

# Table of Contents

Table of Contents	1
Electronic Signature CWB NOI Form	2
(Submission #: HQ2-THX7-PBPKX, version 1)	2
Details	2
Fees	2
Form Input	2
NPDES General Permit Requirements	2
Permittee Information	3
Facility/Project Information	5
Permitted Feature(s) Information (1 of 5)	7
Permitted Feature(s) Information (2 of 5)	8
Permitted Feature(s) Information (3 of 5)	8
Permitted Feature(s) Information (4 of 5)	8
Permitted Feature(s) Information (5 of 5)	9
Receiving Drainage System(s) Information (1 of 1)	9
NOI Form C	9
Additional Information	12
Payment Information	12
Attachments	12

# Electronic Signature CWB NOI Form

version 1.11

(Submission #: HQ2-THX7-PBPKX, version 1)

## Details

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**Submission Alias** Hawaii Belt Road Seismic Retrofit of Kaholo Stream Bridge NOI Form  
**Originally Started By** Larissa Sato  
**Project Name** Hawaii Belt Road Seismic Retrofit of Kaholo Stream Bridge  
**Submission ID** HQ2-THX7-PBPKX  
**Status** Draft

## Fees

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**Base Fee (non-refundable)** \$500.00  
**Payments/Adjustments** \$0.00  
**Balance Due** \$500.00 (None)

## Form Input

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### NPDES General Permit Requirements

**Select the general permit you are requesting coverage under.**

Appendix C - Storm Water Associated with Construction Activity

**Are you conducting earth-disturbing activities in response to a public emergency that meets the eligibility requirements under HAR, Chapter 11-55, Appendix C, Sections 1.3 and 7.2.3?**

No

### **Notice of Intent (NOI) General Requirements**

By submitting this NOI application, you are certifying the following statements:

- I read HAR, Chapters 11-54 and 11-55;
- I understand that State law prohibits any water pollutant to be discharged to a State water except in compliance with HAR, Chapters 11-54 and 11-55;
- I understand that the NPDES General Permits are a privilege and not my right or entitlement;
- I understand that the NPDES General Permits are rules, not permits to be issued;
- I understand that the NPDES General Permits only authorize a specific discharge/activity when I comply with all conditions of the NPDES General Permit;
- I have read every condition of the NPDES General Permit I am requesting coverage under;
- I have determined that my project/activity and organization can, and will, comply with every condition of the applicable NPDES General Permit, and any and all legal obligations;
- I understand that I may only submit the NOI after determining that my project/activity and organization can, and will, comply with every condition of the applicable NPDES General Permit;
- I understand that if I cannot comply with any condition of the NPDES General Permit I need to either fix my organization so that I can comply or I cannot discharge water pollutants to State waters;
- I understand that the Notice of General Permit Coverage (NGPC) is not a permit; it is an authorization to comply with the already issued NPDES General Permit;
- I will design, implement, operate, and maintain appropriate treatment/controls to ensure that my activity/discharge will not violate HAR, Chapters 11-54 and 11-55;
- I have reported any "after the fact" discharges to the CWB enforcement section; and
- The information provided in this application does not include "after the fact" discharges/activities.

I certify under penalty of law that my proposed discharge will not impair any State waters (including but not limited to rivers, streams, wetlands, ponds, ground waters, and ocean), Native Hawaiian cultural resources (including but not limited to burial sites/iwi, heiau, and taro loi), or the exercise of traditional Native Hawaiian cultural practices.  
Yes, I certify.

Is this an NOI to continue coverage under a newly re-adopted general permit? This means that you either have a currently effective or administratively extended NGPC under the previous general permit.  
No

Is this an NOI to request new or amended coverage (including non-automatic transfers of ownership) for an already permitted facility? Please note that a new NGPC must be issued prior to the project commencing the new activities that are not covered under the currently issued NGPC or NPDES permit.  
No

## **Permittee Information**

### **Operator Applying to Obtain Permit Coverage on Behalf of Owner**

Operators may apply for and receive NPDES permit coverage on behalf of the Owner provided that authorization is granted by the Owner.

If an Operator specifies that they are applying to obtain NPDES permit coverage on behalf of the Owner, the permit will be issued to the Operator and will be the legal entity that the permit coverage is issued to.

Do NOT specify that the Operator is applying on behalf of the Owner if the Operator is only preparing the NOI for the Owner and WILL NOT be designated as the Permittee.

This option is to allow for Operators to be designated as the Permittee for projects that are owned by a different entity.

Is the Permittee the operator of the project/activity applying for permit coverage on behalf of the owner of the project/activity?  
No

### **Select the Permittee Organization Type**

State

### **Permittee Legal Name**

State of Hawaii

### **Permittee Department/Office**

Department of Transportation

### **Permittee Division/Program (Optional)**

Highways Division

### **Permittee Mailing Address**

869 Punchbowl Street  
Honolulu, HI 96813-5097

### **Permittee Street Address**

869 Punchbowl Street  
Honolulu, HI 96813-5097

Select the appropriate signatory type and confirm that the Certifying Person meets the requirements for the corresponding type. The Certifying Person has to meet the applicable requirement and be employed by the Owner.  
State Agency

### **State Agency**

I certify that for a state agency, I am a principal executive officer or ranking elected official.

### **Certifying Person Salutation**

Mr.

**Certifying Person Information**

**First Name**      **Last Name**

Sergio George G.    *Abcede*

**Title**

*Highways Administrator*

**Phone Type**      **Number**      **Extension**

Business            808-587-2220

**Certifying Person Email**

George.Abcede@hawaii.gov

**Permittee Contact Salutation**

Mr.

**Permittee Contact Information**

**First Name**      **Last Name**

Andrew            *Hirano*

**Title**

*HDOT Project Manager*

**Phone Type**      **Number**      **Extension**

Business            808-692-7546

**Permittee Contact Email**

andrew.j.hirano@hawaii.gov

**Do you wish to designate an authorized representative?**

Yes

**Authorization**

The Certifying Person hereby authorizes the named individual or any individual occupying the named position of the company/organization listed below to act as our representative to submit information/documents necessary to complete the NOI or NPDES permit application to discharge to State waters from the subject facility. The Permittee hereby agrees to comply with and be responsible for all NPDES permit conditions.

Our representative is further authorized to submit information/documents for compliance with the NPDES permit conditions. The Authorized Representative is also granted any other signatory authorizations as identified in the applicable NPDES permit.

This authorization begins with NOI or NPDES permit application processing and ends upon authorization of a new authorized representative or receipt of the NOC by the CWB. The Permittee is responsible for all information/documents submitted by the duly authorized representative for completion of the NOI or NPDES permit application and for compliance with the NPDES permit conditions.

The Certifying Person attests that the authorized representative meets the requirements of HAR 11-55-07(b). Both the Certifying Person and authorized representative understand that they can be subject to civil and criminal liability for non-compliance with NPDES permit conditions, non-compliance with HAR Chapters 11-54 and 11-55, and for falsifying information.

**Are you designating an individual or position?**

Position

**Authorized Representative Information**

**Title**

*Hawaii District Engineer*

**Organization Name**

*Department of Transportation, Highways Division*

**Phone Type**      **Number**      **Extension**

Mobile            808-933-8866

**Authorized Representative Email**

Harry.H.Takiue@hawaii.gov



**Authorized Representative Mailing Address**

50 Makaala Street  
Hilo, HI 96720-5107

**Authorized Representative Street Address**

50 Makaala Street  
Hilo, HI 96720-5107

**Facility/Project Information**

**Facility/Project Type of Ownership**  
State

**Facility Organization Formal Name**  
Department of Transportation, Highways Division

**Facility Site or Project Name**  
Hawaii Belt Road Seismic Retrofit of Kaholo Stream Bridge

**City where the project/facility is located.**  
Ookala

**Island where the project/facility is located.**  
Hawaii Island

**Facility/Project Mailing Address**  
601 Kamokila Boulevard, Room 688  
Kapolei, HI 96707

**Provide the Facility/Project site address. If no formal street address exists (e.g., for projects constructing new developments with no currently existing roads) enter a location description instead. You must still enter a City, State, and ZIP Code.**

Mamalahoa Highway (Rte. 19) vicinity of Kaholo Stream Bridge  
Ookala, HI 96774

**TMK Nos.**

Division (e.g., 1)	Zone (e.g., 9)	Section (e.g., 7)	Plat (e.g., 025)	Portion, Parcel, or Lot (e.g., Lots 1-10, 15, & 20)
3	4	1	002	999
3	4	1	002	011
3	4	2	002	004
3	4	1	001	999

**Facility/Project Site Front Gate Location Coordinates or Start of Linear Construction Location Coordinates**  
20.013355,-155.298948

**Facility/Project Contact Affiliation**  
Owner

**Facility/Project Contact Salutation**  
Mr.

**Facility/Project Contact Person Information**

**First Name**      **Last Name**  
Andrew              Hirano  
**Title**  
HDOT Project Manager  
**Organization Name**  
Department of Transportation, Highways Division  
**Phone Type**      **Number**              **Extension**  
Business              808-692-7546

**Facility/Project Contact Person Email**

andrew.j.hirano@hawaii.gov

**Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) Codes**

Provide your primary SIC and NAICS code associated with your facility and any co-located activities. The primary SIC and NAICS code are the codes that best describe the primary economic activity at the facility. For co-located activities covered by multiple SIC codes, it is recommended that the primary industrial determination be based on the value of receipts or revenues or, if such information is not available for a particular facility, the number of employees or production rate for each process may be compared. The operation that generates the most revenue or employs the most personnel is the operation in which the facility is primarily engaged. In situations where the vast majority of on-site activity falls within one SIC code, that activity may be the primary industrial activity.

Sector and subsector information are only applicable for industrial storm water coverages.

For construction activities, the SIC code(s) are those that most accurately describe the activities of the Permittee.

**SIC Codes**

SIC Codes may be found at the link below.

[SIC Codes](#)

**NAICS Codes**

NAICS Codes may be found at the link below. Click on Concordances to access the SIC to NAICS code spreadsheets.

[NAICS Codes](#)

**Primary SIC and NAICS Code**

Primary SIC Code	Corresponding NAICS Code	Sector	Subsector
1622	237310		

**Are there any additional SIC and NAICS codes?**

No

**Existing or Pending Permits, Licenses or Approvals**

Provide the permit number for any applicable Federal, State, or County permits, licenses, or approvals for the project.

Other permits, licenses and approvals include but are not limited to:

- NPDES Individual Permit
- NPDES NGPC
- Section 401 WQC
- Individual Wastewater System Approval
- Recycled Water Reuse Permit
- Hazardous Waste Permit
- Solid Waste Management Permit
- Underground Storage Tank Permit
- Underground Injection Control Permit
- Agricultural Burning Permit
- Air Pollution Control Permit
- Department of the Army Permit (Section 404)

Note: If your project requires work in, above, under or adjacent to State waters, please contact the Army Corps of Engineers (USACE) Regulatory Branch at (808) 438-9258 regarding their permitting requirements.

**Are there any other existing or pending NPDES permits/NGPCs associated with this project/facility?**

No

**Are there any other existing or pending (non-NPDES) permits, licenses or approvals associated with this project/facility?**

No

**Is the facility on the Superfund Amendments and Reauthorization Act (SARA )313 list?**

No

**Topographic Map(s)**

Attach a topographic map or maps to this submission of the area extending at least one mile beyond the property boundaries of the site which clearly show the following:

1. Island on which the project/facility is located;
2. Legal boundaries of the site;
3. Location and an identification number for each of the site's existing and proposed intake and discharge structures; and
4. Receiving state water(s) and receiving storm water drainage system(s) identified and labeled. If the receiving state water is a wetland, submit a map showing the delineated wetland.

Specify the names of the map(s) that identify these items below.

**Topographic Maps**

- [A-3\\_StateWtrsMap.pdf - 04/11/2024 05:03 PM](#)
- [A-7\\_ConstructionDwgs.pdf - 04/11/2024 05:03 PM](#)
- [A-1\\_LocVicMap.pdf - 04/11/2024 05:03 PM](#)
- [4.0\\_1mile-TopographicMap.pdf - 04/11/2024 05:03 PM](#)
- [A-2\\_LegalBoundaryMap.pdf - 04/11/2024 05:03 PM](#)
- [A-6\\_PermittedArea.pdf - 04/19/2024 01:15 PM](#)

**Comment**

NONE PROVIDED

**Required Maps**

Required Map	Submitted Map(s) Name(s)
Island on Which the Project/Facility is Located	Attachment A-1
Legal Boundaries of the Site	Attachment A-2
Location and an Identification Number for Each of the Site's Existing and Proposed Intake and Discharge Structures (i.e., discharge points/outfalls)	Attachment A-6 & Attachment A-7
Receiving State Water(s) and Receiving Storm Water Drainage System(s) Identified and Labeled and Wetland Delineations	Attachment A-3

**Permitted Feature(s) Information (1 of 5)**

**Permitted Feature Type**

External Outfall

**Receiving State Waters Name for Permitted Feature**

Kupapaulua Gulch

**Watershed Name for Permitted Feature**

Kupapaulua

**Receiving State Water Classification**

Class 2, Inland

**Receiving Water Type**

Stream, Natural Ditch, Natural Gulch

**Permitted Feature Identifier (Name, e.g., 001, 002, 003, etc.)**

DP #1

**Permitted Feature Location**

20.012501,-155.296657

**Is the receiving State water on the Section 303(d) List?**

No

**Permitted Feature(s) Information (2 of 5)**

**Permitted Feature Type**

External Outfall

**Receiving State Waters Name for Permitted Feature**

Kaholo Gulch

**Watershed Name for Permitted Feature**

Kupapaulua

**Receiving State Water Classification**

Class 2, Inland

**Receiving Water Type**

Stream, Natural Ditch, Natural Gulch

**Permitted Feature Identifier (Name, e.g., 001, 002, 003, etc.)**

DP #2a

**Permitted Feature Location**

20.012820,-155.298457

**Is the receiving State water on the Section 303(d) List?**

No

**Permitted Feature(s) Information (3 of 5)**

**Permitted Feature Type**

External Outfall

**Receiving State Waters Name for Permitted Feature**

Kaholo Gulch

**Watershed Name for Permitted Feature**

Kupapaulua

**Receiving State Water Classification**

Class 2, Inland

**Receiving Water Type**

Stream, Natural Ditch, Natural Gulch

**Permitted Feature Identifier (Name, e.g., 001, 002, 003, etc.)**

DP #2b

**Permitted Feature Location**

20.013372,-155.298089

**Is the receiving State water on the Section 303(d) List?**

No

**Permitted Feature(s) Information (4 of 5)**

**Permitted Feature Type**

External Outfall

**Receiving State Waters Name for Permitted Feature**

Kupapaulua Gulch

**Watershed Name for Permitted Feature**

Kupapaulua

**Receiving State Water Classification**

Class 2, Inland

**Receiving Water Type**

Stream, Natural Ditch, Natural Gulch

**Permitted Feature Identifier (Name, e.g., 001, 002, 003, etc.)**

DP #3

**Permitted Feature Location**

20.012693,-155.296634

**Is the receiving State water on the Section 303(d) List?**

No

**Permitted Feature(s) Information (5 of 5)****Permitted Feature Type**

External Outfall

**Receiving State Waters Name for Permitted Feature**

Kupapaulua Gulch

**Watershed Name for Permitted Feature**

Kupapaulua

**Receiving State Water Classification**

Class 2, Inland

**Receiving Water Type**

Stream, Natural Ditch, Natural Gulch

**Permitted Feature Identifier (Name, e.g., 001, 002, 003, etc.)**

DP #4

**Permitted Feature Location**

20.012649,-155.296492

**Is the receiving State water on the Section 303(d) List?**

No

**Receiving Drainage System(s) Information (1 of 1)****Does the discharge enter a STORMWATER DRAINAGE SYSTEM before discharging into the receiving State Waters?**

No

**NOI Form C****C.1 - General Information**

You are required to fulfill all requirements. By submitting the NOI, you are certifying the following statements:

- I prepared a Storm Water Pollution Prevention Plan (SWPPP) in accordance with HAR, Chapter 11-55, Appendix C, Section 7 prior to submitting this NOI;

- I will comply with all terms, conditions, and requirements in HAR Chapter 11-55, Appendix C;
- I will implement, operate, and maintain my SWPPP to ensure that storm water discharges associated with construction activities will not violate HAR, Chapter 11-54; HAR, Chapter 11-55; and HAR, Chapter 11-55, Appendix C;

**C.2 - Existing Pollution Sources/History of Land Use**

**Describe the history of land use at the existing Facility/Project site:**

The land in Hawaii Belt Road Seismic Retrofit of Kaholo Stream Bridge services Agricultural (Hawaii County General Plan, Zoning Chapter 25, A-40a). Mamalahoa Highway (Rte. 19), a principal arterial highway, traverses Kaholo Stream Bridge.

**Determine if the existing Facility/Project site may contain any existing pollution source(s) by using the following references. Select all references you utilized to determine existing pollution source(s). You are required to check at least one reference.**

Past land use history

**Describe any existing pollution source(s) identified in the references you selected above.**

Pollution sources include fuel/oil, grease, sediment, concrete, A/C, debris, dust and litter from motor vehicles using the roadway, as well as vegetation debris. The existing bridge structure contains lead-based rocker plates.

**Hazard Evaluation and Emergency Response (HEER) Office**

You are also required to check the Department of Health, Hazard Evaluation and Emergency Response (HEER) Office Sites, Incidents and Records through the [Viewer](#) in iHEER at the link below.

Note: The HEER Office is currently updating site information for sites. Most, but not all sites may be displayed on the viewer map. Site Document data upload is ongoing and not all documents may be currently available via this website. To get the complete record for the site, a record request form can be filled and submitted to the HEER Office. The request form can be at: <https://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records>. Users will then be notified when they are able to download all information via the iHEER system website.

[iHEER](#)

**Describe any existing pollution source(s) identified in the references you checked above and from HEER Office Sites, Incidents and Records**

Pollution sources include fuel/oil, grease, sediment, concrete, A/C, debris, dust and litter from motor vehicles using the roadway, as well as vegetation debris. The existing bridge structure contains lead-based rocker plates. Nothing is shown near the project area on the iHEER system website.

**Describe any corrective measures that have been undertaken for any existing pollution source(s):**

Corrective measures include periodic sweeping and other maintenance activities as required to minimize pollutants from entering receiving waters.

**Note**

You are required to contact the Department of Health, Office of Hazard Evaluation and Emergency Response at (808) 586-4249 and through e-permitting Form [Notification of Construction Activities](#) at Form Finder from the link below, if contaminated soil, vapor, or groundwater is known to be present at your project site. Notify at least 90 days prior to surface and subsurface disturbing activities (demolition, building/site configuration changes, grading, excavation, or prior to any other activities) that may disturb the ground surface at HEER sites. If you missed the 90 days notification time frame, notify the HEER Office as soon as possible to avoid any potential delays regarding your project.

[Notification of Construction Activities Form](#)

**C.3 - Construction Site Estimates**

Please provide the following estimates for the construction site.

Parameter	Area	Units
Total project area including areas to be left undisturbed	1.174	acres
Construction site area to be disturbed including storage and staging areas	1.174	acres
Impervious area before construction	0.117	acres
Impervious area after construction	0.117	acres

**C.4 - Quantity of Storm Water Runoff**

**Estimate the quantity of storm water runoff during construction when the greatest and/or maximum area of disturbance occurs. Provide the supporting calculations.**

Storm Water Runoff Quantity	Units
1.88	Cubic Feet per Second (CFS)

**Storm Water Runoff Supporting Calculations**

[A-6 PermittedArea.pdf - 04/19/2024 01:16 PM](#)

[A-5 CALCS.pdf - 04/19/2024 01:16 PM](#)

**Comment**

NONE PROVIDED

**C.5 - Soil Characterization**

**Describe the nature of the soil on the project site (including the potential to encounter contaminated soil) and the nature of the fill material to be used.**

The underlying soil of the project site consists of Ookala medial silty clay loam and Ookala-Rock outcrop complex. Fill material used in the retrofit project will consist of Portland Cement Concrete, shotcrete, select borrow, rip-rap, and cement grout.

**C.6 - Nature and Sequence of Construction Activity**

**What is the nature of the construction activity (Select all applicable activity(ies))?**

Other: Bridge Seismic Retrofit

**What is being constructed?**

The proposed work will include the construction of seismic retrofit improvements to Kaholo Stream Bridge, located along State Route 19,

Hawaii Belt Road at approximately mile post 30.9 in Hamakua, Hawaii Island (see Attachment 1); and will consist of the following activities: Replacing the existing rocker bearings with bearing pads on raised concrete shelves; Replacing the construction joints; Installing leveling pads; Installing downturn shock transmission units; Constructing additional abutment foundation supports using micropiles; and Constructing shotcrete facings with horizontal soil nail supports at the bridge abutments.

**Describe the scope of work and major construction activities you wish to be covered in this NOI, including baseyards and staging areas. You may only include project areas where the locations of impervious structures are known; project areas where the final grades are known; and work areas that will be performed by one (1) general contractor. A separate NOI will be required for all other project areas.**

The proposed work will include the construction of seismic retrofit improvements to Kaholo Stream Bridge and will consist of the following activities: Replacing the existing rocker bearings with bearing pads on raised concrete shelves; Replacing the construction joints; Installing leveling pads; Installing downturn shock transmission units; Constructing additional abutment foundation supports using micropiles; and Constructing shotcrete facings with horizontal soil nail supports at the bridge abutments.

The project will also require the temporary acquisition of 0.45 acres of construction parcels and the grading of two construction access roads to reach the bridge abutment foundations. Temporary removal of metal guardrails, traffic control, and temporary restriping will be required. Upon completion of construction, the temporary access roads will be removed, and the land will be restored to previous existing conditions.

**Is a County-approved Erosion and Sediment Control Plan and/or Grading Permit, where applicable for the activity and schedule for implementing each control, required?**

No

**Please select and complete at least one (1) of the following items to demonstrate that a County-approved Erosion and Sediment Control Plan and/or Grading Permit, as appropriate for the activity and schedule for implementing each control, is not required.**

Other: There will be no grading in private property. Grading will take place in property temporarily acquired by HDOT and construction will take place largely in the existing operational right-of-way. SWPPP will be implemented.

**C.7 - Project Site Maps and Construction Plans/Drawings**

Attach, title, and identify all maps (pdf - minimum 300 dpi) listed below.

Please reference which maps account for the features listed below.

**Project Site Maps and Construction Plans/Drawings**

[A-7 ConstructionDwgs.pdf - 04/11/2024 05:46 PM](#)

[A-1 LocVicMap.pdf - 04/11/2024 05:46 PM](#)

[A-4 FloodMap.pdf - 04/11/2024 05:46 PM](#)

[A-6 PermittedArea.pdf - 04/19/2024 01:16 PM](#)

**Comment**

NONE PROVIDED

**Vicinity of the project on the island.**

Attachment A-1

**Boundaries of 100-Year flood plans.**

Attachment A-4

**Areas of soil disturbance.**

Attachment A-6

**Location(s) of impervious structures (including buildings, roads, parking lots, etc.) after construction is completed.**

Attachment A-7

**Pre-Construction Topography including approximate slopes and drainage patterns for the entire Facility/Project site to the receiving storm water drainage system (if applicable) or to the receiving State water(s) (with flow arrows).**

Attachment A-6 & Attachment A-7

**During-Construction Topography (after major grading activities) including approximate slopes and drainage patterns for the entire Facility/Project site to the receiving storm water drainage system (if applicable) or to the receiving State water(s) (with flow arrows).**

Attachment A-6 & Attachment A-7

**Post-Construction Topography including approximate slopes and drainage patterns for the entire Facility/Project site to the receiving storm water drainage system (if applicable) or to the receiving State water(s) (with flow arrows).**

Attachment A-6 & Attachment A-7

**C.8 - Construction Schedule**

Provide the following estimated dates.

**The date when construction activity will begin.**

6/3/2024

**The date when each major construction activity begins. This includes those activities identified in Section 7.2.5 of HAR 11-55 Appendix C.**

Major Construction Activity	Major Construction Activity Begin Date
Bridge Seismic Retrofit	6/3/2024

**The date when the Notice of Cessation form will be submitted.**

1/19/2026

**Additional Information**

**Additional Information**

NONE PROVIDED

**Comment**

NONE PROVIDED

**Payment Information**

**How are you planning to pay the filing fee for this submission?**

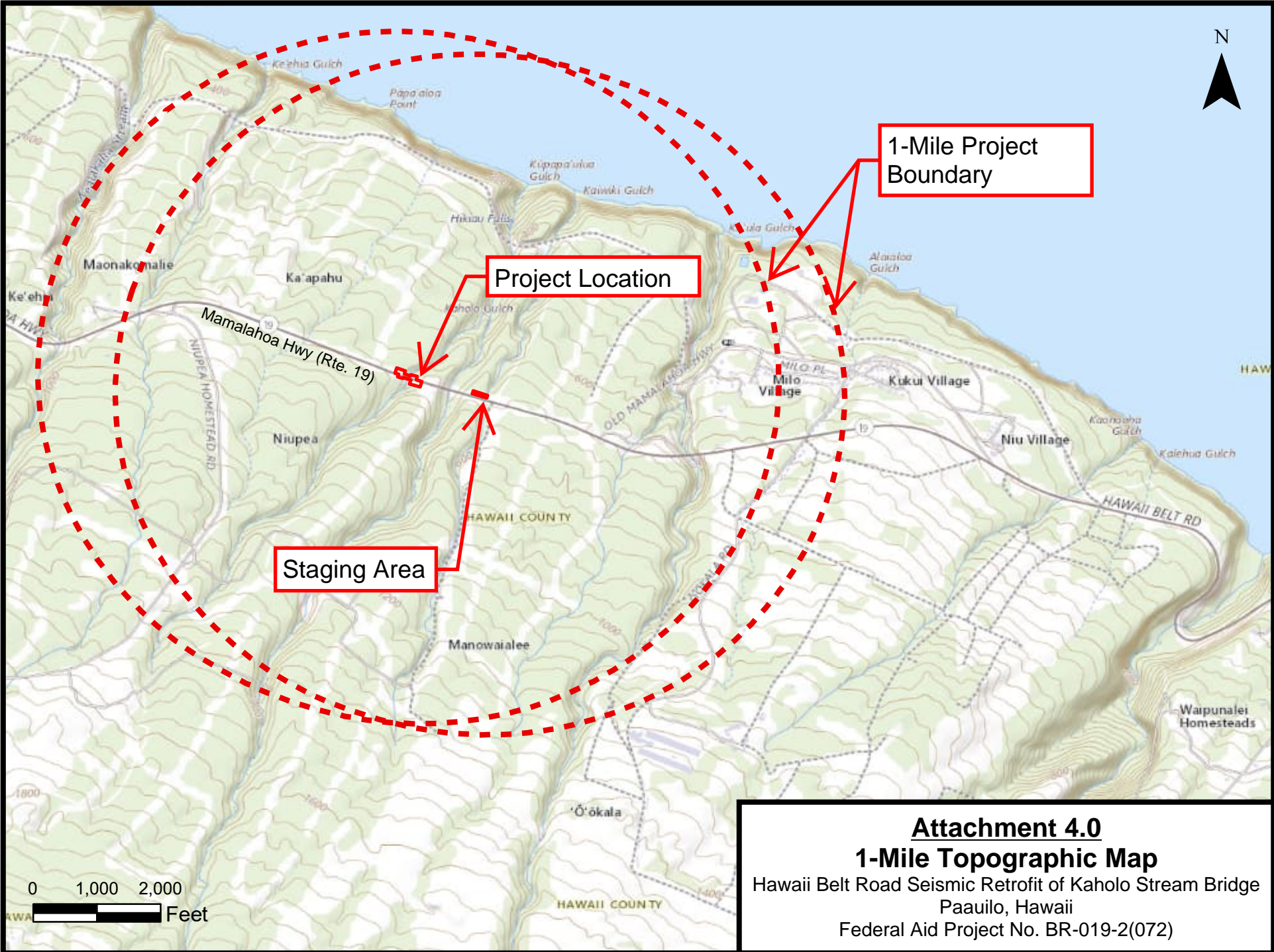
Online Payment

**Attachments**

Date	Attachment Name	Context	Confidential?	User
4/19/2024 1:16 PM	A-6_PermittedArea.pdf	Attachment	No	Larissa Sato
4/19/2024 1:16 PM	A-6_PermittedArea.pdf	Attachment	No	Larissa Sato
4/19/2024 1:16 PM	A-5_CALCS.pdf	Attachment	No	Larissa Sato



<b>Date</b>	<b>Attachment Name</b>	<b>Context</b>	<b>Confidential?</b>	<b>User</b>
4/19/2024 1:15 PM	A-6_PermittedArea.pdf	Attachment	No	Larissa Sato
4/11/2024 5:46 PM	A-7_ConstructionDwgs.pdf	Attachment	No	Larissa Sato
4/11/2024 5:46 PM	A-1_LocVicMap.pdf	Attachment	No	Larissa Sato
4/11/2024 5:46 PM	A-4_FloodMap.pdf	Attachment	No	Larissa Sato
4/11/2024 5:03 PM	A-3_StateWtrsMap.pdf	Attachment	No	Larissa Sato
4/11/2024 5:03 PM	A-7_ConstructionDwgs.pdf	Attachment	No	Larissa Sato
4/11/2024 5:03 PM	A-1_LocVicMap.pdf	Attachment	No	Larissa Sato
4/11/2024 5:03 PM	4.0_1mile-TopographicMap.pdf	Attachment	No	Larissa Sato
4/11/2024 5:03 PM	A-2_LegalBoundaryMap.pdf	Attachment	No	Larissa Sato



1-Mile Project Boundary

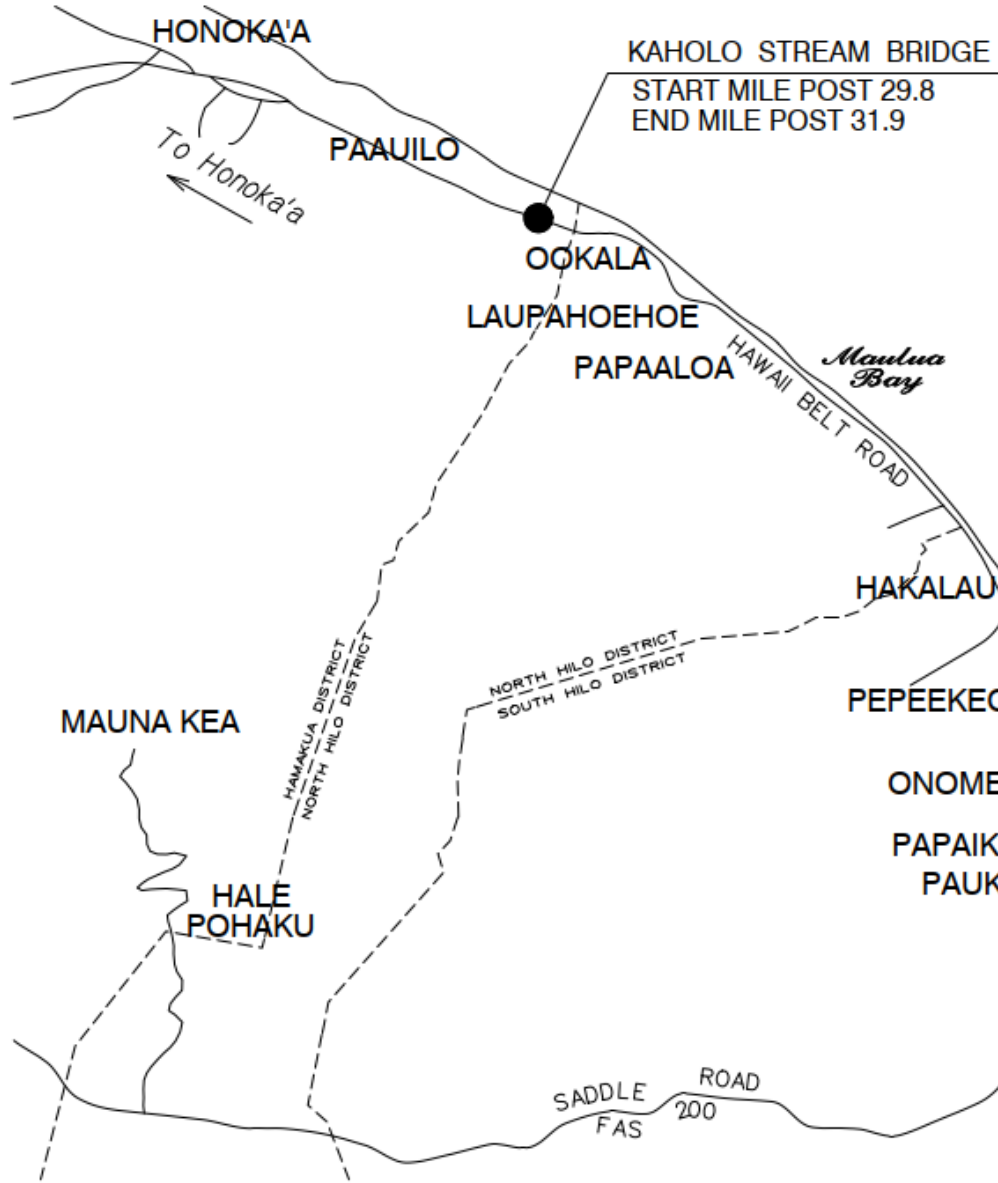
Project Location

Staging Area

**Attachment 4.0**

**1-Mile Topographic Map**

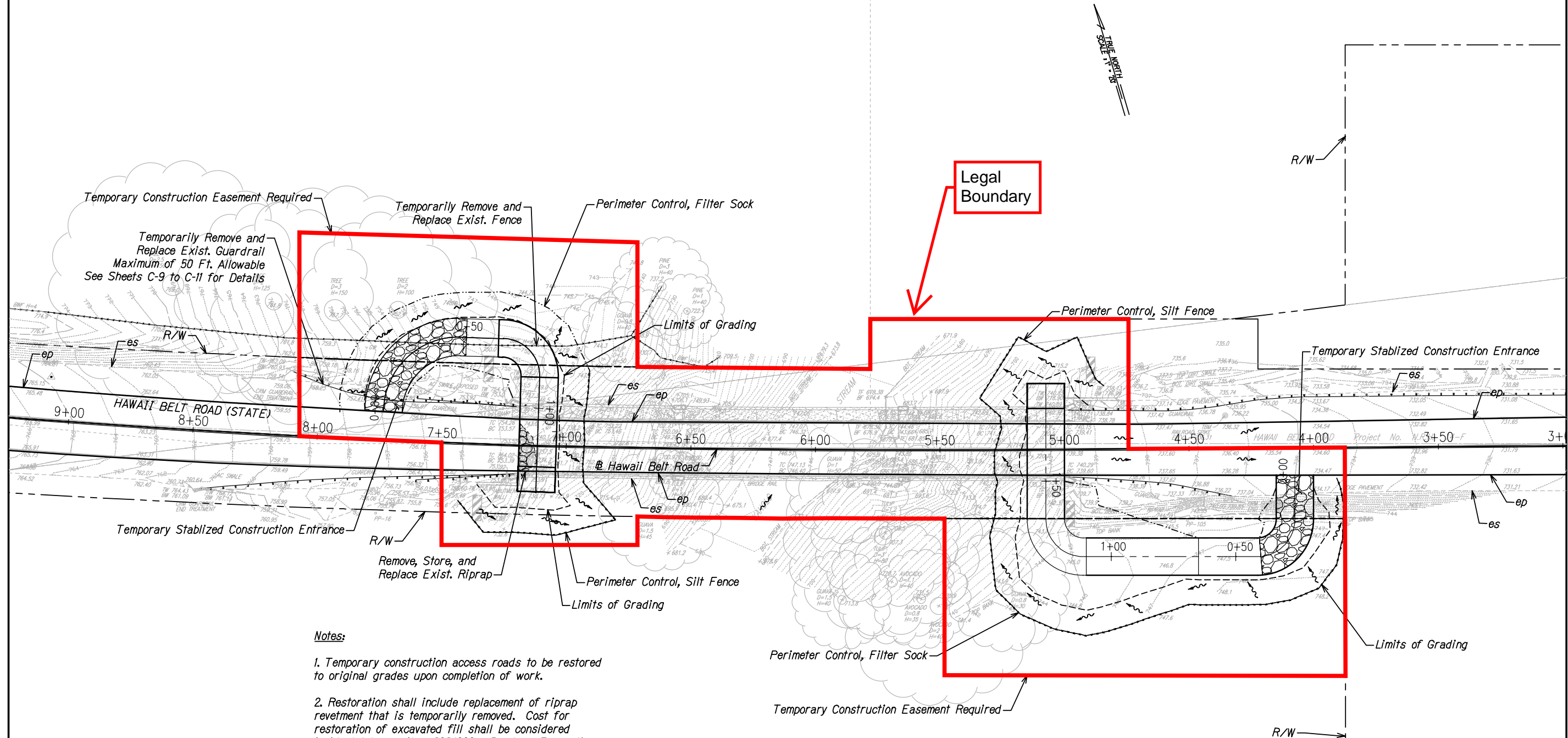
Hawaii Belt Road Seismic Retrofit of Kaholo Stream Bridge  
Paauilo, Hawaii  
Federal Aid Project No. BR-019-2(072)



**Attachment A-1**  
**Vicinity & Location Map**  
 Hawaii Belt Road Seismic Retrofit of Kaholo Stream Bridge  
 Paaui, Hawaii  
 Federal Aid Project No. BR-019-2(072)

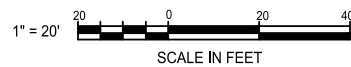


# Attachment A-2 Legal Boundary Map



**Notes:**

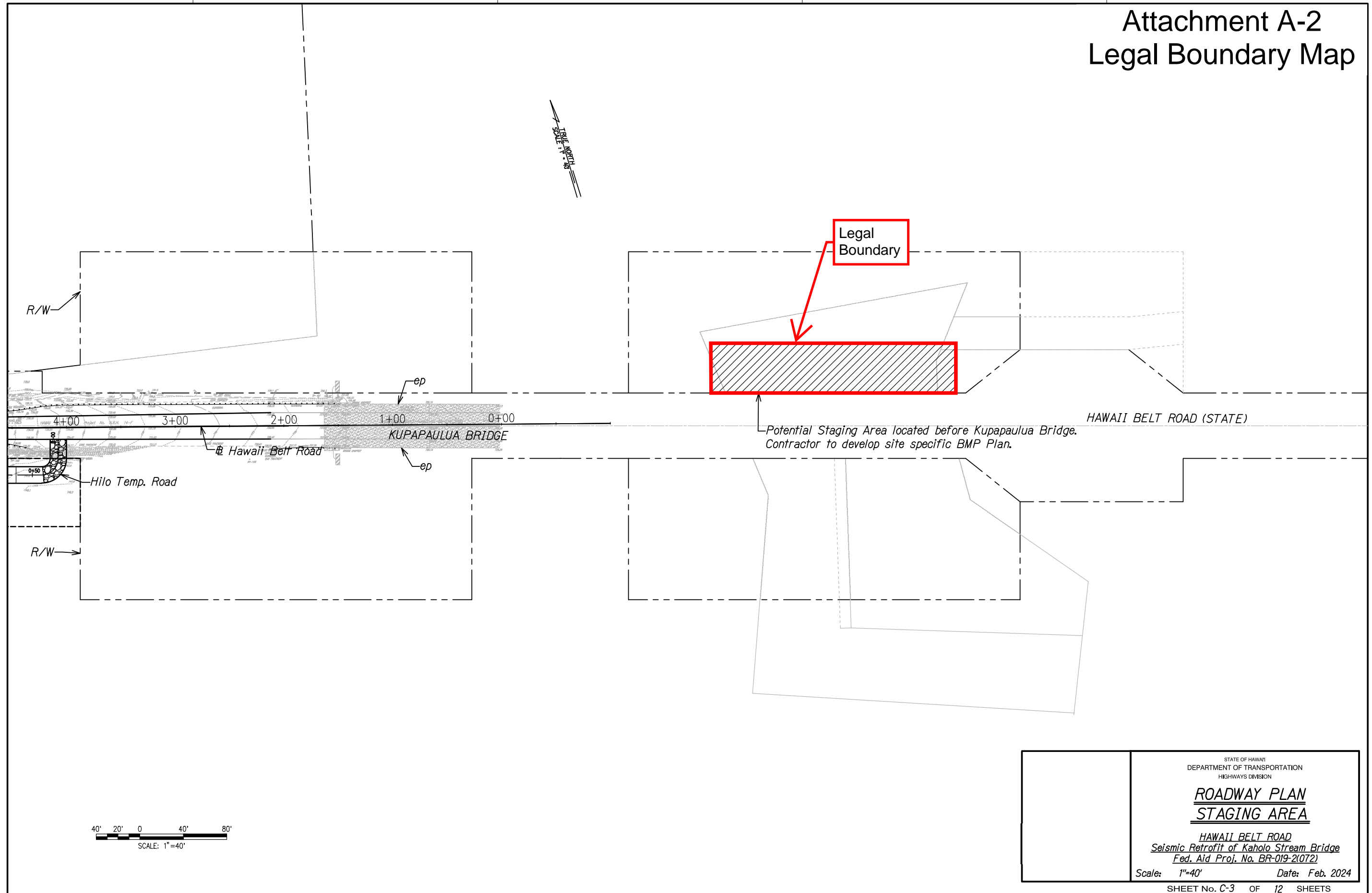
1. Temporary construction access roads to be restored to original grades upon completion of work.
2. Restoration shall include replacement of riprap revetment that is temporarily removed. Cost for restoration of excavated fill shall be considered incidental to pay item 203.1000 - Roadway Excavation.
3. Upon restoration of temporarily excavated areas to original grades, the site shall be stabilized with hydro seeding.
4. 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 Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering site conditions and construction sequence.



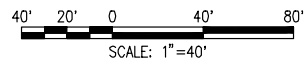
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
NO. _____	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<b>ROADWAY PLAN</b> <b>KAHOLO BRIDGE</b>	
HAWAII BELT ROAD Seismic Retrofit of Kaholo Stream Bridge Fed. Aid Proj. No. BR-019-21072	
Scale: 1"=20'	Date: Feb. 2024
SHEET No. C-2 OF 12 SHEETS	

# Attachment A-2 Legal Boundary Map



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

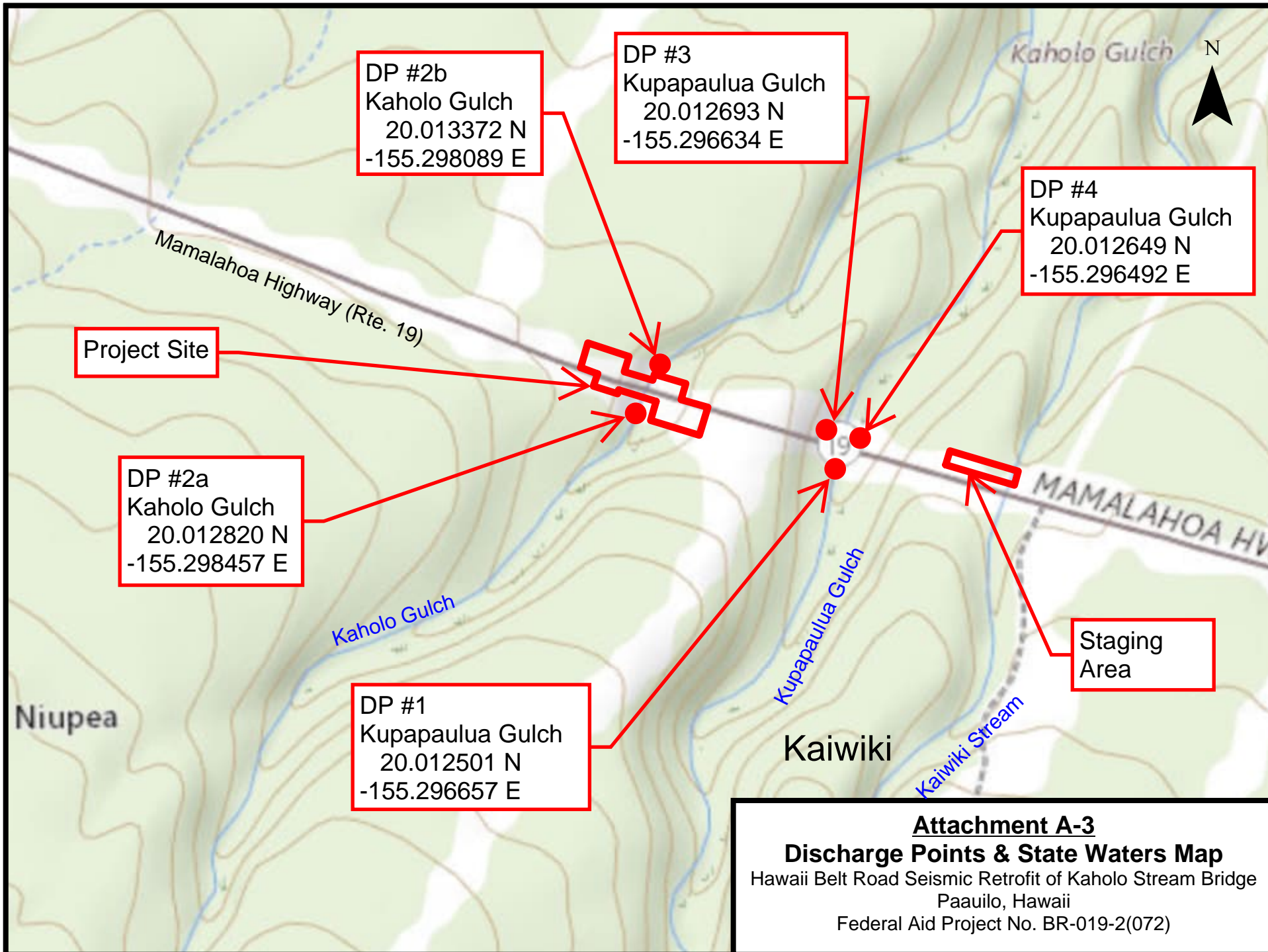


STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN  
STAGING AREA**

HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: 1"=40' Date: Feb. 2024

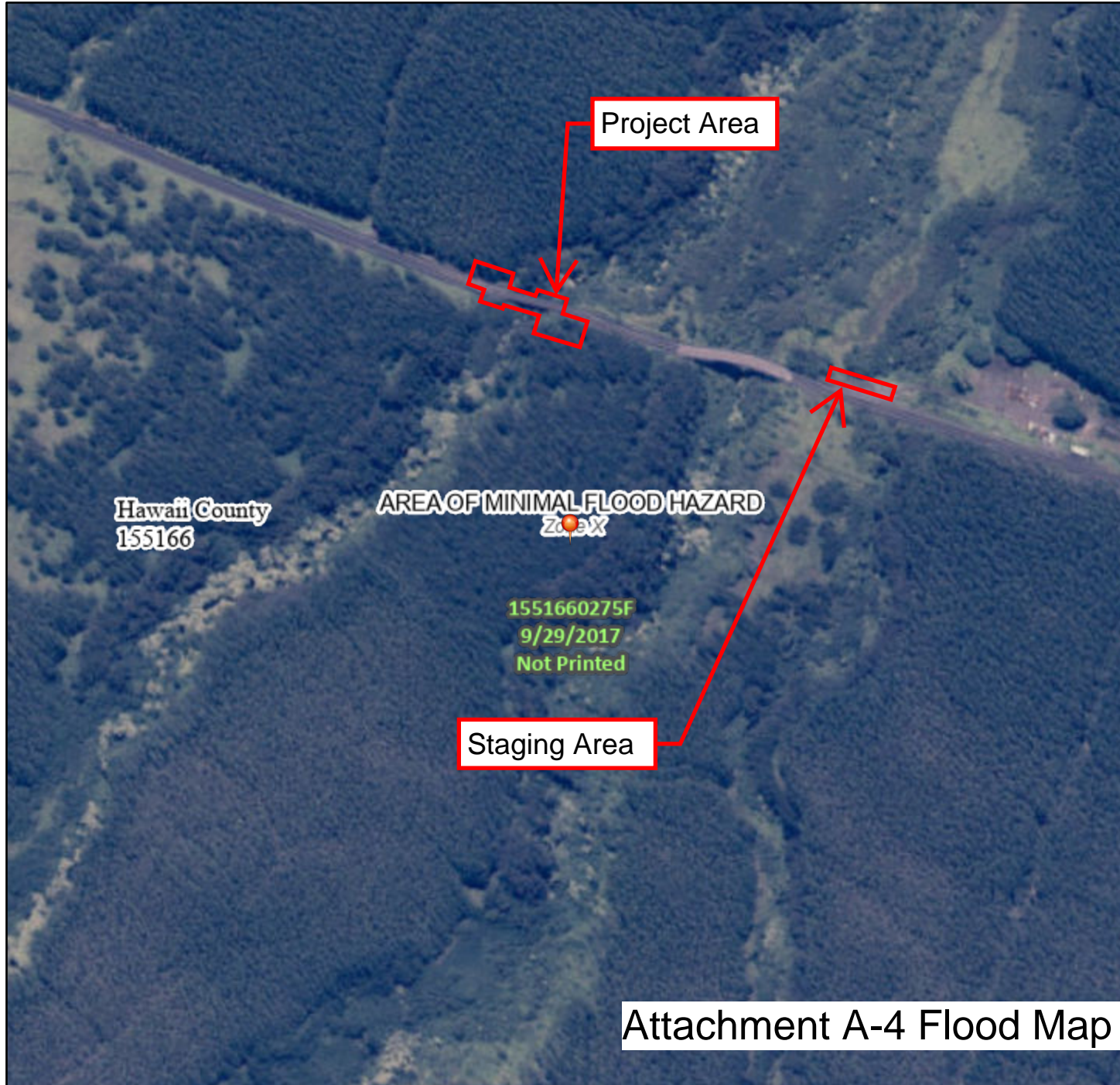




# National Flood Hazard Layer FIRMette



155°18'12"W 20°0'57"N



## Attachment A-4 Flood Map

### Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- |                             |  |  |
|-----------------------------|--|--|
| SPECIAL FLOOD HAZARD AREAS  |  | Without Base Flood Elevation (BFE)<br><i>Zone A, V, A99</i>  |
|                             |  | With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>   |
|                             |  | Regulatory Floodway  |
| OTHER AREAS OF FLOOD HAZARD |  | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> |
|                             |  | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>  |
|                             |  | Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>  |
|                             |  | Area with Flood Risk due to Levee <i>Zone D</i>  |
| OTHER AREAS                 |  | NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>   |
|                             |  | Effective LOMRs  |
| GENERAL STRUCTURES          |  | Area of Undetermined Flood Hazard <i>Zone D</i>  |
|                             |  | Channel, Culvert, or Storm Sewer   |
|                             |  | Levee, Dike, or Floodwall  |
| OTHER FEATURES              |  | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation  |
|                             |  | 17.5 Coastal Transect  |
|                             |  | Base Flood Elevation Line (BFE)  |
|                             |  | Limit of Study   |
|                             |  | Jurisdiction Boundary  |
| MAP PANELS                  |  | Coastal Transect Baseline  |
|                             |  | Profile Baseline   |
|                             |  | Hydrographic Feature   |
|                             |  | Digital Data Available   |
|                             |  | No Digital Data Available  |
|                             |  | Unmapped   |



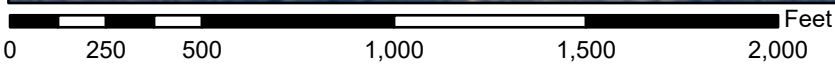
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

### Project Area

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **4/11/2024 at 7:58 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000

155°17'34"W 20°0'23"N

Basemap Imagery Source: USGS National Map 2023

### Attachment A-5 Drainage Area Calculations

Area Label	C	Area		*T <sub>c</sub> (min)	I <sub>10</sub> From Map	Correction Factor	I <sub>10</sub> (in/hr)	Q (cfs)	Discharge Point No.	Discharge Point Name	Discharge Point Location		Receiving Water Classification
		(SF)	(ac)								Lat.	Long.	
1-1	0.52	6838.34	0.157	5	1.98	2.75	5.45	0.45	1	Kupapaulua Gulch	20.012501	-155.296657	Class 2 Inland
2-1	0.33	32960.24	0.757	15	1.98	1.90	3.76	0.93	2a	Kaholo Gulch	20.012820	-155.298457	Class 2 Inland
									2b		20.013372	-155.298089	
3-1	0.9	1003.85	0.023	5	1.98	2.75	5.45	0.11	3	Kupapaulua Gulch	20.012693	-155.296634	Class 2 Inland
4-1	0.3	10321.07	0.237	5	1.98	2.75	5.45	0.39	4	Kupapaulua Gulch	20.012649	-155.296492	Class 2 Inland

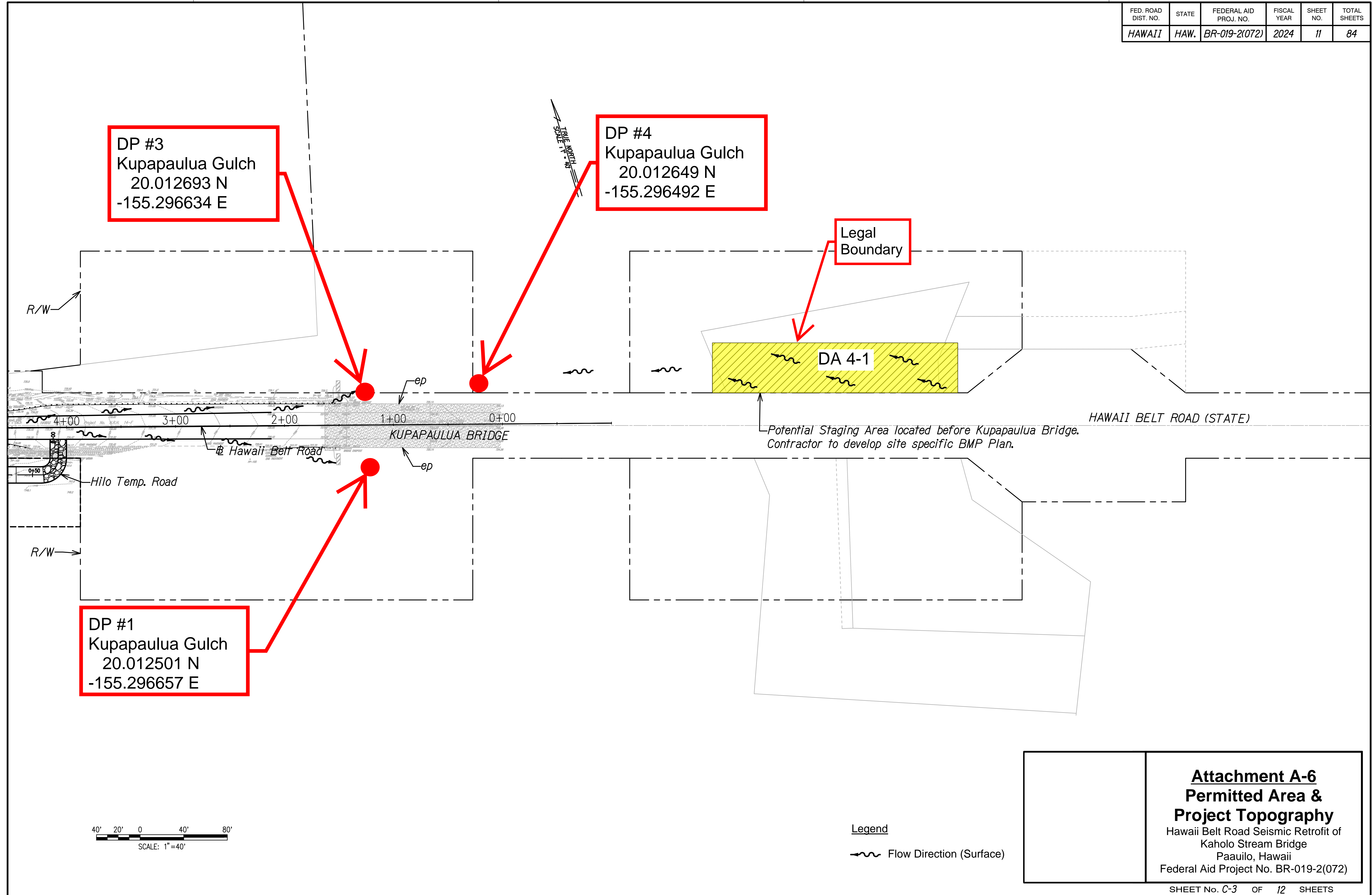
Total= 1.174 ac  
 Total Impervious Area= 0.117 ac  
 Total= 1.88 CFS







FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	11	84



DP #3  
Kupapaulua Gulch  
20.012693 N  
-155.296634 E

DP #4  
Kupapaulua Gulch  
20.012649 N  
-155.296492 E

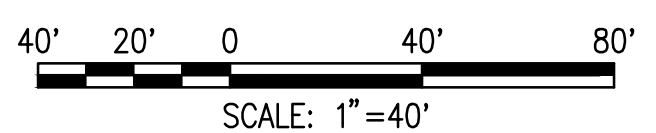
Legal  
Boundary

DA 4-1

DP #1  
Kupapaulua Gulch  
20.012501 N  
-155.296657 E

Potential Staging Area located before Kupapaulua Bridge.  
Contractor to develop site specific BMP Plan.

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



Legend  
 Flow Direction (Surface)

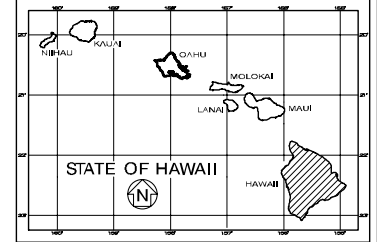
**Attachment A-6**  
**Permitted Area &**  
**Project Topography**  
 Hawaii Belt Road Seismic Retrofit of  
 Kaholo Stream Bridge  
 Paauilo, Hawaii  
 Federal Aid Project No. BR-019-2(072)

**Attachment A-7**

**Construction Drawings**

INDEX TO DRAWINGS	
SHT. NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD PLANS SUMMARY
3 - 4	GENERAL NOTES
5 - 8	WATER POLLUTION AND EROSION CONTROL NOTES
9 - 37	CIVIL PLANS
38-46	GEOTECHNICAL PLANS
47-84	STRUCTURAL PLANS

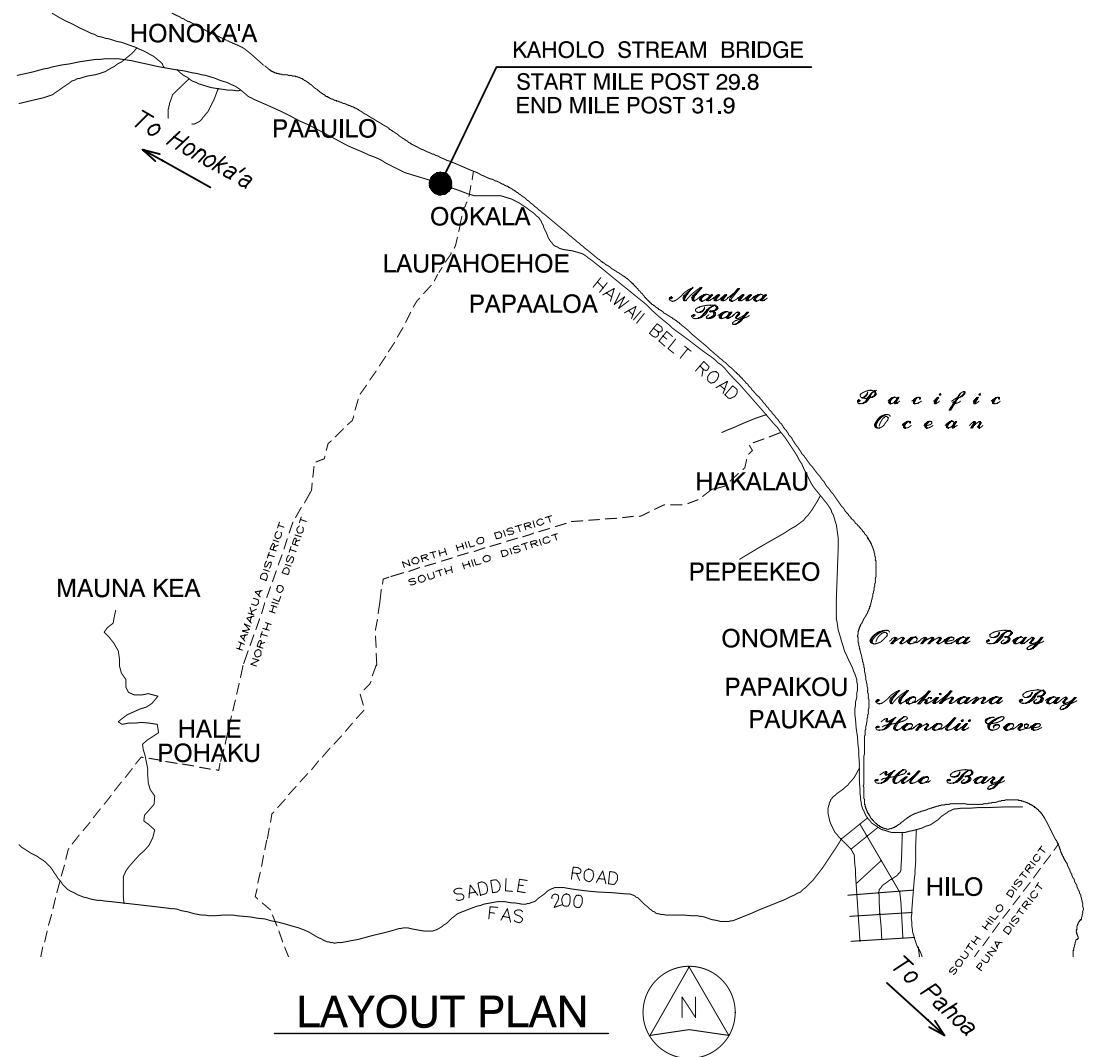
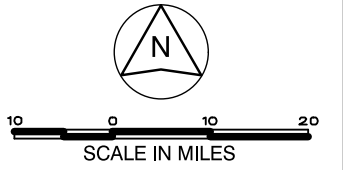
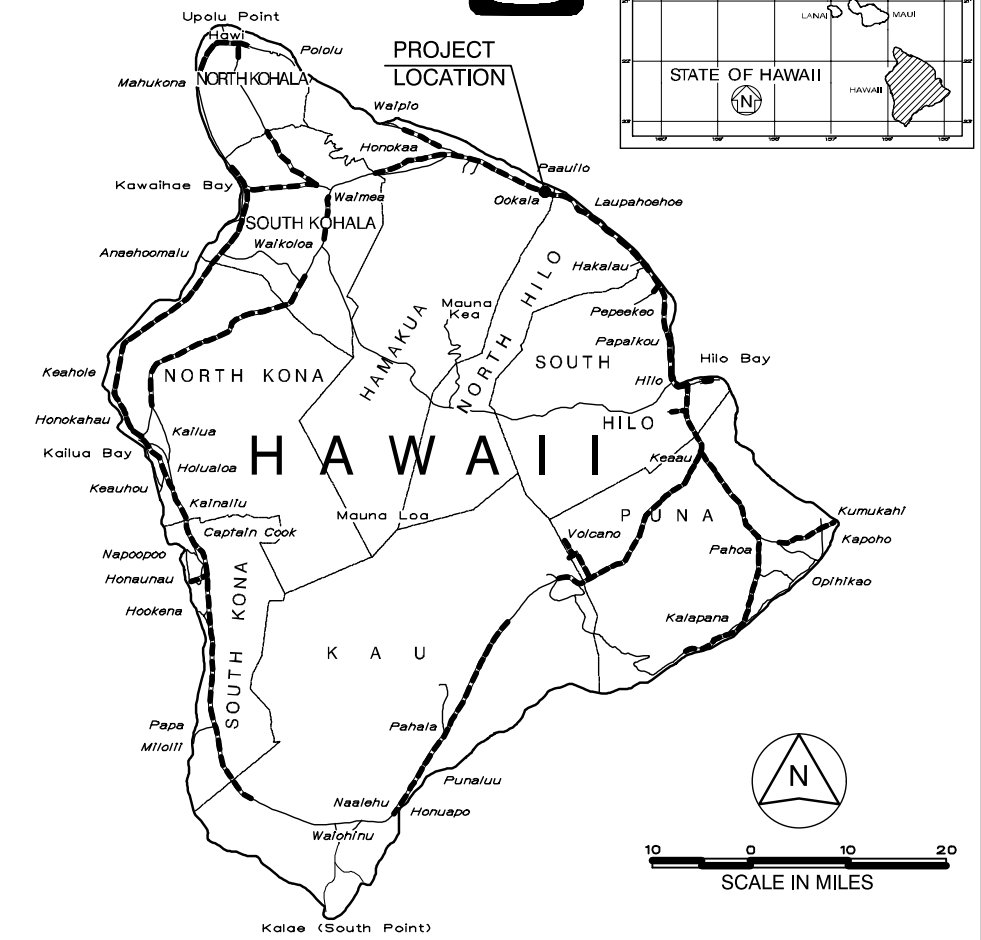
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	1	84



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
HONOLULU, HAWAII

PLANS FOR  
**HAWAII BELT ROAD**  
SEISMIC RETROFIT OF KAHOLO STREAM BRIDGE  
PROJECT NO. BR-019-2(072)

DISTRICT OF HAMAKUA  
ISLAND OF HAWAII



MILE POST 29.8 TO MILE POST 31.9

Hawaii Belt Road Moanalulu Bridge to Pakalana St. Route 19 (MP 25.66 to 42.71)	
2024 ADT	8,800
2034 ADT	10,500
2044 ADT	12,300
2034 DHV	890
2044 DHV	1,050
Des K	8.5
Des D	60/40
Des T	5.0
T24	6.0

DEPARTMENT OF TRANSPORTATION  
STATE OF HAWAII

APPROVED: \_\_\_\_\_

DIR. OF TRANSPORTATION      DATE

DRAWING NAME: Z:\00\_ONGOING\19-031-HBR\_KAHOLO\_SEISMIC\_RETROFIT\01\_CAD\02-29-24\_FINAL REVIEW\KBR-001\_TL\SH1.DWG      PLOT TIME: 02-29-24\_3:58 PM

DESIGNED BY: KSF, INC.      HWY-H: \_\_\_\_\_      MANAGED BY: \_\_\_\_\_      DATE: MAR. 2024

PHONE: (808) 933-8866

**LAYOUT PLAN**

**WATER POLLUTION AND EROSION CONTROL NOTES:**

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	5	84

**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 21 calendar days of date of award. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.
2. **Hazardous Waste**  
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
3. **Sanitary Waste**  
Collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.

**C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:**

1. For projects with 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.

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

 <p>Signature: <i>Gerald D. Andrade</i> 4/30/24 EXPIRATION DATE OF THE LICENSE</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p>	<p>STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION</p> <p><b>WATER POLLUTION &amp; EROSION CONTROL NOTES</b></p> <p>HAWAII BELT ROAD Seismic Retrofit of Kaholo Stream Bridge Fed. Aid Proj. No. BR-019-2(072)</p> <p>Scale: None      Date: Feb. 2024</p>
	<p>SHEET No. EC-1 OF 4 SHEETS</p>

**WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):**

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	6	84

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 586-4309, and the Hawaii State Hospital Operator at 247-2191 and the Clean Water Branch (DOH-CWB) via email at [cleanwaterbranch@doh.hawaii.gov](mailto: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.

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

 <p>GERALD D. ANDRADE LICENSED PROFESSIONAL ENGINEER No. 10377-C HAWAII, U.S.A.</p> <p><i>Gerald D. Andrade</i> SIGNATURE 4/30/24 EXPIRATION DATE OF THE LICENSE</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p>	<p>STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION</p> <p><b>WATER POLLUTION &amp; EROSION CONTROL NOTES</b></p> <p>HAWAII BELT ROAD Seismic Retrofit of Kaholo Stream Bridge Fed. Aid Proj. No. BR-019-2(072)</p> <p>Scale: None      Date: Feb. 2024</p>
	<p>SHEET No. EC-2 OF 4 SHEETS</p>

**WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):**

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	7	84

**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

**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 Statedwide 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:

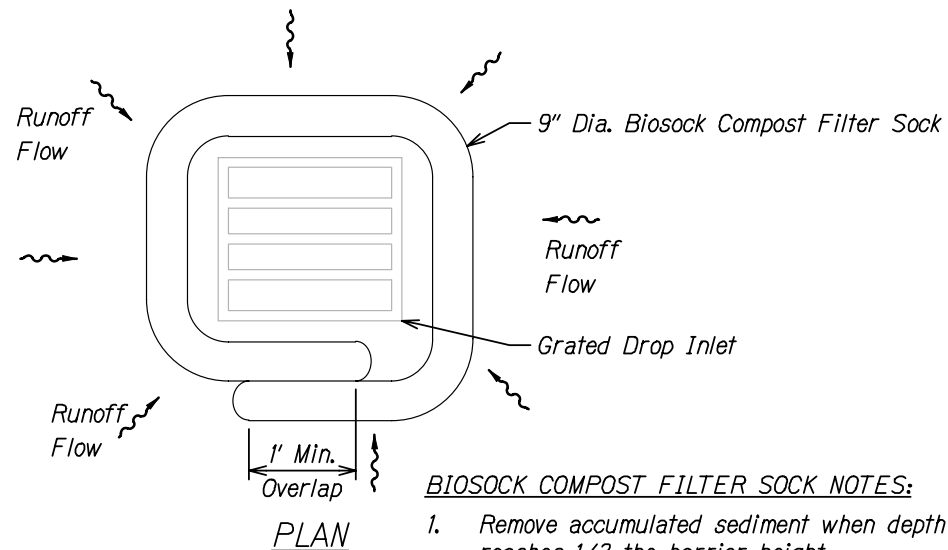
1. Protect all Drainage Inlets receiving runoff from disturbed areas (SC-1).
2. Contain on-site runoff using Perimeter Sediment Controls
  - a. SC-7 Silt Fence or Filter Fabric Fence
  - b. SC-2 Vegetated Filter Strips and Buffers
  - c. SC-6 Compost Filter Berm/Sock
  - d. SC-8 Sandbag Barrier
  - e. 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.

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

 <p>GERALD D. ANDRADE LICENSED PROFESSIONAL ENGINEER No. 10377-C HAWAII, U.S.A.</p> <p><i>Gerald D. Andrade</i> SIGNATURE</p> <p>4/30/24 EXPIRATION DATE OF THE LICENSE</p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION</p>	<p>STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION</p> <p><b>WATER POLLUTION &amp; EROSION CONTROL NOTES</b></p> <p>HAWAII BELT ROAD Seismic Retrofit of Kaholo Stream Bridge Fed. Aid Proj. No. BR-019-2(072)</p> <p>Scale: None      Date: Feb. 2024</p>
	<p>SHEET No. EC-3 OF 4 SHEETS</p>

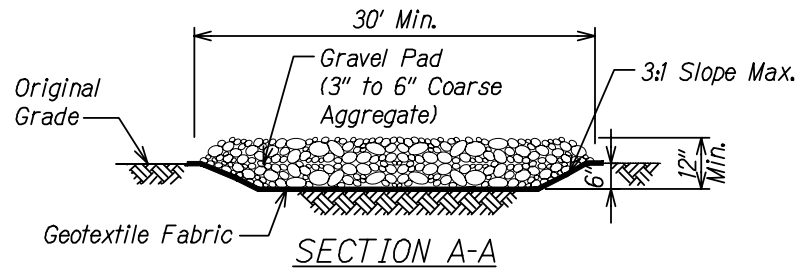
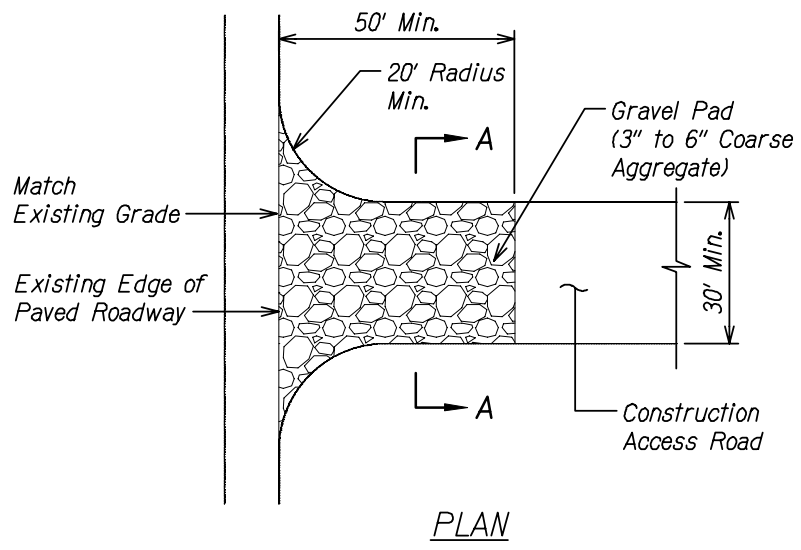


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	8	84

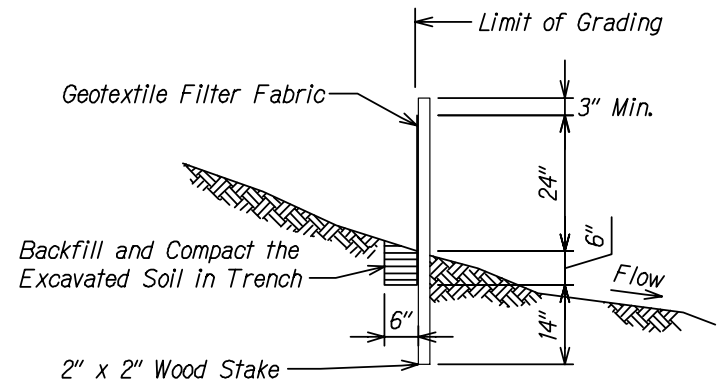
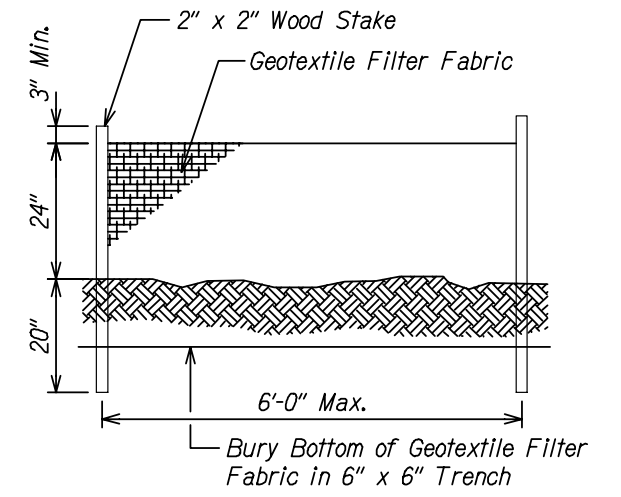


- BIO SOCK COMPOST FILTER SOCK NOTES:**
1. Remove accumulated sediment when depth reaches 1/3 the barrier height.
  2. Biosock Material and compost shall be removed at the completion of construction (or a phase of construction) and shall be disposed of properly.

**BIO SOCK COMPOST FILTER SOCK DRAIN INLET PROTECTION DETAIL**  
Not to Scale

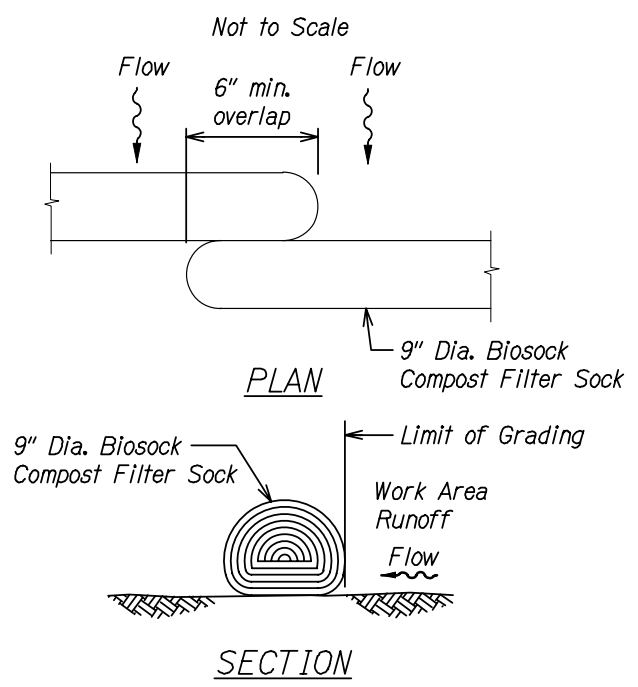


**TEMPORARY STABILIZED CONSTRUCTION ENTRANCE**  
Not to Scale

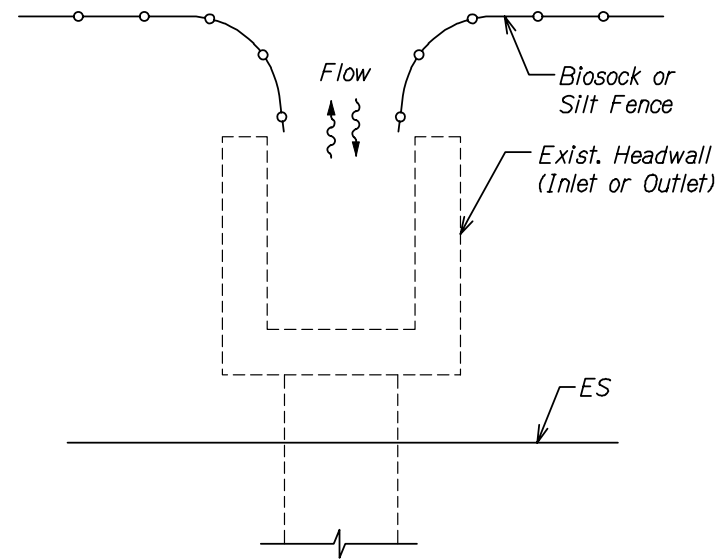


**SILT FENCE DETAIL**  
Not to Scale

- 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.



**BIO SOCK COMPOST FILTER SOCK PERIMETER CONTROL DETAIL**  
Not to Scale



**HEADWALL INLET PROTECTION DETAIL**  
Not to Scale

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

GERALD D. ANDRADE  
LICENSED PROFESSIONAL ENGINEER  
No. 10377-C  
HAWAII, U.S.A.

*Gerald D. Andrade*  
SIGNATURE

4/30/24  
EXPIRATION DATE OF THE LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**EROSION CONTROL DETAILS**

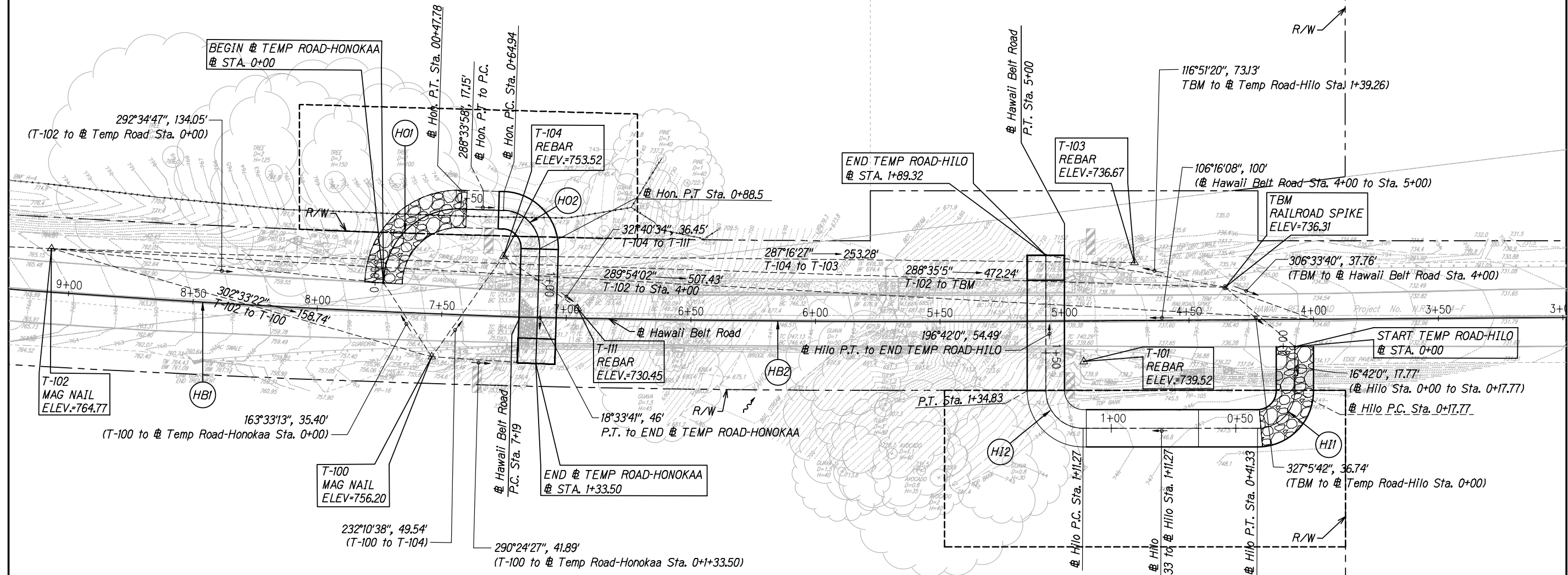
HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: \_\_\_\_\_ Date: Feb. 2024



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	9	84

<b>Ⓜ CURVE DATA (H01)</b> $\Delta = 91^{\circ}15'54.72''$ $\frac{\Delta}{2} = 45^{\circ}49'33.6''$ $R = 30'$ $T = 30.67'$ $Ch = 42.89'$ $Lc = 47.79'$	<b>Ⓜ CURVE DATA (H02)</b> $\Delta = 90^{\circ}0'0''$ $\frac{\Delta}{2} = 45^{\circ}0'0''$ $R = 15'$ $T = 15'$ $Ch = 21.21'$ $Lc = 23.56'$	<b>Ⓜ CURVE DATA (H11)</b> $\Delta = 90^{\circ}0'0''$ $\frac{\Delta}{2} = 45^{\circ}0'0''$ $R = 15'$ $T = 15'$ $Ch = 21.21'$ $Lc = 23.56'$	<b>Ⓜ CURVE DATA (H12)</b> $\Delta = 90^{\circ}0'0''$ $\frac{\Delta}{2} = 45^{\circ}0'0''$ $R = 15'$ $T = 15'$ $Ch = 21.21'$ $Lc = 23.56'$
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<b>Ⓜ CURVE DATA (HB1)</b> $\Delta = 03^{\circ}29'8.16''$ $\frac{\Delta}{2} = 01^{\circ}44'34.08''$ $R = 4497.20'$ $T = 136.84'$ $Ch = 273.54'$ $Lc = 273.59'$	<b>Ⓜ CURVE DATA (HB2)</b> $\Delta = 01^{\circ}44'44.52''$ $\frac{\Delta}{2} = 0^{\circ}52'22.26''$ $R = 7175.00'$ $T = 109.32'$ $Ch = 218.61'$ $Lc = 218.62'$
---	---



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

Signature: *Gerald D. Andrade* 1/30/24  
 EXPIRATION DATE OF THE LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

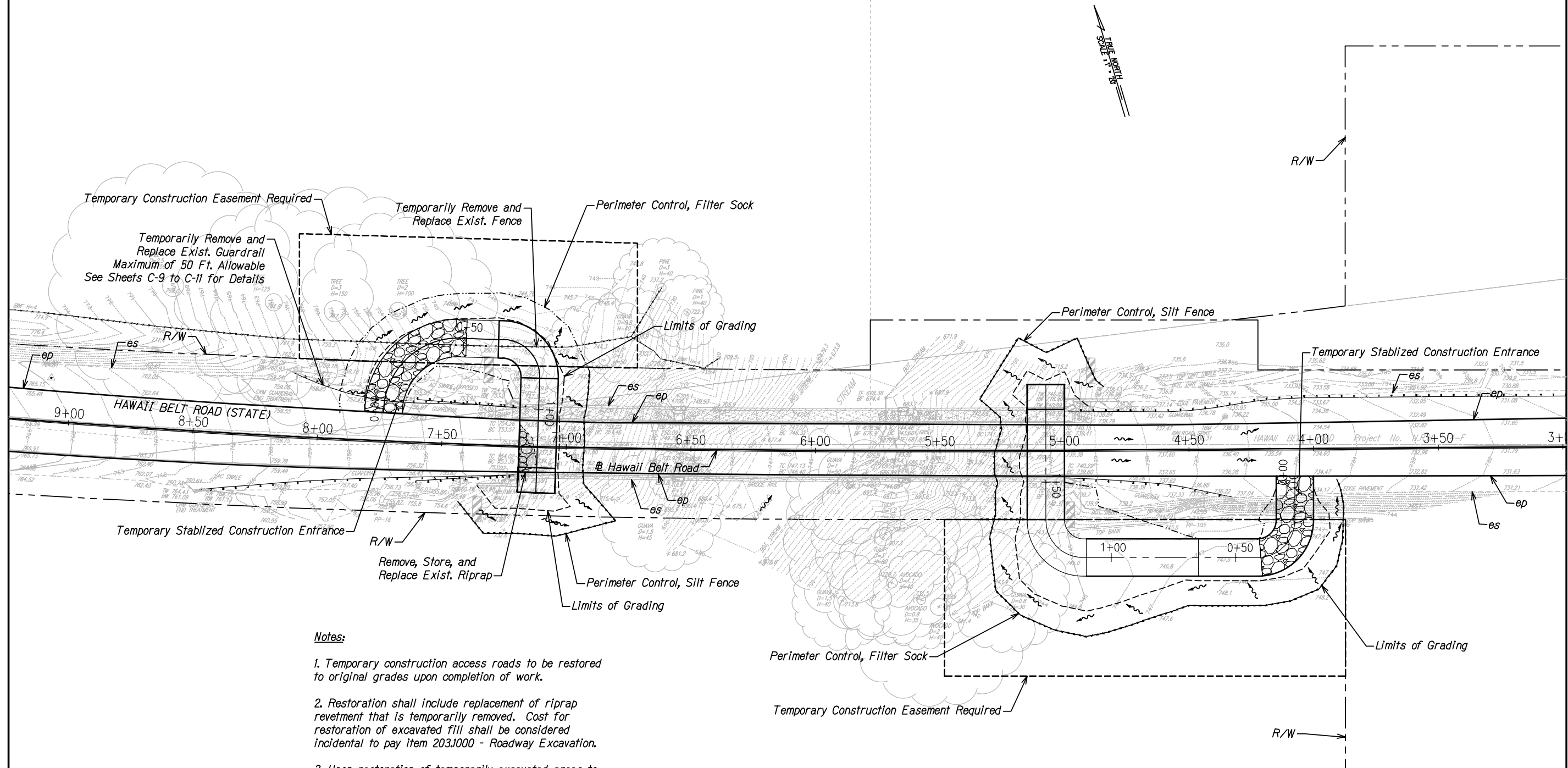
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

### ALIGNMENT PLAN

HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: 1"=20'      Date: Feb. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	10	84



- Notes:**
1. Temporary construction access roads to be restored to original grades upon completion of work.
  2. Restoration shall include replacement of riprap revetment that is temporarily removed. Cost for restoration of excavated fill shall be considered incidental to pay item 203.1000 - Roadway Excavation.
  3. Upon restoration of temporarily excavated areas to original grades, the site shall be stabilized with hydro seeding.
  4. 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 Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering site conditions and construction sequence.



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

Signature: *Gerald D. Andrade*  
 EXPIRATION DATE OF LICENSE: 4/30/24  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

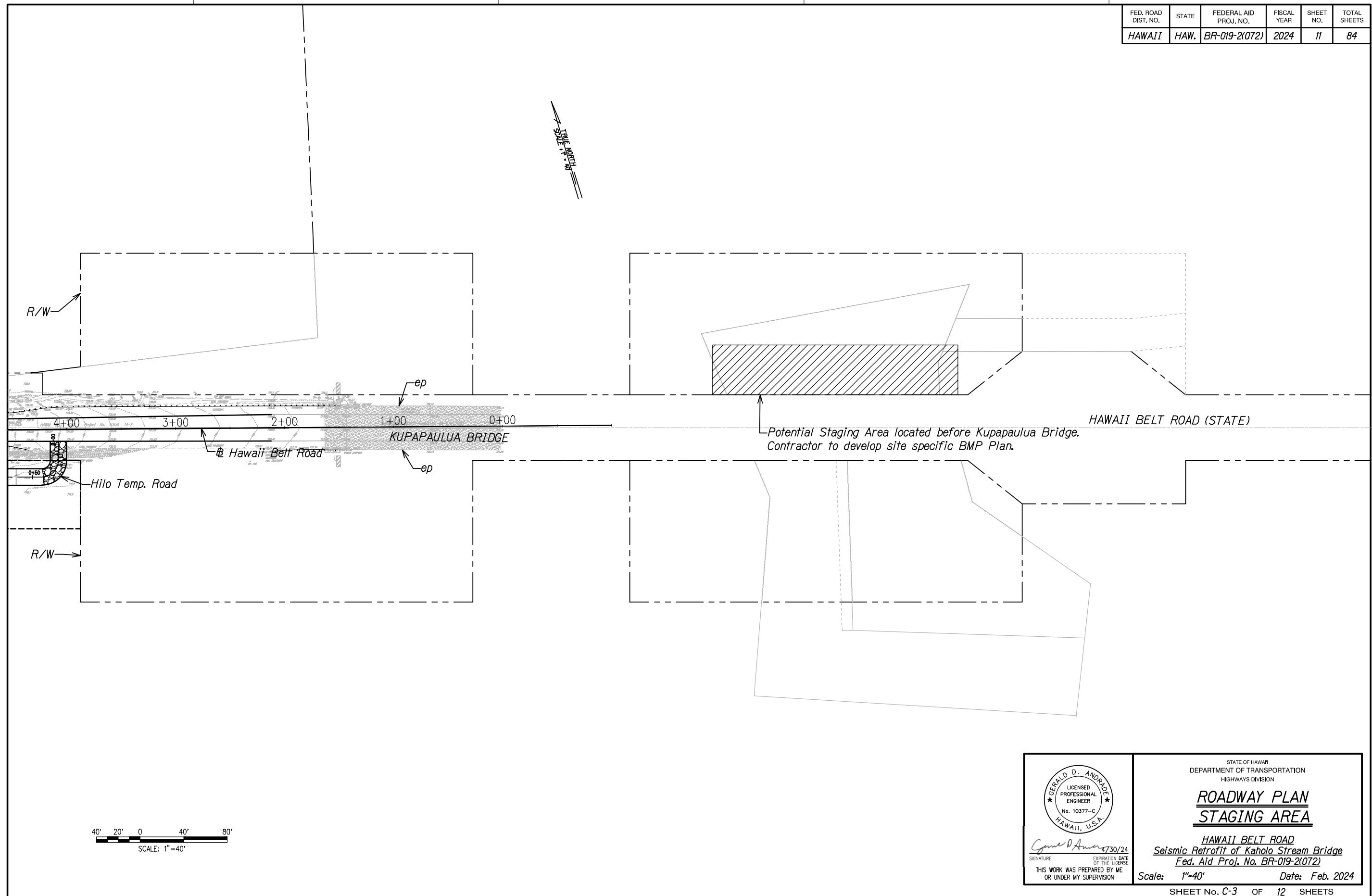
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ROADWAY PLAN  
 KAHOLO BRIDGE**

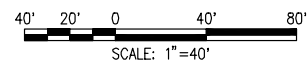
HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: 1"=20'      Date: Feb. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	11	84

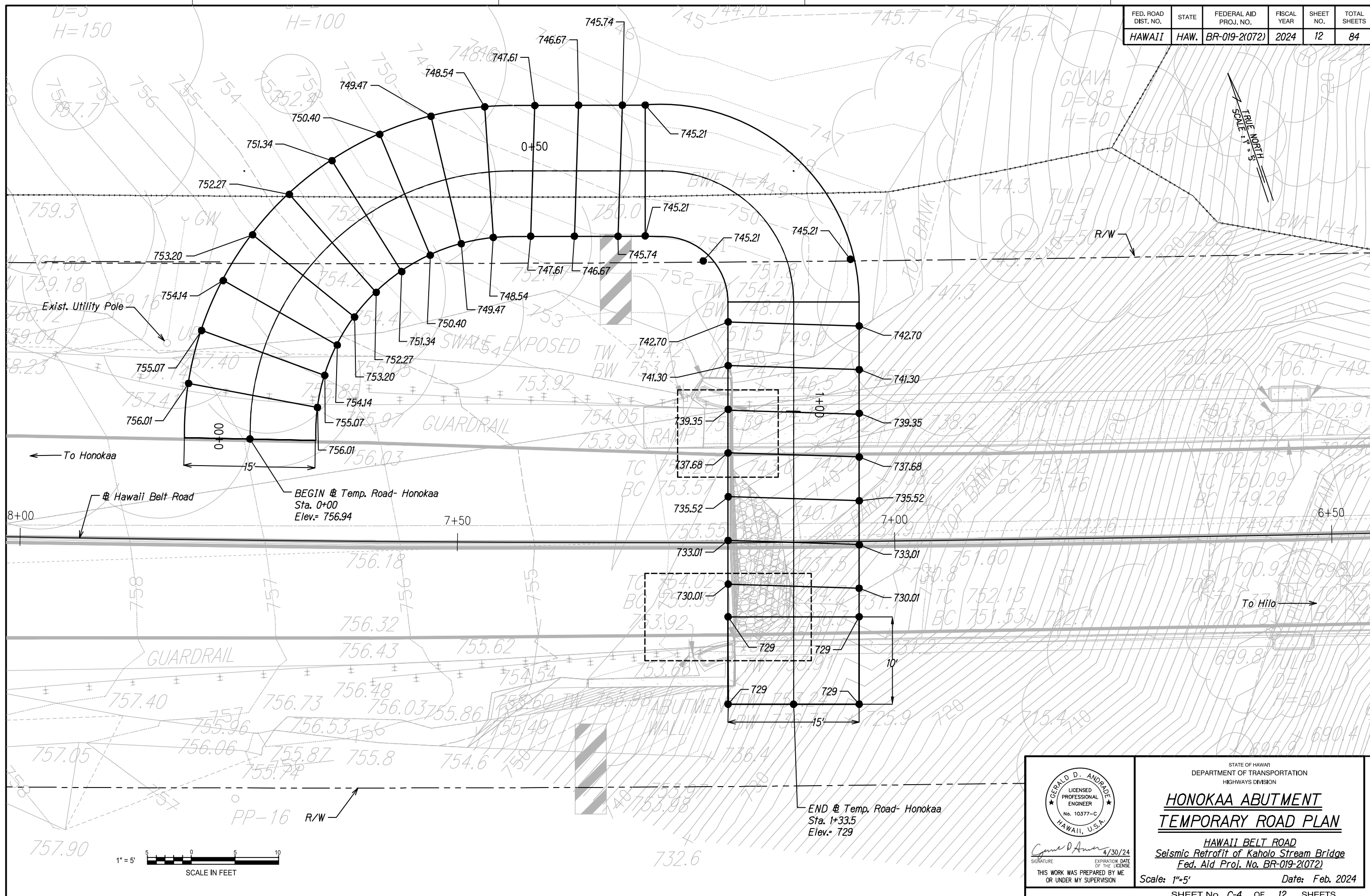


SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
DATE	



	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	<b>ROADWAY PLAN STAGING AREA</b>
	HAWAII BELT ROAD Seismic Retrofit of Kaholo Stream Bridge Fed. Aid Proj. No. BR-019-2(072)
	Signature: <i>Gerald D. Andrade</i> 4/30/24 EXPIRATION DATE OF THE LICENSE THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Scale: 1"=40'	Date: Feb. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-21072	2024	12	84



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NO. 10377-C	



GERALD D. ANDRADE  
LICENSED PROFESSIONAL ENGINEER  
No. 10377-C  
HAWAII, U.S.A.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**HONOKAA ABUTMENT  
TEMPORARY ROAD PLAN**

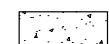
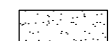
HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-21072

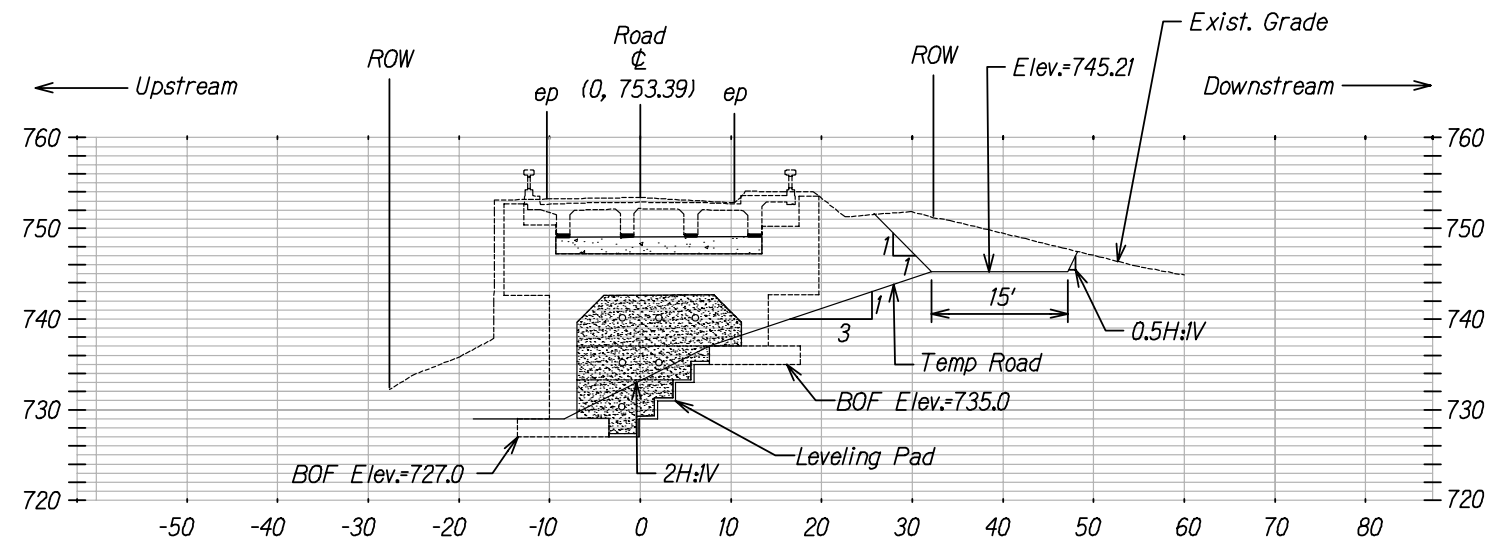
Scale: 1"=5'      Date: Feb. 2024

SHEET No. C-4 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	13	84


**Legend:**

-  Raised Concrete Shelf
-  Shotcrete Facing

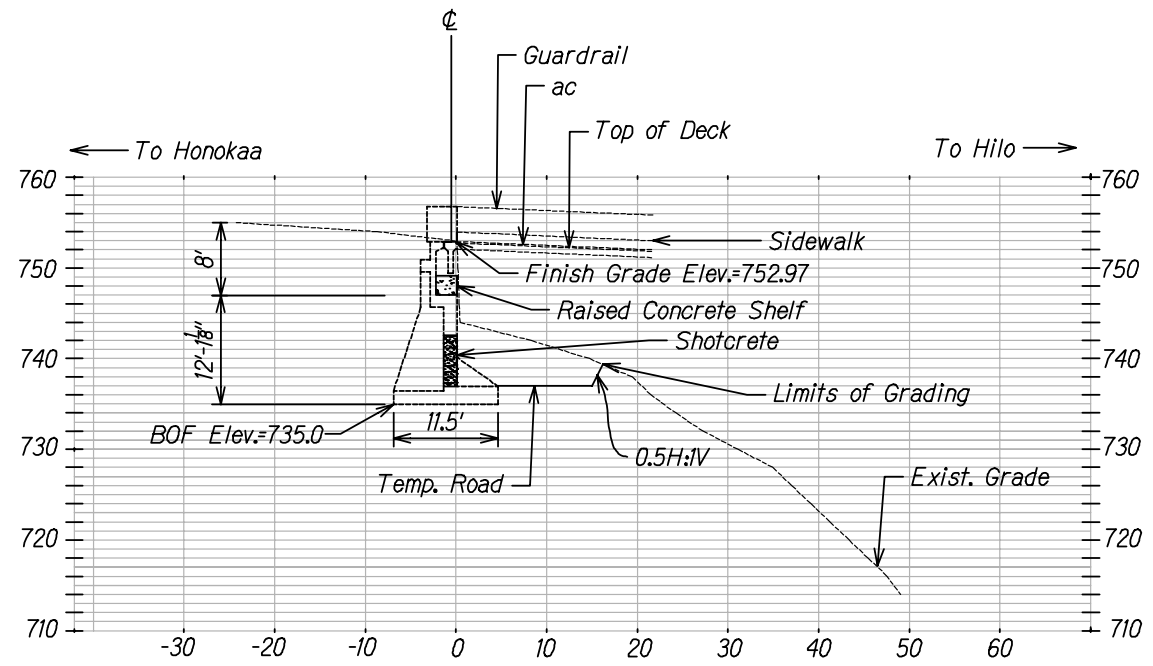


**Honokaa Abutment Temp. Road**  
**Typical Section**  
 Scale: 1"=10'

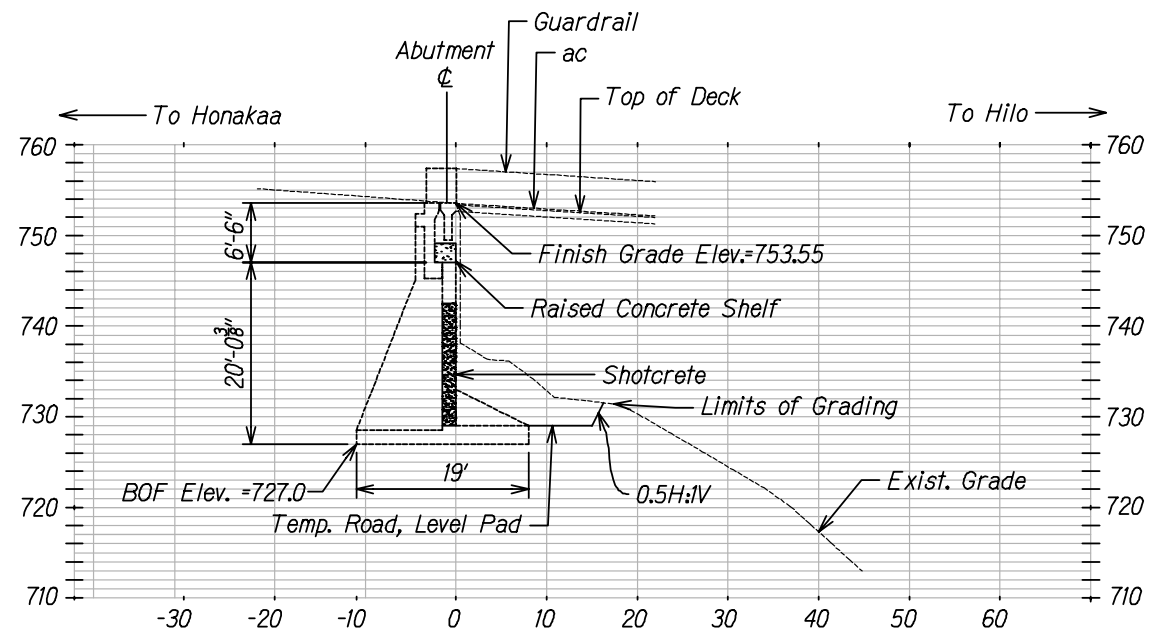
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
NO. _____	

 SIGNATURE: <i>Gerald D. Andrade</i> EXPIRATION DATE OF THE LICENSE: 4/30/24 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>HONOKAA ABUTMENT</b> <b>TEMP ROAD. TYP. SECTION</b>
	HAWAII BELT ROAD Seismic Retrofit of Kaholo Stream Bridge Fed. Aid Proj. No. BR-019-2(072)
	Scale: 1"=10'      Date: Feb. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	14	84



**Elevation-Honokaa Abutment  
(Downstream)**  
 @ Hawaii Belt Road Sta. 07+19, Rt. 10.36'  
 Scale: 1"=10'



**Elevation-Honokaa Abutment  
(Upstream)**  
 @ Hawaii Belt Road Sta. 7+19 Lt. 10.31'  
 Scale: 1"=10'

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

SIGNATURE  
EXPIRATION DATE OF THE LICENSE  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

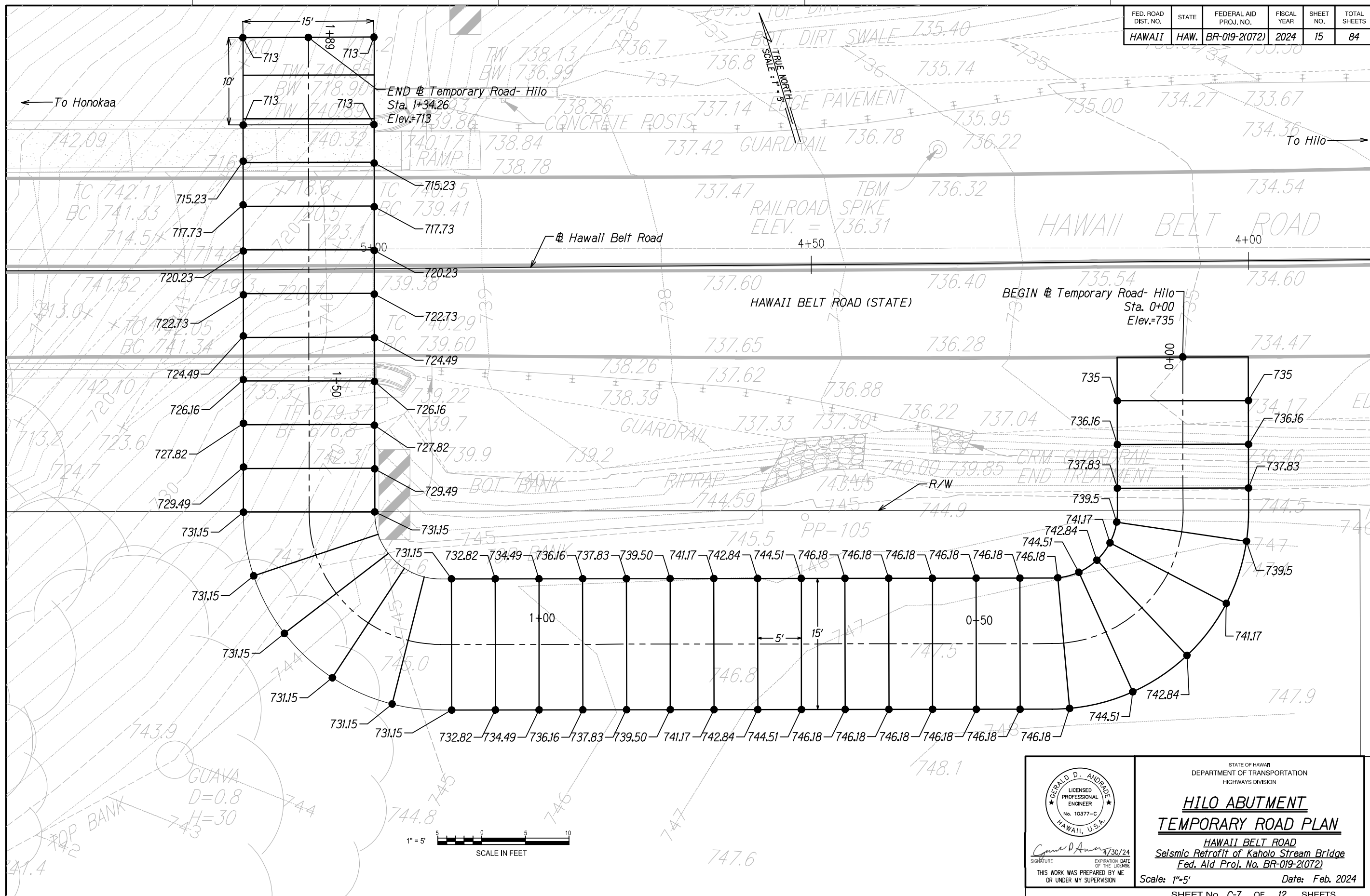
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**HONOKAA ABUTMENT  
ELEVATIONS**

HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: 1"=10'      Date: Feb. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	15	84



DATE	.....
SURVEY PLOTTED BY	.....
DRAWN BY	.....
TRACED BY	.....
DESIGNED BY	.....
CHECKED BY	.....
NO. BOOK	.....
NO.	.....

GERALD D. ANDRADE  
LICENSED PROFESSIONAL ENGINEER  
No. 10377-C  
HAWAII, U.S.A.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

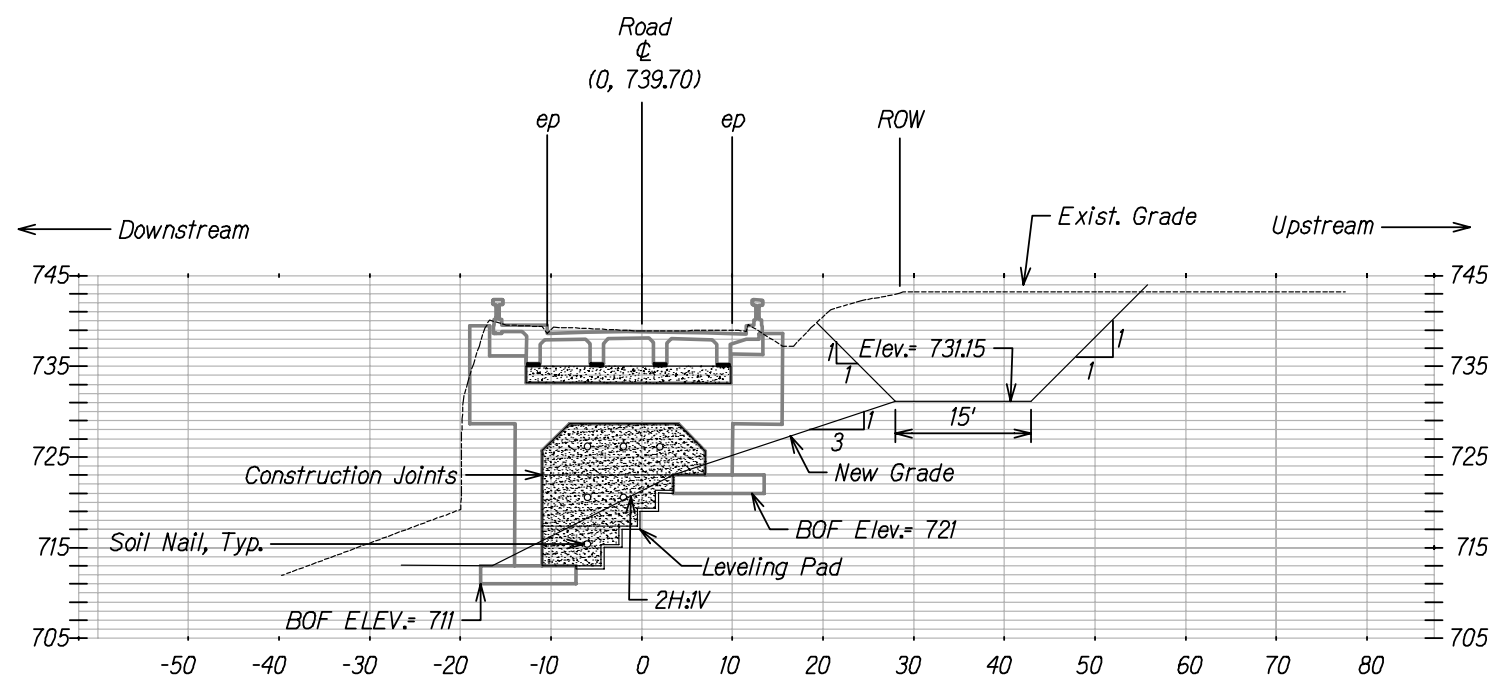
**HILO ABUTMENT  
TEMPORARY ROAD PLAN**

HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)



Scale: 1"=5'      Date: Feb. 2024

SHEET No. C-7 OF 12 SHEETS


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	16	84



**Hilo Abutment Temp. Road**  
**Typical Section**  
 Scale: 1"=10'

- Legend:**
-  Raised Concrete Shelf
  -  Shotcrete Facing

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



Signature: *Gerald D. Andrade*  
 EXPIRATION DATE OF LICENSE: 4/30/24

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

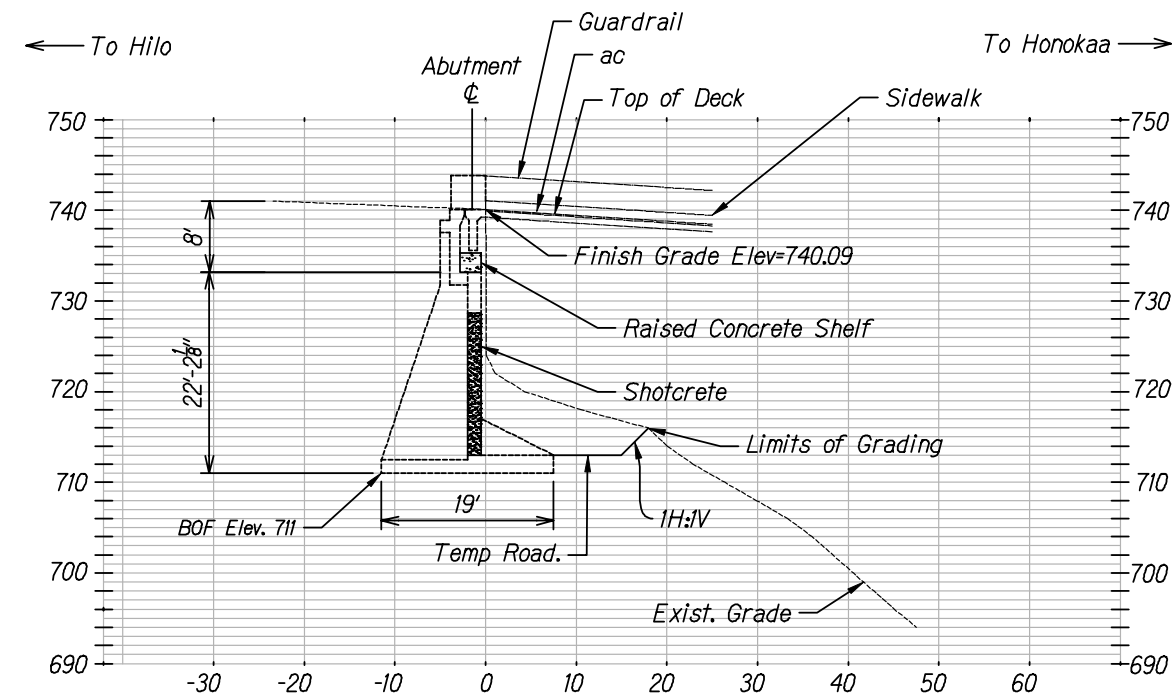
**HILO ABUTMENT TEMP. ROAD**  
**TYPICAL SECTION**

HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

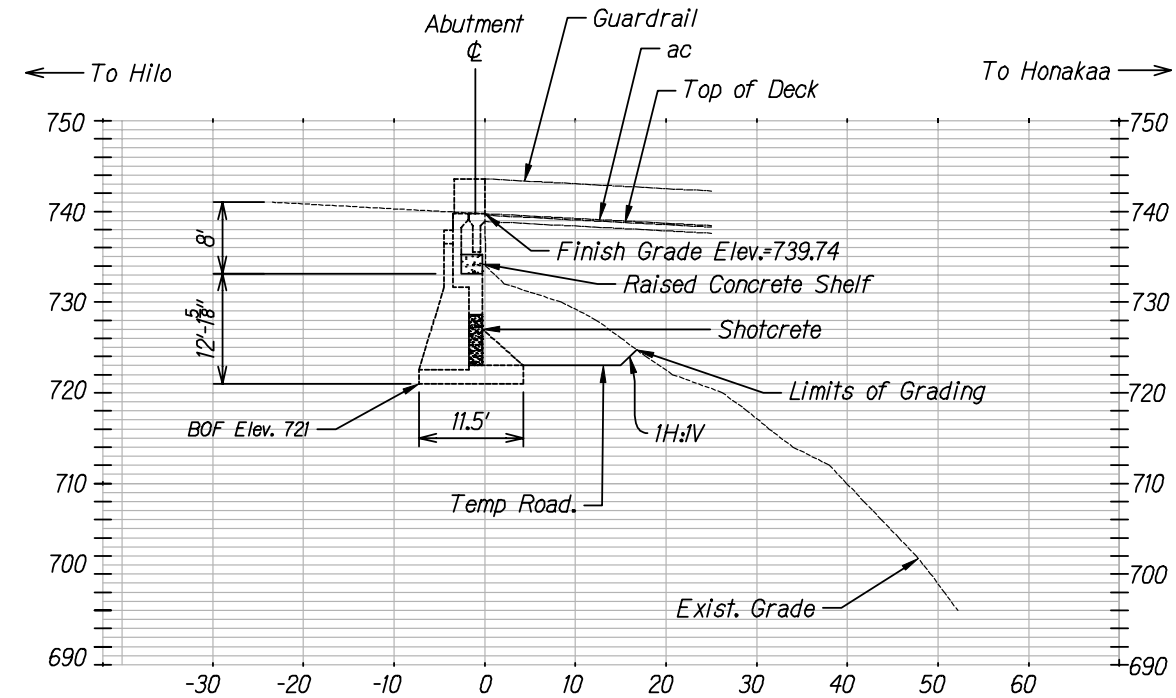
Scale: 1"=10'      Date: Feb. 2024



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	17	84



**Elevation-Hilo Abutment  
(Downstream)**  
**⊕ Hawaii Belt Road Sta. 5+00, Rt. 10.42'**  
 Scale: 1"=10'



**Elevation-Hilo Abutment  
(Upstream)**  
**⊕ Hawaii Belt Road Sta. 5+00, Lt. 9.95'**  
 Scale: 1"=10'

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

GERALD D. ANDRADE  
 LICENSED PROFESSIONAL ENGINEER  
 No. 10377-C  
 HAWAII, U.S.A.

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**HILO ABUTMENT  
 ELEVATIONS**

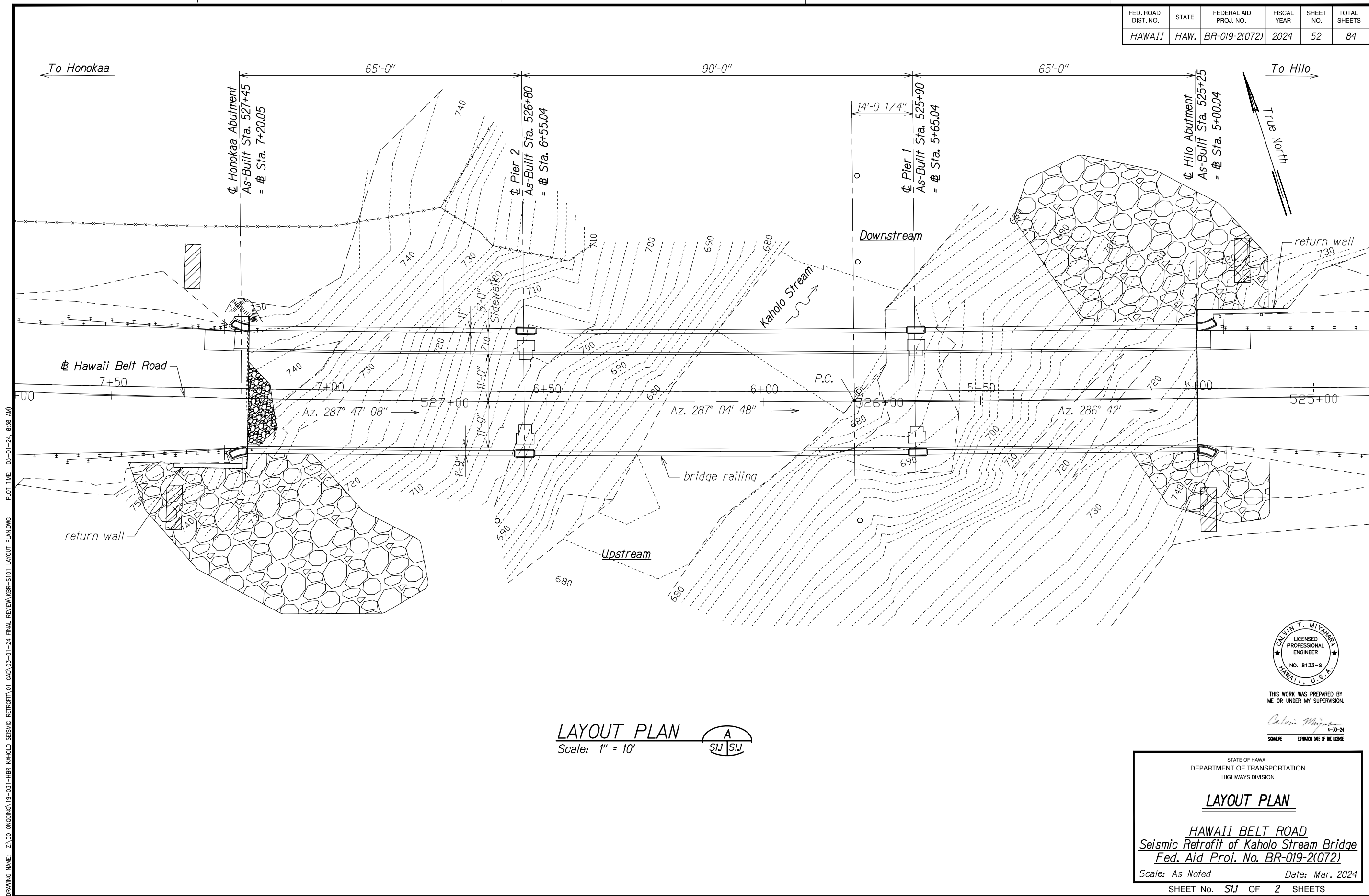
HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Signature: *Gerald D. Andrade* 4/30/24  
 EXPIRATION DATE OF THE LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Scale: 1"=10'      Date: Feb. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	52	84



DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-ST01 LAYOUT PLANNING PLOT TIME: 03-01-24 8:38 AM

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

**LAYOUT PLAN**  
Scale: 1" = 10'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

*Calvin Miyahara*  
SIGNATURE EXP. DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**LAYOUT PLAN**

**HAWAII BELT ROAD**  
**Seismic Retrofit of Kaholo Stream Bridge**  
**Fed. Aid Proj. No. BR-019-2(072)**

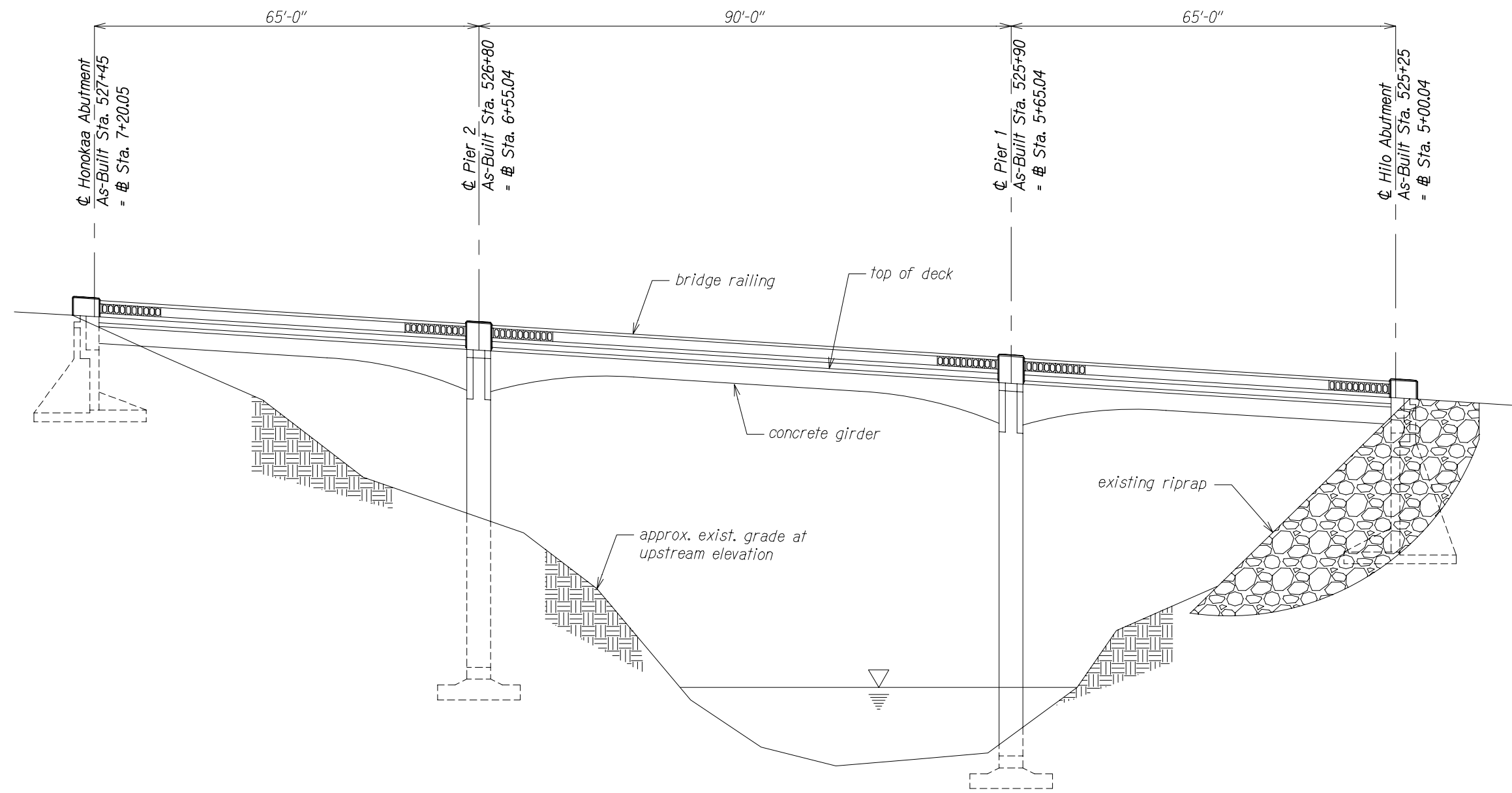
Scale: As Noted Date: Mar. 2024

SHEET No. *SIJ* OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	53	84

To Honokaa ←

→ To Hilo



**ELEVATION**  
Scale: 1" = 10'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Calvin Miyake  
4-30-24  
SIGNATURE EXPIRATION DATE OF THE LICENSE

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

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S102 BR ELEV.DWG PLOT TIME: 03-01-24 8:39 AM

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

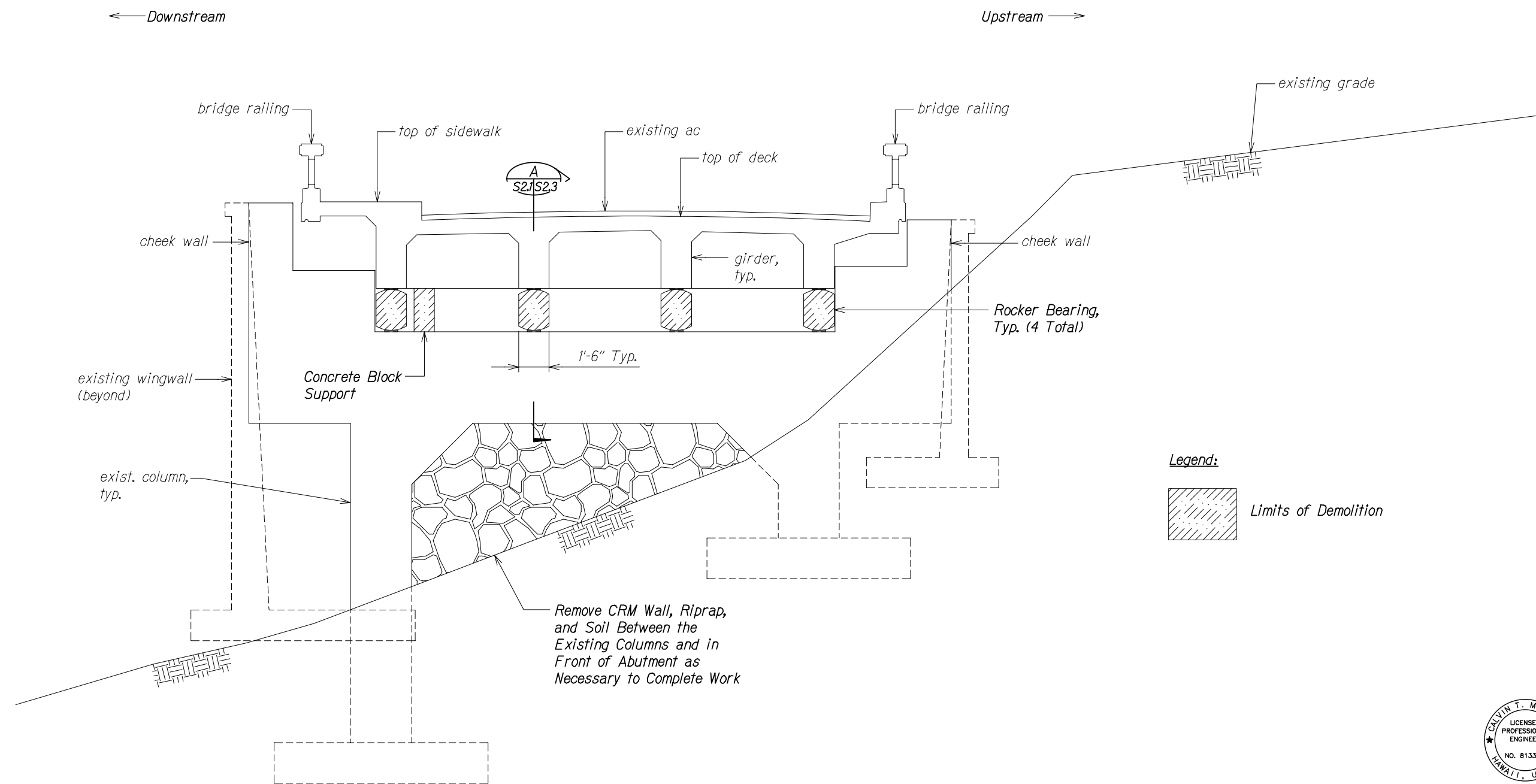
**ELEVATION**

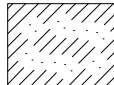
**HAWAII BELT ROAD**  
*Seismic Retrofit of Kaholo Stream Bridge*  
*Fed. Aid Proj. No. BR-019-2(072)*

Scale: As Noted Date: Mar. 2024

SHEET No. *S1.2* OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	54	84



**Legend:**  
 Limits of Demolition

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

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S201-ABUT DEMO.DWG PLOT TIME: 03-01-24 12:41 PM

**HILO ABUTMENT DEMOLITION ELEVATION**  
 Scale: 3/8" = 1'-0" A  
S2.1/S2.1



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

*Calvin Miyahara*  
 4-30-24  
 SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**HILO ABUTMENT  
 DEMOLITION ELEVATION**

**HAWAII BELT ROAD**  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

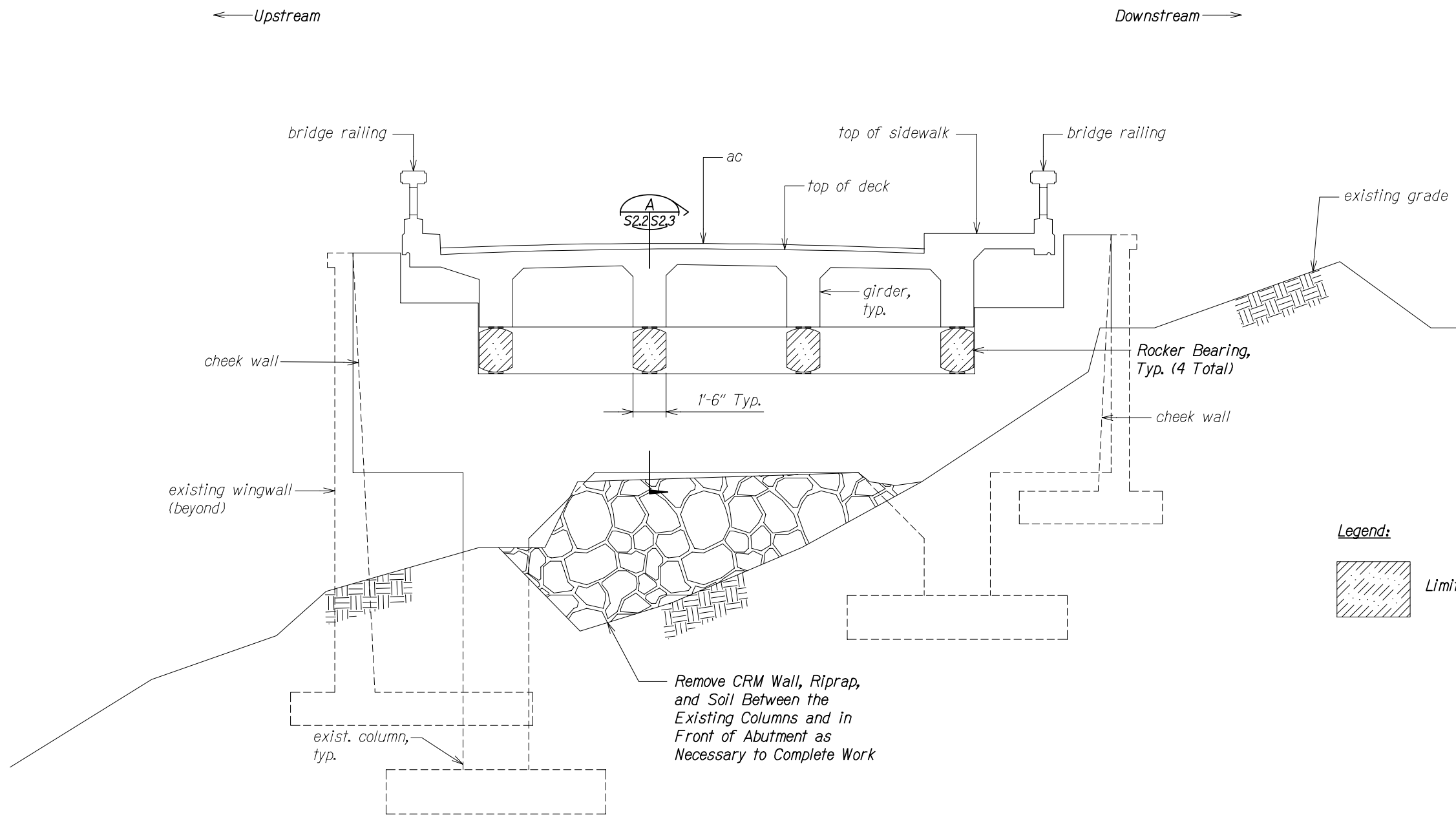
Scale: As Noted Date: Mar. 2024


SHEET No. S21 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	55	84

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S201 ABUT DEMO.DWG PLOT TIME: 03-01-24 12:42 PM

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



**Legend:**  
 Limits of Demolition

**HONOKAA ABUTMENT DEMOLITION ELEVATION** A  
S2.2 | S2.3  
 Scale: 3/8" = 1'-0"



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 4-30-24  
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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

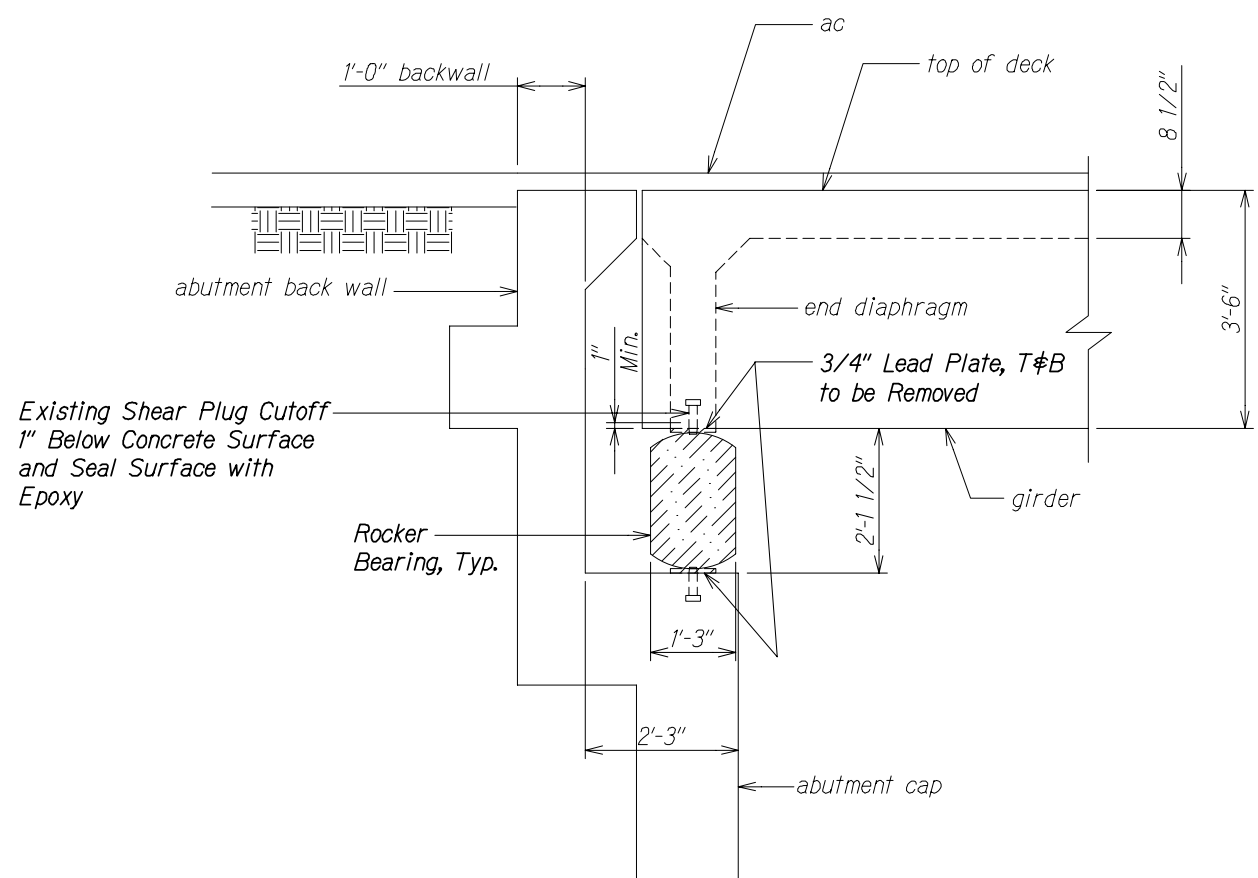
**HONOKAA ABUTMENT  
 DEMOLITION ELEVATION**

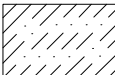
HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. S2.2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	56	84



**Legend:**  
 Limits of Demolition

**SECTION**  
 Scale: 3/4" = 1'-0"  
 A  
 S2.1 | S2.3  
 S2.2

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

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHALO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S201 ABUT DEMO.DWG PLOT TIME: 03-01-24 12:42 PM



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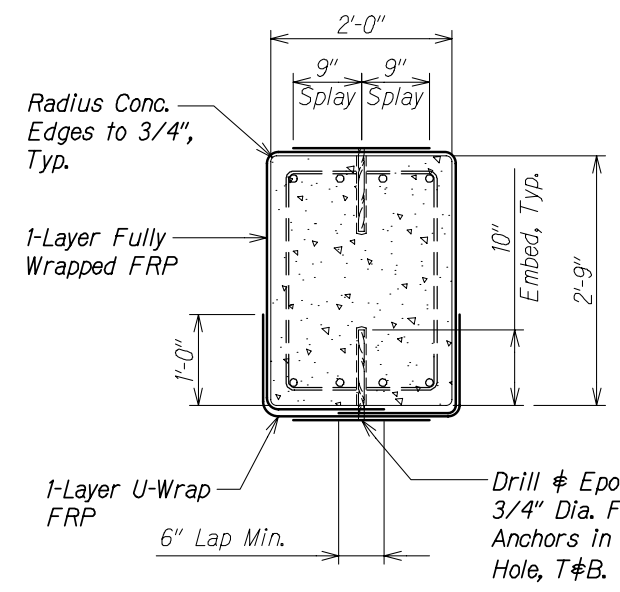
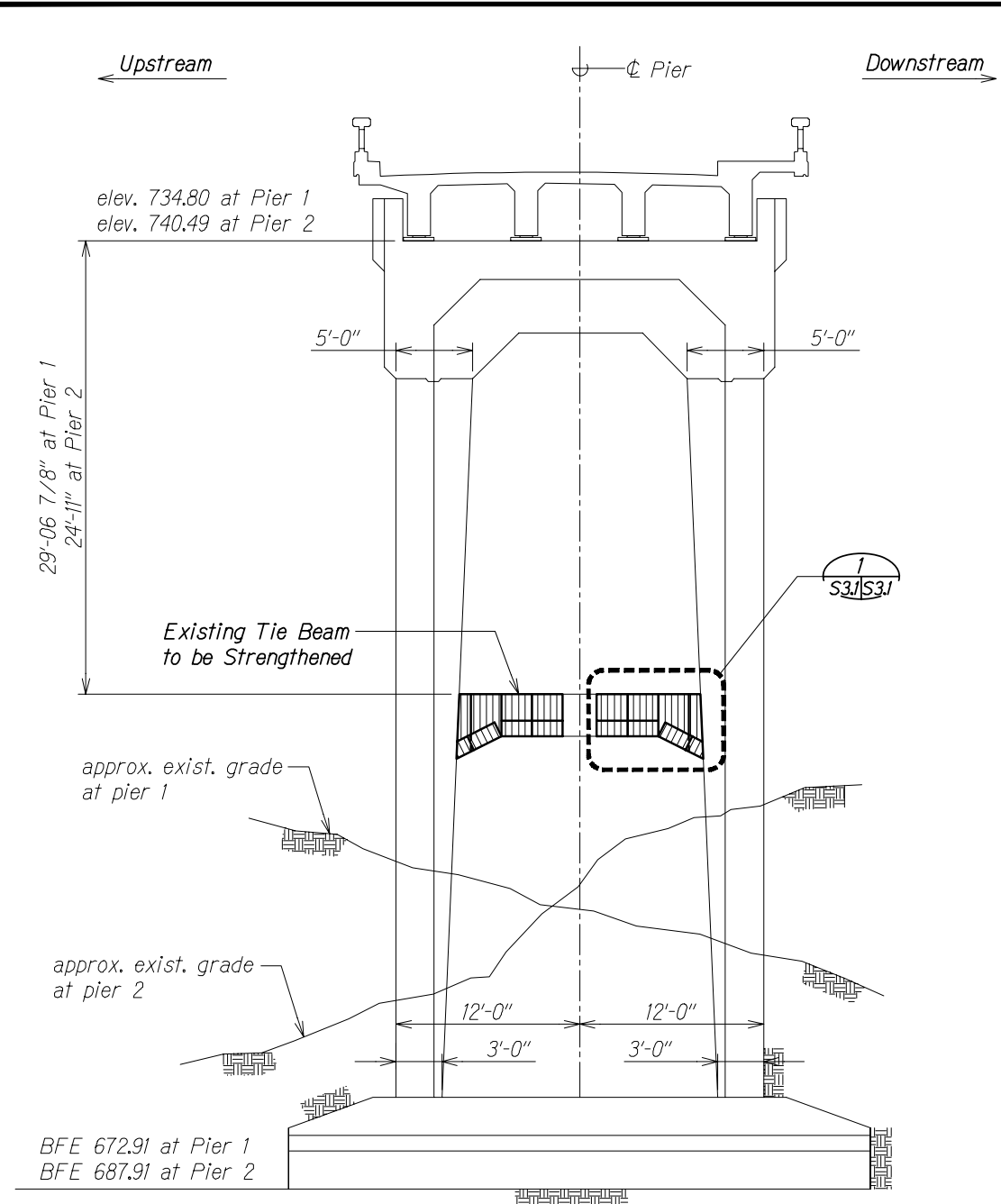
**DEMOLITION SECTION**

**HAWAII BELT ROAD**  
 Seismic Retrofit of Kahalo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

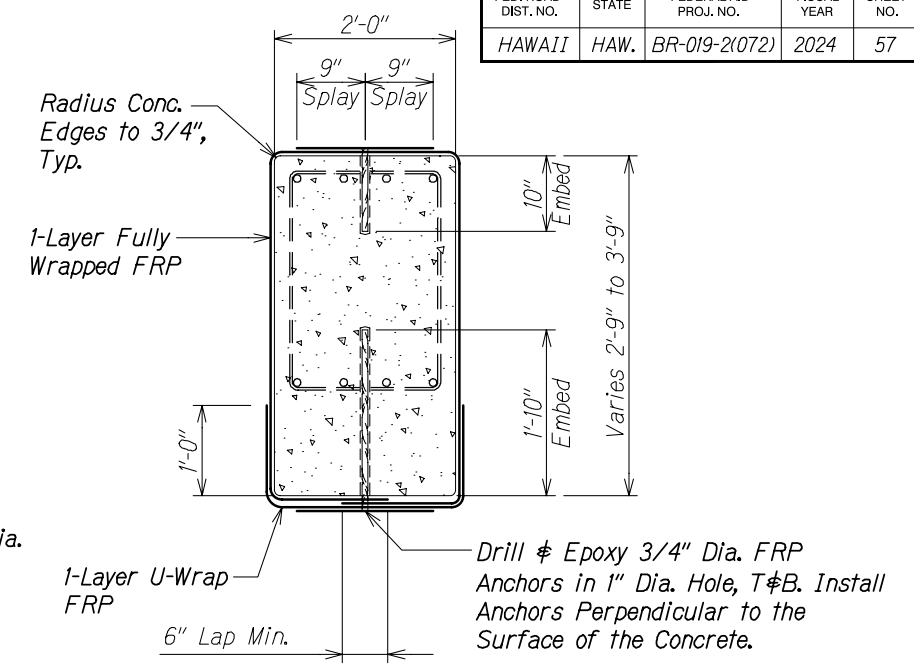
Scale: As Noted Date: Mar. 2024

SHEET No. S2.3 OF 3 SHEETS

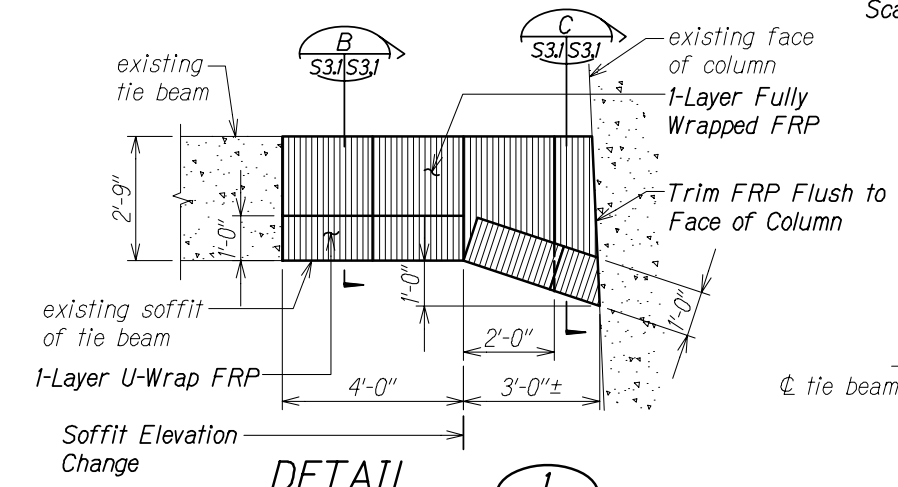
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HAWAII	HAW.	BR-019-2(072)	2024	57	84



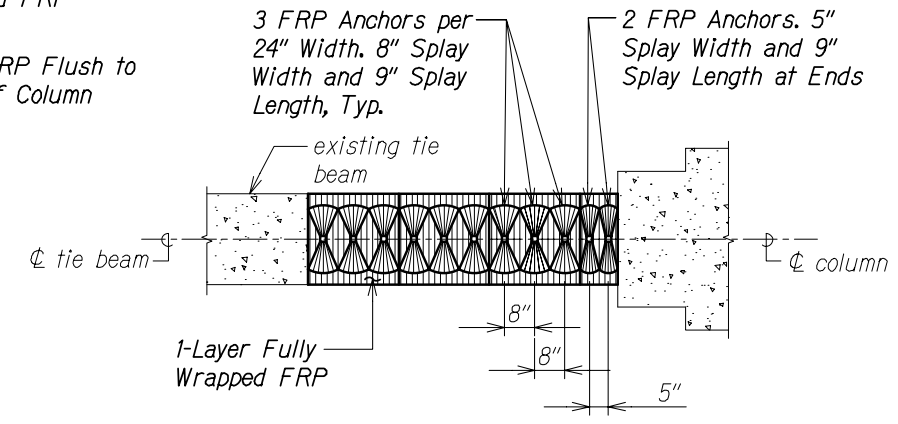
**SECTION B**  
Scale: 1" = 1'-0" S3J S3J



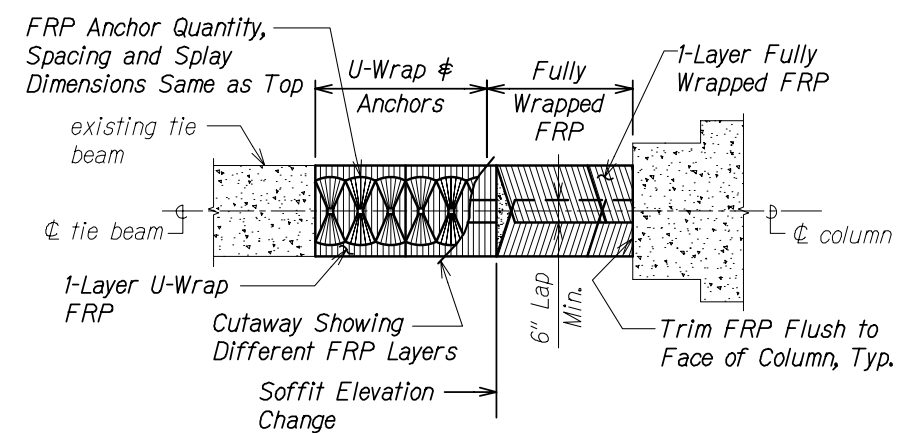
**SECTION C**  
Scale: 1" = 1'-0" S3J S3J



**DETAIL 1**  
Scale: 1/2" = 1'-0" S3J S3J



**TOP OF TIE BEAM DETAIL 2**  
Scale: 1/2" = 1'-0" S3J S3J



**SOFFIT OF TIE BEAM DETAIL 3**  
Scale: 1/2" = 1'-0" S3J S3J

**PIER ELEVATION A**  
Scale: 3/16" = 1'-0" S3J S3J

- LEGEND:**
- Limits of Carbon FRP Composite
  - Carbon FRP Composite Anchors
  - Exist. Steel Reinforcing

- NOTES:**
- 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".
  - Each layer of Carbon FRP shall have an equivalent  $E \times A = 6672 \text{ kips/12" width}$  based on material test values where "E" = Tensile Modulus and "A" = Area of the Composite Gross Laminate.

DATE	.....
SURVEY PLATTED BY	.....
DRAWN BY	.....
TRACED BY	.....
NOTE BOOK	.....
QUANTITIES BY	.....
CHECKED BY	.....
No.	.....

DRAWING NAME: Z:\00\_ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S3J-PIER ELEV-SECTION.DWG PLOT TIME: 03-01-24, 8:40 AM

CARVIN T. MIYAZAKI  
LICENSED PROFESSIONAL ENGINEER  
NO. 8133-S  
HAWAII, U.S.A.

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HIGHWAYS DIVISION

**PIER ELEVATION, SECTIONS, AND DETAILS**

HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

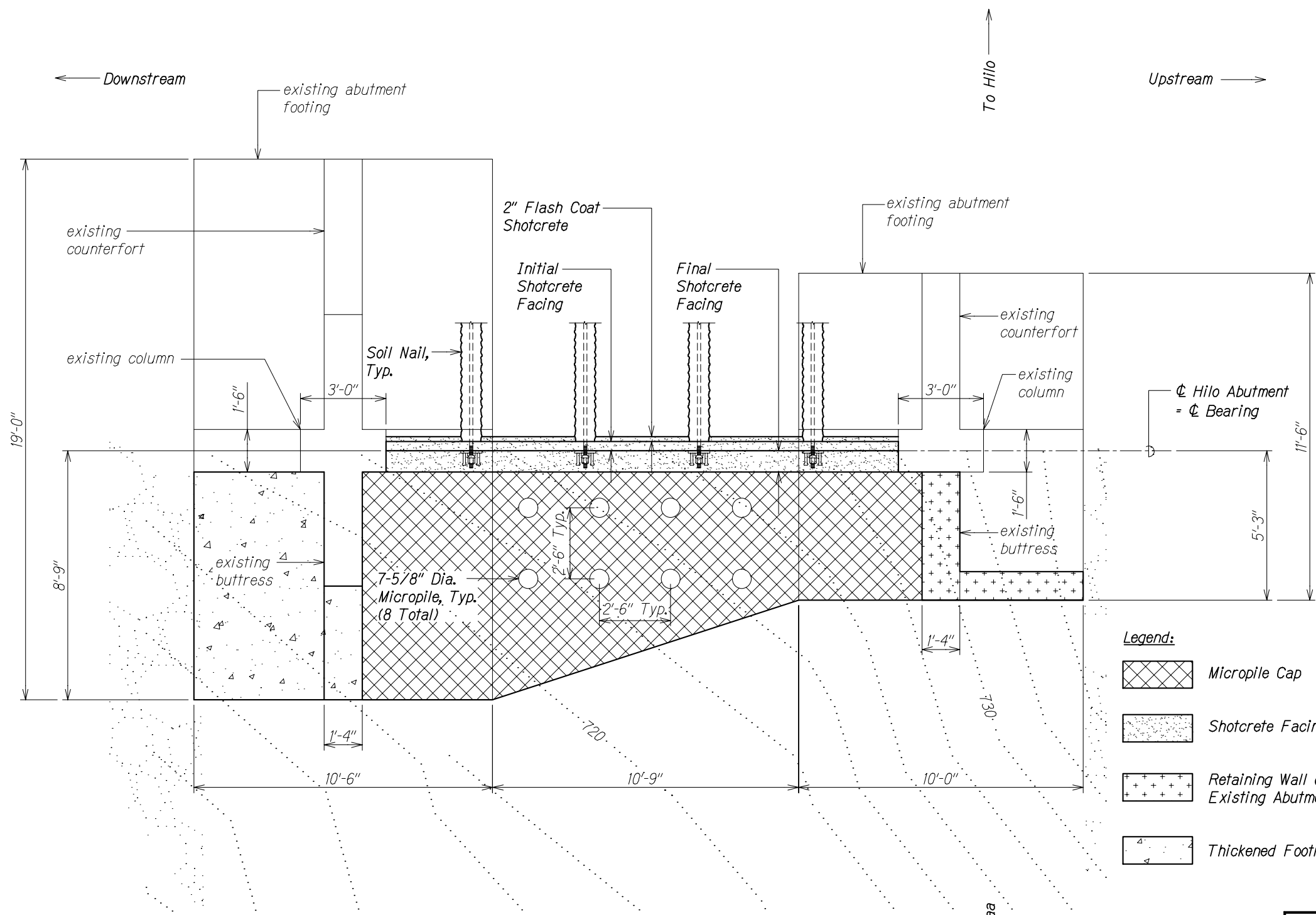
SHEET No. S3J OF 1 SHEETS

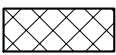
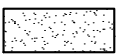
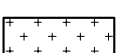
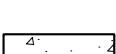






FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	60	84



- Legend:**
-  Micropile Cap
  -  Shotcrete Facing
  -  Retaining Wall over Existing Abutment Footing
  -  Thickened Footing

**SECTION A**  
 Scale: 1/2" = 1'-0"  
 S4.2 S4.3



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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**HILO ABUTMENT SECTION**

*HAWAII BELT ROAD*  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

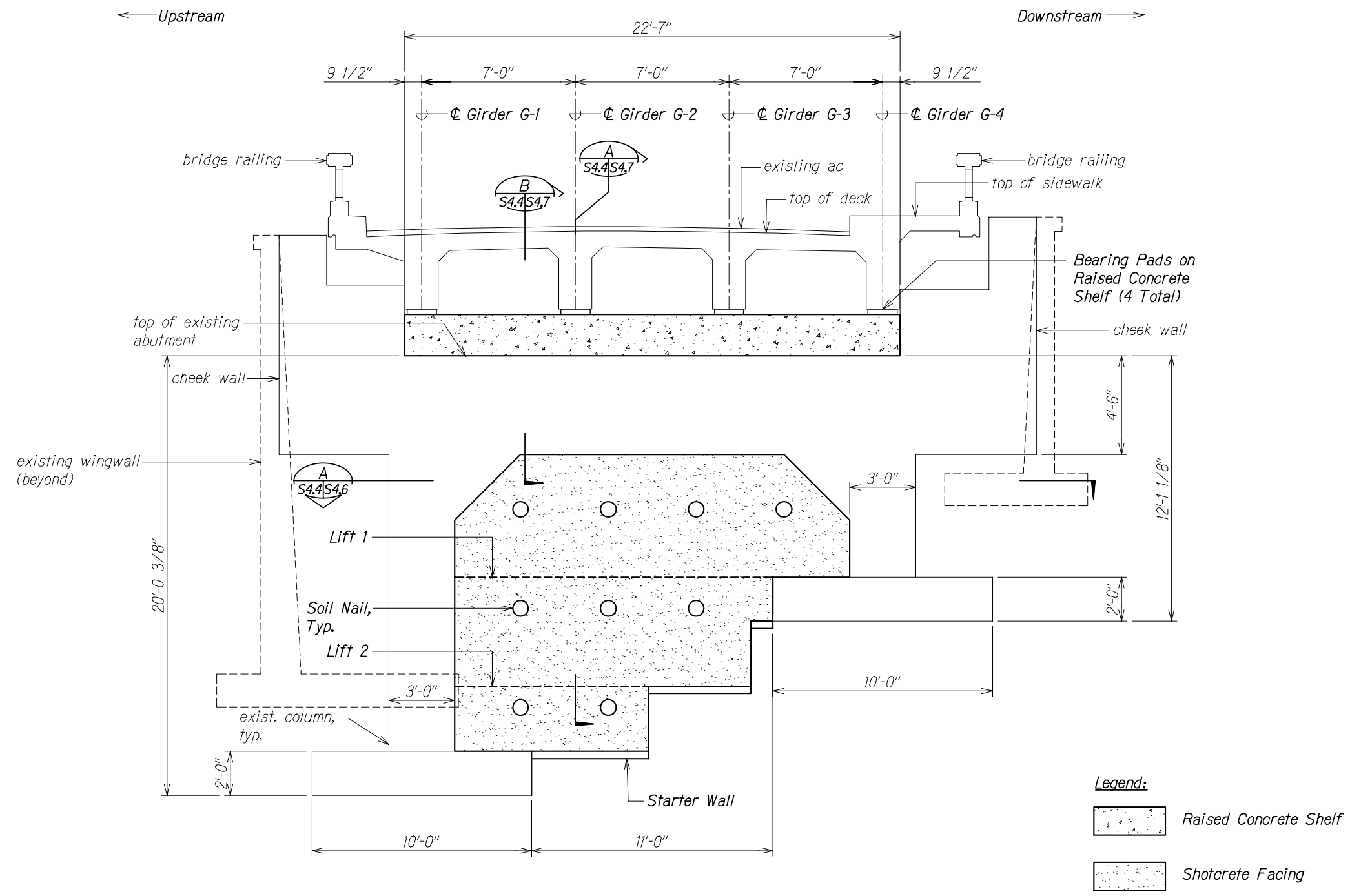
Scale: As Noted Date: Mar. 2024

SHEET No. S4.3 OF 7 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S401-S407 ABUT ELEV-SECT.DWG PLOT TIME: 03-01-24 8:42 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	61	84



**HONOKAA ABUTMENT SECTION AT  $\phi$  BEARING** A  
S4.4 | S4.4  
Scale: 3/8" = 1'-0"

DATE	_____
SURVEY PLANNED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S401-S407 ABUT ELEV-SECT.DWG PLOT TIME: 03-01-24 12:41 PM

**Legend:**  
 Raised Concrete Shelf  
 Shotcrete Facing



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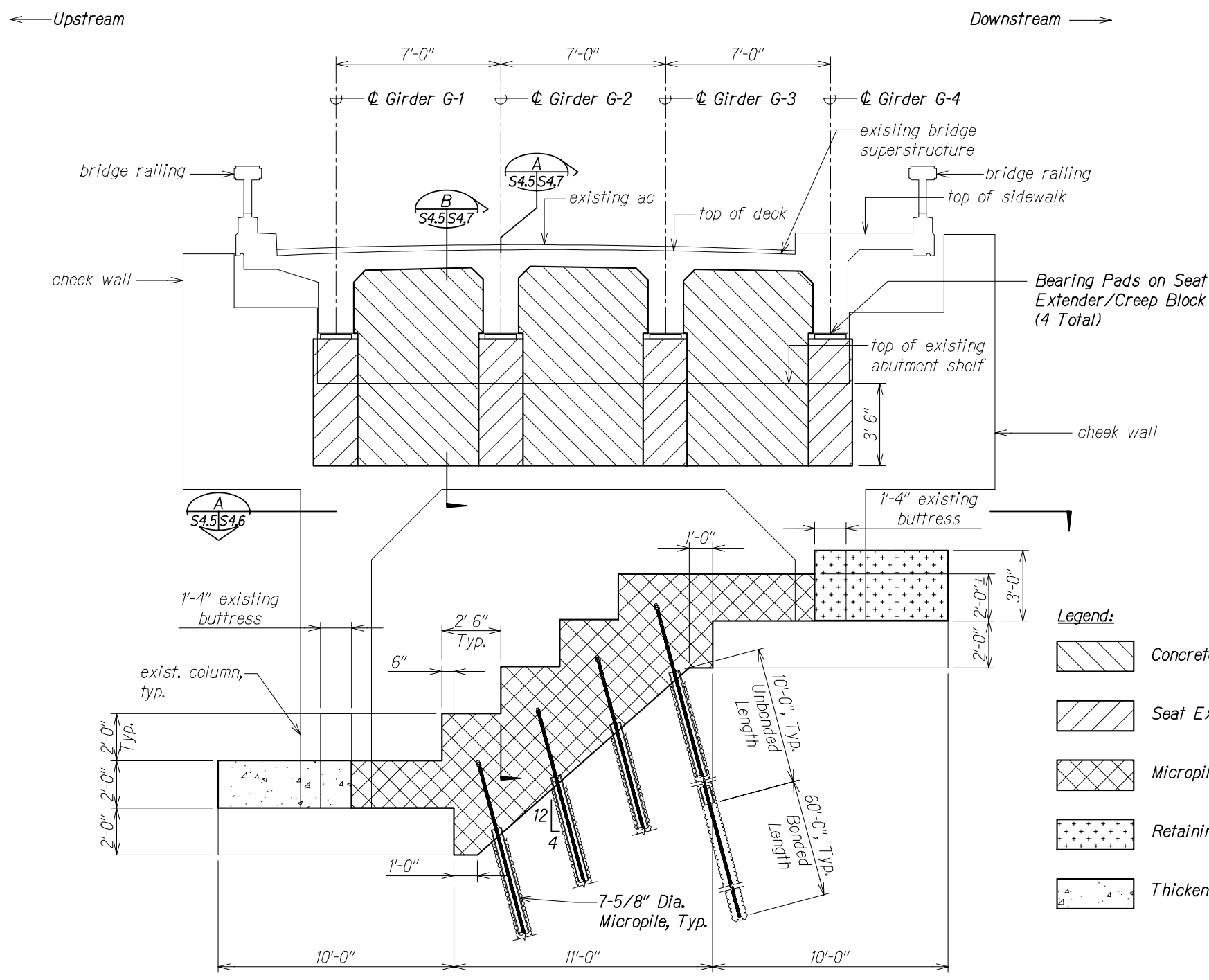
**HONOKAA ABUTMENT SECTION**

*HAWAII BELT ROAD*  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted      Date: Mar. 2024

SHEET No. S4.4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	62	84



- Legend:**
- Concrete Downturn
  - Seat Extender/Creep Block
  - Micropile Cap
  - Retaining Wall over Existing Abutment Footing
  - Thickened Footing

**HONOKAA ABUTMENT ELEVATION** A  
S4.5 | S4.5  
Scale: 3/8" = 1'-0"

DATE	.....
SURVEY PLATTED BY	.....
DRAWN BY	.....
TRACED BY	.....
NOTE BOOK	.....
QUANTITIES BY	.....
CHECKED BY	.....
No.	.....

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S401-S407 ABUT ELEV-SECT.DWG PLOT TIME: 03-01-24 8:43 AM



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

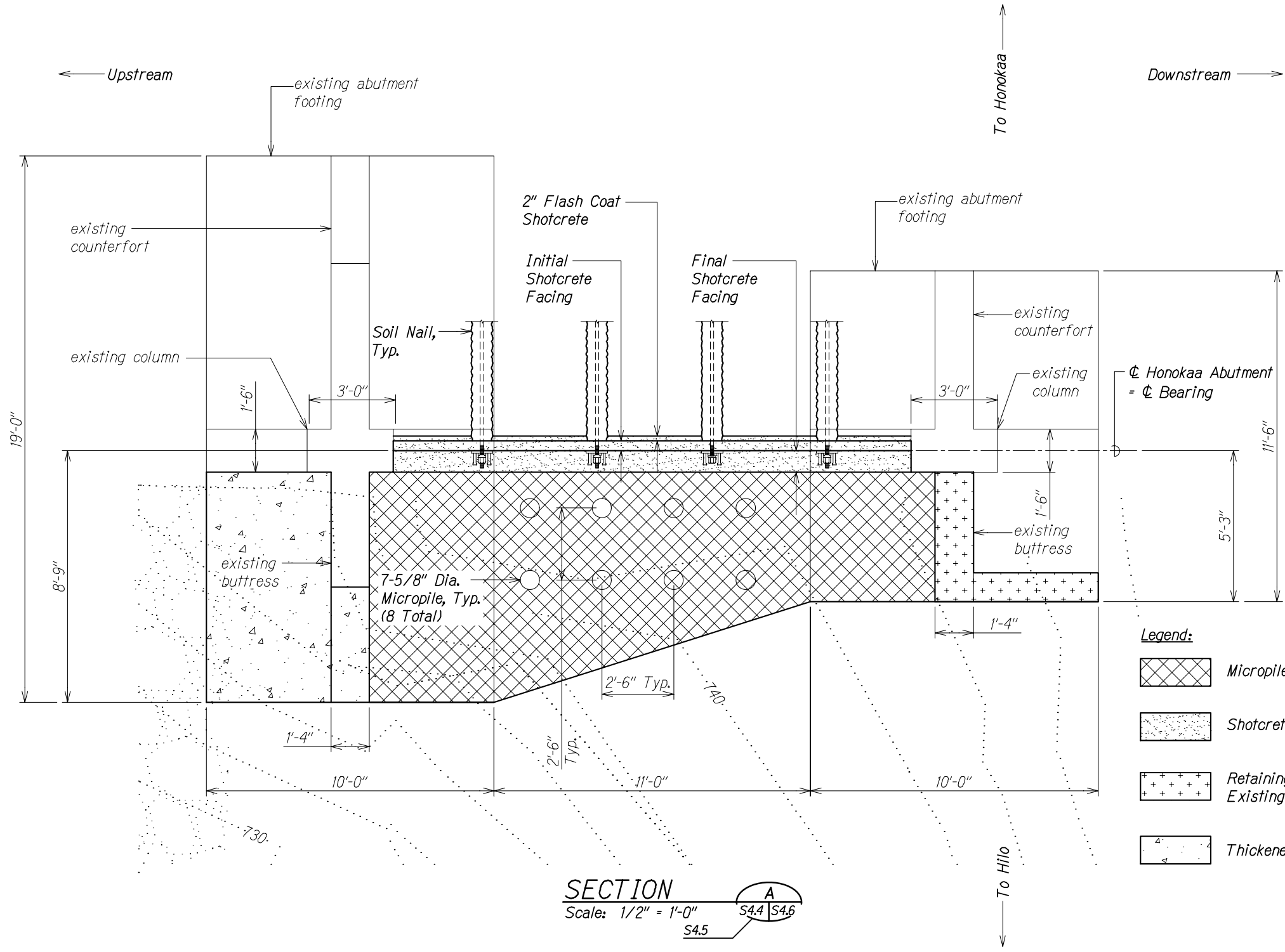
**HONOKAA ABUTMENT ELEVATION**



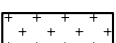
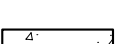
*HAWAII BELT ROAD*  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. S4.5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	63	84



- Legend:**
-  Micropile Cap
  -  Shotcrete Facing
  -  Retaining Wall over Existing Abutment Footing
  -  Thickened Footing

**SECTION A**  
 Scale: 1/2" = 1'-0"  
 S4.4 | S4.6  
 S4.5



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**HONOKAA ABUTMENT SECTION**

*HAWAII BELT ROAD*  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

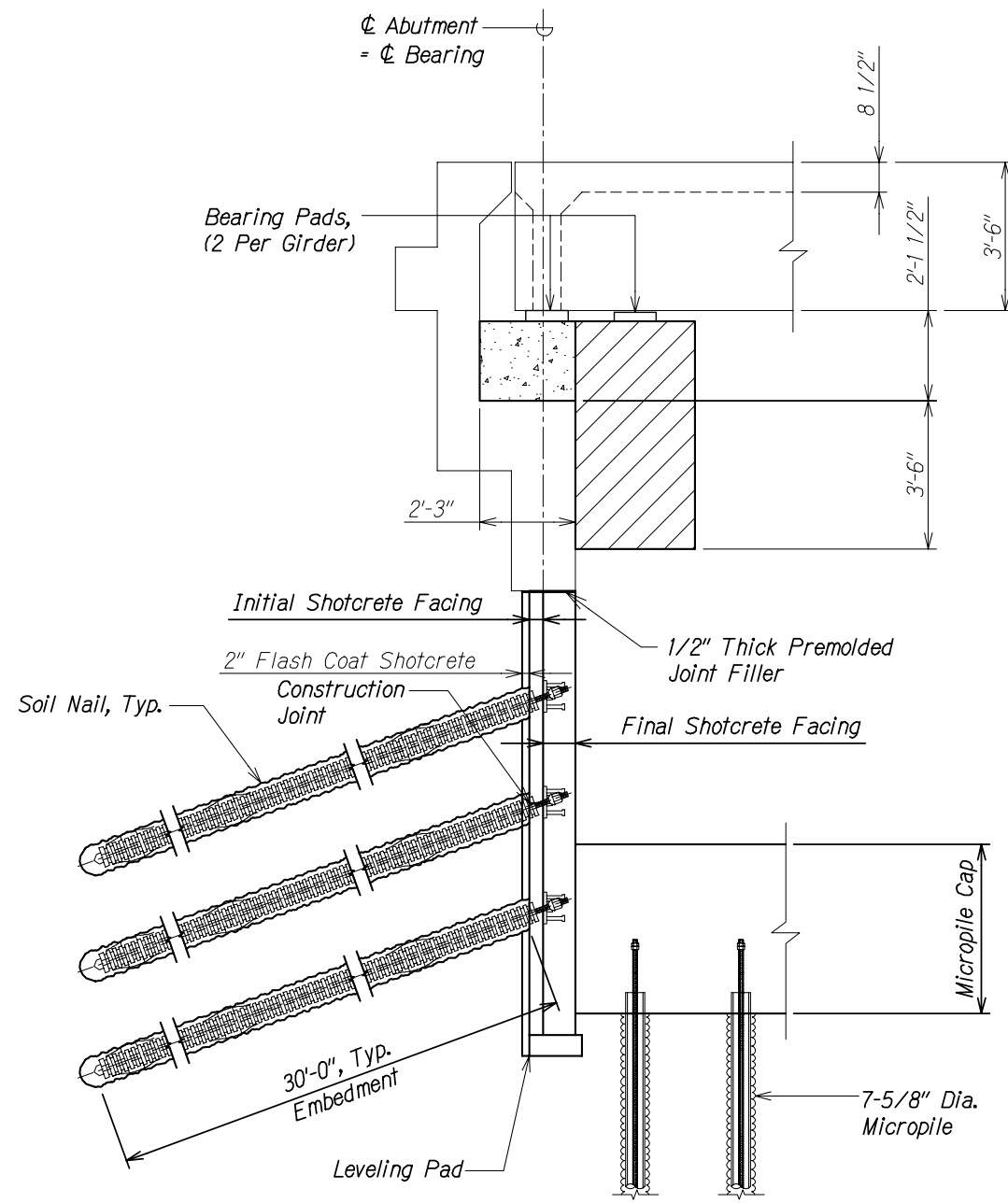
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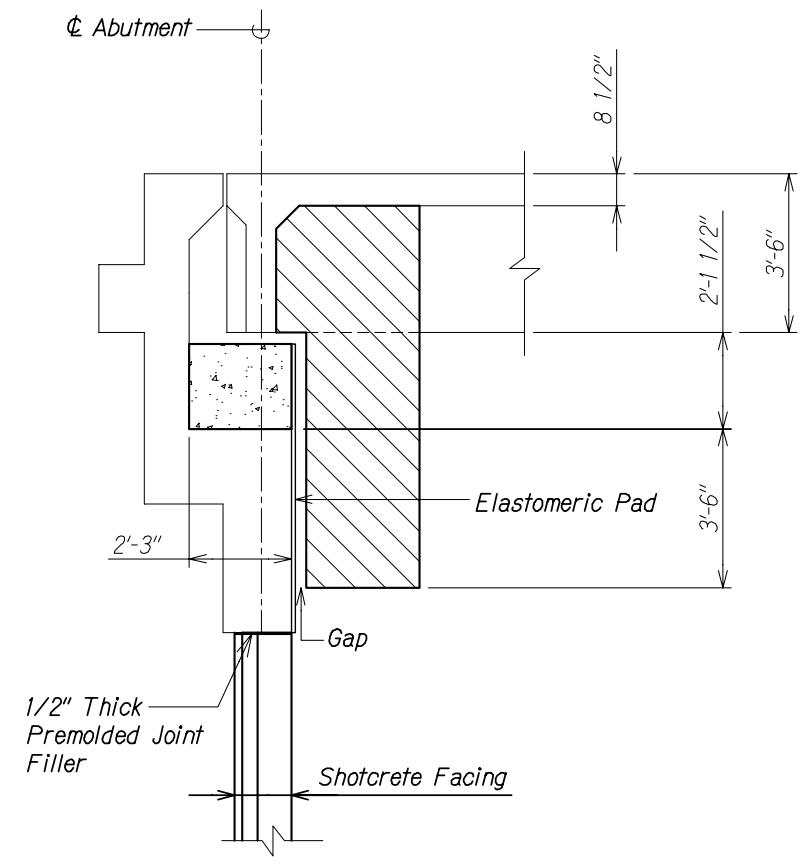
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TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S401-S407 ABUT ELEV-SECTION.DWG PLOT TIME: 03-01-24 8:43 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	64	84



**SECTION A**  
Scale: 1/2" = 1'-0"  
S4.1 S4.7  
S4.2, S4.4, S4.5, S7.3



**SECTION B**  
Scale: 1/2" = 1'-0"  
S4.1 S4.7  
S4.2, S4.4, S4.5, S7.3

- Legend:**
- Raised Concrete Shelf
  - Concrete Downturn
  - Seat Extender/Creep Block



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STATE OF HAWAII  
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HIGHWAYS DIVISION

**ABUTMENT SECTIONS**

**HAWAII BELT ROAD**  
*Seismic Retrofit of Kaholo Stream Bridge*  
*Fed. Aid Proj. No. BR-019-2(072)*

Scale: As Noted      Date: Mar. 2024

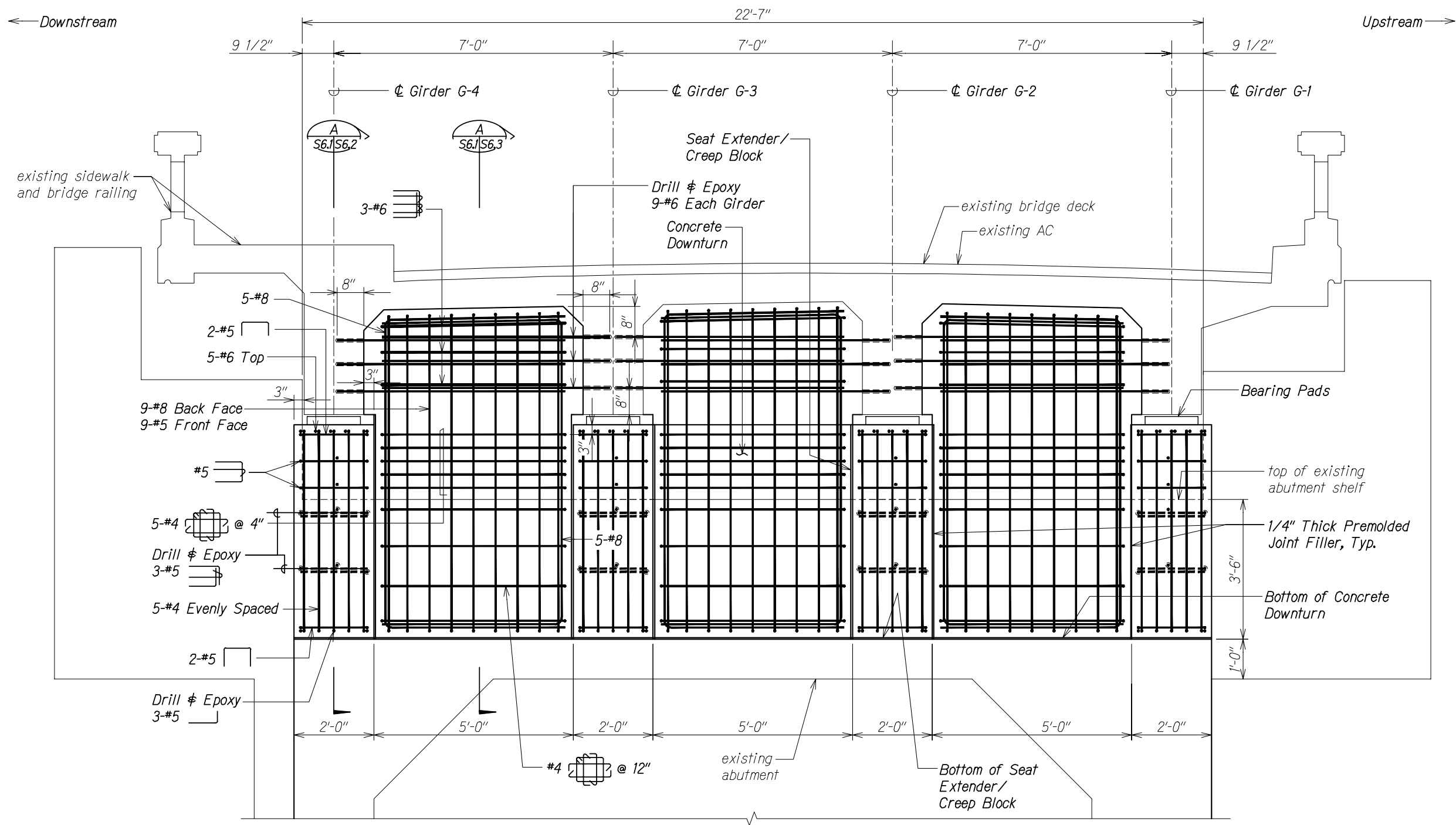
SHEET No. S4.7 OF 7 SHEETS

DATE	_____
SURVEY PLATTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S401-S407 ABUT ELEV-SECT.DWG PLOT TIME: 03-01-24 8:43 AM



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	66	84



**ABUTMENT ELEVATION** A  
 Scale: 3/4" = 1'-0" S6.1/S6.1

DATE	.....
SURVEY PLATTED BY	.....
DRAWN BY	.....
TRACED BY	.....
NOTED BY	.....
QUANTITIES BY	.....
CHECKED BY	.....
No.	.....

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S601 - S603 ABUT CREEP BLOCKING PLOT TIME: 03-01-24 8:44 AM



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STATE OF HAWAII  
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**ABUTMENT ELEVATION**

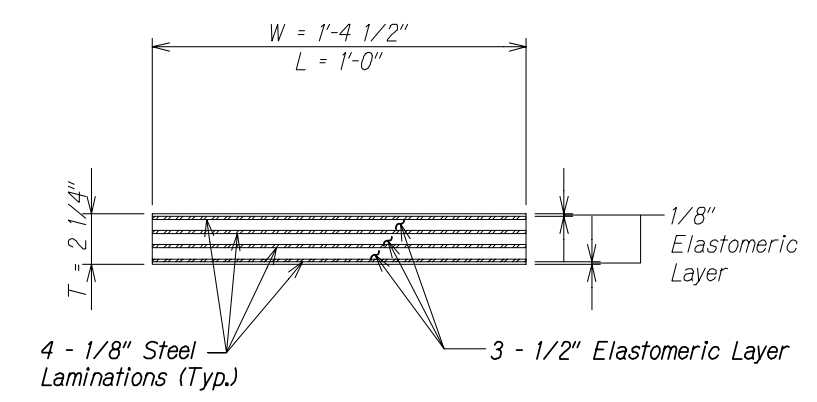
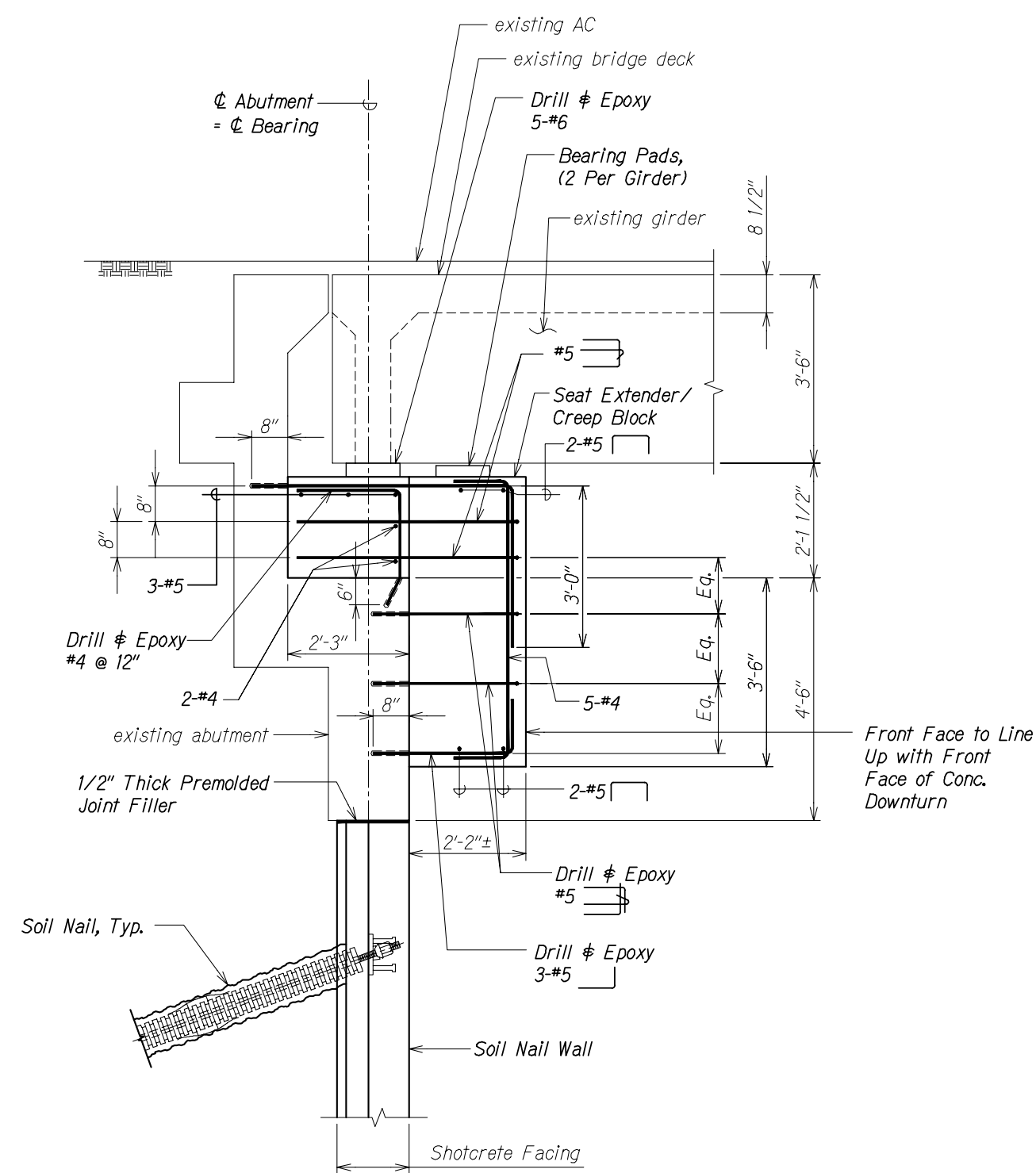
**HAWAII BELT ROAD**  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. S6.1 OF 3 SHEETS



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	67	84

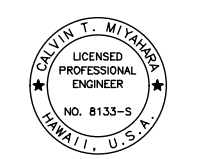


**ELASTOMERIC BEARING PAD, TYPE II**  
 Scale: 3" = 1'-0"  
 S6.2 S6.2

**SECTION A**  
 Scale: 3/4" = 1'-0"  
 S5.1 S6.2

DATE	.....
SURVEY PLATTED BY	.....
DRAWN BY	.....
TRACED BY	.....
NOTE BOOK	.....
QUANTITIES BY	.....
CHECKED BY	.....
No.	.....

DRAWING NAME: Z:\00\_ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S601 - S603 ABUT CREEP BLOCK.DWG PLOT TIME: 03-01-24 8:45 AM



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**ABUTMENT SECTION**

**HAWAII BELT ROAD**  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. S6.2 OF 3 SHEETS

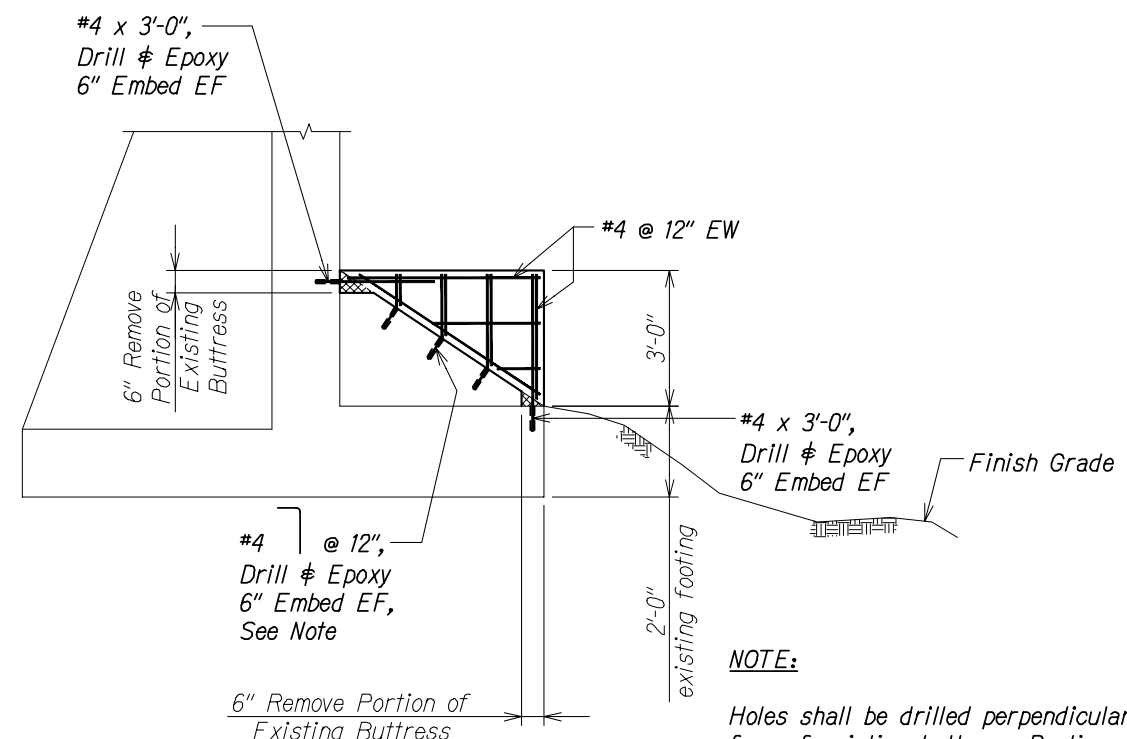






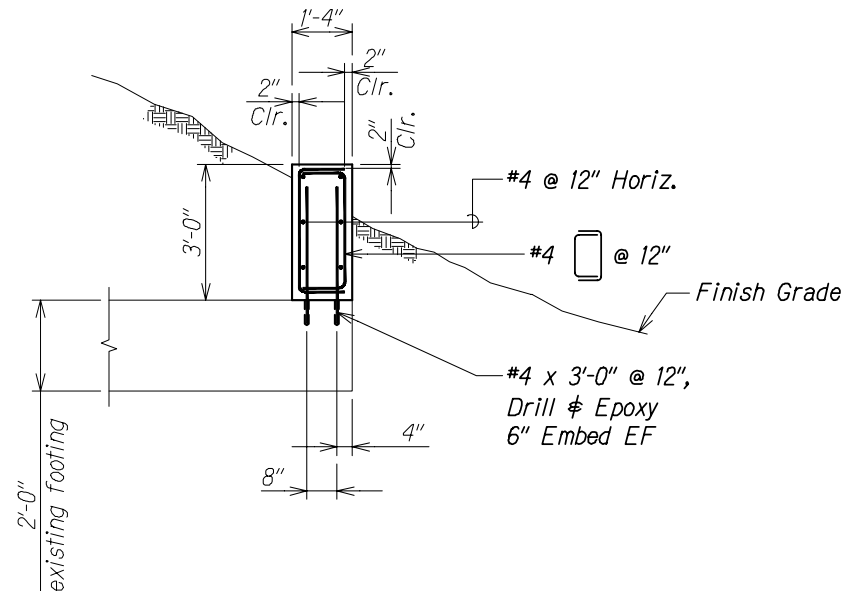


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	72	84



**SECTION A**  
Scale: 1/2" = 1'-0" S7.1 | S7.4

**NOTE:**  
Holes shall be drilled perpendicular to top face of existing buttress. Portion of #4 shall be trimmed to length and field bent prior to being epoxied into hole.



**SECTION B**  
Scale: 1/2" = 1'-0" S7.1 | S7.4

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

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\ABR-S701-ABUT REIN.DWG PLOT TIME: 03-01-24 8:47 AM



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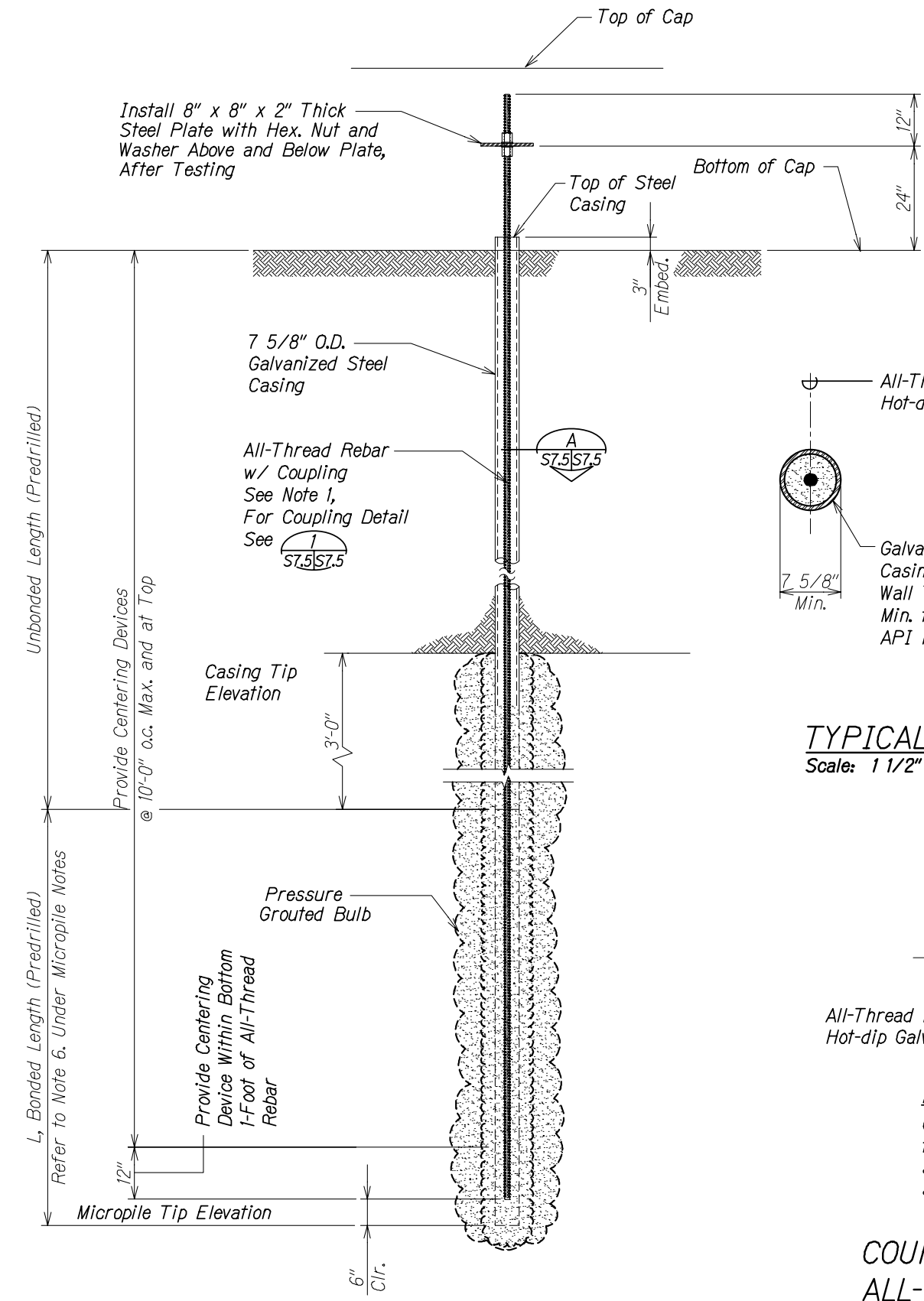
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ABUTMENT SECTIONS**

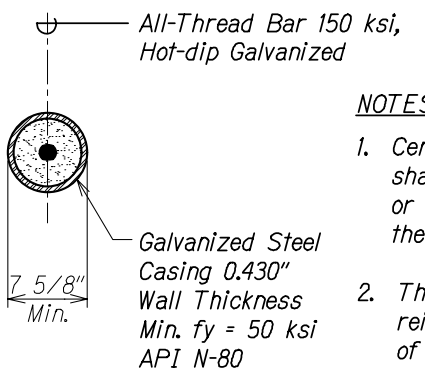
*HAWAII BELT ROAD*  
*Seismic Retrofit of Kaholo Stream Bridge*  
*Fed. Aid Proj. No. BR-019-2(072)*

Scale: As Noted Date: Mar. 2024

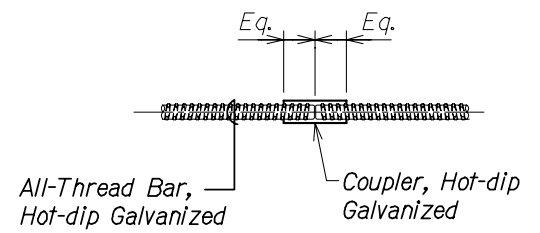
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	73	84



**TYPICAL PRODUCTION MICROPILE DETAIL**  
Scale: 3/4" = 1'-0"  
A  
S7.5 | S7.5



**TYPICAL MICROPILE SECTION**  
Scale: 1 1/2" = 1'-0"  
A  
S7.5 | S7.5



**COUPLER DETAIL OF ALL-THREAD REBAR**  
Scale: 1 1/2" = 1'-0"  
A  
S7.5 | S7.5

**MICROPILE NOTES:**

- Micropile bars shall be 1 3/4" dia. 150 ksi all-thread bar or equivalent. Bar shall be hot-dip galvanized according to ASTM A123.
- Material Properties of Accessories:
  - Steel Plates - ASTM A36
  - Hex Nuts - ASTM A108 or A563
  - Couplings - ASTM A108 or A576
  - Washers - ASTM F436
- All nuts and bar couplings shall develop 100% of the bar's ultimate tensile strength.
- All accessories such as nuts, couplings, washers, and steel plates shall be hot-dip galvanized according to ASTM A153/A123.
- The bonded length is estimated. The actual bond length will be determined by the Engineer after the preproduction micropile load test.

**NOTES:**

- Centering devices (centralizers) shall be fabricated from plastic or material non-detrimental to the bar.
- The centralizer shall support the reinforcing such that a minimum of 2" of grout cover is provided and shall permit grout to flow freely up the drill hole.

Micropile Schedule				
	Location	Micropile Length (feet)	Micropile Unbonded Length (feet)	Bonded Length (L)
Hilo	Abutment	55	10	45
Honokaa	Abutment	70	10	60

DATE	.....
SURVEY PLANNED BY	.....
DRAWN BY	.....
TRACED BY	.....
NOTE BOOK	.....
QUANTITIES BY	.....
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DRAWING NAME: Z:\00\_ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01\_CAD\03-01-24\_FINAL REVIEW\BR-S0705\_MICROPILE.DWG PLOT TIME: 03-01-24 8:47 AM



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DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TYPICAL PRODUCTION MICROPILE DETAIL**

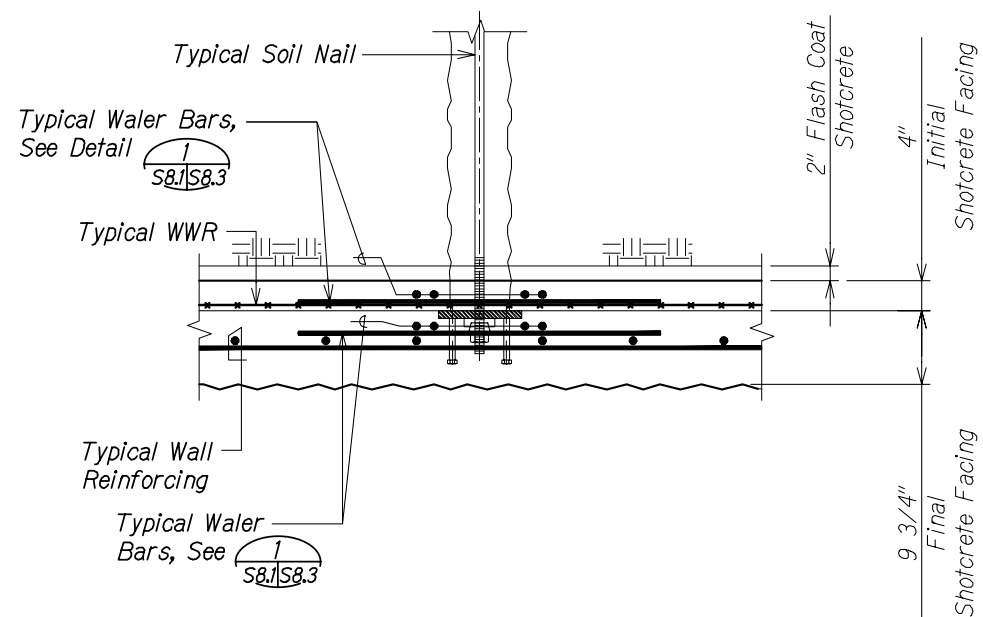
HAWAII BELT ROAD  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. 57.5 OF 5 SHEETS



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	74	84



**ADDED REINFORCING  
AT SOIL NAILS**

Scale: 1" = 1'-0"



ORIGINAL PLAN	DATE
SURVEY PLATTED BY	
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NOTE BOOK	
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DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHALO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S801.TYP DET.DWG PLOT TIME: 03-01-24 8:48 AM



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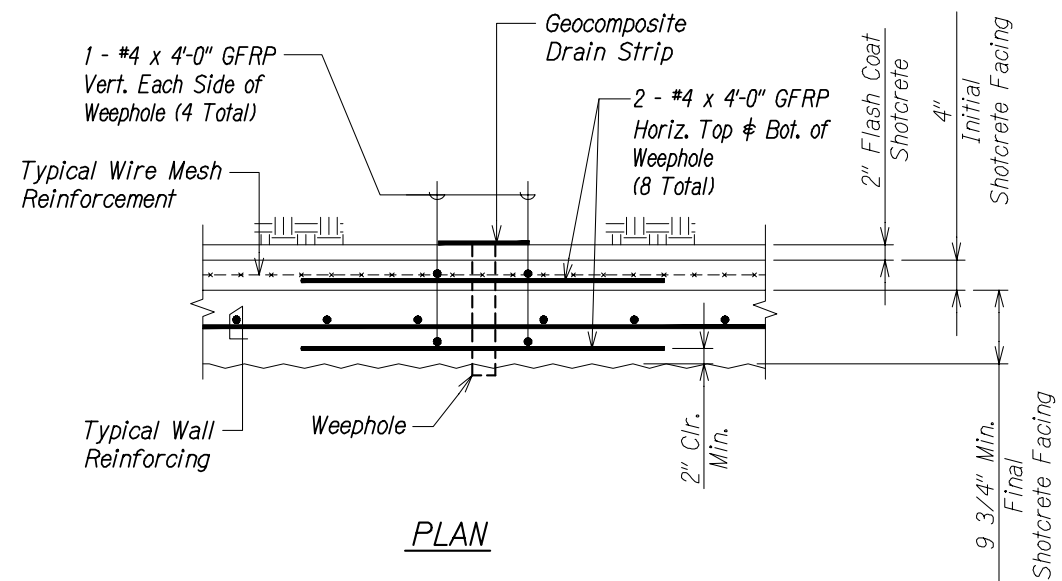
**TYPICAL DETAILS**

**HAWAII BELT ROAD**  
*Seismic Retrofit of Kahalo Stream Bridge*  
*Fed. Aid Proj. No. BR-019-2(072)*

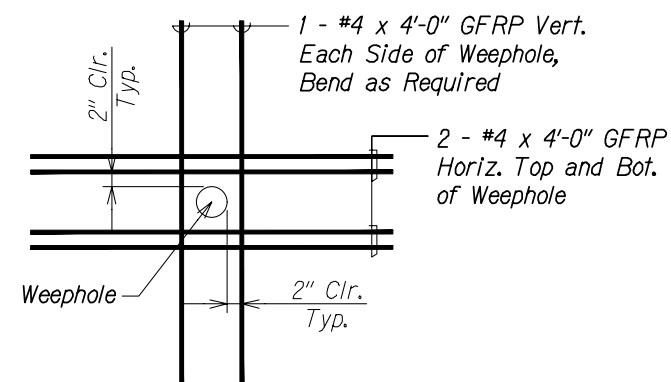
Scale: As Noted Date: Mar. 2024

SHEET No. S8.1 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	75	84

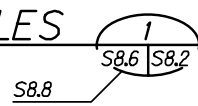


PLAN



ELEVATION

**ADDED REINFORCING AT WEEPHOLES**  
Scale: 1" = 1'-0"

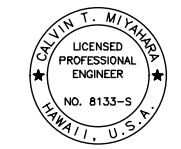


NOTES:

1. Non-Metallic tie wire shall be used to hold weepole in place.
2. Shift bars as required to fit added bars.

ORIGINAL PLAN	DATE
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NOTE BOOK	
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DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S801.TYP.DWG PLOT TIME: 03-01-24 8:48 AM



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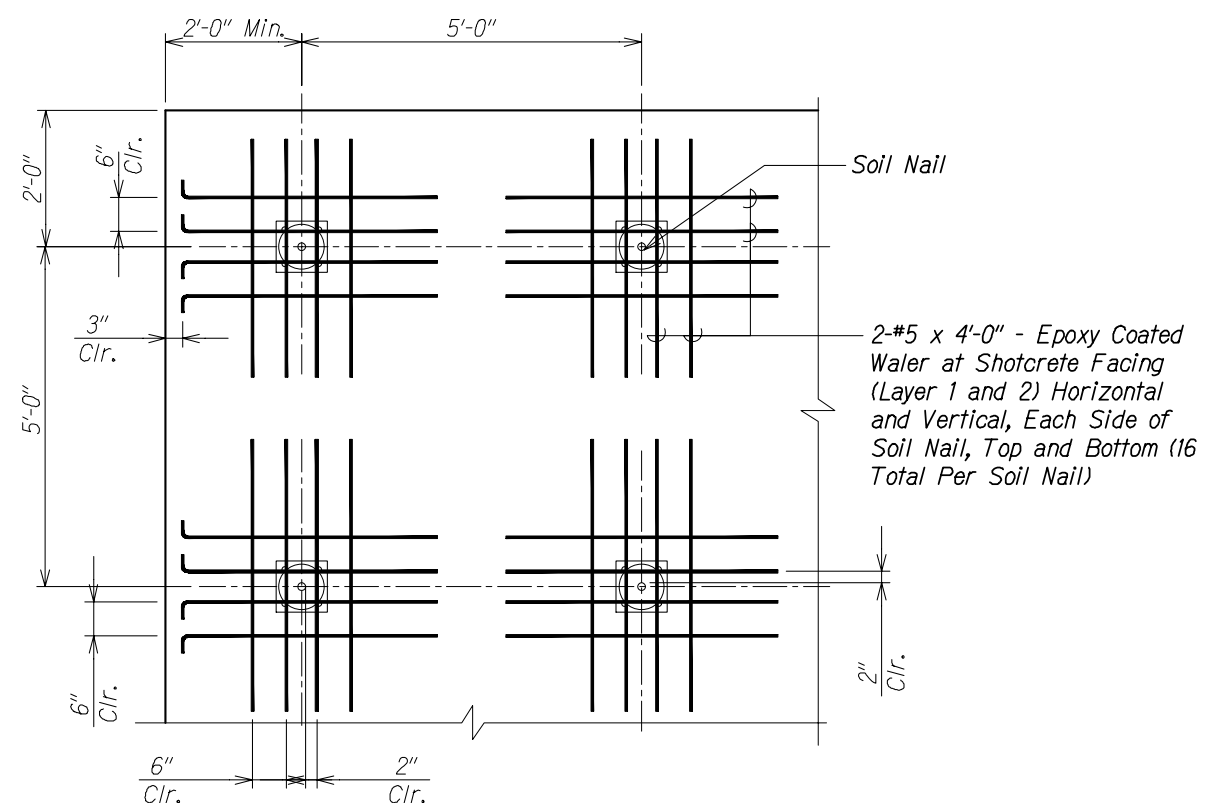
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TYPICAL DETAILS**

**HAWAII BELT ROAD**  
*Seismic Retrofit of Kaholo Stream Bridge*  
*Fed. Aid Proj. No. BR-019-2(072)*

Scale: As Noted      Date: Mar. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	76	84



**TYPICAL WALER BAR DETAIL**  
 Scale: 3/4" = 1'-0"  
 S8.1 | S8.3

ORIGINAL PLAN	DATE
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DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S801.TYP DET.DWG PLOT TIME: 03-01-24 8:48 AM



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**WALER BAR REINFORCING DETAIL**

*HAWAII BELT ROAD*  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted      Date: Mar. 2024

SHEET No. S8.3 OF 10 SHEETS

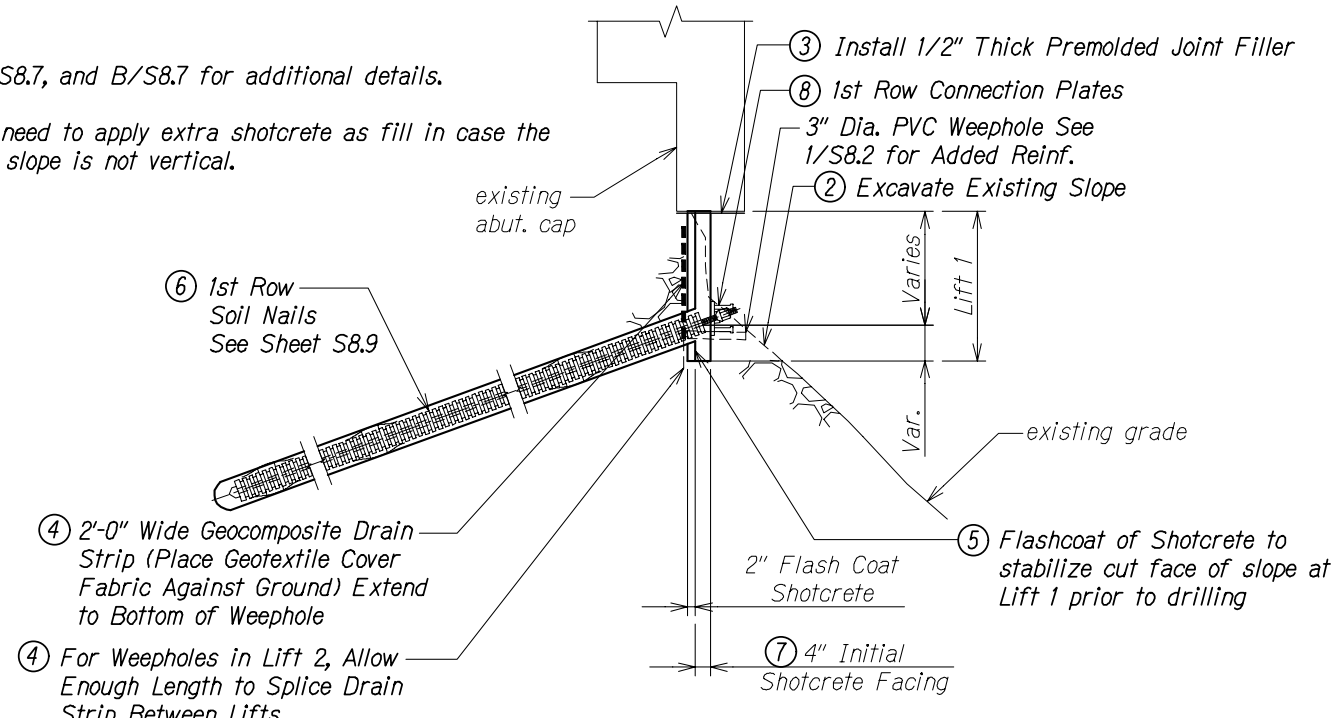




FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	79	84

**NOTES:**

1. See B/S8.6, A/S8.7, and B/S8.7 for additional details.
2. Contractor may need to apply extra shotcrete as fill in case the face of the cut slope is not vertical.

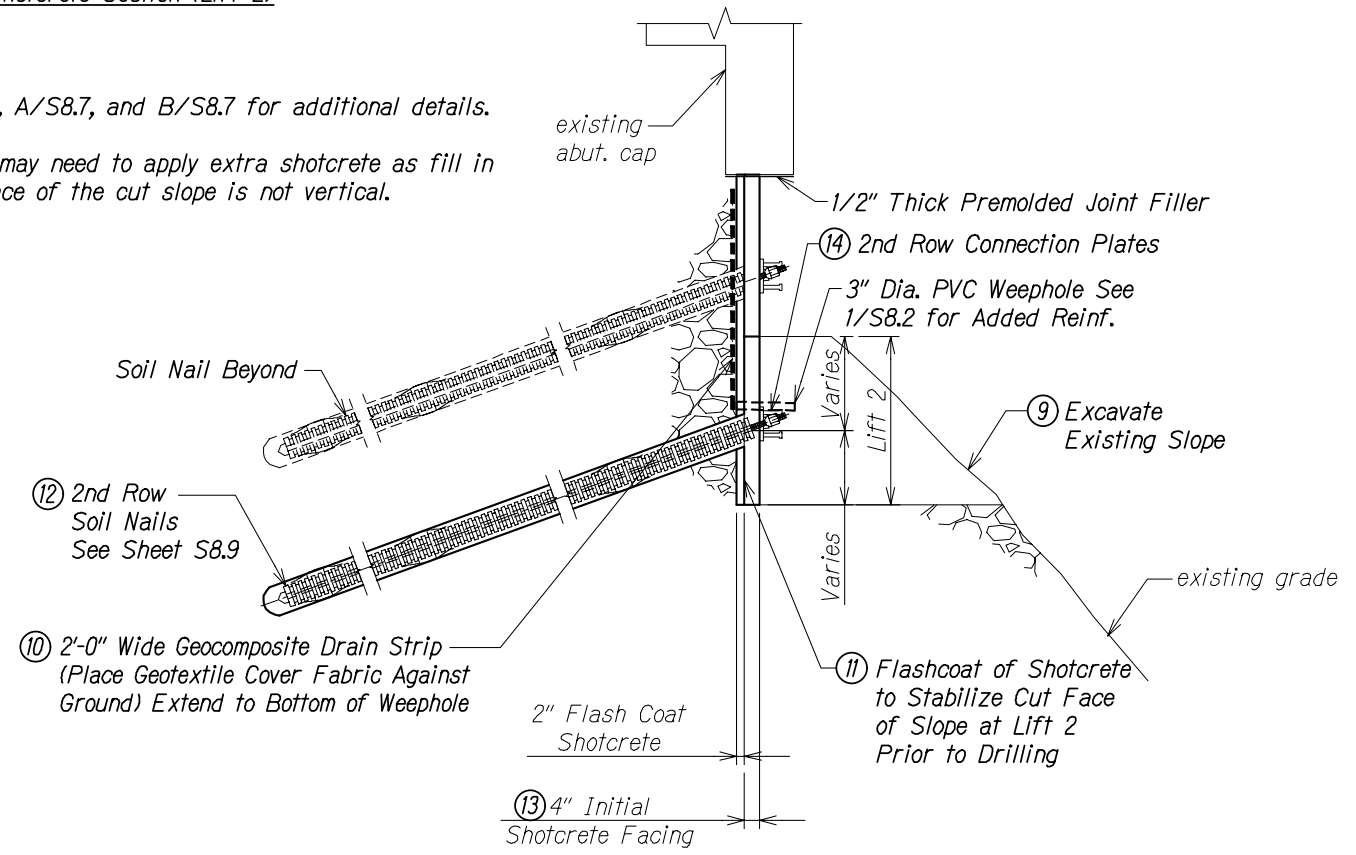


**SECTION - LIFT 1** A  
Scale: 1/2" = 1'-0" S8.6 S8.6

Typical Initial Shotcrete Section (Lift 2)

**NOTES:**

1. See A/S8.6, A/S8.7, and B/S8.7 for additional details.
2. Contractor may need to apply extra shotcrete as fill in case the face of the cut slope is not vertical.



**SECTION - LIFT 2** B  
Scale: 1/2" = 1'-0" S8.6 S8.6

**CONSTRUCTION SEQUENCE:**

1. Each stage shall be completed in its entirety before proceeding to next stage.
2. Excavate to required 1st Lift and remove existing rip rap as required.
3. Install and secure 1/2" thick premolded joint filler to existing abutment cap.
4. Install geocomposite drain strips. Extend drain strips and install PVC weephole as shown on S8.4 and S8.5.
5. Apply flash coat shotcrete.
6. Drill, install, and grout 1st row of soil nails; run any necessary performance/proof tests.
7. Place reinforcing and apply Lift 1 initial shotcrete facing.
8. Install studded connection plates on 1st row.
9. Excavate to required 2nd Lift and remove existing rip rap as required.
10. Connect geocomposite drain strip from previous lift to geocomposite drain strip in Lift 2. Extend geocomposite drain strip and install PVC weephole as shown on S8.4 and S8.5.
11. Apply flash coat shotcrete.
12. Drill, install, and grout 2nd row of soil nails; run any necessary performance/proof tests.
13. Place reinforcing and apply Lift 2 initial shotcrete facing.
14. Install studded connection plates on 2nd row.
15. Excavate to required starter wall and remove existing rip rap as required.
16. Apply flash coat shotcrete.
17. Drill, install, and grout 3rd row of soil nails; run any necessary performance/proof tests.
18. Place reinforcing for wall and starter wall and apply Lift 3 initial shotcrete facing and starter wall.
19. Install studded connection plates on 3rd row.
20. Place reinforcing and drill and epoxy dowels into existing abutment column, see A/S8.10. Apply final shotcrete wall facing.
21. Install micropiles and micropile cap.

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DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S8.6 MICROPILE SECTION.PLOT TIME: 03-01-24, 8:50 AM



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**SOIL NAIL WALL  
CONSTRUCTION SEQUENCE**

**HAWAII BELT ROAD**  
Seismic Retrofit of Kaholo Stream Bridge  
Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

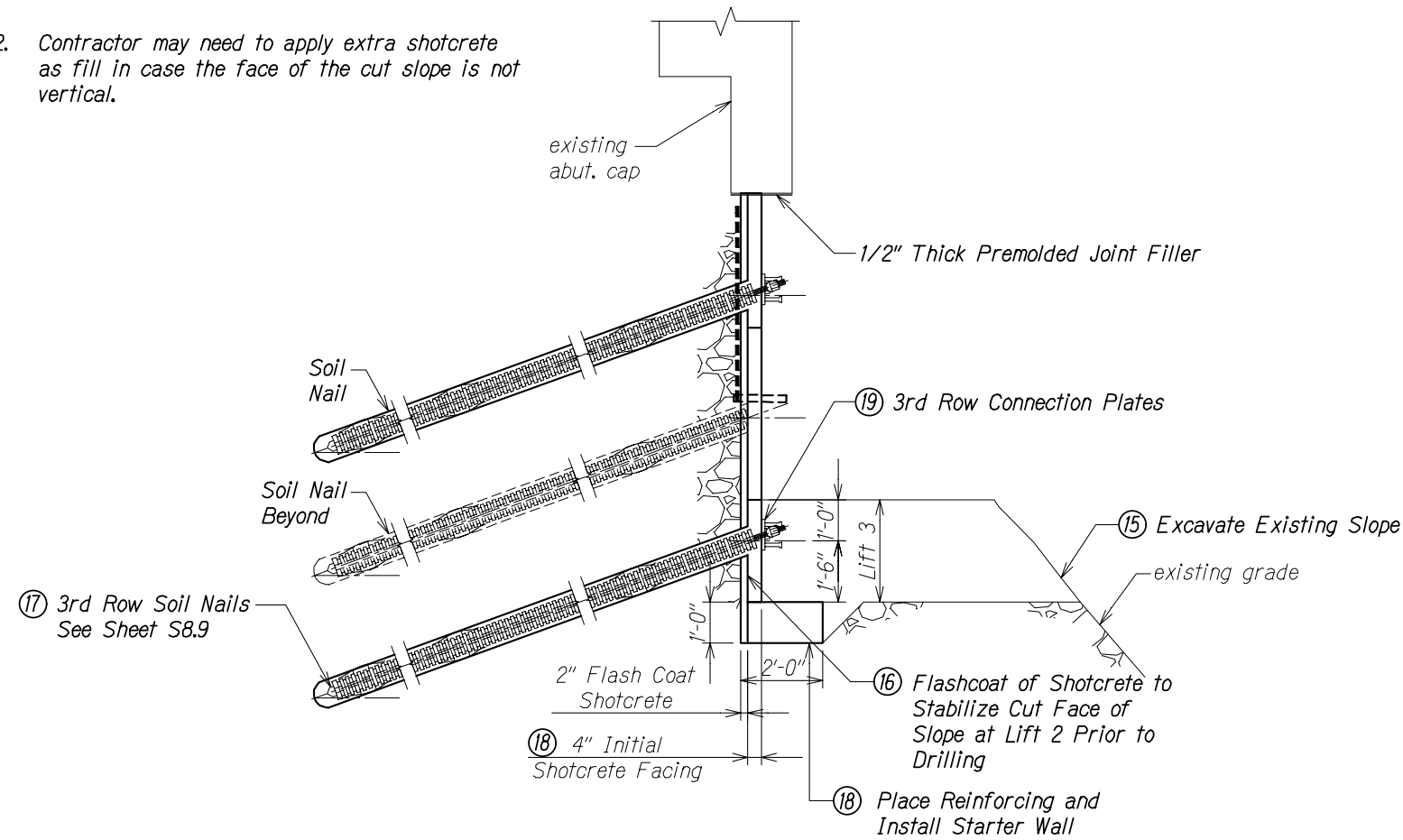
SHEET No. S8.6 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	80	84

**TYPICAL INITIAL SHOTCRETE SECTION (LIFT 3):**

**NOTES:**

- See A/S8.6, B/S8.6, and B/S8.7 for additional details.
- Contractor may need to apply extra shotcrete as fill in case the face of the cut slope is not vertical.

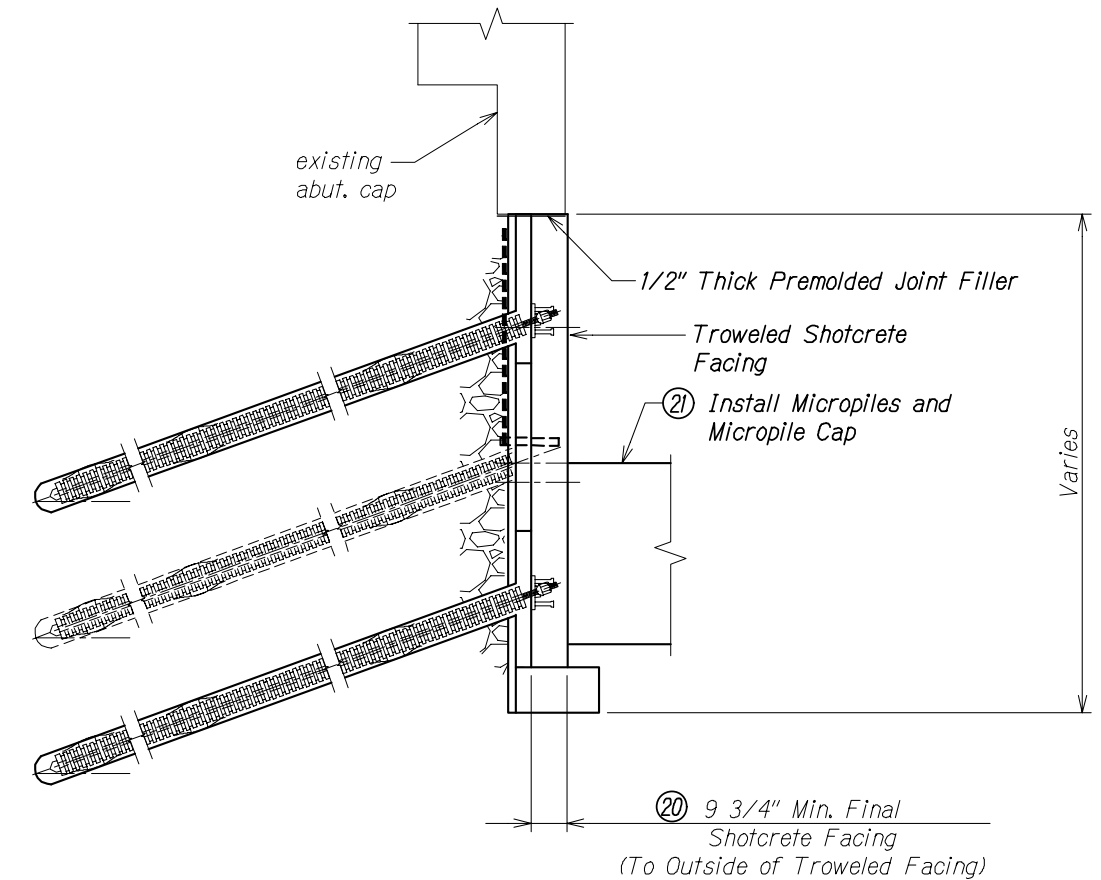


**SECTION - LIFT 3 AND STARTER WALL**  
 Scale: 1/2" = 1'-0"  
 A S8.6 S8.7

**TYPICAL FINAL SHOTCRETE SECTION:**

**NOTE:**

See A/S8.6, B/S8.6, and B/S8.7 for additional details.



**SECTION - FINAL FACING**  
 Scale: 1/2" = 1'-0"  
 B S8.6 S8.7

ORIGINAL PLAN	DATE
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DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\BR-S808 MICROPILE SECTION.PLOT TIME: 03-01-24, 8:50 AM



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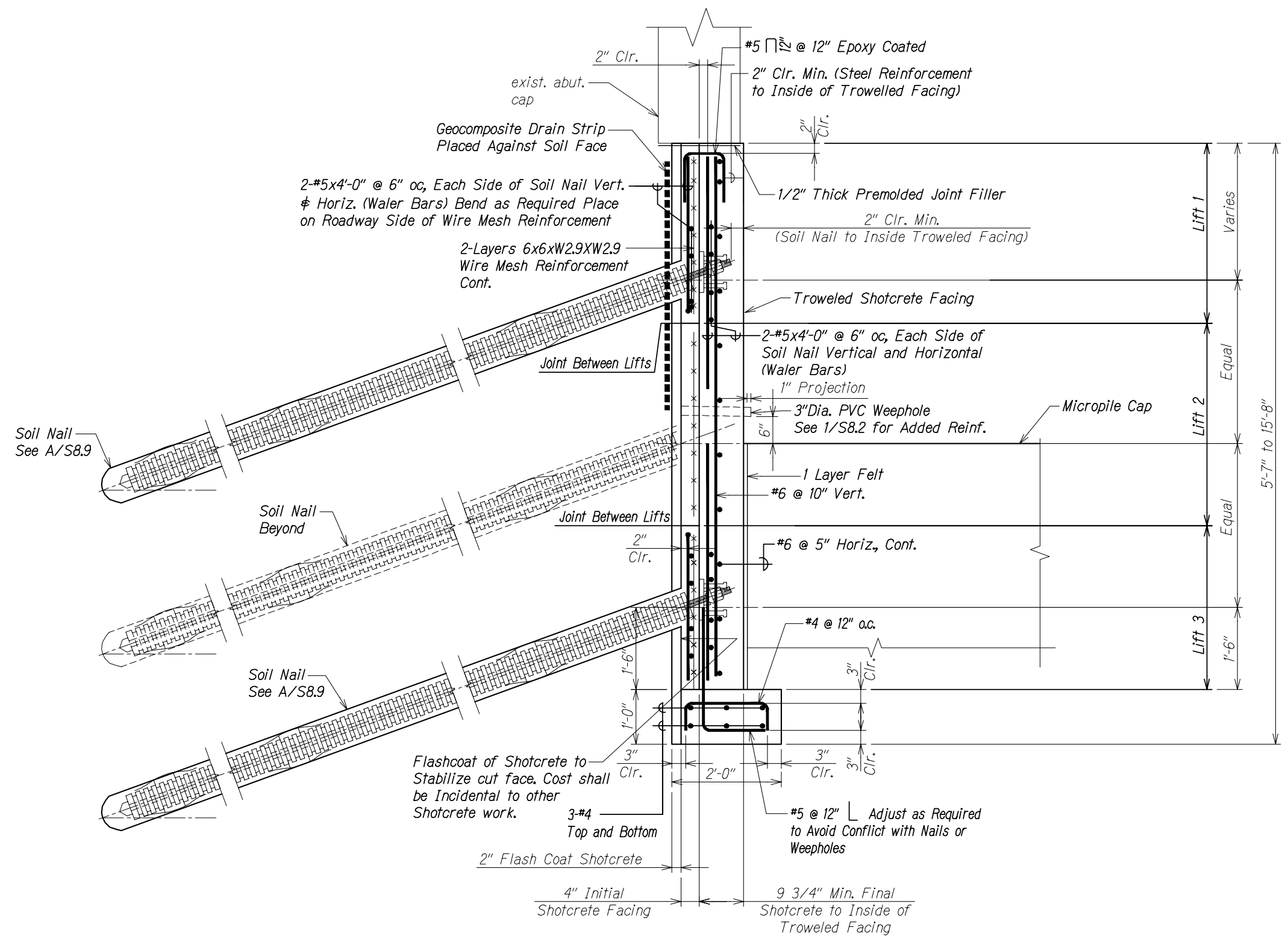
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 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**SOIL NAIL WALL CONSTRUCTION SEQUENCE**

HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	81	84



- NOTES:**
1. Initial shotcrete shall be applied after placement of geocomposite drain strips.
  2. See Shts. S8.4 and S8.5 for weephole locations.
  3. Install geocomposite drain strip per Manufacturer's recommendations.

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**SOIL NAIL WALL SECTION REINFORCING DETAIL**

Scale: 1" = 1'-0" A S8.8 S8.8



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**TYPICAL SOIL NAIL WALL SECTION REINFORCING DETAIL**

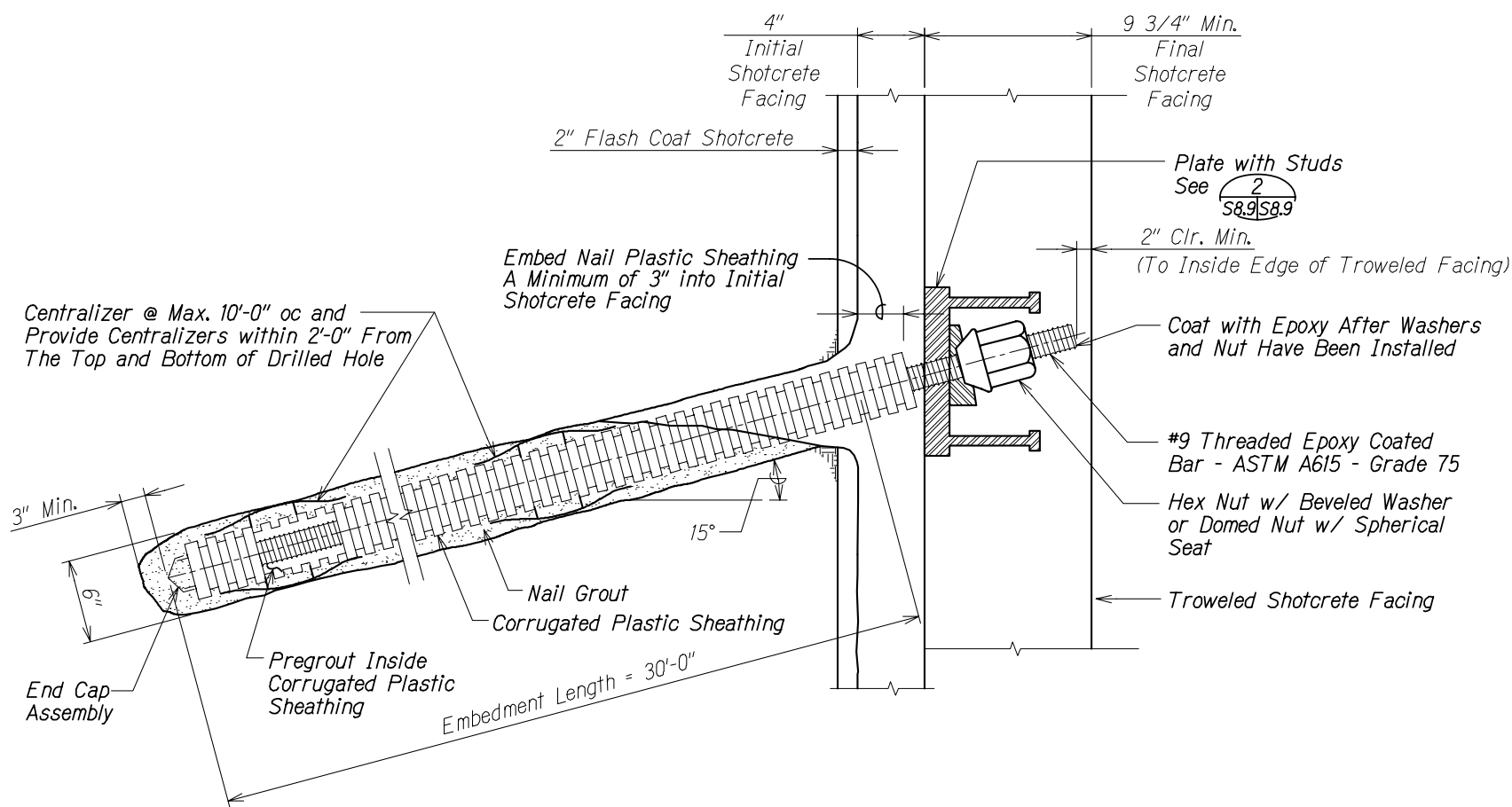
HAWAII BELT ROAD  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

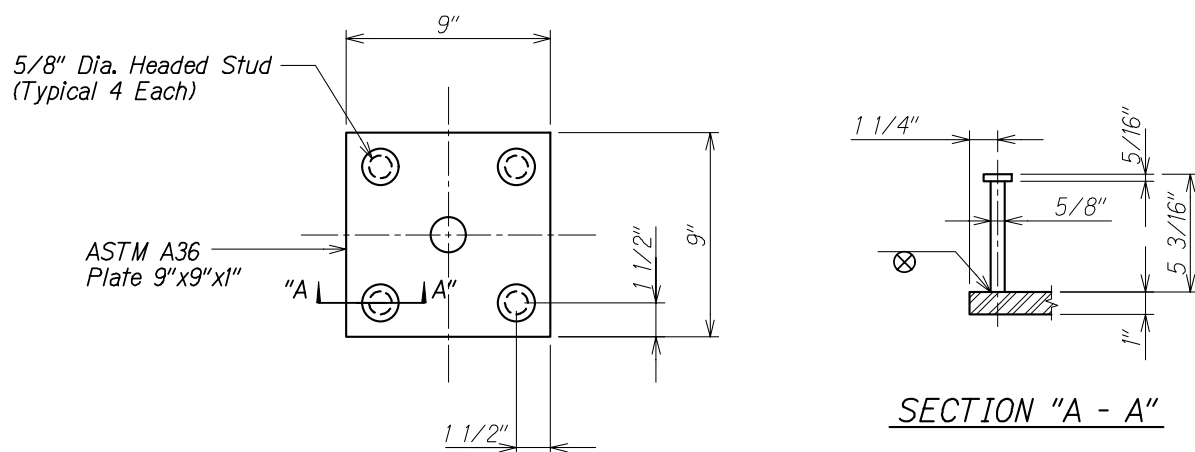
SHEET No. S8.8 OF 10 SHEETS



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	82	84



**ENCAPSULATED PRODUCTION SOIL NAIL DETAIL** 1  
 Scale: 1 1/2" = 1'-0" S8.9 | S8.9



**CONNECTION PLATE WITH STUD DETAIL** 2  
 Scale: 3" = 1'-0" S8.9 | S8.9

**NOTE:**  
 All plates, nuts, washers, and shear connectors shall be hot dip galvanized after fabrication.

**NOTES:**

1. Reinforcing not shown for clarity. See Sheet S8.8.
2. Contractor shall handle all epoxy coated soil nails with care and shall avoid damaging in accordance with ASTM D3963. All damages shall be patched using a two-part epoxy repair material, approved by the coating Manufacturer.
3. Design Test Load: 24 kips
4. At-rest earth pressure: 58 PCF



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**SOIL NAIL AND CONNECTION PLATE DETAILS**

**HAWAII BELT ROAD**  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. S8.9 OF 10 SHEETS

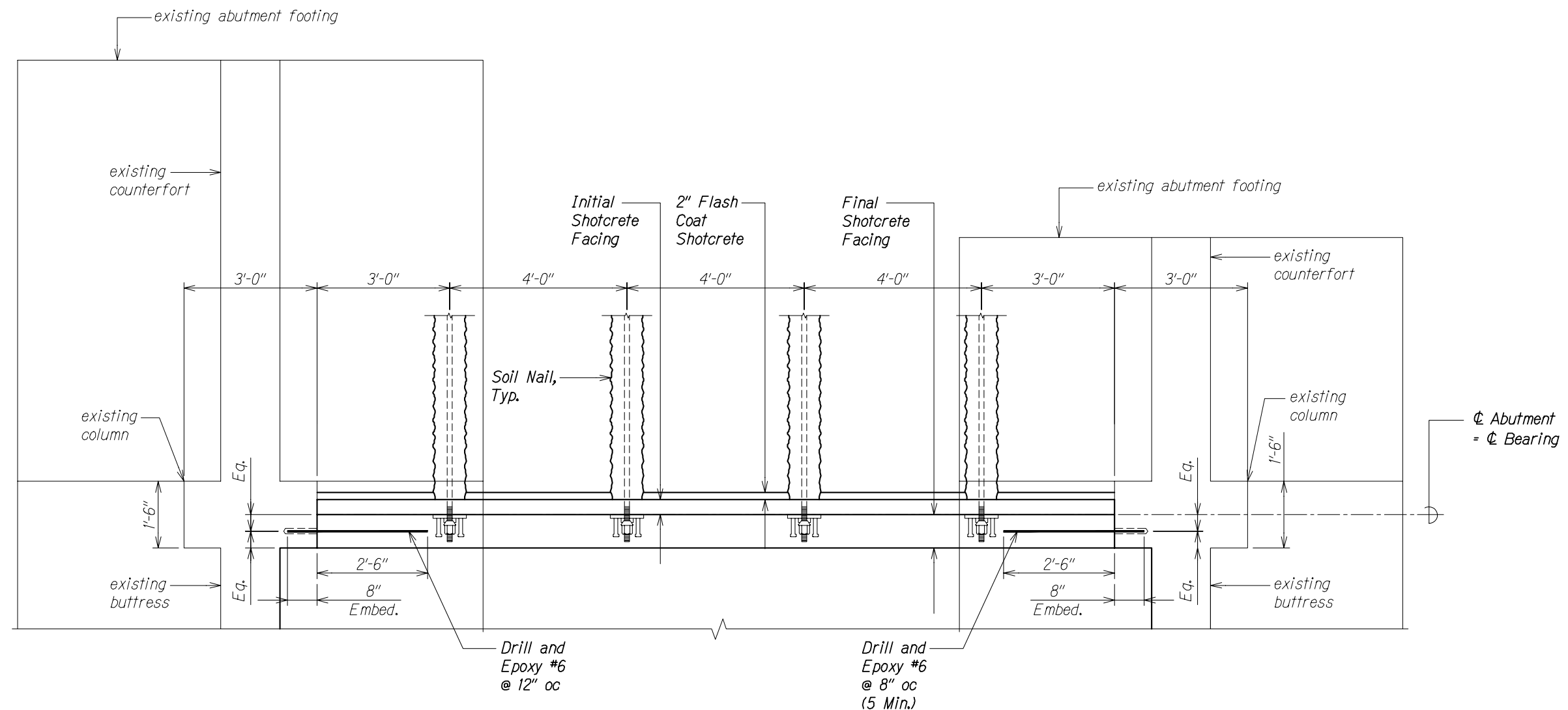
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	83	84

DRAWING NAME: Z:\00 ONGOING\19-031-HBR KAHOLO SEISMIC RETROFIT\01 CAD\03-01-24 FINAL REVIEW\KBR-S809 SOIL NAIL DET.DWG PLOT TIME: 03-01-24 8:51 AM

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**SECTION**  
 Scale: 3/4" = 1'-0"  
 S8.4 | S8.10  
 S8.5



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**SOIL NAIL WALL SECTION**

*HAWAII BELT ROAD*  
 Seismic Retrofit of Kaholo Stream Bridge  
 Fed. Aid Proj. No. BR-019-2(072)

Scale: As Noted Date: Mar. 2024

SHEET No. S8.10 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(072)	2024	84	84

**CONSTRUCTION SEQUENCE:**

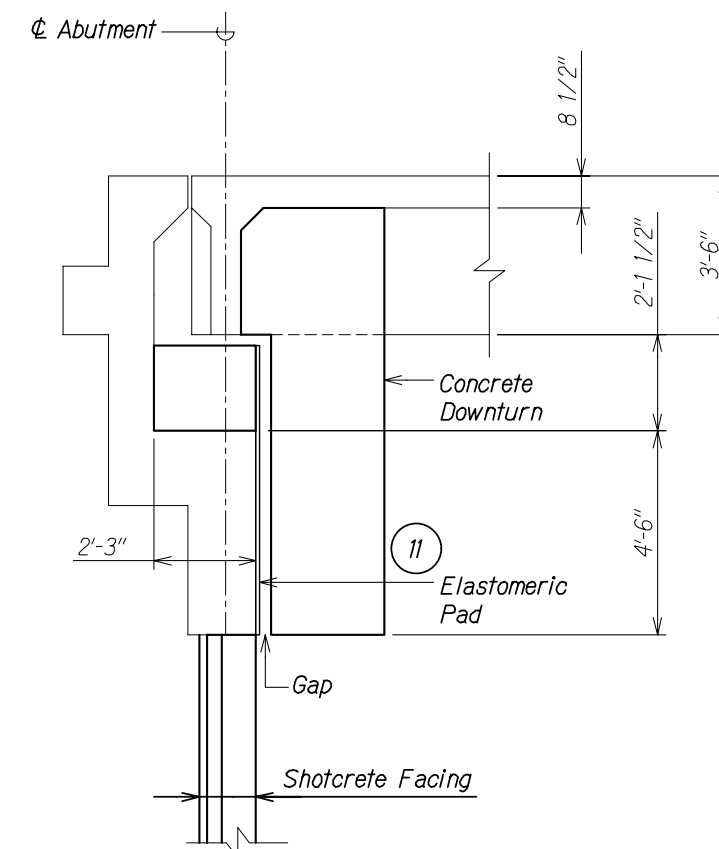
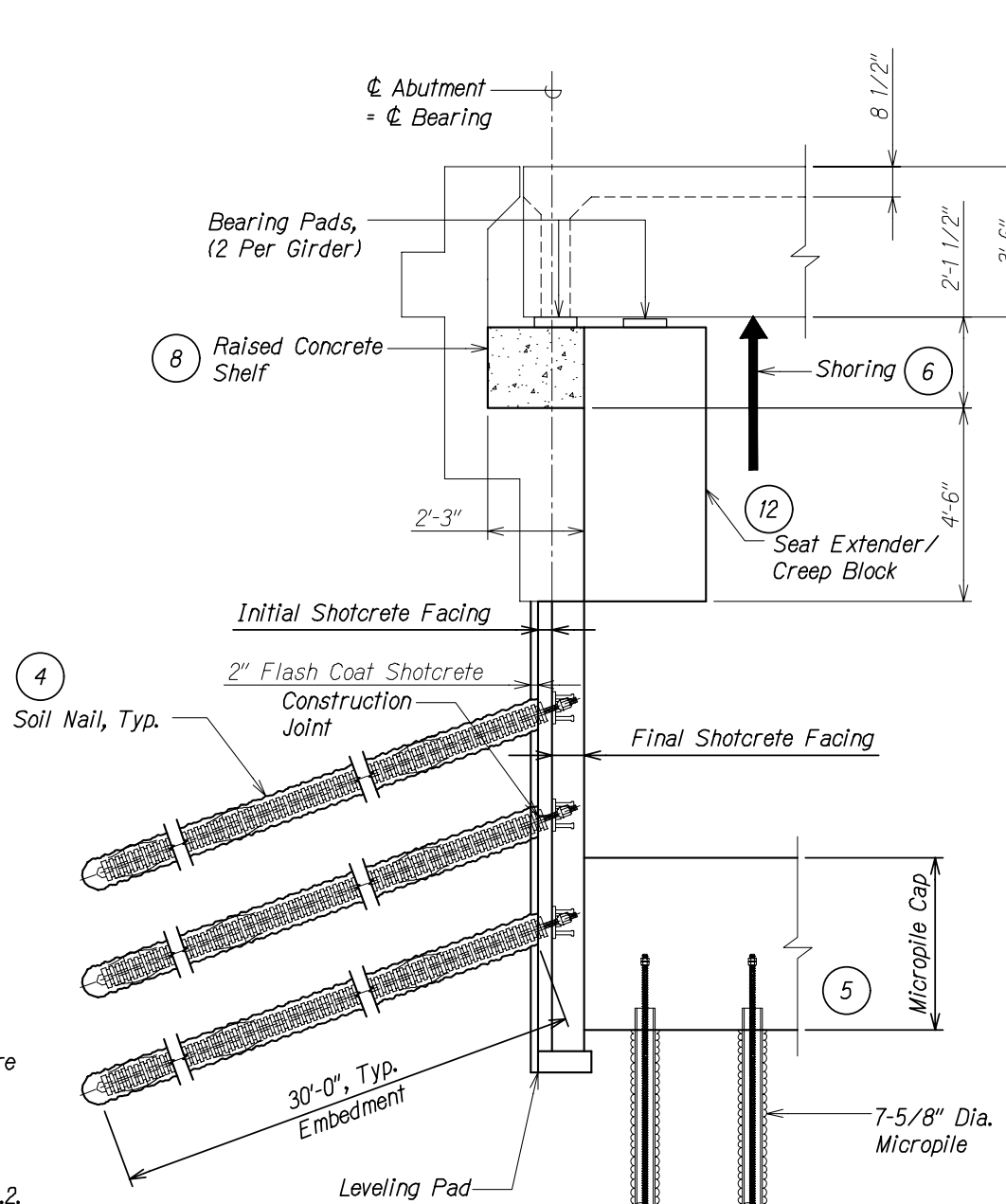
1. The Contractor shall submit a work plan that includes all stages of work for approval by the Engineer.
2. Install BMPs. See Civil plans.
3. Install temporary access road at Hilo Abutment.
4. Install Soil Nail Wall.
5. Install Micropiles and Micropile Cap.
6. Construct shoring.
7. Raise bridge girders and place on Temporary Shoring. See Temporary Shoring notes for criteria.
8. Remove Rocker Bearing. Construct abutment shelf, and install Elastomeric Bearings.
9. Lower bridge girders onto Elastomeric Bearing and remove shoring.
10. Final bottom of girder elevations shall match existing bottom of girder elevations.
11. Construct concrete downturn.
12. Construct Seat Extender/Creep Blocks.
13. Repeat Stages 2 to 9 for Honokaa Abutment.
14. Remove BMPs. See Civil plans.

**TEMPORARY SHORING NOTES:**

1. All girders at the same abutment shall be raised and lowered at the same time.
2. Bridge girders shall be raised the same amount and not be raised more than 1/2" higher than it's existing elevation.
3. Bearings, jacks, and temporary shoring must be sufficient in carrying all dead loads and a HL-93 Live Load. Supports shall be considered Falsework and follow all specifications and criteria listed on Sheet S0.2. A detailed plan with plans and calculations stamped by a Structural Engineer licensed in the State of Hawaii shall be submitted for approval to the Engineer.

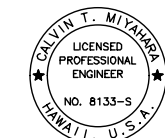
**NOTE:**

The work at the pier can be done at any time.



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**CONSTRUCTION SEQUENCE**

*HAWAII BELT ROAD*  
*Seismic Retrofit of Kaholo Stream Bridge*  
*Fed. Aid Proj. No. BR-019-2(072)*

Scale: As Noted Date: Mar. 2024

SHEET No. S9J OF 1 SHEETS