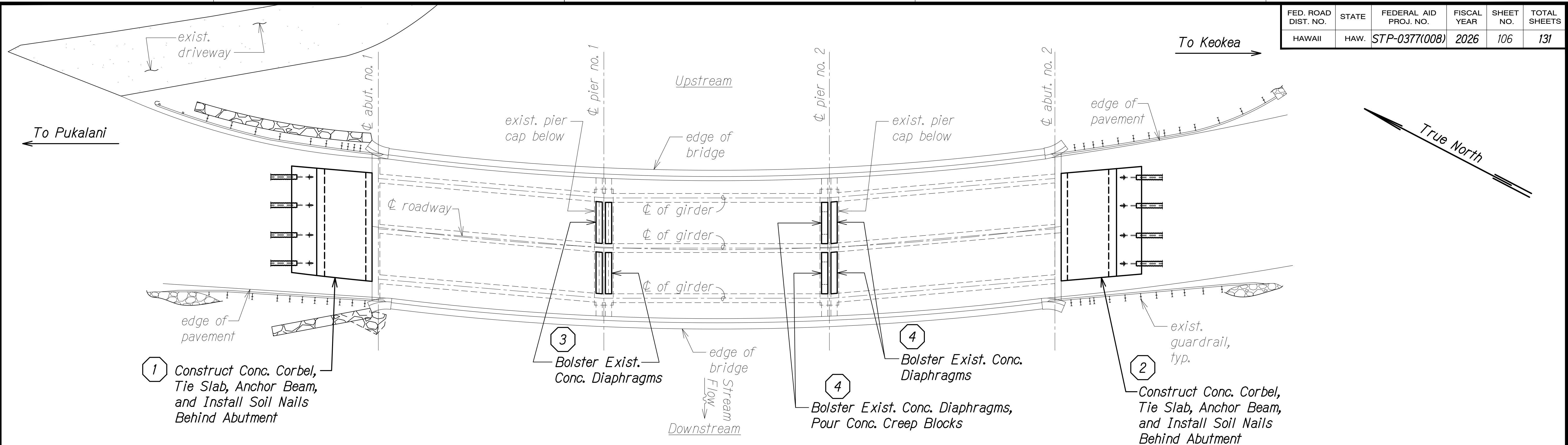
CONSTRUCTION SEQUENCE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

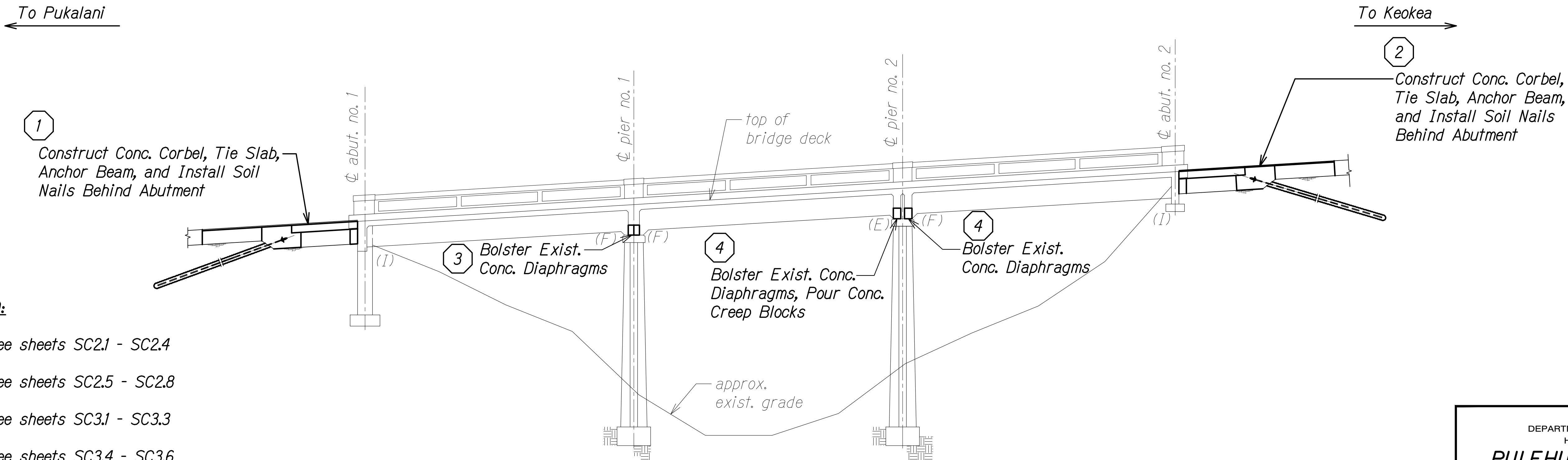
Scale: None Date: July 2026

SHEET No. **SB5.3** OF **3** SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	106	131



PULEHU GULCH BRIDGE PLAN
Scale: 1/8" = 1'-0"

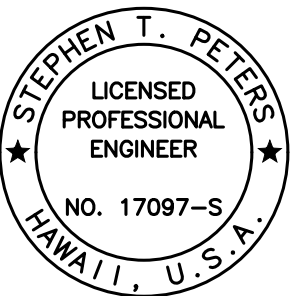


LEGEND:

- 1 See sheets SC2.1 - SC2.4
- 2 See sheets SC2.5 - SC2.8
- 3 See sheets SC3.1 - SC3.3
- 4 See sheets SC3.4 - SC3.6

- (I) Integral Abutment
- (E) Expansion Bearing
- (F) Fixed Bearing

PULEHU GULCH BRIDGE DOWNSTREAM LONGITUDINAL SECTION
Scale: 1/8" = 1'-0"



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
PLAN AND LONG. SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

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

DRAWING NAME: Z-800 ONGOING23-003.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)001 CAD\$09-04-26 BID SET FINAL\$MB-SC001 PULE PLAN & SECTION PLOT TIME: 09-04-26, 12:08 PM

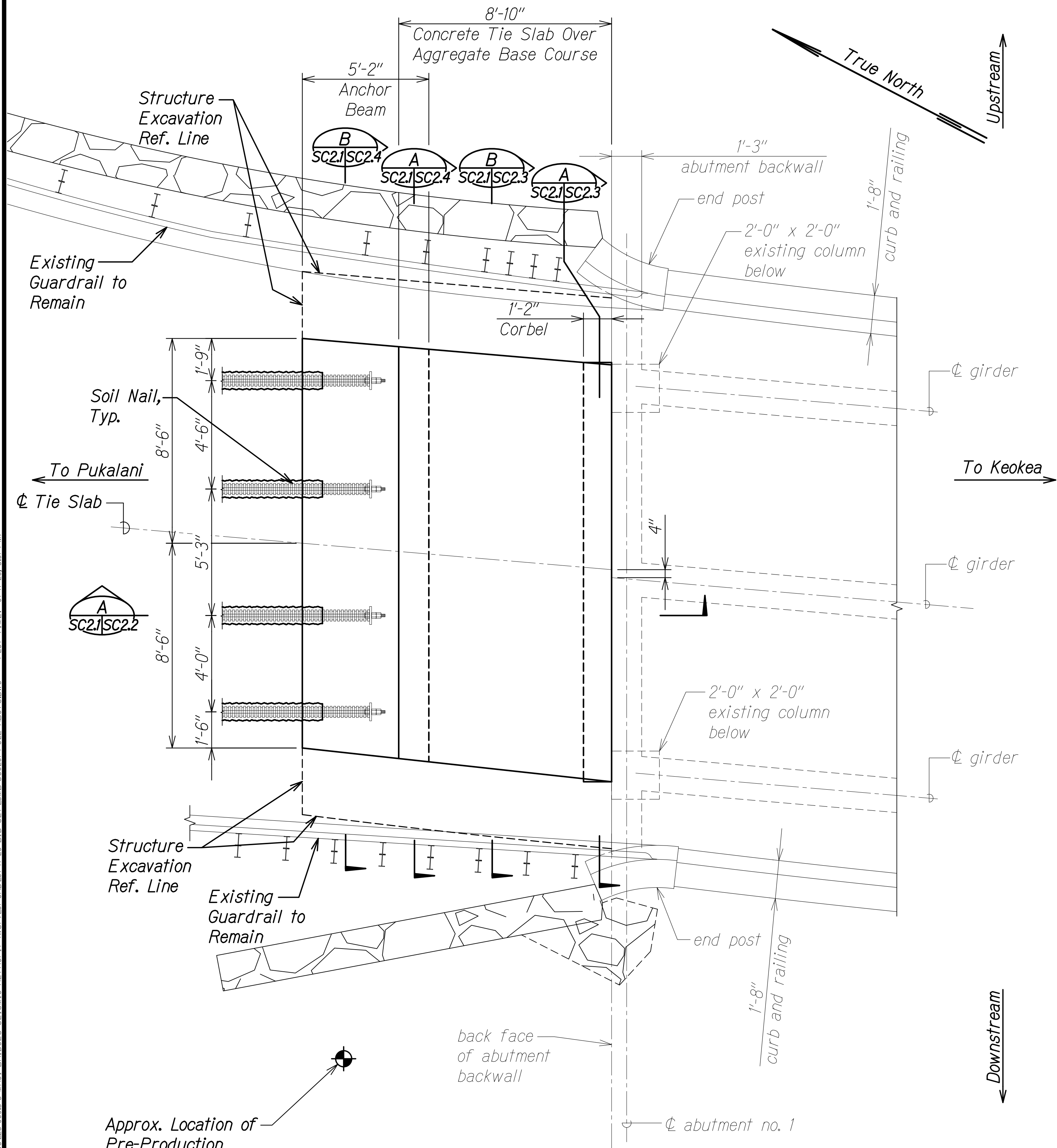
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	107	131

NOTE:

Structure excavation line is shown for reference only. The Contractor shall be responsible for methods of excavation at the abutment to maintain a stable cut face and to avoid undermining the existing metal guardrails. Existing granular backfill material shall be anticipated. Temporary shoring/bracing necessary to perform work shall be taken into consideration at the time of bid.

LEGEND:

 Pre-Production Sacrificial Soil Nail



ABUTMENT NO. 1 PLAN
 Scale: 3/8" = 1'-0"

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

PULEHU GULCH

ABUTMENT NO. 1 PLAN

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377

Waiale Gulch, Alae (Naalae Gulch) and

Pulehu Gulch (Pohakuokala) Bridges

Federal-Aid Project No. STP-0377(008)

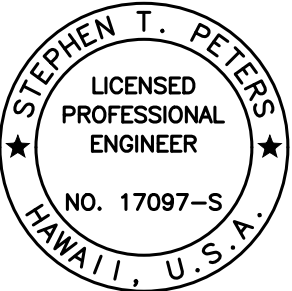
Scale: As Noted

Date: July 2026

SHEET No. **SC2.1** OF **8** SHEETS

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

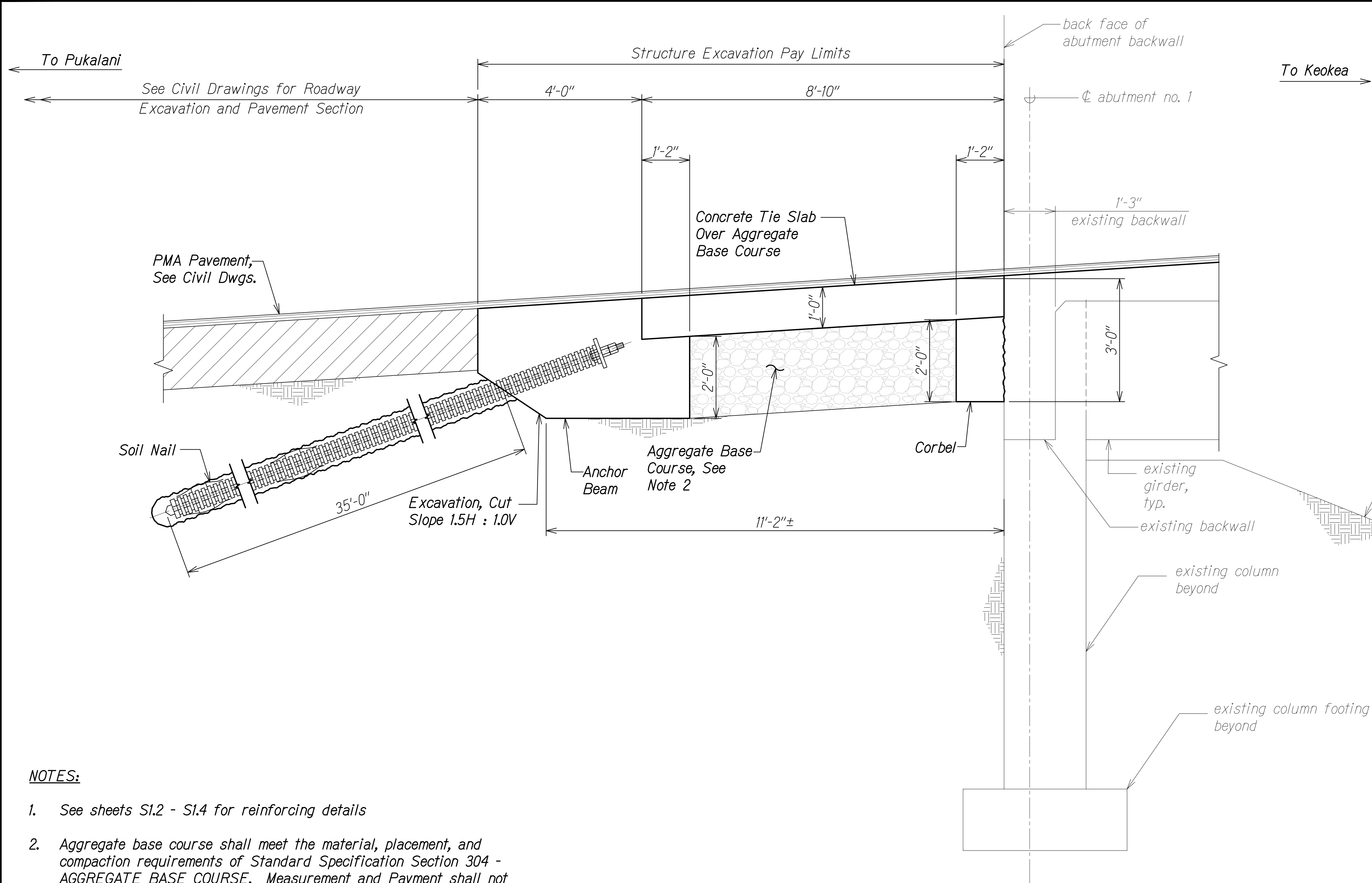
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	108	131



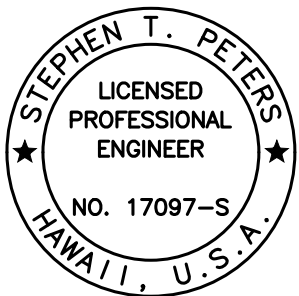
NOTES:

- See sheets S1.2 - S1.4 for reinforcing details
- Aggregate base course shall meet the material, placement, and compaction requirements of Standard Specification Section 304 - AGGREGATE BASE COURSE. Measurement and Payment shall not apply. Cost to be incidental to Concrete Tie Slab work.

SECTION A
 Scale: 3/4" = 1'-0" SC2.1 | SC2.2

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

DRAWING NAME: Z:\\$00 ONGOING\23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)\801 CAD\807-IT-26 BID SET\3MB-SC0201 PILE ABUT.SDWG PLOT TIME: 07-17-26 3:02 PM



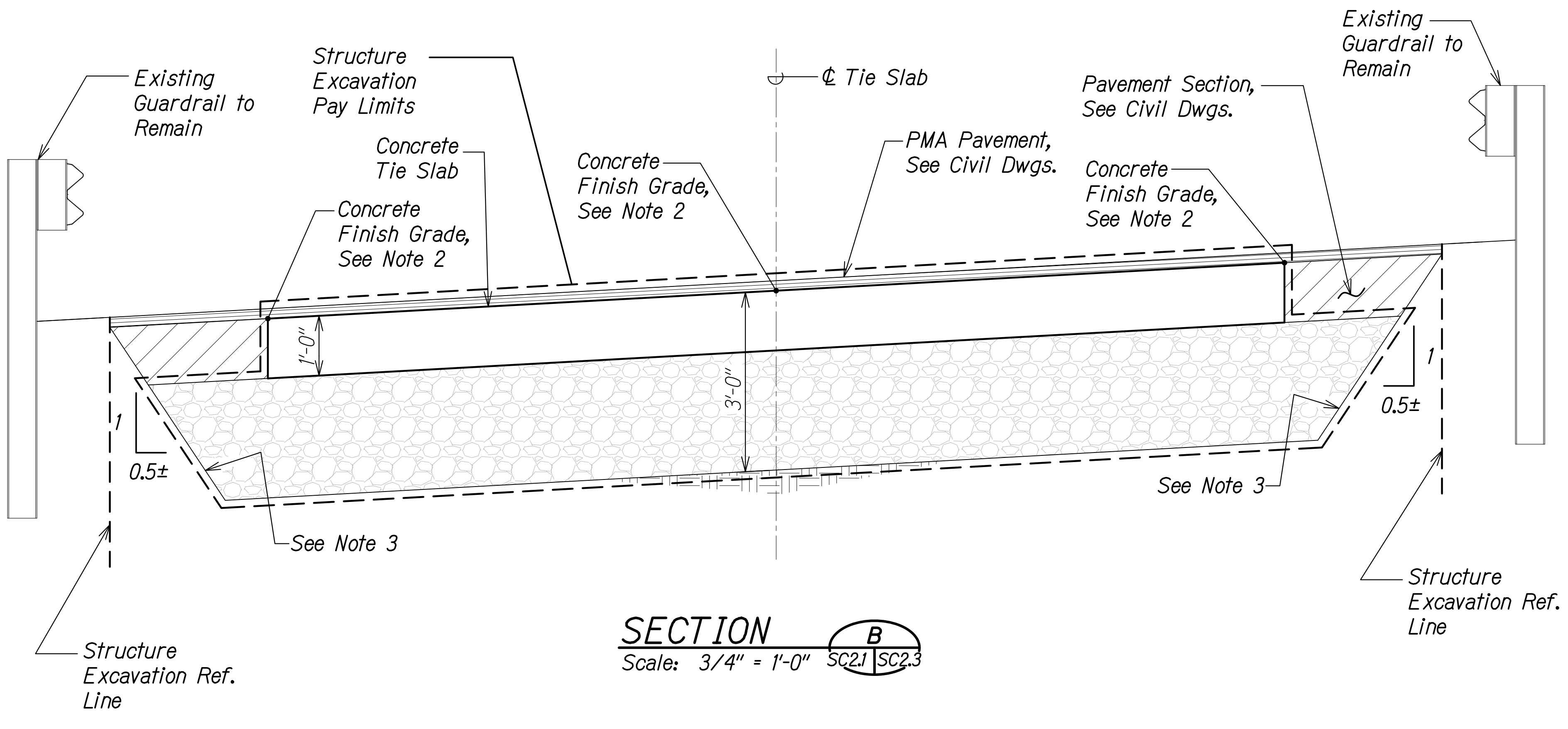
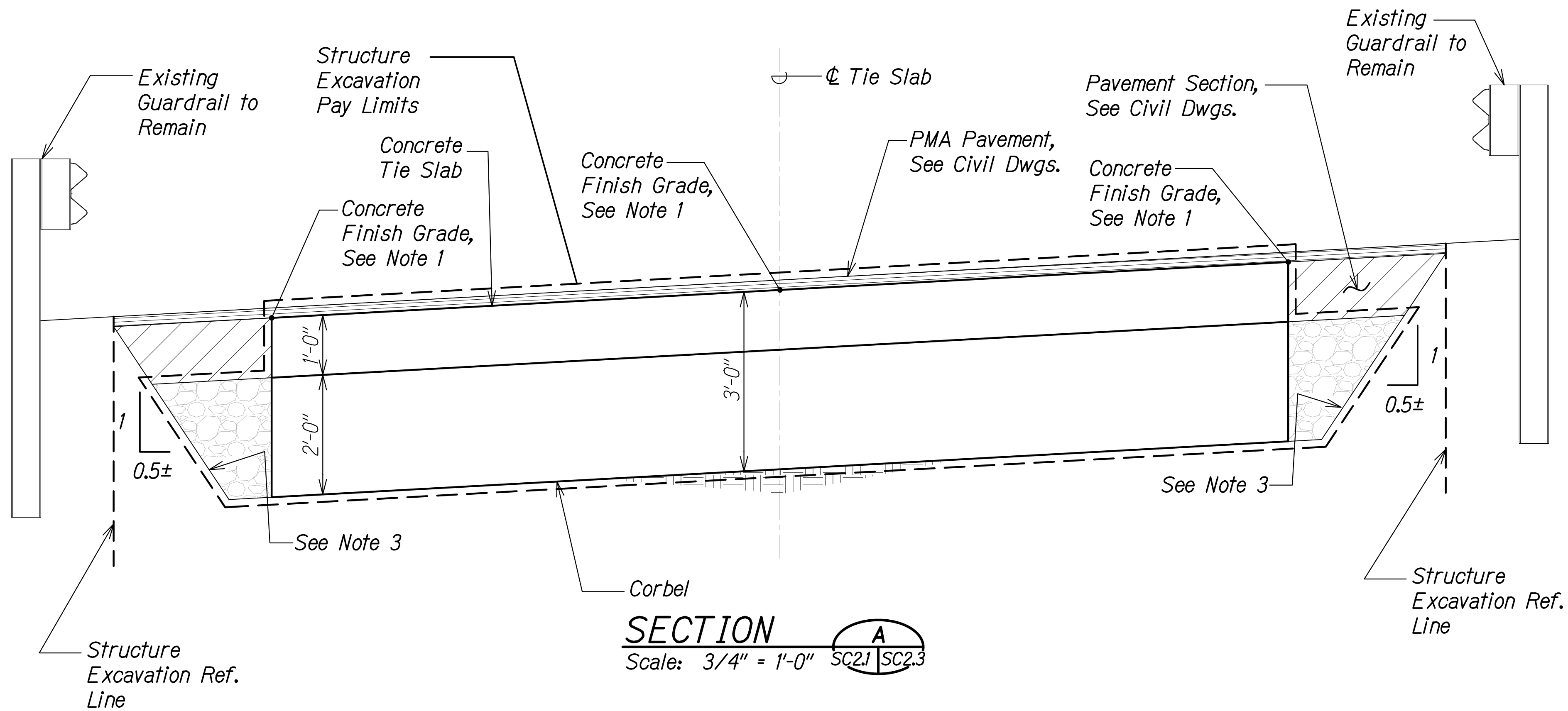
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Stephen T. Peters
 SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

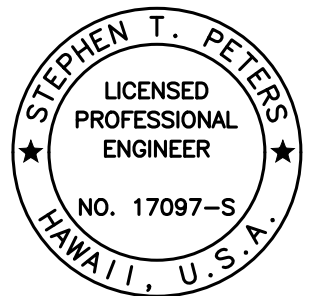
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
ABUTMENT NO. 1 SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
 Scale: As Noted Date: July 2026

SHEET No. SC2.2 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	109	131



- NOTES:**
- Top of concrete tie slab shall be constructed with a superelevation. Finish grade shall match top of concrete bridge deck.
 - Top of concrete tie slab finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
 - Contractor shall be responsible for providing a stable cut soil face as needed to prevent loss of soil around Guardrail posts.



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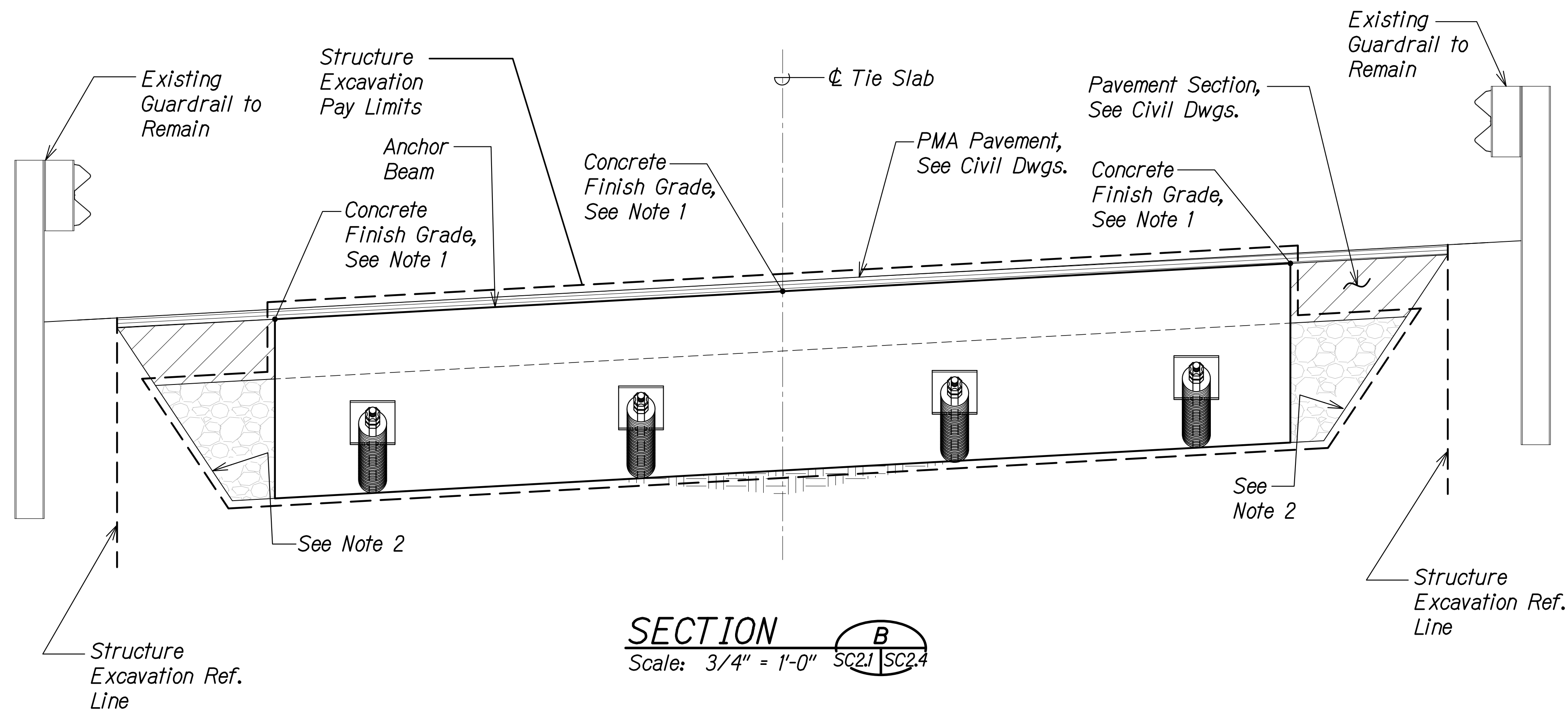
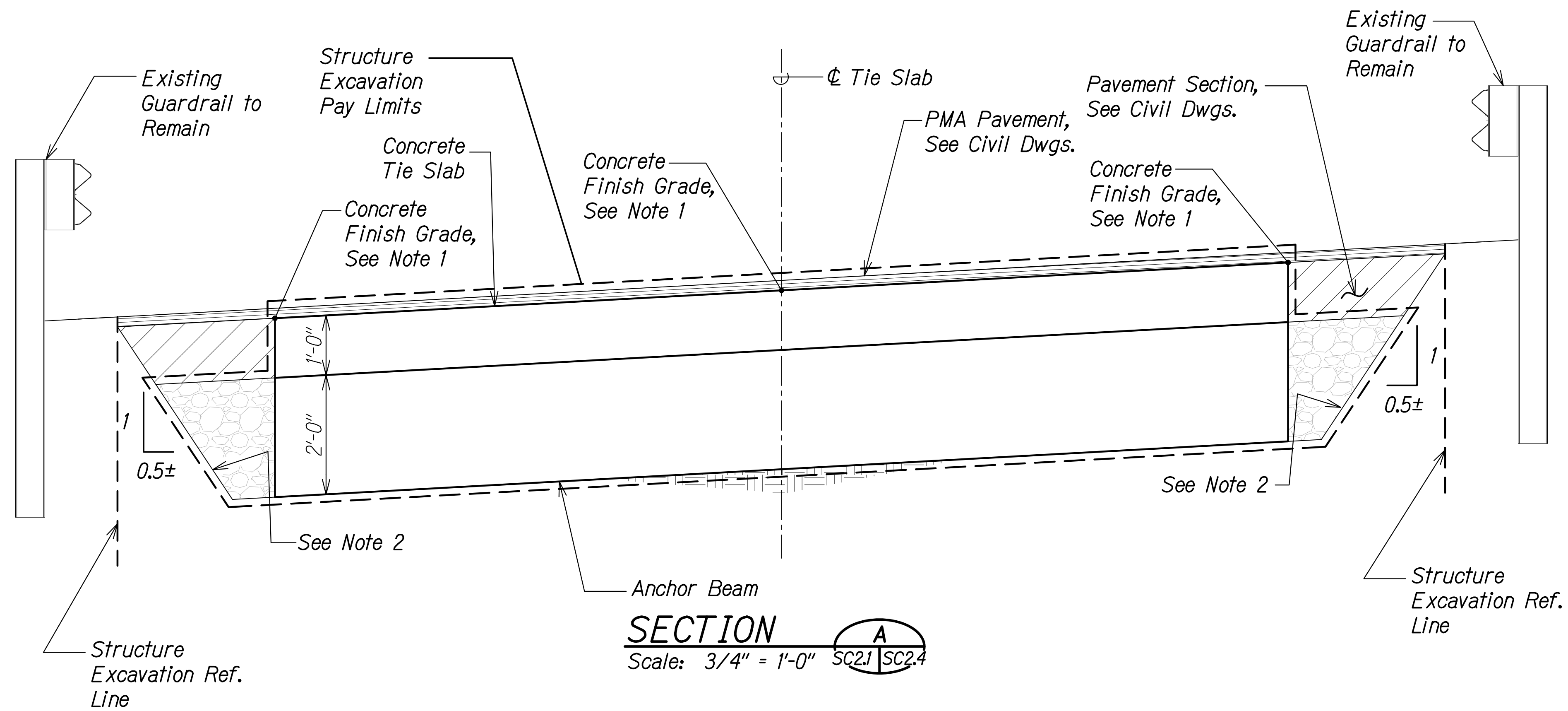
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULEHU GULCH BRIDGE
ABUTMENT NO. 1 SECTIONS

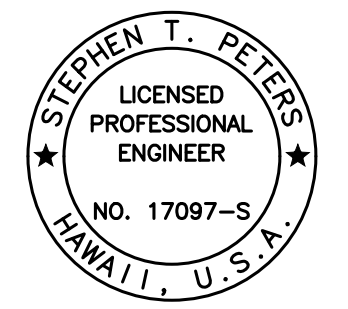
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	110	131



- NOTES:**
- Top of concrete tie slab/anchor beam finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
 - Contractor shall be responsible for providing a stable cut soil face as needed to prevent loss of soil around Guardrail posts.



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Signature: *Stephen T. Peters*
 Date: 4-30-28
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

PULEHU GULCH BRIDGE
ABUTMENT NO. 1 SECTIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

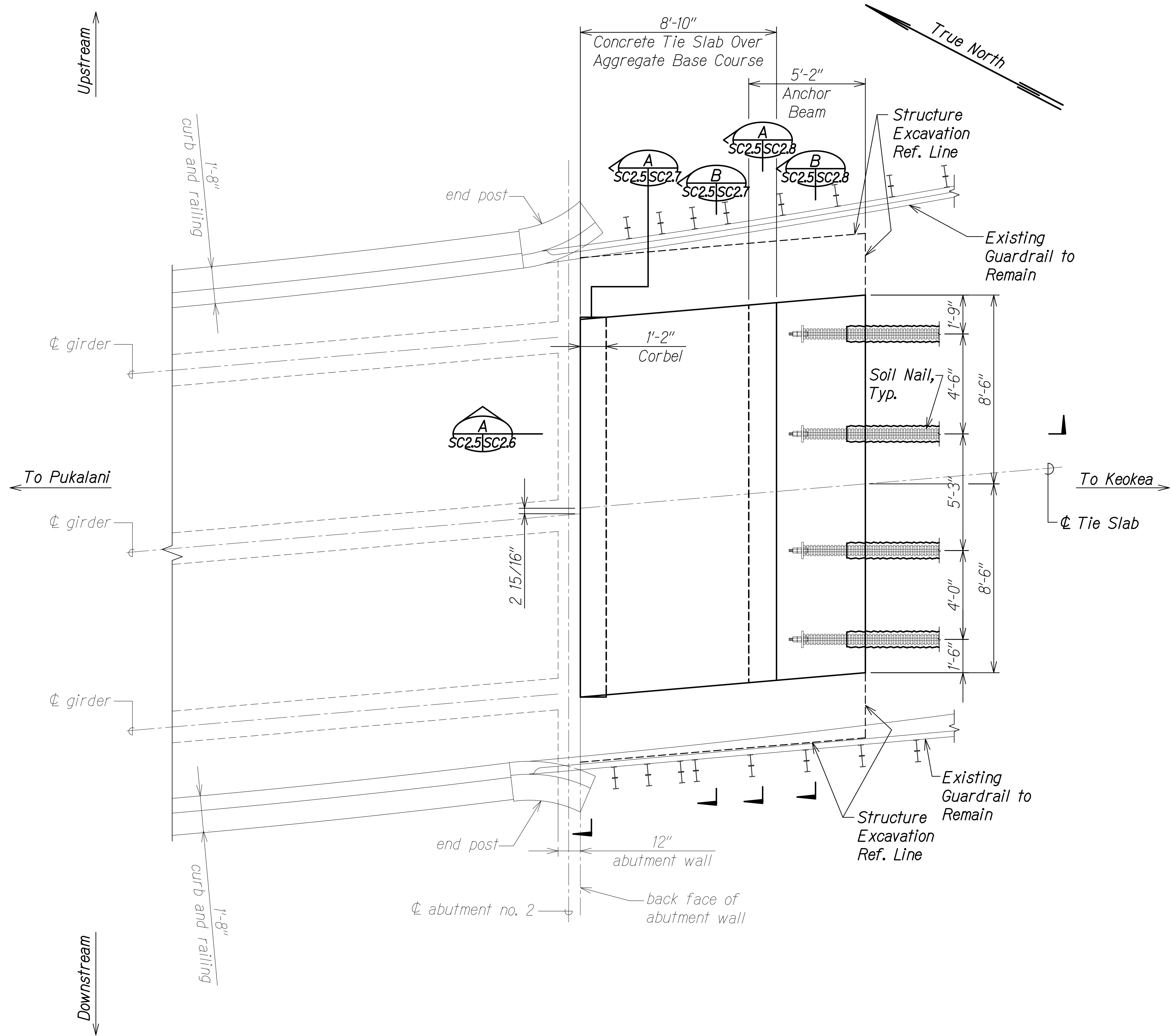
Scale: As Noted Date: July 2026

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

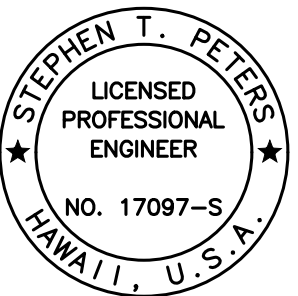
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	111	131

NOTE:
Structure excavation line is shown for reference only. The Contractor shall be responsible for methods of excavation at the abutment to maintain a stable cut face and to avoid undermining the existing metal guardrails. Existing granular backfill material shall be anticipated. Temporary shoring/bracing necessary to perform work shall be taken into consideration at the time of bid.



ABUTMENT NO. 2 PLAN
Scale: 3/8" = 1'-0"
A
SC2.3 | SC2.3



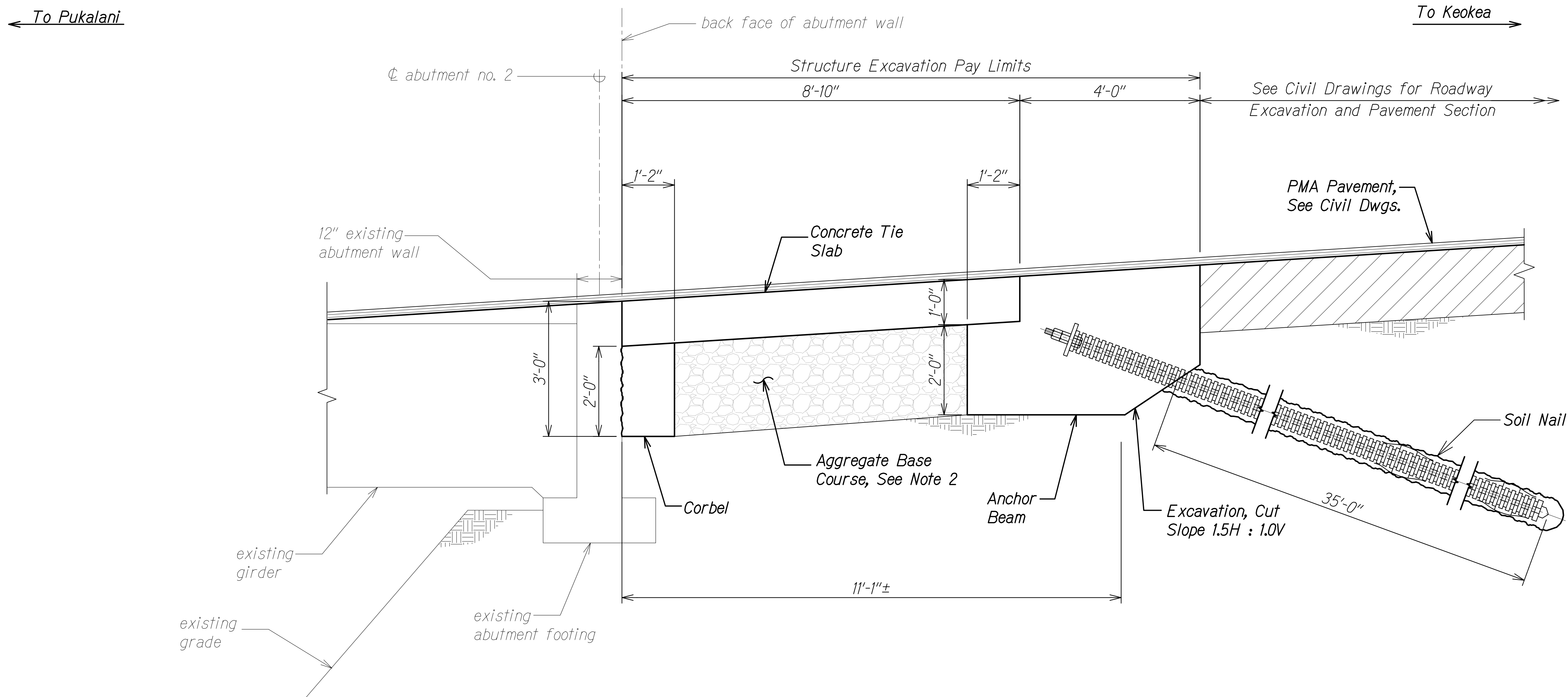
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
ABUTMENT NO. 2 PLAN
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SC2.5 OF 8 SHEETS

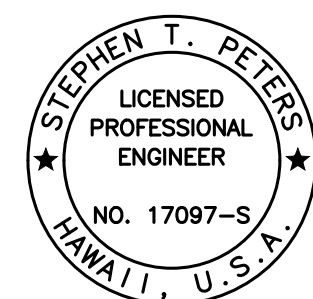
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	112	131



NOTES:

- See sheets S1.2 - S1.4 for reinforcing details
- Aggregate base course shall meet the material, placement, and compaction requirements of Standard Specification Section 304 - AGGREGATE BASE COURSE. Measurement and Payment shall not apply. Cost to be incidental to Concrete Tie Slab work.

SECTION
Scale: 3/4" = 1'-0" SC2.5 | SC2.6



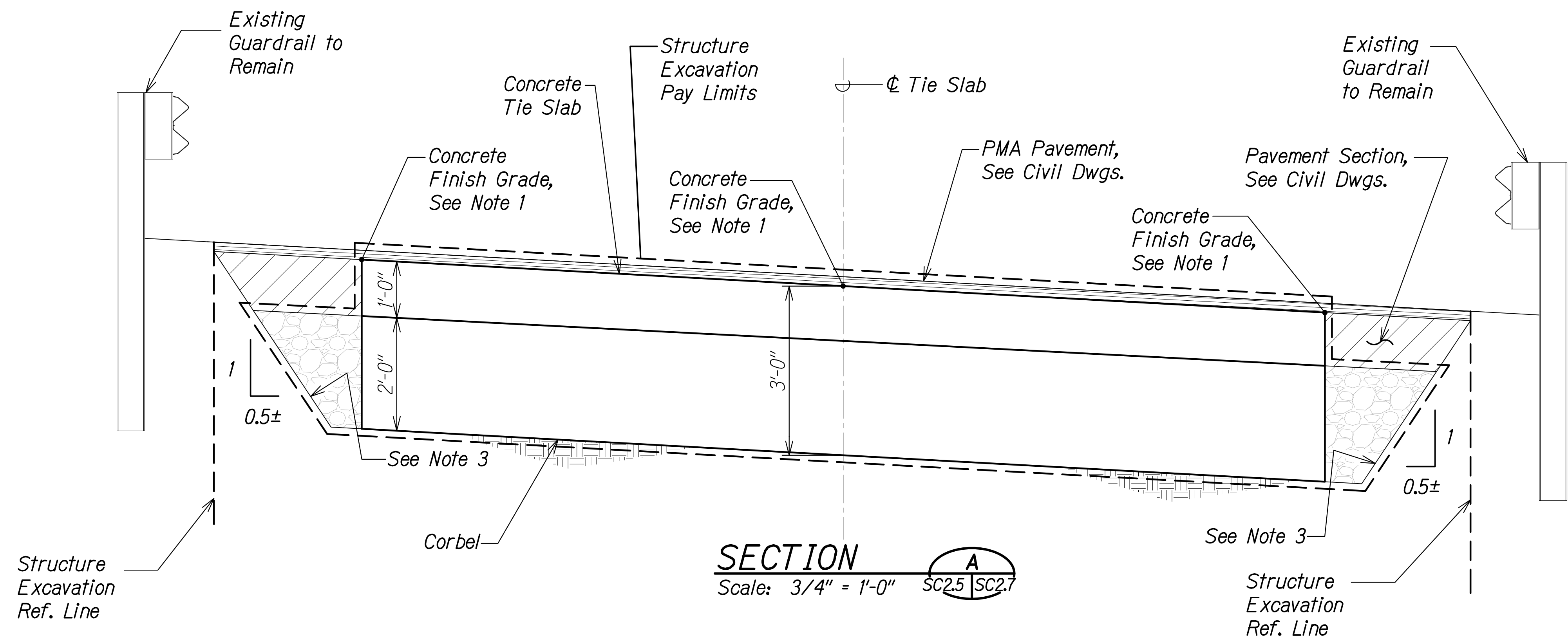
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

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SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
ABUTMENT NO. 2 SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

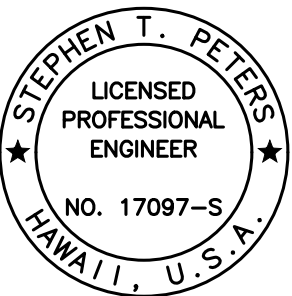
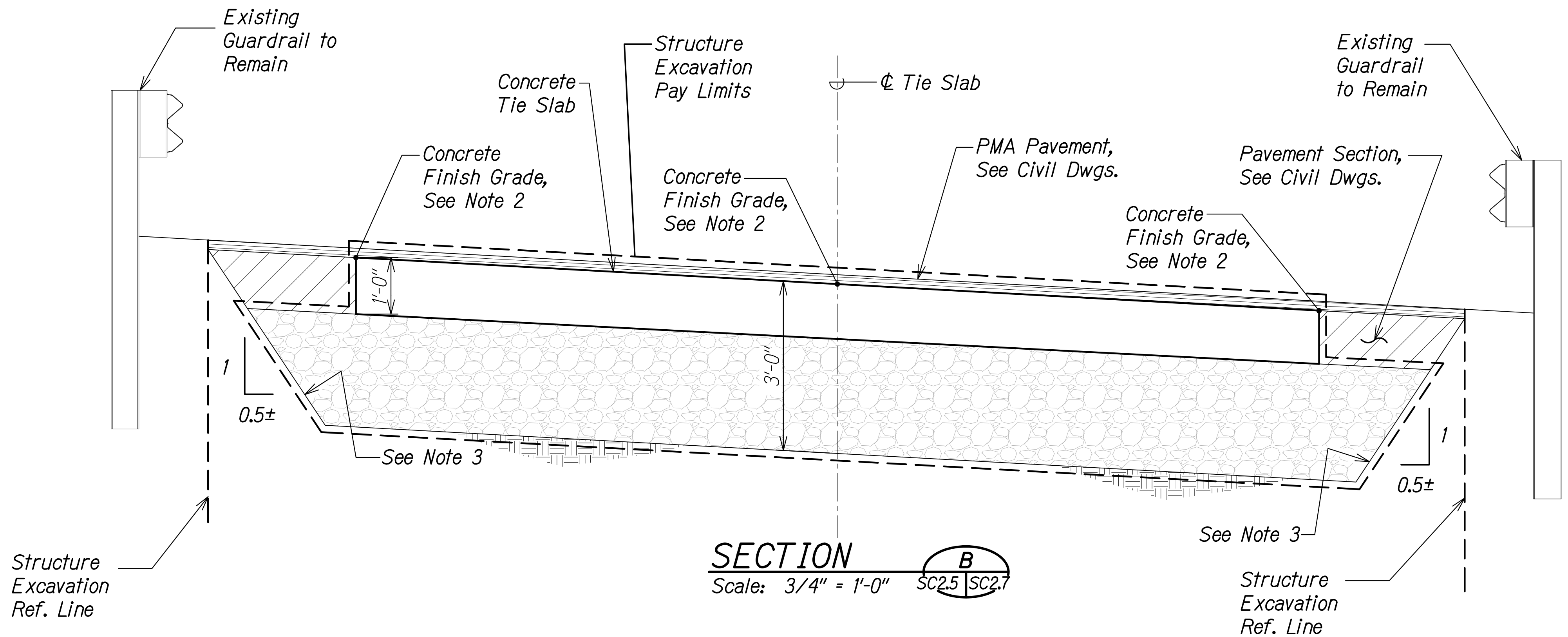
SHEET No. SC2.6 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	113	131



NOTES:

1. Top of concrete tie slab shall be constructed with a superelevation. Finish grade shall match top of concrete bridge deck.
2. Top of concrete tie slab shall be constructed with 2" below roadway finish grade. See Civil Drawings.
3. Contractor shall be responsible for providing a stable cut soil face as needed to prevent loss of soil around Guardrail posts.



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SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

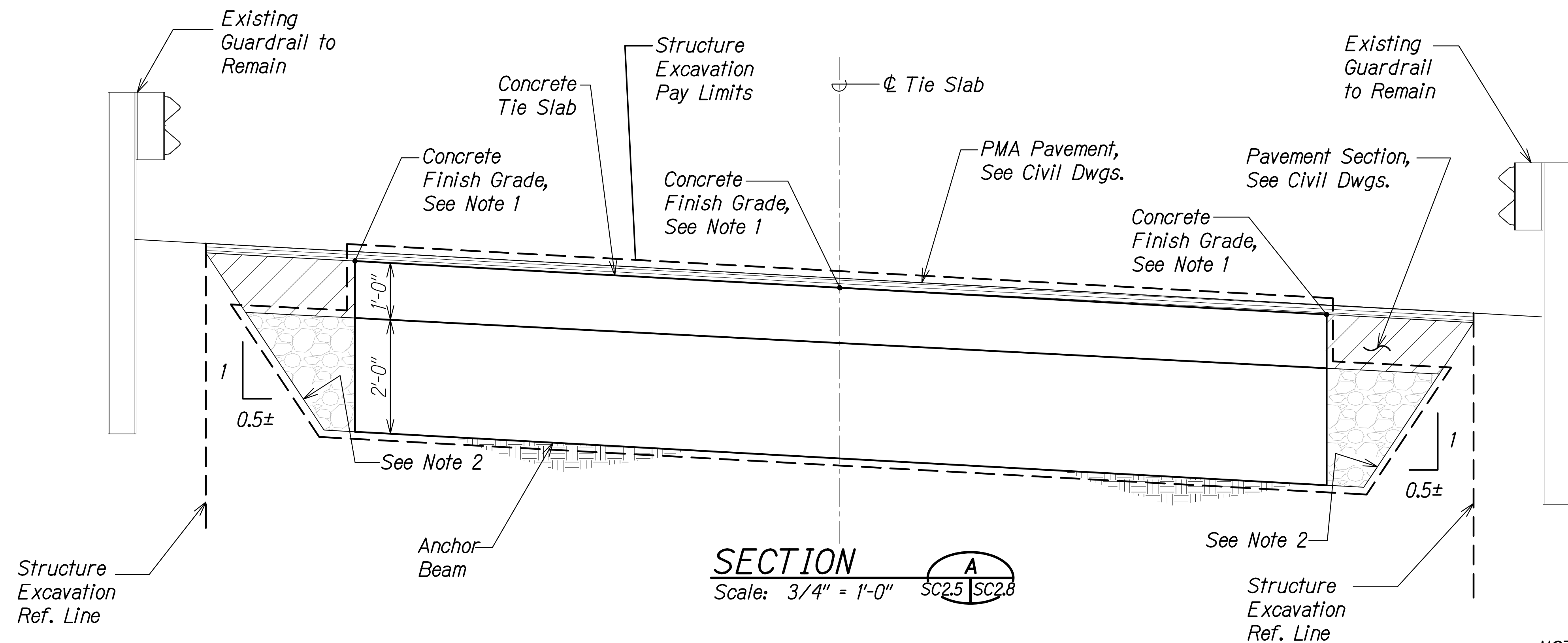
PULEHU GULCH BRIDGE
ABUTMENT NO. 2 SECTIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)

Scale: As Noted Date: July 2026

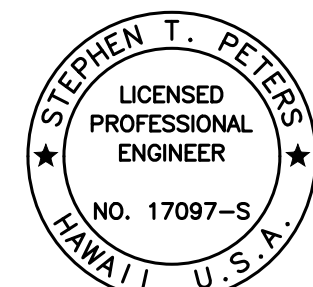
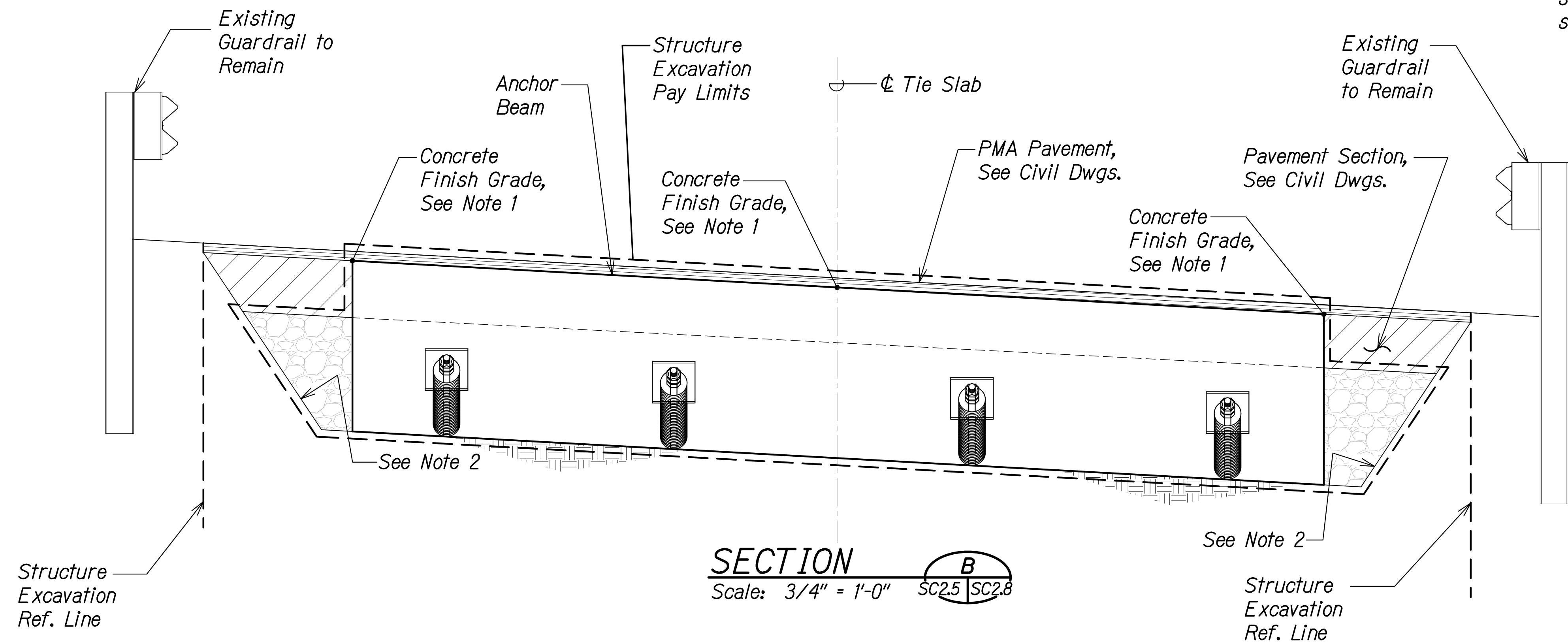
SHEET No. SC2.7 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	114	131



NOTES:

1. Top of concrete tie slab/anchor beam finish grade shall be constructed 2" below roadway finish grade. See Civil Drawings.
2. Contractor shall be responsible for providing a stable cut soil face as needed to prevent loss of soil around Guardrail posts.



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Signature: *Stephen T. Peters* 4-30-28
 EXPIRATION DATE OF THE LICENSE

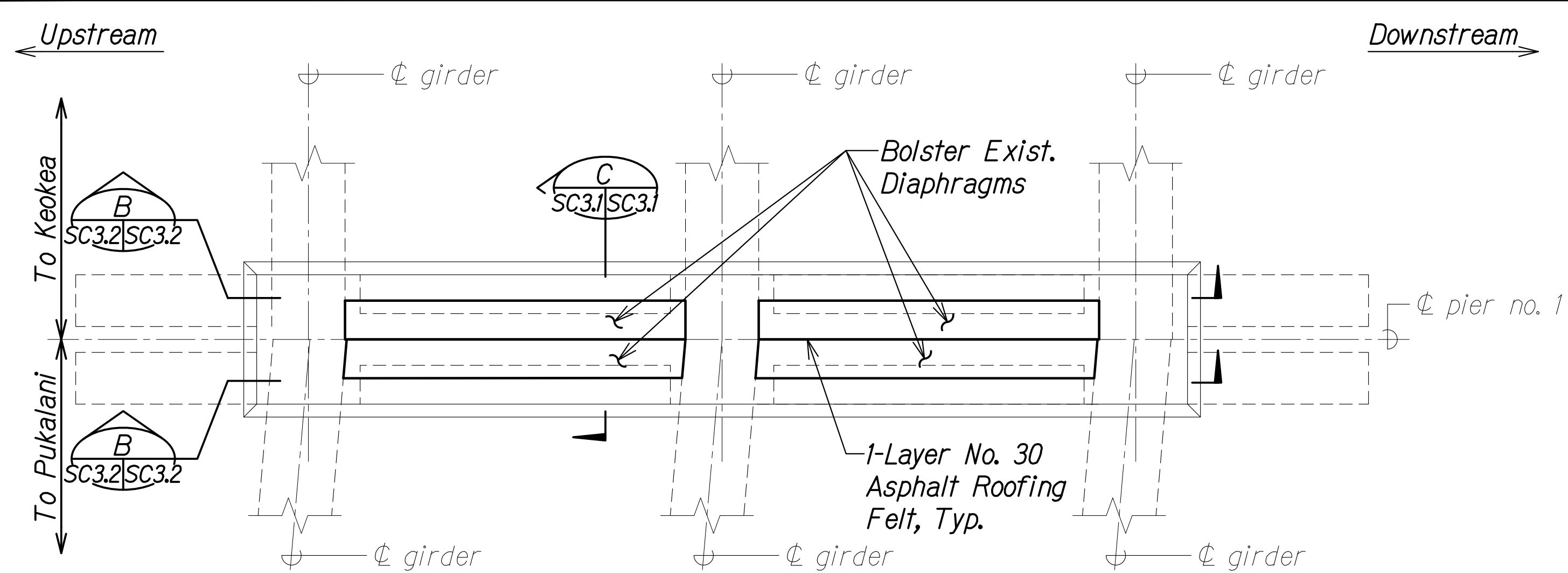
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
ABUTMENT NO. 2 SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
 Scale: As Noted Date: July 2026

SHEET No. SC2.8 OF 8 SHEETS

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT INSP1801 CAD807-17-26 BID SET3MB-SC0201 PILE ABUTS.DWG PLOT TIME: 07-17-26 3:03 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	115	131

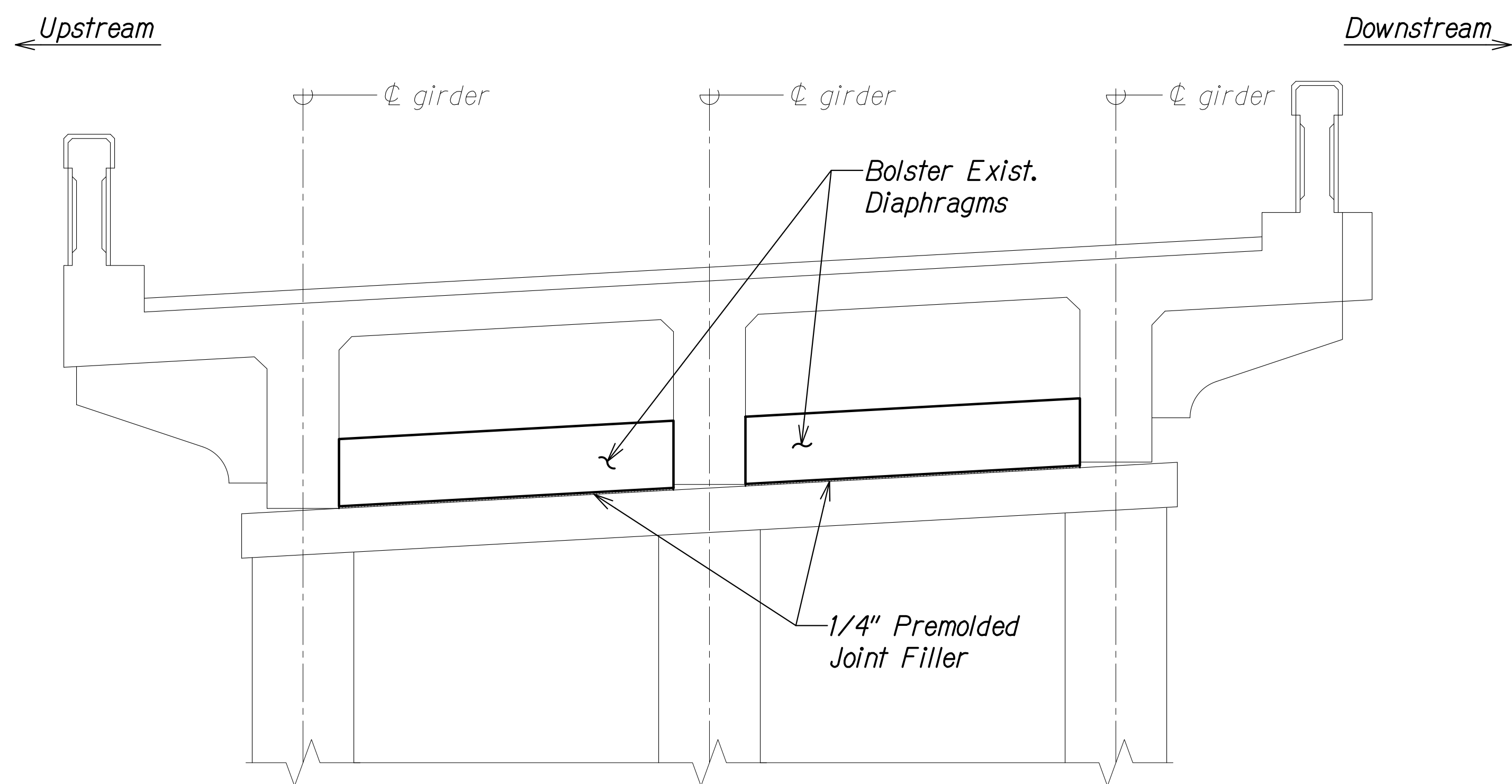


PIER NO. 1 - PIER CAP PLAN

Scale: 1/2" = 1'-0"

A

SC3.1/SC3.1

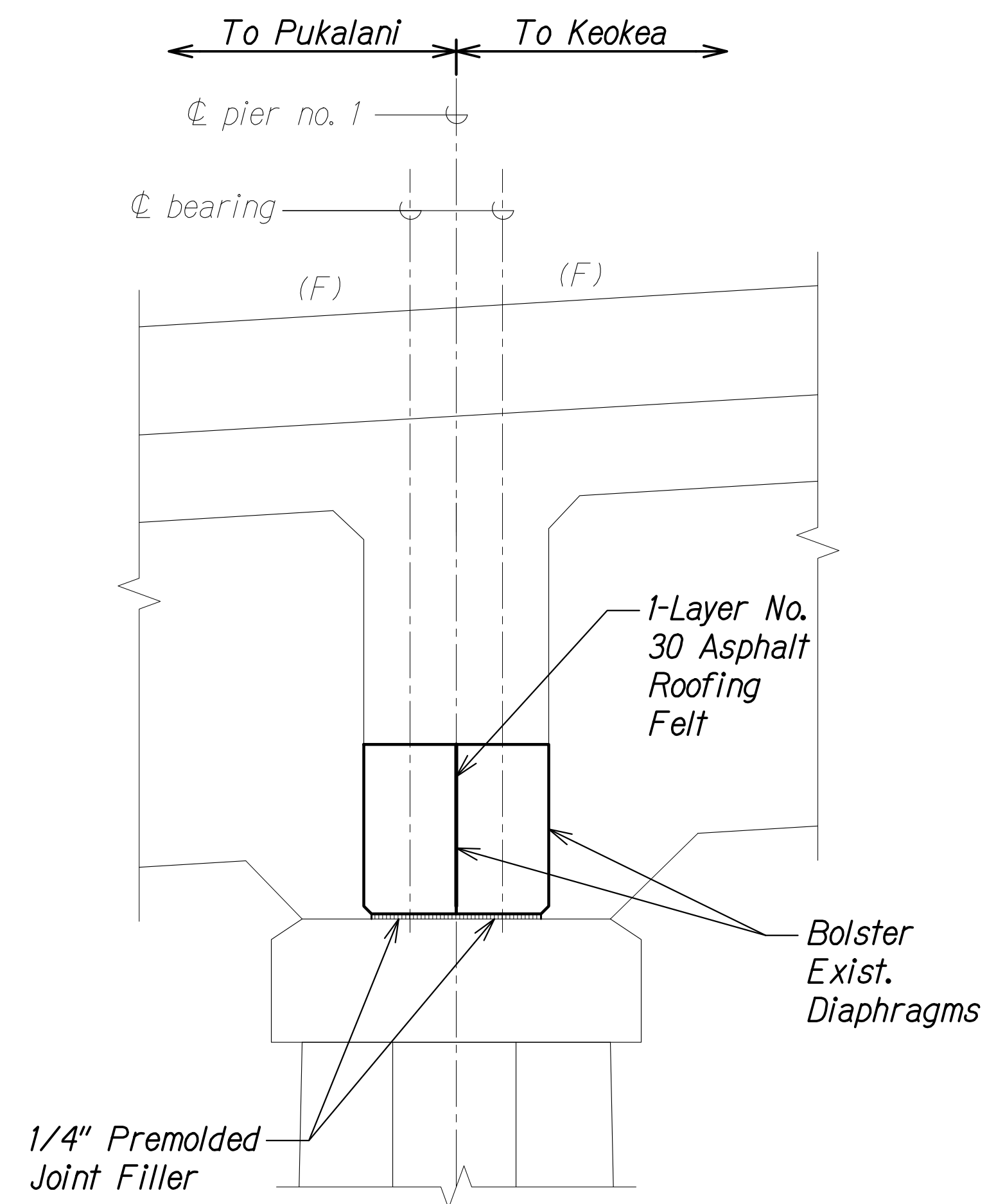


PIER NO. 1 - SECTION

Scale: 1/2" = 1'-0"

B

SC3.1/SC3.1

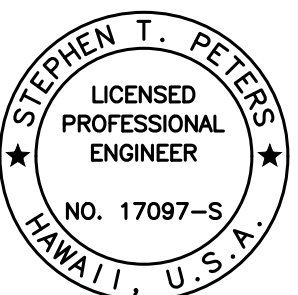


PIER NO. 1 - SECTION

Scale: 1" = 1'-0"

C

SC3.1/SC3.1



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Signature: *Stephen T. Peters*
Date: 4-30-28
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

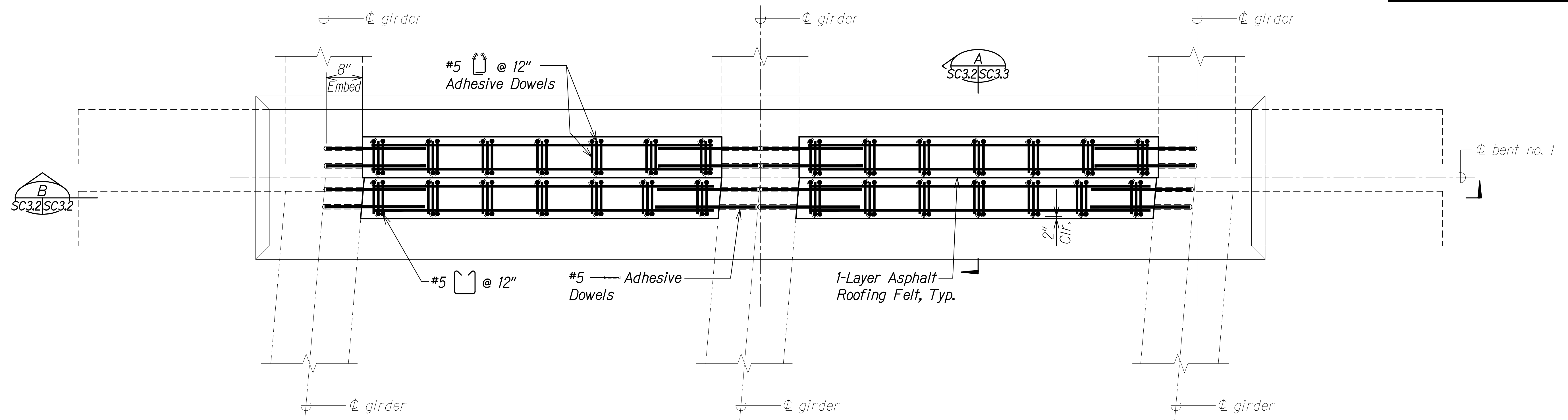
PULEHU GULCH BRIDGE
PIER NO. 1 PLAN AND SECTIONS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

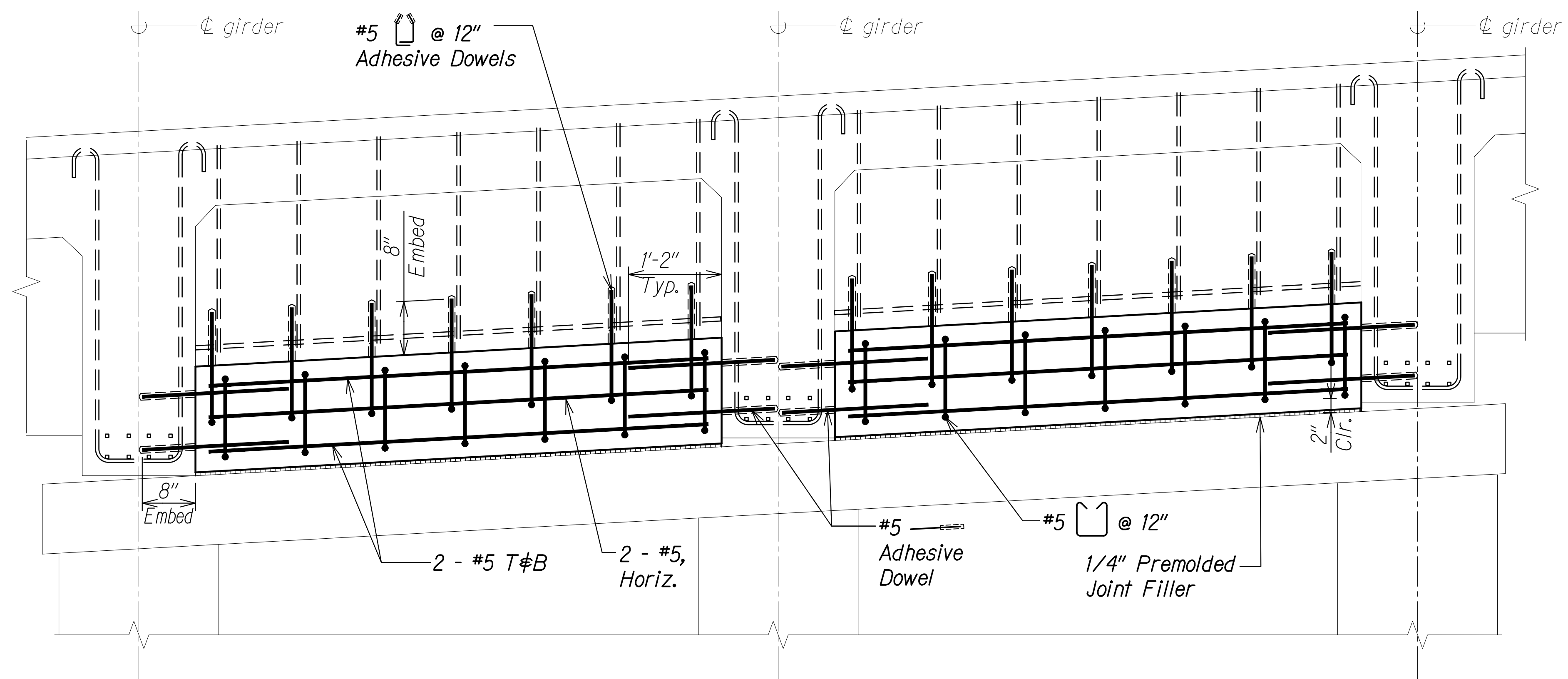
Scale: As Noted Date: July 2026

SHEET No. SC3.1 OF 6 SHEETS

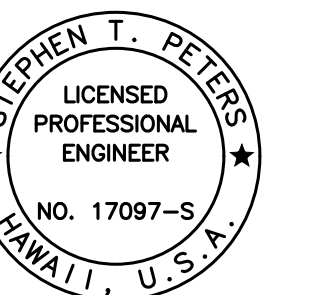
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	116	131



PIER NO. 1 - REINFORCING PLAN A
Scale: 1" = 1'-0" SC3.2 | SC3.2



PIER NO. 1 - REINFORCING SECTION B
Scale: 1" = 1'-0" SC3.2 | SC3.2



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Stephen T. Peters
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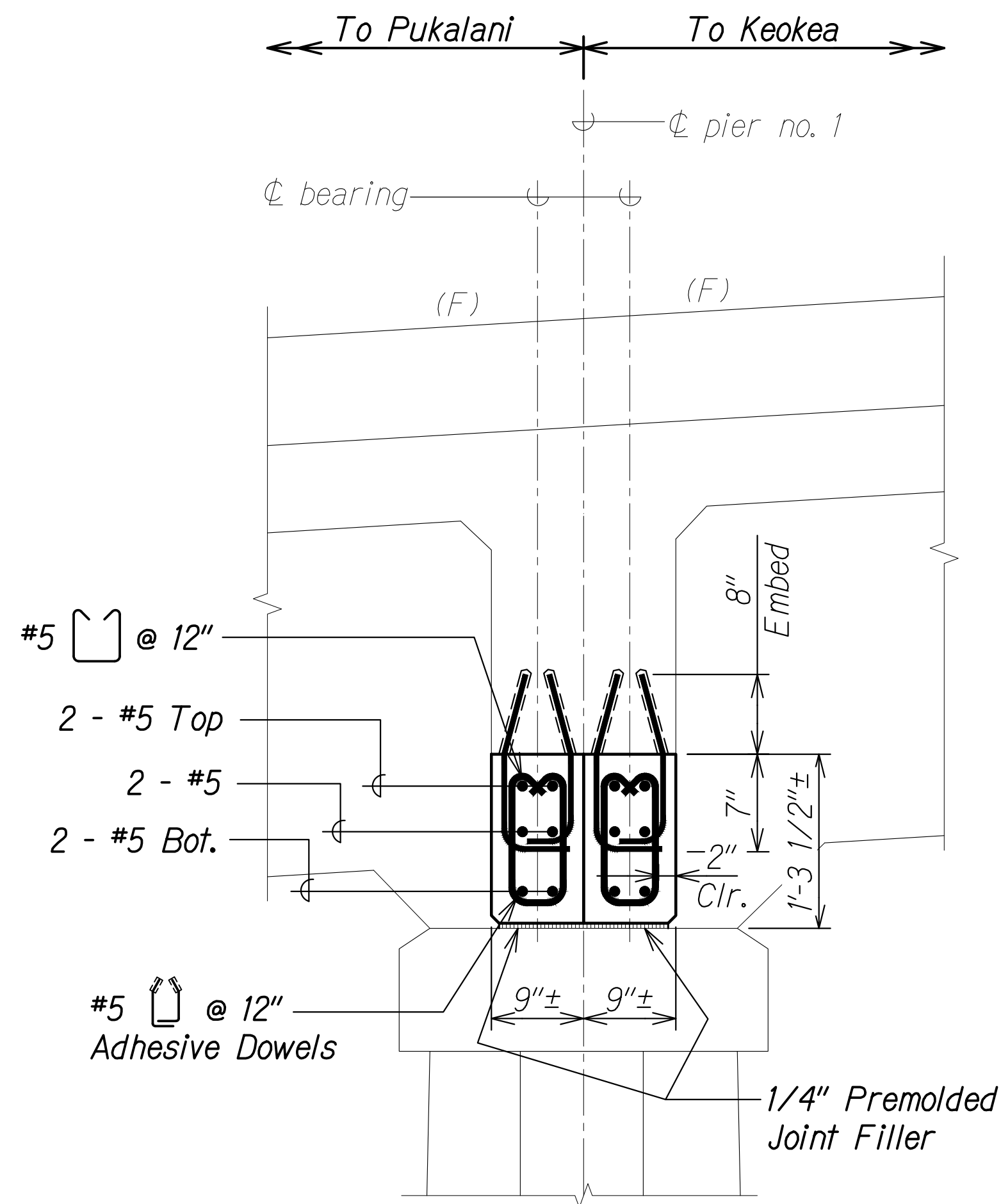
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE PIER NO. 1
REINFORCING PLAN AND SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SC3.2 OF 6 SHEETS

ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
CHECKED BY	

DRAWING NAME: Z:\000 ONGOING\23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP\B01 CAD\07-16-26 BID SET\3MB-SC0301 PILE PIER PLANS, SECS & REIN.DWG PLOT TIME: 07-16-26 1:20 PM)

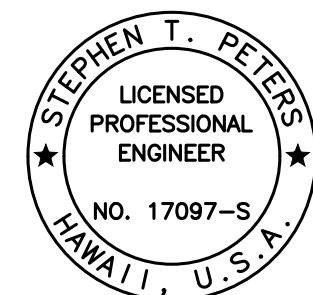
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	117	131



PIER NO. 1 - REINFORCING SECTION A
Scale: 1" = 1'-0" SC3.2 SC3.3

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

DRAWING NAME: Z:\800 ONGOING\23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)\801 CAD\807-16-26 BID SET\3MB-SC0301 PILE PIER PLANS, SECS & REIN.DWG PLOT TIME: 07-16-26 1:20 PM



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SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

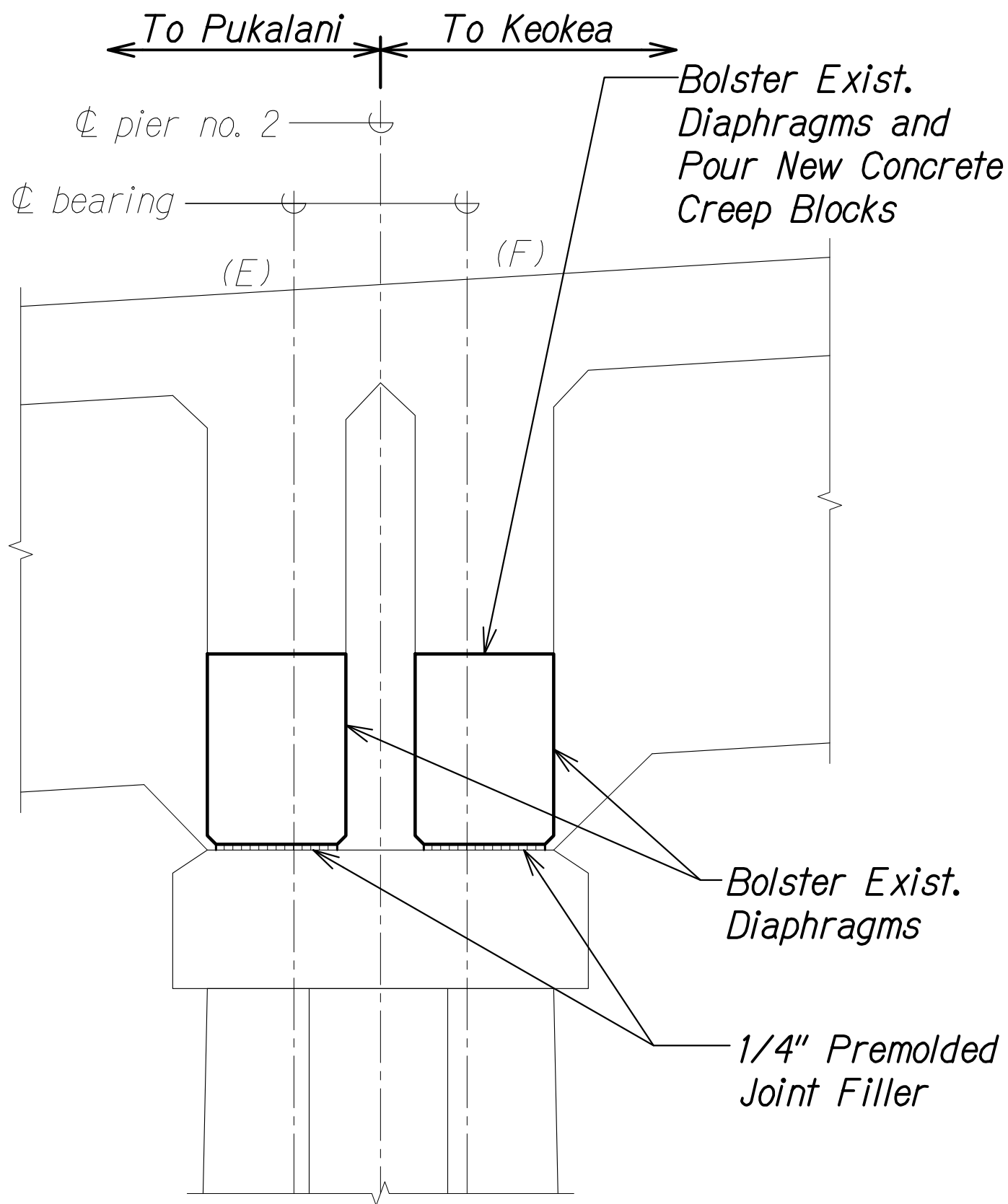
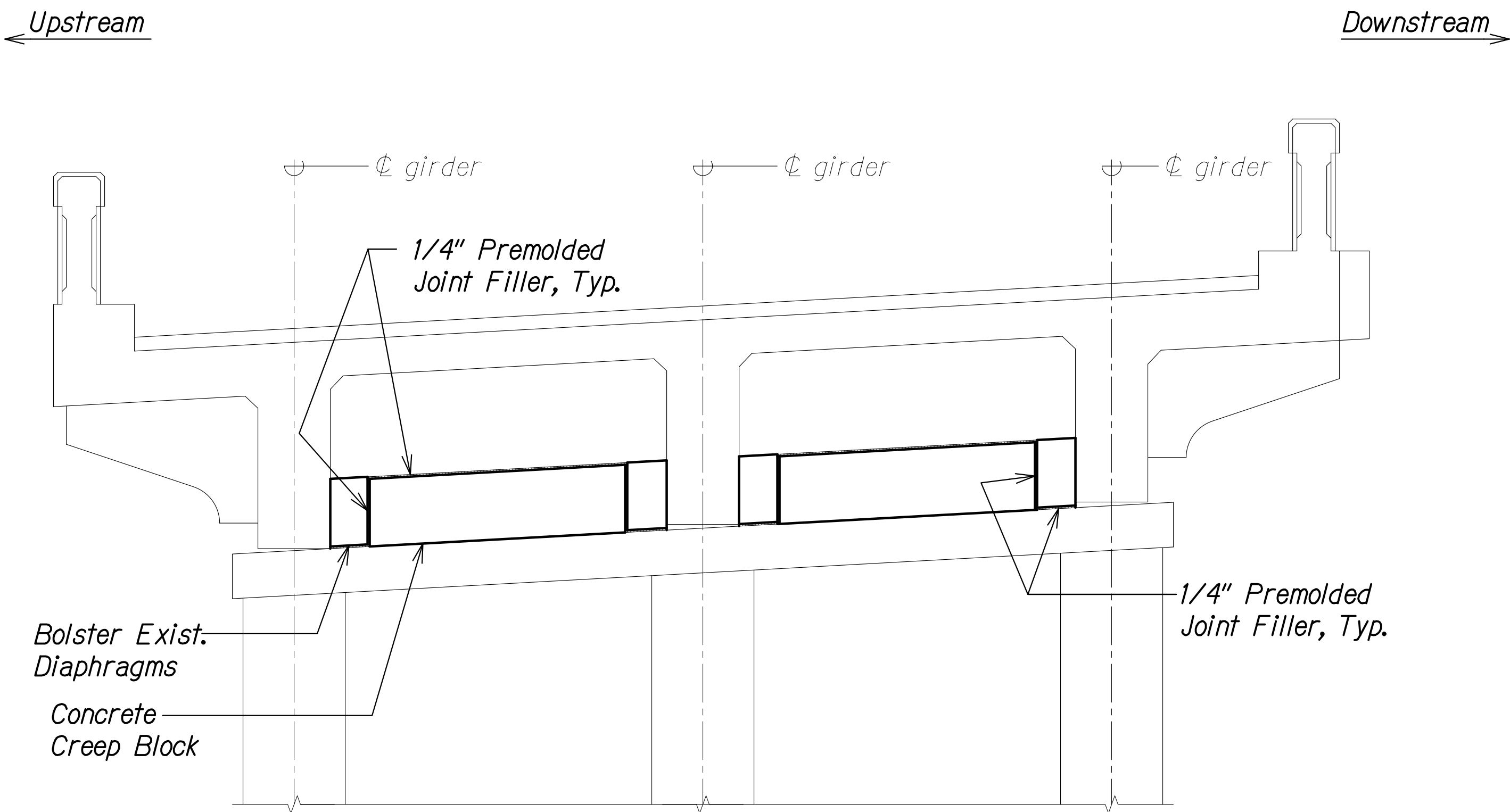
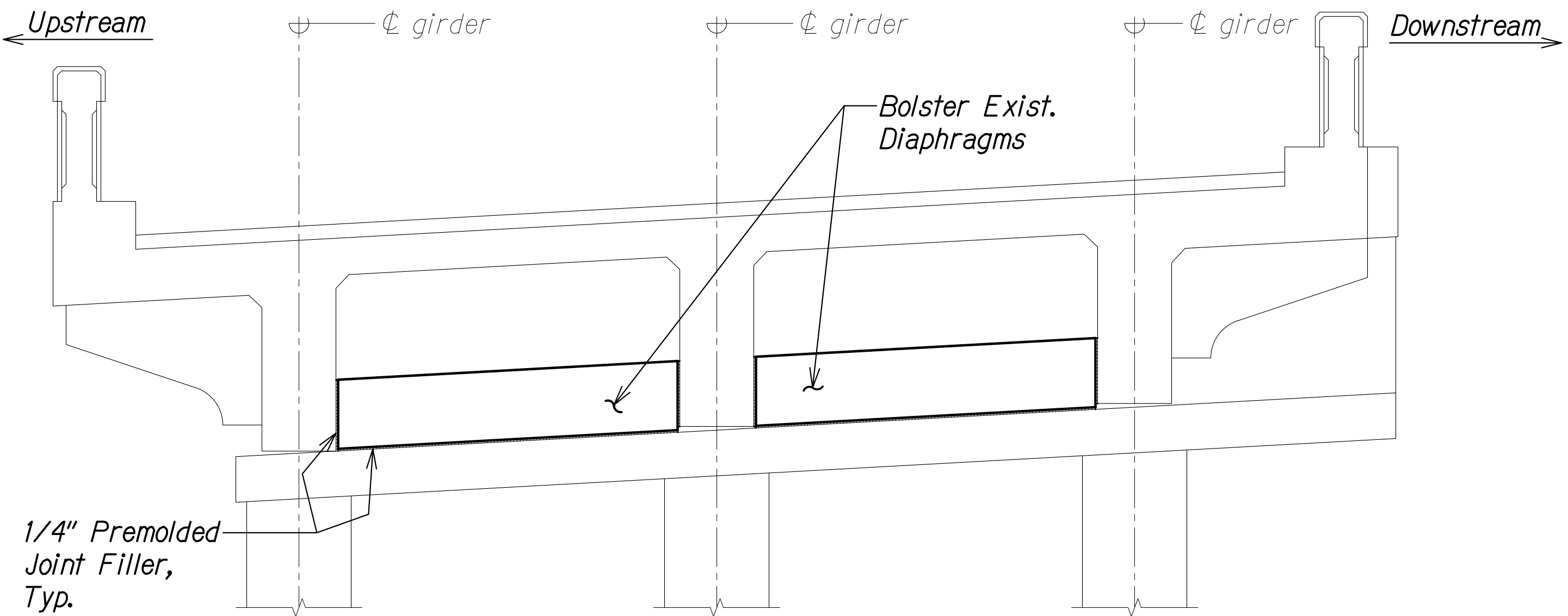
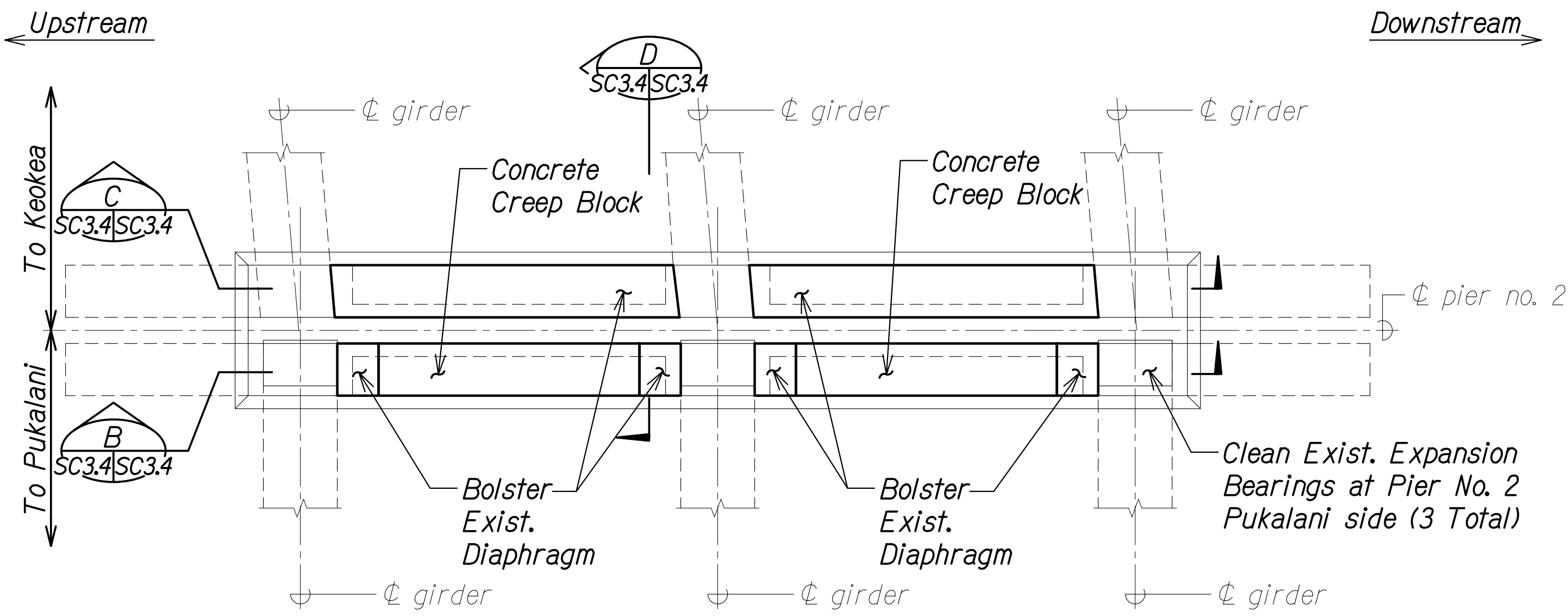
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULEHU GULCH BRIDGE
PIER NO. 1 REINFORCING SECTION

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

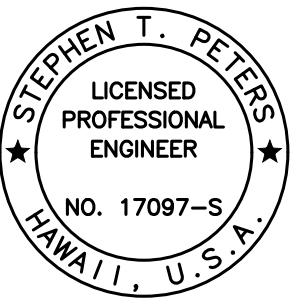
Scale: As Noted Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	118	131



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP) BID SET-3MB-SC0301 PULE PIER PLANS, SECS & REIN.DWG PLOT TIME: 07-16-26 1:20 PM

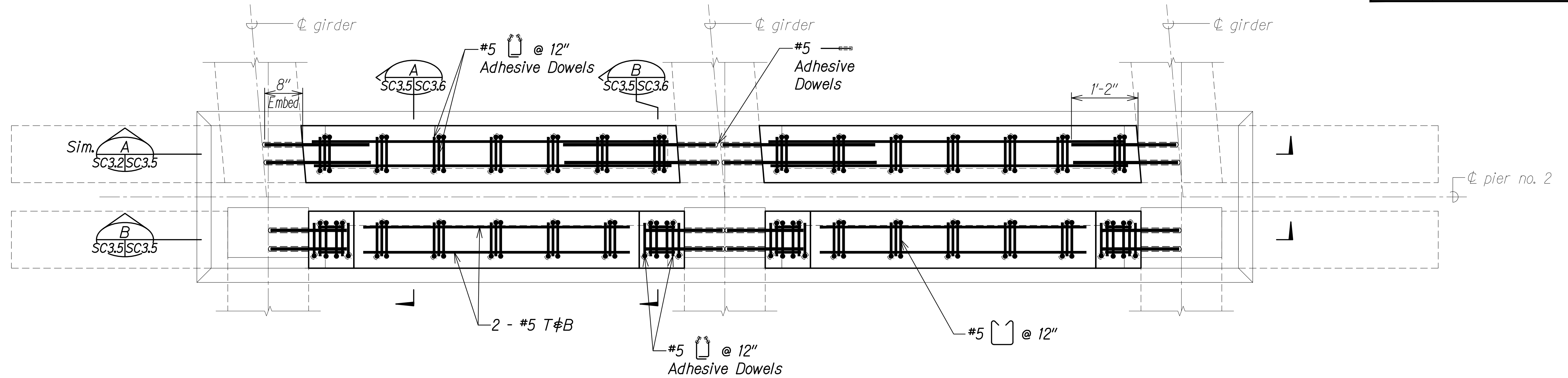


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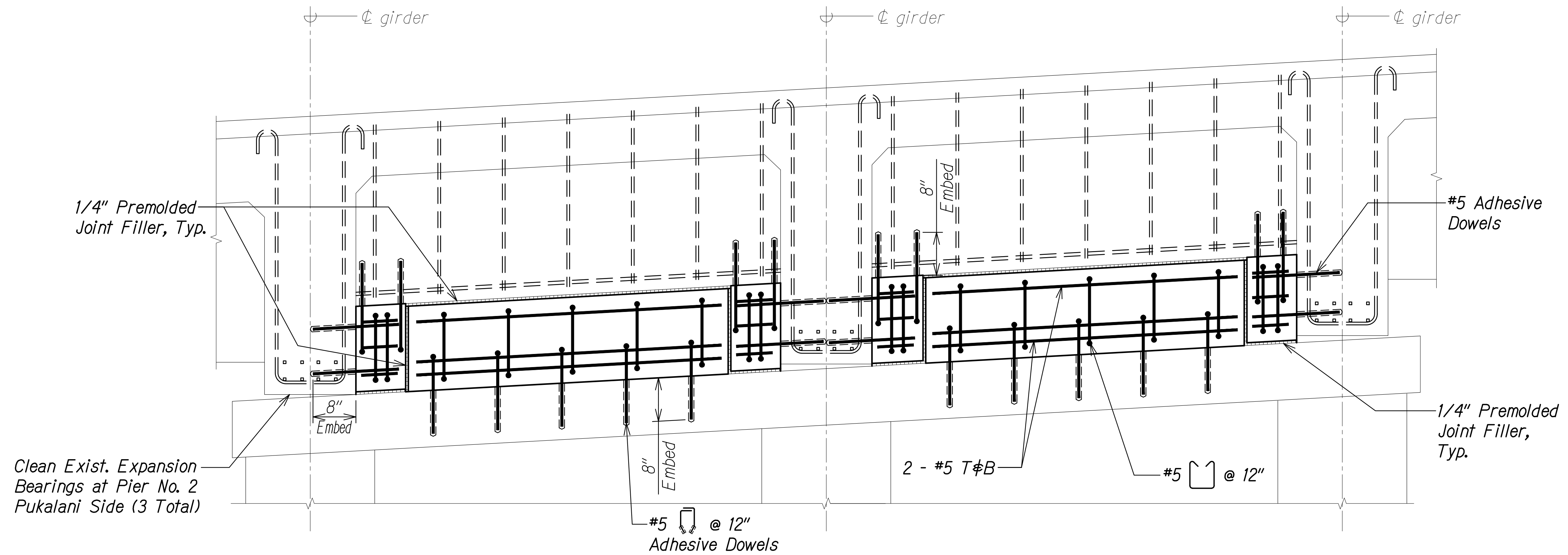
Signature: *Stephen T. Peters* 4-30-28
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
PIER NO. 2 PLAN AND SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
 Scale: As Noted Date: July 2026

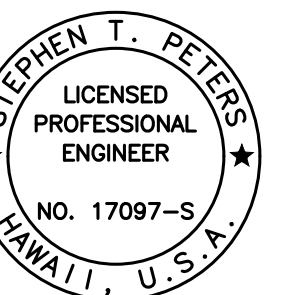
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	119	131



PIER NO. 2 - REINFORCING PLAN
Scale: 1" = 1'-0"
A
SC3.5 SC3.5



PIER NO. 2 - REINFORCING SECTION
Scale: 1" = 1'-0"
B
SC3.5 SC3.5



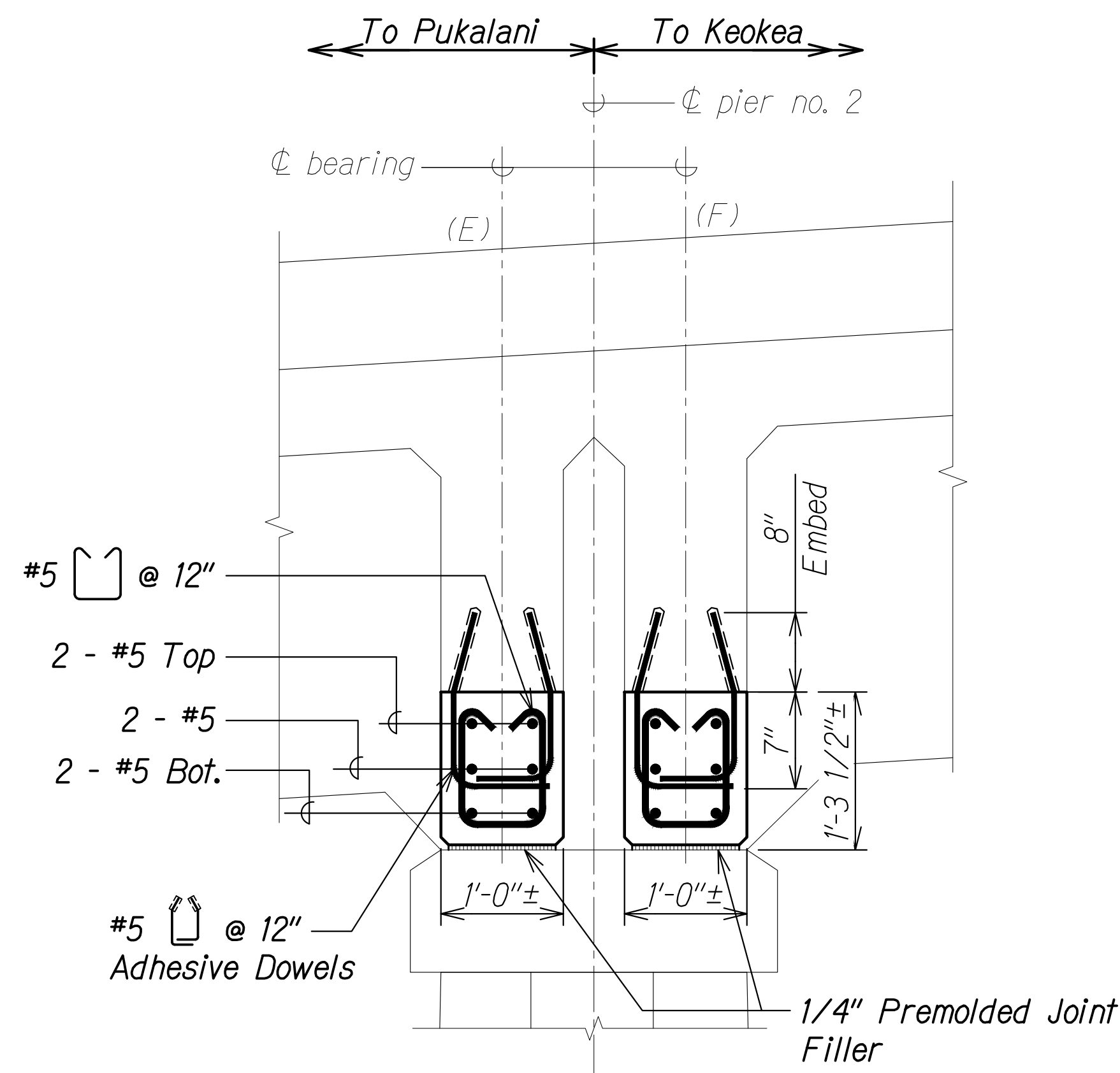
THIS WORK WAS PREPARED BY
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SIGNATURE EXPIRATION DATE OF THE LICENSE

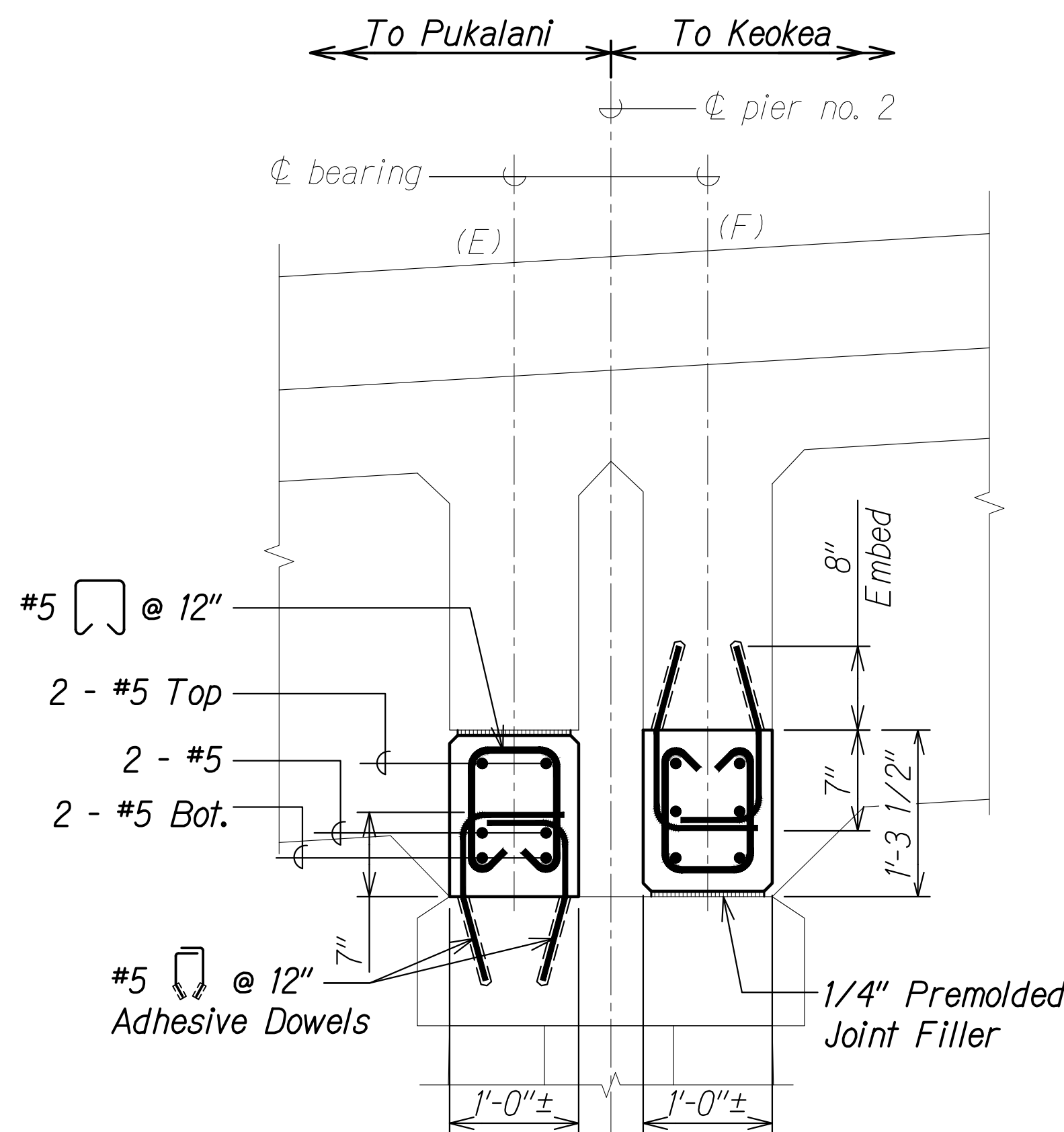
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE PIER NO. 2
REINFORCING PLAN AND SECTION
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SC3.5 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	120	131



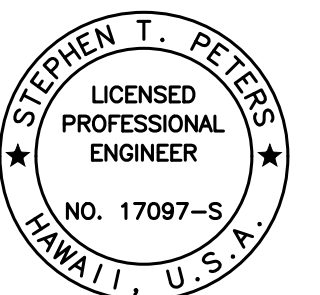
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Scale: 1" = 1'-0" SC3.5 SC3.6



PIER NO. 2 - REINFORCING SECTION **B**
Scale: 1" = 1'-0" SC3.5 SC3.6

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

DRAWING NAME: Z-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SC0301 PULE PIER PLANS, SECS # REINFORCING PLOT TIME: 07-16-26 1:20 PM



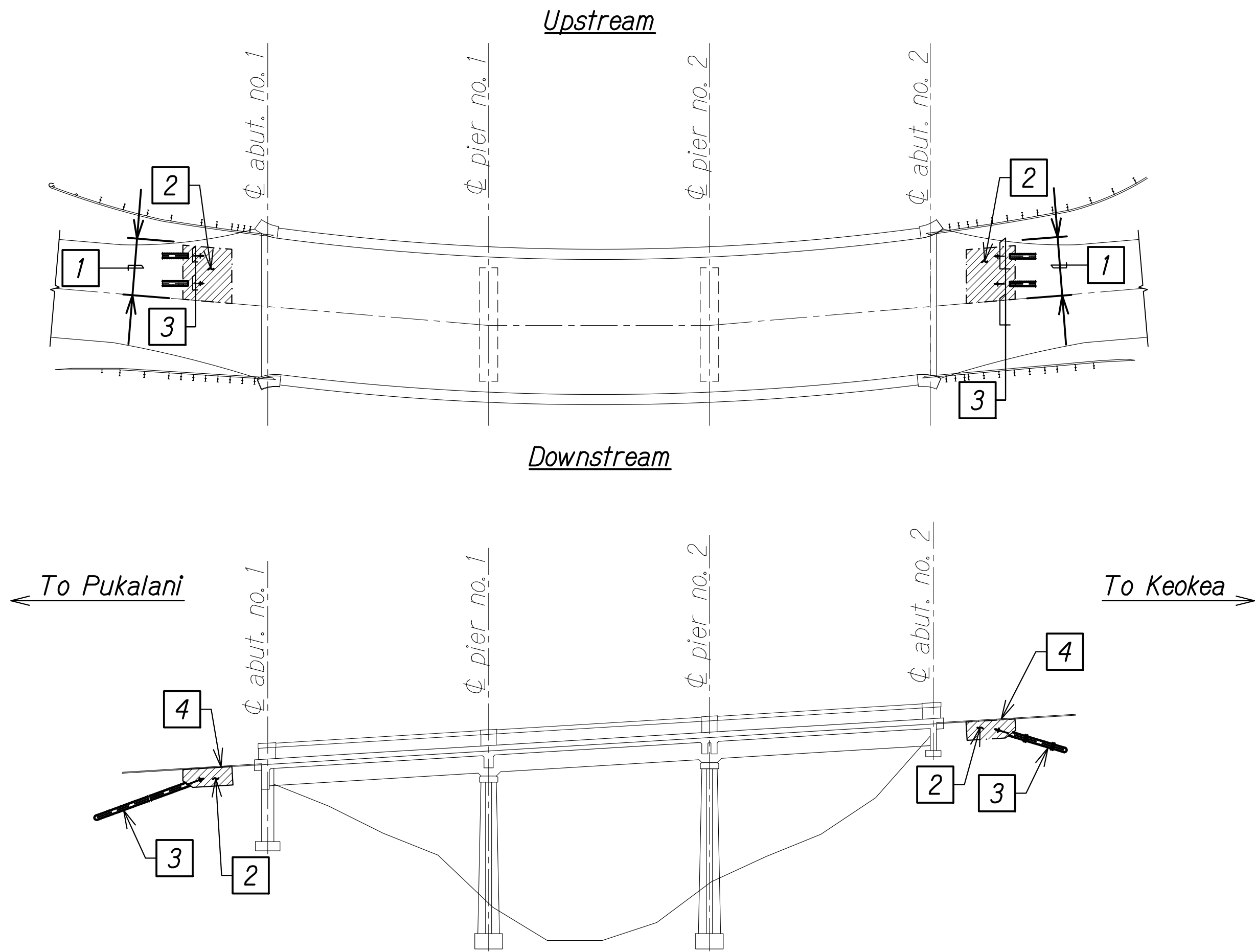
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Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
PIER NO. 2 REINFORCING SECTIONS
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: As Noted Date: July 2026

SHEET No. SC3.6 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	121	131



CONSTRUCTION SEQUENCE - STAGE 1 (UPSTREAM CLOSURE)

CONSTRUCTION STAGE 1 (UPSTREAM LANE CLOSURE)

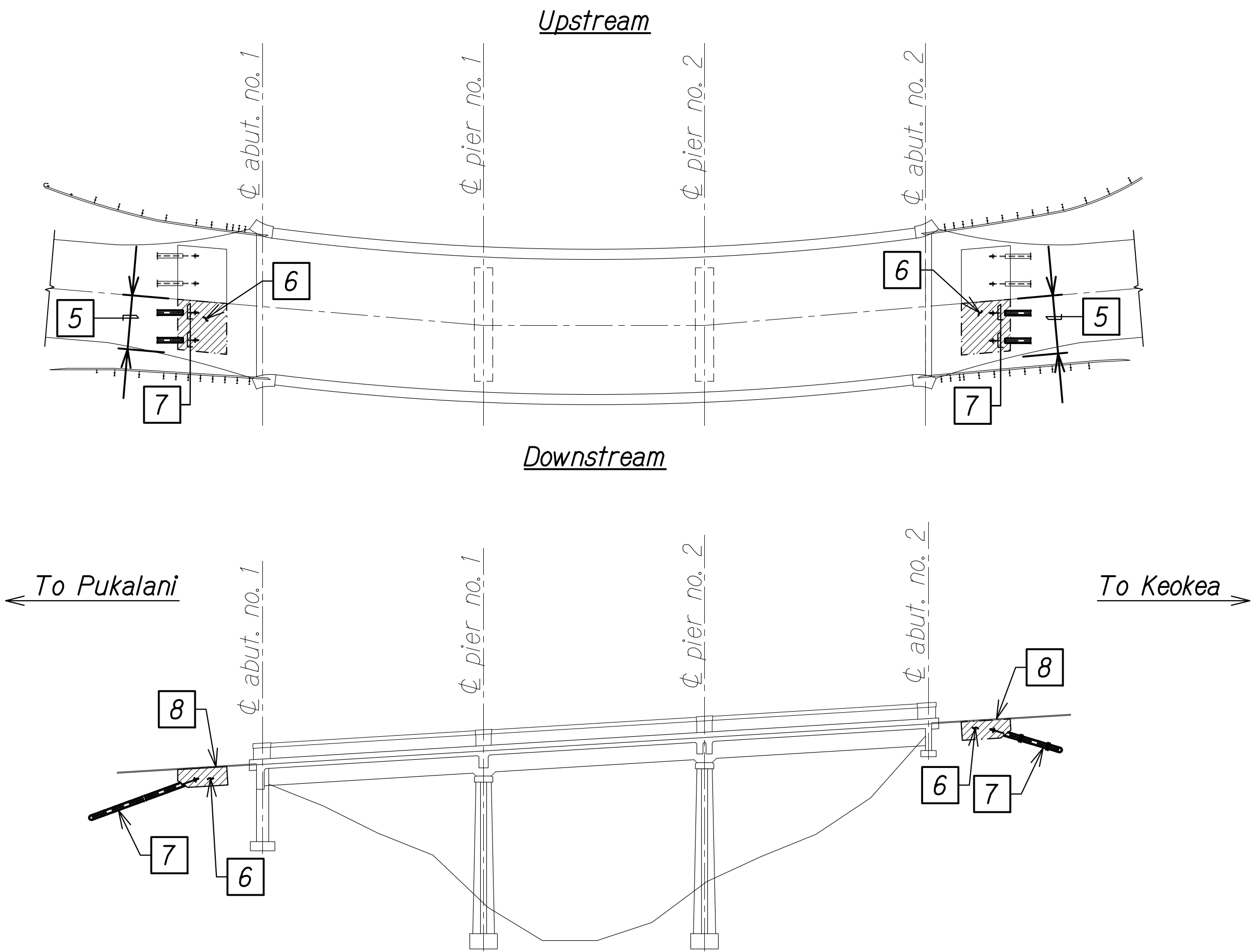
1. Install traffic control for Upstream side lane closure (see Civil drawings)
2. Excavate roadway on the backside of Abutments as needed
3. Drill, install soil nails, grout, and perform necessary proof testing in Upstream side lane
4. Install steel road plates over trench during non-working hours and open Upstream side lane to traffic

LEGEND

Excavate and Dispose

NOTE:

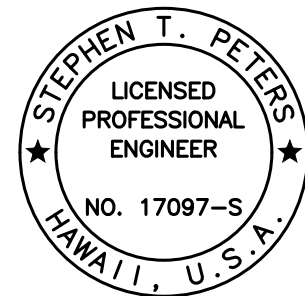
1. Construction sequence is suggested. The Contractor may propose an alternative plan that allows for all work to be completed within the allotted full bridge closure timeframe.
2. Due to the curve in the bridge, the contractor will need to verify that drilling equipment does not affect vehicular traffic on the upstream side lane.
3. Pre-Production Sacrificial Soil Nail Installation and Testing Shall be completed prior to any Structure/Roadway Excavation.



CONSTRUCTION SEQUENCE - STAGE 2 (DOWNSTREAM CLOSURE)

CONSTRUCTION STAGE 2 (DOWNSTREAM LANE CLOSURE)

5. Install traffic control for Downstream side lane closure (See Civil drawings)
6. Excavate roadway on the backside of Abutments as needed
7. Drill, install soil nails, grout, grout and perform necessary proof testing in Downstream side lane
8. Install steel road plates over trench during non-working hours and open Downstream side lane to traffic



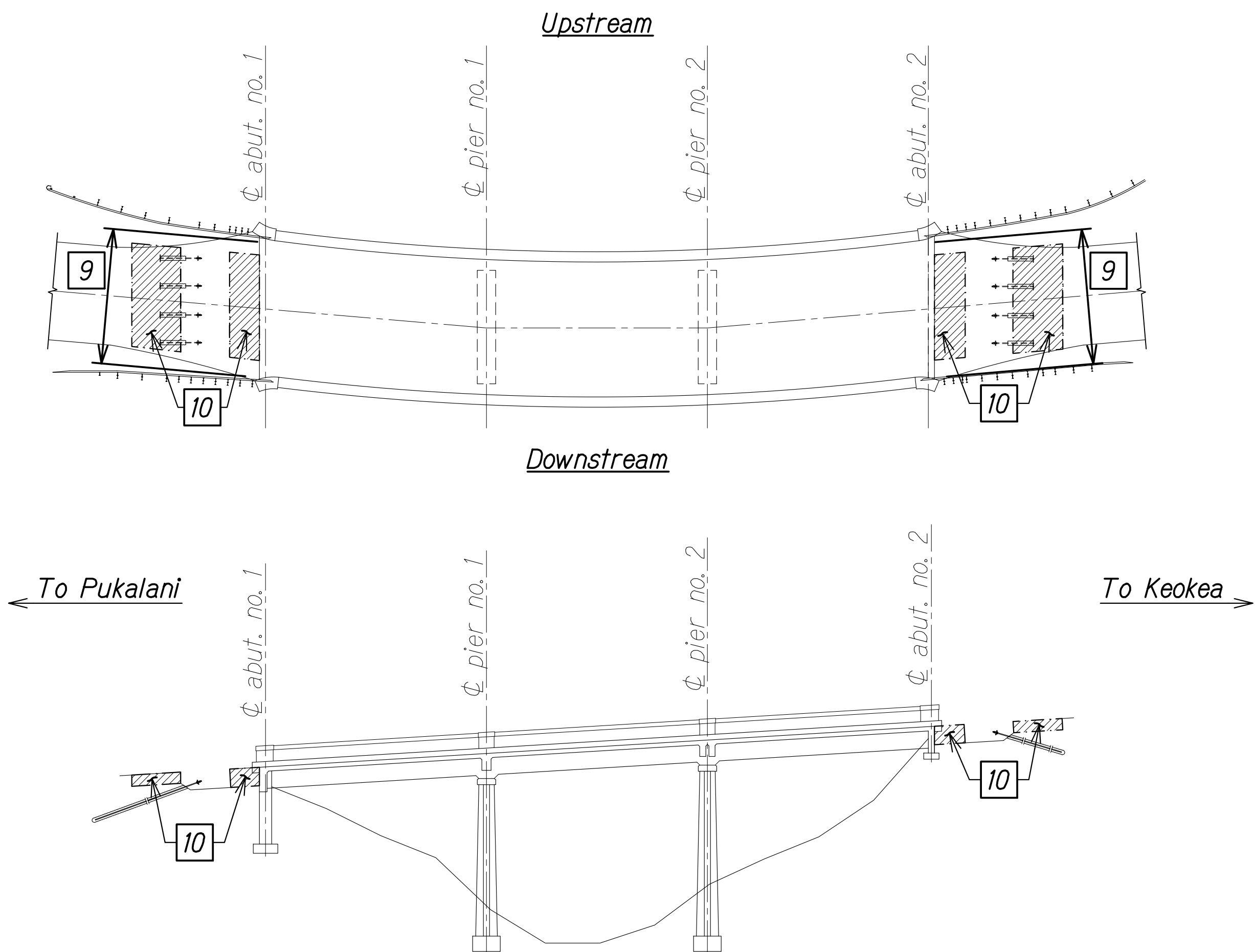
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Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: None Date: July 2026

SHEET No. SC41 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	122	131



CONSTRUCTION SEQUENCE - STAGE 3 (FULL CLOSURE)

CONSTRUCTION STAGE 3 (FULL BRIDGE CLOSURE)

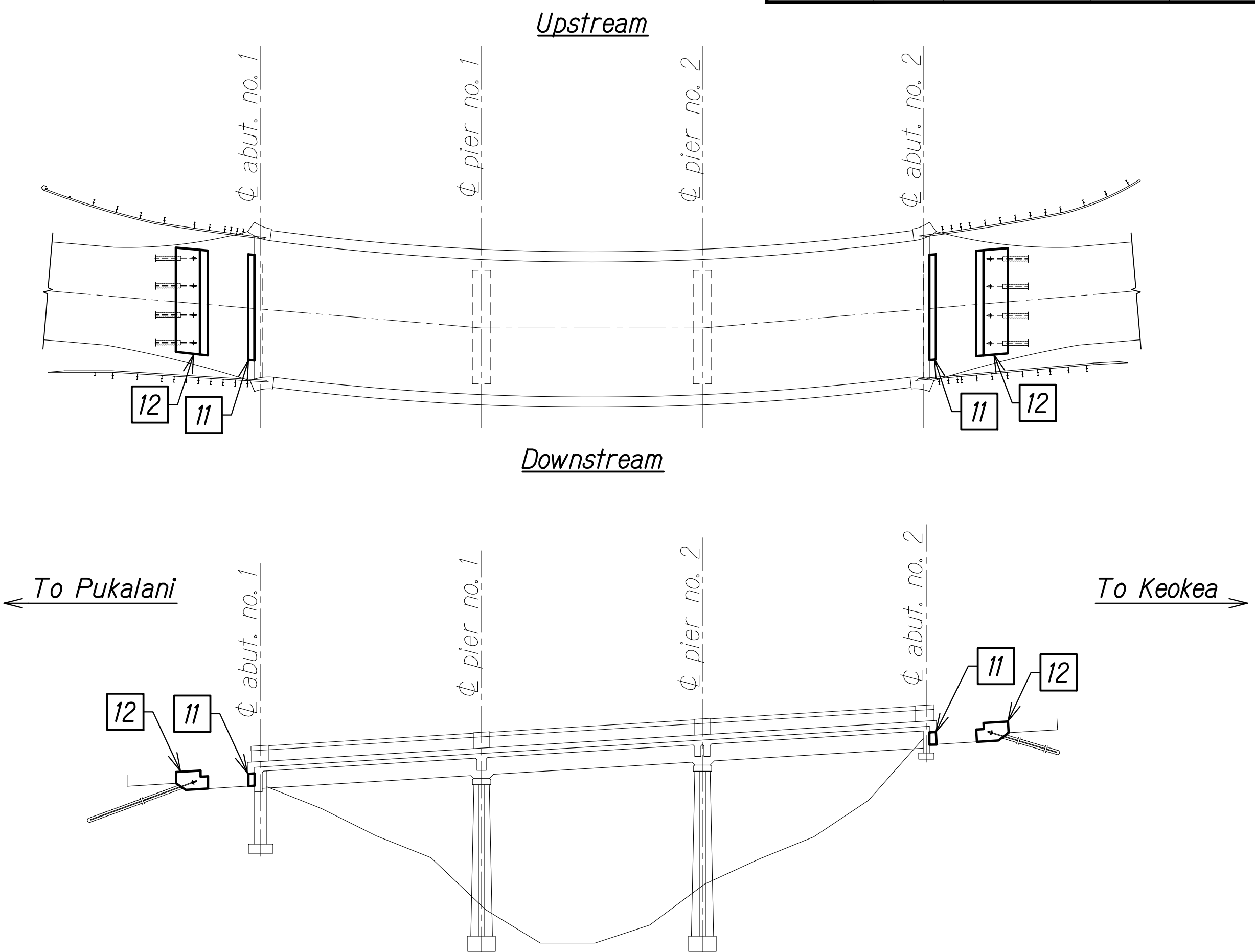
- 9 Install traffic control for full bridge closure
- 10 Excavate remaining roadway to limits as shown on contract drawings

LEGEND

Excavate and Dispose

NOTE:

During full bridge closure times, the Contractor shall perform all work at Abut. No. 1 and Abut. No. 2 simultaneously



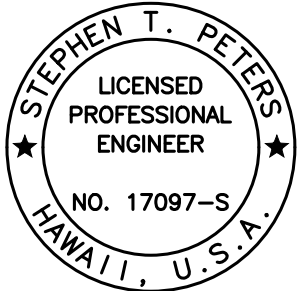
CONSTRUCTION SEQUENCE - STAGE 4 (FULL CLOSURE)

CONSTRUCTION STAGE 4 (FULL BRIDGE CLOSURE)

- 11 Drill and epoxy dowels, install reinforcing steel, and pour concrete corbel
- 12 Install reinforcing steel and pour concrete anchor beam

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

DRAWING NAME: 2-800 ONGOING23-009.3-3 MAUI BRIDGES SEISMIC RETROFIT (NSP)801 CAD\$07-16-26 BID SET\$3MB-SC0401 PULE SEEDING PLOT TIME: 07-16-26 1:21 PM



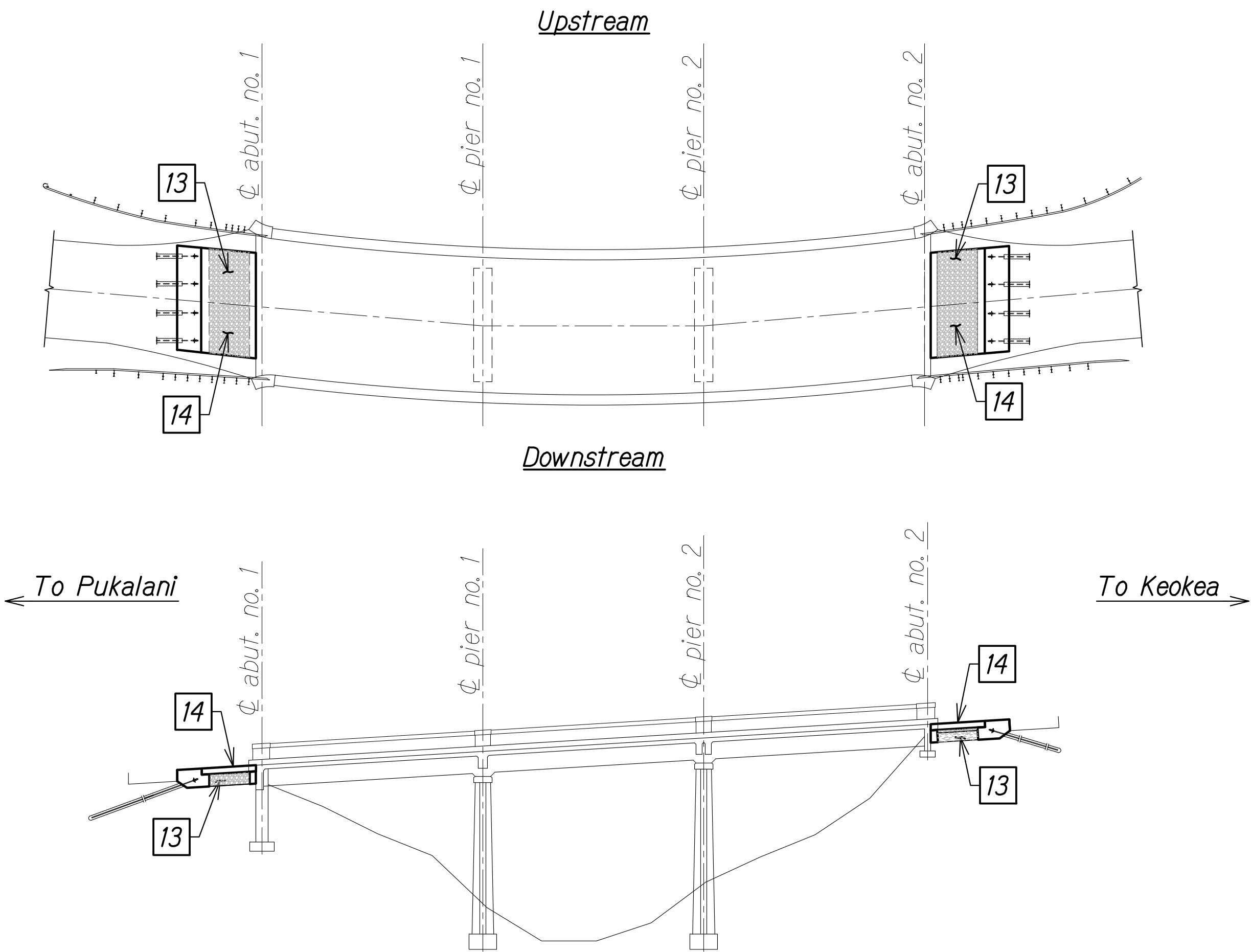
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Stephen T. Peters
SIGNATURE EXPIRATION DATE OF THE LICENSE 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULEHU GULCH BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: None Date: July 2026

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	123	131



CONSTRUCTION SEQUENCE - STAGE 5 (FULL CLOSURE)

CONSTRUCTION STAGE 5 (FULL BRIDGE CLOSURE)

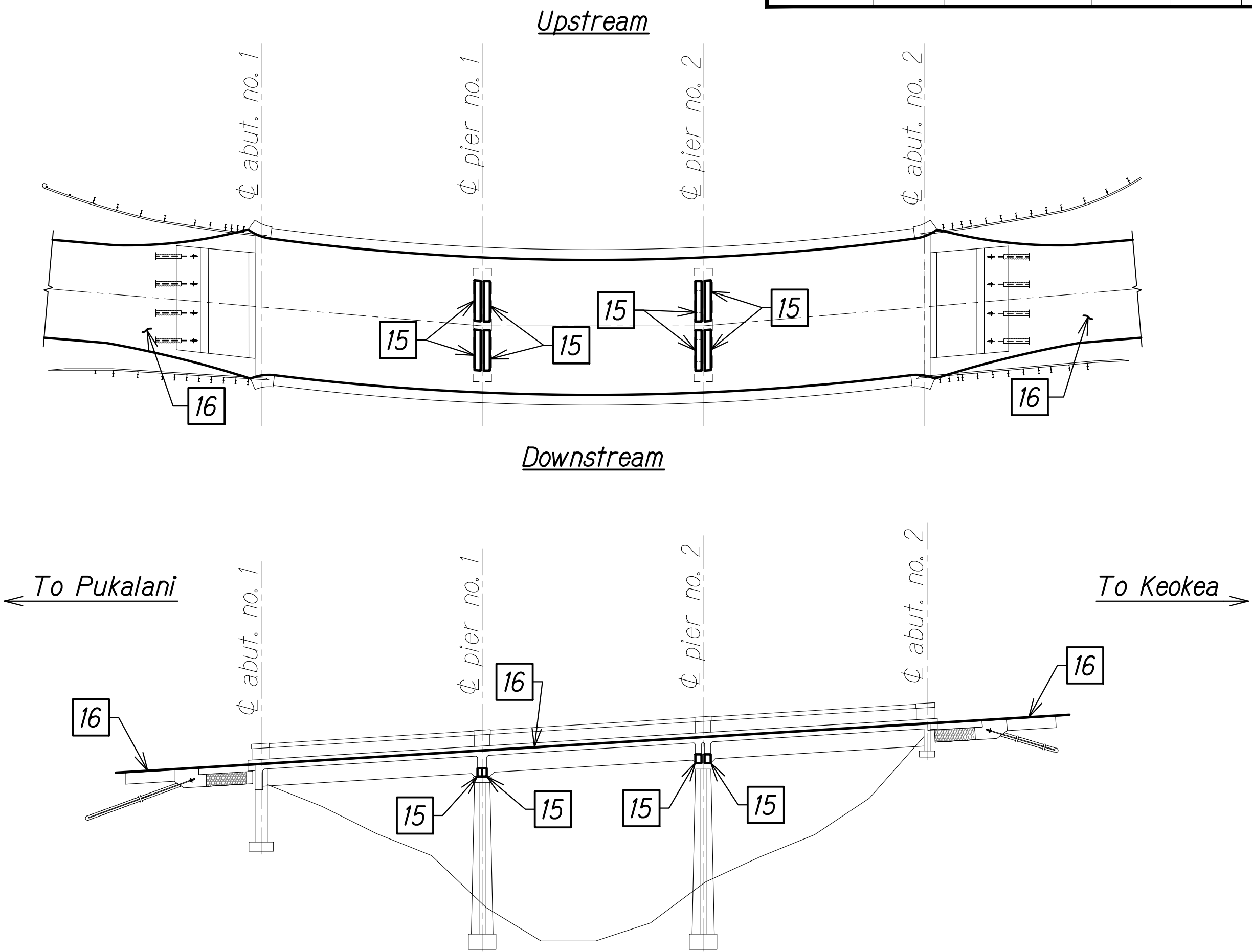
- 13 Place aggregate base course beneath tie slab
- 14 Install reinforcing steel and pour concrete tie slab

LEGEND

Base Course

NOTE:

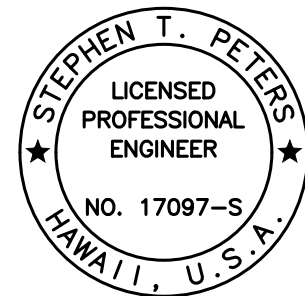
During full bridge closure times, the Contractor shall perform all work at Abut. No. 1 and Abut. No. 2 simultaneously



CONSTRUCTION SEQUENCE - STAGE 6 (FULL CLOSURE)

CONSTRUCTION STAGE 6 (FULL BRIDGE CLOSURE)

- 15 Install reinforcing steel and pour concrete diaphragms and creep blocks
- 16 Reconstruct roadway pavement section and place PMA pavement across bridge deck and approach roadways (See Civil Drawings)



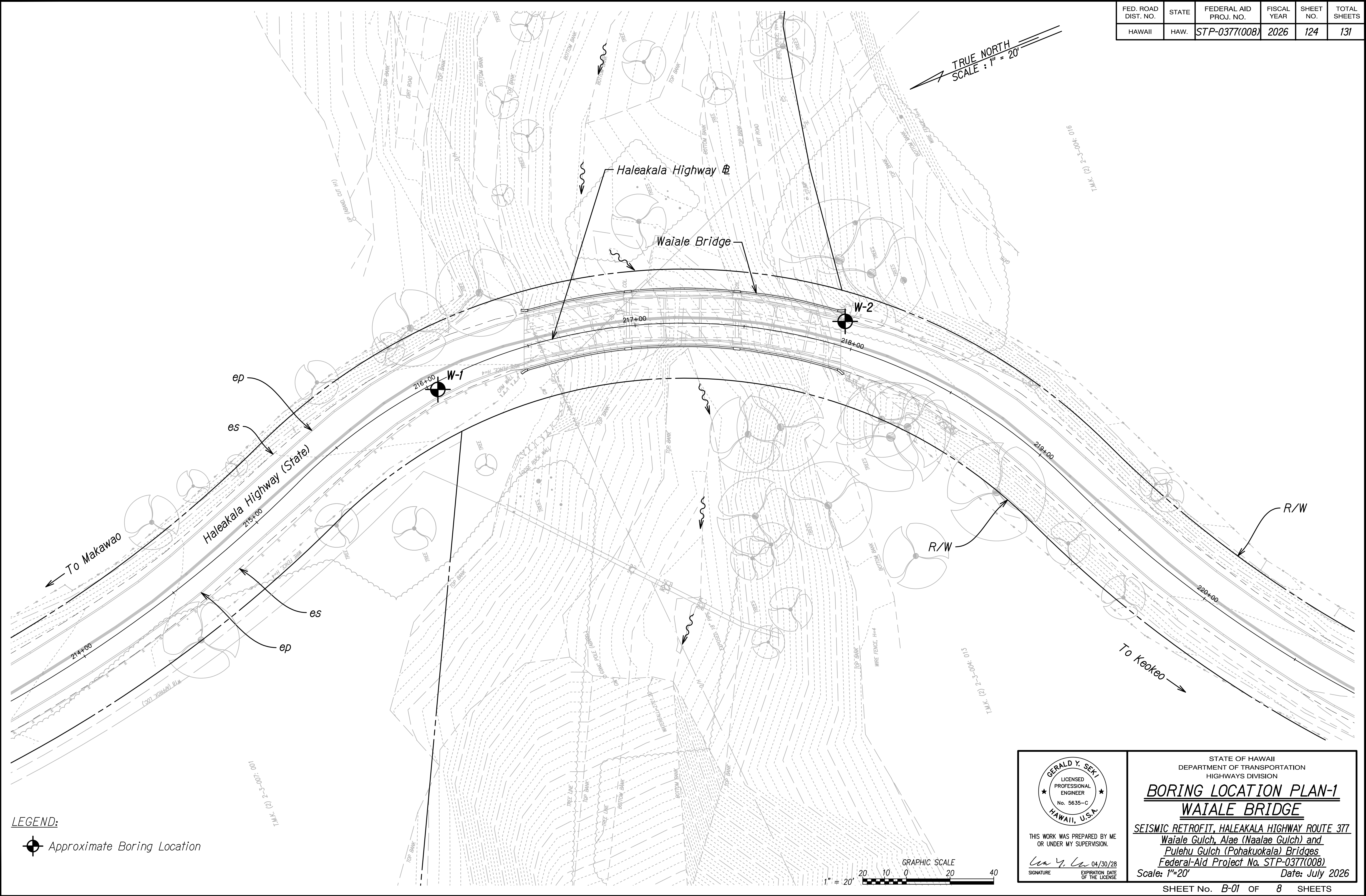
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: *Stephen T. Peters* EXPIRATION DATE OF THE LICENSE: 4-30-28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PULEHU GULCH BRIDGE
CONSTRUCTION SEQUENCE
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: None Date: July 2026

SHEET No. SC4.3 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	124	131



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
QUANTITIES BY	CHECKED BY	
N.		

LEGEND:

Approximate Boring Location

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Gerald Y. Seki 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

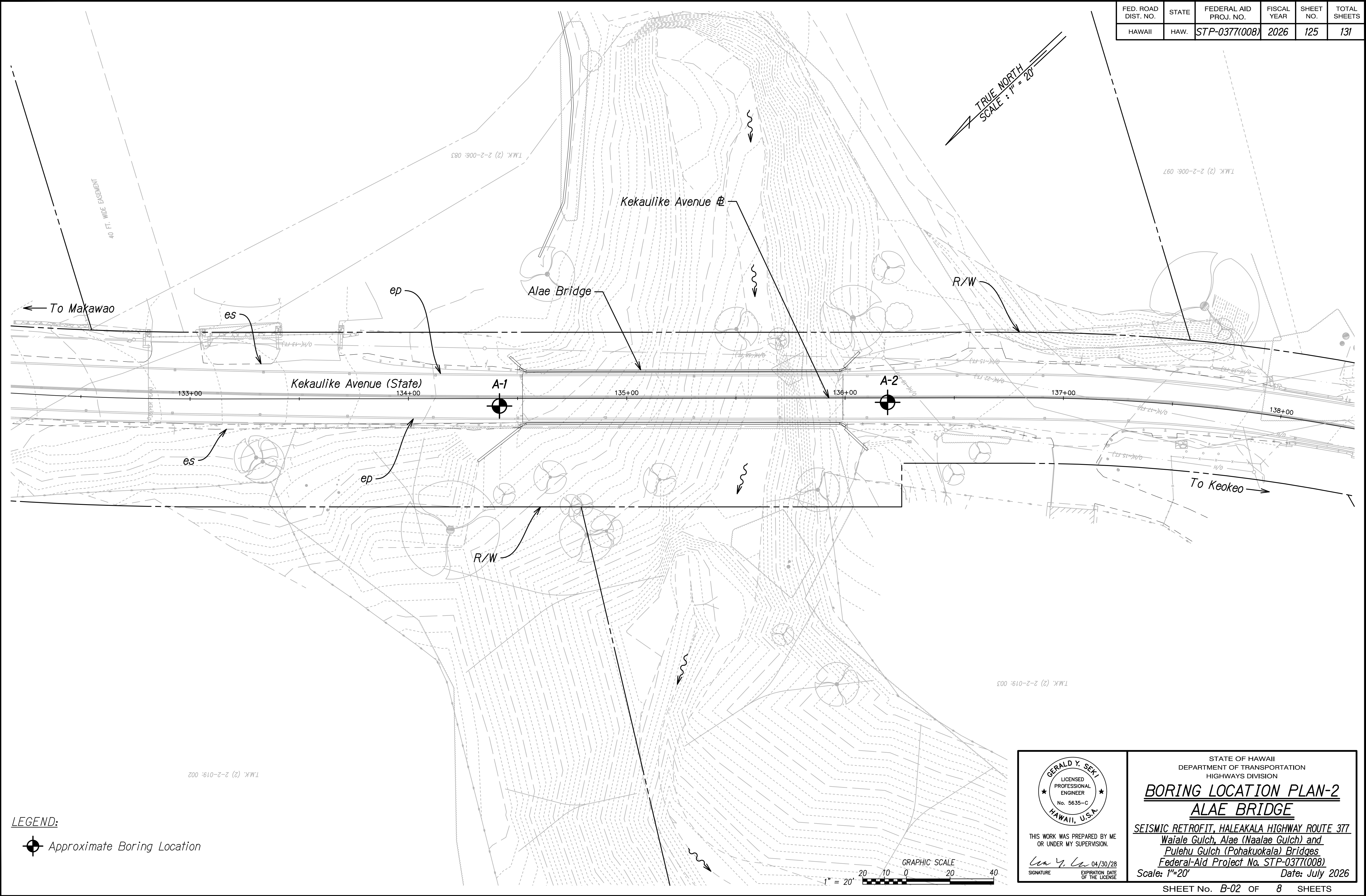
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOCATION PLAN-1
WAIALE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: 1"=20' Date: July 2026

SHEET No. *B-01* OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	125	131



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

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Gerald Y. Seki 04/30/28
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOCATION PLAN-2
ALAE BRIDGE

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

Scale: 1"=20' Date: July 2026

SHEET No. B-02 OF 8 SHEETS



GEOLABS, INC.
Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS	GRAVELS	CLEAN GRAVELS	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		LESS THAN 5% FINES	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	SANDS	CLEAN SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		LESS THAN 5% FINES	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
FINE-GRAINED SOILS	SILTS AND CLAYS	CLAYEY SANDS, GRAVEL-SAND-CLAY MIXTURES	GC	CLAYEY SANDS, SAND-CLAY MIXTURES
		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	SILTS AND CLAYS	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
		MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
		CH	INORGANIC CLAYS OF HIGH PLASTICITY	
HIGHLY ORGANIC SOILS			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



(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE



SHELBY TUBE SAMPLE



GRAB SAMPLE



CORE SAMPLE



WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING



WATER LEVEL OBSERVED IN BORING AFTER DRILLING



WATER LEVEL OBSERVED IN BORING OVERNIGHT

LL

LIQUID LIMIT (NP=NON-PLASTIC)

PI

PLASTICITY INDEX (NP=NON-PLASTIC)

TV

TORVANE SHEAR (tsf)

UC

UNCONFINED COMPRESSION OR UNIAXIAL COMPRESSIVE STRENGTH

TXUU

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)



GEOLABS, INC.
Geotechnical Engineering

Soil Classification Log Key
(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*

GRANULAR SOIL (- #200 <50%)	COHESIVE SOIL (- #200 ≥50%)
- 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: 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)	- 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: 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	

RELATIVE DENSITY / CONSISTENCY

Granular Soils			Cohesive Soils			
N-Value (Blows/Foot)	Relative Density		N-Value (Blows/Foot)	PP Readings (tsf)	Consistency	
SPT	MCS		SPT	MCS		
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	

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

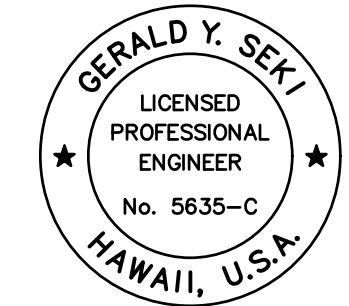
SPT: Standard Penetration Test Split-Spoon Sampler

MCS: Modified California Sampler

PP: Pocket Penetrometer

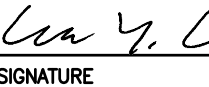
*Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).

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



GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.



04/30/28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG LEGENDS

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, A'ae (Na'alee Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)
Scale: None
Date: July 2026

SHEET No. B-04 OF 8 SHEETS

127

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	128	131

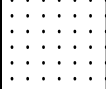
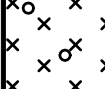


GEOLABS, INC.

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 broke 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

BORING LOG NOTES:

- A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Waiale, Pohakuokala, and Alae Bridges, Seismic Retrofit, Kula, Oahu, Hawaii" dated March 25, 2026 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 B-01, B-02, and B-03.*
- 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.*

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

LOG LEGEND FOR ROCK 8412-008(GPJ GEOLABS.GDT 12/10/25

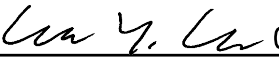
GERALD Y. SEKI

LICENSED PROFESSIONAL ENGINEER

No. 5635-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG LEGEND AND NOTES

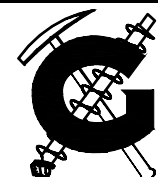
SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
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Federal-Aid Project No. STP-0377(008)

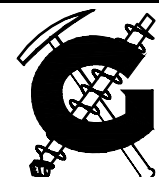
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SHEET No. B-05 OF 8 SHEETS

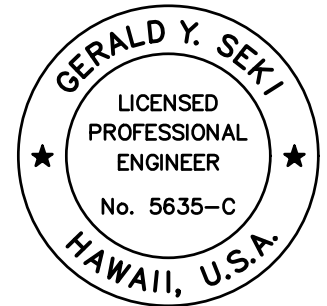
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	129	131

		GEOLABS, INC.					WAIALE, POHAKUOKALA, AND ALAE BRIDGES SEISMIC RETROFIT KULA, MAUI, HAWAII					Log of Boring A-1	
Geotechnical Engineering													
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): 3270 *			
										Description			
Sieve #200 = 13.8%	20	93			24				GM	5-inch ASPHALTIC CONCRETE			
	26				26				GM	Brownish gray SILTY GRAVEL (BASALTIC) with some sand, moist (base material)			
Direct Shear	18	62			22		5			Brown with black mottling SILTY GRAVEL with some sand and cobbles (basaltic), medium dense, moist (fill)			
			40				10			Gray GRAVELLY COBBLES, dense to very dense, moist (fill)			
			27		10/0" Ref.		15			Gray with brown CLAYEY COBBLES (BASALTIC) with some sand, very dense, moist (colluvium)			
			10		25/1"		20			grades to loose			
			0		4		25		SM	Brown SILTY SAND with a little gravel (basaltic), loose to medium dense (volcanic ash)			
	89		0		6		30						
Sieve #200 = 23.5%	84		26		11		35			grades to very dense with cobbles and boulders			
			8	0	25/1"		40			Gray BASALT, closely to moderately fractured, slightly weathered, hard to very hard (basalt formation)			
UC= 9250 psi			65	23			45						
UC= 20490 psi							50						
							55			Boring terminated at 51.5 feet			
							60			* Elevations estimated from As-built drawings dated 1929 (Waiale Bridge and Pohakualoa) and 1932 (Alae Bridge).			
Date Started: July 17, 2023							Water Level:  Not Encountered						
Date Completed: July 17, 2023													
Logged By: B. Aiu							Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)						
Total Depth: 51.5 feet							Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Work Order: 8412-00(B)							Driving Energy: 140 lb. wt., 30 in. drop						

		GEOLABS, INC.					WAIALE, POHAKUOKALA, AND ALAE BRIDGES SEISMIC RETROFIT KULA, MAUI, HAWAII					Log of Boring A-2			
Geotechnical Engineering															
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): 3265 *					
										Description					
Direct Shear Sieve #200 = 16.0% LL=NP PI=NP TXUU Su=1.1 ksf Sieve #200 = 34.4% TXUU Su=0.5 ksf TXUU Su=5.0 ksf Sieve #200 = 7.1% UC= 15060 psi UC= 12660 psi UC= 16380 psi	9	84			49				GM	4-inch ASPHALTIC CONCRETE					
	35				13				SM	Brownish gray SILTY GRAVEL (BASALTIC) with some sand, medium dense, moist (base material)					
	47	56			9	0.8	5		SM	Brownish gray with black mottling SILTY SAND with some gravel, medium dense, moist (fill)					
	52				5		10			Brown with black mottling SILTY SAND with a little fine gravel, loose, moist (volcanic ash)					
	51	47			15	1.5	15								
	42	80			25	2.0	20		ML	Brown and gray SANDY SILT with some decomposed gravel, stiff, moist (residual soil)					
	8	117			99		25		GP-GM	Gray with brown mottling SANDY GRAVEL (BASALTIC) with a little silt, very dense, moist (saprolite)					
			100	80			30			Gray BASALT, moderately fractured, slightly weathered, hard to very hard (basalt formation)					
			100	60			35		GP	Gray SANDY GRAVEL (BASALTIC) with a little cobbles, moist (clinker)					
			63	0			40			Gray BASALT, moderately fractured, slightly weathered, hard to very hard					
		67	38			45									
		40	10			50			Boring terminated at 50 feet						
						55									
						60									
Date Started: July 18, 2023							Water Level:  Not Encountered								
Date Completed: July 18, 2023															
Logged By: B. Aiu							Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)								
Total Depth: 50 feet							Drilling Method: 4" Solid-Stem Auger & PQ Coring								
Work Order: 8412-00(B)							Driving Energy: 140 lb. wt., 30 in. drop								

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



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Gerald Y. Seki 04/30/28
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS - 1

SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)

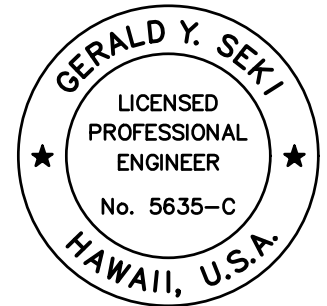
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	130	131

		GEOLABS, INC.		WAIALE, POHAKUOKALA, AND ALAE BRIDGES SEISMIC RETROFIT KULA, MAUI, HAWAII					Log of Boring P-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): 3274 *
										Description
Direct Shear Sieve #200 = 17.8% Direct Shear	33	60			23				GM	9-inch ASPHALTIC CONCRETE
	23				4				GM	Gray SILTY GRAVEL, medium dense (base material)
Sieve #200 = 30.9%	18	60			17		5			Brown SILTY GRAVEL with some sand, medium dense to loose, moist (fill)
UC= 10210 psi	32		99	0	3/6" +50/4"		10		SM	Brown SILTY SAND with some gravel, very dense, moist (weathered basalt formation)
			95	95			15			Gray BASALT, severely fractured, unweathered to moderately weathered, hard to very hard (basalt formation)
UC= 18000 psi							20			grades to moderately fractured
			100	47			25			grades to slightly fractured
UC= 18360 psi							30			
			100	33			35			grades to severely to closely fractured
UC= 7870 psi			100	18			40			
			40	0			45		GP	Brownish gray SANDY GRAVEL with some cobbles, moist (clinker)
UC= 17250 psi							50			Gray BASALT, severely fractured, unweathered to moderately weathered, hard (basalt formation)
							55			Boring terminated at 45 feet
							60			Latitude: 20.7736° N Longitude: 156.307841° W
Date Started: July 13, 2023		Date Completed: July 14, 2023		Water Level:  Not Encountered						
Logged By: N. Colter		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)		Drilling Method: 4" Solid-Stem Auger & HQ Coring						
Total Depth: 45 feet		Driving Energy: 140 lb. wt., 30 in. drop								
Work Order: 8412-00(B)										

		GEOLABS, INC.		WAIALE, POHAKUOKALA, AND ALAE BRIDGES SEISMIC RETROFIT KULA, MAUI, HAWAII					Log of Boring P-2	
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): 3280 *
										Description
Direct Shear	45	53			13				GP	5.5-inch ASPHALTIC CONCRETE
	35				12				ML	Gray SANDY GRAVEL, medium dense, moist (base material)
TXUU Su=3.6 ksf	37	70			28	>4.5	5		ML	Grayish brown SANDY SILT, medium stiff, moist (fill)
										Gray SANDY SILT, stiff to very stiff, moist (residual soil)
UC= 12270 psi	12		100	42	50/3"		10		SM	Gray SILTY SAND with some gravel, very dense, moist (weathered basalt)
			100	33			15			Bluish gray BASALT, severely fractured, moderately weathered, hard (basalt formation)
UC= 25820 psi							20			grades to slightly fractured
			92	58			25			
UC= 11100 psi							30			
			33				35		GP	Brownish gray SANDY GRAVEL with some cobbles, medium dense, moist (clinker)
	11		71	10	38		40			Gray BASALT, severely to closely fractured, moderately weathered, hard (basalt formation)
			25	12			45		GP	Brownish gray SANDY GRAVEL with a little cobbles, medium dense, moist (clinker)
							50			Brownish gray BASALT, closely fractured, moderately weathered, hard (basalt formation)
							55			Boring terminated at 50.5 feet
							60			
Date Started: July 12, 2023		Date Completed: July 13, 2023		Water Level:  Not Encountered						
Logged By: N. Colter		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)		Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Total Depth: 50.5 feet		Driving Energy: 140 lb. wt., 30 in. drop								
Work Order: 8412-00(B)										

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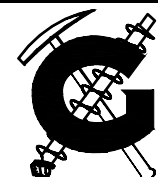
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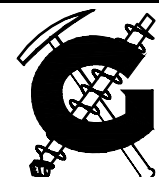
BORING LOGS - 2

*SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)*

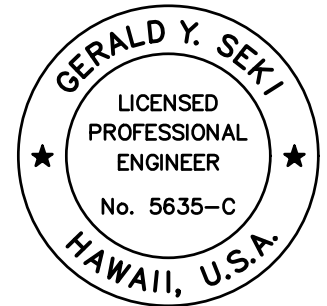
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0377(008)	2026	131	131

		GEOLABS, INC. Geotechnical Engineering					WAIALE, POHAKUOKALA, AND ALAE BRIDGES SEISMIC RETROFIT KULA, MAUI, HAWAII					Log of Boring W-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): 2760 *			
										Description			
Sieve #200 = 21.6% TXUU Su=2.7 ksf	39	64			16				GM	5-inch ASPHALTIC CONCRETE			
	34				9				SM	Brownish gray SILTY GRAVEL with some sand, moist (base material)			
	44	76			21	4.0	5		MH	Brown with multi-color mottling SILTY SAND with some gravel, loose, moist (fill)			
										Dark brownish gray CLAYEY SILT with a little sand and gravel, stiff, moist (residual soil)			
LL=75 PI=26 TXUU Su=5.2 ksf	52				3		10			grades to soft			
	62	65			19	3.8	15			grades to stiff			
							20			grades with some cobbles			
	14		95	0	50/4"					Gray with multi-color mottling BASALT, severely fractured, highly weathered, medium hard to hard (basalt formation)			
UC= 19770 psi UC= 7770 psi			100	48			25			Gray BASALT, closely to moderately fractured, slightly weathered, very hard (basalt formation)			
			100	53			30						
			100	83			35			grades to slightly fractured			
			100	97			40						
UC= 22250 psi UC= 21850 psi			100	100			45						
							50			Boring terminated at 50 feet			
							55						
							60						
Date Started: July 10, 2023							Water Level:  Not Encountered						
Date Completed: July 10, 2023													
Logged By: B. Aiu							Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)						
Total Depth: 50 feet							Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Work Order: 8412-00(B)							Driving Energy: 140 lb. wt., 30 in. drop						

		GEOLABS, INC. Geotechnical Engineering					WAIALE, POHAKUOKALA, AND ALAE BRIDGES SEISMIC RETROFIT KULA, MAUI, HAWAII					Log of Boring W-2	
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): 2760 *			
										Description			
Direct Shear	19	94			27				GM	4-inch ASPHALTIC CONCRETE			
	22				13				ML	Brownish gray SILTY GRAVEL with some sand, moist (base material)			
	20	63			14		5		ML	Brown with multi-color mottling SANDY SILT with some sand and gravel, stiff, moist (fill)			
										Dark brownish gray SANDY SILT with traces of gravel, medium stiff, moist (residual soil)			
Sieve #200 = 61.9%	28				18		10			grades to very stiff			
	7	73			17		15			grades to stiff			
									GM	Brownish gray SILTY GRAVEL with a little sand, dense, moist (weathered basalt)			
	7				32		20						
UC= 6430 psi			83	0			25			Gray BASALT, closely fractured, moderately weathered, hard (basalt formation)			
			75	17			30						
			62	0			35		GP	Brownish gray SANDY GRAVEL with some cobbles, moist (clinker)			
			75	7			40			Brownish gray BASALT, closely fractured, moderately weathered, hard (basalt formation)			
UC= 6430 psi			58	7			45		GP	Brownish gray SANDY GRAVEL with some cobbles, dense to very dense, moist (clinker)			
			10				50			Boring terminated at 51 feet			
	5						55						
						10/0" Ref.		60					
Date Started: July 11, 2023										Water Level:  Not Encountered			
Date Completed: July 11, 2023													
Logged By: B. Aiu										Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)			
Total Depth: 51 feet										Drilling Method: 4" Solid-Stem Auger & PQ Coring			
Work Order: 8412-00(B)										Driving Energy: 140 lb. wt., 30 in. drop			

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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

Gerald Y. Seki 04/30/28
SIGNATURE EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS - 3

*SEISMIC RETROFIT, HALEAKALA HIGHWAY ROUTE 377
Waiale Gulch, Alae (Naalae Gulch) and
Pulehu Gulch (Pohakuokala) Bridges
Federal-Aid Project No. STP-0377(008)*

Scale: None Date: July 2026