



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
STREAM CHANNEL ALTERATION
PERMIT APPLICATION

For Official Use Only:
COMMISSION ON WATER
RESOURCE MANAGEMENT

2025 JUL 22 AM 8:05

Instructions: Please print in ink or type and send one (1) completed hardcopy and one (1) digital copy of the application with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Applications must be accompanied by a non-refundable filing fee of \$25.00 payable to the Department of Land and Natural Resources. The Commission may not accept incomplete applications without the required signatures. For assistance, call the Stream Protection and Management Branch at 587-0234. For further information and updates to this application form, visit <http://dlnr.hawaii.gov/cwrm>.

- ☒ Check here to allow Commission staff to communicate primarily via e-mail.
Legally required and other key correspondence will still be transmitted via postal mail.

PERMIT TYPE:

1. Permit Applying For: ☒ New ☐ After-The-Fact
2. Type of Construction: ☐ Installation ☒ Modification ☐ Removal

APPLICANT INFORMATION

3. APPLICANT'S NAME / COMPANY County of Maui, Department of Public Works	Applicant's Contact Person Jordan Molina	Applicant's Phone (808) 270-7845
Applicant's Mailing Address 200 S. High Street, Wailuku, HI 96793	Applicant's E-mail Address jordan.k.molina@co.maui.hi.us	

- ☐ Check here if project will impact multiple landowners. If project impacts multiple landowners, skip Item 4 below, then complete and attach Form LND-APP to identify and verify landowner's approval of proposed stream channel alteration work.

4. LANDOWNER'S NAME / COMPANY County of Maui, Department of Public Works	Landowner's Contact Person Jordan Molina	Landowner's Phone (808) 270-7845
Landowner's Mailing Address 200 S. High Street, Wailuku, HI 96793	Landowner's E-mail Address jordan.k.molina@co.maui.hi.us	

5. CONSULTANT'S NAME / COMPANY Sea Engineering, Inc.	Consultant's Contact Person Alyssa Agustin	Consultant's Phone (808) 460-3436
Consultant's Mailing Address 504 N. Nimitz Hwy, Honolulu, HI 96817	Consultant's E-mail Address aagustin@seaengineering.com	

6. CONTRACTOR'S NAME / COMPANY TBD	Contractor's Contact Person TBD	Contractor's Phone TBD
Contractor's Mailing Address TBD	Contractor's E-mail Address TBD	

STREAM INFORMATION

7. Island: (Check only one) ☐ Kauai ☐ Oahu ☐ Molokai ☐ Lanai ☒ Maui ☐ Hawaii

8. Tax Map Key(s) List all affected tax map key parcels.
(2) 3-5-003:999

9. Stream / Gulch Name(s) List all affected streams and/or gulches.
Iao Stream

FOR OFFICIAL USE ONLY:	SWHU ID: _____	FILE ID: _____
LAT: _____	GWHU ID: _____	DOC ID: _____
LON: _____	REACH ID: _____	

GENERAL PROJECT INFORMATION**10. Project Type:** Check all that apply.

- | | | | | | |
|--|--|--|---|-------------------------------------|---|
| ☐ Bank Stabilization | ☒ Bridge | ☐ Channel Alignment | ☐ Channel Lining | ☐ Culvert | ☐ Dam / Dike / Weir |
| ☐ Desilting Area | ☐ Drainage Outlet | ☐ Dredging | ☐ Ford Crossing | ☐ Grading | ☐ Levee / Flood Wall |
| ☐ Restoration | ☐ Retaining Wall | ☐ Retention Basin | ☐ Stream Gage | ☐ Sewer Line | ☐ Water Line |
| ☐ Other - Describe: _____ | | | | | |

11. Project Site Location(s): Provide site coordinates of downstream-most point of project in degrees, minutes, seconds (NAD83).

Latitude: 20° 52' 58.69"

Longitude: 156° 32' 2.13"

Elevation: 677 ft. above mean sea level

12. Structure Dimensions: (feet)

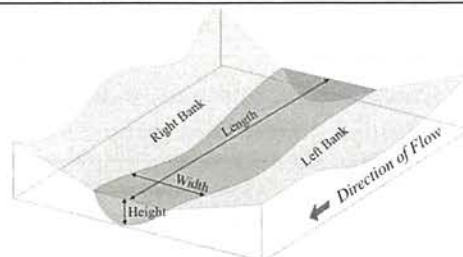
Provide generalized dimensions for the entire project / structure area. If the project includes a pipe (e.g., culvert, drain, etc.), provide the pipe diameter.

Width: 866.8

Height: 1 to 3

Length: 291.9

Diameter: _____

**13. Structure Location:**

Provide the general location of the stream channel alteration structure in relation to the streambank.

☐ Left bank (downstream view)☐ Right bank (downstream view)☒ Across entire stream channel**14. State Land Use Classification:** (Check all that apply)☐ Agriculture☒ Conservation☒ Rural☐ Urban**LEGAL REQUIREMENTS**If required, the permits or approvals below must be obtained before the Commission on Water Resource Management can legally issue a permit. Visit the Commission's Applications & Forms webpage (<http://dlnr.hawaii.gov/cwrm/info/forms/>) for links to agency websites/contact information.**15. Conservation District Use Permit (CDUP):** To find out if your stream channel alteration project is located in a Conservation District (CD), you may visit to the Land Use Commission (LUC) website at <http://luc.hawaii.gov/maps> to view Land Use District Boundary maps. If the stream channel alteration will be located in a CD, contact the Department of Land and Natural Resources' Office of Conservation and Coastal Lands (OCCL) at (808) 587-0377 to determine if a CDUP is required.☒ Stream channel alteration is in a Conservation District.☐ Required. CDUP #: _____ Date CDUP approved: _____☒ Not Required. Attach documentation from Office of Conservation and Coastal Lands (OCCL), Department of Land and Natural Resources.☐ I have not checked with the OCCL about whether or not a CDUP is required.☐ Stream channel alteration is not in a Conservation District.**16. Special Management Area Permit (SMAP):** To determine if an SMAP is necessary, contact your County Planning Department.☐ Required. SMAP #: _____ Date SMAP approved: _____☒ Not Required. Attach documentation from applicable County agency.☐ I have not checked with the County about whether or not an SMA Permit is required.**17. State Historic Preservation Division (SHPD), Department of Land and Natural Resources:** If the parcel(s) affected by the stream alteration has been reviewed by the State Department of Land and Natural Resources Historic Preservation Division (SHPD or through an OEQC Environmental Review, Special Management Area Permit, etc.), check "yes" and attach any relevant documentation from SHPD. If the affected parcel(s) has not undergone SHPD review, attach a photograph of the affected area, a schematic diagram (showing the location, access road and infrastructure for the alteration), and a short description of the prior use(s) of the land on which the alteration resides.

Please note: You are **strongly advised to contact the SHPD to obtain a pre-review of your project. In the event that you do not get an HP pre-review and if during the course of either review or the permit itself it is determined that you need SHPD's concurrence, your application or permit may be held in abeyance or denied until issues with HP are resolved. To contact SHPD, please call (808) 692-8015.*

☒ I have consulted the SHPD regarding potential impacts of stream channel alteration activities on historic sites. I have attached applicable documentation from the SHPD.☐ I have not consulted with the SHPD regarding potential impacts of stream channel alteration activities on historic sites.**18. Chapter 343, Hawaii Revised Statutes, Hawaii Environmental Policy Act:**☐ An Environmental Assessment was completed, and☐ An Environmental Impact Statement was required and has been accepted (attach letter of acceptance).

Publication date in The Environmental Notice: _____

☒ A Finding of No Significant Impact has been determined (attach letter).Publication date in The Environmental Notice: Class 1.2.b. Exemption

This project proposes:

☐ Use of state or county lands, or use of state or county funds☒ Use within a state conservation district☐ Use within a shoreline setback area☐ Use within a national or Hawaii registered historic site☐ Use within the Waikiki Special District☐ The construction, expansion or modification of helicopter facility☐ A wastewater treatment unit☐ Waste-to-energy facility☐ Landfill☐ Oil refinery☐ Power-generating facility☐ None of the above 11 items

OTHER REGULATORY REQUIREMENTS

If the proposed stream channel alteration is subject to the following permits or approvals, indicate by checking the appropriate box below and submit either the approval letter from the appropriate agency or attach a copy of the application form. If the proposed stream channel alteration is not subject to the following permits or approvals, indicate by checking the "N/A" (Not Applicable) field.

	Attached	N/A
19. U.S. Army Corps of Engineers (Harbors and Rivers Act, Section 404, Clean Water Act)	☒	☐
20. State Department of Health, Clean Water Branch (Section 401, Clean Water Act, Water Quality Certification, Best Management Practices Plan)	☒	☐
21. Right-of-Entry or Right-of-Way Permit if the proposed stream channel alteration includes State lands. (Chapter 171, Hawaii Revised Statutes)	☐	☒
22. Hawaii Environmental Policy Act (Chapter 343, Hawaii Revised Statutes; Title 11, Chapter 200, Hawaii Administrative Rules)	☒	☐
23. Soil and Water Conservation District	☐	☒
24. County Certification of "No-Rise"	☐	☒
25. County Grading Permit	☐	☒
26. County Discretionary Permit(s)	☐	☒

CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State, require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups. If there is not enough space available, please make a note in the field (e.g., "See attached") and attach all information with this application as requested.

27. Please provide the identity and scope of cultural, historical, and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

The project area includes approximately 535 lineal feet of the 'Iao Valley Road right of way and an ancillary construction staging area located approximately 230 lineal feet to the northwest of the bridge. The total area of potential effect (APE) is 0.5 acrea. One historic property was identified within the APE - the Iao Stream Bridge (No. 59) (State of Hawai'i Department of Transportation Bridge Number 009003201).

28. Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

Ground disturbance for the project will be minimal, consisting of the clearing of stream-deposited material around the abutments in order to complete in-stream scour protection. Roadway paving will also include shallow ground disturbance within existing asphalt and roadway base course material. The replacement design utilizes a Texas Department of Transportation Crash Tested Type C402 Railing consisting of a concrete base with horizontal metal rails to be installed at the outboard sides of new bridge sidewalks. The rail ends about new 3'-6" high concrete end stanchions with radiused top corners. The overall dimensions of the bridge, length, and elevation, as well as the abutments and piers, will remain unaltered. The travelway width and lane width will remain the same, however the bridge will be approximately 2'-10" wider to accommodate a 3'-0" service walkway on each side of the bridge. The scour repair at the bridge footings and the girder repair by welded additional members at the underside of the bridge will not be visible to the traveling public and will have minimal effect on the historic integrity of the bridge. The removal and replacement of the bridge's original railings and end stanchions, and the installation of new concrete supports at the abutments and each pier, are determined to have an effect to the historic property. Due to replacement of the rails and end piers, the Effect Determination is "Effect, with Proposed Mitigation Commitments" (HAR 13-275-7). The Department of Public works intends to consult with SHPD to resolve the project's effect determination through development of a Memorandum of Agreement.

29. What feasible action, if any, could be taken by the Commission on Water Resource Management in regards to your application to reasonably protect Native Hawaiian rights?

Since no historic properties or landmarks are in the project area, and no traditional or customary Native Hawaiian rights are currently practiced in the project area, no feasible action is recommended at this time.

PROJECT DESCRIPTION

Please complete the following sections by providing detailed information on the project components identified below. If there is not enough space available, please make a note in the field (e.g., "See attached") and attach all information with this application as requested.

30. Describe the overall project scope and objectives.

Iao Bridge is a 3-span bridge located along Iao Valley Road in Wailuku, Maui. The bridge consists of a concrete deck overlaid with an asphalt concrete wearing surface, steel superstructure, and concrete substructure. The bridge abutments and pier walls are supported by shallow footing foundations in Iao Stream.

The proposed project involves rehabilitating the Iao Stream Bridge (No. 59), constructed in 1955, including replacing parapet rails and end stanchions, replacing guardrail, repairing minor concrete spalls, and repairing scour. The rail replacement will require the addition of new concrete pier support at abutments and each pier. The Hawai'i State Historic Bridge Inventory and Evaluation (MKE Associates, 2013) identified the bridge as a significant historic property in accordance with HAR §13-275-6 requirements.

Work Plan

1. Provide temporary traffic control to allow single-lane vehicle travel way across the bridge during repairs
2. Install BMPs to protect the surrounding environment from project activity
3. Demolish and remove existing bridge railing at either side of the bridge
4. Construct new concrete supports and deck slab/sidewalk and railing
5. Repeat Steps 3 and 4 on opposite side of the bridge
6. Complete structural repairs and rehabilitation work on bridge bearings and creep blocks
7. Clean and paint repaired bridge
8. Install temporary stream diversion and construct in-stream scour repairs
9. Demolish and remove asphalt concrete wearing surface and repave asphalt concrete roadway
10. Install guardrail and end treatment
11. Install signing and striping
12. De-mobilization: remove all materials and equipment from the work area.

31. Describe existing stream channel and streamflow conditions at the site of the proposed stream channel alteration.

The Project area is approximately 1.28 ha (3.16 ac) of land including Wailuku (Iao) River traversed by 'Īao Valley Road in Wailuku, Maui. Wailuku River is a perennial stream that flows directly into the Pacific Ocean (a TNW) at Nehe Point. In the area of the Project, Wailuku River is a boulder filled channel incised many meters. Wailuku River descends out of 'Īao Valley in a series of steps, creating a riffle and pool complex in the project area. A large, vegetated boulder bar is present in the stream channel just upstream of the bridge. Ground disturbance for the project will be minimal, consisting of clearing stream-deposited material around the abutments in order to complete the in-stream scour protection.

32. Identify and describe the project components outlined below

A. Materials

Materials required for proposed work include a debris containment/catchment system, polymer modified concrete and mortar, grout bags, guardrails, hardware (washers, nuts, bolts), epoxy, filter socks as required, inlet protection as required, and scaffolding as required.

B. Quantities

115 grout bags for scour repairs

C. Excavation

0.47 acres

D. Fill

None

E. Disposal

Existing guardrails and posts, concrete and metal bridge railings, AC pavement, and concrete barriers will be demolished and removed from the project site. Additionally, all silt and debris resulting from the proposed work shall be removed from the site. All items for disposal shall be deposited at an appropriate disposal site, and the Contractor shall inform the Director of Public Works of the location of the site once determined.

F. Construction methods

Construction space is limited at the project site. The construction laydown area is proposed to be set up on the western, upstream side of Iao Stream. If necessary, a temporary scaffolding structure will be installed in Iao Stream such that repair work may be completed, in accordance with the BMPP. Work will likely be done with hand tools that can be carried to the site.

G. Temporary facilities

The construction laydown area is proposed to be set up on the western, upstream side of Iao Stream. If necessary, a temporary scaffolding structure will be installed in Iao Stream such that repair work may be completed, in accordance with the BMPP.

H Expected period of time required for construction

One year

I. Liability during construction

Best Management Practices (BMPs) will be followed before, during, and after construction to minimize adverse effects on the surrounding environment and to maintain a safe work zone. For more information regarding these practices and resulting liability, please see attached the BMPs.

33. Describe the project's consistency with county zoning and development plans.

The Iao Bridge repair project is consistent with the County of Maui's zoning and development plans. The project area is classified under the Road Zone Class according to the County of Maui Zoning (October 2023) and is located within the Resource subzone of the Conservation District.

As a maintenance and rehabilitation effort for an existing bridge, the project aligns with county zoning regulations and land use policies. The scope of work is limited to necessary structural repairs, including parapet rail replacement, minor concrete spall repairs, and scour protection. No new construction or changes to land use are proposed, ensuring that the project remains in compliance with the established zoning framework.

Temporary scaffolding and laydown areas will be utilized during construction to facilitate safe and efficient repairs. These temporary features will be removed upon project completion, minimizing any potential impact on the surrounding environment. The project will also incorporate Best Management Practices (BMPs) to mitigate or eliminate potential environmental effects, ensuring compliance with conservation objectives.

Furthermore, the project supports the Resource subzone's goal of maintaining and managing natural resources while allowing for the maintenance of essential infrastructure. By ensuring the continued safety and functionality of the Iao Bridge, the project aligns with county development plans that prioritize infrastructure preservation and public safety without compromising environmental conservation efforts.

34. Identify potential alternatives to the project and describe the relative costs and benefits of each alternative.

The No-Action Alternative considers the scenario in which no improvements or repairs are made to the Iao Bridge on Maui. This alternative serves as a baseline against which the benefits and impacts of the proposed action can be assessed.

Structural Integrity and Safety

Under the No-Action Alternative, the existing structural deficiencies of the Iao Bridge would remain unaddressed. The bridge, constructed in 1955, exhibits signs of deterioration, including minor concrete spalls, degraded parapet rails, and scour at the abutments and piers. Without intervention, these issues would likely worsen over time, potentially leading to structural instability and safety hazards for motorists and pedestrians.

Scour and Hydrological Impacts

The bridge's shallow footing foundations in Iao Stream are vulnerable to ongoing scour. In the absence of corrective measures, scour-related damage may accelerate, further compromising the bridge's stability. Increased erosion could also contribute to sedimentation issues downstream, affecting water quality and aquatic habitats.

Transportation and Mobility

Implications If no action is taken, continued deterioration of the bridge could necessitate load restrictions or, in extreme cases, full closure of the bridge. This would disrupt local transportation networks, affecting residents, emergency response times, and economic activities in the region. Iao Valley Road serves as a critical route for both local commuters and visitors, making its continued functionality essential.

Historic Preservation Considerations

Iao Bridge has been identified as a significant historic property under Hawai'i Administrative Rules (HAR) §13-275-6. The No-Action Alternative would avoid direct impacts to the bridge's historic character; however, further deterioration could ultimately compromise the integrity of this historic resource. Proactive rehabilitation would help preserve the bridge's structural and historical significance.

Regulatory and Compliance Issues

Federal, state, and county transportation and infrastructure management agencies prioritize bridge safety and maintenance. Allowing the bridge to degrade without action could lead to non-compliance with federal aid project standards and state transportation infrastructure requirements, potentially affecting funding and future planning efforts.

Conclusion

The No-Action Alternative would not meet the project's purpose of ensuring the long-term safety, functionality, and preservation of the Iao Bridge. While it would avoid immediate construction-related impacts, it would lead to increased risks of structural failure, transportation disruptions, environmental degradation, and loss of historic integrity over time. Therefore, the No-Action Alternative is not considered a viable long-term solution for the Iao Bridge.

SUBMITTALS

Please submit the following plans, maps, or drawings in legible form, preferably on 8.5" by 11" sheets.

35. Location Map: Provide a location map of the proposed project relative to major roadways.

36. Plans / Elevations / Sections: Provide a plan view of the proposed stream channel alteration structure in relation to the stream channel and property boundaries. Elevation and section views of the structure in relation to the stream channel should also be provided if available. *Sheet 10 of Drawings*

SIGNATURES

Signing below indicates that the signatories understand and swear that the information provided is accurate and true to the best of their knowledge. Further, the signatories understand that if the permit requested is granted by the Commission on Water Resource Management (Commission), the permit shall be subject to the following conditions:

- 1) The proposed work is to be completed within two (2) years from the date of permit approval.
- 2) The permittee shall notify the Commission, by letter, of the actual dates of project initiation and completion.
- 3) The permittee shall submit a set of as-built plans and photographs to the Commission upon completion of the project.
- 4) The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months.
- 5) If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

37. APPLICANT

Print Name: Jordan Molina	Signature: 	Date: 3/19/25
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38. CONSULTANT

Print Name: Alyssa Agustin	Signature: 	Date: 03/20/2025
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39. CONTRACTOR

Print Name:	Signature:	Date:
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40. LANDOWNER (If multiple landowners, skip Section 53, then complete and attach Form SCAP-LND with appropriate landowner signatures.)

Print Name: Jordan Molina	Signature: 	Date: 3/19/25
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CHECKLIST FOR A COMPLETE APPLICATION and ITEM DESCRIPTIONS (ITEMS 1 - 14)

- ☒ Fill in the most recent application form (check <http://dlnr.hawaii.gov/cwrm> or call 587-0234 for updates).
- ☒ Fill in every line which includes Items 1-40, as indicated (total 8 pages).
- ☒ Enclose a check for \$25 payable to the Department of Land and Natural Resources.
- ☒ Mark the proposed stream channel alteration location on: the appropriate USGS quad map, TMK map, photo and schematic, and attach to the application.
- ☐ Attach Form LND-APP to identify and obtain authorizations for the project if multiple landowners will be impacted.
- ☐ Attach a grading plan and cross section profiles showing existing and finish grades, if available.
- ☒ Attach documentation from CDUP, SMAP, SHPD when applicable regarding Items 15-17.
- ☒ Attach letters from U.S. Army Corps of Engineers, Hawaii Department of Health, Office of Conservation and Coastal Lands, and appropriate county agencies regarding Items 18-26.
- ☒ Provide digital copies on CD-ROM or via e-mail, if available.
- ☒ Obtain the necessary signatures for the application form.

Send the application and maps, copies, and the filing fee to:

Commission on Water Resource Management

P.O. Box 621

Honolulu, HI 96809

PERMIT TYPE

1. **Permit Status:** Indicate whether this application is for a new stream channel alteration project (including medication or abandonment) or if the project has already been completed and an after-the-fact permit is being applied for.
2. **Type of Construction:** Is the permit application for the installation of a new stream channel alteration, or modification or removal of an existing stream channel structure.

APPLICANT INFORMATION

3. **Applicant's Information:** Fill in the information for the applicant. This should be the entity that will be responsible for the maintenance of the stream channel alteration when the project is completed.
4. **Landowner's Information:** Fill in the information for the landowner of the property where the stream channel alteration will be located.
5. **Consultant's Information:** Fill in the information for the consultant who will assist with plan and design preparation for the subject project.
6. **Contractor's information:** Fill in the information for the contractor who will perform the work on the subject stream channel alteration project.

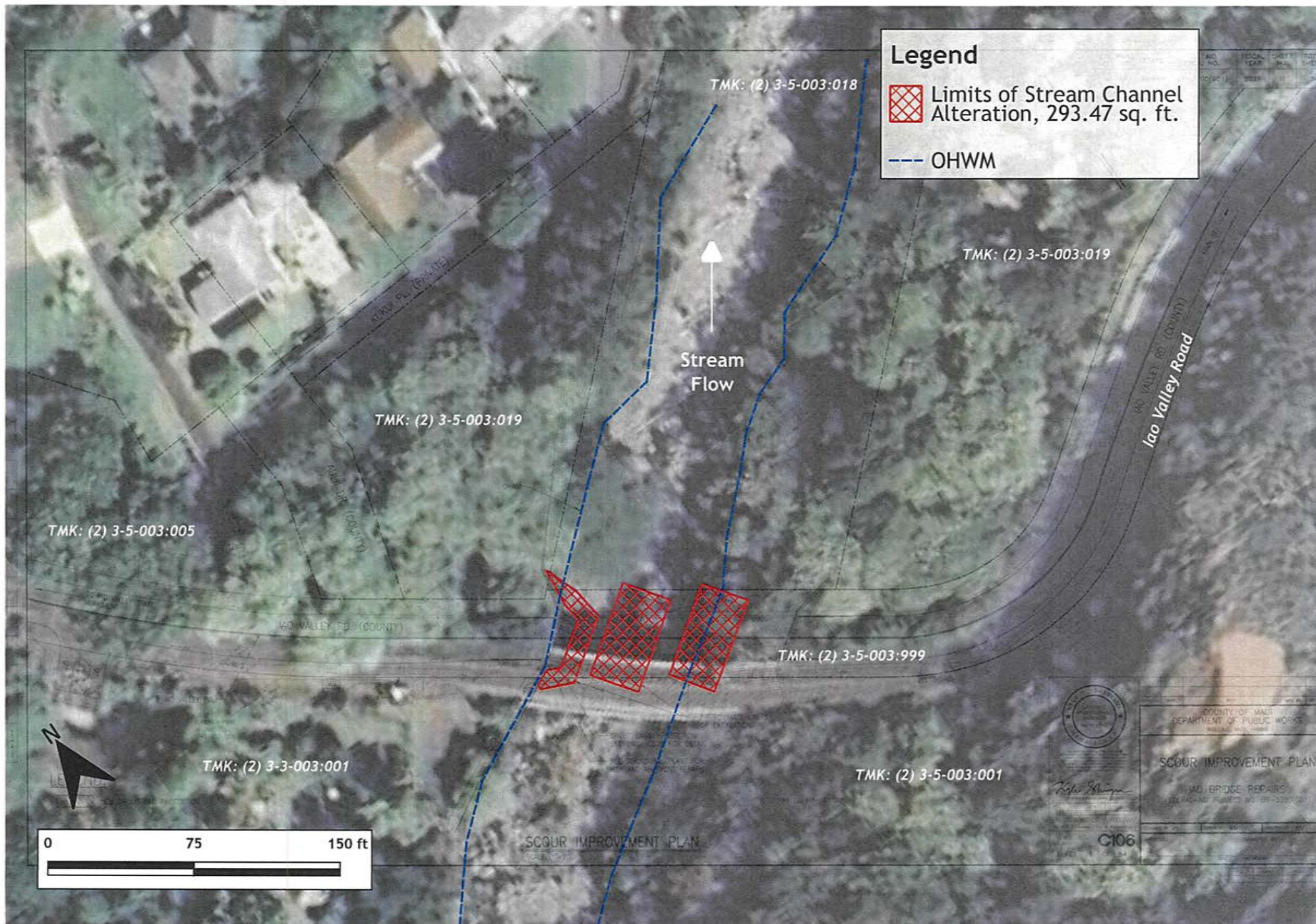
STREAM INFORMATION

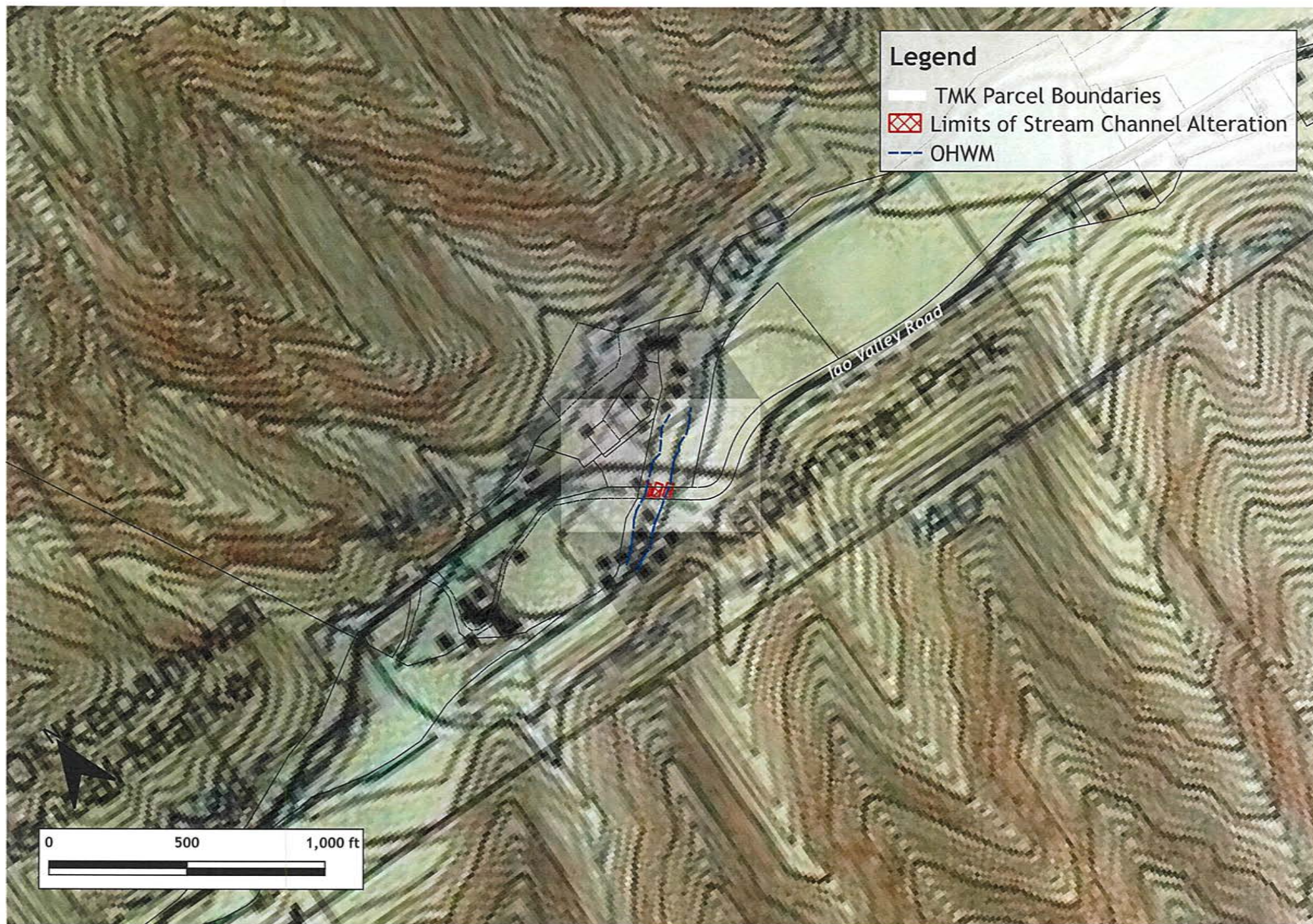
7. **Island:** The island name where the stream channel alteration will be located.
8. **TMK:** Tax Map Key number (generally there is no lot number, but where a parcel is divided into two lots, fill in the lot number)
9. **Stream / Gulch Name:** Name of the stream or gulch where the stream channel alteration will be located.

GENERAL PROJECT INFORMATION

10. **Project Type:** Identify the type of work being performed, and select all that apply to the project.
11. **Project Site Location(s):** Fill in stream channel alteration location coordinates taken from a GPS unit at the project site. Units are Degrees, Minutes and Seconds (seconds should be filled out to at least one decimal place; e.g. 19°59'32.8"N, 155°14'51.5"W). If more than one site, attach separate sheet. Elevations should be provided in feet above mean sea level.
12. **Structure Dimensions:** What are the physical dimensions of the stream channel alteration structure that will be located in or adjacent to the stream channel?
13. **Structure Location:** Will the structure be located on the right or left bank (facing downstream) or across the entire stream channel?
14. **State Land Use Classification:** Identify the current State Land Use Classification.

Please see header descriptions for remaining Sections in completing Items 15 to 40.





STATE HIGHWAY STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	2	54

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

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

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

STANDARD PLAN NO.	TITLE	DATE
H-01A	TYPE A CATCH BASIN	05/31/07
H-01B	TYPE B CATCH BASIN	05/31/07
H-01C	TYPE C CATCH BASIN	05/31/07
H-01D	TYPE D CATCH BASIN	05/31/07
H-01E	CATCH BASIN SECTIONS	05/31/07
H-02A	TYPE A1 CATCH BASIN	05/31/07
H-02B	TYPE B2 CATCH BASIN	05/31/07
H-02C	TYPE C1 CATCH BASIN	05/31/07
H-02D	TYPE D1 CATCH BASIN	05/31/07
H-02E	CATCH BASIN SECTION	05/31/07
H-03	TYPE A, B AND C STORM DRAIN MANHOLE	05/31/07
H-04	TYPE D STORM DRAIN MANHOLE	05/31/07
H-05	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07

H-06	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-07	CATCH BASIN AND MANHOLE CASTING	05/31/07
H-08	TYPE 1A-9 AND 1A-9P GRATED DROP INLET	05/31/07
H-09	TYPE 2A-9 AND 2A-9P GRATED DROP INLET	05/31/07
H-10	TYPE A-9 OR A-9P STEEL FRAMES	05/31/07
H-11	TYPE A-9 OR A-9P STEEL GRATES	05/31/07
H-12	TYPE 61614P AND 1211214P GRATED DROP INLET	05/31/07
H-13	TYPE 61616P AND 1211216P GRATED DROP INLET	05/31/07
H-14	TYPE 61214P GRATED DROP INLET	05/31/07
H-15	TYPE 1211214, 1211214P, 1211216, 1211216P STEEL FRAME AND GRATES	05/31/07

H-16	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME AND GRATES	05/31/07
H-17	TYPE 61214 STEEL FRAMES AND GRATES	05/31/07
H-18	TYPE 61214P STEEL GRATES	05/31/07
H-19	TYPE 61614B STEEL FRAME AND GRATES	05/31/07
H-20	CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-21	CONCRETE AND CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-22	INLET/OUTLET STRUCTURE	05/31/07
H-23	INLET/OUTLET STRUCTURE	05/31/07
H-24	FLARED END SECTION FOR CULVERTS	05/31/07
H-25	FLARED END SECTION FOR CULVERTS	05/31/07
H-26	CONCRETE SPILLWAY INLET	05/31/07
H-27	CAP COUPLING DETAILS STANDARD JOINT	05/31/07
H-28	REINFORCED CONCRETE COLLAR & JACKET	05/31/07
H-29	UNDERDRAIN CLEANOUT STEEL FRAME AND COVER	05/31/07
H-30	UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURE	05/31/07

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

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

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

NOTE:

STANDARD PLANS APPLICABLE TO THIS PROJECT ARE INDICATED BY A * NEXT TO THE STANDARD PLAN NUMBER. (FOR EXAMPLE: D-07 *)

	DESIGNED BY: K.S.		CHECKED BY: K.S.	
	DRAWN BY: S.M.		CHECKED BY: K.S.	
	SUBMITTED BY:			
	DATE: 08/16/06			
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAWAII, MAUI, HAWAII STANDARD PLAN SUMMARY IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
SHEET 2 OF 54				

WATER NOTES

- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER SUPPLY (DWS), IN WRITING, ONE (1) WEEK PRIOR TO COMMENCEMENT OF WORK.
- IF CONSTRUCTION OF WATER SYSTEM IMPROVEMENTS WILL AFFECT DWS CONSUMERS, THE CONTRACTOR SHALL NOTIFY CONSUMERS BY RADIO/NEWSPAPER TWO (2) DAYS BEFORE AND ON DAY OF CONNECTION. CONTRACTOR SHALL ALSO NOTIFY CONSUMERS HOUSE-TO-HOUSE ONE (1) DAY BEFORE CONNECTION WORK.
- ALL MATERIALS USED AND METHODS OF CONSTRUCTION OF WATER SYSTEM FACILITIES SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF DWS STANDARDS. CONTRACTOR SHALL OBTAIN THE LATEST REVISIONS OF THE DWS STANDARD DETAILS BEFORE COMMENCING CONSTRUCTION.
- ALL WATER SYSTEM WORK SHALL BE PERFORMED BY CONTRACTORS POSSESSING VALID STATE OF HAWAII CONTRACTOR'S LICENSES, REGARDLESS OF THE VALUE OF THE WORK.
- CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, FEDERAL LAWS, RULES AND REGULATIONS REGARDING THE HANDLING, REMOVAL AND DISPOSAL OF ASBESTOS PIPE.
- CONTRACTOR SHALL PROTECT EXISTING WATERLINE DURING COURSE OF CONSTRUCTION AND SUPPORT EXPOSED WATERLINE TO PREVENT ANY MOVEMENT.
- THE EXACT DEPTH AND LOCATION OF EXISTING WATERLINES, SERVICE LATERALS AND OTHER UTILITIES ARE NOT KNOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE PRIOR TO TRENCHING FOR THE NEW WATERLINE. THE COST OF LOWERING, RELOCATING OR ADJUSTING EXISTING WATERLINES, SERVICE LATERALS AND APPURTENANCES, WHETHER SHOWN OR NOT SHOWN ON THE CONSTRUCTION PLANS AT THE CONTRACTOR'S EXPENSE.
- PAYMENT RESURFACING/RESTORATION:
 - CONTRACTOR SHALL VERIFY LOCATION OF EXISTING DWS VALVES MANHOLES, WHEN AFFECTED BY THE WORK, PRIOR TO START OF CONSTRUCTION.
 - ALL WATER VALVE AND WATER MANHOLE CONCRETE COLLARS WITHIN THE PROJECT LIMITS SHALL BE DEMOLISHED AND RECONSTRUCTED PER DWS STANDARD DETAIL V12 AND V23, RESPECTIVELY, AT THE CONTRACTOR'S EXPENSE.
 - THE VALVE BOX RISER AND COVER OF ALL WATER VALVES WITHIN THE PROJECT LIMITS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR SHALL ADJUST DWS SLIDING VALVE BOX ASSEMBLY AND MANHOLE FRAME AND COVER TO FINISHED GRADE.
 - PRIOR TO PAVEMENT RESURFACING/RESTORATION WORK, THE CONTRACTOR SHALL SCHEDULE INSPECTION WITH DWS.
- ANY SLIDING VALVE BOX ASSEMBLY, MANHOLE COVER, OR CONCRETE COLLAR, WHETHER DISCOVERED DAMAGED OR NOT SPECIFIED ON THE PLANS TO BE ADJUSTED OR REPLACED, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL ADJUST TO FINISHED GRADES, ALL UTILITIES (I.E. WATER, SEWER, DRAIN, ETC.) AFFECTED BY THE WORK WHETHER SHOWN OR NOT SHOWN ON THE CONSTRUCTION PLANS AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL RESTORE ALL ROAD IMPROVEMENTS DISTURBED OR DAMAGED DURING CONSTRUCTION IN ACCORDANCE WITH THE 2005 "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AS AMENDED, TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS AT THE CONTRACTOR'S EXPENSE. ROAD IMPROVEMENTS INCLUDING, BUT ARE NOT LIMITED TO, PAVEMENT MARKERS, SHOULDER DRESSING, STRIPING, AND SPEED HAMPS.
- CONCRETE FOR REACTION BLOCKS AND ANCHOR BLOCKS SHALL BE DWS CLASS 2500.
- THE MAXIMUM DISTANCE BETWEEN VALVE NUT AND TOP OF MANHOLE COVER SHALL BE THREE (3) FEET.
- CONTRACTOR SHALL SUBMIT A MATERIALS LIST TO DWS FOR APPROVAL PRIOR TO CONSTRUCTION.
- CONNECTION TO DWS SYSTEM:
 - CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL NECESSARY FITTINGS AND OTHER MATERIALS AND EQUIPMENT REQUIRED FOR THE HOOKUP. CONTRACTOR SHALL, HOWEVER, CHECK WITH DWS BEFORE EXCAVATING FOR VERIFICATION PURPOSES.
 - WHENEVER FEASIBLE, MECHANICAL JOINT FITTINGS SHALL BE USED FOR BURIED APPLICATIONS AND FLANGED JOINT FITTINGS SHALL BE USED FOR EXPOSED APPLICATIONS.
 - DWS PERSONNEL MAY BE REQUIRED TO BE PRESENT OR ASSIST WITH CONNECTIONS TO THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY DWS FOR S&W WORK.

WATER NOTES (CONT.)

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR FOR TRENCH EXCAVATION, BACKFILLING, CLEANING AND CHLORINATION, PAVING, AND OTHER WORK NECESSARY TO COMPLETE THE HOOK-UP, AS DIRECTED BY AND TO THE SATISFACTION OF DWS.
- MINIMUM COVER OVER WATER MAIN, 6" DIAMETER OR LARGER, SHALL BE 3'-0". MINIMUM COVER FOR 4" DIAMETER SHALL BE 2'-6". MINIMUM COVER FOR DIAMETERS LESS THAN 4" SHALL BE 1'-6".
- CONTRACTOR SHALL ENSURE INSTALLATION OF WATERLINES, SERVICE LATERALS AND APPURTENANCES HAVE PROPER CLEARANCE FROM EXISTING TREES, WALLS, FENCES, ETC., IN ACCORDANCE WITH CURRENT DWS WATER SYSTEM STANDARDS.
- CONTRACTOR SHALL VERIFY AND MAINTAIN 18" MINIMUM CLEARANCE WITH WATERLINE OR SERVICE LATERAL CROSSING OVER EXISTING SEWERLINE OR SERVICE LATERAL. INSTALL REINFORCED CONCRETE JACKET AROUND SEWERLINE WHERE SEWER IS ABOVE WATERLINE OR LESS THAN 18" BELOW WATERLINE. THE LENGTH OF JACKET REQUIRED SHALL BE AS SPECIFIED IN TABLE 100-5 OF THE DWS STANDARDS. PROVIDE 6" MINIMUM CLEARANCE FROM OUTSIDE JACKET TO WATERLINE OR SERVICE LATERAL. STANDARD CONCRETE JACKET DETAILS FOR SEWERLINE AS SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS STANDARDS SHALL BE FOLLOWED.
- CONTRACTOR SHALL HAVE LICENSED SURVEYOR STAKE OUT WATERLINE BASELINE STATIONING, RIGHT-OF-WAY LINES, PROPERTY LINES, AND EASEMENT LINES TO ENSURE PROPER LOCATION OF WATER SYSTEM IMPROVEMENT.
- BOLTS FOR EXPOSED FLANGED DUCTILE IRON PIPE JOINTS SHALL BE EITHER SILICON BRONZE BOLTS & NUTS OR 316 STAINLESS STEEL BOLTING WITH THE HEAVY-DUTY STAINLESS STEEL NUTS (ONLY). FURNISHED WITH TOP 2000 BLUE COATING SYSTEM AND -SIZE SHALL NOT BE USED. T-BOLTS FOR DUCTILE IRON MECHANICAL JOINT (M) PIPE AND FITTING CONNECTIONS IN UNDERGROUND SITUATIONS SHALL BE ONE OF THE FOLLOWING SYSTEMS:
 - 316 STAINLESS STEEL T-BOLTS WITH HEAVY-DUTY STAINLESS STEEL NUTS (ONLY) FURNISHED WITH TOP 2000 COATING SYSTEM. ANTI-SIZE SHALL NOT BE USED.
 - COR-TEN T-BOLTS AND NUTS WITH HIGH GRADE ZINC SACRIFICIAL ANODES, EQUIVALENT TO "DURATION" SACRIFICIAL "SAC-NUT" MODULES, INSTALLED ON THE NUTS FOR ALL STANDARD COR-TEN T-BOLTS.
 - COR-TEN T-BOLTS AND NUTS BOTH FACTORY COATED WITH TOP 2000 BLUE COATING SYSTEM WITH "TRIPAC FASTENERS". ALL HOT FORGED STAINLESS STEEL BOLTS ARE REQUIRED TO BE PASSNATED PER ASTM A580. MANUFACTURER CERTIFICATES ARE REQUIRED FOR PROOF WITH EACH SHIPMENT.
- CONTRACTOR SHALL FURNISH AND INSTALL DUCTILE IRON NIPPLES FOR COMPLETE INSTALLATION OF THE WATERLINE, WHETHER SHOWN OR NOT SHOWN ON THE CONSTRUCTION PLANS, AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL FURNISH TEMPORARY CLEANDRINKS WHEN NECESSARY TO TEST, FLUSH, AND CHLORINATE THE WATERLINE AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PORTIONS OF ABANDONED WATERLINES THAT ARE EXPOSED OR WITHIN 12-INCHES BELOW THE GROUND SURFACE AT THE CONTRACTOR'S EXPENSE.
- ALL BURIED METALS, INCLUDING COPPER PIPES, SHALL BE WRAPPED WITH POLY-WRAP. FOR ALL BURIED INSTALLATIONS OF DUCTILE IRON PIPE AND FITTINGS, POLY-WRAP IS REQUIRED EXCEPT WITHIN CONCRETE JACKETS.
- LUBRICATE HYDRANT NOZZLE THREADS WITH NON-TOXIC GREASE.
- CONTRACTOR SHALL PAINT AND NUMBER THE FIRE HYDRANT(S), NUMBERING TO BE FURNISHED BY DWS.
- WATER MAINS AND APPURTENANCES SHALL BE SUBJECT TO HYDROSTATIC TESTING IN ACCORDANCE WITH THE LATEST REVISION OF ASHRAE 600, UNDER THE "HYDROSTATIC TESTING" SECTION, TO A PRESSURE OF AT LEAST 1.5 TIMES THE WORKING PRESSURE, UNLESS OTHERWISE STATED IN THE CONSTRUCTION DOCUMENTS OR LIMITED BY THE PRESSURE RATING OF EQUIPMENT. THE PRESSURE TEST AND LEAKAGE TEST SHALL BE PERFORMED AT 225 POUNDS PER SQUARE INCH PRESSURE.
- DEVELOPER SHALL SUBMIT A COST LIST ALONG WITH AN AFFIDAVIT FOR THE WATER SYSTEM PRIOR TO ACCEPTANCE.
- CONTRACTOR SHALL SUBMIT (1) SETS OF RECORD DRAWINGS VIA A CONSULTANT PRIOR TO ACCEPTANCE OF THE WATER SYSTEM. AN ELECTRONIC IMAGE FILE IN PDF FORMAT AT FULL PAGE SIZE (24"x36") SHALL BE PROVIDED TO THE DWS FOR ALL PROJECTS.

CHLORINATION OF WATER SYSTEMS

- WATER MAINS AND APPURTENANCES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651, ALL PROCEDURES AND MATERIALS (LIQUID CHLORINE OR CALCIUM HYPOCHLORITE) USED FOR THE CHLORINATION OF THE PROJECT SHALL CONFORM TO AWWA REQUIREMENTS.
- PRIOR TO CHLORINATION THE PROJECT PIPELINES SHALL BE THOROUGHLY CLEANED. CLEANING OF LINES 8" AND LARGER SHALL BE BY PIGGING USING FLOW PIGS. SMALLER LINES CAN BE FLUSHED IN ACCORDANCE WITH AWWA REQUIREMENTS IF ADEQUATE SUPPLY IS PROVIDED. OTHERWISE BY PIGGING, THE CONTRACTOR SHALL SUBMIT HIS PLAN FOR PIPELINE CLEANING, INCLUDING FITTING REQUIREMENTS FOR PIGGING, FOR APPROVAL PRIOR TO PROCEEDING.
- THE INTERIOR SURFACE OF THE PROJECT SHALL BE EXPOSED TO THE CHLORINATING SOLUTION FOR A MINIMUM OF 24 HOURS AND THE CHLORINE RESIDUAL SHALL NOT BE LESS THAN 10 PPM AFTER SUCH TIME.
- SHOULD CALCIUM HYPOCHLORITE BE USED, NO SOLID AND/OR UNSOLVED PORTION OF THE COMPOUND SHALL BE INTRODUCED INTO ANY SECTION OF THE PROJECT TO BE CHLORINATED.
- AT THE END OF THE 24-HOUR DISINFECTION PERIOD, REPRESENTATIVE SAMPLES SHALL BE TAKEN AND ANALYZED TO ASSURE A CHLORINE RESIDUAL OF AT LEAST 10 PPM. MEASUREMENTS FOR CHLORINE RESIDUAL TESTS SHALL BE BY A TRAINED, QUALIFIED TESTER APPROVED BY THE DIRECTOR.
- SHOULD THE RESULTS INDICATE ADEQUATE CHLORINATION, THE PROJECT SHALL BE THOROUGHLY FLUSHED AND FILLED WITH POTABLE WATER FROM THE EXISTING POTABLE WATER SYSTEM AND AGAIN TESTED FOR CHLORINE RESIDUAL. THE FLUSHING SHALL BE CONSIDERED ADEQUATE IF THE TEST RESULTS INDICATE THAT THE WATER IN THE PROJECT HAS A COMPARABLE CHLORINE RESIDUAL AS THE WATER IN THE EXISTING SYSTEM.
- FOLLOWING THE ACCEPTABLE FLUSHING OF THE HIGH CONCENTRATION CHLORINE SOLUTION, TWO CONSECUTIVE SETS OF ACCEPTABLE SAMPLES SHALL BE TAKEN AT LEAST 24 HOURS APART FROM REPRESENTATIVE POINTS IN THE PROJECT AND SUBMITTED TO MICROBIOLOGICAL TESTS PERFORMED BY A CERTIFIED LABORATORY APPROVED BY THE DEPARTMENT OF HEALTH. AT LEAST ONE SET OF SAMPLES SHALL BE COLLECTED AND TESTED FROM EVERY 1,200 FEET OF THE NEW WATER MAIN, PLUS ONE SET FROM THE END OF THE LINE. AT LEAST ONE SET FROM EACH BRANCH. POSITIVE RESULTS WILL NOT BE ACCEPTABLE AND THE ENTIRE CHLORINATION PROCESS WILL BE REPEATED.
- ANALYSIS FOR RESIDUAL CHLORINE SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER", AMERICAN PUBLIC HEALTH ASSOCIATION, CURRENT EDITION.
- MICROBIOLOGICAL TESTS SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER", AMERICAN PUBLIC HEALTH ASSOCIATION, CURRENT EDITION.
- THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ALL OF THE FOREGOING.

TEMPORARY DUST CONTROL MEASURES

- EXCAVATION, EMBANKMENT AND IMPORTED MATERIALS SHALL BE KEPT DAMPENED WITH WATER DURING THE GRADING OPERATIONS.
- THE CONTRACTOR SHALL MAINTAIN A SUITABLE WATER SYSTEM AND DAMPEN THE GRADED OR GRUBBED SITE WITH WATER.
- AT THE END OF EACH DAY, SEVEN (7) DAYS A WEEK, THE PROJECT SITE SHALL BE KEPT DAMP WITH WATER. THE SITE SHALL BE SUFFICIENTLY DAMPENED SO THAT THE SITE WILL REMAIN MOISTENED DURING THE NIGHT.

TEMPORARY EROSION CONTROL MEASURES

- TEMPORARY GROUND COVER SHALL BE APPLIED WITHIN A PERIOD OF 14 CALENDAR DAYS AFTER THE SITE HAS BEEN GRADED, OR BARED OF VEGETATION OR IF FINAL GRADING OF THE SITE WILL BE SUSPENDED FOR MORE THAN 21 CALENDAR DAYS. ALL COST FOR MAINTAINING IRRIGATION AND REMOVING TEMPORARY EROSION CONTROL MEASURES WILL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR MAY USE HYDRO-MULCH TO APPLY THE TEMPORARY GROUND COVER.
- TEMPORARY GROUND COVER SHALL CONSIST OF 2,000 LBS. PER ACRE WOOD CELLULOSE FIBER MULCH AND 65 LBS. PER ACRE TACKIFIER.
- PERMANENT EROSION CONTROL MEASURES
 - THE CONTRACTOR SHALL GRASS ALL EXPOSED AREAS THAT HAVE BEEN CONSTRUCTED TO FINAL GRADES. SITES THAT WILL NOT BE DISTURBED FOR A PERIOD OF TWENTY-ONE (21) DAYS OR MORE WILL BE STABILIZED FOURTEEN (14) DAYS AFTER THE LAST DISTURBANCE. AS PER SECTION 20.08.03(2)(G) OF THE MAUI COUNTY CODE, ALL COSTS FOR MAINTAINING AND REMOVING PERMANENT EROSION CONTROL MEASURES WILL BE BORNE BY THE CONTRACTOR.
 - THE CONTRACTOR MAY USE HYDRO-MULCH TO APPLY THE PERMANENT GROUND COVER.
 - PERMANENT BERBERMUDA GRASS COVER SHALL CONSIST OF 75 LBS. PER ACRE BERBERMUDA GRASS, 50 LBS. PER ACRE RYE GRASS, 6,000 LBS. PER ACRE CYPRISSA BASED DECOMIDER, 2,000 LBS. PER ACRE WOOD CELLULOSE FIBER MULCH, AND 400 LBS. PER ACRE 10-30-10 FERTILIZER.
 - PERMANENT GROUND COVER ALONG NATURAL DRAINAGEWAYS SHALL CONSIST OF 100 LBS. PER ACRE BERBERMUDA GRASS, 50 LBS. PER ACRE RYE GRASS, 1,500 LBS. PER ACRE WOOD CELLULOSE FIBER MULCH, 400 LBS. PER ACRE 10-30-10 FERTILIZER, AND PERMANENT EROSION CONTROL/TURF REINFORCEMENT MATING.

NOTES FOR ENVIRONMENTAL PROTECTION

- ENVIRONMENTAL PROTECTION NOTES PERTAINING TO AIR AND WATER POLLUTION SHALL BE ADMINISTERED AND MONITORED BY THE DEPARTMENT OF HEALTH.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF FUGITIVE DUST EMISSIONS FROM THE PROJECT AND SURROUNDING AREAS CAUSED BY HIS OPERATIONS. THESE MEASURES SHALL MEET THE REQUIREMENTS OF STATE ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, AIR POLLUTION CONTROL (11-60.1).
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE GRADING ORDINANCE TO PREVENT VIOLATION OF THE STATE ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS (11-54, 11-55) DUE TO EROSION AND RUNOFF TO STATE WATERS.
- GRUB MATERIAL, DEMOLITION WASTES, AND CONSTRUCTION WASTES SHALL BE DEPOSED OF AT AN AUTHORIZED SITE. WHEN A DEPARTMENT OF HEALTH SOLID WASTE MANAGEMENT PERMIT, OPEN BURNING IS PROHIBITED.
- PERMITS REQUIRED:
 - A NPDES PERMIT MAY BE REQUIRED FROM THE CLEAN WATER BRANCH OF THE DEPARTMENT OF HEALTH FOR STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
 - A DEMONSTRATING PERMIT MAY BE REQUIRED TO BE OBTAINED FROM THE CLEAN WATER BRANCH OF THE DEPARTMENT OF HEALTH IF DISCHARGING INTO STATE WATERS.
 - PERMITS MUST BE OBTAINED PRIOR TO START OF CONSTRUCTION.
 - IF A NPDES PERMIT IS REQUIRED FOR THIS PROJECT, THE CONTRACTOR SHALL MAINTAIN A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WHICH INCLUDES A SITE SPECIFIC BEST MANAGEMENT PRACTICES PLAN IN ACCORDANCE WITH THE NPDES PERMIT AND DEPT. OF HEALTH DEPARTMENT OF HEALTH, CLEAN WATER BRANCH REQUIREMENTS. CONTRACTOR IS RESPONSIBLE TO FILE ANY AMENDMENTS TO THE NPDES PERMIT WITH THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH.

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

- THE CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
- CONES OR DELINEATORS SHALL BE EXTEND TO POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST FROM THE WORK AREA IS PLACED FIRST. THE OTHERS SHALL THEN BE PLACED PROGRESSIVELY TOWARD THE WORK AREA.
- REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE WORK.
- FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- WHEN REQUIRED BY THE ISSUING OFFICE, THE CONTRACTOR SHALL INSTALL A FLASHING ARROW SIGN AS SHOWN ON THE TRAFFIC CONTROL PLANS.
- ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
- ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
- THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E., WHEN SIGNS HAVE MESSAGES ON BOTH FACES).
- LANE CLOSURE SHALL BE LIMITED ONLY TO THE EXTENT OF ACCOMPLISHING EACH DAY'S WORK. AS SOON AS EACH DAY'S WORK IS COMPLETED, THE CONTRACTOR SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE RESERVE ORDER OF INSTALLATION. EXISTING FADED OR OBSOLETE PAVEMENT MARKINGS THAT ARE NECESSARY FOR SAFE TRAFFIC FLOW IN THE CONSTRUCTION AREA SHALL BE REPLACED WITH TEMPORARY OR PERMANENT MARKINGS BEFORE OPENING THE ROADWAY TO PUBLIC TRAFFIC EACH DAY.
- PERMANENT PAVEMENT MARKING AND TRAFFIC SIGNS SHALL BE REPLACED UPON COMPLETION OF EACH PHASE OF WORK.
- BUFFER AND TAPER AREA ON APPROACH TO ANY WORK AREA SHALL BE KEPT CLEAR OF VEHICLES AND EQUIPMENT.
- TRAFFIC CONTROL PLANS ARE APPROVED FOR WORK ONLY BETWEEN THE HOURS OF 08:30 A.M. AND 03:00 P.M. (MONDAY-FRIDAY). UNLESS OTHERWISE NOTED, EXCEPTIONS TO WORKING HOURS MAY BE ALLOWED UPON WRITTEN ACCEPTANCE BY THE ENGINEER. APPLICABLE PERMITS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	4	54

ADDITIONAL NOTES

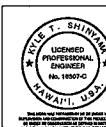
- THE CONTRACTOR SHALL INSTALL CONCRETE COLLARS AT ALL MANHOLES AND WATER VALVES.
- CONTRACTOR TO FILL ALL EXISTING EXPANSION JOINTS WHICH ARE ONE-HALF INCHES AND WIDER WITH JOINT FILLER FOR ALL SIDEWALKS WITHIN THE CONSTRUCTION LIMITS.
- EXISTING UTILITIES SHOWN ARE FROM "AS-BUILT" OR RECORD DRAWINGS. CONTRACTOR TO VERIFY THE LOCATION OF ANY EXISTING IRRIGATION, SEWER, DRAIN, WATER, GAS AND ELECTRICAL UTILITIES WITHIN THE VICINITY OF THE CONSTRUCTION WORK.
- THE CONTRACTOR SHALL PATCH CONCRETE SIDEWALKS WHICH ARE CHIPPED OR BROKEN.
- FOR EXISTING CURB RUMPS WITH NO DETECTABLE WARNING MATS, CONTRACTOR SHALL FURNISH AND INSTALL NEW DETECTABLE WARNING MATS.
- CONTRACTOR TO GRIND ALL SIDEWALKS TO PROVIDE A SMOOTH TRANSITION WHERE THERE IS GREATER THAN ONE-QUARTER INCH VERTICAL DIFFERENCE BETWEEN SIDEWALK PANELS.
- MINIMUM HEIGHT OF NEW SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO FINISH GRADE SHALL BE IN ACCORDANCE WITH CURRENT MAUI AND OAH STANDARDS. REPLACE EXISTING POSTS AS NECESSARY TO ENSURE MINIMUM HEIGHT REQUIREMENTS. RESET ANY POSTS WHICH ARE NOT VERTICALLY UPRIGHT. REFER TO DPW STD. DET. T-2 FOR HEIGHT AND LATERAL LOCATION OF SIGNS.
- CONTRACTOR TO DELIVER ALL EXISTING SIGNS REMOVED FROM THE PROJECT TO THE DEPARTMENT OF PUBLIC WORKS, TRAFFIC SIGNS AND MARKINGS SECTION, WALLUKU BASEWAY, 1827 KAOHU STREET, WALLUKU, MAUI, HAWAII. CONTRACTOR TO CONTACT AND COORDINATE DELIVERY WITH THE TRAFFIC SIGNS AND MARKINGS SECTION. PH. (808) 270-7455.

COUNTY OF MAUI - NEW HIGHWAYS DIVISION NOTE

- COLD PLANNED OR EXCAVATED ROADWAY MATERIAL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

LEGEND

EXISTING	NEW
EW12	WATERLINE AND SIZE
FW	LIMITS OF GRADING
FW	FIRE HYDRANT
WM	WATER VALVE
WM	WATER METER
WMH	WATER MANHOLE
DWH	DRAINAGE MANHOLE
	PAVEMENT STRIPING
14.50	SPOT ELEVATION
	14.50/
	DIRECTION OF SURFACE FLOW
	PROPERTY LINE / R.O.W.



Kyle Shimm
LICENSED PROFESSIONAL ENGINEER
NO. 10807-C
HAWAII, U.S.A.

0
LINE IS 2 INCHES AT FULL SIZE
(OR 1/4" = 1'-0" = 1" SCALE AS SHOWN)

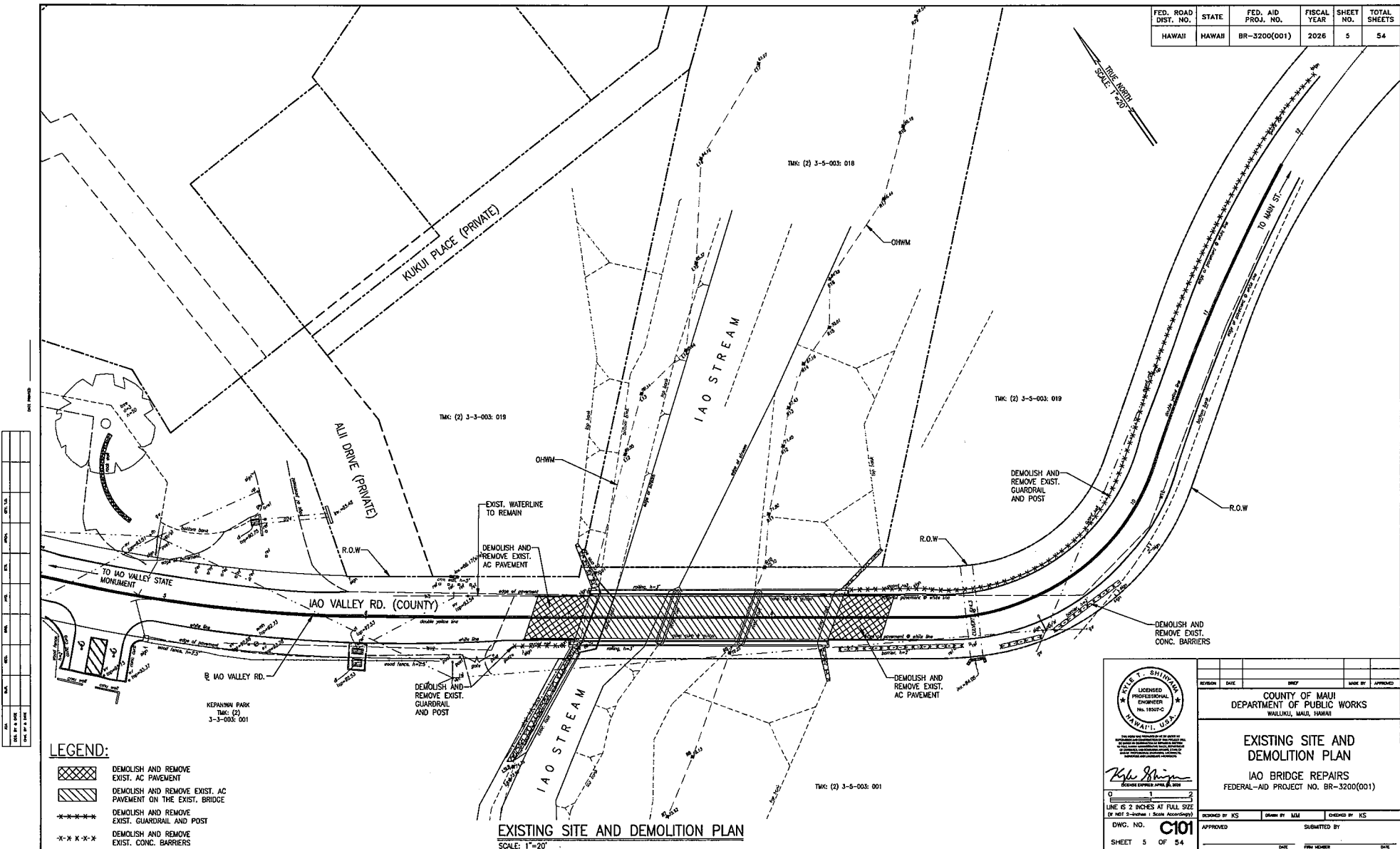
DWG. NO. C003

SHEET 4 OF 54

REVISION	DATE	BY	DATE	BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WALLUKU, MAUI, HAWAII					
CONSTRUCTION NOTES - 2					
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)					
DESIGNED BY KS	DRAWN BY MM	CHECKED BY KS			
APPROVED	SUBMITTED BY				
DATE		DATE			
FILE	PROJECT	FOLOS			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	5	54

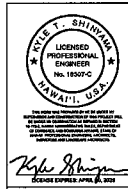
DATE: FEBRUARY 24, 2025



LEGEND:

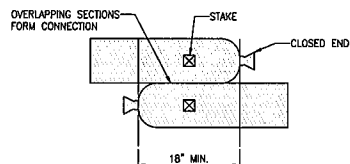
- DEMOLISH AND REMOVE EXIST. AC PAVEMENT
- DEMOLISH AND REMOVE EXIST. AC PAVEMENT ON THE EXIST. BRIDGE
- DEMOLISH AND REMOVE EXIST. GUARDRAIL AND POST
- DEMOLISH AND REMOVE EXIST. CONC. BARRIERS

EXISTING SITE AND DEMOLITION PLAN
SCALE: 1"=20'



LINE IS 2 INCHES AT FULL SIZE
(or half 3-inches 1 Scale Accordingly)
DWG. NO. **C101**
SHEET 5 OF 54

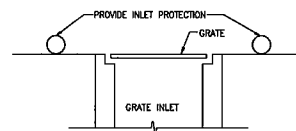
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII			
EXISTING SITE AND DEMOLITION PLAN IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
REVISION	DATE	DRAWN BY	CHECKED BY
DESIGNED BY: KS APPROVED:		DRAWN BY: MJM CHECKED BY: KS	
SUBMITTED BY:		DATE:	
FILE	PROJECT	POLAR	NO.



NOT TO SCALE

NOTES:

1. USE 9-INCH DIAMETER FILTER SOCK FOR STOCKPILES, STAGING AREA, PROJECT TRAILERS, MATERIALS STORAGE, ETC.
2. INSTALL FILTER SOCK ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

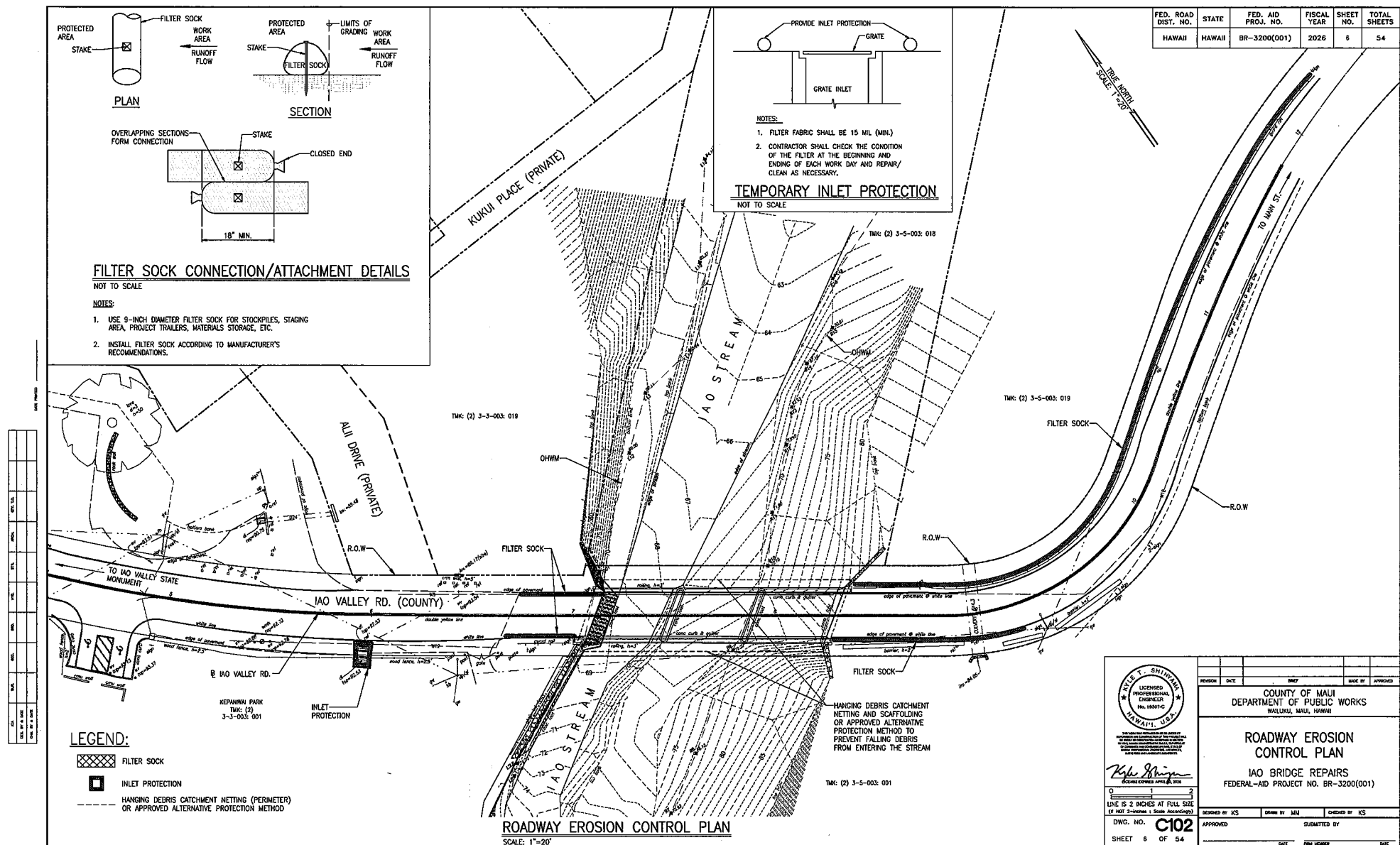


TEMPORARY INLET PROTECTION

NOT TO SCALE

NOTES:

1. FILTER FABRIC SHALL BE 15 MIL (MIN.)
2. CONTRACTOR SHALL CHECK THE CONDITION OF THE FILTER AT THE BEGINNING AND ENDING OF EACH WORK DAY AND REPAIR/ CLEAN AS NECESSARY.



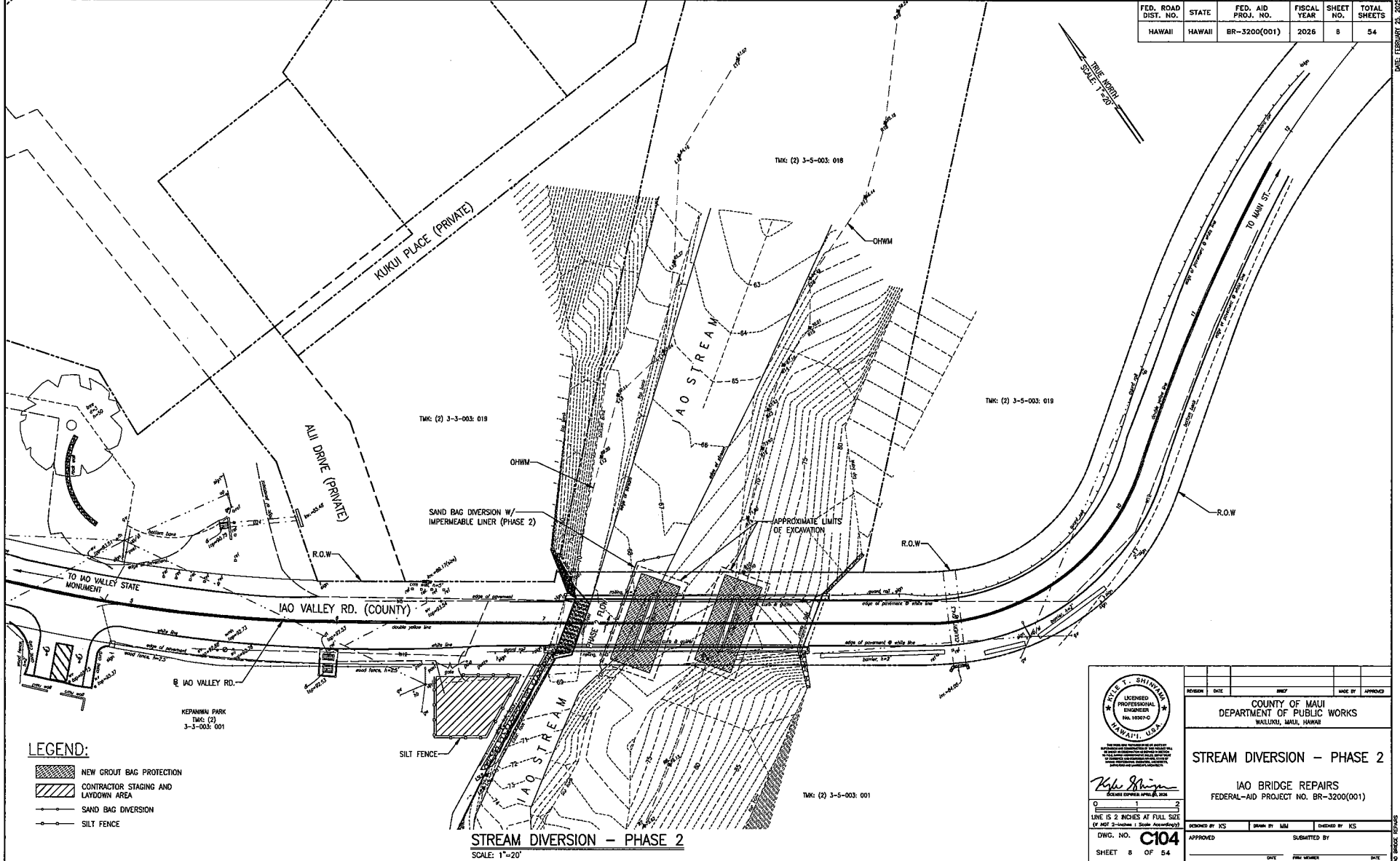
JOB NO. M-22-032

FD-302a (Rev. 11-29-90)

FILE	POCKET	FOLDER	NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	8	54

DATE: FEBRUARY 25, 2025



- LEGEND:**
- NEW GROUT BAG PROTECTION
 - CONTRACTOR STAGING AND LAYDOWN AREA
 - SAND BAG DIVERSION
 - SILT FENCE

SHIN NISHIDA
LICENSED PROFESSIONAL ENGINEER
HAWAII, U.S.A.

Kyle Shiga
DATE: 02/25/25

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2-INCHES 1 SCALE ACCORDINGLY)

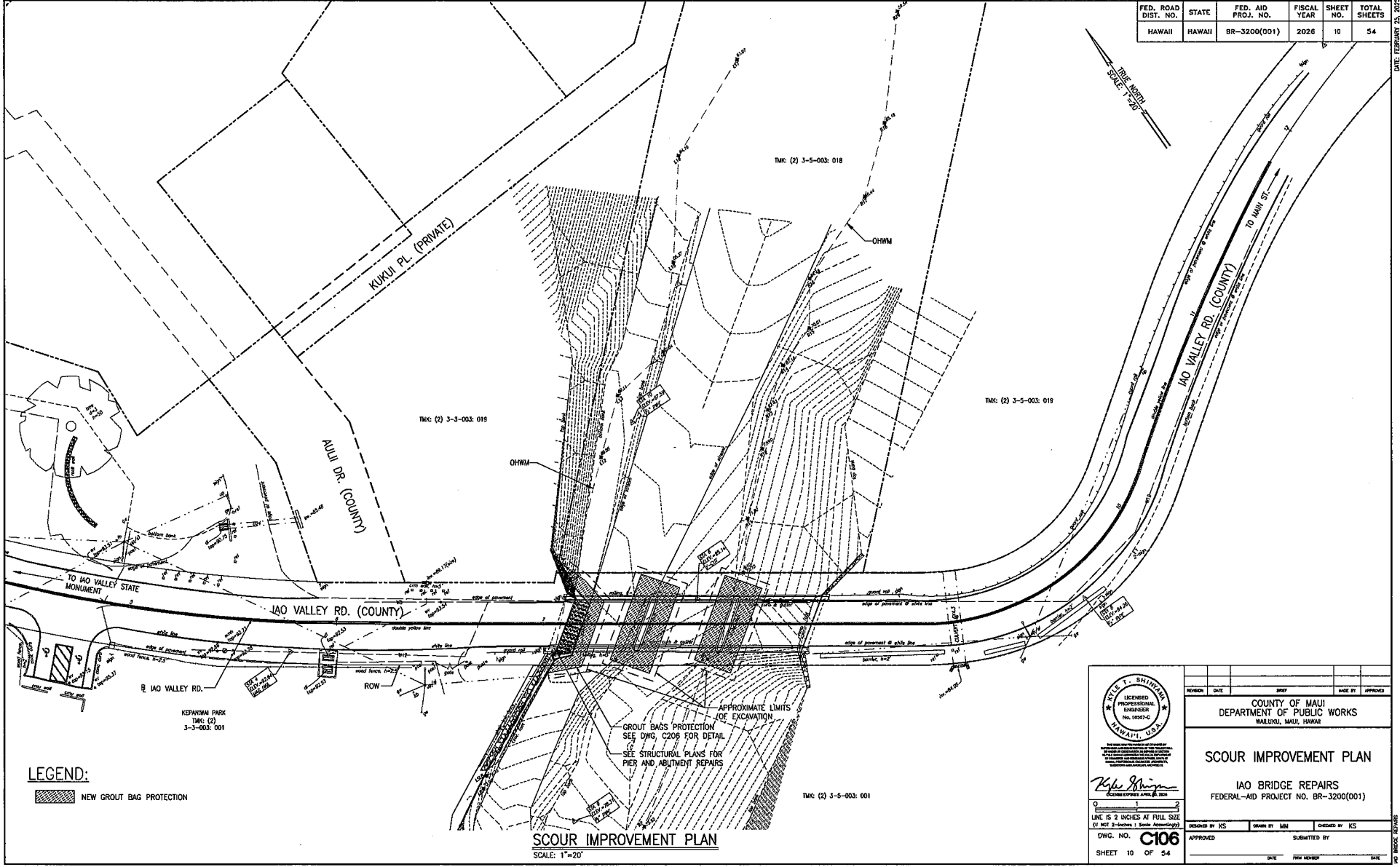
DWG. NO. **C104**

SHEET 8 OF 54

REVISION	DATE	BY	CHECKED BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAWAII, U.S.A.				
STREAM DIVERSION - PHASE 2 IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
DESIGNED BY KCS	DRAWN BY KAM	CHECKED BY KCS	APPROVED	
SUBMITTED BY		DATE		

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	10	54

DATE: FEBRUARY 23, 2025



LEGEND:

NEW GROUT BAG PROTECTION

SCOUR IMPROVEMENT PLAN

SCALE: 1"=20'

Kyle T. Shinn
LICENSED PROFESSIONAL ENGINEER
No. 14937-C
HAWAII, U.S.A.

DESIGNED BY KS
DWG. NO. **C106**
SHEET 10 OF 54

REVISION	DATE	BY	DATE BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAOLELO, MAUI, HAWAII SCOUR IMPROVEMENT PLAN IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
DESIGNED BY KS		DRAWN BY JAM	CHECKED BY KS	
APPROVED		SUBMITTED BY		
DATE		REV. NUMBER	DATE	

NO BRIDGE REPAIRS

FILE	PROJECT	FOLOD	NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2025	11	54

EXIST. SIGN & POST TO REMAIN
ROAD MAY FLOOD
(WB-14)
30"x30"

TRUE NORTH
SCALE 1"=20'

TMC (2) 3-5-003: 018

NEW SIGN & POST
OM3-R
12"x36"

TMC (2) 3-5-003: 019

STA. 8+57.10
END 4" WIDE DOUBLE
YELLOW STRIPE W/ TYPE "D"
RPM @ 20' MAX. O.C. (TYP.)

EXIST. SIGN & POST TO REMAIN
W1-BL
18"x24"

REPLACED EXIST. SIGN & POST
OM3-L
12"x36"

STA. 8+37.21
O/S 10.5' LT.
BEGIN 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

STA. 7+08.49
O/S 10.12' LT.
END 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

TMC (2) 3-5-003: 019

STA. 6+83.49
O/S 10.12' LT.
BEGIN 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

STA. 6+81.21
BEGIN 4" WIDE DOUBLE
YELLOW STRIPE W/ TYPE "D"
RPM @ 20' MAX. O.C. (TYP.)

STA. 6+77.24
O/S 10.75' RT.
BEGIN 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

EXIST. SIGN & POST TO REMAIN
NO PARKING
HIGHWAY ZONE

EXIST. SIGN & POST TO REMAIN
KEPAUNAHU
PARK HOURS
11:00am - 7:00pm
(CLOSED AT 7:00PM)

EXIST. SIGN & POST TO REMAIN
KEPAUNAHU
PARK HOURS
11:00am - 7:00pm
(CLOSED AT 7:00PM)

TMC (2) 3-5-003: 001

STA. 7+02.24
O/S 10.75' RT.
END 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

REPLACE EXIST. SIGN & POST
OM3-R
12"x36"

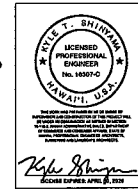
STA. 8+20.07
O/S 10.75' RT.
BEGIN 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

NEW SIGN & POST
OM3-L
12"x36"

STA. 8+82.21
O/S 10.9' LT.
END 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

STA. 8+55.07
O/S 10.75' RT.
END 4" WIDE SOLID WHITE
STRIPE W/ TYPE "C" RPM @
20' MAX. O.C.

REPLACED EXIST. SIGN & POST
W1-BL
18"x24"



REVISION	DATE	BY	DATE	BY	DATE
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII					
SIGNING AND STRIPING PLAN					
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)					
DESIGNED BY JCS	DRAWN BY JAM	CHECKED BY JCS			
DWG. NO. C107	APPROVED		SUBMITTED BY		
SHEET 11 OF 54	DATE	FILE NUMBER	DATE	FILE	POCKET

SIGNING AND STRIPING PLAN
SCALE: 1"=20'

FILE	POCKET	FOLDER	NO.

1. ALL HARDWARE, POSTS AND FASTENERS SHALL BE HOT-DIP ZINC COATED GALVANIZED AFTER FABRICATION. NO PUNCHING, DRILLING OR CUTTING WILL BE PERMITTED AFTER GALVANIZING.
2. WHERE CONDITIONS REQUIRE, SPECIAL POST LENGTHS IN INCREMENTS OF 6 INCHES MAY BE SPECIFIED.
3. ALL FASTENERS, POSTS, AND RAIL ELEMENTS (E. FB803, PME01, RMH02B, ETW), SHALL CONFORM TO THE LATEST EDITION AND AMENDMENTS OF "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL SPECIFICATIONS," A REPORT PREPARED AND APPROVED BY THE ASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE, SUBCOMMITTEE ON NEW HIGHWAY MATERIALS, TASK FORCE 13 REPORT. DIMENSIONS OF FASTENERS, POSTS AND RAIL ELEMENTS HAVE BEEN CONVERTED FROM METRIC UNITS INTO THEIR PRESENT FORM.
4. THE RECYCLED PLASTIC BLOCK OR OFFSET BLOCK SHALL BE APPROVED BY THE COUNTY.
5. WHEN STANDARDS FOR THE FULL SLOPE AREA CANNOT BE MET, A SITE SPECIFIC, ENGINEER APPROVED DESIGN MAY BE USED.
6. MINIMUM WORKING WIDTH (CLEAR DISTANCE) BETWEEN BACK OF MGS POSTS TO ANY FIXED OBJECT IS 4'-1" (49").
7. REFLECTOR MARKERS (RM-5) MOUNTED ON GUARDRAILS SHALL BE SPACED EVERY 25 FEET. RM-5'S SHALL NOT BE INSTALLED ON TERMINAL SECTIONS. FURNISHING AND INSTALLING OF EACH RM-5 SHALL BE CONSIDERED INCIDENTAL TO THE ADJACENT GUARDRAIL SYSTEM.



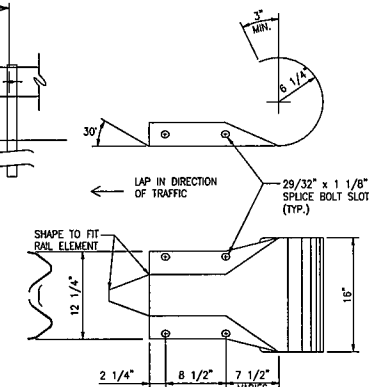
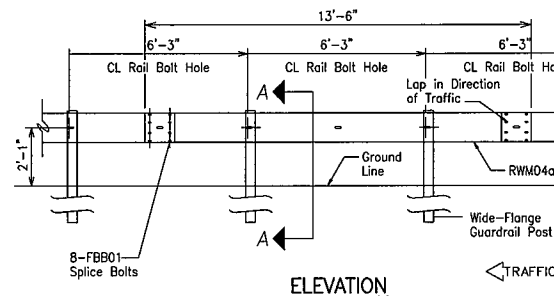
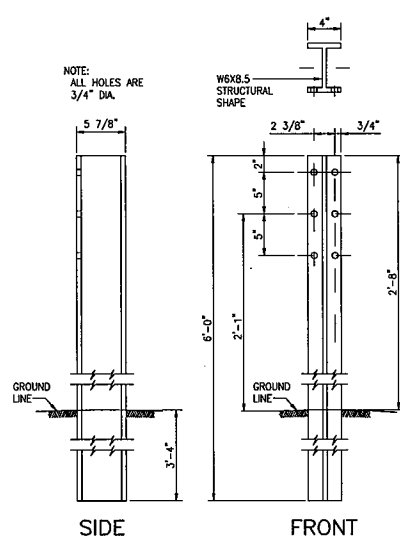
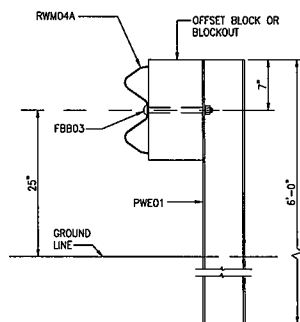
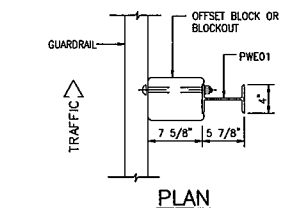
I, Kyle Shinyama
 LICENSED ENGINEER, APRIL 22, 2010

LINE IS 2 INCHES AT FULL
 (BT NOT 3-inches) 3/16in Acc

DWG. NO. **C2**
 SHEET 12 OF 12

REVISION	DATE	BY	DATE	BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAULEI, MAUI, HAWAII					
GUARDRAIL DETAILS - 1					
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)					
DESIGNED BY KS		DRAWN BY MM		CHECKED BY KS	
APPROVED		SUBMITTED BY			

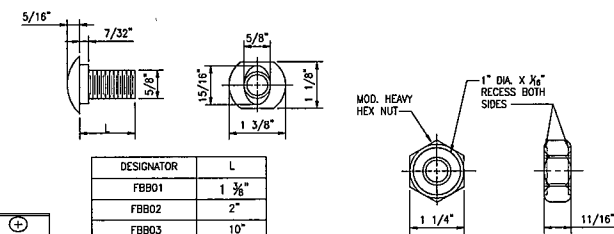
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	13	54



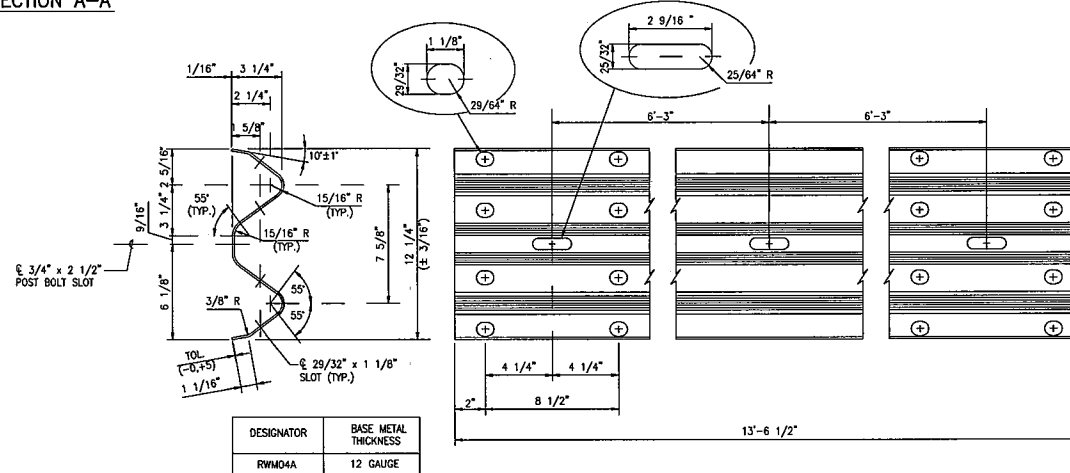
THE CROSS-SECTIONAL
DIMENSIONS FOR THIS
PART ARE TO FIT OVER
PART RWM04A

DESIGNATOR	BASE METAL THICKNESS
RWE03A	12 GAUGE

W-BEAM END SECTION (ROUNDED RWE03A)



GUARDRAIL BOLTS AND RECESSED NUT

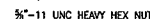
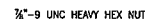
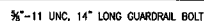
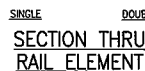
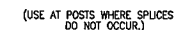


4 SPACE W-BEAM GUARDRAIL (RWM04A)

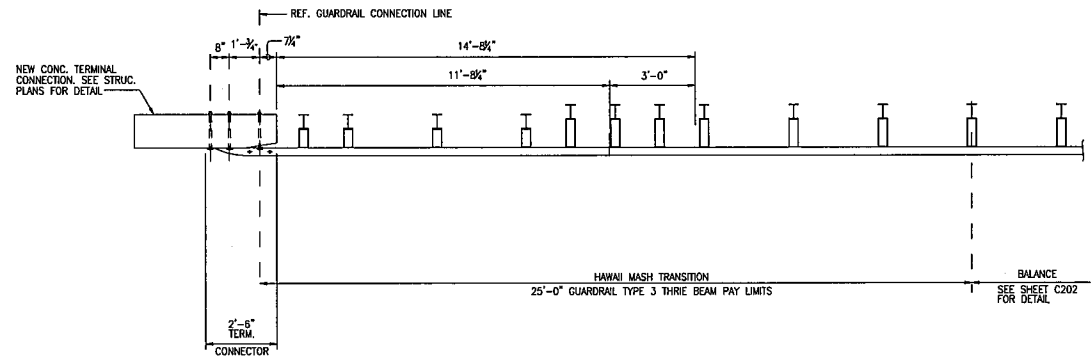
			
KYLE T. SHINAKA LICENSED PROFESSIONAL ENGINEER NO. 18077-Q HAWAII, U.S.A.	REVISION DATE _____ DRAWN BY _____ CHECKED BY APPROVED _____ COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII		
GUARDRAIL DETAILS - 2 IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
<i>Kyle Shinnaka</i> REGISTERED EXPIRATION DATE: 03/31/2018			
LINE IS 2 INCHES AT FULL SIZE (BY MET 3-INCHES / SCALE ADJUSTING)			
DWG. NO. C202		SUBMITTED BY _____	
SHEET 13 OF 54		DATE _____ FILE NUMBER _____	
		TITLE _____ PROJECT _____ FOLDER _____ NO. _____	

DATE: FEBRUARY 25, 2025

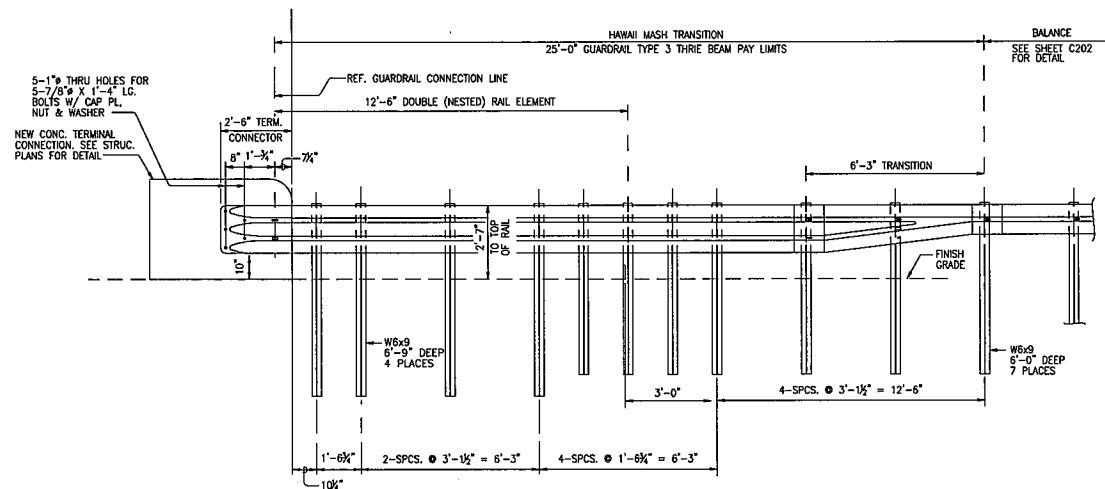
- A. THE WORK NECESSARY TO CONNECT GUARDRAIL TO THE CONCRETE END POST SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AND WILL NOT BE PAID FOR SEPARATELY.
- B. LAP TERMINAL CONNECTOR AND RAIL ELEMENTS IN THE DIRECTION OF TRAFFIC TO PREVENT SHAGGING.
- C. BOLTS SHALL HAVE SUFFICIENT LENGTH WHEN INSTALLED TO ENSURE THAT THE NUT IS NOT FLUSH BUT SHOULD NOT PROJECT MORE THAN 2". THE CONNECTOR WILL NOT BE ALLOWED TO CUT, GRIND OR OTHERWISE ALTER THE BOLT TO MEET THIS REQUIREMENT UNLESS IT IS DONE DURING THE FABRICATION OF THE BOLT PRIOR TO GALVANIZING.
- D. THE FIRST 25'-0" OF GUARDRAIL ADJOINING THE TERMINAL CONNECTOR SHALL BE PLACED TANGENT TO THE CONCRETE TRANSITION FRONT FACE OR PARALLEL TO THE ROADWAY, UNLESS CONDITIONS AT THE SITE RENDERS IT IMPOSSIBLE TO DO SO. FLARE POINT TO BE DETERMINED IN FIELD.
- E. HEAD OF ALL BOLTS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE RAIL.
- F. ALL W6X6LS, W6X9S AND W6X15 GUARDRAIL POSTS SHALL BE CLEARLY STAMPED DURING FABRICATION "W6X6LS", "W6X9", OR "W6X15", RESPECTIVELY, ON EACH END.



 STATE OF HAWAII DEPARTMENT OF PUBLIC WORKS HAWAII, U.S.A.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">REVISION</td> <td style="width: 40%;">DATE</td> <td style="width: 20%;">BY</td> <td style="width: 20%;">MADE BY</td> <td style="width: 20%;">APPROVED</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAULILOA, MAUI, HAWAII	REVISION	DATE	BY	MADE BY	APPROVED					
REVISION	DATE	BY	MADE BY	APPROVED							
GUARDRAIL DETAILS - 3											
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)											
 DESIGNED BY KRS ISSUED APRIL 10, 2013 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">DESIGNED BY KRS</td> <td style="width: 33%;">DRAWN BY LHM</td> <td style="width: 33%;">CHECKED BY KRS</td> </tr> <tr> <td style="height: 40px; vertical-align: bottom;">APPROVED</td> <td colspan="2" style="height: 40px; vertical-align: bottom;">SUBMITTED BY</td> </tr> </table>					DESIGNED BY KRS	DRAWN BY LHM	CHECKED BY KRS	APPROVED	SUBMITTED BY		
DESIGNED BY KRS	DRAWN BY LHM	CHECKED BY KRS									
APPROVED	SUBMITTED BY										
LINE IS 2 INCHES AT FULL SIZE (1/4" = 1'-0" SCALE) DWG. NO. C203 SHEET 14 OF 54 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">DATE</td> <td style="width: 33%;">FILE NUMBER</td> <td style="width: 33%;">SITE</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>					DATE	FILE NUMBER	SITE				
DATE	FILE NUMBER	SITE									

DATE: FEBRUARY 25, 2025

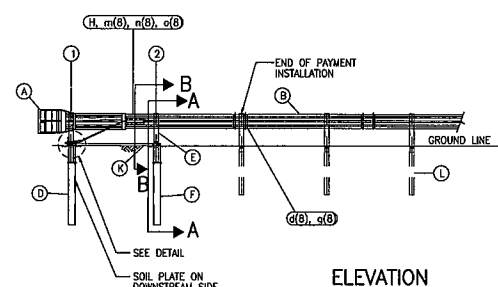
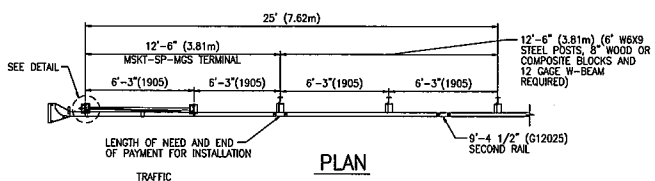
PLAN

ELEVATION

		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; height: 20px;">REVISION</td> <td style="width: 25%; height: 20px;">DATE</td> <td style="width: 25%; height: 20px;">BY</td> <td style="width: 25%; height: 20px;">MADE BY</td> <td style="width: 25%; height: 20px;">APPROVED</td> </tr> </table>		REVISION	DATE	BY	MADE BY	APPROVED
REVISION	DATE	BY	MADE BY	APPROVED				
DALE T. SHINHAM LICENSED PROFESSIONAL ENGINEER NO. 10027-C HAWAII, U.S.A.		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII						
THIS DOCUMENT HAS BEEN PREPARED BY AN ENGINEER OR ARCHITECT FOR THE PURPOSE OF PROVIDING INFORMATION TO THE USER. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER OR ARCHITECT. THE USER ASSUMES ALL LIABILITY FOR THE USE OF THIS DOCUMENT. THE ENGINEER OR ARCHITECT ASSUMES NO LIABILITY FOR THE USE OF THIS DOCUMENT.		GUARDRAIL DETAILS - 4						
<i>Dale Shinham</i> (LICENSE EXPIRES APRIL 30, 2001)		IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)						
0 1 2 LINE IS 2 INCHES AT FULL SIZE (BY MEET 3-SECTION 1 Section Addressed)		DESIGNED BY KS DRAWN BY SAM CHECKED BY KS						
DWG. NO. C204		APPROVED SUBMITTED BY						
SHEET 15 OF 54		DATE FILE NUMBER DATE						
FILE POCKET POCKET NO.		FILE POCKET POCKET NO.						

DATE: FEBRUARY 23, 2025

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	16	54

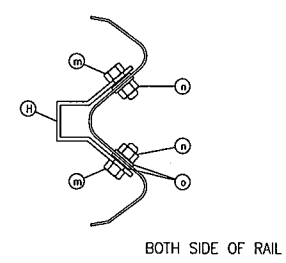
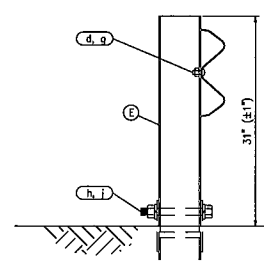
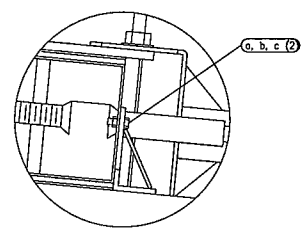
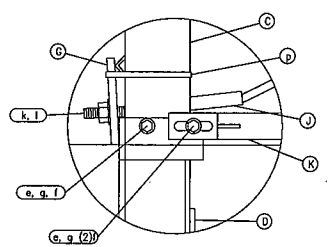


GENERAL NOTES

- ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- THE LOWER SECTIONS OF THE POSTS 1 & 2 SHALL NOT PROTRUDE MORE THAN 4 IN [100] ABOVE THE GROUND (MEASURED ALONG A 5' [1.5M] CORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
- THE LOWER SECTION OF THE HINGED POST SHOULD NOT BE DRIVEN WITH THE UPPER POST ATTACHED. IF THE POST IS PLACED IN A DRILLED HOLE, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
- WHEN COMPETENT ROCK IS ENCOUNTERED, A 12" [300] # POST HOLE, 20 IN. [500] DEEP CORED INTO THE ROCK SURFACE MAY BE USED IF APPROVED BY THE ENGINEER FOR POSTS 1 AND/OR 2. GRANULAR MATERIAL WILL BE PLACED IN THE BOTTOM OF THE HOLE, APPROXIMATELY 2.5' [60] DEEP TO PROVIDE DRAINAGE. THE FIRST AND/OR SECOND POST CAN BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH SUITABLE BACKFILL. THE SOIL PLATE MAY BE TRIMMED IF REQUIRED.
- THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. A LOCKING DEVICE (NICE GRIPS OR CHANNEL LOCK PLIERS) SHOULD BE USED TO PREVENT THE CABLE FROM TWISTING WHEN TIGHTENING NUTS.

ITEM	QTY.	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	FIRST POST TOP (6x6x1/8" Tube)	MTPHP1A
D	1	FIRST POST BOTTOM (6" W6x15)	MTPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	STRUT	MS785

HARDWARE (ALL DIMENSIONS IN INCHES)			
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	25	5/8 DIA. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	2	5/8 DIA. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	33	5/8 DIA. H.C.R. NUT	N050
h	1	3/4 DIA. x 8 1/2 HEX BOLT GRD A449	B340B54A
j	1	3/4 DIA. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2 RSI SHOULDER BOLT W/ WASHER	S812A
n	8	1/2 STRUCTURAL NUT	N012A
o	8	1/2 STRUCTURAL WASHER	W012A
p	1	BEARING PLATE, RETAINER TIE	CT-100ST



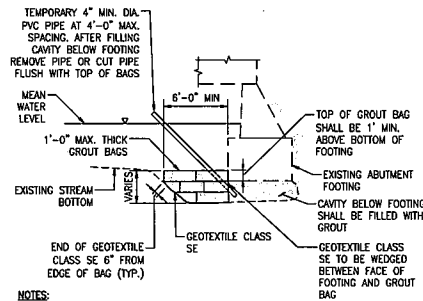
 Kyle Shimizu REGISTERED PROFESSIONAL ENGINEER EXPIRATION DATE: APRIL 30, 2025	REVISION	DATE	DRW	MADE BY	APPROVED
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAULMOA, MAUI, HAWAII				
	END TERMINAL DETAILS				
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
DESIGNED BY: C205		DRAWN BY: MAI		CHECKED BY: KIS	
SHEET 16 OF 54		SUBMITTED BY:		DATE: _____	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	17	54

DATE: FEBRUARY 25, 2025

NOTES:

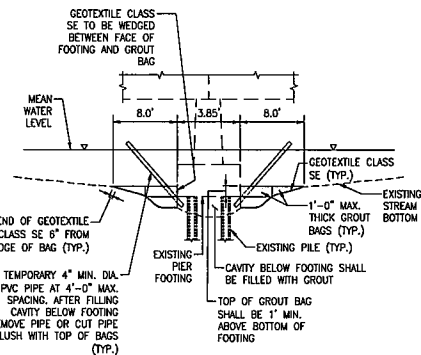
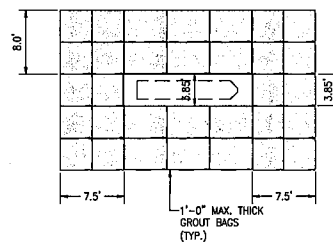
- IT IS PREFERABLE TO PLACE A SINGLE LAYER OF GROUT BAGS INSTEAD OF STACKING. PLACE FILTER FABRIC UNDER ALL GROUT BAGS INCLUDING A SINGLE LAYER OF BAGS.
- IF BAGS ARE STACKED, OVERLAP THE JOINTS OF THE PRECEDING LAYER.
- IF POSSIBLE, BAGS SHOULD BE PLACED SO THAT THE TOP OF THE BAG IS AT OR BELOW THE STREAM BOTTOM. (WHEN FILLING A SCOUR HOLE, KEEP THE TOP OF THE BAG AT OR BELOW THE STREAM BOTTOM).
- THE TOP LAYER OF THE GROUT BAGS SHALL HAVE A PIN DRIVEN INTO IT TO ATTACH A CONCRETE CLOTH.
- GROUT BAGS SHOULD BE 3' TO 4' WIDE, 4' LONG AND 1' THICK.
- DO NOT OVERFILL THE BAGS OR ALLOW GROUT TO BE POURED BETWEEN THE SEAM OF TWO BAGS.
- INSTALL TIE-BARS EMBEDDED INTO THE GROUND AND SECURE GROUT BAGS TO TIE-BARS.



NOTES:

- STACK BAGS AS REQUIRED. JOINTS BETWEEN BAGS IN SUCCESSIVE ROWS AND TIERS SHALL BE STAGGERED.
- REFER TO GENERAL PLAN FOR ANY EXCAVATION REQUIREMENTS.
- PLACE TOP BAG FLUSH WITH FACE OF FOOTING.
- IF ON PILES, PLACE DEBONDING MATERIAL AROUND PILES WITH GREATER THAN 3'-0" EXPOSURE.
- REMOVE DEBRIS BEFORE INSTALLATION OF BAGS.

SECTION THRU ABUTMENT



NOTES:

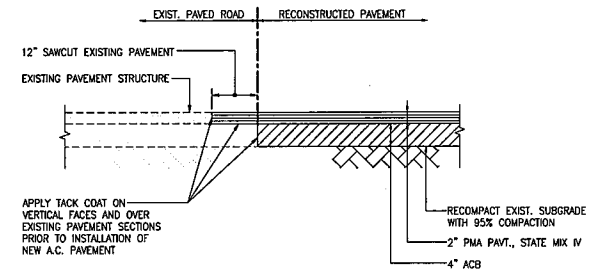
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- REFER TO GENERAL PLAN FOR ANY EXCAVATION REQUIREMENTS.
- PLACE TOP BAG FLUSH WITH FACE OF FOOTING.
- IF ON PILES, PLACE DEBONDING MATERIAL AROUND PILES WITH GREATER THAN 3'-0" EXPOSURE.
- REMOVE DEBRIS BEFORE INSTALLATION OF BAGS.

SECTION THRU PIER

PLAN OF PIER

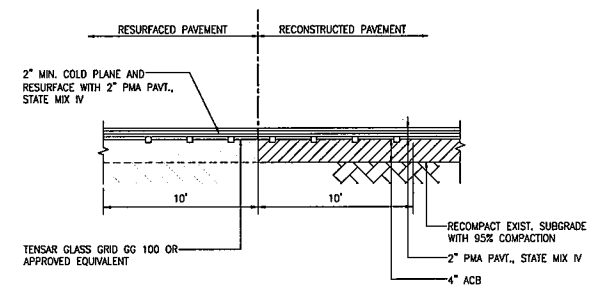
GROUT BAG INSTALLATION FOR UNDERMINED AREAS AT PIERS AND ABUTMENTS

NOT TO SCALE



A.C. PAVEMENT TRANSITION TO EXISTING

NOT TO SCALE



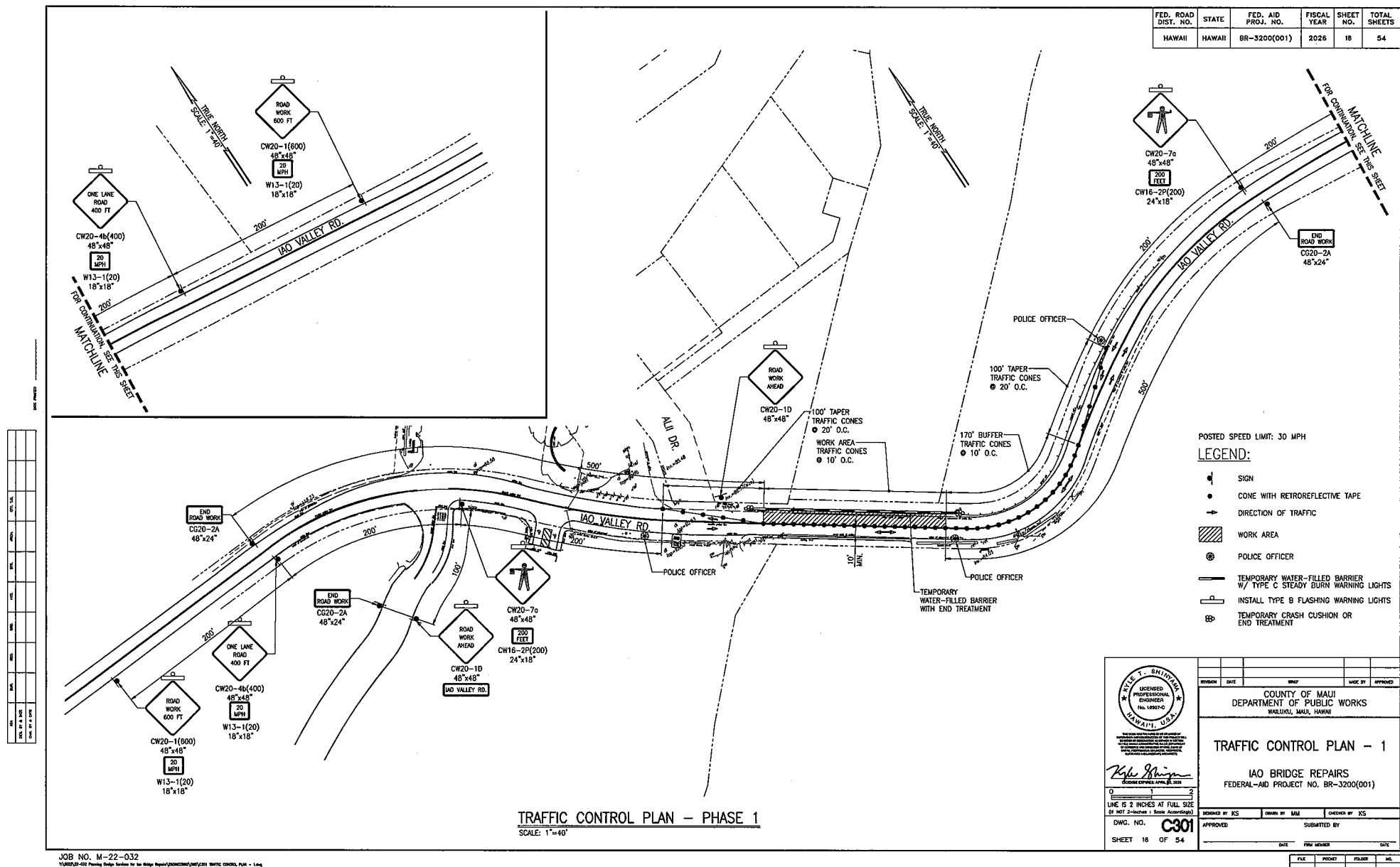
NOTES:

- 2" PMA PAVT. SHOULD BE PAVED OVER THE BRIDGE DECK AND THE ABUTTING PAVEMENTS IN A SINGLE OPERATION.

A.C. PAVEMENT RECONSTRUCTION TRANSITION TO RESURFACING

NOT TO SCALE

		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAWAII, MAUI, HAWAII	
MISCELLANEOUS DETAILS			
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
DESIGNED BY: KJS CHECKED BY: KJS DATE: 1/17/25	DRAWN BY: LAM DATE: 1/17/25	SUBMITTED BY: KJS DATE: 1/17/25	APPROVED BY: KJS DATE: 1/17/25
SHEET 17 OF 54			



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	19	54

POSTED SPEED LIMIT: 30 MPH

LEGEND:

- SIGN
- CONE WITH RETROREFLECTIVE TAPE
- DIRECTION OF TRAFFIC
- WORK AREA
- POLICE OFFICER
- TEMPORARY WATER-FILLED BARRIER W/ TYPE C STEADY BURN WARNING LIGHTS
- INSTALL TYPE B FLASHING WARNING LIGHTS
- TEMPORARY CRASH CUSHION OR END TREATMENT

TRAFFIC CONTROL PLAN - PHASE 2

SCALE: 1"=40'

JOB NO. M-22-032

PLANNING DESIGN SERVICES FOR THE BRIDGE REPAIRS/RECONSTRUCTION/REPAIRS/REPAIRS TRAFFIC CONTROL PLAN - 2



Kyle J. Smith
LICENSED PROFESSIONAL ENGINEER
NO. 15074-C
STATE OF HAWAII
EXPIRES APRIL 10, 2024

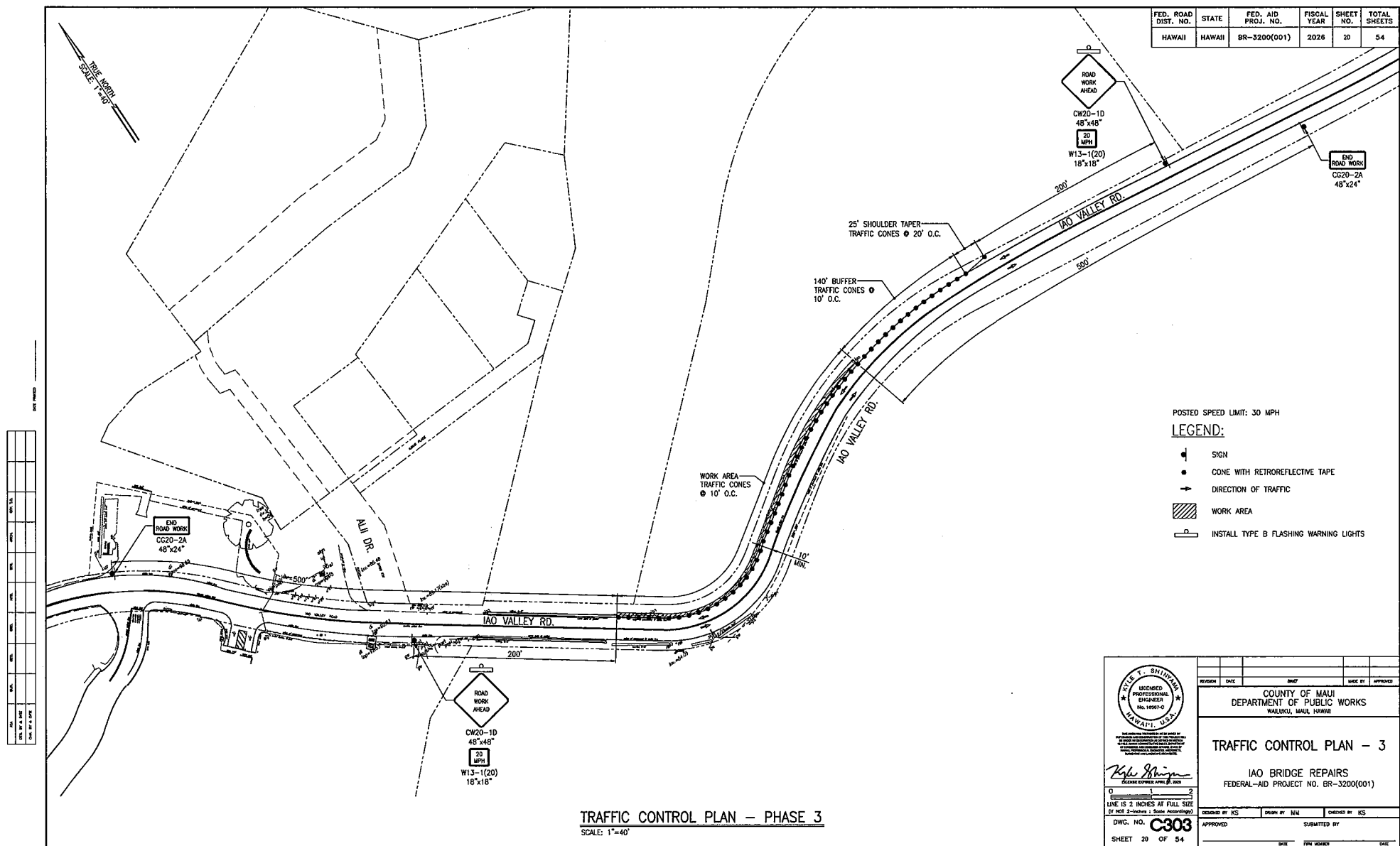
REVISION DATE BY
COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
HALEKUA, MAUI, HAWAII
TRAFFIC CONTROL PLAN - 2
IAO BRIDGE REPAIRS
FEDERAL-AID PROJECT NO. BR-3200(001)

DESIGNED BY KJS DRAWN BY MAM CHECKED BY KJS
DWG. NO. C302
SHEET 19 OF 54
APPROVED SUBMITTED BY
DATE PROJECT NUMBER DATE

FILE PROJECT FOLDER NO.

IAO BRIDGE REPAIRS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	20	54



POSTED SPEED LIMIT: 30 MPH

LEGEND:

- | | |
|---|--|
|  | SIGN |
|  | CONE WITH RETROREFLECTIVE TAPE |
|  | DIRECTION OF TRAFFIC |
|  | WORK AREA |
|  | INSTALL TYPE B FLASHING WARNING LIGHTS |

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
WAILUKU, MAUI, HAWAII

TRAFFIC CONTROL PLAN - 3

IAO BRIDGE REPAIRS
FEDERAL-AID PROJECT NO. BR-3200(001)

DESIGNED BY KS	DRAWN BY MM	CHECKED BY KS
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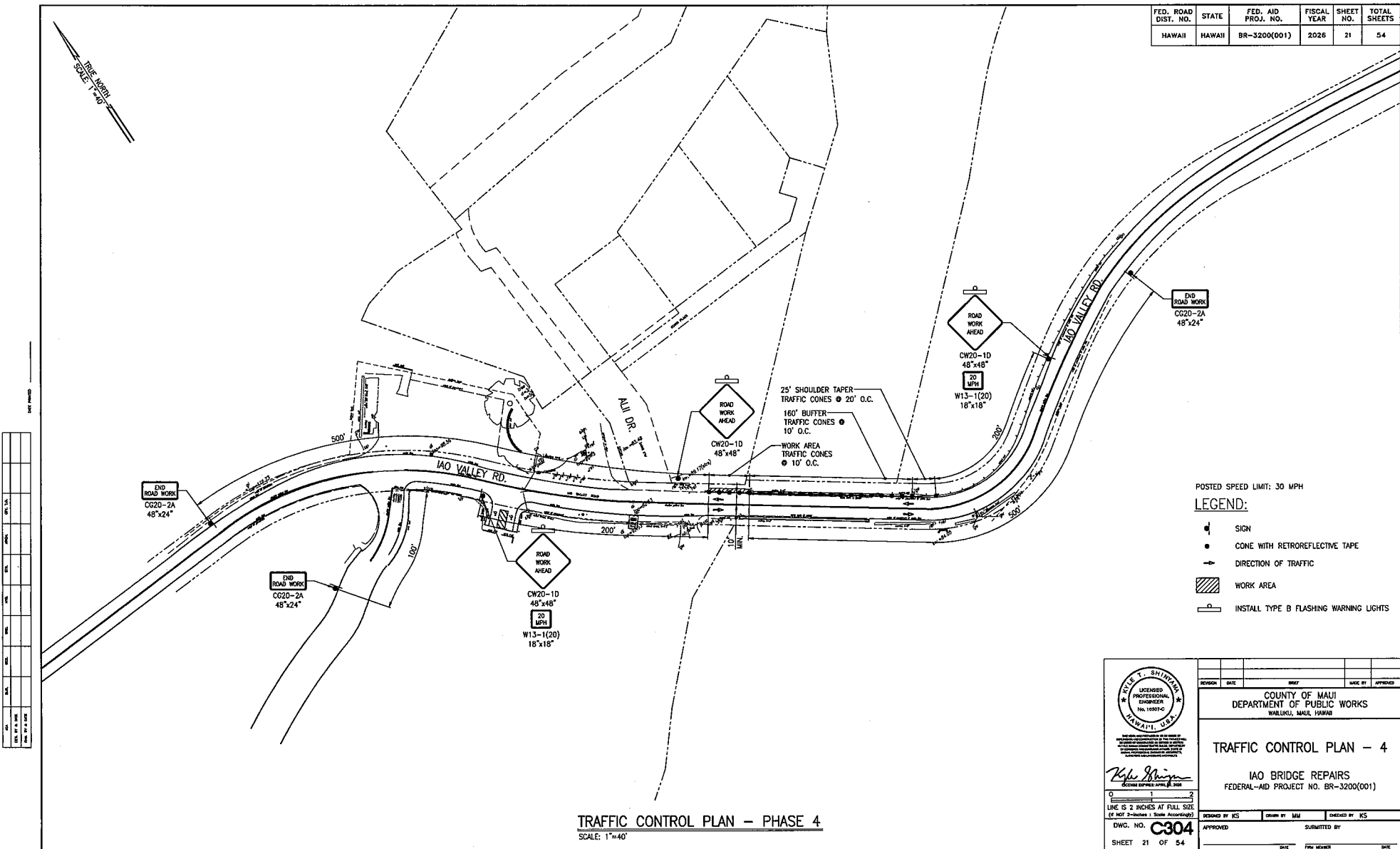
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 11/11/2017 11:11:11 AM
 11/11/2017 11:11:11 AM

DATE _____ FROM MEMBER _____

FILE	POCKET	FOLDER	NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	21	54

DATE: FEBRUARY 23, 2025



TRAFFIC CONTROL PLAN - PHASE 4
SCALE: 1"=40'

POSTED SPEED LIMIT: 30 MPH

LEGEND:

- SIGN
- CONE WITH RETROREFLECTIVE TAPE
- DIRECTION OF TRAFFIC
- WORK AREA
- INSTALL TYPE B FLASHING WARNING LIGHTS

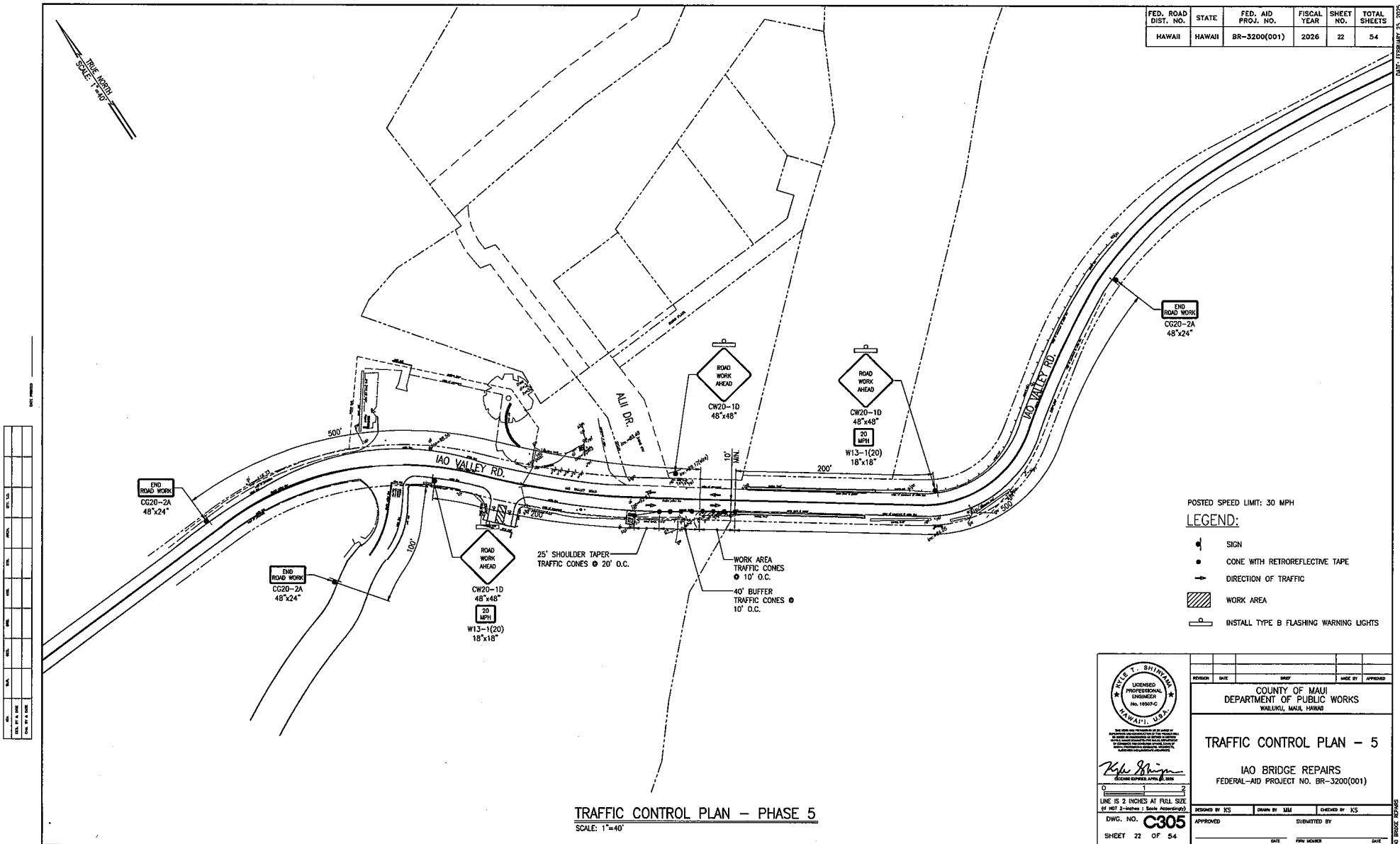
RAE T. SHIMODA
LICENSED PROFESSIONAL ENGINEER
No. 10854-C
COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
WAILUKU, MAUI, HAWAII

DESIGNED BY: RKS
DRAWN BY: JMM
CHECKED BY: RKS
APPROVED: [Signature]
SUBMITTED BY: [Signature]
DATE: [Blank]
FILE NUMBER: [Blank]

REVISION	DATE	BY	DATE	BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	22	54

DATE: FEBRUARY 23, 2025



POSTED SPEED LIMIT: 30 MPH

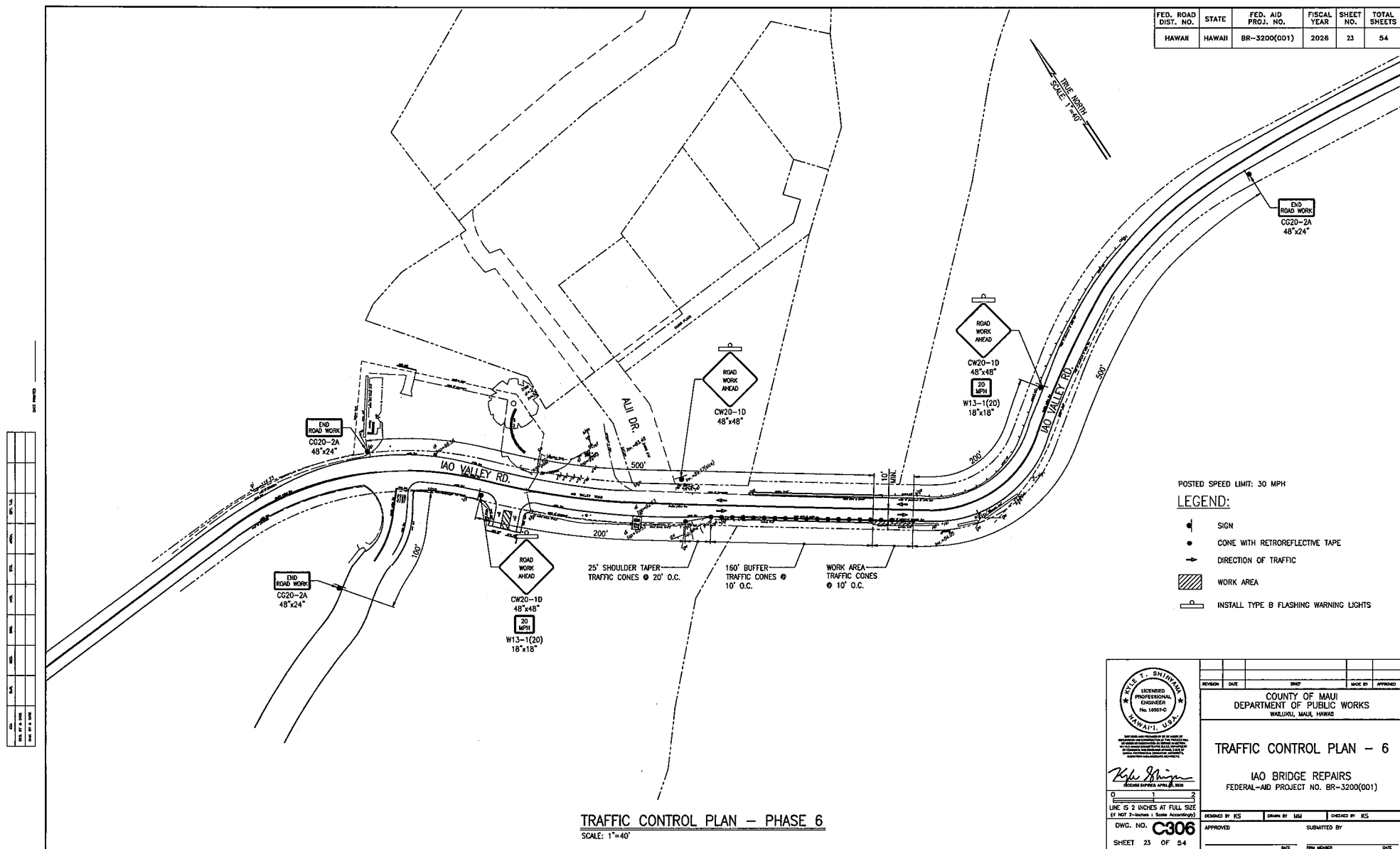
LEGEND:

- ◆ SIGN
- CONE WITH RETROREFLECTIVE TAPE
- DIRECTION OF TRAFFIC
- ▨ WORK AREA
- ⏏ INSTALL TYPE B FLASHING WARNING LIGHTS

TRAFFIC CONTROL PLAN - PHASE 5
SCALE: 1"=40'

	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
	TRAFFIC CONTROL PLAN - 5 IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)	
	DESIGNED BY: KJS DWG. NO.: C305 SHEET 22 OF 54	CHECKED BY: KJS SUBMITTED BY:
	DATE: _____	

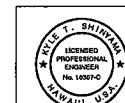
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	23	54



POSTED SPEED LIMIT: 30 MPH

LEGEND:

-  SIGN
-  CONE WITH RETROREFLECTIVE TAPE
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  INSTALL TYPE B FLASHING WARNING LIGHTS



COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
WAILUKU, MAUI, HAWAII

TRAFFIC CONTROL PLAN - 6

IAO BRIDGE REPAIRS
FEDERAL-AID PROJECT NO. BR-3200(001)

LINE IS 2 INCHES AT FULL
(1) NOT 2-inches 1 Scale Across

DWG. NO. **C30**

SHEET 23 OF 54

DESIGNED BY KS	DRAWN BY MM	CHECKED BY KS
APPROVED		SUBMITTED BY

GENERAL

- FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TEMPORARY STRUCTURES AS REQUIRED TO COMPLETE THE WORK. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO APPLICABLE PORTIONS OF HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2008, OF THE STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION, AND STANDARD PLANS, 2008, OF THE STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION, IN ADDITION TO THE CODES CITED.
- DETAILS SHOWN ON THE DRAWINGS SHALL BE TYPICAL FOR ALL SIMILAR CONDITIONS. MODIFY DETAILS FOR SPECIAL CONDITIONS AS DIRECTED BY THE ENGINEER.
- PROVIDE PROTECTIVE DEVICES REQUIRED FOR SAFE FLOW OF TRAFFIC, TO PROTECT PEDESTRIANS, ON SITE IMPROVEMENTS, ADJACENT OFF-SITE PROPERTIES, PUBLIC IMPROVEMENTS AND PERSONNEL FROM HAZARDS OF THE WORK. SEE CIVIL DRAWINGS FOR TRAFFIC CONTROL DETAILS.
- CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR METHODS OF CONSTRUCTION, WORK, AND JOB SAFETY INCLUDING ALL BARRICADES, FALL PROTECTION, SHORING, FALSE WORK, BRACING AND OTHER TEMPORARY ITEMS USED FOR THE CONSTRUCTION WORK OF THE PROJECT. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF CONTRACTOR. PROVIDE DUST AND DEBRIS CONTAINMENT FROM CONTAMINATING THE STREAM AND THE SURROUNDING AREAS.
- PROTECT EXISTING SURFACES AND OBJECTS TO REMAIN FROM DAMAGE. ANY ITEM TO REMAIN THAT IS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED TO MATCH EXISTING ADJACENT SURFACES AT NO ADDITIONAL COST.
- VERIFY ALL CONTRACT DOCUMENTS AND LOCATION OF UTILITIES PRIOR TO STARTING WORK AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES. CONTRACTOR SHALL LOCATE ALL EXISTING ITEMS THAT WILL BE AFFECTED AND DETERMINE THE REQUIREMENTS FOR THEIR PROTECTION, TEMPORARY RELOCATION AND RECONNECTION. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
- INFORMATION SHOWN ON THE DRAWINGS HAS BEEN OBTAINED FROM LIMITED FIELD OBSERVATIONS. THE ACCURACY AND COMPLETENESS OF THE DRAWINGS, INCLUDING DIMENSIONS IS NOT GUARANTEED. DIMENSIONS OF THE BRIDGE SHOWN ON THE DRAWINGS MAY NOT BE EXACT. VERIFY ALL EXISTING CONDITIONS AND BRIDGE DIMENSIONS BEFORE COMMENCING WORK. NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.
- CONTRACTOR SHALL:
 - VERIFY ALL EXISTING DETERIORATED CONDITIONS PRIOR TO CONSTRUCTION AND AS CONSTRUCTION PROCEEDS.
 - INCLUDE MATERIAL SUPPLIERS AND EXPERIENCED PERSONNEL IN THE RESTORATION WORK OF CONCRETE STRUCTURES IN THE CONSIDERATION OF THE REPAIRS AND CONFIRM ALL CONCLUSIONS PRIOR TO SUBMISSION OF BID. ON-SITE OBSERVATIONS BY THE CONTRACTOR AND MATERIAL MANUFACTURER'S REPRESENTATIVE SHALL ALSO BE INCLUDED IN THE BID PRICE SO WARRANTIES PER THE CONTRACT CAN BE GIVEN WITHOUT RESERVATION. ANY RECOMMENDATIONS TO IMPROVE REPAIR MATERIALS OR METHODS SHALL BE SUBMITTED IN WRITING AND APPROVED BY THE ENGINEER AT NO ADDITIONAL COST.
 - BE THOROUGHLY FAMILIAR WITH THE CONDITIONS ON THE BRIDGE AND AT THE SITE AND INCLUDE ALL COSTS ASSOCIATED WITH THE BRIDGE REPAIR AND TRAFFIC CONTROL IN THE BID PRICE. NO ADDITIONAL COSTS WILL BE AWARDED AFTER THE BID BASED UPON THE CONTRACTOR'S FAILURE TO OBSERVE OR FIND AN EXISTING, PRE-BID DEFECT OR CONDITION ON THE BRIDGE THAT IS NOT TOTALLY CONCEALED FROM VIEW. SUBMISSION OF BID ASSUMES THE CONTRACTOR IS THOROUGHLY FAMILIAR WITH AND IS COMFORTABLE WORKING ON BRIDGES EXHIBING A GREAT DEAL OF DETERIORATED CONCRETE.
 - MAKE ARRANGEMENTS FOR LADDERS, SCAFFOLDS OR OTHER DEVICES EMPLOYED TO GAIN A BETTER EVALUATION OF THE EXISTING CONDITIONS BEFORE BIDDING.
- CONTRACTOR'S SUPPLIERS AND MATERIAL MANUFACTURER'S REPRESENTATIVE SHALL VISIT THE SITE TO INSTRUCT ALL CONTRACTOR'S PERSONNEL PERFORMING THE WORK BEFORE WORK BEGINS AND SHALL BE AVAILABLE ON AN ON-CALL BASIS THROUGHOUT THE EXTENT OF THE PROJECT. ANY COST ASSOCIATED WITH THIS REQUIREMENT SHALL BE INCLUDED IN THE BID.
- BEFORE ANY DEMOLITION, CHIPPING, JACK HAMMERS, DRILLING, CORING OR ANY OTHER CONCRETE REMOVAL WORK BEGINS, VERIFY THAT THE OPERATION WILL NOT INJURE, OVERSTRESS, CRACK, BREAK OR OTHERWISE DAMAGE EXISTING PORTIONS OF THE BRIDGE TO REMAIN. NO DEBRIS FROM THE DEMOLITION OR CONSTRUCTION SHALL BE ALLOWED TO ENTER THE STREAM OR ADJOINING PROPERTIES. THE CONTRACTOR SHALL ERECT ALL NECESSARY BARRICADES AND BARRIERS TO PREVENT DEBRIS FROM ENTERING THE STREAM. ANY SUCH DEBRIS FOUND IN THE STREAM SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND SHALL BE SOLELY RESPONSIBLE FOR ANY FINES.

- SUBMIT ERECTION DRAWINGS, SKETCHES AND CALCULATIONS STAMPED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF HAWAII FOR DEVICES AND ASSEMBLIES THAT RELY ON THE EXISTING BRIDGE FOR SUPPORT SUCH AS SHORING AND DEBRIS CONTAINMENT. REVIEW DOES NOT RELIEVE THE CONTRACTOR OF LIABILITY FOR MEANS AND METHODS OF CONSTRUCTION, SHORING, SCAFFOLDING AND ALL SUCH DEVICES AND APPARATUS SHALL BE SECURED NIGHTLY, OVER WEEKENDS, HOLIDAYS OR WHENEVER NOT IN USED TO PREVENT UNAUTHORIZED USE OR ACCESS, VANDALISM, THEFT OR OTHER DAMAGE THAT WOULD PREVENT THE CONTRACTOR'S PROMPT AND EFFICIENT RESUMPTION OR COMPLETION OF THE WORK OR EXPOSE THE COUNTY TO LIABILITY. PROVIDE THE ENGINEER WITH A PHONE NUMBER OF PERSONNEL THAT CAN BE REACHED AT ALL TIMES WHO ARE AUTHORIZED TO ORDER WORK AND MAKE EXPENDITURES TO SECURE DEVICES AND APPARATUS THAT BECOME UNSECURED AND POSES A DANGER TO THE PUBLIC.
- NO MATERIAL IS ALLOWED TO BE STORED OR ADDITIONAL LOADS IMPOSED ON THE BRIDGE.
- AT THE END OF EACH DAY'S WORK, REMOVE ALL EQUIPMENT AND OTHER OBSTRUCTIONS TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC.
- SHOULD HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS, OR MOUNDS, OR REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATION OF SHELL OR CHARCOAL, BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR AND/OR LANDOWNER SHALL IMMEDIATELY CONTACT THE STATE HISTORIC PRESERVATION DIVISION (808-892-8015) WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE IF NECESSARY.

DEMOLITION NOTES

- CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND BRACING FOR ALL DEMOLITION WORK.
- DRAWINGS ARE BASED ON INFORMATION FROM AVAILABLE AS-BUILT DRAWINGS AND SITE INVESTIGATION TO ACCESSIBLE AREAS. ALL EXISTING DIMENSIONS SHALL BE VERIFIED BY CONTRACTOR IN FIELD PRIOR TO STARTING WORK. ANY DISCREPANCIES WITH DRAWINGS SHALL BE BROUGHT TO THE COUNTY'S ATTENTION PRIOR TO STARTING WORK.
- SEE CIVIL DRAWINGS FOR ADDITIONAL DEMOLITION.
- DO NOT DAMAGE EXISTING REINFORCING BARS IN CONCRETE. ALL REINFORCING SHALL BE LOCATED BY NON-DESTRUCTIVE METHODS PRIOR TO DRILLING, CHIPPING AND CUTTING.
- ALL DEMOLISHED MATERIAL SHALL BE PROPERLY DISPOSED OF OFF SITE BY CONTRACTOR IN COMPLIANCE WITH ALL APPLICABLE COUNTY, STATE AND FEDERAL CODES AND REGULATIONS.
- PROVIDE ADEQUATE PROTECTION FOR EXISTING STRUCTURES TO REMAIN. REPAIR AND/OR REPLACE AT CONTRACTOR'S EXPENSE ANY EXISTING SITE FEATURES TO REMAIN THAT ARE DAMAGED DURING THE WORK TO PRE-EXISTING CONDITIONS OR BETTER.
- DEMOLITION OF EXISTING CONCRETE SHALL NOT CAUSE ANY DAMAGE OR FRACTURING OF CONCRETE TO REMAIN. CHIPPING HAMMERS, IF USED, SHALL NOT EXCEED 15 POUND HAMMERS. ANY DAMAGE TO CONCRETE SHALL BE REPAIRED TO THE SATISFACTION OF, AND AT NO COST TO, THE COUNTY.

CONCRETE REPAIR

- SPALLS AND DELAMINATIONS ARE CALLED OUT AS "SPALLS". NO SEPARATE DISTINCTION IS MADE BETWEEN THEM SINCE THE REPAIRS ARE THE SAME.
- CONCRETE REPAIR SHALL BE IN CONFORMANCE WITH THE "CONCRETE REPAIR MANUAL", 4TH EDITION, INTERNATIONAL CONCRETE REPAIR INSTITUTE, UNLESS OTHERWISE INDICATED.
- FINISH SURFACE OF CONCRETE REPAIRS SHALL MATCH EXISTING COLOR AND PROFILE OF IMMEDIATELY ADJACENT SURFACES IN ORIGINAL COMPOSITION, DESIGN, COLOR AND TEXTURE. IF A RADIUS, CHAMFER, RECESS OR GROOVE IS ENCOUNTERED IN THE WORK AND CONTIGUOUS THROUGH THE AREA TO BE REPAIRED, THE RADIUS, CHAMFER, RECESS OR GROOVE SHALL BE REPRODUCED IN THE REPAIRS.
- FRESH CONCRETE AND WATER WITH CEMENTITIOUS PARTICLES SHALL BE PREVENTED FROM ENTERING THE STREAM DURING ALL CONCRETING WORK. ALL FORMS SHALL BE WATER TIGHT. CONCRETE AND WATER WITH CEMENTITIOUS PARTICLES SHALL NOT OVERFLOW FORMWORK. FORMWORK AND JOINTS SHALL BE SEALED TO PREVENT CONCRETE AND WATER WITH CEMENTITIOUS PARTICLES FROM LEAKING.
- DO NOT FEATHER EDGE REPAIRS.
- TEST ALL REPAIRS AFTER THE REPAIR MATERIAL IS CURED TO VERIFY THE BOND BETWEEN THE REPAIR MATERIAL AND THE EXISTING CONCRETE. A HOLLOW SOUND WHEN TAPPED WITH A HAMMER INDICATES UNSATISFACTORY BOND AND SHALL BE REJECTED. ALL REJECTED REPAIRS SHALL BE REDONE AND RETESTED UNTIL A SATISFACTORY BOND IS ACHIEVED, AT NO ADDITIONAL COST.
- AFTER REPAIRS ARE COMPLETED, COAT REPAIRED CONCRETE SURFACES WITH A PENETRATING, VAPOR-RETARDING CORROSION INHIBITING COATING. CONCRETE ANTI-CORROSION COATING SHALL BE SIKA FERROGARD 903 OR PRE-REVIEWED EQUAL.
- CONSTRUCT A MINIMUM OF (2) 8"x8"x3" FIELD TEST PANELS PRIOR TO BEGINNING REPAIR WORK USING THE MATERIALS AND PROCEDURES PROPOSED FOR USE ON THE JOB. THE QUALITY AND APPEARANCE OF EACH PANEL IS SUBJECT TO THE APPROVAL BY THE ENGINEER, AND IF NOT JUDGED SATISFACTORY, CONTRACTOR SHALL CONSTRUCT ADDITIONAL PANELS UNTIL APPROVAL IS ATTAINED, AT NO ADDITIONAL COST. FIELD TEST PANELS SHALL BE APPROVED A MINIMUM OF ONE MONTH PRIOR TO BEGINNING OF REPAIR WORK. FINISHED SURFACES IN THE COMPLETED STRUCTURE MUST MATCH THE QUALITY AND APPEARANCE OF THE APPROVED FIELD TEST PANELS. DO NOT REMOVE OR DESTROY FIELD TEST PANELS UNTIL DIRECTED BY THE ENGINEER.

CONCRETE REPAIR MATERIAL

- SURFACE REPAIR MORTAR SHALL BE A FACTORY BLENDED SURFACE REPAIR MATERIAL COMBINED WITH A POLYMER TYPE ADMIXTURE USED FOR REPAIRS WHERE FORMING IS NOT REQUIRED AND FOR AREAS LESS THAN 2 SQUARE FEET.
- POLYMER MODIFIED CONCRETE SHALL BE A MIXTURE OF CEMENT, FINE AGGREGATE, COARSE AGGREGATE, POLYMER TYPE ADMIXTURE, SUPER-PLASTICIZER ADMIXTURE, CORROSION INHIBITOR ADMIXTURE AND WATER. USE FOR REPAIRS WHERE FORMING IS REQUIRED AND FOR AREAS GREATER THAN 2 SQUARE FEET.
- POLYMER MODIFIED MORTAR SHALL BE A MIXTURE OF CEMENT, FINE AGGREGATE, CORROSION INHIBITOR ADMIXTURE AND WATER. USE FOR REPAIRS WHERE FORMING IS REQUIRED AND FOR AREAS LESS THAN 2 SQUARE FEET.
- REPAIR MORTAR AND CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 6000 PSI AT 28 DAYS, UNLESS OTHERWISE INDICATED IN SPECIAL PROVISIONS.
- UNLESS OTHERWISE INDICATED, ADMIXTURES SHALL BE USED AT THE CONTRACTOR'S OPTION SUBJECT TO APPROVAL OF THE ENGINEER.
- USE OF CALCIUM CHLORIDE IN ANY CONCRETE IS PROHIBITED.
- PRE-MANUFACTURED CONCRETE REPAIR MATERIALS SHALL BE FROM SIKA CORPORATION OR PRE-REVIEWED EQUAL. CONTRACTOR SHALL SUBMIT PRODUCT DATA AND MANUFACTURER INSTALLATION INSTRUCTIONS TO THE ENGINEER FOR REVIEW.

CAST-IN-PLACE CONCRETE

- CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301, UNLESS OTHERWISE NOTED.
- ALL CONCRETE, UNLESS OTHERWISE NOTED, SHALL BE NORMAL WEIGHT HARD ROCK TYPE (150#/CU. FT.) PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE I OR II. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- SCHEDULE OF STRUCTURAL CONCRETE 28-DAY STRENGTH AND TYPES:

CAST-IN-PLACE CONCRETE	= 5,000 PSI (W/C = 0.40 MAX)
------------------------	------------------------------
- CLEAR COVERAGE OF CONCRETE OVER OUTER REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

CONCRETE AGAINST FORMWORK	= 2"
---------------------------	------
- ALL REINFORCING BARS, ANCHOR BOLTS, AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
- PROVIDE CEMENTITIOUS CRYSTALLINE CONCRETE WATERPROOFING ADMIXTURE CONFORMING TO ASTM C484, TYPE 5.
- CONCRETE ADMIXTURES CONTAINING CHLORIDE OR CHLORIDE SALTS SHALL NOT BE USED.
- CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE CONTRACTING OFFICER FOR REVIEW PRIOR TO CONCRETE POUR.
- ALL ROUGHENED SURFACES IN CONCRETE SHALL BE MADE WITH A MINIMUM AMPLITUDE OF 1/4".

REINFORCING STEEL

- DETAILING OF CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 315.
- ALL REINFORCING STEEL SHALL BE HIGH STRENGTH DEFORMED BARS CONFORMING TO ASTM A706, GRADE 60, UNLESS NOTED OTHERWISE.
- COAT ALL NEW AND EXPOSED EXISTING REINFORCING PER CONCRETE REPAIR NOTES ON SHEET 5501.
- REINFORCEMENT HOOKS AND BENDS SHALL BE STANDARD HOOKS CONFORMING TO THE PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE (ACI 318-14), UNLESS OTHERWISE NOTED.
- REINFORCEMENT SHALL BE LAPPED 48 BAR DIAMETERS, MINIMUM, AT SPLICES. STAGGER SPLICES WHENEVER POSSIBLE, UNLESS SHOWN OTHERWISE. WHEN A LAP SPLICE OF 48 BAR DIAMETERS IS NOT POSSIBLE, USE A WELDED SPLICE PER DETAIL ON SHEET 5501.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2028	24	54

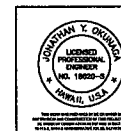
EPOXY MATERIAL FOR EPOXY EMBEDDED CONNECTIONS

- REFER TO DRAWINGS FOR AREAS THAT REQUIRE EPOXY EMBEDDED CONNECTIONS.
- EPOXY SHALL BE INSTALLED IN STRICT CONFORMANCE TO MANUFACTURER INSTALLATION INSTRUCTIONS. HOLES SHALL BE PROPERLY CLEANED BY AIR HOSE AND/OR MANUFACTURER AIR NOZZLES.
- DO NOT OVER DRILL DEPTH OF HOLE BEYOND WHAT IS REQUIRED BY THE EPOXY MANUFACTURER'S RECOMMENDATIONS. THE DIAMETER OF THE HOLE SHALL FOLLOW THE EPOXY MANUFACTURER'S RECOMMENDATIONS.
- CONFIRM EPOXY EXPIRATION DATE SHOWN ON PACKAGING.
- CONTRACTOR SHALL SUBMIT PRODUCT DATA OF PROPOSED PRODUCT INCLUDING INTERNATIONAL CODE COUNCIL EVALUATION REPORTS FOR ENGINEER'S REVIEW PRIOR TO CONSTRUCTION.
- TO PREVENT DAMAGE, LOCATE EXISTING STEEL REINFORCING BY NON-DESTRUCTIVE METHODS PRIOR TO DRILLING HOLES. CONTRACTOR IS RESPONSIBLE FOR REPAIR OF EXISTING REINFORCING IF DAMAGE IS CAUSED.
- EPOXY ADHESIVE SHALL BE SIMPSON SET-3G EPOXY, HULTI HIT-HY 200-R V3, OR PRE-REVIEWED EQUAL.

STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SECTIONS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:

WIDE FLANGES	= A992, GRADE 50
CHANNELS, ANGLES,	
MISC. STEEL	= A36
TUBES	= A500, GRADE B
PLATES	= A36, UNLESS OTHERWISE NOTED
PIPES	= A53, GRADE B
ANCHOR BOLTS,	
THREADED RODS	= F1554, GRADE 105
- ALL BOLT ASSEMBLIES SHALL BE HIGH STRENGTH TENSION CONTROL "TWIST OFF" BOLTS PER ASTM F3125 (GRADE F1552) TYPE 1, UNLESS OTHERWISE NOTED. ALL BOLTS SHALL BE TORQUED PER ASTM F3125 UNTIL SPLINE END HAS PROPERLY SHEARED. ALL BOLT ASSEMBLIES SHALL BE PROVIDED WITH AN ASTM A563 D1 NUT AND ASTM A436 TYPE 1 PLAIN WASHERS ON EACH FACE UNLESS OTHERWISE NOTED. EACH COMPONENT OF EXTERIOR EXPOSED BOLT ASSEMBLIES SHALL BE MECHANICALLY GALVANIZED PER ASTM B695 CLASS 55 MINIMUM TYPE 1.
- THE STRUCTURAL STEEL FABRICATOR SHALL FURNISH SHOP DRAWINGS OF ALL STRUCTURAL STEEL FOR ENGINEER'S REVIEW BEFORE FABRICATION.
- ALL EXPOSED STRUCTURAL STEEL AND MISCELLANEOUS METAL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. ALL WELDS AFTER HOT-DIP GALVANIZING SHALL BE GROUND SMOOTH AND COATED WITH TWO COATS OF ZRC COLD GALVANIZING.
- ANCHOR BOLTS, THREADED RODS, AND WASHERS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- BOLT HOLES IN STEEL SHALL BE 1/16" LARGER DIAMETER THAN NOMINAL SIZE OF BOLT USED, UNLESS OTHERWISE NOTED.



Jonathan Y. Chang
LICENSED PROFESSIONAL ENGINEER
NO. 10628-9
HAWAII, U.S.A.

1 INCH = 2 INCHES AT FULL SIZE
(IF NOT 2-INCHES 1-SINGLE COPY)

DWG. NO. **8001**

SHEET 24 OF 54

REVISION	DATE	BY	DATE	BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS MAUI, HAWAII					
STRUCTURAL GENERAL NOTES					
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)					
DESIGNED BY: DN		DRAWN BY: LL		CHECKED BY: JO	
APPROVED		SUBMITTED BY		DATE	
FILE	PROJECT	FILE	NO.		

1. EXISTING RUBBLE MASONRY STONES AND MORTAR JOINTS SHALL BE SIMILAR TO CEILING WORK ON SITE. STONEWORK OF NEW WALLS SHALL MATCH THE SHAPE, SIZE, AND PATTERN OF ADJACENT EXISTING WALLS.
2. STONES SHALL BE CLEAN, HARD, SOUND AND DURABLE. EXCEPT STONES FOR FILLING VOIDS, STONES SHALL HAVE THICKNESS OF NOT LESS THAN 8 INCHES AND WIDTH OF NOT LESS THAN 1-1/2 TIMES THE THICKNESS, BUT NOT LESS THAN 12 INCHES. EXCEPT HEADERS, STONES SHALL HAVE LENGTH OF NOT LESS THAN 1-1/2 TIMES ITS WIDTH.
3. GRADE STONES TO DECREASE IN SIZE FROM BOTTOM TO TOP OF WALL.
4. MORTAR: ASTM C270, TYPE M USING THE PROPER METHOD TO ACHIEVE MINIMUM 2,500 PSI STRENGTH, UNLESS INDICATED OTHERWISE.
5. GROUT, IF USED, SHALL BE FLOWABLE AND HAVE 3,000 PSI AT 28 DAYS.
6. THERE SHALL BE NO VOIDS IN THE WALL.

1. ALL WELDS SHALL BE IN CONFORMITY WITH THE STRUCTURAL WELDING CODE AWS D1.1 OF THE AMERICAN WELDING SOCIETY; USE E70XX ELECTRODES, SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. WELDS SHALL BE FULL LENGTH OF JOINT WITH RETURNS UNLESS LENGTH OF WELD IS NOTED ON WELD SYMBOL.
3. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
4. NEW WELDING TO EXISTING FRAMING SHALL BE INSTALLED SLOWLY TO MINIMIZE BUILD-UP OF HEAT IN STEEL. CONTINUOUS WELDS SHALL BE INSTALLED IN INTERMITTENT, STAGGERED WELDS OF 2 INCH MAXIMUM LENGTHS. 2 INCH WELDS SHALL BE ALLOWED TO COOL TO TOUCH BEFORE PROCEEDING WITH NEXT SEGMENT. THE FIRST COMPLETED WELD SHALL BE A CONTINUOUS WELD WITH NO GAPS BETWEEN SEGMENTS.

1. CRASH TESTED RAILINGS ARE BASED ON TEXAS DEPARTMENT OF TRANSPORTATION (DOT) TYPE C402 RAILINGS.

1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020.
2. HDOT "DESIGN CRITERIA FOR BRIDGES AND STRUCTURES", DATED AUGUST 8, 2014.
3. MINIMUM VEHICLE TRAFFIC BARRIER TEST LEVEL: TL-2

1. ALL SPECIAL INSPECTIONS SHALL BE DONE PER SPECIAL INSPECTIONS PROVISIONS OF SECTION 1704 AND SECTION 1705 OF THE 2018 INTERNATIONAL BUILDING CODE GOVERNING PORTIONS OF STRUCTURAL DRAWINGS. REFER TO STANDARD SPECIFICATIONS SECTION 105.11 INSPECTION OF THE WORK AND MATERIALS.

CAST-IN-PLACE CONCRETE	= REQUIRED
REINFORCING STEEL	= REQUIRED (FOR CAST-IN-PLACE CONCRETE)
STRUCTURAL WELDING	= REQUIRED (FOR FIELD WELDS WHERE NOTED ON DRAWINGS)
HIGH-STRENGTH BOLTING	= REQUIRED
ANCHOR BOLTS	= REQUIRED
EPOXY EMBEDS	= REQUIRED

5. ALL SPECIAL INSPECTION REPORTS AND TESTING REPORTS SHALL BE SUBMITTED TO THE ENGINEER NO LATER THAN 2 WORKING DAYS AFTER EACH INSPECTION.

1. ENROUTE TO THE PROJECT SITE, THERE WILL BE A NUMBER OF BRIDGES UNDER STATE AND COUNTY JURISDICTION THAT HAVE LOW POSTED CAPACITY, INCLUDING, BUT NOT LIMITED TO:

2. TAKE APPROPRIATE MEASURES TO OBTAIN APPROVAL FROM RESPECTIVE AGENCIES FOR THE USE OF THESE BRIDGES, SHOULD EQUIPMENT/VEHICLE EXCEED POSTED TONNAGE. SUCH MEASURES, INCLUDING BUT NOT LIMITED TO TEMPORARY REINFORCEMENT, SHALL BE AT NO ADDITIONAL COST TO THE COUNTY.

ABUT	ABUTMENT
AC	ASPHALT CONCRETE
AC APPROX	AC APPROXIMATE
BM	BEAM
BT	BOTTOM
BRG CL	BEARING
CL	CENTER LINE
CLR	CLEAR
CNC	CONCRETE
CONN	CONNECTION
CON	CONTINUOUS
CRM	CONCRETE RUBBLE MASONRY
CRW	CRUMBLIGH
DIA	DIAMETER
DIM	DIMENSION
DWG(S)	DRAWING(S)
(C), EXIST	EXISTING
EQ	EACH
EA	EQUAL
EXP	EXPANSION
FTG	FOOTING
HALV	GALVANIZED
HORIZ	HORIZONTAL
MAX	MAXIMUM
MIN	MINIMUM
(N)	NEW
ON C	ON CENTER
O.D.	OUTSIDE DIAMETER
ORHM	ORDINARY HIGH WATER MARK
OPP	OPPOSITE
PL	PLATE
QTY	QUANTITY
REINF	REINFORCING
REQD	REQUIRED
SF	SQUARE FEET
SHT	SHEET
SM	SQUARE
SS	SQUARE
STL	STEEL
THK	THICK
TYP	TYPICAL
UNLESS	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W/	WITH

R _o	MIN C TO C BAR SPACING	3000 PSI		4000 PSI		5000 PSI	
		OTHER BAR	TOP BAR	OTHER BAR	TOP BAR	OTHER BAR	TOP BAR
#3	1.5"	22	28	19	25	17	22
#4	2.0"	29	37	25	33	23	29
#5	2.5"	36	47	31	41	28	36
#6	3.0"	43	56	37	49	34	43
#7	3.5"	63	81	54	71	49	63
#8	4.0"	72	93	62	81	56	72
#9	4.5"	81	105	70	91	62	81
#10	5.1"	89	116	78	101	69	89

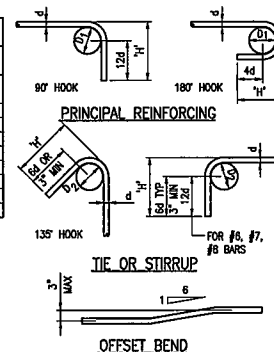
1. TOP BARS ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12" OF FRESH CONCRETE IS CAST BELOW THE SPLICE.

2. SPLICES BASED ON 3/4" MIN COVER.
3. CENTER TO CENTER BAR SPACING MUST BE $\geq 4d_b$. IF SPACING IS $< 4d_b$, USE CONGESTED TENSION SPLICES.
4. ALL VERTICAL REINFORCING IN WALLS, PIERS, COLUMNS, ETC. TO FOLLOW TOP BAR SPLICE LENGTHS.

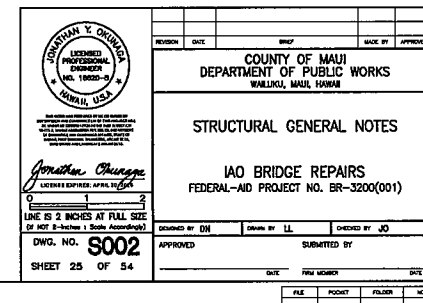
1 NOT TO SCALE

BAR SIZE	STANDARD HOOKS		STIRROP ON THE HOOK		D ₂	D ₁
	90° HOOK	180° HOOK	90° HOOK	135° HOOK		
#3	6	4	3-1/2	4	1-1/2	2-1/4
#4	8	4-1/2	4-1/2	4-1/2	2	3
#5	10	5	5-1/2	5-1/2	2-1/2	3-3/4
#6	12	6	12	7-1/2	4-1/2	4-1/4
#7	14	7	14	9	—	5-1/4
#8	16	8	—	—	—	6
#9	19	10	—	—	—	9
#10	22	13-1/2	—	—	—	10

NOTE
ALL BENDS MUST BE MADE COLD.

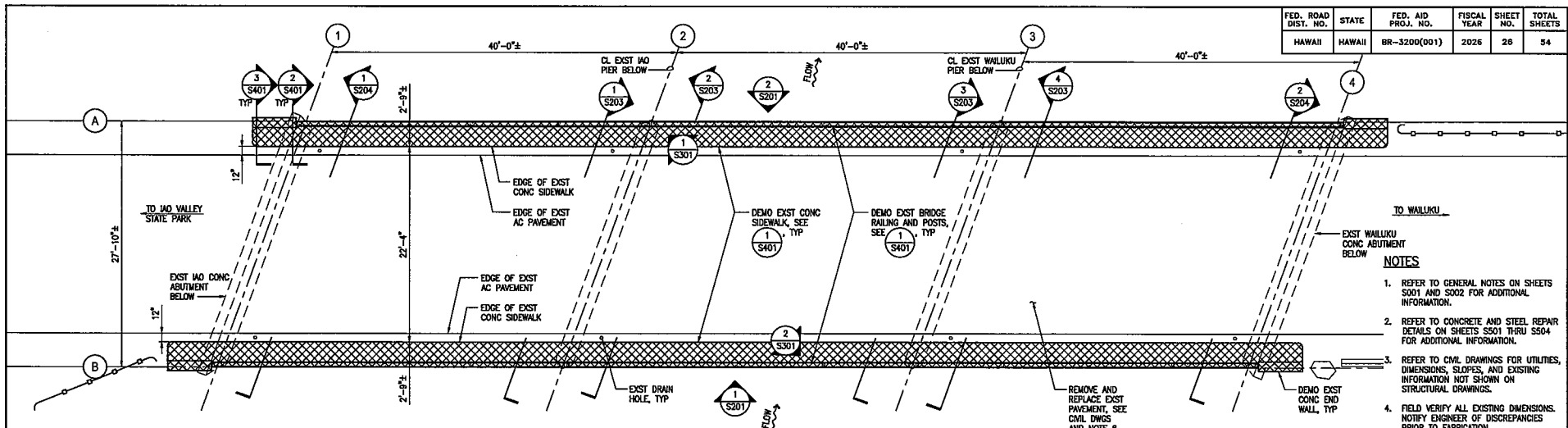


2 DARK BLUE
NOT TO SCALE



DATE: FEBRUARY 24, 2025

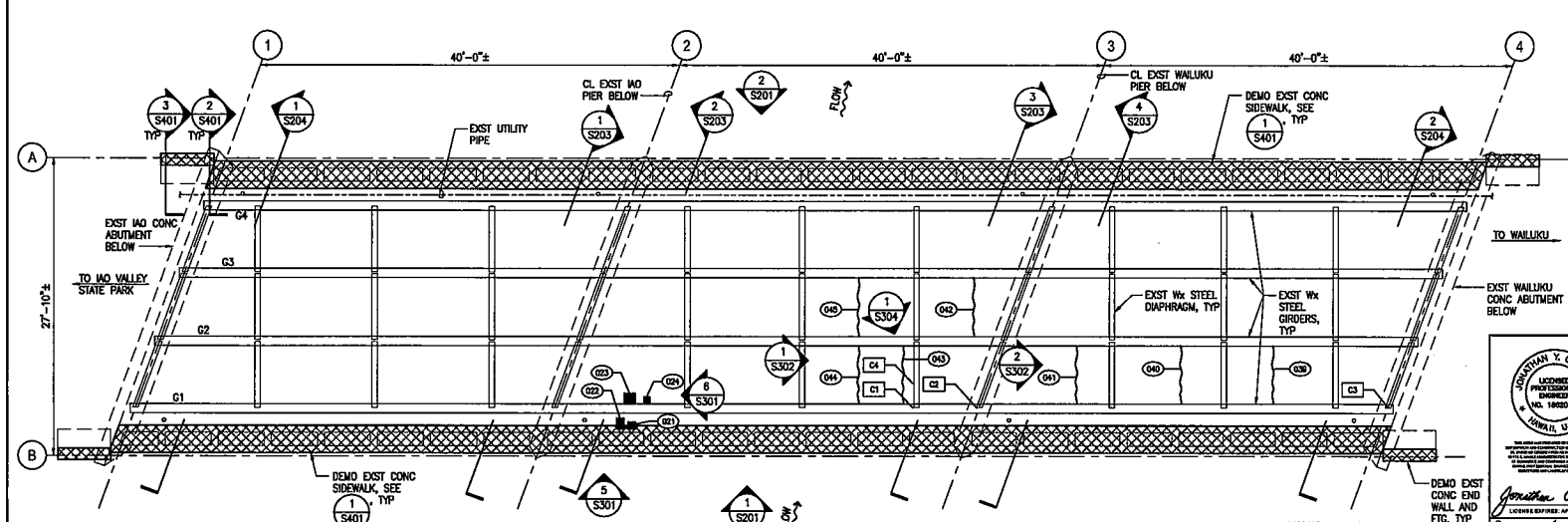
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	26	54



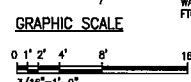
1 EXISTING BRIDGE TOP DECK PLAN
SCALE: 3/16" = 1'-0"

- NOTES**
1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
 2. REFER TO CONCRETE AND STEEL REPAIR DETAILS ON SHEETS S501 THRU S504 FOR ADDITIONAL INFORMATION.
 3. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
 4. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
 5. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
 6. ADDITIONAL CONCRETE SPALLS AND CRACKS MAY BE DISCOVERED ON BRIDGE DECK AFTER REMOVAL OF EXISTING PAVEMENT. CONTRACTOR TO SURVEY BRIDGE DECK FOR DAMAGE AND REPAIR IN ACCORDANCE WITH CONCRETE REPAIR DETAILS. SUBMIT QUANTITIES TO ENGINEER FOR APPROVAL PRIOR TO INITIATING REPAIRS.

- LEGEND**
- [Hatched Box] EXTENT OF DEMOLITION
 - [Stippled Box] CONCRETE REPAIR NO., SEE SHT S501
 - [Solid Box] EXTENT OF CONCRETE REPAIR
 - [Dashed Line] APPROXIMATE CRACK LOCATION
 - [Box with 'X'] STEEL REPAIR NO., SEE SHT S501



2 EXISTING BRIDGE DECK SOFFIT PLAN
SCALE: 3/16" = 1'-0"



 Jonathan V. Chiriac LICENSED PROFESSIONAL ENGINEER NO. 14022-A HAWAII, U.S.A.	DESIGNED BY: <u>DN</u>		DRAWN BY: <u>LL</u>		CHECKED BY: <u>JD</u>	
	APPROVED		SUBMITTED BY:		DATE: _____	
	FILE		PROJECT		FOLDER	
	NO.		NO.		NO.	

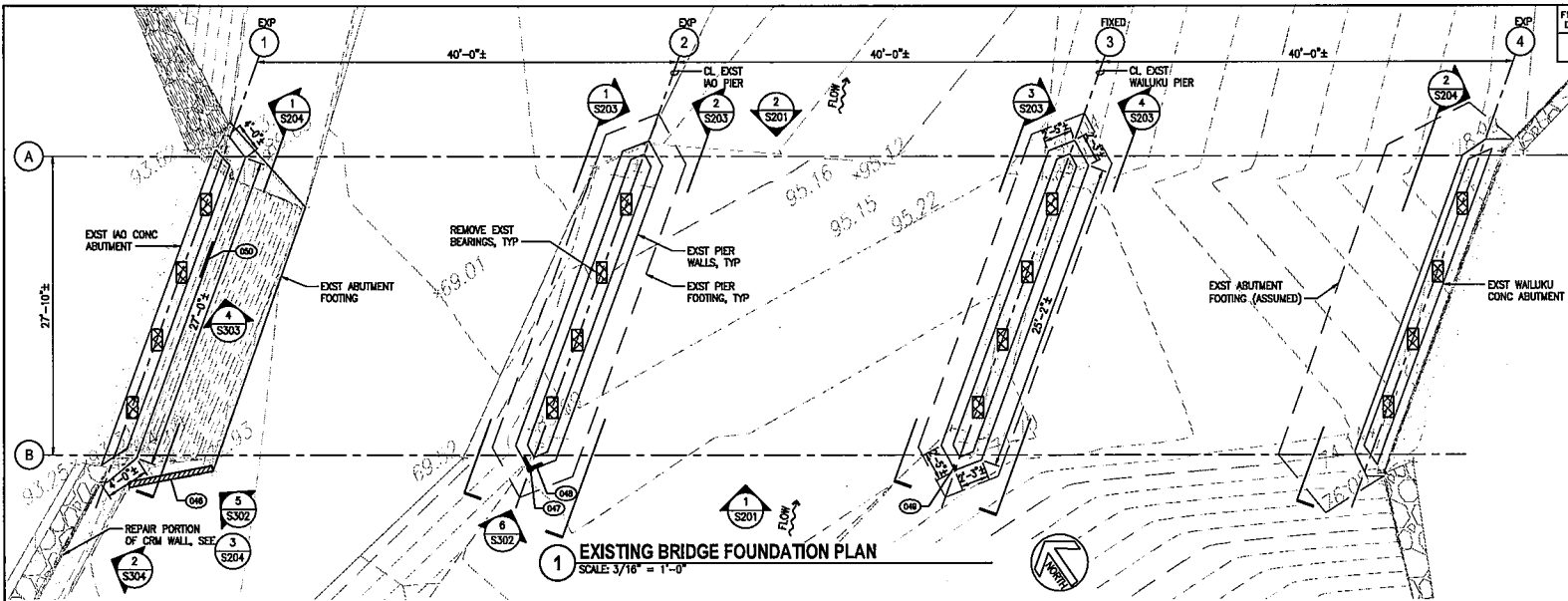
COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
WAILUKU, MAUI, HAWAII

EXISTING BRIDGE TOP DECK & SOFFIT PLANS

IAO BRIDGE REPAIRS
FEDERAL-AID PROJECT NO. BR-3200(001)

DWG. NO. **S101**
SHEET 26 OF 54

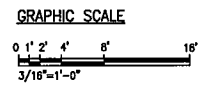
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2025	27	54



- NOTES**
1. REFER TO GENERAL NOTES ON SHEETS S501 AND S502 FOR ADDITIONAL INFORMATION.
 2. REFER TO CONCRETE AND STEEL REPAIR DETAILS ON SHEETS S501 THRU S504 FOR ADDITIONAL INFORMATION.
 3. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
 4. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
 5. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S501 FOR MORE INFORMATION.
 6. ADDITIONAL CONCRETE SPALLS AND CRACKS MAY BE DISCOVERED ON BRIDGE SUBSTRUCTURE. CONTRACTOR TO SURVEY BRIDGE SUBSTRUCTURE FOR DAMAGE AND REPAIR IN ACCORDANCE WITH CONCRETE REPAIR DETAILS. SUBMIT QUANTITIES TO ENGINEER FOR APPROVAL PRIOR TO INITIATING REPAIRS.

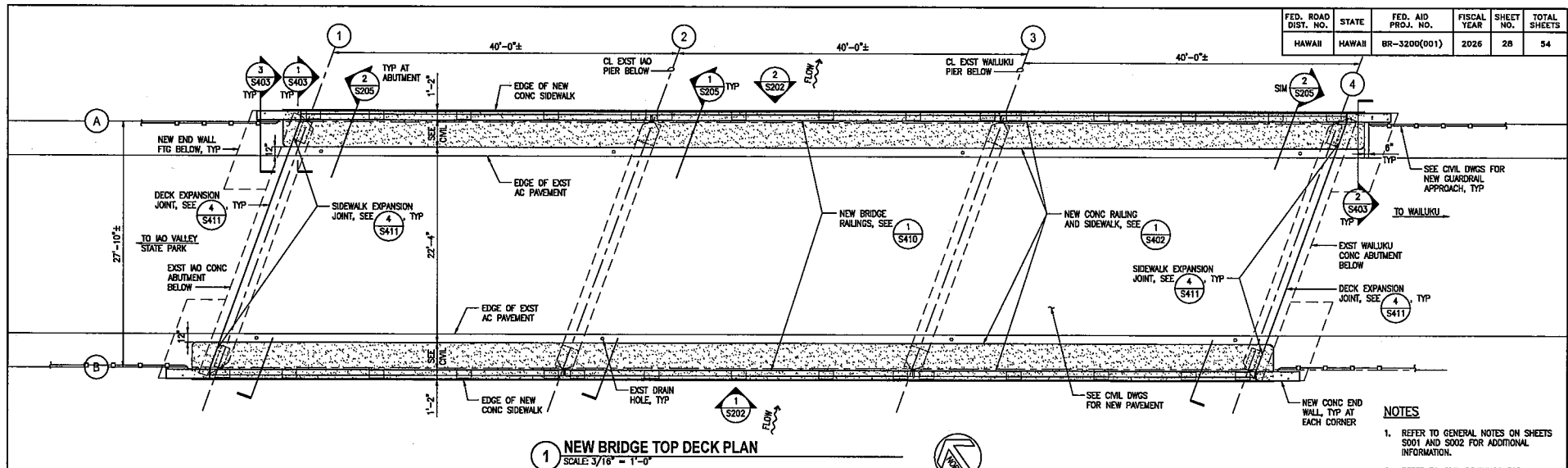
- LEGEND**
- ✕ EXTENT OF DEMOLITION
 - CONCRETE REPAIR NO., SEE SHIT S501
 - EXTENT OF CONCRETE REPAIR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
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	REVISION				DATE	BY	MADE BY	APPROVED
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII							
	EXISTING BRIDGE FOUNDATION PLAN							
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)							
	DESIGNED BY	CHK	DRAWN BY	LL	CHECKED BY	JJD		
	APPROVED		SUBMITTED BY					
	DATE		FILE NUMBER		DATE			
	FILE		PROJECT		FOLDER		INC.	

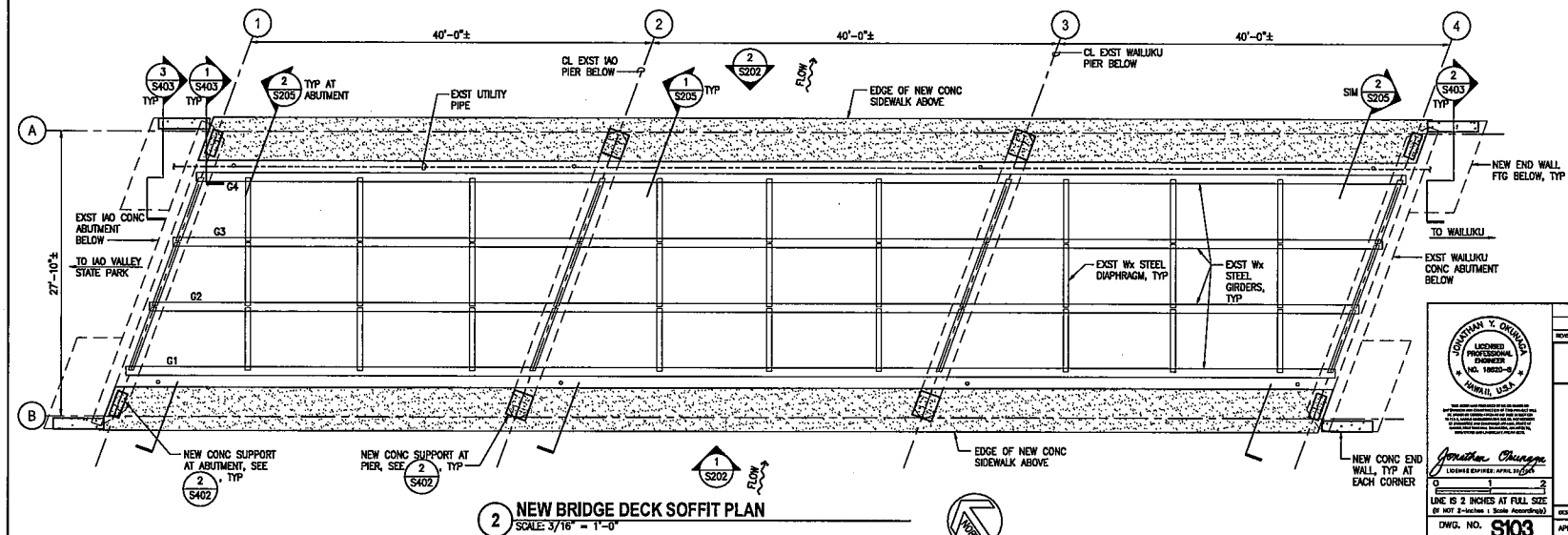
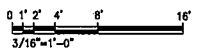
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	28	54



NOTES

1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
4. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.

GRAPHIC SCALE



Jonathan Chang
LICENSED PROFESSIONAL ENGINEER
NO. 18822-A
HAWAII, U.S.A.

DATE: 02/24/25
TIME: 10:00 AM

LINE IS 2 INCHES AT FULL SIZE
(BY NOT 3/16-INCHES 1 SCALE ACCORDING)

DWG. NO. **S103**

SHEET 28 OF 54

REGION	DATE	DESIGNED	MADE BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, 19104				
NEW BRIDGE TOP DECK & SOFFIT PLANS				
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
DESIGNED BY	CHANG BY	LL	CHECKED BY	JO
APPROVED	SUBMITTED BY			
DATE	FILE	PROJECT	FOLDER	NO.

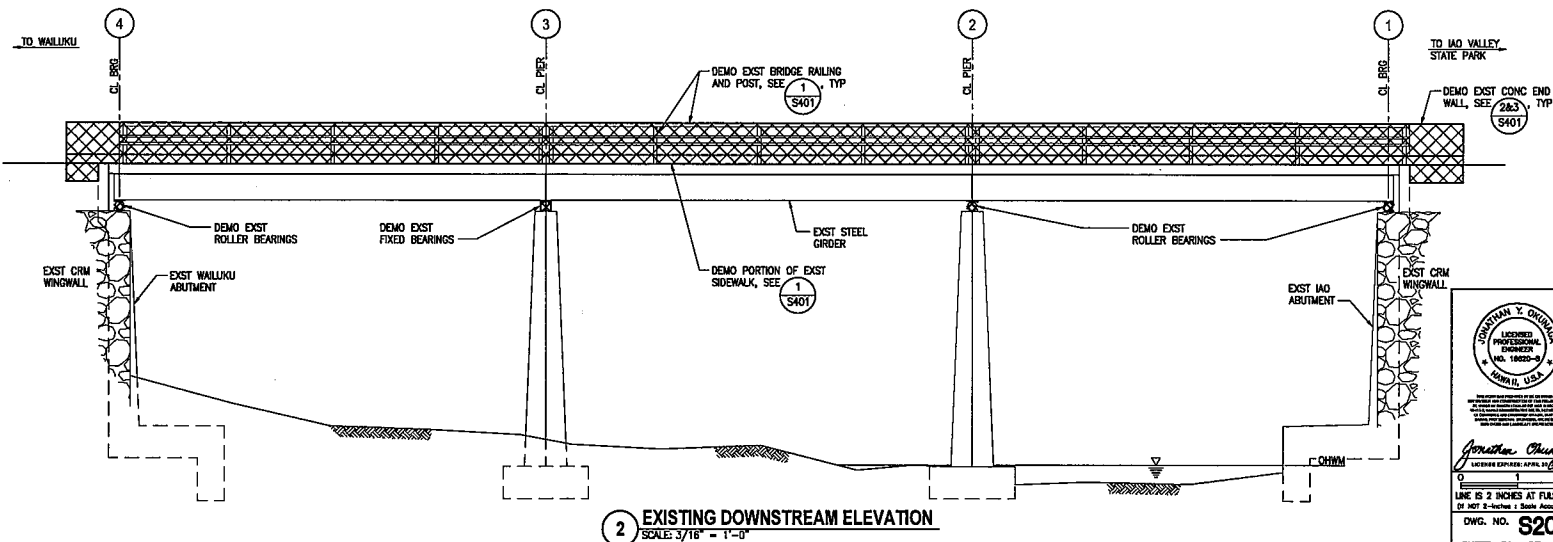
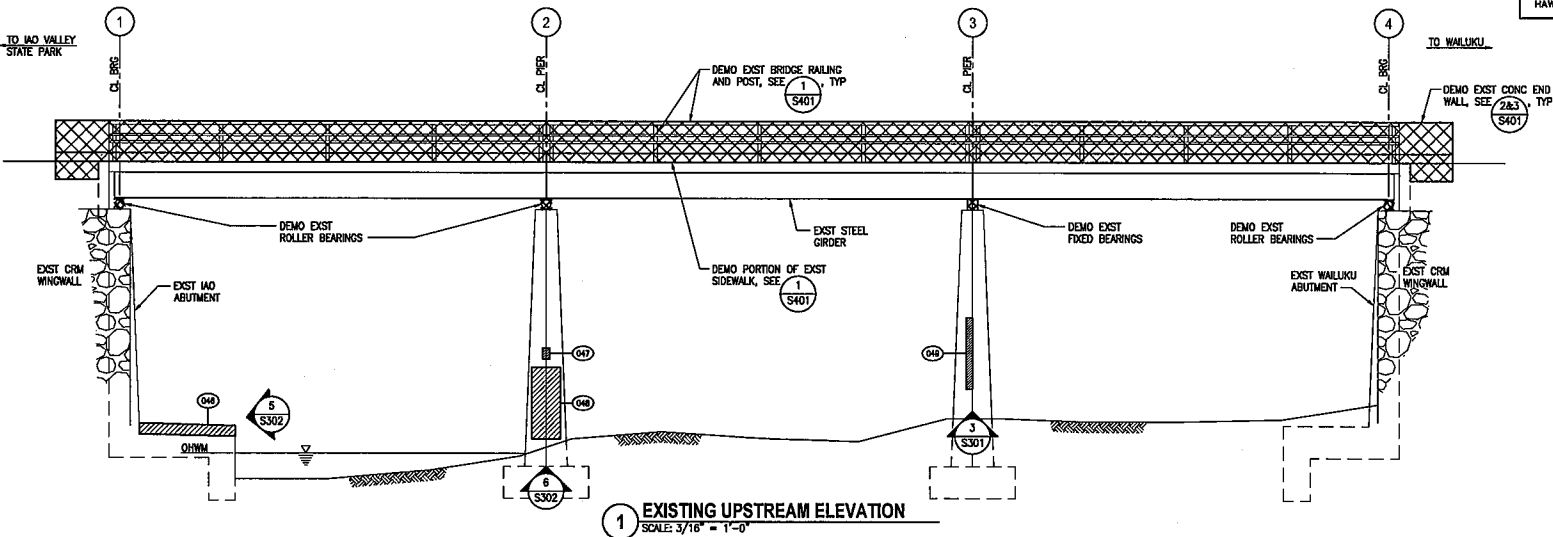


Page 10 of 10

1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
4. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.

JOB NO. M-22-032

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	30	54



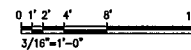
NOTES

1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CONCRETE AND STEEL REPAIR DETAILS ON SHEETS S501 THRU S504 FOR ADDITIONAL INFORMATION.
3. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
4. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
5. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.

LEGEND

- EXTENT OF DEMOLITION
- CONCRETE REPAIR NO., SEE SHT S001
- EXTENT OF CONCRETE REPAIR

GRAPHIC SCALE

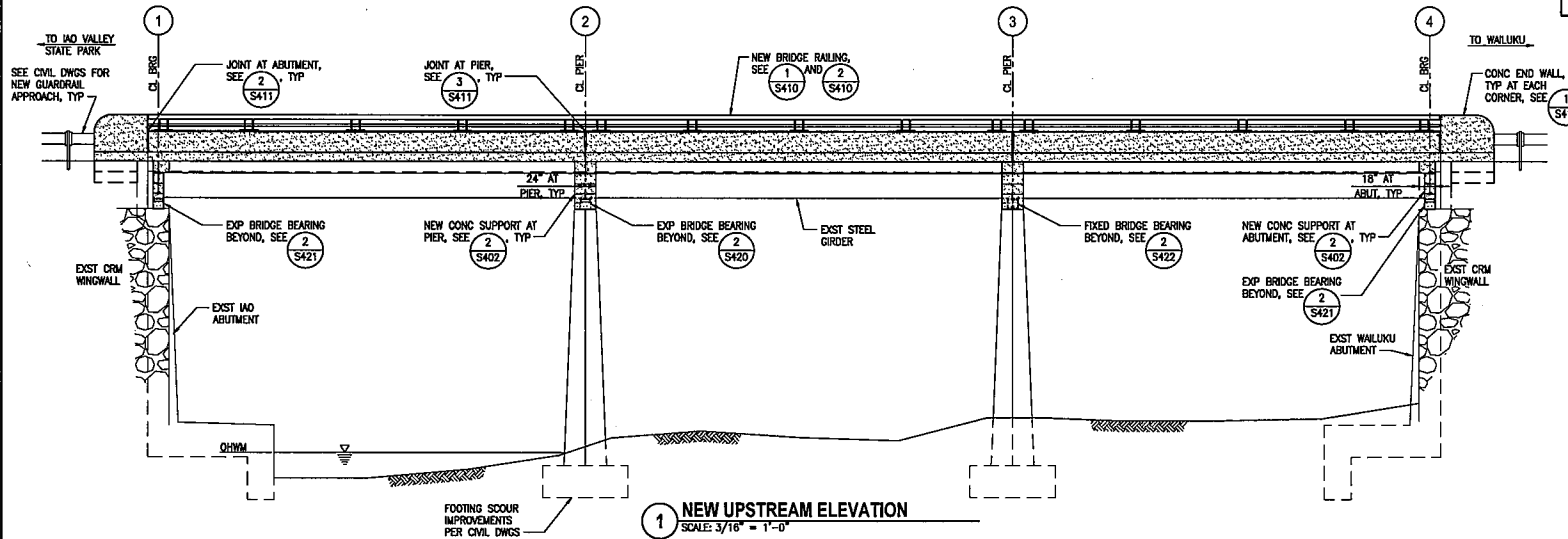


Jonathan Ching
LICENSED PROFESSIONAL ENGINEER
APRIL 14, 2014

LINE IS 2 INCHES AT FULL SIZE
(OR NOT 2 INCHES - SCALE ANNOTATED)
DWG. NO. **S201**
SHEET 30 OF 54

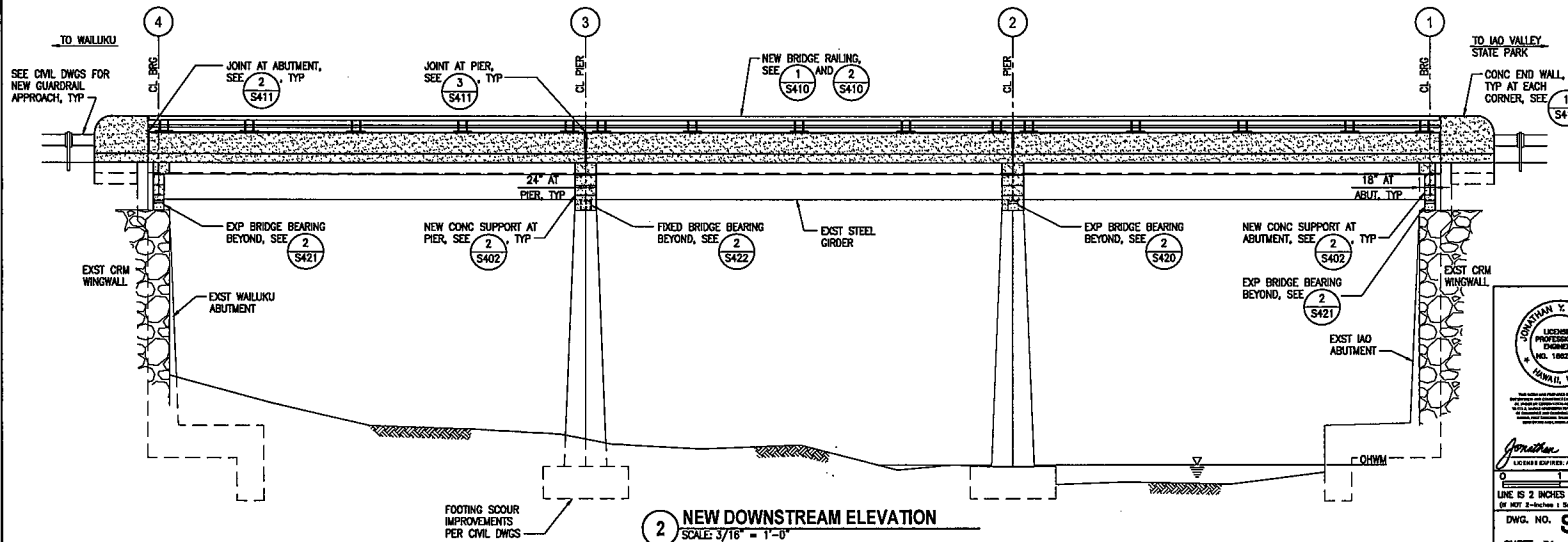
REVISION	DATE	BY	MADE BY	APPROVED
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII EXISTING BRIDGE ELEVATIONS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
DESIGNED BY	DRWN BY	CHKD BY	SUBMITTED BY	
APPROVED	DATE		FILE NUMBER	DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	31	54

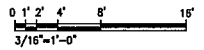


NOTES

1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
4. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.



GRAPHIC SCALE



Jonathan V. Oliveira
LICENSED PROFESSIONAL ENGINEER
EXPIRES APRIL 30, 2026

LINE IS 3/16\"/>

DESIGNED BY	DATE	CHECKED BY	DATE
DN		LL	
SUBMITTED BY			
DATE			
FILE			
PROJECT			
FOLDER			
NO.			

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
WAILUKU, MAUI, HAWAII

NEW BRIDGE ELEVATIONS

IAO BRIDGE REPAIRS
FEDERAL-AID PROJECT NO. BR-3200(001)

DWG. NO. **S202**
SHEET 31 OF 54

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	32	54

DATE: FEBRUARY 24, 2025

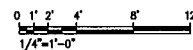
NOTES

- REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
- REFER TO CONCRETE AND STEEL REPAIR DETAILS ON SHEETS S501 THRU S504 FOR ADDITIONAL INFORMATION.
- REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
- FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
- TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY, INCLUDING JACKING TO REMOVE AND REPLACE BRIDGE BEARINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
- EXISTING UTILITY PIPE SHALL REMAIN IN PLACE. DO NOT DAMAGE. CONTRACTOR IS RESPONSIBLE FOR DETACHING THE PIPE FROM THE BRIDGE DURING JACKING OPERATIONS AND STABILIZING THE PIPE.

LEGEND

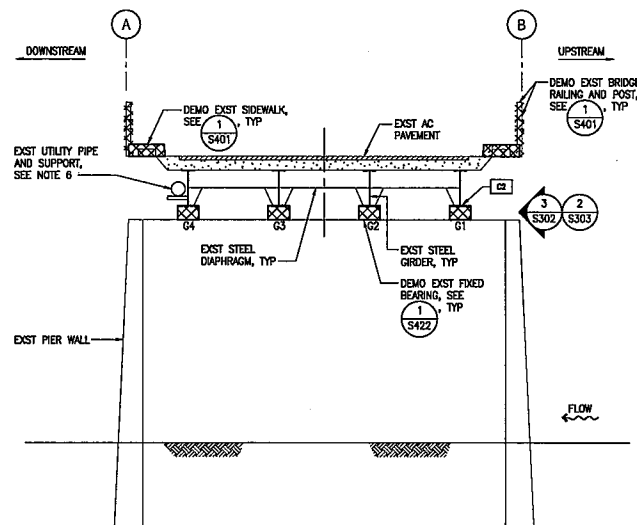
- EXTENT OF DEMOLITION
- CONCRETE REPAIR NO., SEE SHIT S601
- EXTENT OF CONCRETE REPAIR
- STEEL REPAIR NO., SEE SHIT S601

GRAPHIC SCALE

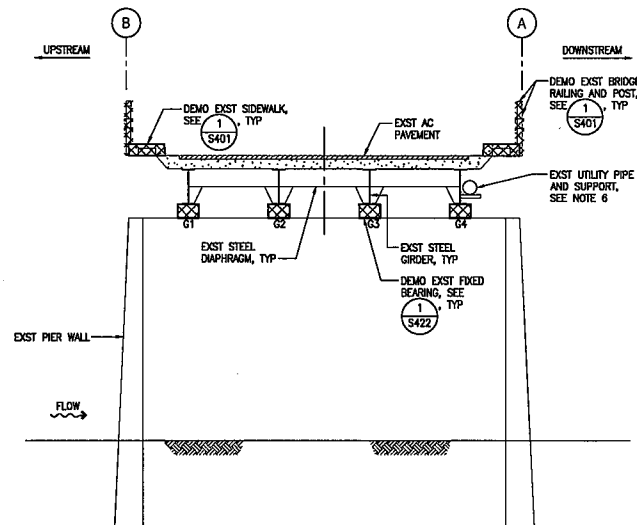


	REGION		DATE	BY	DATE	BY	APPROVED
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII						
	EXISTING PIER ELEVATIONS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)						
	DESIGNED BY: DN		DRAWN BY: LL		CHECKED BY: JD		
DWG. NO. S203		APPROVED		SUBMITTED BY			
SHEET 32 OF 54		DATE		TIME		DATE	
FILE		PROJECT		FOLDER		NO.	

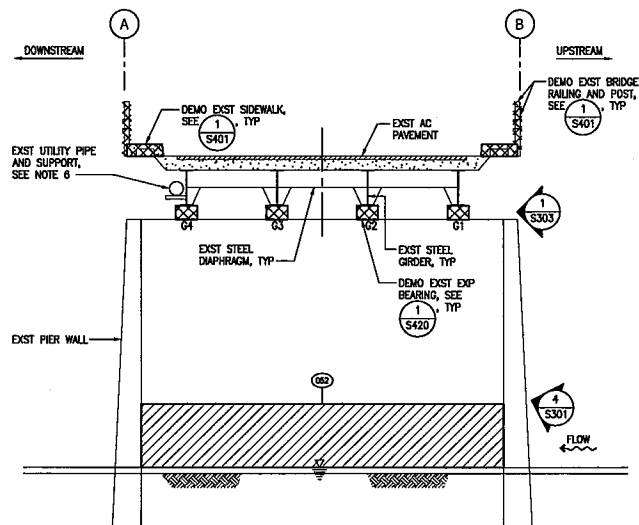
NO REVISIONS



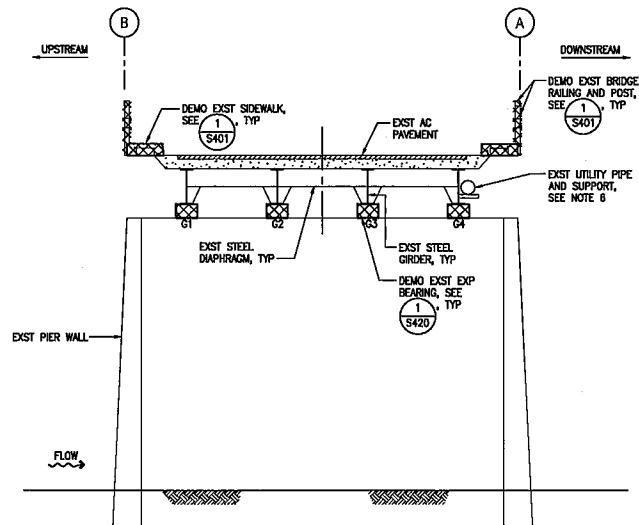
3 EXISTING WAILUKU PIER ELEVATION - IAO FACE
SCALE: 1/4" = 1'-0"



4 EXISTING WAILUKU PIER ELEVATION - WAILUKU FACE
SCALE: 1/4" = 1'-0"



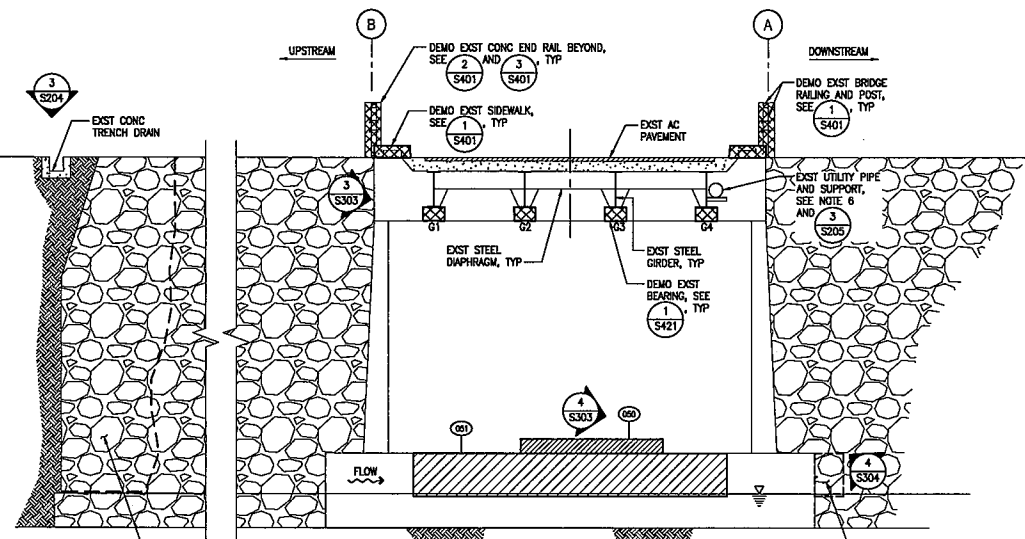
1 EXISTING IAO PIER ELEVATION - IAO FACE
SCALE: 1/4" = 1'-0"



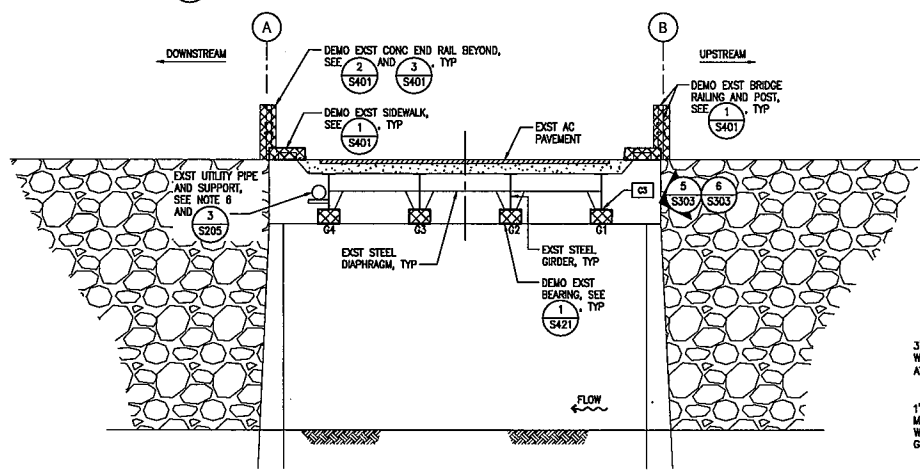
2 EXISTING IAO PIER ELEVATION - WAILUKU FACE
SCALE: 1/4" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	33	54

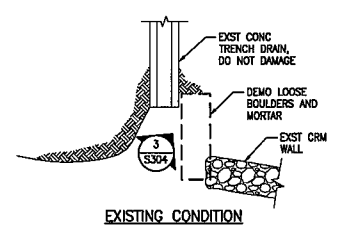
DATE: FEBRUARY 24, 2025



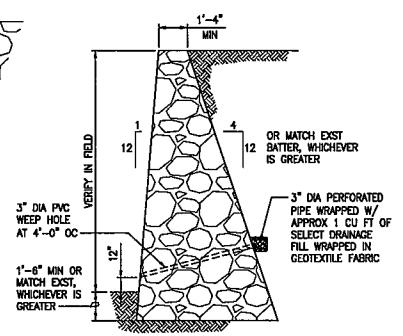
1 EXISTING IAO ABUTMENT ELEVATION
SCALE: 1/4" = 1'-0"



2 EXISTING WAILUKU ABUTMENT ELEVATION
SCALE: 1/4" = 1'-0"



3 PLAN - REPAIR UPSTREAM CRM WALL
NOT TO SCALE



4 SECTION
NOT TO SCALE

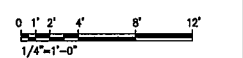
NOTES

1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CONCRETE AND STEEL REPAIR DETAILS ON SHEETS S001 THRU S004 FOR ADDITIONAL INFORMATION.
3. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
4. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
5. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY, INCLUDING JACKING TO REMOVE AND REPLACE BRIDGE BEARINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
6. EXISTING UTILITY PIPE SHALL REMAIN IN PLACE. DO NOT DAMAGE. CONTRACTOR IS RESPONSIBLE FOR DETACHING THE PIPE FROM THE BRIDGE AND STABILIZING THE PIPE DURING JACKING OPERATIONS.

LEGEND

- XX EXTENT OF DEMOLITION
- XXX CONCRETE REPAIR NO., SEE SHT S801
- XXX EXTENT OF CONCRETE REPAIR
- XX STEEL REPAIR NO., SEE SHT S801

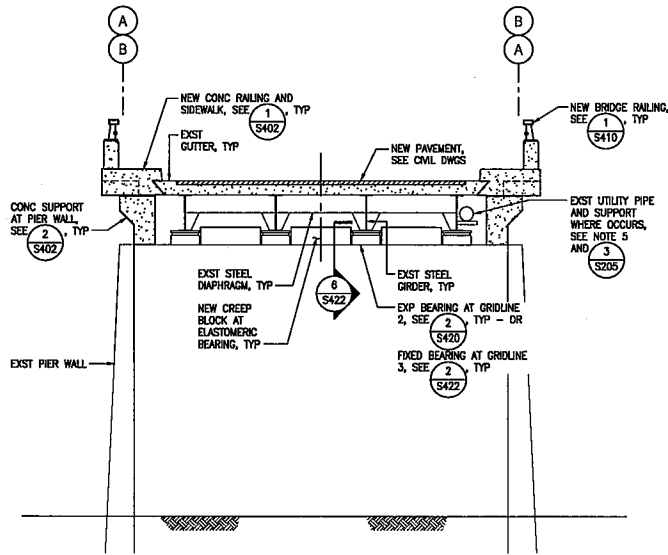
GRAPHIC SCALE



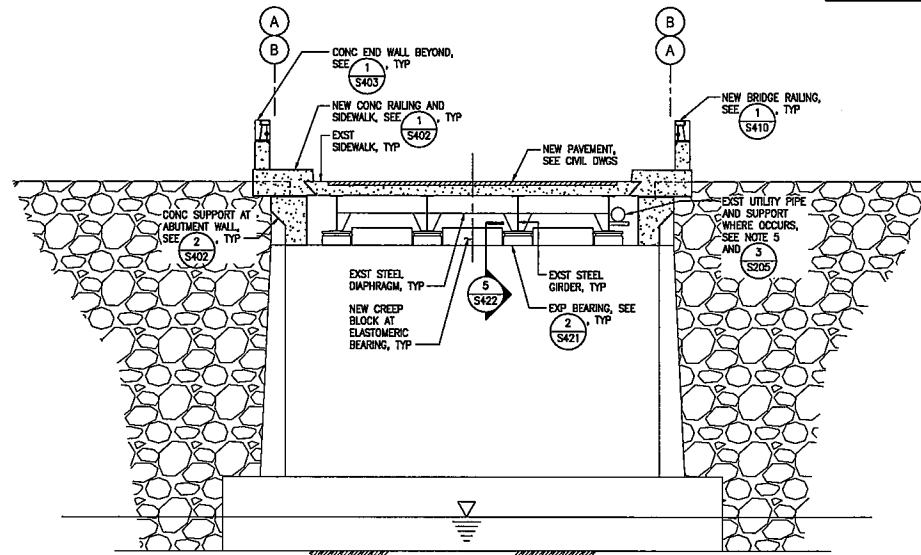
		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
EXISTING ABUTMENT ELEVATIONS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
DESIGNED BY	DATE	CHECKED BY	DATE
APPROVED		SUBMITTED BY	
DWG. NO. S204 SHEET 33 OF 54		DATE: _____ FILE: _____ FOLDER: _____ ML: _____	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	34	54

DATE: FEBRUARY 24, 2025



1 TYPICAL EXISTING PIER REPAIR ELEVATION
SCALE: 1/4" = 1'-0"

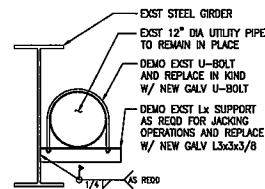
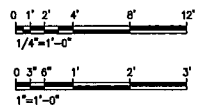


2 TYPICAL EXISTING ABUTMENT REPAIR ELEVATION
SCALE: 1/4" = 1'-0"

NOTES

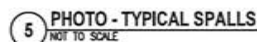
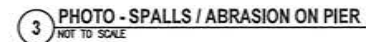
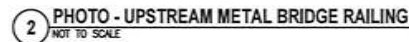
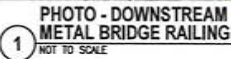
1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
4. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY, INCLUDING JACKING TO REMOVE AND REPLACE BRIDGE BEARINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
5. REATTACH UTILITY PIPE TO THE BRIDGE FOLLOWING THE REPLACEMENT OF BRIDGE BEARINGS.

GRAPHIC SCALE



3 TYPICAL UTILITY PIPE SUPPORT DETAIL
SCALE: 1" = 1'-0"

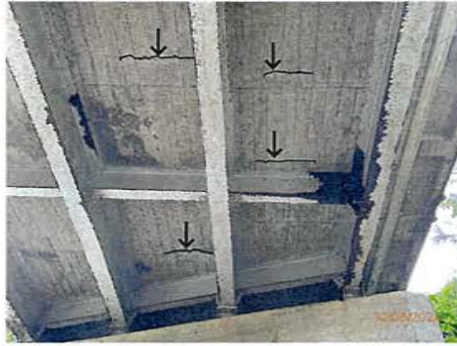
Jonathan Y. Chiu LICENSED PROFESSIONAL ENGINEER NO. 19622-B HAWAII, U.S.A. DATE: 02/24/2025 TIME: 10:00 AM BY: JYCHIU	REVISION: _____ DATE: _____ DESIGNED BY: _____ CHECKED BY: _____ COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKO, MAUI, HAWAII TYPICAL NEW ELEVATIONS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)	
	DESIGNED BY: DN DRAWN BY: LL CHECKED BY: JO DWG. NO. S205 SHEET 34 OF 54	APPROVED BY: _____ DATE: _____ FOR: _____ FILE: _____ PROJECT: _____ DESIGN: _____
	TYPICAL NEW ELEVATIONS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)	
	APPROVED BY: _____ DATE: _____ FOR: _____ FILE: _____ PROJECT: _____ DESIGN: _____	

DATE: FEBRUARY 24, 2025

- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|----------------------------|-------------------|----|-------------------|---|--|--|--|---|--|--|--|---|--|--|--|------------------------------|--|---------------------------|--|-----------------|--|---------------------|--|-------------------|--|----------------------------|--|
|  <p style="font-size: small;">AMERICAN PROFESSIONAL ENGINEER
INC. - SINCE 1933 -
CHICAGO, ILL.</p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">DESIGN</td> <td style="width: 25%;">DATE</td> <td style="width: 25%;">BY</td> <td style="width: 25%;">SCALE BY APPROVED</td> </tr> <tr> <td colspan="4" style="text-align: center; padding: 10px;"> <p>COUNTY OF MAUI
 DEPARTMENT OF PUBLIC WORKS
 WAILUKU, MAUI, HAWAII</p> </td> </tr> <tr> <td colspan="4" style="text-align: center; height: 150px; vertical-align: middle;"> <p>PHOTOS</p> <p style="font-size: 1.5em; margin: 20px 0;">IAO BRIDGE REPAIRS</p> <p>FEDERAL-ND PROJECT NO. BR-3300(001)</p> </td> </tr> <tr> <td colspan="4" style="padding: 5px;"> <p>0 1 2</p> <p style="font-size: small;">LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2-inches - State Assumed)</p> </td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <p>DESIGNED BY DN</p> </td> <td colspan="2" style="padding: 5px;"> <p>DRAWN BY LL</p> </td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <p>APPROVED</p> </td> <td colspan="2" style="padding: 5px;"> <p>SUBMITTED BY</p> </td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <p>SIGN _____</p> </td> <td colspan="2" style="padding: 5px;"> <p>DATE RELEASED _____</p> </td> </tr> </table> | DESIGN | DATE | BY | SCALE BY APPROVED | <p>COUNTY OF MAUI
 DEPARTMENT OF PUBLIC WORKS
 WAILUKU, MAUI, HAWAII</p> | | | | <p>PHOTOS</p> <p style="font-size: 1.5em; margin: 20px 0;">IAO BRIDGE REPAIRS</p> <p>FEDERAL-ND PROJECT NO. BR-3300(001)</p> | | | | <p>0 1 2</p> <p style="font-size: small;">LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2-inches - State Assumed)</p> | | | | <p>DESIGNED BY DN</p> | | <p>DRAWN BY LL</p> | | <p>APPROVED</p> | | <p>SUBMITTED BY</p> | | <p>SIGN _____</p> | | <p>DATE RELEASED _____</p> | |
| DESIGN | DATE | BY | SCALE BY APPROVED | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>COUNTY OF MAUI
 DEPARTMENT OF PUBLIC WORKS
 WAILUKU, MAUI, HAWAII</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>PHOTOS</p> <p style="font-size: 1.5em; margin: 20px 0;">IAO BRIDGE REPAIRS</p> <p>FEDERAL-ND PROJECT NO. BR-3300(001)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>0 1 2</p> <p style="font-size: small;">LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2-inches - State Assumed)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>DESIGNED BY DN</p> | | <p>DRAWN BY LL</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>APPROVED</p> | | <p>SUBMITTED BY</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>SIGN _____</p> | | <p>DATE RELEASED _____</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FILE PROJECT COLOR IN.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	36	54



1 PHOTO - CRACKS IN DECK SOFFIT
NOT TO SCALE



2 PHOTO - CRACKS IN DECK SOFFIT
NOT TO SCALE



3 PHOTO - GIRDER CORROSION AT WAILUKU PIER
NOT TO SCALE



5 PHOTO - SPALL ON ABUTMENT FOOTING
NOT TO SCALE



6 PHOTO - SPALLS / ABRASION ON PIER
NOT TO SCALE

4 NOT USED
NOT TO SCALE

NOTES

- PHOTOS WERE TAKEN DURING FIELD INVESTIGATION IN OCTOBER 2024.
- PAIN SYSTEM APPLIED TO STEEL NOT SHOWN IN PHOTOS.
- FIELD VERIFY ALL CONDITIONS IN PROVIDED PHOTOS.

	REVISION		DATE	BY	DATE	BY
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII PHOTOS I40 BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)						
		DESIGNED BY: JLC DRAWN BY: JLC CHECKED BY: JLC		SUBMITTED BY:		
DWG. NO. S302 SHEET 36 OF 54		APPROVED BY:				

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BIR-3200(001)	2026	37	54



1 PHOTO - ROLLER BEARING CORROSION AT IAO PIER
NOT TO SCALE



2 PHOTO - FIXED BEARING CORROSION AT WAILUKU PIER
NOT TO SCALE



3 PHOTO - ROLLER BEARING CORROSION AT IAO ABUTMENT
NOT TO SCALE



4 PHOTO - SPALLS /
ABRASION ON IAO ABUTMENT
NOT TO SCALE



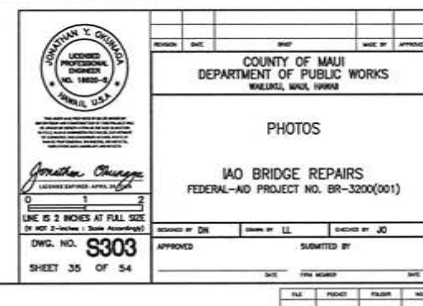
5 PHOTO - ROLLER BEARING
CORROSION AT WAILUKU ABUTMENT
NOT TO SCALE



6 PHOTO - GIRDER CORROSION
AT WAILUKU ABUTMENT
NOT TO SCALE

NOTES

1. PHOTOS WERE TAKEN DURING FIELD INVESTIGATION IN OCTOBER 2024.
2. PAINT SYSTEM APPLIED TO STEEL NOT SHOWN IN PHOTOS.
3. FIELD VERIFY ALL CONDITIONS IN PROVIDED PHOTOS.



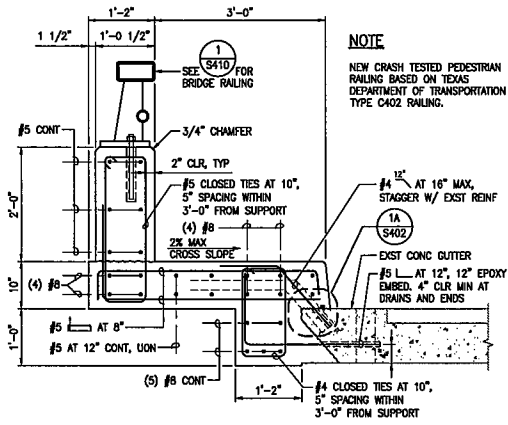
DATE: FEBRUARY 24, 2025

1. PHOTOS WERE TAKEN DURING FIELD INVESTIGATION IN OCTOBER 2024.
2. PAINT SYSTEM APPLIED TO STEEL NOT SHOWN IN PHOTOS.
3. FIELD VERIFY ALL CONDITIONS IN PROVIDED PHOTOS.

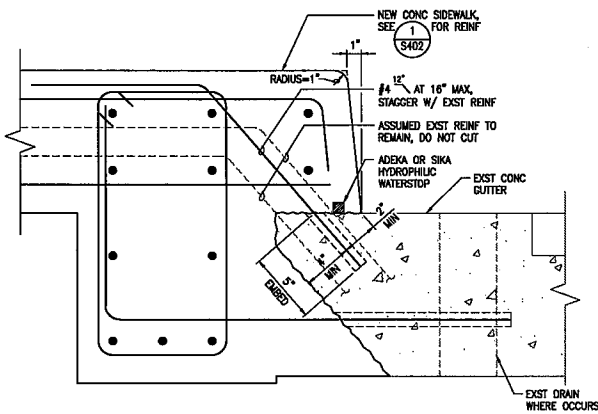
NO BRIDGE REPAIRS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2025	40	54

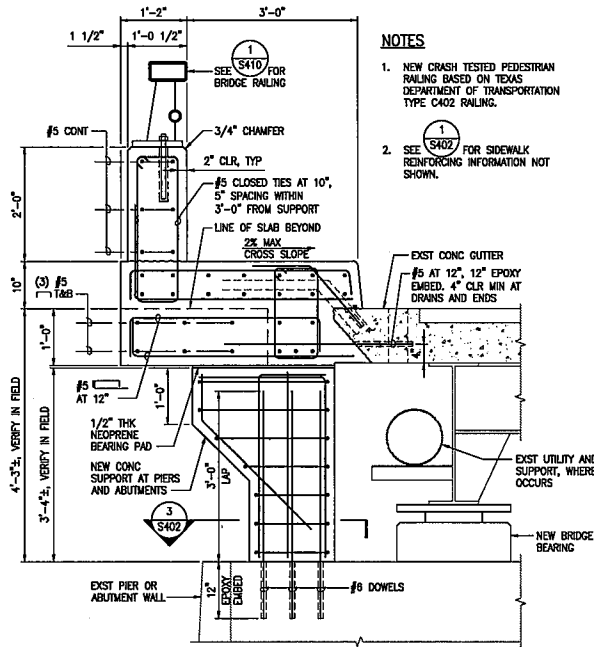
DATE: FEBRUARY 24, 2025



1 SECTION BETWEEN NEW SUPPORTS
SCALE: 1" = 1'-0"

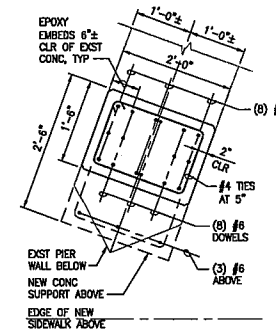


1A DETAIL
SCALE: 3" = 1'-0"

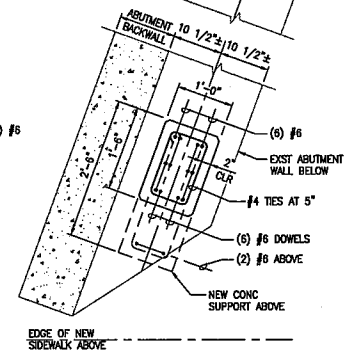


2 SECTION AT NEW CONCRETE SUPPORT
SCALE: 1" = 1'-0"

- NOTES
1. NEW CRASH TESTED PEDESTRIAN RAILING BASED ON TEXAS DEPARTMENT OF TRANSPORTATION TYPE C402 RAILING.
 2. SEE S402 FOR SIDEWALK REINFORCING INFORMATION NOT SHOWN.

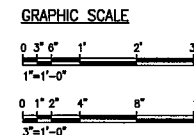


PLAN AT PIER



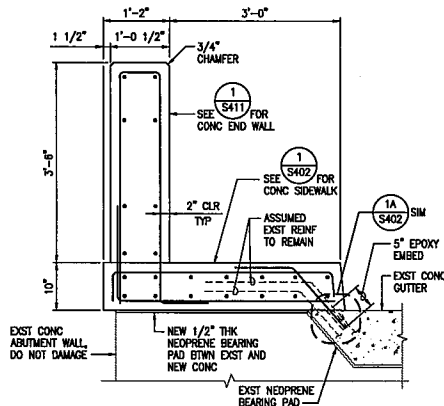
PLAN AT ABUTMENT

3 PLAN - SECTION AT NEW CONCRETE SUPPORT
SCALE: 1" = 1'-0"

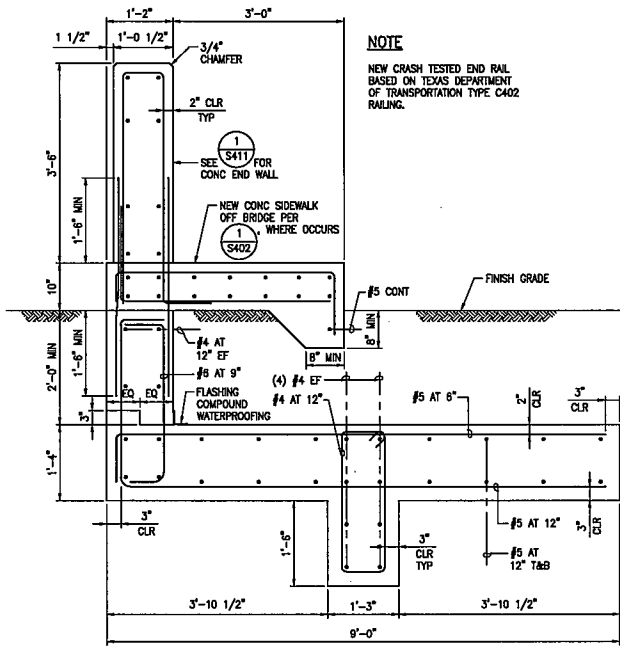


		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS MAUI, HAWAII	
BRIDGE CONCRETE SUPPORT DETAILS		IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)	
DESIGNED BY: DN DWG. NO.: S402 SHEET 40 OF 54	CHECKED BY: LL SUBMITTED BY:	DATE:	FILE:

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	41	54

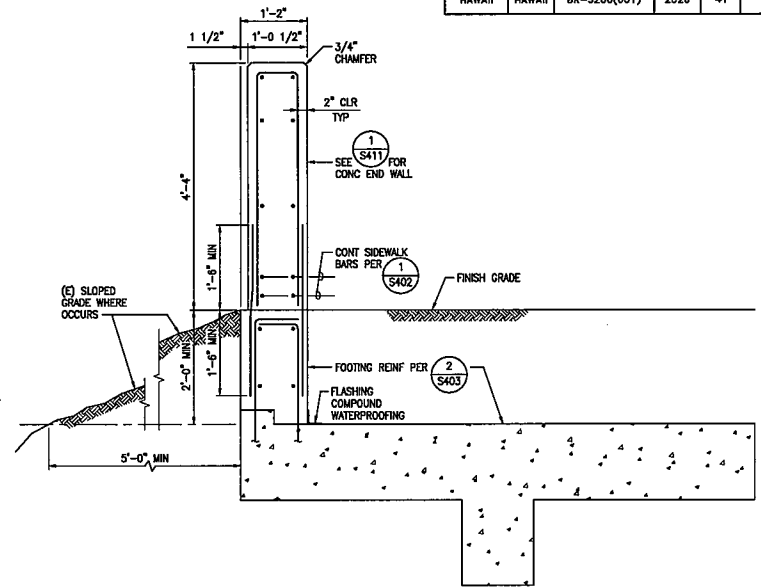


1 NEW SECTION OVER ABUTMENT WALL
SCALE: 1" = 1'-0"



2 NEW SECTION - END OF RAIL OFF BRIDGE
SCALE: 1" = 1'-0"

NOTE
NEW CRASH TESTED END RAIL
BASED ON TEXAS DEPARTMENT
OF TRANSPORTATION TYPE C402
RAILING.



3 NEW SECTION - END OF RAIL OFF BRIDGE
SCALE: 1" = 1'-0"

GRAPHIC SCALE

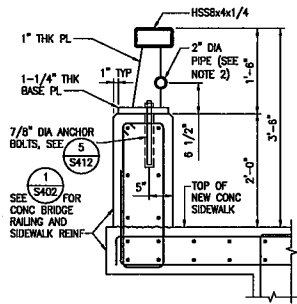


 Jonathan Y. Chung LICENSED PROFESSIONAL ENGINEER EXPIRATION DATE: 12/31/2027 LINE IS 2 INCHES AT FULL SIZE (IF NOT 2 INCHES, SCALE INDICATED) DWG. NO. S403 SHEET 41 OF 54	REVISION	DATE	BY	APPROVED	
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII				
	BRIDGE END WALL DETAILS				
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
DESIGNED BY	CH	DRAWN BY	LL	CHECKED BY	JQ
APPROVED		SUBMITTED BY			
DATE	FEB 2025	DATE			
FILE	PROJECT	FOUR	NO.		

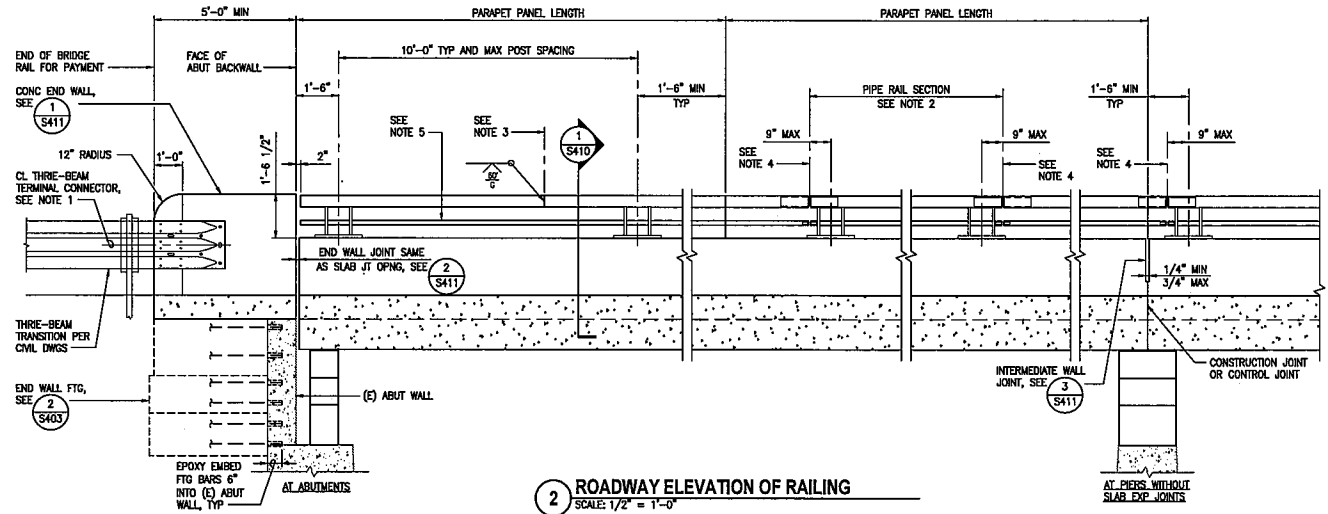
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	42	54

NOTES

1. NEW CRASH TESTED PEDESTRIAN RAILING BASED ON TEXAS DEPARTMENT OF TRANSPORTATION TYPE C402 RAILING.
2. 2" DIAMETER STANDARD PIPE (2.375" O.D., 0.154" WALL THICKNESS) (ASTM A53 GR B, A1085 OR A500 GR B), PLACED ON EITHER SIDE OF STEEL RAIL POST.



1 NEW RAILING
SCALE: 1" = 1'-0"

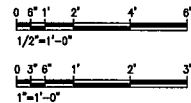


2 ROADWAY ELEVATION OF RAILING
SCALE: 1/2" = 1'-0"

NOTES

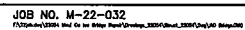
1. TERMINAL CONNECTORS AND ASSOCIATED HARDWARE ARE TO BE PAID FOR UNDER THE ITEM "GUARDRAIL". ATTACH GUARDRAIL TRANSITIONS TO THE BRIDGE RAIL AND EXTEND ALONG THE EMBANKMENT UNLESS OTHERWISE SHOWN IN THE PLANS.
2. PIPE RAIL SECTIONS MUST HAVE AT LEAST TWO POSTS BUT NOT MORE THAN FOUR.
3. ONE SHOP SPICE PER PIPE RAIL SECTION IS PERMITTED WITH MINIMUM 85 PERCENT PENETRATION. THE WELD MAY BE SQUARE GROOVE OR SINGLE V GROOVE. GRIND SMOOTH.
4. CENTERLINE EXPANSION JOINT OR SPICE JOINT AS REQUIRED.
5. 2" DIAMETER STANDARD PIPE (2.375" O.D., 0.154" WALL THICKNESS) (ASTM A53 GR B, A1085 OR A500 GR B).
6. GALVANIZE ALL METAL COMPONENTS OF STEEL RAIL SYSTEM.

GRAPHIC SCALE

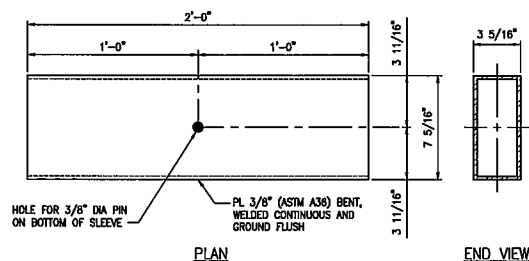


	DESIGNED BY: EN		CHECKED BY: JD	
	APPROVED BY: S410		SUBMITTED BY:	
	SHEET 42 OF 54		DATE: _____	
	FILE NO. _____		PROJECT NO. _____	

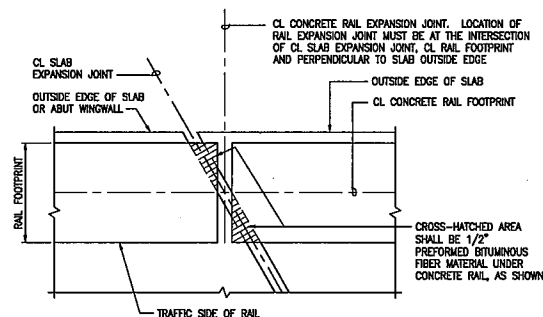
REGION: _____ DATE: _____			
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HONOLULU, MAUI, HAWAII			
BRIDGE RAILING DETAILS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			

DATE: FEBRUARY 24, 2025

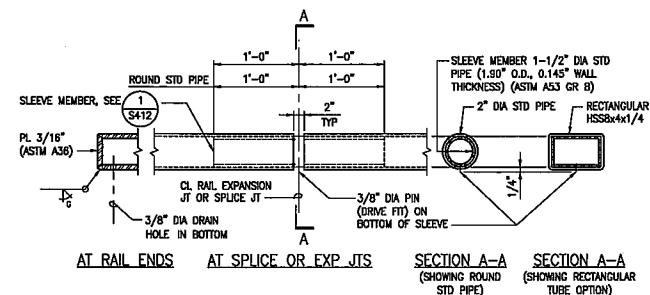
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	44	54



1 RECTANGULAR TUBE SLEEVE MEMBER DETAIL
SCALE: 3" = 1'-0"



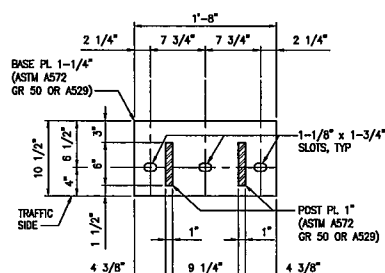
2 PLAN OF RAIL AT EXPANSION JOINTS
SCALE: 3" = 1'-0"



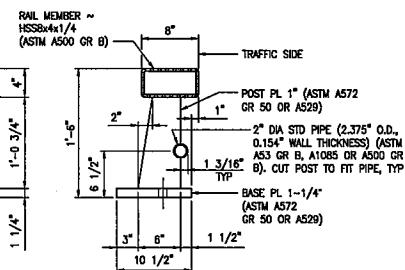
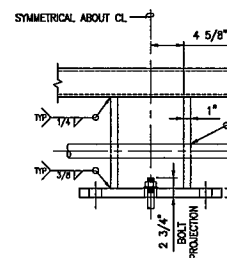
3 TUBE FABRICATION DETAILS
SCALE: 1 1/2" = 1'-0"

NOTE

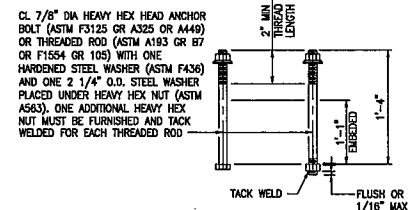
GALVANIZE ALL METAL COMPONENTS OF STEEL RAIL SYSTEM.



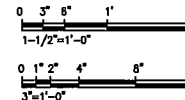
4 RECTANGULAR TUBE WITH RAIL POST & ANCHORAGE DETAILS
SCALE: 1 1/2" = 1'-0"



5 CAST-IN-PLACE ANCHOR BOLT
SCALE: 1 1/2" = 1'-0"

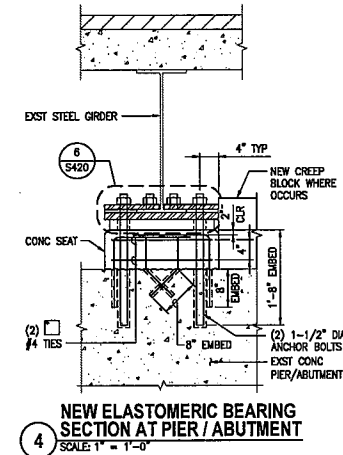
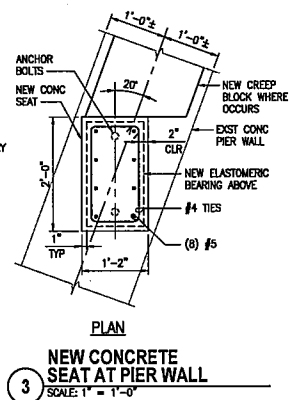
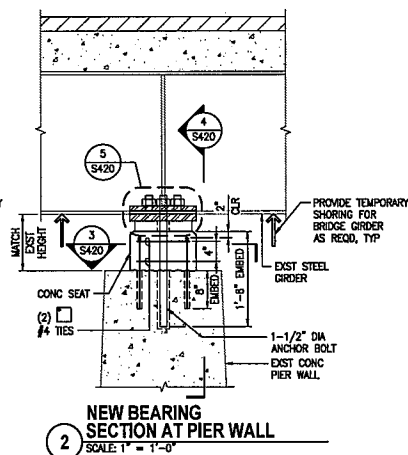
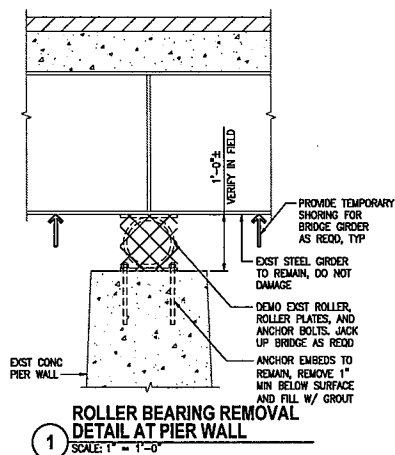


GRAPHIC SCALE

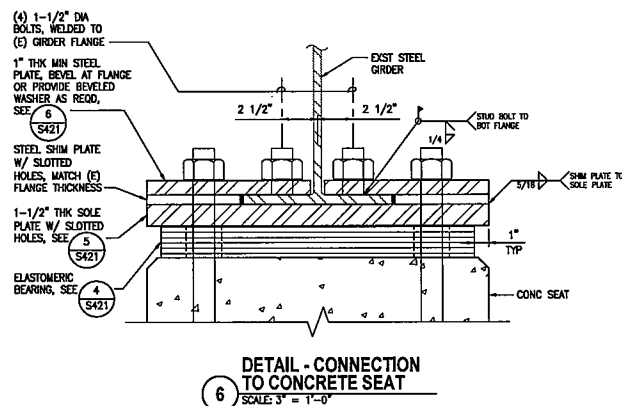
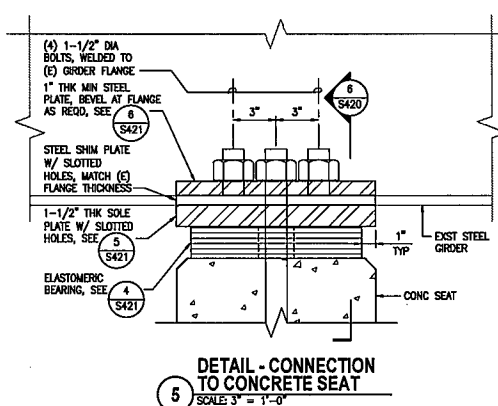
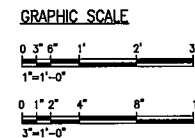


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	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAILILOI, MAUI, HAWAII		
BRIDGE RAILING DETAILS			
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
DRAWN BY: <i>Jonathan Chung</i> LICENSE EXPIRED: April 1974			
LINE IS 2 INCHES AT FULL SIZE (SEE DRAWING 1 FOR DIMENSIONS)			
DWG. NO. S412		SUBMITTED BY _____	
SHEET 44 OF 54		DATE _____ FROM NUMBER _____	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2025	45	54

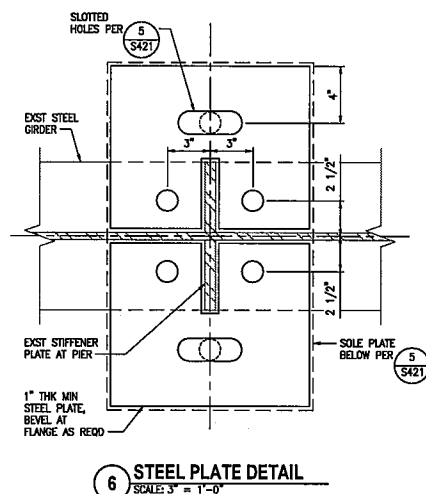
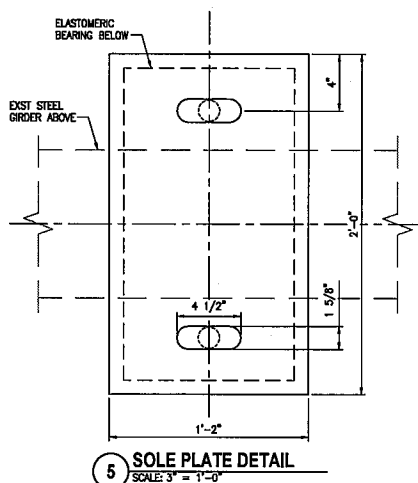
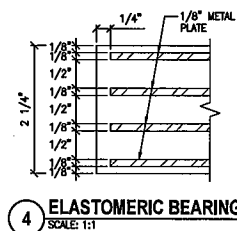
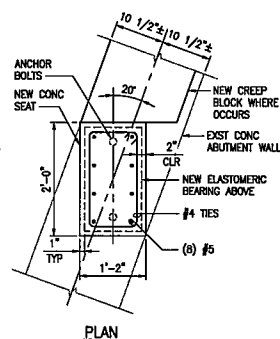
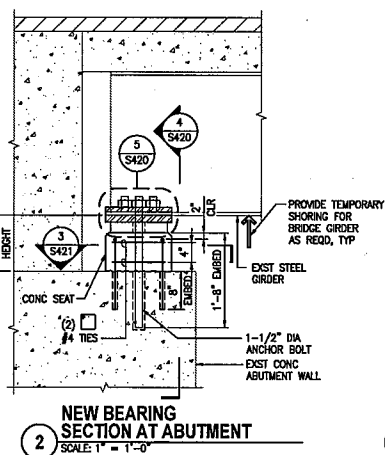
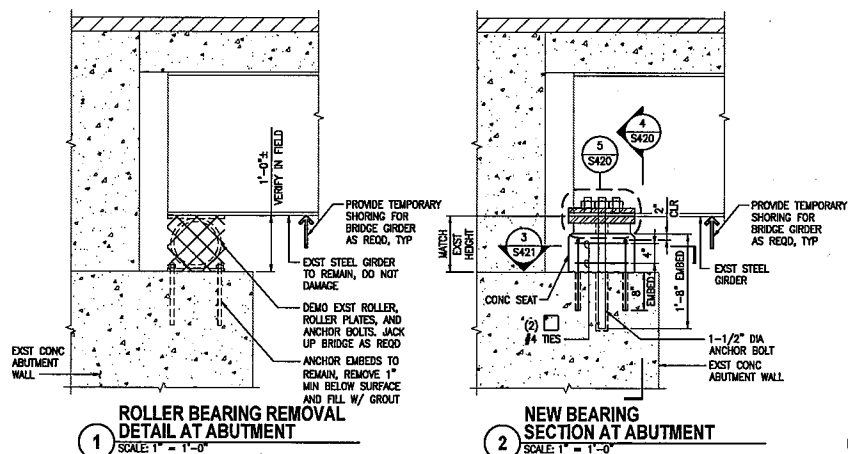


- ## NOTES
1. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY INCLUDING JACKING TO REMOVE AND REPLACE BRIDGE BEARINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL DESIGN SHORING AND JACKING FOR THE POSTED BRIDGE LOADING OF 19 TONS. SEE GENERAL NOTE ON SHEET 5001 FOR MORE INFORMATION.
 2. ONE OF THE LANES ON THE BRIDGE SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES DURING CONSTRUCTION. FULL BRIDGE CLOSURE FOR ONLY VERY SHORT PERIODS OF TIME MAY BE PERMITTED, SUBJECT TO ENGINEER'S APPROVAL.
 3. CONSTRUCT CONCRETE RAILINGS AND SHORING AFTER BRIDGE BEARINGS ARE INSTALLED.



JOHN W. & O. CRANE INCORPORATED ENGINEERS NO. 18820-0 HAWAII, U.S.A.		<table border="1"> <tr> <td>POSITION</td> <td>DATE</td> <td>INSET</td> <td>MADE BY</td> <td>APPROVED</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>		POSITION	DATE	INSET	MADE BY	APPROVED					
POSITION	DATE	INSET	MADE BY	APPROVED									
THIS DRAWING HAS BEEN PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMPLETELY ACCURATELY REPRESENTS THE DESIGN AND INTENT OF THE ENGINEER. I AM NOT PROVIDING ANY WARRANTY OR GUARANTEE OF ANY KIND, BUT I AM PROVIDING THIS DRAWING AS A PROFESSIONAL ENGINEER. I AM NOT PROVIDING ANY WARRANTY OR GUARANTEE OF ANY KIND, BUT I AM PROVIDING THIS DRAWING AS A PROFESSIONAL ENGINEER.		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII											
Jonathan Chung LICENSE EXPIRES APRIL 1994		BRIDGE BEARING DETAILS IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)											
LINE IS 2 INCHES AT FULL SIZE (SEE ARCHITECT'S 1 SCALE CONNECTION)		DRAWN BY <u>DN</u> CHECKED BY <u>LL</u> CHECKED BY <u>JO</u> APPROVED SUBMITTED BY											
DWG. NO. S420 SHEET 45 OF 54		DATE FIRM NUMBER PRICE											

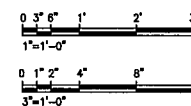
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	46	54



NOTES

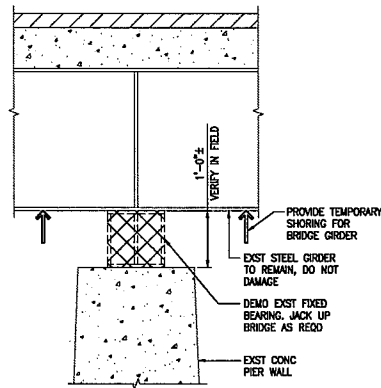
1. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY, INCLUDING JACKING TO REMOVE AND REPLACE BRIDGE BEARINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL DESIGN THE BRACING AND JACKING FOR THE POSTED BRIDGE LOADING OF 19 TONS. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
2. ONE OF THE LANES ON THE BRIDGE SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES DURING CONSTRUCTION. FULL CLOSURE OF THE BRIDGE FOR SHORT PERIODS OF TIME MAY BE PERMITTED, SUBJECT TO ENGINEER'S APPROVAL.
3. CONSTRUCT CONCRETE RAILINGS AND SURFACES AFTER BRIDGE BEARINGS ARE INSTALLED.

GRAPHIC SCALE

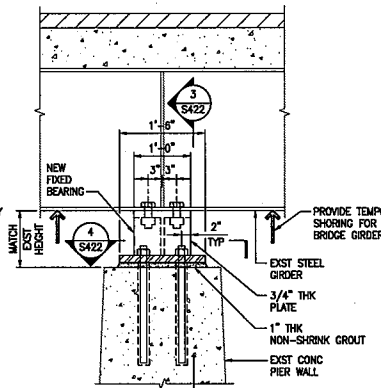


 LICENSED PROFESSIONAL ENGINEER NO. 10022-A HONOLULU, U.S.A.	REVISION _____ DATE _____	DRAWN _____ DATE _____	DESIGNED _____ DATE _____	CHECKED _____ DATE _____
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAILUO, MAUI, HAWAII			
BRIDGE BEARING DETAILS				
IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)				
SUBMITTED BY _____ DATE _____				
DRAWN BY _____ DATE _____				
CHECKED BY _____ DATE _____				
APPROVED _____ DATE _____				
FILE _____ DATE _____				

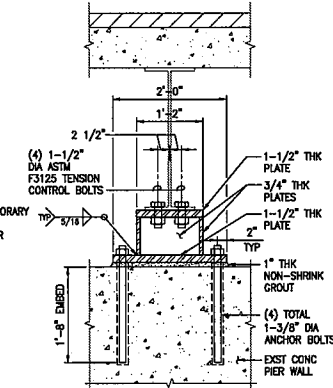
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	47	54



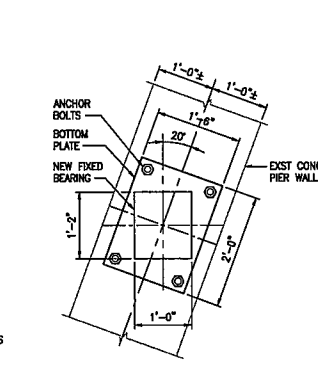
1 FIXED BEARING REMOVAL
DETAIL AT PIER WALL
SCALE: 1" = 1'-0"



2 NEW FIXED BEARING
SECTION AT PIER WALL
SCALE: 1" = 1'-0"



3 NEW FIXED BEARING
SECTION AT PIER WALL
SCALE: 1" = 1'-0"

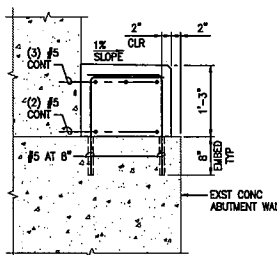
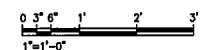


4 NEW FIXED BEARING
PLAN AT PIER WALL
SCALE: 1" = 1'-0"

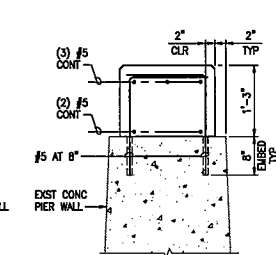
NOTES

- TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY, INCLUDING JACKING TO REMOVE AND REPLACE BRIDGE BEARINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL DESIGN SHORING AND JACKING FOR THE POSTED BRIDGE LOADING OF 19 TONS. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
- ONE OF THE LANES ON THE BRIDGE SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES DURING CONSTRUCTION. FULL BRIDGE CLOSURE FOR ONLY VERY SHORT PERIODS OF TIME MAY BE PERMITTED, SUBJECT TO ENGINEER'S APPROVAL.
- CONSTRUCT CONCRETE RAILINGS AND SUPPORTS AFTER BRIDGE BEARINGS ARE INSTALLED.

GRAPHIC SCALE



5 CREEP BLOCK
SECTION AT ABUTMENT
SCALE: 1" = 1'-0"

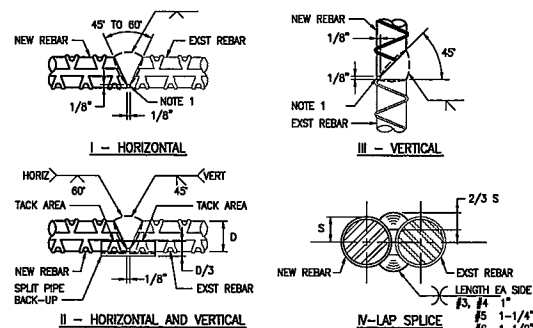


6 CREEP BLOCK
SECTION AT PIER WALL
SCALE: 1" = 1'-0"

	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAWAII, MAUI, HAWAII			
	BRIDGE BEARING DETAILS			
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
	DESIGNED BY: JN CHECKED BY: JN DATE: 10/1/2025	DRAWN BY: LL CHECKED BY: JN DATE: 10/1/2025	SUBMITTED BY: JN DATE: 10/1/2025	APPROVED BY: JN DATE: 10/1/2025

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	48	54

-



NOT TO SCALE

REBAR SIZE	MINIMUM ACCEPTABLE DIAMETER AT SECTION LOSS
#3	5/16"
#4	7/16"
#5	1/2"
#6	5/8"
#7	3/4"
#8	13/16"
#9	15/16"
#10	1-1/16"



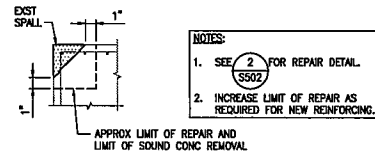
- NOTES**
1. REMOVE HEAVY CORROSION AND SCALE FROM REBARS USING HAND TOOLS (EG: WIRE BRUSH) OR OTHER APPROVED METHODS.
 2. IF REBAR DIAMETER AFTER CLEANING IS LESS THAN THAT SHOWN IN THE TABLE ABOVE, REPAIR REBAR PER .

NOT TO SCALE

[illegible]

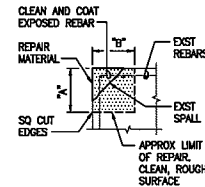
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2025	49	54

DATE: FEBRUARY 24, 2025



1 **EDGE SPALL - EXISTING CONDITION**
NOT TO SCALE

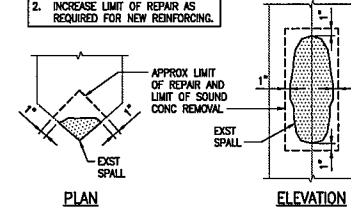
NOTES:
1. SEE **2** FOR REPAIR DETAIL.
2. INCREASE LIMIT OF REPAIR AS REQUIRED FOR NEW REINFORCING.



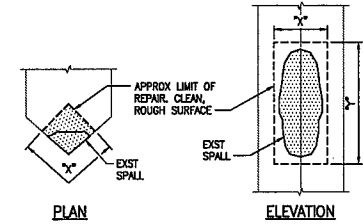
2 **EDGE SPALL - REPAIR**
NOT TO SCALE

REPAIR QUANTITY CALCULATIONS
CORNERS QTY (SF) = (A+B) x LENGTH
DIMENSION IN REPAIR SCHEDULE: "A" x "B"
NOTE: "A" + "B" = "C"
"LENGTH" = "D"

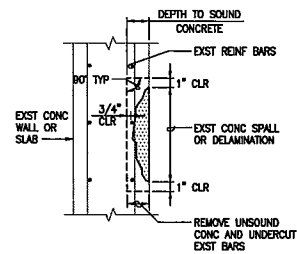
NOTES:
1. SEE **4** FOR REPAIR DETAIL.
2. INCREASE LIMIT OF REPAIR AS REQUIRED FOR NEW REINFORCING.



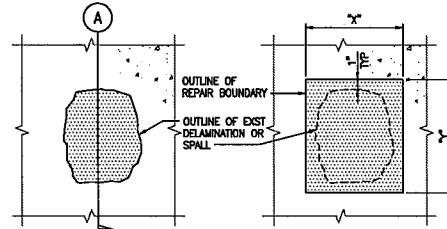
3 **PIER SPALL - EXISTING CONDITION**
NOT TO SCALE



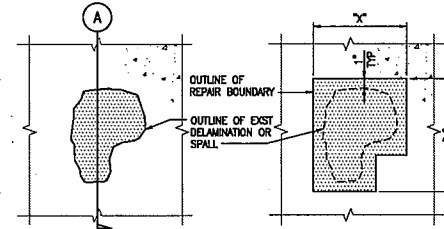
4 **PIER SPALL - REPAIR**
NOT TO SCALE



A **SECTION**



B **ELEVATION (WALL) OR PLAN (SLAB)**



C **ELEVATION (WALL) OR PLAN (SLAB)**

5 **REPAIR DETAIL - SPALL / DELAMINATION ON FLAT SURFACE**
NOT TO SCALE

NOTES
1. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
2. SEE CONCRETE REPAIR NOTES AND DETAILS ON SHEET S001 AND S501.

	REVISION		DATE	BY	DATE	BY
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII					
	CONCRETE REPAIR DETAILS					
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)					
DRAWING NO. S502 SHEET 49 OF 54		DESIGNED BY: JDC CHECKED BY: JDC APPROVED BY: JDC		SUBMITTED BY: JDC DATE: APR 2025		DATE: APR 2025
FILE		PROJECT		FOLDER		INCL

DATE: FEBRUARY 24, 2025

1. FILL WITH CONCRETE REPAIR MATERIAL BY PUMPING UNTIL CONCRETE IS FLUSH WITH TOP OF SLAB.
2. REMOVE FORMWORK AFTER CONCRETE HAS CURED AND ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
PATCH WITH REPAIR MORTAR AFTER FORM IS REMOVED TO ASSURE REINFORCEMENT COVER. PATCH EXISTING GRIND REPAIR AREAS, AS REQUIRED, TO REMOVE CONCRETE/MORTAR FLASHINGS AND TO PROVIDE A GENERALLY SMOOTH SURFACE REPAIR.
3. REPLACE CORRODED REBARS WHERE REQUIRED PER TABLE I ON SHEET SS01. PROVIDE SAME SIZE AND SPACING OF REINFORCING AS EXISTING.
4. IF REPAIR DEPTH IS LESS THAN HALF THE THICKNESS OF DECK SLAB, PARTIAL DEPTH REPAIR PER DETAIL 18/S903 MAY BE USED.



IF REPAIR DEPTH IS MORE THAN HALF THE THICKNESS OF DECK SLAB, FULL DEPTH REPAIR PER DETAIL 1A/S503 SHALL BE USED.



1. LIGHTLY TAP THE EXISTING CONCRETE ADJACENT TO THE CRACK. IF THE CONCRETE SOUNDS "HOLLOW", CHIP OFF THE SURFACE AND ANY DELAMINATED CONCRETE AND REPAIR AS A SPALL; OTHERWISE, PROCEED TO STEP 2 BELOW.

1. LIGHTLY PUMP THE EXISTING CONCRETE ADJACENT TO THE CRACK. IF THE CONCRETE SOUNDS "HOLLOW", CHIP OFF THE SURFACE AND ANY DELAMINATED CONCRETE AND REPAIR AS A SPALL; OTHERWISE, PROCEED TO STEP 2 BELOW.
2. CLEAN THE EXISTING CONCRETE SURFACE (BOTH SIDES OF CRACK SURFACE, AS APPLICABLE) AROUND THE CRACK OF ALL LOOSE, BOND INHIBITING AND OTHER DELETERIOUS MATERIALS, INCLUDING EFFLORESCENCE, BY MECHANICAL MEANS. THE CRACK SHOULD BE CLEAN, DRY, AND FREE OF CRACKS THAT EXTEND THROUGH THE MEMBER) AND INSTALL THE PRESSURE INJECTION PORTS ALONG THE CRACK. ALLOW FOR CURING OF THE CRACK SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. PRESSURE INJECT EPOXY INTO CRACK BY BEGINNING WITH THE INJECTION PORT AT ONE END OF THE CRACK. WHEN THE EPOXY REACHES THE OTHER PORT, MOVE TO THE NEXT ADJACENT PORT AND CONTINUE WITH THE EPOXY INJECTION.
4. AFTER THE EPOXY HAS CURED, REMOVE THE INJECTION PORTS AND SURFACE SEAL. FINISH CONCRETE SURFACE TO MATCH EXISTING.

1. SEE STRUCTURAL REPAIR PLANS AND SCHEDULE FOR LOCATION OF CRACKS TO BE REPAIRED.

1. SEE STRUCTURAL REPAIR MANUALS AND SCHEDULE FOR LOCATION OF CRACKS TO BE REPAIRED.
2. LIGHTLY TAP THE EXISTING CONCRETE ADJACENT TO THE CRACK. IF THE CONCRETE SOUNDS HOLLOW, CHIP OFF THE SURFACE, AND ANY DELAMINATED CONCRETE TO REPAIR AS A SPALL PER 1/5501; OTHERWISE, PROCEED TO STEP 3 BELOW.
3. SEAL THE CRACKS ON THE SLAB SOFFIT TO PREVENT LEAKAGE OF THE EPOXY CRACK HEALER / PENETRATING SEALER. THE CRACK SURFACE SEALER SHALL BE REMOVED FLUSH AND SMOOTH WITH SLAB SOFFIT AFTER THE CRACK REPAIR IS COMPLETED.
4. AFTER ALL EXISTING SPALLS HAVE BEEN REMOVED, CLEAN THE TOP SURFACE OF THE EXISTING SLAB. REMOVE DUST, LAWNACE, GRAVEL, AND FOREIGN MATERIAL. REMOVE COATS OF DISPERSED MATERIALS BY MECHANICAL MEANS, I.E. SANDBLASTING OR HIGH PRESSURE WATER JETTING. CONCRETE SURFACES SHALL BE DRY. GRIND TO A LOW PROFILE, MOORE, TOLERANCE. REMOVE CRACK HEALER / PENETRATING SEALER CONFORMING TO ASTM C881, TYPE I AND II, CLASS C SUCH AS SINOXID 55 SILV INTO THE CRACKS. THE EPOXY CRACK HEALER / PENETRATING SEALER SHALL BE APPLIED TO THE CRACKS AND DISPERSED BY FLAT SQUEEGE OR BROOM. SPREAD THE MATERIAL OVER THE SLAB AREA AND ALLOW TO POWDOR OVER CRACKS. LET THE EPOXY CURE TO THE FULL STRENGTH. REMOVE ANY EXCESS EPOXY WITH ROLLER LEAVING NO VISIBLE SURFACE FLOW.

3 CONCRETE CRACK REPAIR AT TOP SLAB
NOT TO SCALE

F/A	B.A.	EEL	CHEL	WVL	RFL	A/RCH	RFL Y/L
DCL BY & DATE							
CHEL BY & DATE							

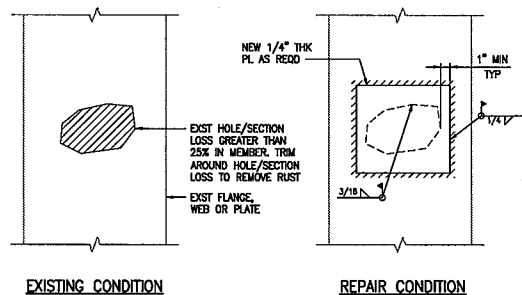
JOB NO. M-22-032

 LICENSED PROFESSIONAL ENGINEER NO. 18822-C HAWAII, U.S.A.	REVISION DATE BY APPROVED			
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII			
	CONCRETE REPAIR DETAILS			
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)			
<i>Jonathan Chung</i> LICENSED PROFESSIONAL ENGINEER NO. 18822-C HAWAII, U.S.A.				
LINE IS 2 INCHES AT FULL SIZE. (IF NOT 2-INCHES, SCALE ACCORDINGLY) DWG. NO. S503 SHEET 50 OF 54				

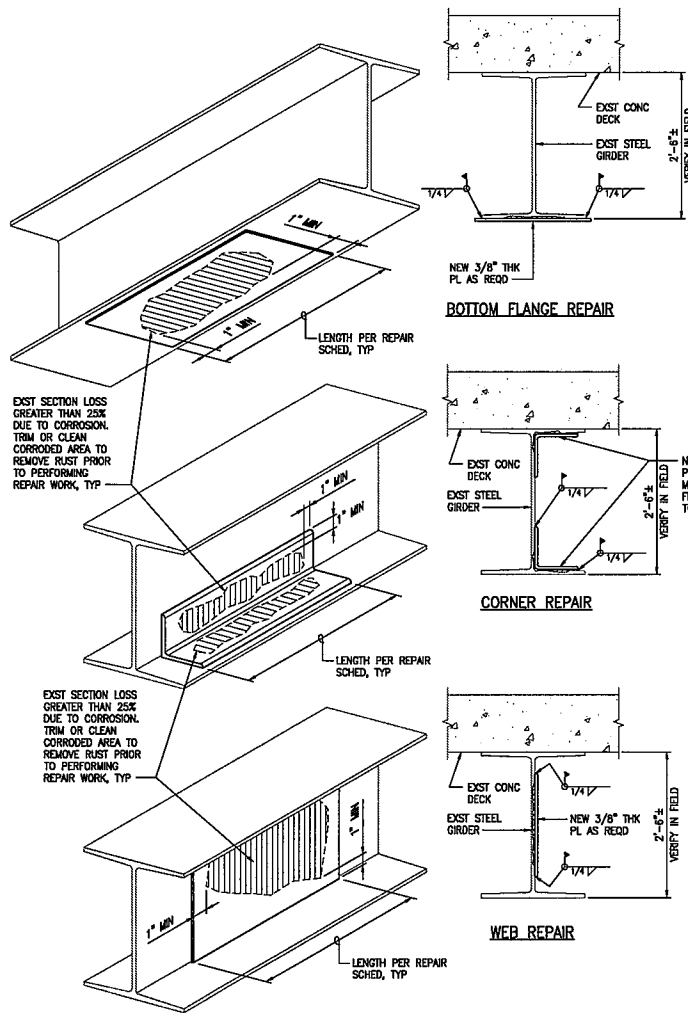
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	51	54

STEEL FRAMING REPAIR NOTES

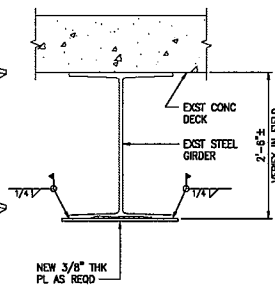
1. REMOVE RUST AND PROVIDE STEEL REPAIRS AS REQUIRED.
2. ALL REPAIRS SHALL BE MADE AFTER RUST HAS BEEN REMOVED TO BARE METAL. ALL RUST AND SCALE SHALL BE REMOVED BY HAND TOOLS (EG. WIRE BRUSHES, SCRAPING TOOLS, OR SANDPAPER), POWER TOOLS, OR METHODS APPROVED BY THE ENGINEER.
3. AFTER RUST HAS BEEN REMOVED TO BARE METAL, INSPECT FOR UNDETECTED DEFICIENCIES OF THE UNDERLYING METAL. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER OF ANY UNFORESEEN CONDITIONS OR WHEN SECTION LOSS EXCEEDS 25% MEMBER THICKNESS.
4. WELDING REPAIRS SHALL ADHERE STRICTLY TO WELDING NOTE 4 ON SHEET S001.
5. VERIFY SIZE AND LOCATION OF REPAIR PRIOR TO FABRICATION OF REPAIR MATERIAL.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR TEMPORARY SHORING AND BRACING NEEDED TO PROTECT STRUCTURE DURING REPAIR WORK.
7. SEE STRUCTURAL GENERAL NOTES ON SHEET S001 FOR MATERIAL GRADES OF REPAIR MATERIAL.
8. BARE METAL REPAIR SHALL BE COATED WITH TWO COATS OF ZRC COLD GALVANIZING.
9. APPLY POLYURETHANE TOP COAT IN STRICT CONFORMANCE WITH MANUFACTURER INSTALLATION INSTRUCTIONS.



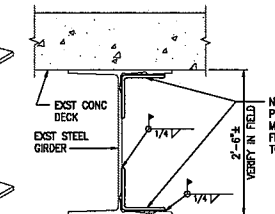
1 STEEL REPAIR DETAILS
NOT TO SCALE



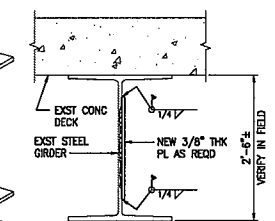
2 STEEL REPAIR DETAILS
NOT TO SCALE



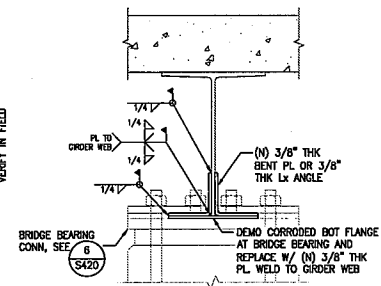
BOTTOM FLANGE REPAIR



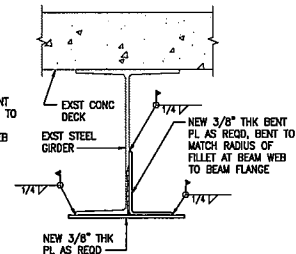
CORNER REPAIR



WEB REPAIR



BOTTOM FLANGE REPAIR AT BRIDGE BEARING



CORNER REPAIR (MISSING FLANGE)

	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
	STEEL REPAIR DETAILS	
	IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)	
	DWG. NO. S504 SHEET 51 OF 54	
CHECKED BY: JN APPROVED:	DRAWN BY: LL SUBMITTED BY:	CHECKED BY: JO DATE:

DATE: FEBRUARY 24, 2025

	A1A	SA-A	SEC	QAC	HTL	STN	MOA	OP% TA
CEX RT & LOG								
OPAC RT & LOG								

BID REPAIR TOTALS		
ITEM	FIELD QUANTITY	BID QUANTITY
CONCRETE	236 SF	350 SF
REBAR	236 LBS	350 LBS
CRACKS	38.5 FT	80 FT
STEEL GIRDER	750 LBS	1000 LBS

CONCRETE REPAIR DETAILS AND NOTES S501 THRU S503
STEEL REPAIR DETAILS AND NOTES S504

1. REPAIR DRAWS AND SCHEDULE ARE SHOWN TO PROVIDE AN ESTIMATE OF THE QUANTITY AND EXTENT OF REPAIRS THAT EXIST.
2. REPAIR INFORMATION SHOWN BASED ON FIELD OBSERVATIONS. CONTRACTOR TO SURVEY BRIDGE FOR DAMAGE QUANTITIES AND SUBMIT TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INITIATING REPAIRS. COST FOR SURVEY TO BE INCLUDED IN THE VARIABLE BID ITEM FOR REPAIRS. CONTRACTOR NOTIFICATION FOR REPAIRS TO BE INITIATED. REPAIRS TO BE MADE AT FIELD CONDITIONS. ANY REVISIONS TO DETAILS SHALL BE PROVIDED BY ENGINEER.
3. USE BID QUANTITIES FOR BIDDING PURPOSES.
4. ADDITIONAL CONCRETE REPAIRS NOT SHOWN ON DRAWINGS SHALL BE PAID FOR FROM THE AMOUNT INCLUDED IN THE BID PRICE FOR VARIABLE QUANTITY UNIT PRICE. PAYMENT FOR ADDITIONAL CONCRETE REPAIRS NOT SHOWN ON DRAWINGS SHALL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE FOOT. CRACK REPAIR. PAYMENT FOR CRACKS IN STEEL REBAR SHALL BE MADE AT THE CONTRACT UNIT PRICE PER POUND OF REBAR. PAYMENT FOR ADDITIONAL CRACK REPAIRS SHALL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.
5. ADDITIONAL STEEL REPAIRS NOT INDICATED ON THE DRAWINGS OR QUANTITIES EXCEEDING THE BID QUANTITIES INDICATED MAY OCCUR DUE TO UNFORESEEN CONDITIONS. ADDITIONAL REPAIRS SHOWN ON THE DRAWINGS THAT EXCEED THE INITIAL ESTIMATED ADDITIONAL REPAIR QUANTITIES SHALL BE PAID FOR BASED ON THE CONTRACT UNIT PRICE. PAYMENT FOR ADDITIONAL STEEL REPAIRS SHALL BE MADE AT THE CONTRACT UNIT PRICE PER POUND OF REBAR.

NO BRIDGE REPAIRS

NOTES

1. REFER TO GENERAL NOTES ON SHEET S001 FOR ADDITIONAL INFORMATION.
2. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATION.
4. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
5. FOR PAINT REMOVAL AND SURFACE PREPARATION OF STRUCTURE NEAR EXISTING WATER LINE, TAKE PRECAUTIONS TO PROTECT EXISTING WATERLINE INCLUDING BUT NOT LIMITED TO, USING HAND TOOLS. FOR APPLICATION OF COATING, TAKE PRECAUTIONS TO PROTECT EXISTING WATERLINE.

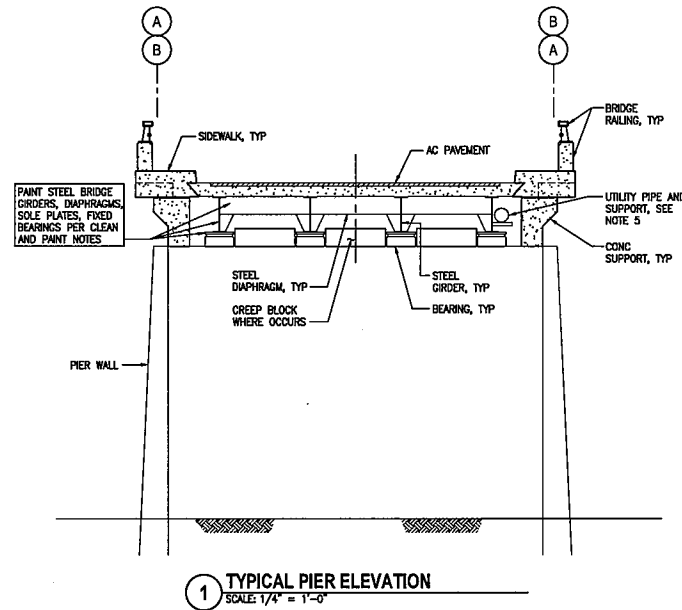
CLEAN AND PAINT EXISTING STEEL BRIDGE NOTES

GENERAL

1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS SECTION 694 "CLEAN AND PAINT STRUCTURAL BRIDGE STEEL" FOR PAINTING OF EXISTING BRIDGE STEEL.
2. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS SECTION 501 "STEEL STRUCTURES" FOR PAINTING OF NEW STEEL FOR REPAIR AND REPLACEMENT.
3. WHERE SHOWN ON DRAWINGS, DIMENSIONS AND STEEL MEMBER SIZES ARE BASED ON AVAILABLE AS-BUILT BRIDGE PLANS AND MAY NOT BE EXACT. THIS IS PROVIDED FOR INFORMATION ONLY. FIELD VERIFY ALL EXISTING AND NEW DIMENSIONS AND CONDITIONS. ALL DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE ENGINEER AND SHALL BE RESOLVED PRIOR TO COMMENCING WORK.
4. TAKE ADEQUATE MEASURES TO PROTECT THE ENVIRONMENT FROM ALL CONSTRUCTION MATERIALS. SEE STANDARD SPECS SECTION 107.13 "POLLUTION CONTROL AND PROTECTION OF ARCHEOLOGICAL, HISTORICAL, AND BURIAL SITES", AND SECTION 209 "TEMPORARY WATER POLLUTION, DUST AND EROSION CONTROL".
5. PROVIDE TEMPORARY CONTAINMENT STRUCTURES AROUND THE WORK AREA TO PROTECT THE ENVIRONMENT. SEE SPECIAL PROVISIONS.
6. NEW PAINT OVER EXISTING PAINTED SURFACES SHALL CONSIST OF PRIMER AND A POLYURETHANE TOP COAT. REFER TO SPECIAL PROVISIONS.
7. NEW STEEL FOR REPAIR AND REPLACEMENT SHALL BE COATED WITH A ZINC-RICH PAINT AND TOP COATED WITH A POLYURETHANE PAINT. REFER TO SPECIAL PROVISIONS.
8. BRIDGE STRUCTURE SHALL BE PAINTED GRAY TO MATCH EXISTING COLOR OF STEEL BEAMS.

SURFACE PREPARATION AND APPLICATION

1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS SECTION 694 "CLEAN AND PAINT STRUCTURAL BRIDGE STEEL" AND SECTION 697 "REPAIRS TO STRUCTURAL BRIDGE STEEL" FOR CLEANING AND SURFACE PREP INFORMATION.
2. APPLY NEW PAINT OVER EXISTING PAINTED SURFACES PER MANUFACTURER'S RECOMMENDATIONS. EXISTING PAINT SHALL ONLY BE REMOVED TO FACILITATE STEEL REPAIR WORK.
3. SURFACES TO BE PAINTED SHALL BE TOTALLY DRY. DO NOT APPLY PAINT OVER WET OR MOIST SURFACE.
4. APPLY SPECIFIED POLYURETHANE TOP COAT IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	53	54

GRAPHIC SCALE



	REVISION				DATE	BY	DATE	BY
	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HAWAII, MAUI, HAWAII							
	CLEAN AND PAINT EXISTING STEEL BRIDGE							
	IAD BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)							
DESIGNED BY: JN		DRAWN BY: LL		CHECKED BY: JD				
DWG. NO. S701		APPROVED		SUBMITTED BY				
SHEET 53 OF 54		DATE		FILE NUMBER		DATE		
FILE		PERMIT		FOLDER		REL.		

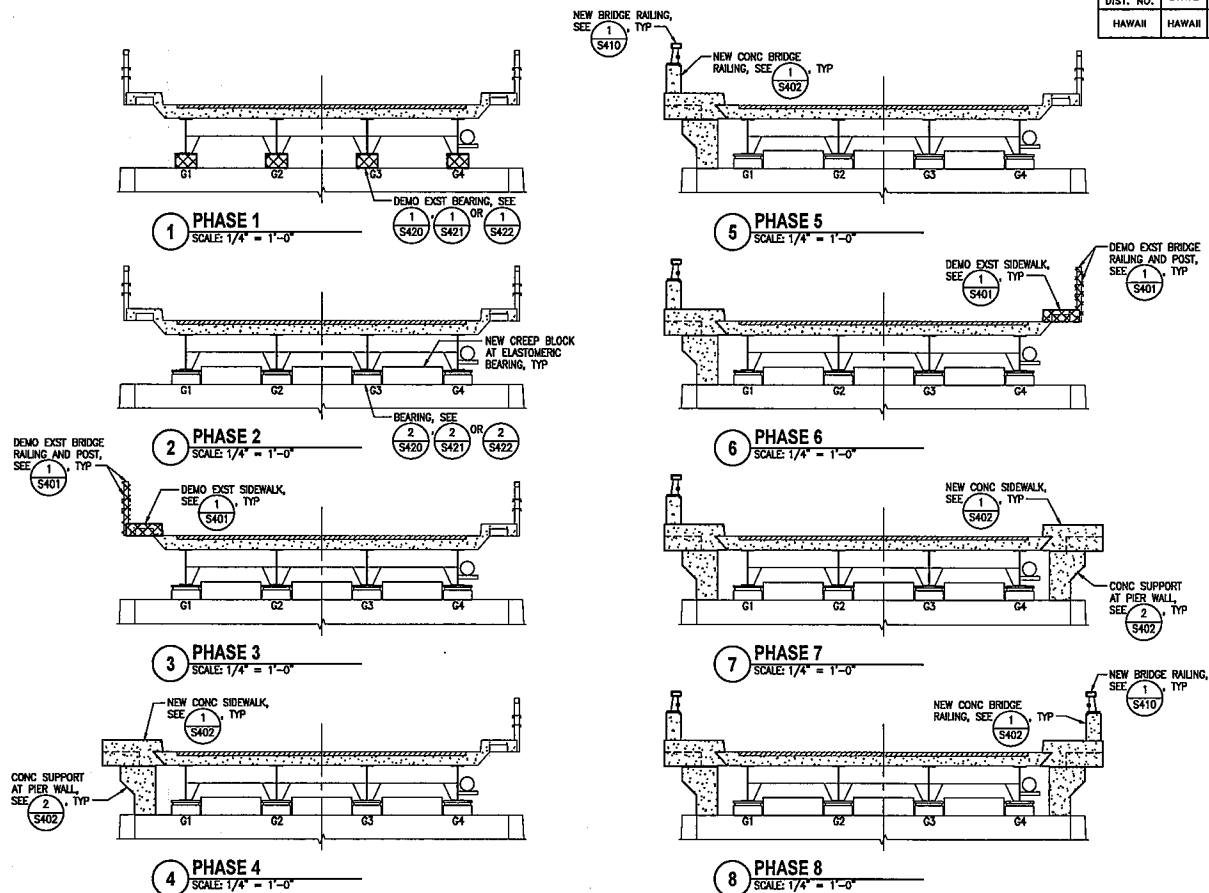
CONSTRUCTION PHASING - SEQUENCE OF DEMOLITION AND CONSTRUCTION

- PHASE 1: DEMOLISH EXISTING BRIDGE BEARINGS.
PHASE 2: CONSTRUCT NEW ELASTOMERIC BRIDGE BEARINGS AND CREEP BLOCKS.
PHASE 3: DEMOLISH EXISTING UPSTREAM CONCRETE BRIDGE RAILING AND PORTION OF EXISTING DECK SLAB/SIDEWALK.
PHASE 4: CONSTRUCT NEW CONCRETE SUPPORTS AND DECK SLAB/SIDEWALK ALONG UPSTREAM SIDE OF BRIDGE.
PHASE 5: CONSTRUCT NEW BRIDGE RAILING ALONG UPSTREAM SIDE OF BRIDGE.
PHASE 6: DEMOLISH EXISTING DOWNSTREAM CONCRETE BRIDGE RAILING AND PORTION OF EXISTING DECK SLAB/SIDEWALK.
PHASE 7: CONSTRUCT NEW CONCRETE SUPPORTS AND DECK SLAB/SIDEWALK ALONG DOWNSTREAM SIDE OF BRIDGE.
PHASE 8: CONSTRUCT NEW BRIDGE RAILING ALONG DOWNSTREAM SIDE OF BRIDGE.

CONSTRUCTION PHASING - GENERAL NOTES

- ONE OF THE LANES ON THE BRIDGE SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES DURING CONSTRUCTION. FULL BRIDGE CLOSURE FOR ONLY VERY SHORT PERIODS OF TIME MAY BE PERMITTED, SUBJECT TO ENGINEER'S APPROVAL.
- FOR TRAFFIC CONTROL, SEE CML SHEETS:

PHASE 3: C302
PHASE 4: C302
PHASE 5: C302
PHASE 6: C301
PHASE 7: C301
PHASE 8: C301



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2026	54	54

GRAPHIC SCALE



Jonathan Chang LICENSED PROFESSIONAL ENGINEER NO. 18822-S HAWAII, U.S.A. LINE IS 2 INCHES AT FULL SIZE (IF NOT 2-INCHES, I SCALE ACCORDINGLY) DWG. NO. S702 SHEET 54 OF 54	COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
	CONSTRUCTION PHASING IAO BRIDGE REPAIRS FEDERAL-AID PROJECT NO. BR-3200(001)	
	DESIGNED BY: DJ CHECKED BY: JJO	DRAWN BY: LL CHECKED BY: JJO
	APPROVED: _____ DATE: _____	

JOSH GREEN, M.D.
GOVERNOR | KE KIA AINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA AINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
Office of Conservation and Coastal Lands
P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN H.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

RYAN K.P. KANAKA OLE
FIRST DEPUTY

CIARA W.K. KAHANE
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES
ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:AA

Correspondence: MA 25-213

Jun 30, 2025

Alyssa Agustin
Sea Engineering, Inc.
504 N. Nimitz Highway
Honolulu, Hawaii 96817

SUBJECT: Conservation District Use Application (CDUA) Exemption Request for the Iao Bridge Repairs project located at Waikapū, Wailuku, Maui, TMK: (2) 3-5-003:999

Dear Alyssa Agustin:

The Office of Conservation and Coastal Lands (OCCL) has reviewed your correspondence regarding the above noted subject matter. The County of Maui, Department of Public Works plans to repair Iao Bridge and is requesting an exemption from CDUA requirements. The proposed project lies within the County of Maui Right-Of-Way (ROW) and within the Resource subzone of the State Land Use Conservation District.

The proposed project includes structural repairs to the bridge's superstructure; bearings and parapets; in-stream scour protection to abutments and piers; roadway paving; and utilities, signing, and stripping. The letter states that all work will take place within the ROW under Hawai'i Revised Statutes (HRS) **§265A-1 County authority**. As the determining authority for areas within the ROW, the County should decide whether a CDUA needs to be submitted.

Any work done outside of the ROW and within the Conservation District would require departmental review to determine what level of authorization the project requires.

Should you have any questions regarding this correspondence, contact Alyssa Accardo of our office at (808) 587-0048 or at alyssa.m.accardo@hawaii.gov.

Sincerely,

S. Michael Cain

S. Michael Cain, Administrator
Office of Conservation and Coastal Lands

CC: MDLO
County of Maui, Planning Dept.

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JORDAN MOLINA
Director

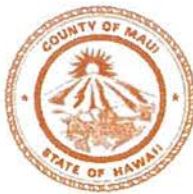
PAUL M. BARANY, P.E.
Deputy Director

WADE SHIMABUKURO, P.E.
Development Services Administration

RODRIGO "CHICO" R. RABARA, P.E.
Engineering Division

JOHN R. SMITH, P.E.
Highways Division

Telephone: (808) 270-7745
Fax: (808) 270-6267



**DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
COUNTY OF MAUI
200 SOUTH HIGH STREET, ROOM NO. 410
WAILUKU, MAUI, HAWAII 96793**

September 24, 2024

Ms. Jessica Puff, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96707

via: HICRIS (<https://shpd.hawaii.gov/hicris>)

**SUBJECT: HAWAII REVISED STATUTES, CHAPTER 6E-8 HISTORIC PRESERVATION
REVIEW
‘ĪAO STREAM BRIDGE REPAIRS PROJECT
WAILUKU AHUPUA‘A, PŪ‘ALI KOMOHANA DISTRICT, ISLAND OF MAUI
TMK: (2) 3-5-003: 018 (POR.); 001 (POR.); 005 (POR.)
FEDERAL-AID PROJECT NO.: BR-3200(001)**

Dear Ms. Puff:

The County of Maui, Department of Public Works (DPW) submits this letter to provide a project summary for State Historic Preservation Division (SHPD) review of the subject project under Hawaii Revised Statutes (HRS) Chapter §6E-8-10 in conjunction with the ‘Īao Stream Bridge Repairs Project. The following provides background information on the project, effect determinations, and illustrations to accompany the 6E form.

Identification and Inventory of Historic Properties

The project area includes approximately 535 lineal feet (163 m) of the ‘Īao Valley Road right of way (ROW) and an ancillary construction staging area located approximately 230 lineal feet (76 m) to the NW of the bridge. Total APE is 0.50 acres (Exhibit 1: "Area of Potential Effect," *Austin Tsutsumi & Associates*).

One historic property was identified within the APE:

‘Īao Stream Bridge (No. 59) (State of Hawaii Department of Transportation Bridge Number 009003201100001), located on ‘Īao Valley Road approximately 300 feet (254 m) SE of the entrance to Kepaniwai Park.

The DPW initiated consultation with the SHPD via a letter, dated April 10, 2024, and submitted via HICRIS 2024PR00504. No response was received from SHPD. Additional consultation letters were sent to other government agencies, private and community organizations, Native Hawaiian organizations (NHOs) and individuals with interests within the APE on June 7, 2024. A Section 106 notice/advertisement was posted in The Maui News newspaper on June 13 and 15, 2024. DPW did not receive any inquiries or responses stemming from this outreach regarding the proposed project.

Evaluation of Significance

The Hawai'i State Historic Bridge Inventory and Evaluation (MKE Associates, 2013) identified the bridge as a significant historic property in accordance with HAR §13-276 requirements. Under significance Criterion c, the structure is notable as a the longest post-1945 steel bridge on Maui and for its uncommon steel structure. The bridge retains sufficient levels of all aspects of integrity to meet HAR §13-275-6 integrity requirements.

Effect Determination

There are no archaeological properties recorded within the APE. Ground disturbance for the project will be minimal, consisting of the clearing of stream-deposited material around the abutments in order to complete in-stream scour protection. Roadway paving will also include shallow ground disturbance within existing asphalt and roadway base course material.

The replacement design utilizes a Texas Department of Transportation Crash Tested Type C402 Railing consisting of a concrete base with horizontal metal rails to be installed at the outboard sides of the existing bridge sidewalks. The rail ends abut new 3'-6" high concrete end stanchions with radiused top corners. The overall dimensions of the bridge, width, length, and elevation, as well as the abutments and piers, will remain unaltered. The scour repair at the bridge footings and the girder repair by welded additional members at the underside of the bridge will not be visible to the traveling public and will have minimal effect on the historic integrity of the bridge.

The removal and replacement of the bridge's original railings and end stanchions, and the installation of new concrete supports at the abutments and each pier, are determined to have an effect to the historic property. Due to the replacement of the rails and end piers, the Effect Determination is "Effect, with Proposed Mitigation Commitments" (HAR §13-275-7).

Mitigation

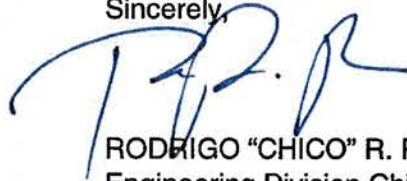
The DPW intends to consult with SHPD to resolve the project's effect determination through development of a Memorandum of Agreement (MOA). The following measures are under consideration to minimize and mitigate adverse effects:

- Conduct Historic American Engineering Record (HAER) documentation of the existing bridge with large format photographs before the historic features are removed.
- Archaeological monitoring for identification purposes during project-related ground disturbance.

Ms. Jessica Puff, Administrator
September 24, 2024
Page 3

Should there be any questions or comments regarding this matter, please contact Ty Takeno of our office at Ty.Takeno@co.maui.hi.us or (808) 270-7745.

Sincerely,

A handwritten signature in blue ink, appearing to read 'RRR', is positioned above the printed name of the sender.

RODRIGO "CHICO" R. RABARA, P.E.
Engineering Division Chief

RRR/TT (ED24-0735)

S:\ENGI\PROJECTS\01 FAP\BR\BR-3200(001) Iao Bridge Repairs\01 Design\C Environmental\Chapter 6E-8\6E Determination Letter - Iao Strm Bridge.doc

- Attachments
- 1) SHPD 6E Submittal Form
 - 2) Project Area on TMK Map
 - 3) SIHP # request
 - 4) Attachment "Area of Potential Effect, Exhibit 1," *Austin Tsutsumi & Assoc.*

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JORDAN MOLINA
Director

WENDY TAOMOTO, P.E.
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Fax: (808) 270-7955



DEPARTMENT OF PUBLIC WORKS
COUNTY OF MAUI
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/publicworks

April 10, 2024

Ms. Dawn Chang
Chairperson and State Historic Preservation Officer
State of Hawai'i
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaii 96707

Via HICRIS (<http://shpd.hawaii.gov/htcris>)

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT: INITIATION OF SECTION 106, REQUEST FOR AREA OF POTENTIAL EFFECT (APE) CONCURRENCE AND CONTACT INFORMATION
ʻĪAO STREAM BRIDGE REPAIRS PROJECT
WAILUKU AHUPUAʻA, PŪʻALI KOMOHANA MOKU, ISLAND OF MAUI
FEDERAL-AID PROJECT NO.: BR-3200(001)
TMK: [2] 3-5-003: 018 (POR.), [2] 3-5-003: 001 (POR.), [2] 3-3-003: 005 (POR.)

Dear Ms. Chang:

On behalf of the Federal Highway Administration (FHWA) and the State of Hawaii, Department of Transportation (HDOT), The County of Maui Department of Public Works (DPW) is initiating consultation with the State Historic Preservation Officer (SHPO) under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006), for the subject bridge repair project. We request the SHPO's concurrence on the proposed Area of Potential Effect (APE), pursuant to Section 106 of the NHPA and Title 36 of the Code of Federal Regulations (CFR), Part 800.4(a)(1). In addition, we request information on all historic properties with SHPD's inventory that are known to be within the proposed APE. Lastly, pursuant to 36 CFR 800.3(f), we are requesting Native Hawaiian Organizations (NHO) contact information.

The proposed federally funded HDOT project is considered a federal action and undertaking as defined in 36 CFR, Part §800.16(y). Effective May 1, 2016, FHWA issued a Programmatic Delegation of Authority allowing the HDOT and local public agencies to conduct NHPA Section 106 consultations with the SHPO, Native Hawaiian organizations (NHO), and qualified consulting parties per 36 CFR, Part §800.2(c)(4). The FHWA will remain responsible for all findings and determinations charged to the agency during the Section 106 process.

Ms. Dawn Chang

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT: INITIATION OF SECTION 106, REQUEST
FOR AREA OF POTENTIAL EFFECT (APE) CONCURRENCE AND CONTACT
INFORMATION
‘ĀO STREAM BRIDGE REPAIRS PROJECT
WAILUKU AHUPUA‘A, PŪ‘ALI KOMOHANA MOKU, ISLAND OF MAUI
FEDERAL-AID PROJECT NO.: BR-3200(001)
TMK: [2] 3-5-003: 018 (POR.), [2] 3-5-003: 001 (POR.), [2] 3-3-003: 005 (POR.)

April 10, 2024

Page 2

Consultations

Section 106 notice/advertisement will be included in *The Maui News* and *Ka Wai Ola*. NHO and Native Hawaiian descendants with ancestral, lineal, or cultural ties to, cultural and historical property knowledge of and/or concerns for, and cultural or religious attachment to the proposed APE will be asked to provide a response within 30 days of notification. In addition, other individuals and organizations with demonstrated legal, economic, or historic preservation interests will also be asked to respond to the Section 106 notice/advertisement.

Request for Information

Pursuant to 36 CFR Part 800.3(f) in consultation with SHPO, we are interested if your agency is acquainted with any NHO or Hawaiian descendants with ancestral, lineal, or cultural ties to or cultural and/or historic property knowledge of or concerns for, and cultural or religious attachment to the proposed project area, we would appreciate receiving their names and contact information within the 30 days of notification. Per 36 CFR Part 800.2(a)(4)(c)(5) we also request the names of individuals and organizations who have demonstrated their legal, economic, and historic preservation interest to SHPD on the proposed undertaking.

Area of Potential Effect

The bridge carries ‘Āo Valley Road over Iao Stream approximately 300 feet (254 m) SE of the entrance to Kepaniwai Park in the vicinity of the ‘Āo Valley State Monument. The area of potential effect includes approximately 535 lineal feet (163 m) of the ‘Āo Valley Road right of way (ROW) and an ancillary construction staging area located approximately 250 lineal feet (76 m) to the NW of the bridge (See attachment “Area of Potential Effect, Exhibit 1,” Austin Tsutsumi & Assoc.). The total APE is 0.50 acre.

The project involves rehabilitating the ‘Āo Stream Bridge, constructed in 1955, including replacement of parapet rails and end stanchions, repair of minor concrete spalls, and scour repairs. The rail replacement will require the addition of a new concrete pier support at abutments and each pier. The Hawai‘i State Historic Bridge Inventory and Evaluation (MKE Associates, 2013) identified the bridge as a significant historic property in accordance with HAR §13-275-6 requirements.

Ms. Dawn Chang

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT: INITIATION OF SECTION 106, REQUEST
FOR AREA OF POTENTIAL EFFECT (APE) CONCURRENCE AND CONTACT
INFORMATION

‘ĪAO STREAM BRIDGE REPAIRS PROJECT

WAILUKU AHUPUA‘A, PŪ‘ALI KOMOHANA MOKU, ISLAND OF MAUI

FEDERAL-AID PROJECT NO.: BR-3200(001)

TMK: [2] 3-5-003: 018 (POR.), [2] 3-5-003: 001 (POR.), [2] 3-3-003: 005 (POR.)

April 10, 2024

Page 3

We would appreciate a written response within thirty (30) days from the date of receipt to Ty Takeno of our Engineering Division, via email at ty.takeno@co.maui.hi.us, or by U.S. Postal Service to County of Maui, Department of Public Works, Engineering Division, 200 S. High Street, Room 410, Wailuku, HI 96793. If there are any questions, please contact Ty Takeno at (808) 270-7745.

Sincerely,



Jordan Molina
Director of Public Works

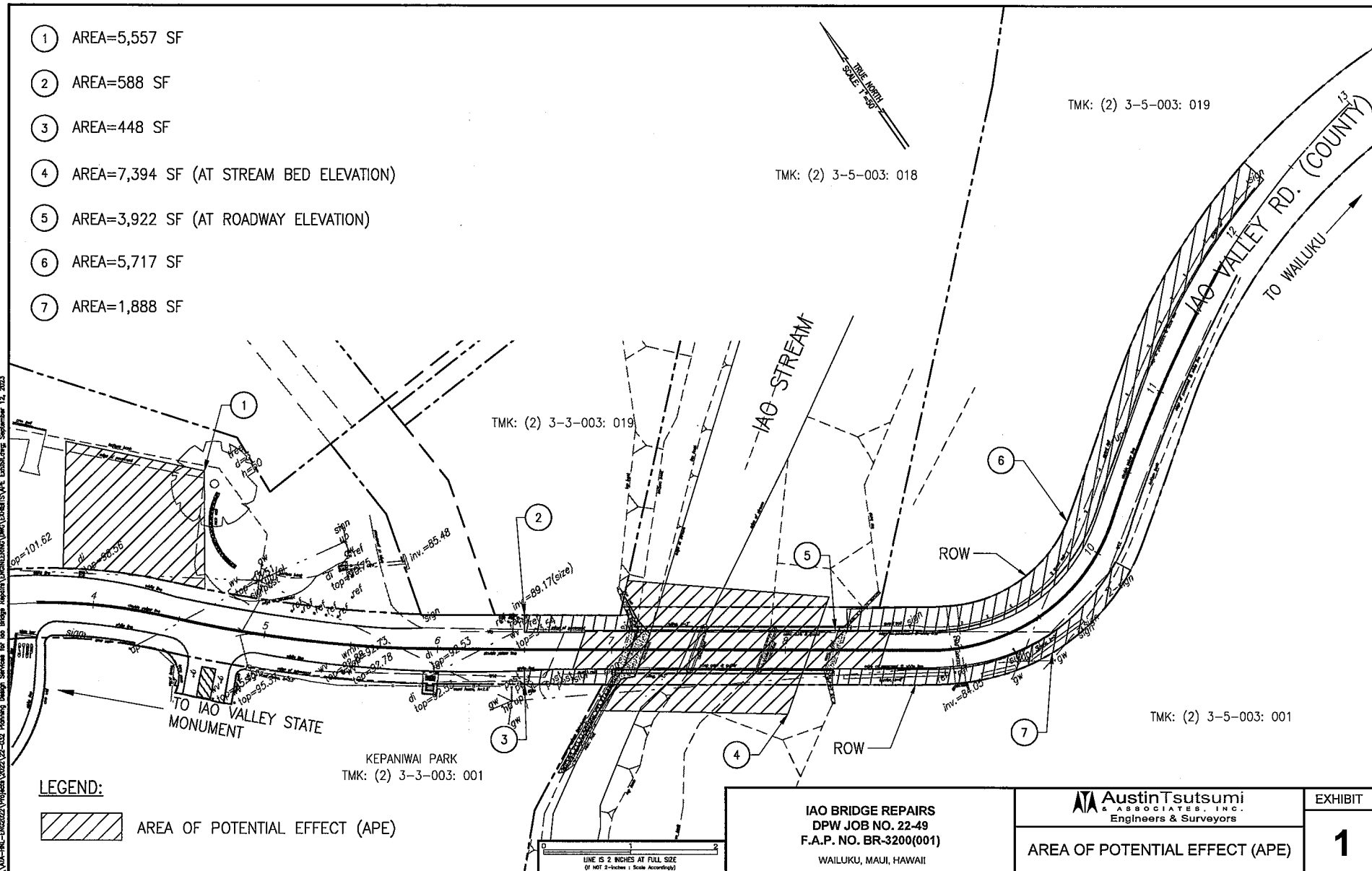
JM/TT (ED24-0193)

S:\ENGINEERING\PROJECTS\01 FAP\BR-3200(001) IAO BRIDGE REPAIRS\01 DESIGN\ENVIRONMENTAL\SECTION 106 SHPD\01 NOTICE OF CONSULTATION TO SHPD\240328 SHPD
INITIATION AND APE CONCURRENCE.DOC

Enclosures: Figure 1– Map of APE Area (Area shown in red)

xc: Lindsey Hisamoto, HWY-DD
Kyle Shinyama, ATA

- ① AREA=5,557 SF
- ② AREA=588 SF
- ③ AREA=448 SF
- ④ AREA=7,394 SF (AT STREAM BED ELEVATION)
- ⑤ AREA=3,922 SF (AT ROADWAY ELEVATION)
- ⑥ AREA=5,717 SF
- ⑦ AREA=1,888 SF



IAO BRIDGE REPAIRS
DPW JOB NO. 22-49
F.A.P. NO. BR-3200(001)
WAILUKU, MAUI, HAWAII

AustinTsutsumi
ASSOCIATES, INC.
Engineers & Surveyors

AREA OF POTENTIAL EFFECT (APE)

EXHIBIT

1

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JORDAN MOLINA
Director

WENDY TAOMOTO, P.E.
Deputy Director

WADE SHIMABUKURO, P.E.
Development Services Administration

RODRIGO "CHICO" R. RABARA, P.E.
Engineering Division

JOHN R. SMITH, P.E.
Highways Division

Telephone: (808) 270-7845
Fax: (808) 270-7955



DEPARTMENT OF PUBLIC WORKS
COUNTY OF MAUI
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/publicworks

April 16, 2024

Alan Downer, Ph.D., Administrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuhihewa Building
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaii 96707
Via HICRIS (<http://shpd.hawaii.gov/hicris>)

SUBJECT: 'ĪAO STREAM BRIDGE REPAIRS PROJECT
WAILUKU AHUPUA`A, PŪ`ALI KOMOHANA MOKU, ISLAND OF MAUI
FEDERAL-AID PROJECT NO.: BR-3200(001)
TMK: [2] 3-5-003: 018 (POR.), [2] 3-5-003: 001 (POR.), [2] 3-3-003: 005 (POR.)
SECTION 106 SUBMITTAL

Dear Dr. Downer:

The County of Maui, Department of Public Works (DPW) is proposing repairs to Iao Stream Bridge in Wailuku, Maui.

In compliance with Section 106 requirements, our consultant, Cultural Surveys Hawaii, Inc., will be submitting Section 106 information and documents via HICRIS. This letter authorizes Cultural Surveys, Hawaii, Inc. to submit to HICRIS on behalf of DPW.

If you have any questions, please contact Ty Takeno at (808) 270-7745 or by email at ty.takeno@co.maui.hi.us.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Rabara".

RODRIGO "CHICO" R. RABARA, P.E.
Engineering Division Chief

RRR/TT (ED24-234)

S:\ENGP\PROJECTS\01 FAP\BR-3200(001) IAO BRIDGE REPAIRS\01 DESIGN\ENVIRONMENTAL\SECTION 106 SHPD\01 NOTICE OF CONSULTATION TO SHPD\IAO BRIDGE REPAIRS SECTION 106 AUTHORIZATION.DOC

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JORDAN MOLINA
Director

PAUL M. BARANY, P.E.
Deputy Director

WADE SHIMABUKURO, P.E.
Development Services Administration

RODRIGO "CHICO" R. RABARA, P.E.
Engineering Division

JOHN R. SMITH, P.E.
Highways Division

Telephone: (808) 270-7745
Fax: (808) 270-6267



**DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
COUNTY OF MAUI
200 SOUTH HIGH STREET, ROOM NO. 410
WAILUKU, MAUI, HAWAII 96793**

July 11, 2025

**IAO BRIDGE REPAIRS
FEDERAL-AID PROJECT NO. BR-3200(001)**

EXEMPTION NOTICE

Pursuant to Hawaii Revised Statutes (HRS), Chapter 343, and
Hawaii Administrative Rules (HAR), Section 11-200.1

AGENCY OR APPLICANT ACTION

- ☒ This exempted action is an agency action as defined by Section 343-5(b), HRS, and Section 11-200.1-8, HAR,
- ☐ This exempted action is an applicant action as defined by Section 343-5(e), HRS, and Section 11-200.1-9, HAR

EXEMPTION TYPE:

The exemption declaration for the action described below is based on the Exemption List for the County of Maui, reviewed, and concurred to by the Environmental Council on January 10, 2007.

- Exemption Class 1.
- Item Number 2b.
- Applicable language from the exemption list:
 - Operations, repairs or maintenance of existing structures, facilities, equipment or topographical features, involving negligible or no expansion or change beyond that previously existing.
 - Structures

DESCRIPTION OF ACTION

Proposing Agency, Division or Applicant: County of Maui Department of Public Works
Project Name & Address/Location: Iao Bridge Repairs, District of Wailuku, Island of Maui
(20.882973°N, 156.533937°W)
Anticipated Start Date: FILL IN
Anticipated End Date: FILL IN

Island and District: Maui

Wailuku

Tax Map Key(s) and other geolocation means: Tax Map Keys: (2) 3-5-003:001, (2) 3-5-003:019, (2) 3-5-003:018

All Necessary Permits and Approvals: United States Army Corps of Engineers Section 404 Nationwide Permit, State of Hawaii Department of Health Section 401 Blanket Water Quality Certification, Stream Channel Alteration Permit.

NARRATIVE

Describe the action and why it qualifies for the exemption: The County of Maui, Department of Public Works (DPW) is pursuing the implementation of structural repairs for scour damaged elements of Iao Bridge in Wailuku, Maui. Repairs have been designed as a Federal-aid project with No. BR-3200(001). Bridge repairs consist of structural repairs to the bridge's superstructure, scour protection, roadway paving, utilities, signing, and striping.

RECEIVING ENVIRONMENT

Describe the site, including any impacts on the receiving environment: Iao Bridge is a 3-span bridge located along Iao Valley Road in Wailuku, Maui. The bridge consists of a asphalt concrete deck, steel superstructure, and concrete superstructure. The bridge abutments and pier walls are supported by shallow footing foundations in Iao Stream. The proposed project involves rehabilitating the Iao Stream Bridge (No. 59), constructed in 1955, including replacing parapet rails and end stanchions, repairing minor concrete spalls, and repairing scour. The rail replacement will require the addition of new concrete pier support at abutments and each pier. Potential impacts to the receiving environment will be mitigated by the best management practices proposed in the roadway erosion control plan, which includes filter socks, temporary inlet protection, and hanging debris catchment netting surround the perimeter of the work area. Work will be conducted in two phases, each with a stream diversion plan to mitigate impacts.

ENVIRONMENTAL ANALYSIS

We have considered the potential effects of the proposed project and all related activities to the environmental resources checked below:

	Not Applicable
☒ Land Use and Zoning Conformance	☐
☒ Traffic (Vehicles, Bicycles, Pedestrian)	☐
☒ Infrastructure (Roads, Buildings, Utilities)	☐
☒ Air Quality Pollutant Emissions	☐
☒ Noise Emissions	☐
☒ Solid, Hazardous, and Liquid Waste Management	☐
☒ Social	☐
☒ Economic	☐
☒ Health and Safety	☐
☒ Recreation	☐
☐ Public Beach Access	☒
☒ Historic, Cultural and Archaeological Resources and Practices	☐
☒ Visual/Aesthetic	☐
☐ Environmental Justice	☒
☒ Rare, Threatened, and/or Endangered Species	☐
☒ Surface and Ground Water Resources	☐
☒ Wetlands	☐
☒ Floodplains	☐
☒ Riparian/Coastal Resources	☐

☐ Other

☒

- Sea Level Rise Exposure Area

Summary of impact analysis: Repair to the bridge will require some grubbing of vegetation to access the work area. Rare, Threatened, and/or Endangered Species of birds have the potential to exist within the impact area. Materials and equipment traversing the area may increase the erosion of soils. During work, the stream would be diverted around the active work area in two phases. Local stream flow rates under the bridge past the diversion will increase and may cause erosion of the adjacent stream bank. During construction, traffic control plans will be implemented in phases to manage traffic during one-lane road closures. Hanging debris catchment netting and scaffolding will also be implemented as BMPs during construction to prevent falling debris from entering the stream. Upon completion, new traffic signage will be installed. Cumulatively, birds and native vegetation may be disrupted until vegetation becomes reestablished in the project area.

MITIGATION

Describe all mitigation measures and best management practices planned to address impacts during the project activities and after project completion: Best management practices (BMPs) include the use of filter socks, temporary inlet protection, hanging debris catchment netting and scaffolding, sand bags, impermeable liners, silt fences to contain any erosion caused within the staging area and access path to prevent it from entering the stream. Traffic control plans would be implemented during any temporary lane closures to guide traffic around the work area and maintain transportation services.

CONSULTATION

The following parties have been consulted about this declaration exemption (Name, affiliation, consultation date): In accordance with State of Hawaii guidelines for preparing environmental review documents under Hawaii Revised Statutes Chapter 343, the County of Maui Department of Public Works, Engineering Division consulted with agencies having jurisdiction and expertise for the subject project on December 11, 2024. Agencies that were consulted are listed in Table 1.

Table 1. Agencies and parties consulted for Structural Countermeasures for Scour Critical Bridges Project No. Br-1500(120), Maui Tier 1

Affiliation	Name & Title	Consultation Date
Department of Business, Economic Development & Tourism (DBEDT)	James Tokioka, Director	12/11/2024
County of Maui Planning Department	Kate Blystone, Director	12/11/2024
Department of Land and Natural Resources (DLNR)	Dawn Chang, Chairperson	12/11/2024

EXEMPTION DECLARATION

The primary, secondary, and cumulative impacts of the action described above have been considered pursuant to Chapter 343, HRS and Chapter 11-200.1, HAR. The County of Maui, Department of Public Works declares that the action described above will have minimal or no significant impact on the environment and is therefore exempt from the requirement to prepare an environmental assessment.

This document (File No. insert here) is on file in our Department and is available for public review.

Signature of Director

Date

Attachments

Figure 1: Vicinity Map

Figure 2: Site Map

Documentation of Consultation

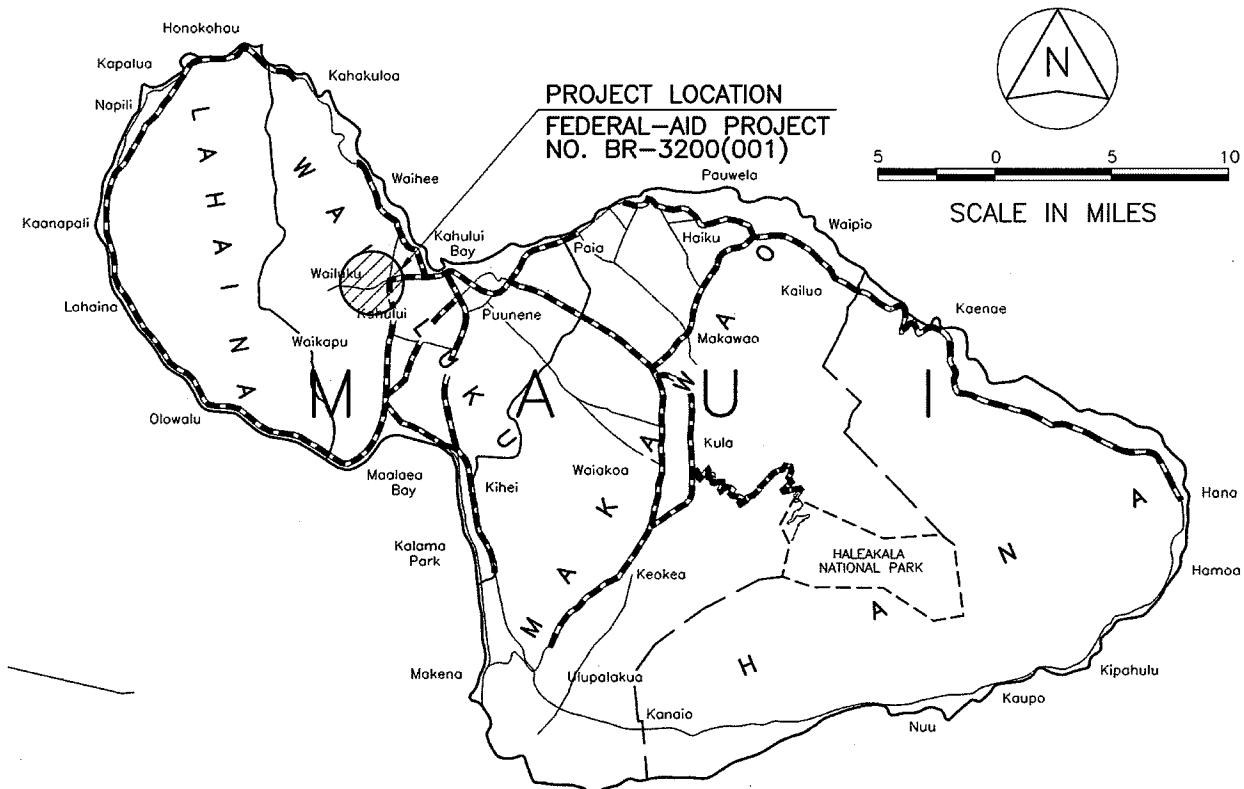
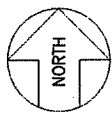
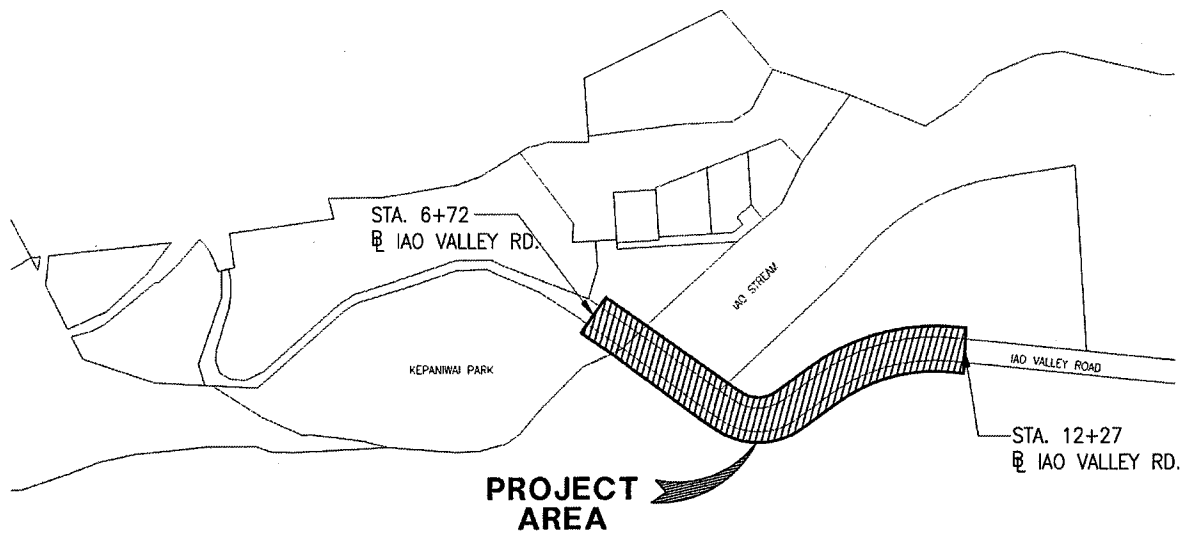


Figure 1: Vicinity Map of Iao Bridge on Maui Island



LOCATION MAP

NOT TO SCALE

Figure 2: Site map of the area of potential effect, Iao Bridge, Iao Valley Road

U.S. Army Corps of Engineers (USACE)
NATIONWIDE PERMIT PRE-CONSTRUCTION NOTIFICATION (PCN)
33 CFR 330. The proponent agency is CECW-CO-R.

Form Approved -
OMB No. 0710-0003
Expires: 02-28-2022

DATA REQUIRED BY THE PRIVACY ACT OF 1974

Authority Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Program of the Corps of Engineers (Corps); Final Rule 33 CFR 320-332.

Principal Purpose Information provided on this form will be used in evaluating the nationwide permit pre-construction notification.

Routine Uses This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of the agency coordination process.

Disclosure Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued.

The public reporting burden for this collection of information, 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR RESPONSE TO THE ABOVE EMAIL.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see *sample drawings and/or instructions*) and be submitted to the district engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Jordan Middle - Last - Molina Company - County of Maui, Department of Public Works Company Title - Director E-mail Address - jordan.molina@co.maui.hi.us	8. AUTHORIZED AGENT'S NAME AND TITLE (<i>agent is not required</i>) First - Alyssa Middle - E. Last - Agustin Company - Sea Engineering, Inc. E-mail Address - aagustin@seaengineering.com
6. APPLICANT'S ADDRESS Address- 200 South High Street City - Wailuku State - HI Zip - 96793 Country - USA	9. AGENT'S ADDRESS Address- 41-305 Kalaniana'ole Hwy City - Waimanalo State - HI Zip - 96795 Country - USA
7. APPLICANT'S PHONE NOS. with AREA CODE a. Residence b. Business c. Fax d. Mobile N/A (808) 270-7460 N/A N/A	10. AGENT'S PHONE NOS. with AREA CODE a. Residence b. Business c. Fax d. Mobile N/A (808) 460-3436 N/A N/A

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Sea Engineering, Inc. to act in my behalf as my agent in the processing of this nationwide permit pre-construction notification and to furnish, upon request, supplemental information in support of this nationwide permit pre-construction notification.


SIGNATURE OF APPLICANT

DEC 11 2024
DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME or TITLE (*see instructions*)
Iao Bridge Repairs

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY			
13. NAME OF WATERBODY, IF KNOWN <i>(if applicable)</i> Iao Stream		14. PROPOSED ACTIVITY STREET ADDRESS <i>(if applicable)</i> Iao Valley Road	
15. LOCATION OF PROPOSED ACTIVITY <i>(see instructions)</i> Latitude °N Longitude °W 20.882862 -156.533747		City: State: Zip: Wailuku HI 96793	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN <i>(see instructions)</i> State Tax Parcel ID Municipality TMK (2) 3-5-003:999 County of Maui Section Township Range N/A N/A N/A			
17. DIRECTIONS TO THE SITE From the Kahului Airport, follow Keolani Place t for 1.5 miles to HI-36A, on the left. Take HI-36A for 3.2 miles to Main Street in Wailuku. Main Street turns into Iao Valley Road, and continue for 1.9 miles at which point the bridge will appear.			
18. IDENTIFY THE SPECIFIC NATIONWIDE PERMIT(S) YOU PROPOSE TO USE NWP #3 - Maintenance			
19. DESCRIPTION OF PROPOSED NATIONWIDE PERMIT ACTIVITY <i>(see instructions)</i> See Attachment I			
20. DESCRIPTION OF PROPOSED MITIGATION MEASURES <i>(see instructions)</i> BMPs for work operations in combination with environmental protection measures will be implemented to ensure that activities will avoid and minimize adverse impacts to water quality and the marine ecosystem including marine protected species and Essential Fish Habitat (EFH). For a detailed description of proposed mitigation measures, please see Attachment I. For a complete description of BMPs, please see Attachment 3.			
21. PURPOSE OF NATIONWIDE PERMIT ACTIVITY <i>(Describe the reason or purpose of the project, see instructions)</i> Iao Bridge requires repairs at various locations based on inspection reports by the County of Maui. These repairs include replacement of parapet rails and end stanchions, repair of minor concrete spalls, and scour repair. The rail replacement will require the addition of a new concrete pier support at abutments and each pier. See Attachment I for more information regarding the purpose of the NWP activity.			
22. QUANTITY OF WETLANDS, STREAMS, OR OTHER TYPES OF WATERS DIRECTLY AFFECTED BY PROPOSED NATIONWIDE PERMIT ACTIVITY <i>(see instructions)</i> Acres Linear Feet Cubic Yards Dredged or Discharged 0.47 298 0			
Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site.			
23. List any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. <i>(see instructions)</i> No other Department of Army permits will be used for the proposed project.			
24. If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and requires pre-construction notification, explain how the compensatory mitigation requirement in paragraph (c) of general condition 23 will be satisfied, or explain why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required for the proposed activity. The proposed action will not result in the loss of greater than 1/10th of wetlands.			

25. Is any portion of the nationwide permit activity already complete? ☐ Yes ☒ No If Yes, describe the completed work:					
26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed NWP activity or utilize the designated critical habitat that might be affected by the proposed NWP activity. <i>(see instructions)</i> The proposed action is not likely to adversely affect any Endangered Species. There are no critical habitats designated within the proposed project area's waters.					
27. List any historic properties that have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic property or properties. <i>(see instructions)</i> The Hawaii State Historic Bridge Inventory and Evaluation (MKE Associates, 2013) identified the bridge as a significant historic property in accordance with HAR §13-275-6 requirements.					
28. For a proposed NWP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river": N/A					
29. If the proposed NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the Corps district having jurisdiction over that project? ☐ Yes ☒ No If "yes", please provide the date your request was submitted to the Corps district:					
30. If the terms of the NWP(s) you want to use require additional information to be included in the PCN, please include that information in this space or provide it on an additional sheet of paper marked Block 30. <i>(see instructions)</i>					
31. Pre-construction notification is hereby made for one or more nationwide permit(s) to authorize the work described in this notification. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant. <table style="width: 100%; border: none;"> <tr> <td style="width: 35%; text-align: center; vertical-align: bottom;">  SIGNATURE OF APPLICANT </td> <td style="width: 15%; text-align: center; vertical-align: bottom;"> DEC 11 2024 DATE </td> <td style="width: 35%; text-align: center; vertical-align: bottom;">  SIGNATURE OF AGENT </td> <td style="width: 15%; text-align: center; vertical-align: bottom;"> DEC 24, 2024 DATE </td> </tr> </table>		 SIGNATURE OF APPLICANT	DEC 11 2024 DATE	 SIGNATURE OF AGENT	DEC 24, 2024 DATE
 SIGNATURE OF APPLICANT	DEC 11 2024 DATE	 SIGNATURE OF AGENT	DEC 24, 2024 DATE		
The pre-construction notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in Block 11 has been filled out and signed, the authorized agent.					
18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.					

ATTACHMENT 1
ADDITIONAL INFORMATION

IAO BRIDGE NO. 59 REPAIRS
TMK (2) 3-5-003:999, 001
IAO VALLEY ROAD
WAILUKU, HAWAII 96793

Background

The County of Maui Department of Public Works is pursuing the implementation of critical repairs to Iao Bridge on the island of Maui. Repairs to Iao Bridge, including structural repairs to the bridge's superstructure; bearings, and parapets; in-stream scour protection to abutments and piers; roadway paving; and utilities, signing, and stripping. Repairs have been designed as part of a federal aid project No.: BR-3200(001).

Box 19 - Description of Proposed Nationwide Activity

Iao Bridge is a 3-span bridge located along Iao Valley Road in Wailuku, Maui. The bridge consists of a asphalt concrete deck, steel superstructure, and concrete superstructure. The bridge abutments and pier walls are supported by shallow footing foundations in Iao Stream.

The proposed project involves rehabilitating the Iao Stream Bridge (No. 59), constructed in 1955, including replacing parapet rails and end stanchions, repairing minor concrete spalls, and repairing scour. The rail replacement will require the addition of new concrete pier support at abutments and each pier. The Hawai'i State Historic Bridge Inventory and Evaluation (MKE Associates, 2013) identified the bridge as a significant historic property in accordance with HAR §13-275-6 requirements.

Work Plan

1. Provide a Traffic Control Plan per construction documents to allow single-lane vehicle travel way across the bridge during repairs
2. Install BMPs to protect the surrounding environment from project activity
3. Demolish and remove existing asphalt pavement on and on either side of the bridge
4. Demolish and remove existing guardrails and posts
5. Complete structural repairs and rehabilitation work on bridge
6. Clean and paint repaired bridge
7. Repave asphalt concrete roadway
8. Install guardrail and end treatment
9. Install signing and striping
10. De-mobilization: remove all materials and equipment from the work area.

Materials

- Debris Containment/Catchment System
- Polymer modified concrete and mortar
- Epoxy
- Filter Socks as required
- Inlet Protection as required
- Scaffolding as required

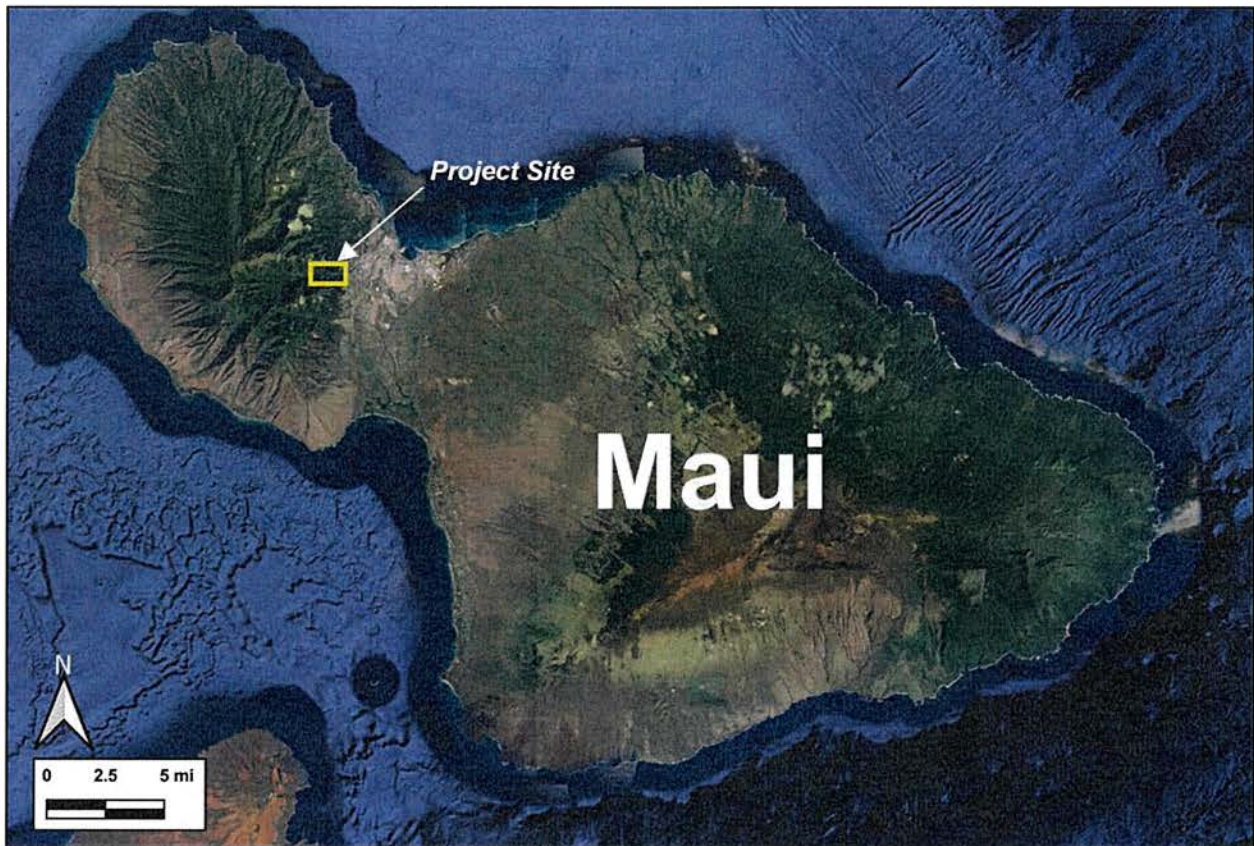
Equipment

- Hand Tools
- Scaffolding/Temporary Structure (Contractor option)
- Protective Clothing



ATTACHMENT 2
DRAWINGS AND FIGURES

IAO BRIDGE NO. 59 REPAIRS
TMK (2) 3-5-003:999, 001
IAO VALLEY ROAD
WAILUKU, HAWAII 96793



Location Map
PURPOSE: Iao Bridge
No. 59 Repairs

APPLICANT: County of Maui,
Department of Public Works
LOCATION:
20.882862°N, 156.533747°W
Wailuku, Hawaii
TAX MAP KEY:
(2) 3-5-003:999, 001

PROPOSED: Iao Bridge
No. 59 Repairs
NEAR/AT: Wailuku
COUNTY: Maui
STATE: Hawaii
SHEET 1 OF 41
DATE: 9/30/2024



Project Vicinity Map

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 2 of 41

DATE: 9/30/2024



Tax Map Key Map

APPLICANT: County of Maui, Department of Public Works

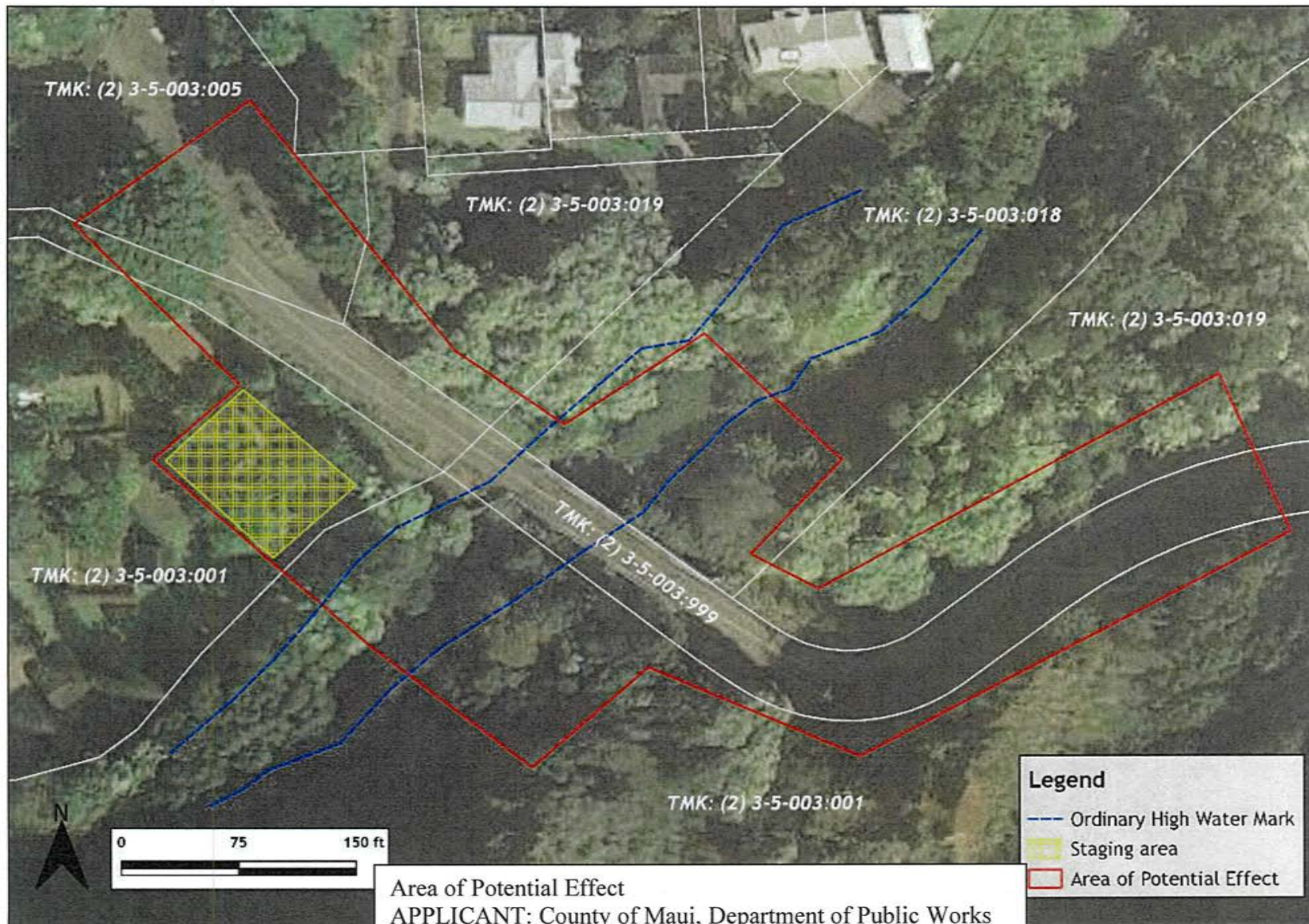
PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 3 of 41

DATE: 9/30/2024



Area of Potential Effect

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 4 of 41

DATE: 9/30/2024

Downstream of Iao Bridge

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

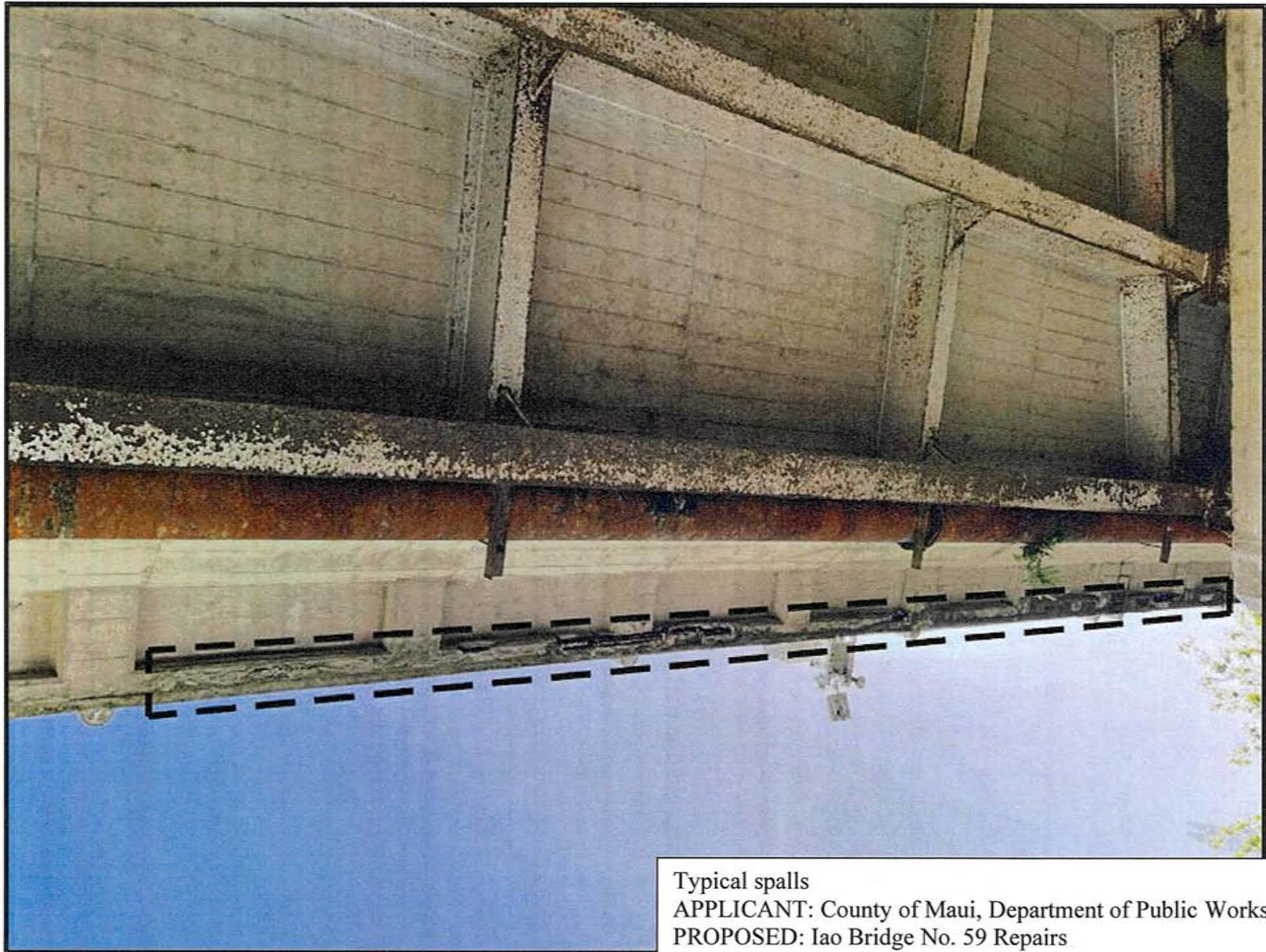
AT: Wailuku STATE: Hawaii

SHEET: 5 of 41 DATE: 9/30/2024





Typical cracks in Iao Stream Bridge soffit deck
APPLICANT: County of Maui, Department of Public Works
PROPOSED: Iao Bridge No. 59 Repairs
AT: Wailuku STATE: Hawaii
SHEET: 6 of 41 DATE: 9/30/2024



Typical spalls

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 7 of 41

DATE: 9/30/2024



Typical railing corrosion

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku STATE: Hawaii

SHEET: 8 of 41 DATE: 9/30/2024



Typical girder corrosion

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 9 of 41

DATE: 9/30/2024



Typical spall in abutment

APPLICANT: County of Maui, Department of Public Works

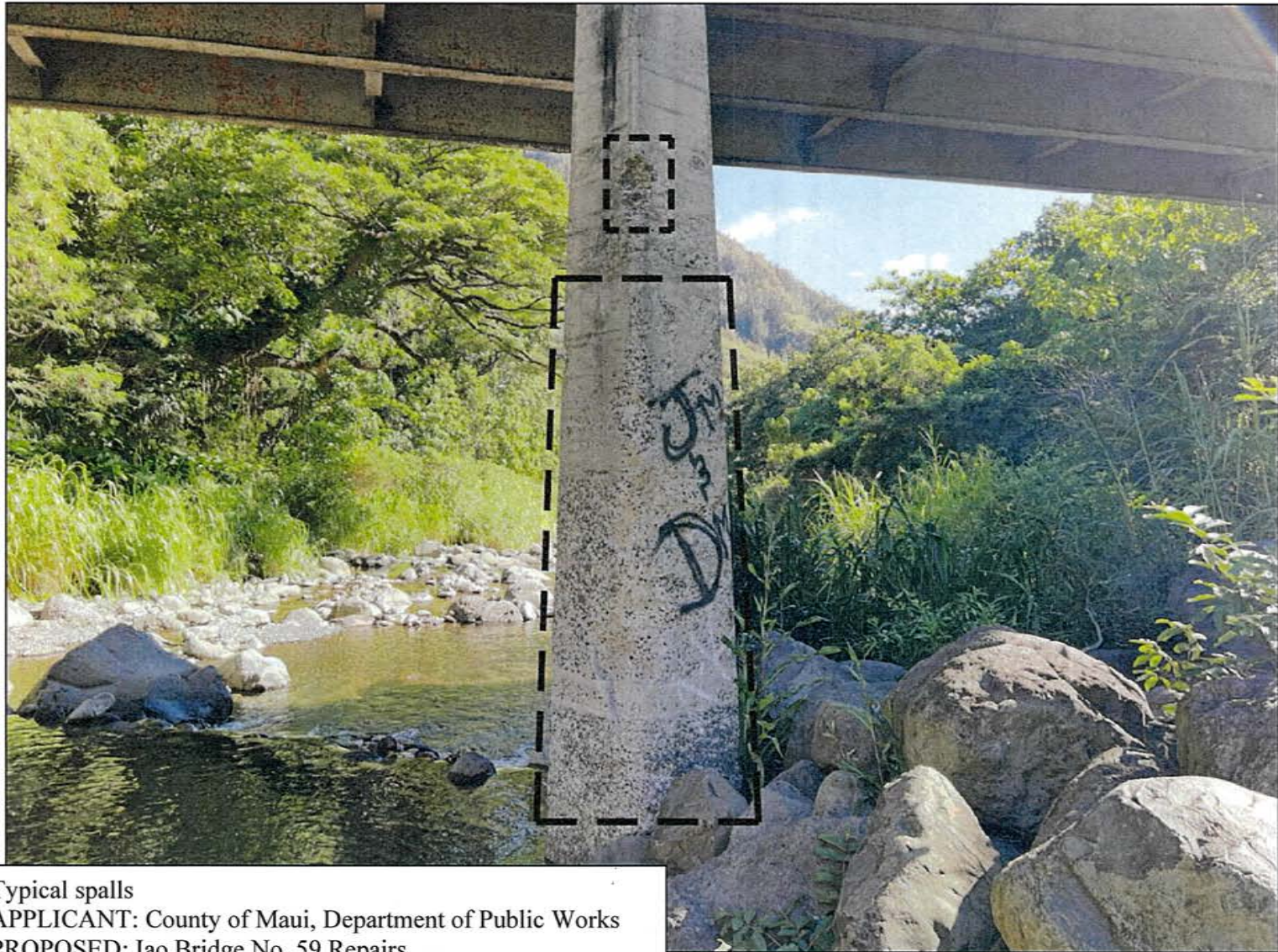
PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 10 of 41

DATE: 9/30/2024



Typical spalls

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 11 of 41

DATE: 9/30/2024



Typical corrosion of roller bearing

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku STATE: Hawaii

SHEET: 12 of 41 DATE: 9/30/2024



Typical abrasion on bridge abutment
APPLICANT: County of Maui, Department of Public Works
PROPOSED: Iao Bridge No. 59 Repairs
AT: Wailuku STATE: Hawaii
SHEET: 13 of 41 DATE: 9/30/2024



CRM wall to be repaired

APPLICANT: County of Maui, Department of Public Works

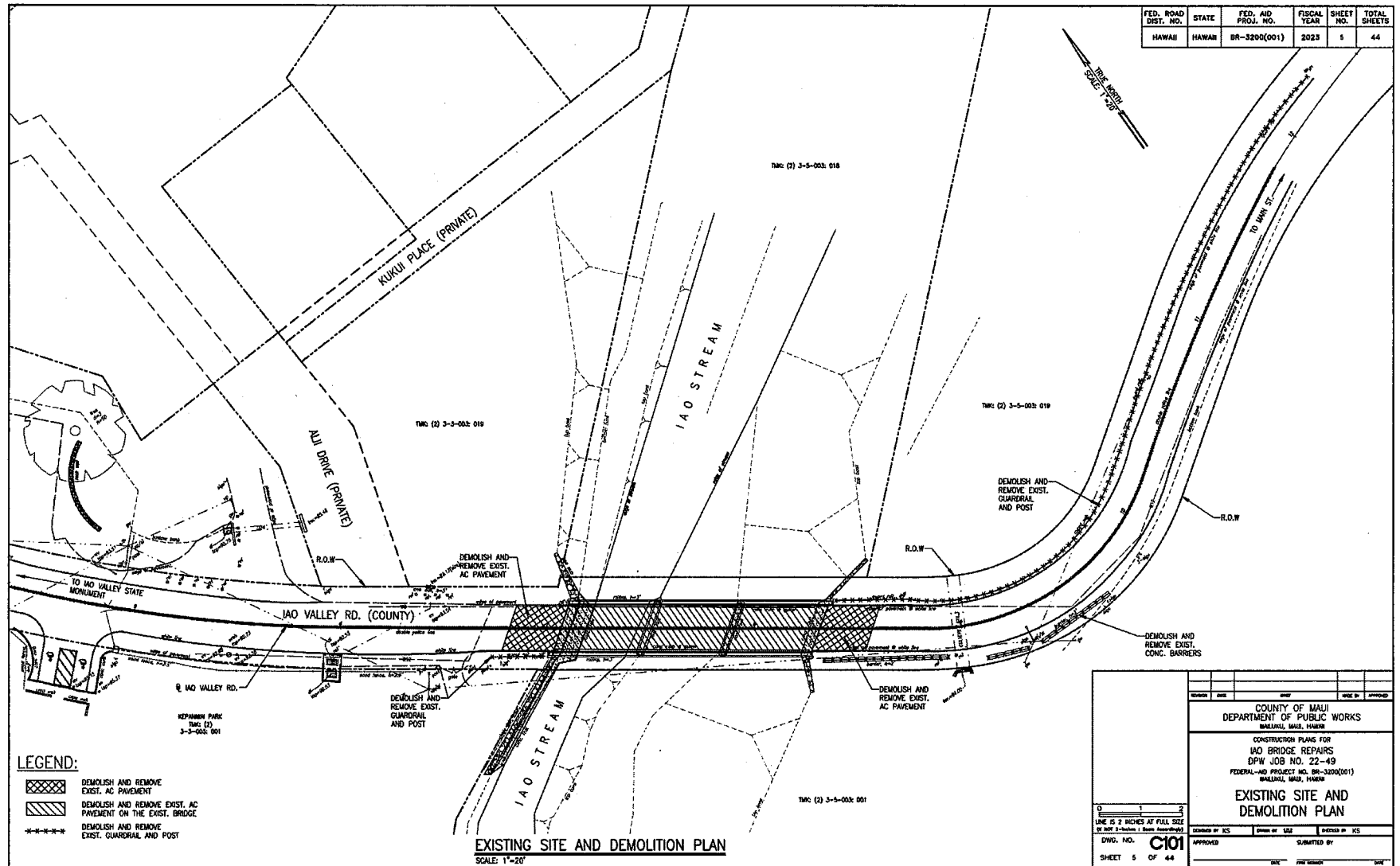
PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

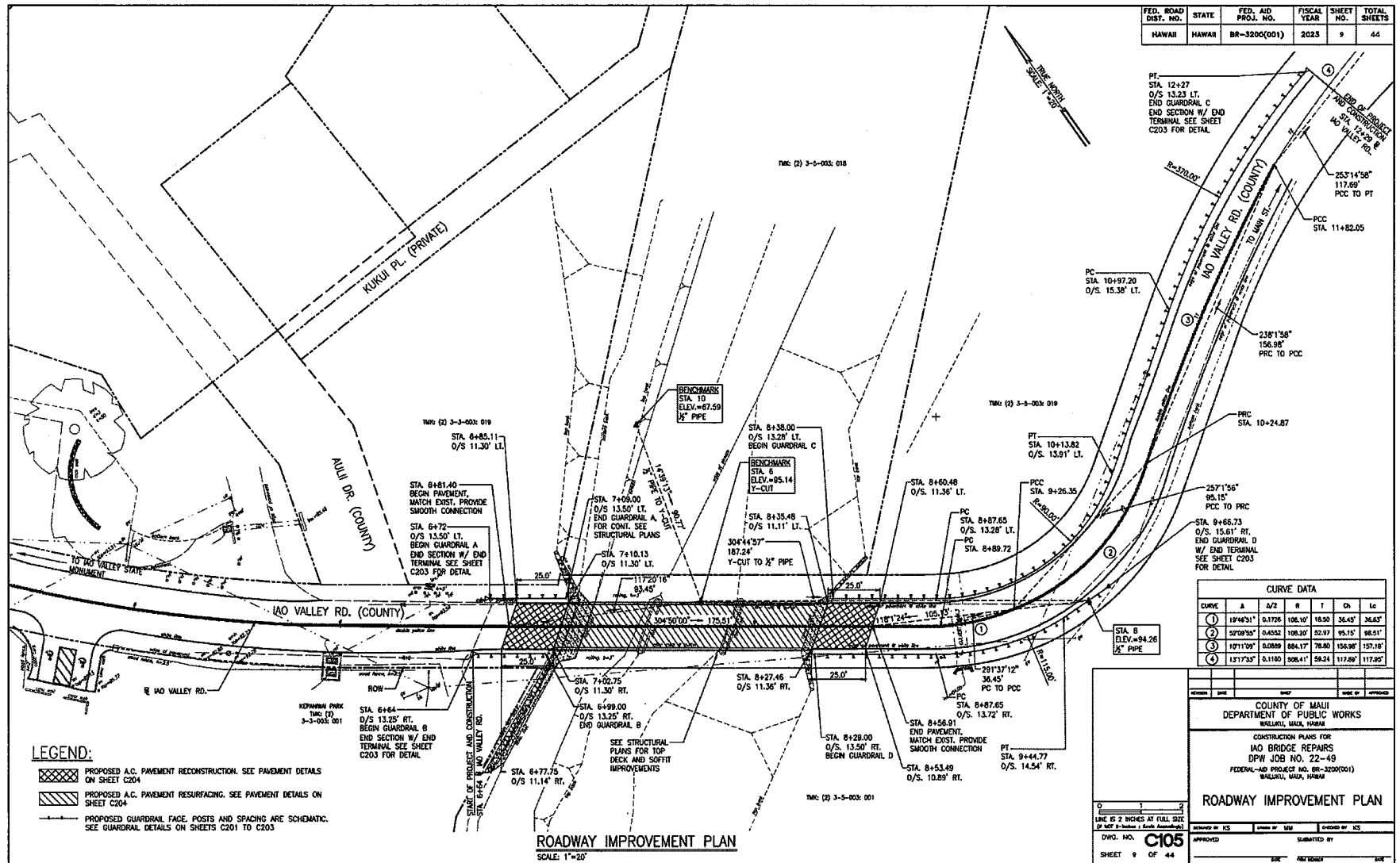
STATE: Hawaii

SHEET: 14 of 41

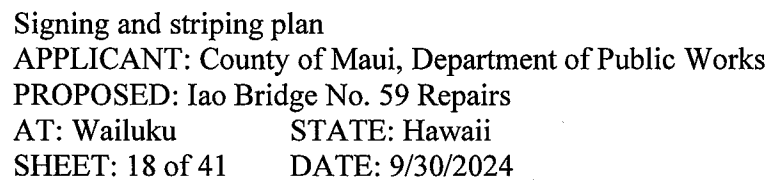
DATE: 9/30/2024



Existing site and demolition plan
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 15 of 41 DATE: 9/30/2024



Roadway improvement plan
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 17 of 41 DATE: 9/30/2024



Signing and striping plan

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

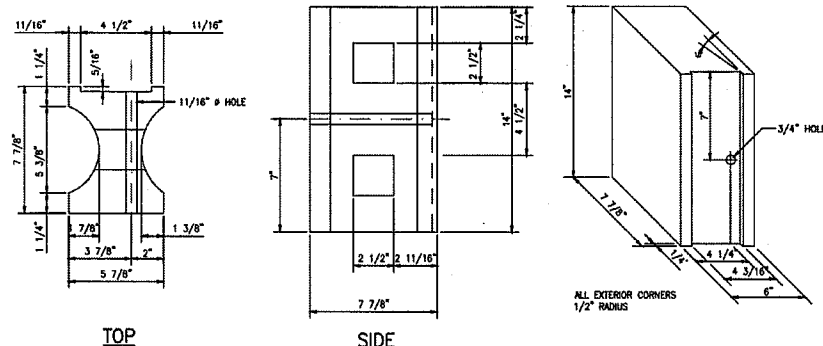
AT: Wailuku

STATE: Hawaii

SHEET: 18 of 41

DATE: 9/30/2024

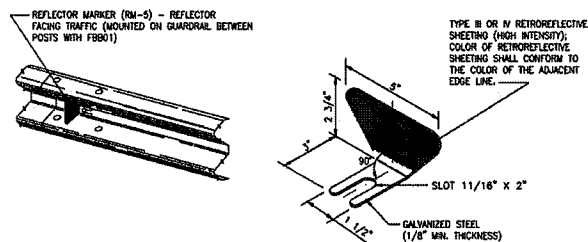
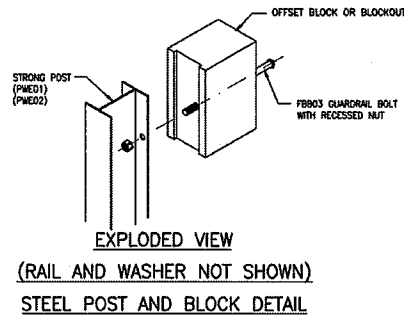
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	12	44



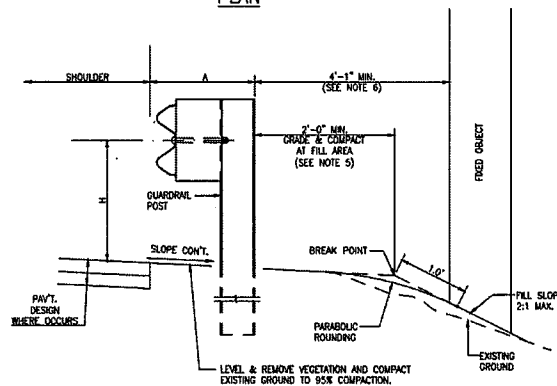
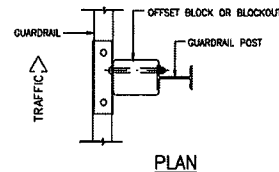
TOP
SIDE
RECYCLED PLASTIC BLOCKOUT (TYPE I)

GENERAL NOTES:

1. ALL HARDWARE, POSTS AND FASTENERS SHALL BE HOT-DIP ZINC COATED GALVANIZED AFTER FABRICATION. NO PUNCHING, DRILLING OR CUTTING WILL BE PERMITTED AFTER GALVANIZING.
2. WHERE CONDITIONS REQUIRE, SPECIAL POST LENGTHS IN INCREMENTS OF 6 INCHES MAY BE SPECIFIED.
3. ALL FASTENERS, POSTS, AND RAIL ELEMENTS (I.E. FB803, PW601, RWM22B, ETC.) SHALL CONFORM TO THE LATEST EDITION AND AMENDMENTS OF "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE", A REPORT PREPARED AND APPROVED BY THE AASHTO-AAC-AUTOMA JOINT COOPERATIVE COMMITTEE, SUBCOMMITTEE ON NEW HIGHWAY MATERIALS, TASK FORCE 13 REPORT. DIMENSIONS OF FASTENERS, POSTS AND RAIL ELEMENTS HAVE BEEN CONVERTED FROM METRIC UNITS INTO THEIR PRESENT FORM.
4. THE RECYCLED PLASTIC BLOCK OR OFFSET BLOCK SHALL BE APPROVED BY THE COUNTY.
5. WHEN STANDARDS FOR THE FILL SLOPE AREA CANNOT BE MET, A SITE SPECIFIC, ENGINEER APPROVED DESIGN MAY BE USED.
6. MINIMUM WORKING WIDTH (CLEAR DISTANCE) BETWEEN BACK OF MGS POST TO ANY FIXED OBJECT IS 4'-1" (49").
7. REFLECTOR MARKERS (RM-5) MOUNTED ON GUARDRAILS SHALL BE SPACED EVERY 25 FEET. RM-5'S SHALL NOT BE INSTALLED ON TERRAIN SECTIONS. FURNISHING AND INSTALLING OF EACH RM-5 SHALL BE CONSIDERED INCIDENTAL TO THE ADJACENT GUARDRAIL SYSTEM.



REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION

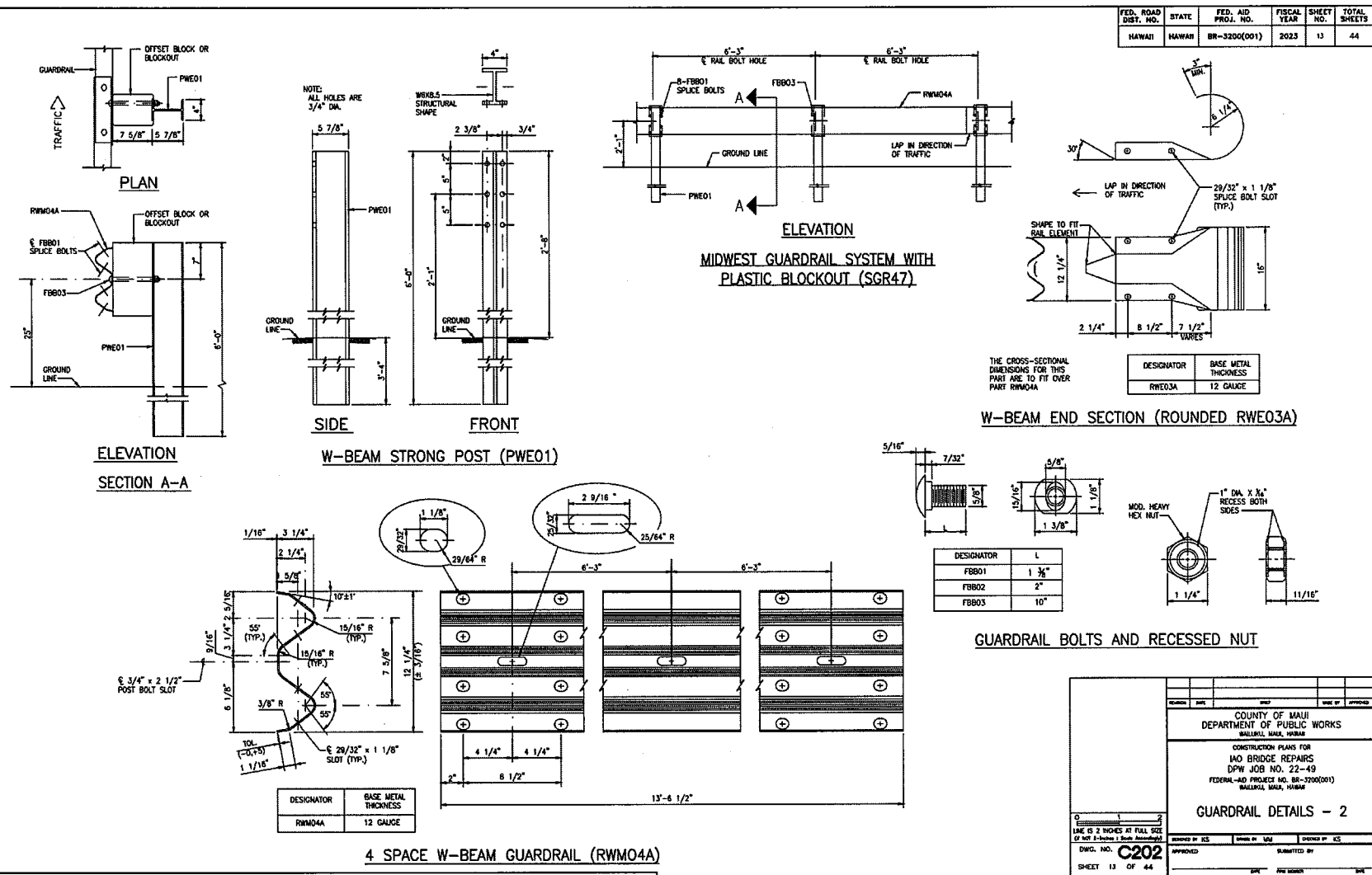


TYPICAL GUARDRAIL INSTALLATION

GUARDRAIL TYPE	DIMENSION	
	H	A
MGS w/ STANDARD 8" OFFSET BLOCK	2'-1"	1'-6"
MGS w/ NO BLOCKOUT	2'-7/8"	9 1/4"

COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII	
GUARDRAIL DETAILS - 1	
DESIGNED BY: C201	CHECKED BY: KS
DATE: 12 OF 44	DATE: 12 OF 44

Guardrail details (1/2)
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 19 of 41 DATE: 9/30/2024



Guardrail details (2/2)

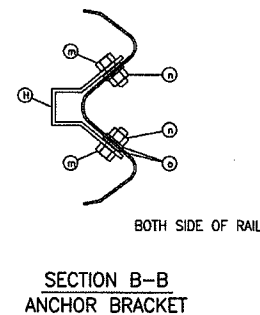
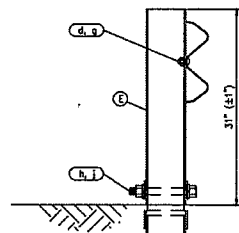
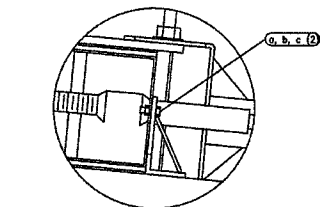
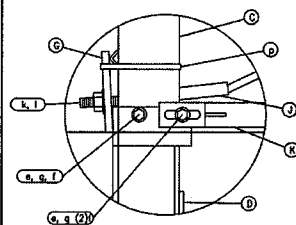
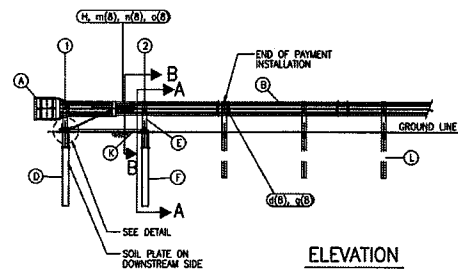
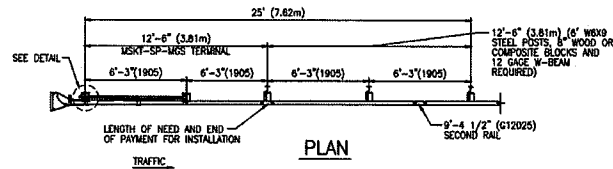
APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku STATE: Hawaii

SHEET: 20 of 41 DATE: 9/30/2024

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	14	44



GENERAL NOTES

- ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- THE LOWER SECTIONS OF THE POSTS 1 & 2 SHALL NOT PROTRUDE MORE THAN 4 IN (100) ABOVE THE GROUND (MEASURED ALONG A 5' (1.5M) CORO). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
- THE LOWER SECTION OF THE WINGED POST SHOULD NOT BE DRIVEN WITH THE UPPER POST ATTACHED. IF THE POST IS PLACED IN A DRILLED HOLE, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
- WHEN COMPETENT ROCK IS ENCOUNTERED, A 12" (300) Ø POST HOLE, 20 IN. (500) DEEP CORED INTO THE ROCK SURFACE MAY BE USED IF APPROVED BY THE ENGINEER. FOR POSTS 1 AND/OR 2, GRANULAR MATERIAL WILL BE PLACED IN THE BOTTOM OF THE HOLE, APPROXIMATELY 2.5" (60) DEEP TO PROVIDE DRAINAGE. THE FIRST AND/OR SECOND POST CAN BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH SUITABLE BACKFILL. THE SOIL PLATE MAY BE TRIMMED IF REQUIRED.
- THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. A LOCKING DEVICE (VISE GRIPS OR CHANNEL LOCK PLIERS) SHOULD BE USED TO PREVENT THE CABLE FROM TWISTING WHEN TIGHTENING NUTS.

ITEM	QTY.	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	FIRST POST TOP (6x6x1/8" Tube)	WHP1A
D	1	FIRST POST BOTTOM (6" Wx15)	WHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	STRUT	MS785
HARDWARE (ALL DIMENSIONS IN INCHES)			
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	25	5/8 DIA. x 1 1/4 SPLICE BOLT (POST #2)	B560122
e	2	5/8 DIA. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	33	5/8 DIA. H.G.R. NUT	N050
h	1	3/4 DIA. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 DIA. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2 RS SHOULDER BOLT W/ WASHER	S812A
n	8	1/2 STRUCTURAL NUT	N012A
o	8	1/2 STRUCTURAL WASHER	W012A
p	1	BEARING PLATE RETAINER TIE	CT-1005T

COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII	
END TERMINAL DETAILS	
DESIGNED BY: KCS	DRAWN BY: MAJ
APPROVED BY: KCS	SUBMITTED BY: KCS
DATE: 9/30/2024	DATE: 9/30/2024

LINE IS 3 INCHES AT FULL SIZE
(IF NOT 3 INCHES, 1 INCHES APPROXIMATELY)

DWG. NO. C203

SHEET 14 OF 44

End terminal details

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

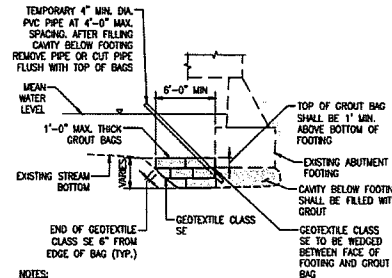
SHEET: 21 of 41

DATE: 9/30/2024

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	15	44

NOTES:

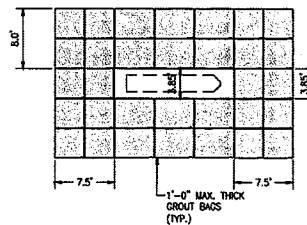
- IT IS PREFERABLE TO PLACE A SINGLE LAYER OF GROUT BAGS INSTEAD OF STACKING. PLACE FILTER FABRIC UNDER ALL GROUT BAGS INCLUDING A SINGLE LAYER OF BAGS.
- IF BAGS ARE STACKED, OVERLAP THE JOINTS OF THE PRECEDING LAYER.
- IF POSSIBLE, BAGS SHOULD BE PLACED SO THAT THE TOP OF THE BAG IS AT OR BELOW THE STREAM BOTTOM. (WHEN FILLING A SCOUR HOLE, KEEP THE TOP OF THE BAG AT OR BELOW THE STREAM BOTTOM).
- IF THE STREAM BED CONSISTS OF SOILS THAT ALLOW FOR SETTLEMENT OF THE GROUT BAGS, DO NOT TIE THE BAGS TOGETHER. IF THE STREAM BED CONSISTS OF A HARD STIFF SOIL/CLAY OR AN ERODIBLE ROCK, WHICH THE GROUT BAGS WILL NEVER BE ABLE TO SETTLE, TIE THE GROUT BAGS TOGETHER SO THEY DO NOT GET WASHED AWAY.
- GROUT BAGS SHOULD BE 3' TO 4' WIDE, 4' LONG AND 1' THICK.
- DO NOT OVERFILL THE BAGS OR ALLOW GROUT TO BE POURED BETWEEN THE SEAM OF TWO BAGS.



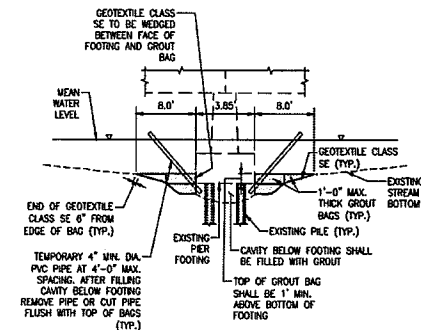
NOTES:

- STACK BAGS AS REQUIRED. JOINTS BETWEEN BAGS IN SUCCESSIVE ROWS AND TIERS SHALL BE STAGGERED.
- REFER TO GENERAL PLAN FOR ANY EXCAVATION REQUIREMENTS.
- PLACE TOP BAG FLUSH WITH FACE OF FOOTING.
- IF ON PILES, PLACE DEBONDING MATERIAL AROUND PILES WITH GREATER THAN 3'-0" EXPOSURE.
- REMOVE DEBRIS BEFORE INSTALLATION OF BAGS.

SECTION THRU ABUTMENT



PLAN OF PIER



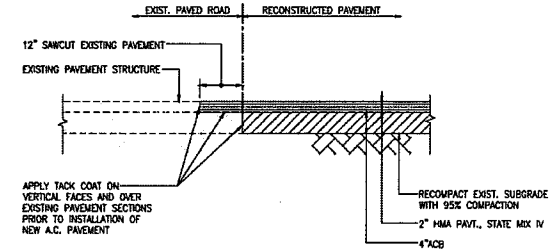
NOTES:

- STACK BAGS AS REQUIRED. JOINTS BETWEEN BAGS IN SUCCESSIVE ROWS AND TIERS SHALL BE STAGGERED.
- REFER TO GENERAL PLAN FOR ANY EXCAVATION REQUIREMENTS.
- PLACE TOP BAG FLUSH WITH FACE OF FOOTING.
- IF ON PILES, PLACE DEBONDING MATERIAL AROUND PILES WITH GREATER THAN 3'-0" EXPOSURE.
- REMOVE DEBRIS BEFORE INSTALLATION OF BAGS.

SECTION THRU PIER

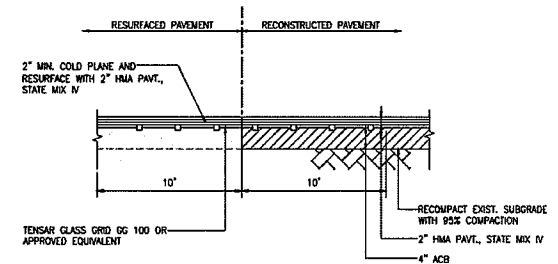
GROUT BAG INSTALLATION FOR UNDERMINED AREAS AT PIERS AND ABUTMENTS

NOT TO SCALE



A.C. PAVEMENT TRANSITION TO EXISTING

NOT TO SCALE



NOTES:

- 2" HMA PAVT. SHOULD BE PAVED OVER THE BRIDGE DECK AND THE ABUTTING PAVEMENTS IN A SINGLE OPERATION.

A.C. PAVEMENT RECONSTRUCTION TRANSITION TO RESURFACING

NOT TO SCALE

DESIGNED BY		CHECKED BY	
DATE		DATE	
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII			
MISCELLANEOUS DETAIL			
DRAWN BY		CHECKED BY	
DATE		DATE	
SHEET 15 OF 44		C204	

Misc. details

APPLICANT: County of Maui, Department of Public Works

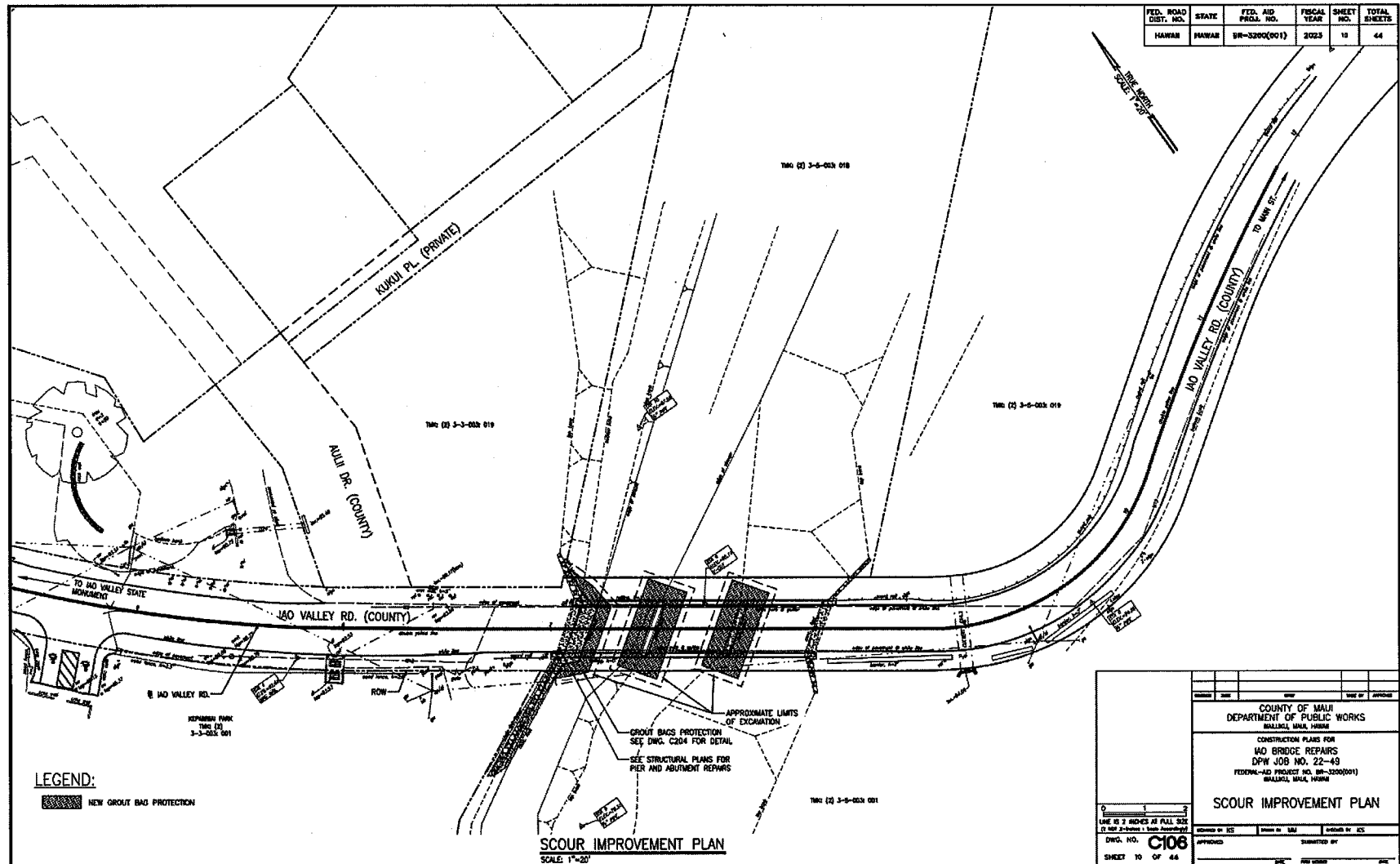
PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

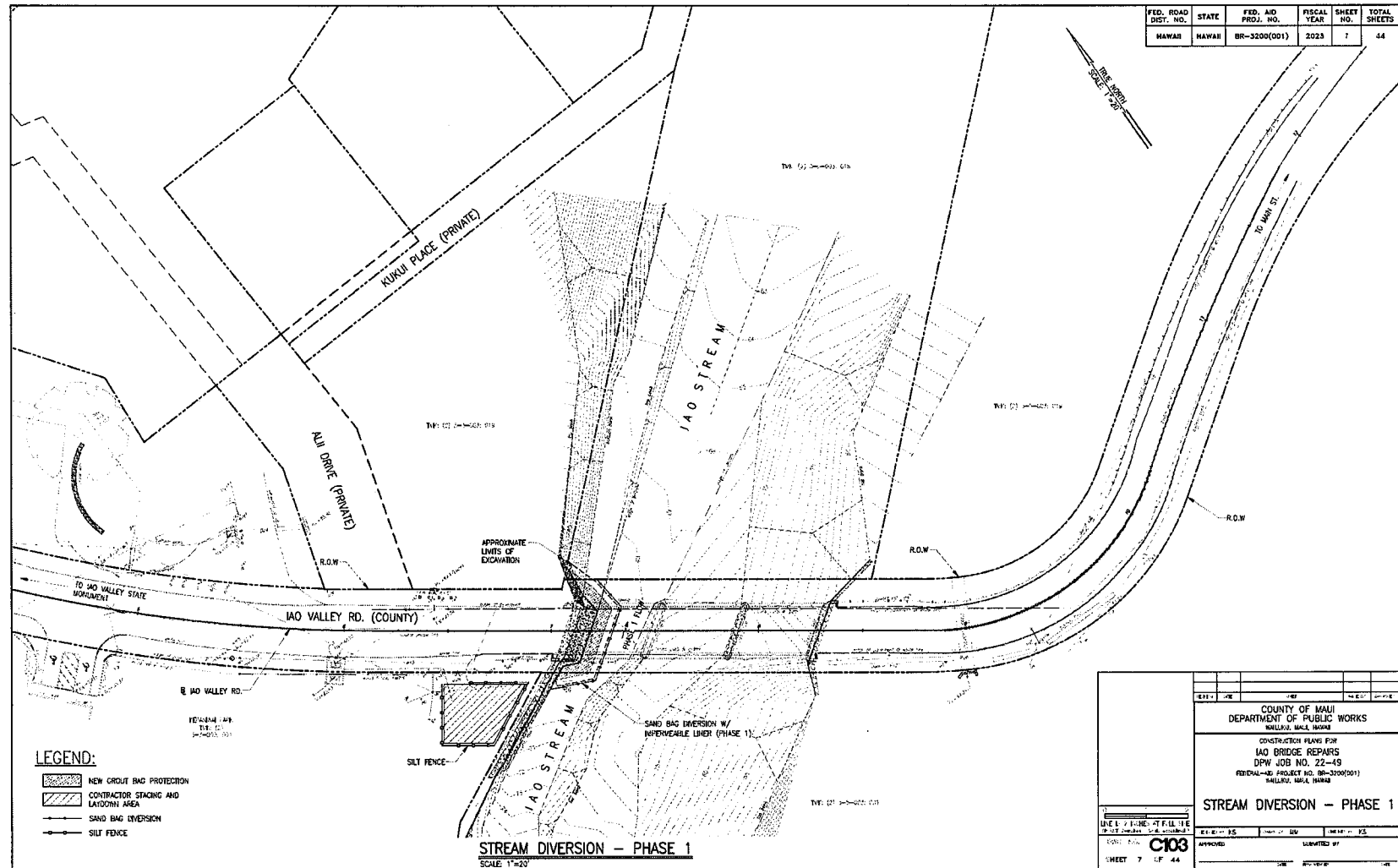
STATE: Hawaii

SHEET: 22 of 41

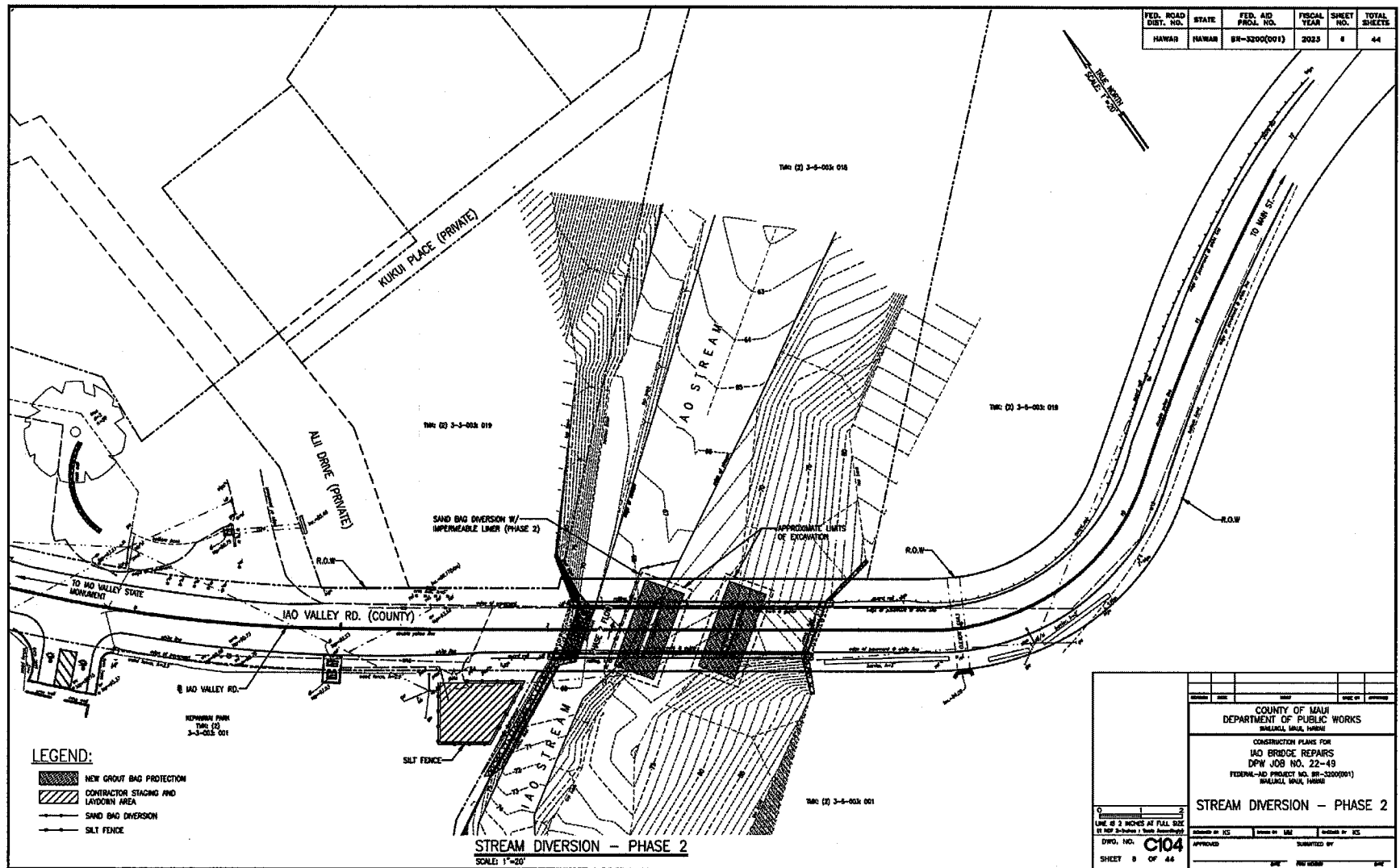
DATE: 9/30/2024



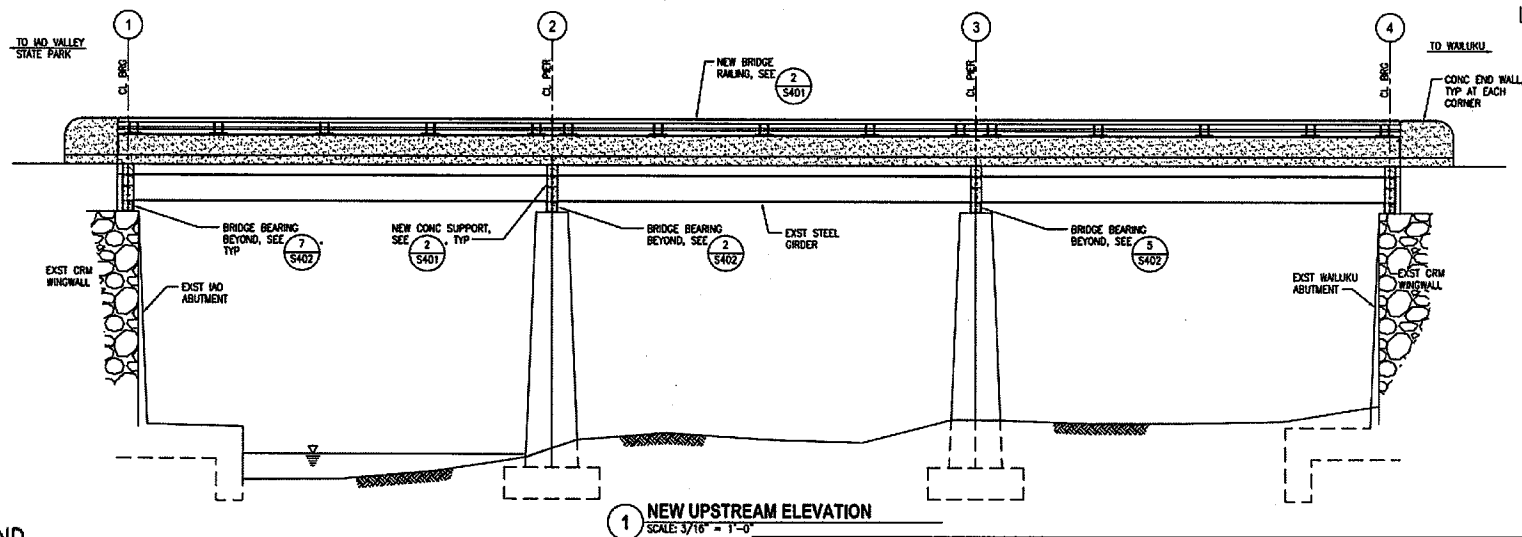
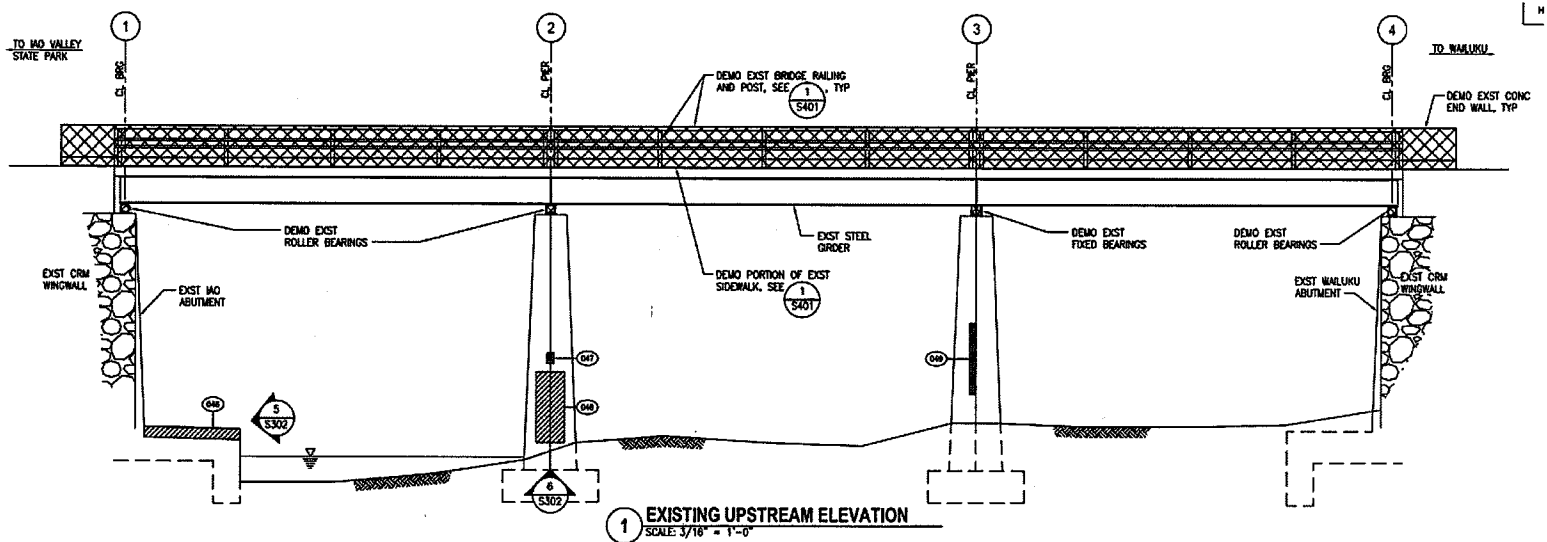
Scour improvement plan
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 23 of 41 DATE: 9/30/2024



Stream diversion plan – Phase I
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 24 of 41 DATE: 9/30/2024



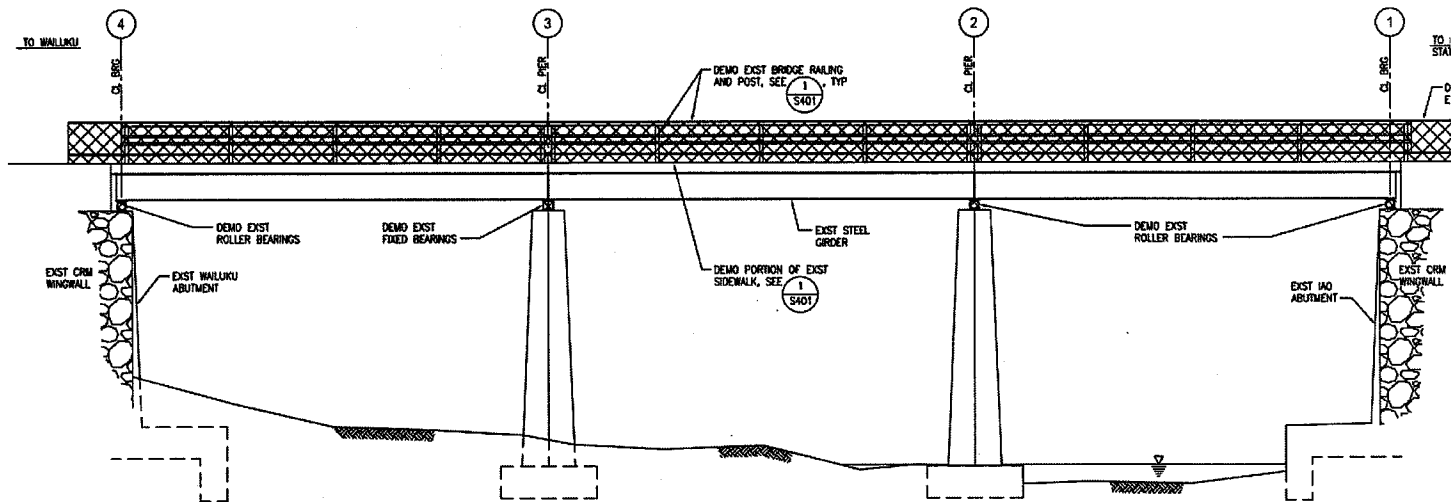
Stream diversion plan – Phase II
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 25 of 41 DATE: 9/30/2024



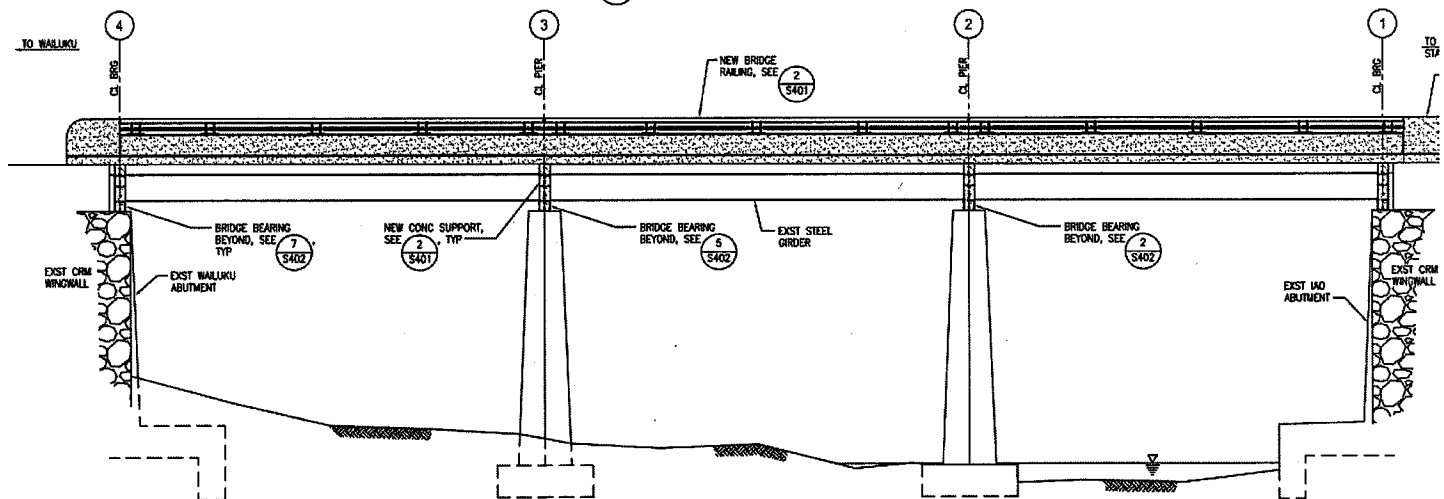
LEGEND

- (X) CONCRETE REPAIR NO., SEE SHT S601
- EXTENT OF CONCRETE REPAIR

Existing (top) and new (bottom) upstream bridge elevations
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 26 of 41 DATE: 9/30/2024



2 EXISTING DOWNSTREAM ELEVATION
SCALE: 3/16" = 1'-0"

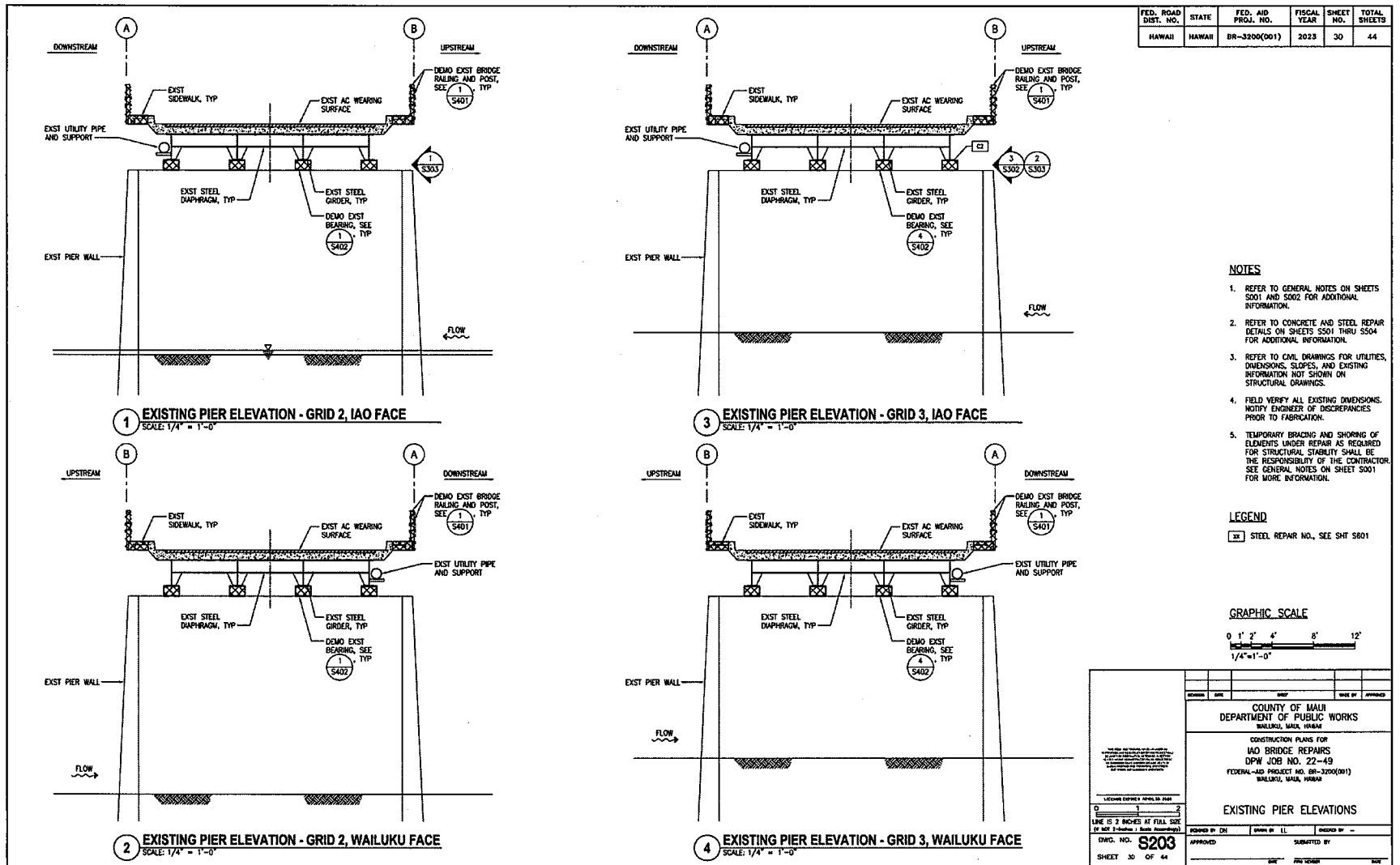


2 NEW DOWNSTREAM ELEVATION
SCALE: 3/16" = 1'-0"

LEGEND

- (KK) CONCRETE REPAIR NO., SEE SH 5601
- EXTENT OF CONCRETE REPAIR

Existing (top) and new (bottom) downstream bridge elevations
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 27 of 41 DATE: 9/30/2024



Existing pier elevations

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

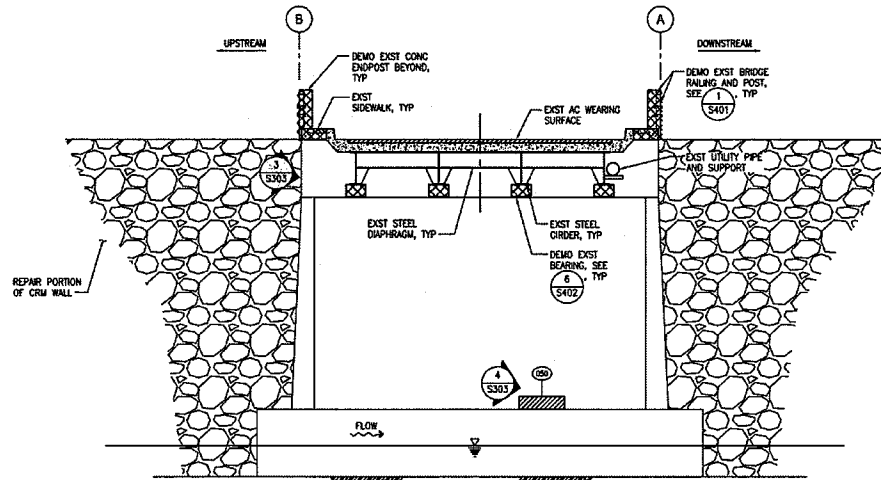
AT: Wailuku

STATE: Hawaii

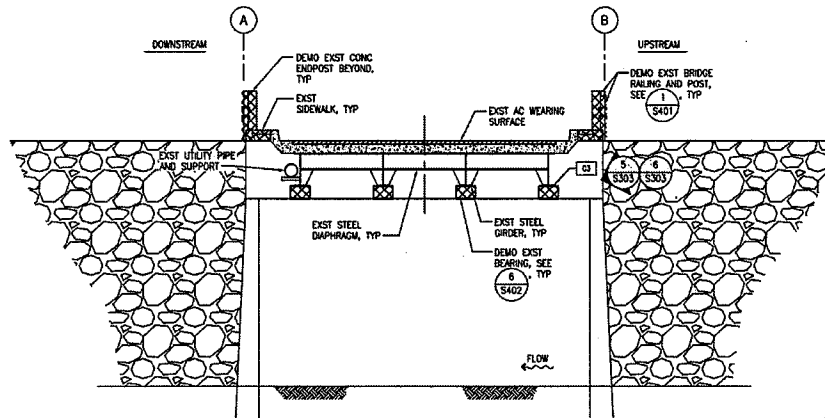
SHEET: 28 of 41

DATE: 9/30/2024

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	31	44



1 EXISTING IAO ABUTMENT ELEVATION
SCALE: 1/4" = 1'-0"



2 EXISTING WAILUKU ABUTMENT ELEVATION
SCALE: 1/4" = 1'-0"

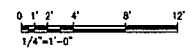
NOTES

1. REFER TO GENERAL NOTES ON SHEETS S001 AND S002 FOR ADDITIONAL INFORMATION.
2. REFER TO CONCRETE AND STEEL REPAIR DETAILS ON SHEETS S501 THRU S504 FOR ADDITIONAL INFORMATION.
3. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES, AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
4. FIELD VERIFY ALL EXISTING DIMENSIONS. NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION.
5. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.

LEGEND

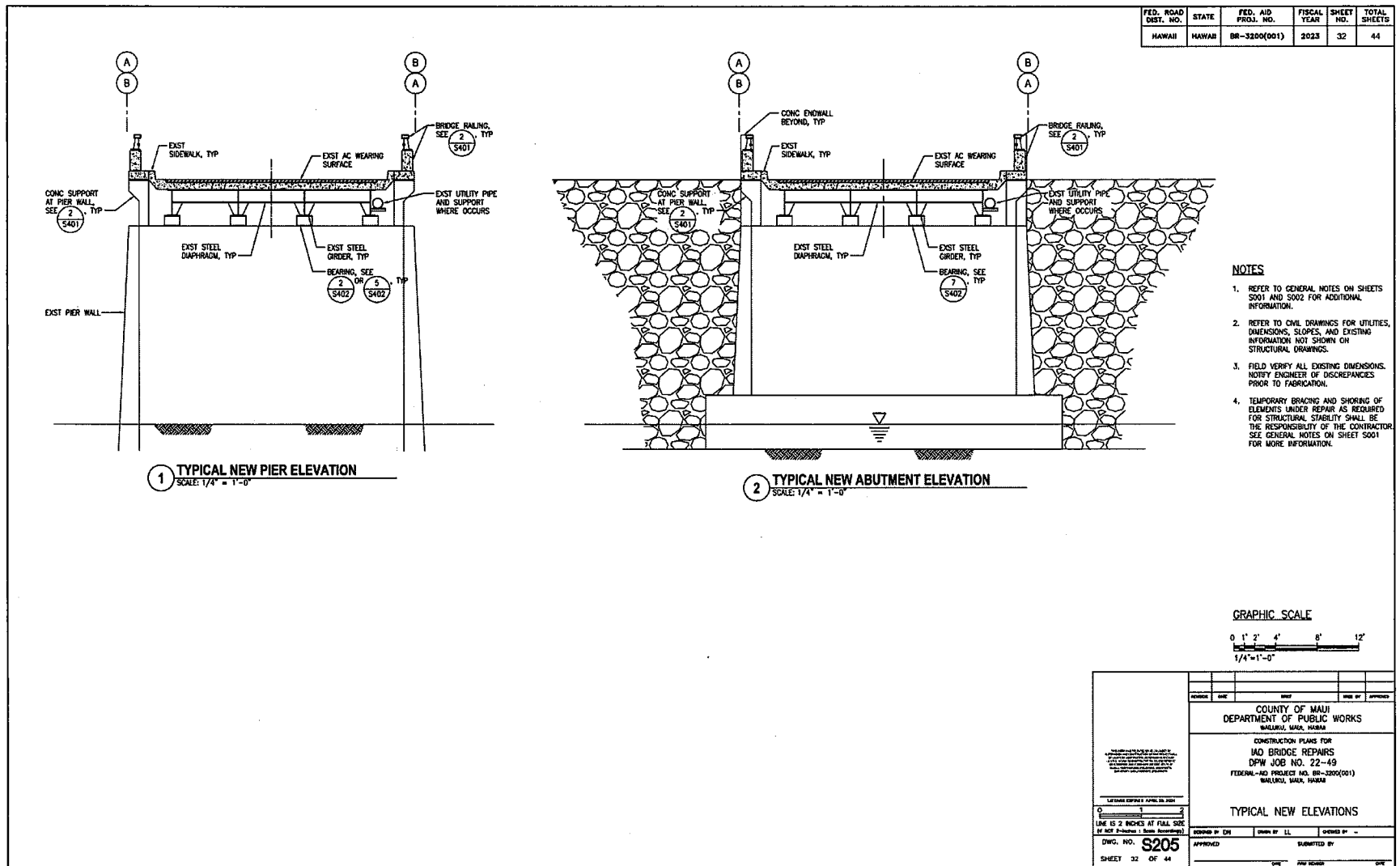
- CONCRETE REPAIR NO., SEE SHT S501
- EXTENT OF CONCRETE REPAIR
- STEEL REPAIR NO., SEE SHT S501

GRAPHIC SCALE

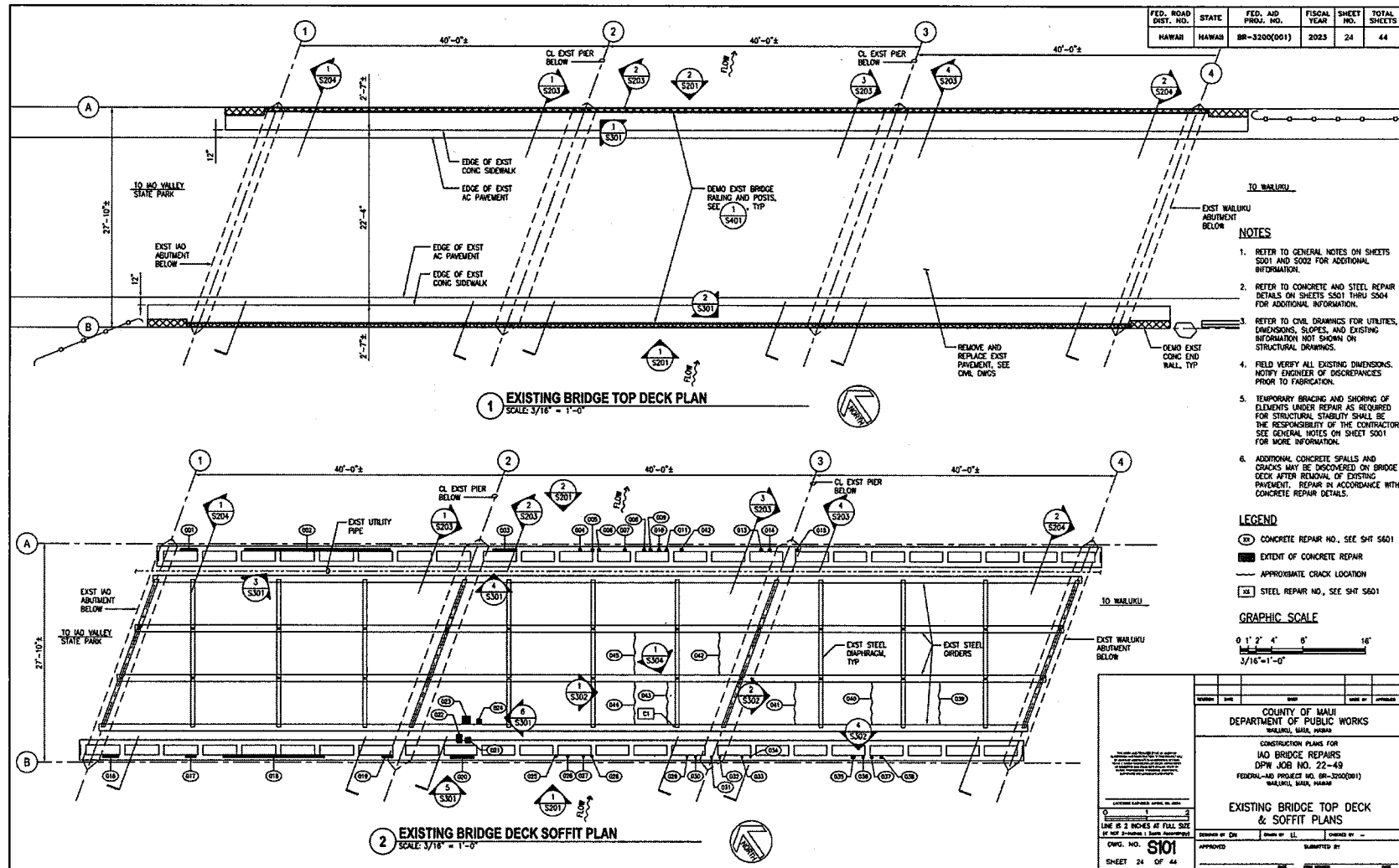


COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII	
EXISTING ABUTMENT ELEVATIONS	
DESIGNED BY: []	CHECKED BY: []
APPROVED BY: []	SUBMITTED BY: []
DWG. NO. S204	
SHEET 31 OF 44	

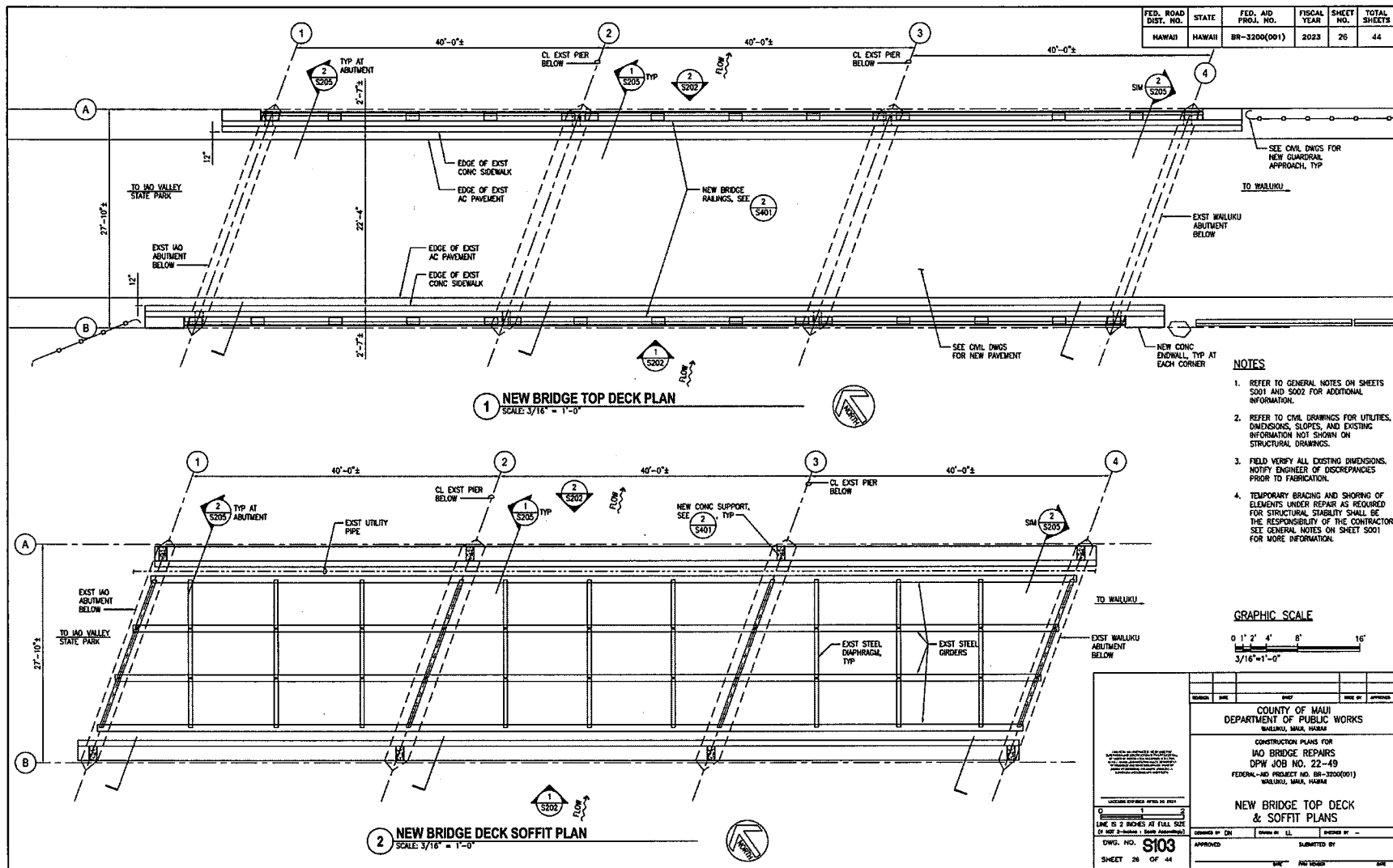
Existing abutment elevations
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 29 of 41 DATE: 9/30/2024



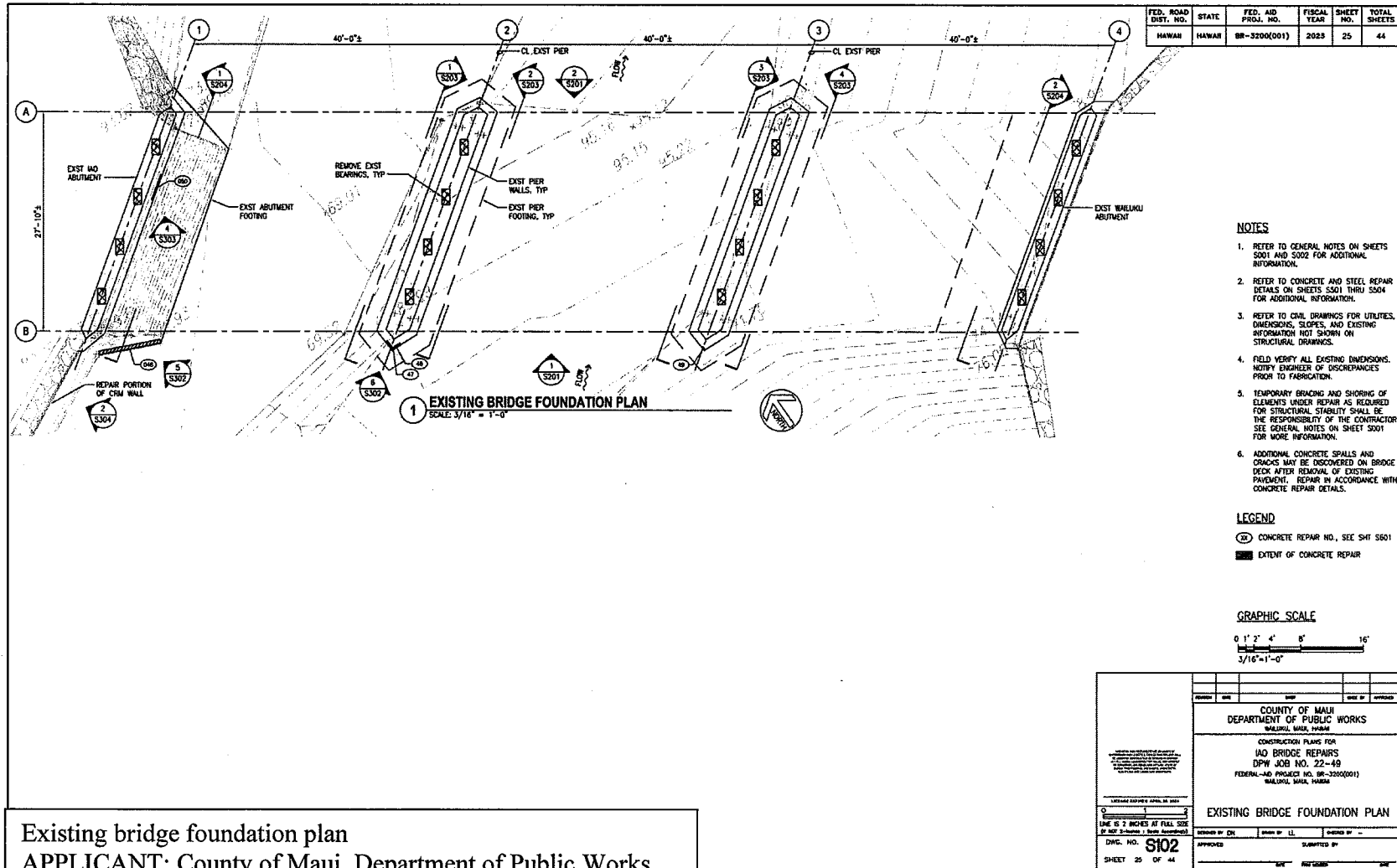
Typical new pier and abutment elevations
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 30 of 41 DATE: 9/30/2024



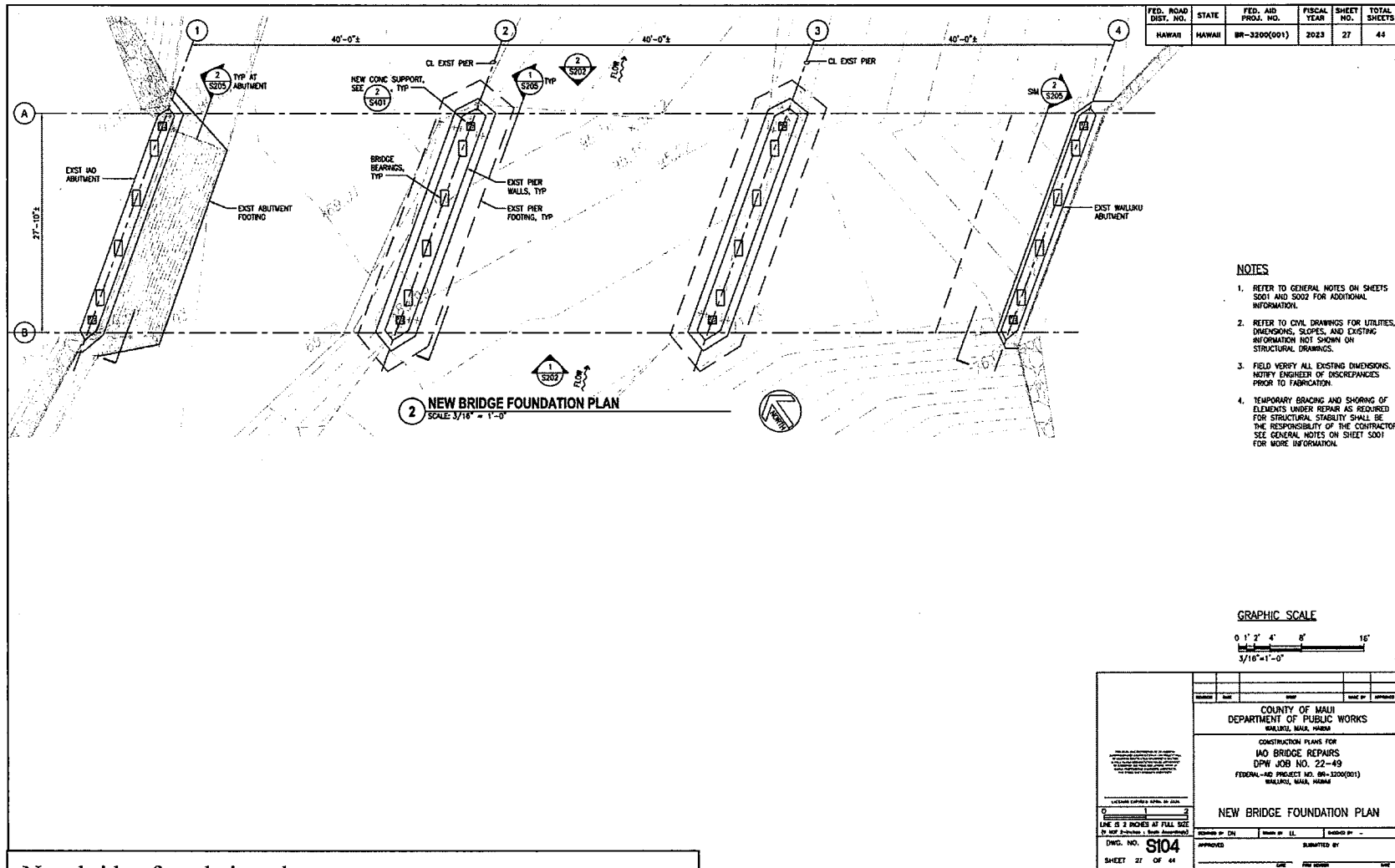
Existing bridge top deck and soffit plans
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 31 of 41 DATE: 9/30/2024



New bridge top deck and soffit plans
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 32 of 41 DATE: 9/30/2024

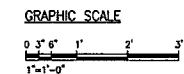
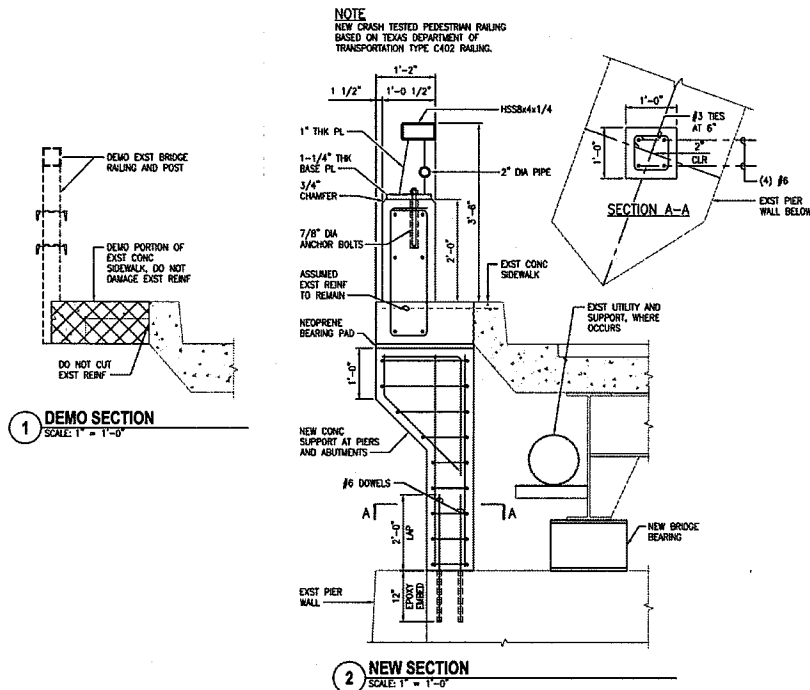


Existing bridge foundation plan
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 33 of 41 DATE: 9/30/2024



New bridge foundation plan
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 34 of 41 DATE: 9/30/2024

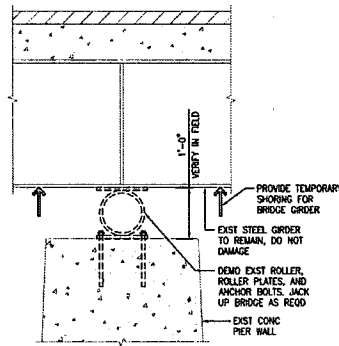
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	37	44



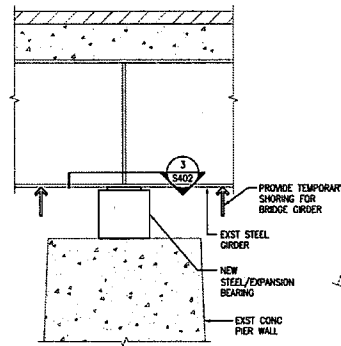
Bridge railing demo and new sections
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 35 of 41 DATE: 9/30/2024

COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII	
BRIDGE RAILING DETAILS	
DWG. NO. S401	APPROVED BY: LL
SHEET 37 OF 44	SUBMITTED BY: LL

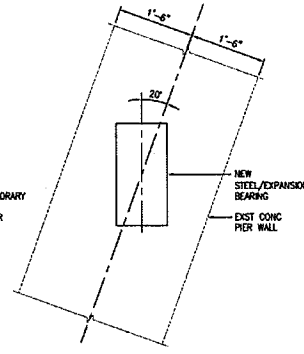
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	36	44



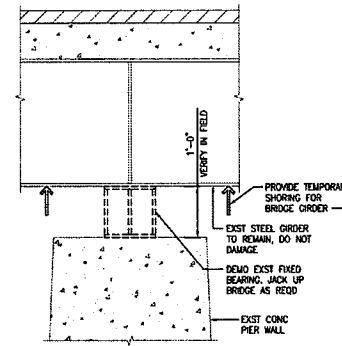
1 ROLLER BEARING REMOVAL SECTION AT PIER WALL
SCALE: 1" = 1'-0"



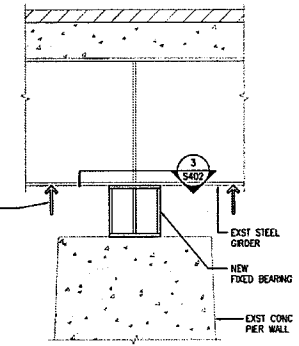
2 NEW ROLLER BEARING SECTION AT PIER WALL
SCALE: 1" = 1'-0"



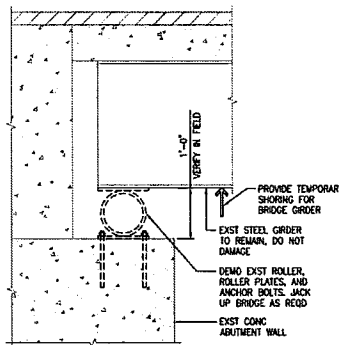
3 NEW BEARING PLAN AT PIER WALL
SCALE: 1" = 1'-0"



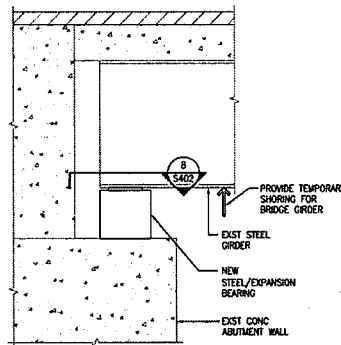
4 FIXED BEARING REMOVAL SECTION AT PIER WALL
SCALE: 1" = 1'-0"



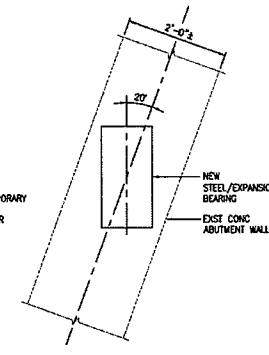
5 NEW FIXED BEARING SECTION AT PIER WALL
SCALE: 1" = 1'-0"



6 BEARING REMOVAL SECTION AT ABUTMENT
SCALE: 1" = 1'-0"

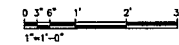


7 NEW BEARING SECTION AT ABUTMENT
SCALE: 1" = 1'-0"



8 NEW BEARING PLAN AT ABUTMENT
SCALE: 1" = 1'-0"

GRAPHIC SCALE



COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII	
BRIDGE BEARING DETAILS	
DATE: 9/30/2024	BY: S402
DESIGNED BY: S402	CHECKED BY: S402
APPROVED BY: S402	SUBMITTED BY: S402
SHEET 36 OF 44	DATE: 9/30/2024

Bridge bearing details

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 36 of 41

DATE: 9/30/2024

1. CLEAN AND REMOVE PATCH, EPOXY, AND OTHER FOREIGN MATERIAL FROM EXPOSED REINFORCING AND CONCRETE PRIOR TO REPAIR.

2. SPALLS AND DELAMINATIONS ARE INDICATED AS "SPALLS" SINCE THE REPAIRS ARE SIMILAR.

3. CONCRETE REPAIR SHALL BE IN CONFORMANCE WITH THE "CONCRETE REPAIR MANUAL", 4TH EDITION, INTERNATIONAL CONCRETE REPAIR INSTITUTE UNLESS OTHERWISE INDICATED.

4. CLEANING AND REPAIRING OF REINFORCING STEEL SEE

5. EDGES OF CHIPPED OUT AREAS SHALL BE SQUARE CUT BY SAW CUTTING FOR A MINIMUM DEPTH OF 1/2" UNLESS OTHERWISE SHOWN ON THE REPAIR DETAILS. ADOPT DEPTH OF SAW CUTTING TO AVOID CUTTING EXISTING REBARS.

6. SEE REPAIR NOTES AND DETAILS ON OTHER SHEETS. REPLACE EXISTING TYPICAL ROUND REBARS AS REQUIRED PER TABLE 1 ON THIS SHEET. ALL EXPOSED REBARS SHALL BE CLEANED OF ALL SCALE, RUST, DIRT, OIL AND OTHER DELETERIOUS MATERIALS.

7. DO NOT FEATHER EDGE REPAIRS.

8. TEST ALL REPAIRS AFTER THE REPAIR MATERIAL HAS CURED TO VERIFY THE BOND BETWEEN THE REPAIR MATERIAL AND THE EXISTING CONCRETE. A HOLLOW SOUND WHEN TAPPED WITH A HAMMER INDICATES UNSATISFACTORY BOND AND SHALL BE REJECTED. ALL REJECTED REPAIRS SHALL BE REDONE AND RETESTED UNTIL A SATISFACTORY BOND IS ACHIEVED, AT NO ADDITIONAL COST.

9. EXPOSING AND UNDERCUTTING OF REINFORCING STEEL:

(A) HAMMER SOUNDING TO LOCATE EXTENT OF DELAMINATED AREAS. IF CONCRETE SOUNDS "HOLLOW" OR IS CRACKED, REMOVE DEGRADED CONCRETE. USE CHIPPING HAMMER LESS THAN 15 LB TO REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE CORRODED REINFORCING STEEL. DO NOT DAMAGE SOUND CONCRETE.

(B) ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED CORRODED BARS SURROUNDING CONCRETE, AND TO SECURE THE REPAIR STRUCTURALLY. PROVIDE MINIMUM 3/4" CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE OR 1/4" LARGER THAN THE LARGEST AGGREGATE IN REPAIR MATERIAL, WHICHEVER IS GREATER.

(C) CONCRETE REMOVALS SHALL EXTEND ALONG THE BARS TO LOCATIONS ALONG THE BAR FREE OF CONCRETE BRISTLING CORROSION, AND WHERE THE BAR IS WELL BONDED TO SURROUNDING CONCRETE.

(D) IF NON-CORRODED REINFORCING STEEL IS EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BAR'S BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.

(E) ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS. IF NO REINFORCING BARS ARE ENCOUNTERED AND THE DEPTH TO SOUND CONCRETE IS 4 INCHES OR LESS, NO ADDITIONAL REINFORCING IS REQUIRED.

10. EDGE AND SURFACE CONDITIONING OF CONCRETE:

(A) AT EDGE LOCATIONS, PROVIDE RIGHT ANGLE CUTS TO THE CONCRETE SURFACE WITH A SAWCUT 3/4" OR LESS AS REQUIRED TO AVOID CUTTING REINFORCING STEEL. DO NOT FEATHER EDGE.

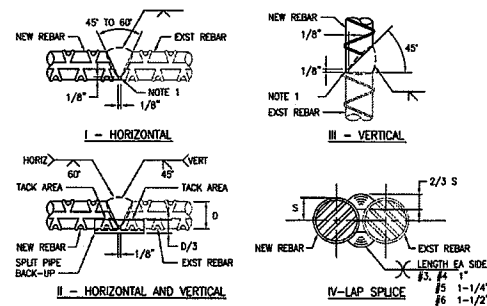
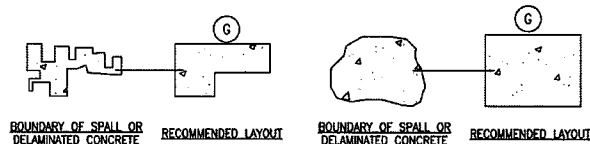
(B) REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE, PREFERABLY WITH SQUARED CORNERS. SEE REPAIR DETAIL G ON THIS SHEET.

(C) AFTER REMOVALS AND EDGE CONDITIONING ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, CONCRETE SLURRY, LOOSELY BONDED AGGREGATE) BY APPROVED METHODS. CHECK THE CONCRETE SURFACES ADDITIONALLY TO INSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE, OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.

(D) COAT ALL EXPOSED STEEL WITH EPOXY-MODIFIED, CEMENTITIOUS COATING.

(E) COAT ALL CONCRETE SURFACES TO RECEIVE REPAIR MORTAR/GROUT/CONCRETE WITH BONDING AGENT. APPLY MORTAR PER MANUFACTURER'S INSTRUCTION. FINAL CONCRETE SURFACE SHALL MATCH EXISTING CONCRETE SURFACE.

11. SEE NOTES ON SHEET S501 FOR ADDITIONAL INFORMATION.



REBAR SIZE	MINIMUM ACCEPTABLE DIAMETER AT SECTION LOSS
#3	5/16"
#4	7/16"
#5	1/2"
#6	5/8"
#7	3/4"
#8	13/16"
#9	15/16"
#10	1-1/16"



1. REMOVE HEAVY CORROSION AND SCALE FROM REBARS USING HAND TOOLS (EG: WIRE BRUSH) OR OTHER APPROVED METHODS.
2. IF REBAR DIAMETER AFTER CLEANING IS LESS THAN THAT SHOWN IN THE TABLE 1 ABOVE, REPAIR REBAR PER (2).

3 TYPICAL REBAR CLEANING AND LOSS OF SECTION
NOT TO SCALE

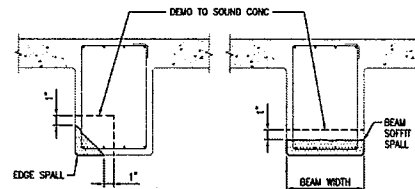
1. CHIP, GRIND OR GROUND TO SOUND METAL BEFORE WELDING OTHER SIDE.
2. DETAIL 1 AND II FOR NO. 9 AND LARGER.
DETAIL I FOR NO. 8 AND SMALLER.
DETAIL IV FOR NO. 6 AND SMALLER.
3. E70 ELECTRODE FOR CRAO
E90 ELECTRODE FOR CRAO.
4. SEE AWS D1.4 FOR WELDING PROCESS AND OTHER DETAILS.
5. FOR TYPE IV REPAIRS WHERE WELDS ARE NOT ACCESSIBLE ON EACH SIDE OF BARS, PROVIDE TRIPLE WELD LENGTH SHOWN ON ONE SIDE.

REVISION		DATE		SHEET		PAGE OF APPROVAL	
COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII							
CONSTRUCTION PLANS FOR HAW BROIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII							
CONCRETE REPAIR DETAILS							
ENGINEERED AND SEAL IN ACC. PER							
0	1	2					
LINE IS 2 INCHES AT FULL SIZE OF NOT 2-inches 1 Scale Allowed)							
DWG. NO. S501							
SHEET 39 OF 44							
APPROVED BY (DI)		DRAWN BY LL		CHECKED BY --			
APPROVED				SUBMITTED BY			
DATE				DATE			

Concrete repair details (1/3)
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 37 of 41 DATE: 9/30/2024

Diagram illustrating the beam elevation and repair limits. The diagram shows a cross-section of a beam with a central repair area. Key dimensions and labels include:

- APPROX. LIMIT OF REPAIR AND LIMIT OF SOUND CONC. REMOVAL:** Indicated by a dashed line above the repair area.
- BRIDGE PLANS, ELEVATIONS, AND SECTION, TYP:** A label pointing to the repair area.
- EXIST. DECK SLAB:** The top layer of the bridge structure.
- 3" DECK SLAB:** The thickness of the existing deck slab.
- BEAM DEPTH:** The total depth of the beam.
- 1" (twice):** Dimensions indicating the width of the repair area on either side of the central repair zone.
- SPALL ON SOFFIT ON EDGE OF BEAM. SEE REPAIR SCHEDULE.** A label pointing to the bottom edge of the beam.
- BEAM ELEVATION:** The title of the diagram.



BEAM ELEVATION

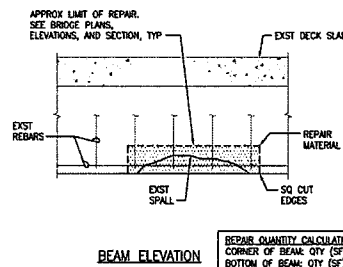
SECTION

SECTION

- NOTES:
1. SEE  FOR BEAM REPAIR DETAIL.
 2. INCREASE LIMIT OF REPAIR AS REQUIRED FOR NEW REINFORCING.

1 BEAM SPALLS - EXISTING CONDITIONS
NOT TO SCALE

NOT TO SCALE



BEAM ELEVATION

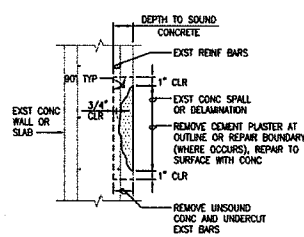
SECTION

SECTION

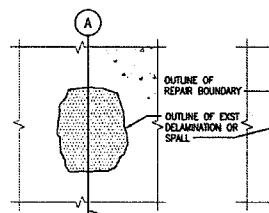
REPAIR QUANTITY CALCULATIONS
 CORNER OF BEAM: QTY (SF) = (A+B) x LENGTH
 BOTTOM OF BEAM: QTY (SF) = (C+D+E) x LENGTH

2 BEAM SPALLS - REPAIRS
NOT TO SCALE

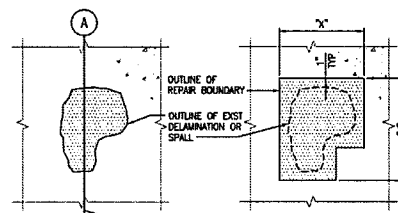
NOT TO SCALE



A SECTION



⑧ ELEVATION (WALL) OR PLAN (SLAB)



(C) ELEVATION (WALL) OR PLAN (SLAB)

3 REPAIR DETAIL - SPALL / DELAMINATION ON FLAT SURFACE
NOT TO SCALE

NOT TO SCALE

- NOTES**

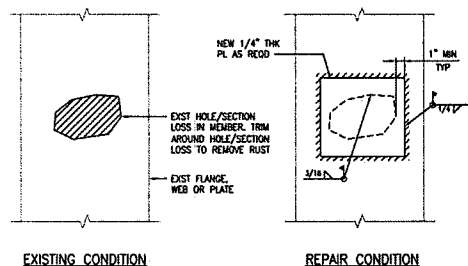
 1. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
 2. SEE CONCRETE REPAIR NOTES AND DETAILS ON SHT S001 AND SS01.

COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS BAKELAND, WARD, HANAMA		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS BAKELAND, WARD, HANAMA		COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS BAKELAND, WARD, HANAMA	
CONSTRUCTION PLANS FOR BDPW REPAIRS BDPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3000(001) BAKELAND, WARD, HANAMA		CONSTRUCTION PLANS FOR BDPW REPAIRS BDPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3000(001) BAKELAND, WARD, HANAMA		CONSTRUCTION PLANS FOR BDPW REPAIRS BDPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3000(001) BAKELAND, WARD, HANAMA	
CONCRETE REPAIR DETAILS		CONCRETE REPAIR DETAILS		CONCRETE REPAIR DETAILS	
DRAWN BY: 5502 CHECKED BY: 40		DRAWN BY: 5502 CHECKED BY: 40		DRAWN BY: 5502 CHECKED BY: 40	

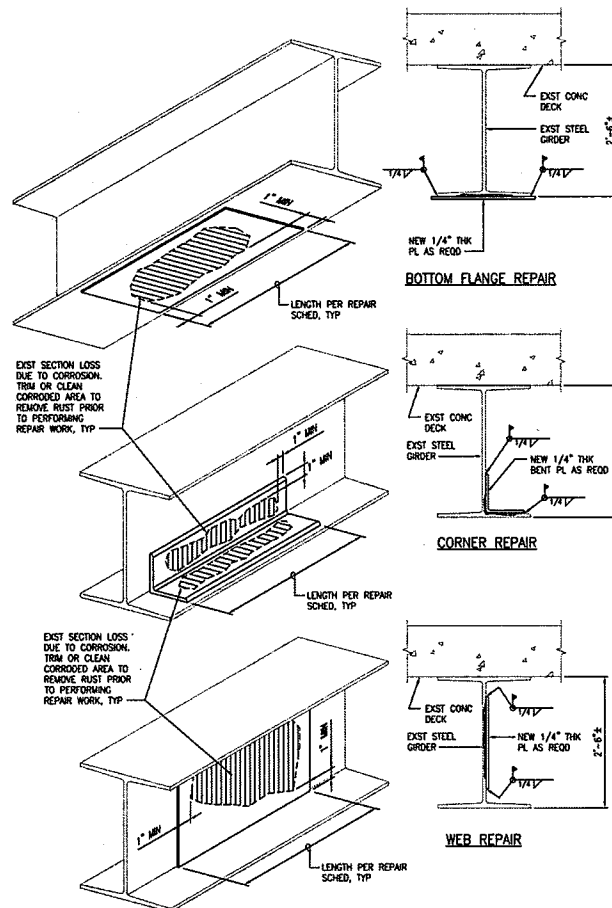
Concrete repair details (2/3)
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 38 of 41 DATE: 9/30/2024

STEEL FRAMING REPAIR NOTES

1. REMOVE RUST AND PROVIDE STEEL REPAIRS AS REQUIRED.
2. ALL REPAIRS SHALL BE MADE AFTER RUST HAS BEEN REMOVED TO BARE METAL. ALL RUST AND SCALE SHALL BE REMOVED BY USING HAND TOOLS (EG. WIRE BRUSHES, SCRAPING TOOLS, OR SANDPAPER) OR OTHER CONTRACTING OFFICER APPROVED METHODS.
3. AFTER RUST HAS BEEN REMOVED TO BARE METAL, INSPECT FOR UNDETECTED DEFICIENCIES OF THE UNDERLYING METAL. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER OF ANY UNFORESEEN CONDITIONS OR WHEN SECTION LOSS EXCEEDS 25% MEMBER THICKNESS.
4. WELDING REPAIRS SHALL ADHERE STRICTLY TO WELDING NOTE 4 ON SHEET 5001.
5. VERIFY SIZE AND LOCATION OF REPAIR PRIOR TO FABRICATION OF REPAIR MATERIAL.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR TEMPORARY SHORING AND BRACING NEEDED TO PROTECT STRUCTURE DURING REPAIR WORK.
7. SEE STRUCTURAL GENERAL NOTES ON SHEET 5001 FOR MATERIAL GRADES OF REPAIR MATERIAL.
8. BARE METAL REPAIR SHALL BE COATED WITH TWO COATS OF ZINC COLD GALVANIZING.



1 STEEL REPAIR DETAILS
NOT TO SCALE



2 STEEL REPAIR DETAILS
NOT TO SCALE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-3200(001)	2023	42	44

COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS WAILUKU, MAUI, HAWAII	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) WAILUKU, MAUI, HAWAII	
STEEL REPAIR DETAILS	
DESIGNED BY: 8504	CHECKED BY: 8504
DATE: 8504	DATE: 8504
SHEET 42 OF 44	

Steel repair details

APPLICANT: County of Maui, Department of Public Works

PROPOSED: Iao Bridge No. 59 Repairs

AT: Wailuku

STATE: Hawaii

SHEET: 40 of 41

DATE: 9/30/2024

NOTES

1. REFER TO GENERAL NOTES ON SHEET S001 FOR ADDITIONAL INFORMATION.
2. REFER TO CIVIL DRAWINGS FOR UTILITIES, DIMENSIONS, SLOPES AND EXISTING INFORMATION NOT SHOWN ON STRUCTURAL DRAWINGS.
3. FIELD VERIFY ALL EXISTING DIMENSIONS AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATION.
4. TEMPORARY BRACING AND SHORING OF ELEMENTS UNDER REPAIR AS REQUIRED FOR STRUCTURAL STABILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GENERAL NOTES ON SHEET S001 FOR MORE INFORMATION.
5. FOR PAINT REMOVAL AND SURFACE PREPARATION OF STRUCTURE NEAR EXISTING WATER LINE, TAKE PRECAUTIONS TO PROTECT EXISTING WATERLINE INCLUDING BUT NOT LIMITED TO, USING HAND TOOLS. FOR APPLICATION OF COATING, TAKE PRECAUTIONS TO PROTECT EXISTING WATERLINE.

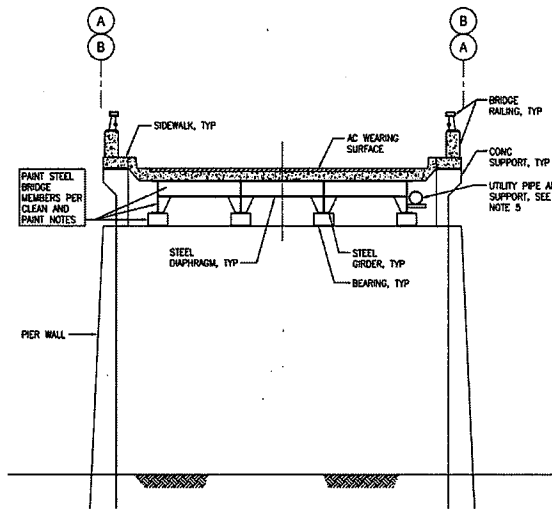
CLEAN AND PAINT EXISTING STEEL BRIDGE NOTES

GENERAL

1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS SECTION 694 "CLEAN AND PAINT STRUCTURAL BRIDGE STEEL".
2. WHERE SHOWN ON DRAWINGS, DIMENSIONS AND STEEL MEMBER SIZES ARE BASED ON AVAILABLE AS-BUILT BRIDGE PLANS AND MAY NOT BE EXACT. THIS IS PROVIDED FOR INFORMATION ONLY. FIELD VERIFY ALL EXISTING AND NEW DIMENSIONS AND CONDITIONS. ALL DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE ENGINEER AND SHALL BE RESOLVED PRIOR TO COMMENCING WORK.
3. TAKE ADEQUATE MEASURES TO PROTECT THE ENVIRONMENT FROM ALL CONSTRUCTION MATERIALS. SEE STANDARD SPEC SECTION 107.13 "POLLUTION CONTROL AND PROTECTION OF ARCHEOLOGICAL, HISTORICAL, AND BURIAL SITES", AND SECTION 209 "TEMPORARY WATER POLLUTION, DUST AND EROSION CONTROL".
4. PROVIDE TEMPORARY CONTAMINANT STRUCTURES AROUND THE WORK AREA TO PROTECT THE ENVIRONMENT. SEE SPECIAL PROVISIONS.
5. NEW PAINT SHALL BE A TWO-COAT SYSTEM CONSISTING OF A MODIFIED ALUMINUM EPOXY MASTIC COATING (BASE COAT) AND POLYURETHANE TOP COAT. REFER TO SPECIAL PROVISIONS.
6. BRIDGE STRUCTURE SHALL BE PAINTED GRAY TO MATCH EXISTING COLOR OF STEEL BEAMS AND RAILINGS.

SURFACE PREPARATION AND APPLICATION

1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS SECTION 694 "CLEAN AND PAINT STRUCTURAL BRIDGE STEEL" FOR CLEAVING AND SURFACE PREP INFORMATION.
2. CLEAN AND PREPARE STEEL SURFACE BY POWER WASH WITH MINIMAL HAND OR POWER TOOLING (SSPC SP2 OR SP3). ALL LOOSE RUST AND SCALE SHALL BE REMOVED.
3. BASE COAT SHALL BE "CARBOMASTIC 15" BY CARBOLINE OR PRE-REVIEWED EQUAL. APPLY BASE COAT IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. SURFACES TO BE PAINTED SHALL BE TOTALLY DRY. DO NOT APPLY PAINT OVER WET OR MOIST SURFACE.
5. APPLY SPECIFIED POLYURETHANE TOP COAT IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.



1 TYPICAL PIER ELEVATION
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE

0 1' 2' 4' 8' 12'
1/4"=1'-0"

COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS HONOLULU, MAUI, HAWAII	
CONSTRUCTION PLANS FOR IAO BRIDGE REPAIRS DPW JOB NO. 22-49 FEDERAL-AID PROJECT NO. BR-3200(001) HONOLULU, MAUI, HAWAII	
CLEAN AND PAINT EXISTING STEEL BRIDGE	
DRAWN BY: DSI CHECKED BY: LL DATE: 9/30/2024	SUBMITTED BY: _____ DATE: _____
SHEET 44 OF 44	

Clean and paint existing steel bridge plan
 APPLICANT: County of Maui, Department of Public Works
 PROPOSED: Iao Bridge No. 59 Repairs
 AT: Wailuku STATE: Hawaii
 SHEET: 41 of 41 DATE: 9/30/2024

ATTACHMENT 3

BEST MANAGEMENT PRACTICES PLAN

IAO BRIDGE NO. 59 REPAIRS

TMK (2) 3-5-003:999, 001

IAO VALLEY ROAD

WAILUKU, HAWAII 96793

OCTOBER 3, 2024

Purpose

The purpose of this Best Management Practices Plan (BMPP) is to ensure that adequate protective measures are in place during the repairs of Iao Bridge at 20.882862°N, 156.533747°W on Iao Valley Road, Maui, Hawaii, TMK (2) 3-5-003:999, 001. This plan is designed to prevent, if possible, or minimize adverse impacts on the environment. The project specifications will require the Contractor to adhere to environmental protection measures, including, but not limited to, those included in this plan.

Project Name

Iao Bridge No. 59 Repairs

Project Description

Iao Bridge is a 3-span bridge located along Iao Valley Road in Wailuku, Maui. The bridge consists of a asphalt concrete deck, steel superstructure, and concrete superstructure. The bridge abutments and pier walls are supported by shallow footing foundations in Iao Stream.

The proposed project involves rehabilitating the Iao Stream Bridge (No. 59), constructed in 1955, including replacing parapet rails and end stanchions, repairing minor concrete spalls, and repairing scour. The rail replacement will require the addition of new concrete pier support at abutments and each pier. The Hawai'i State Historic Bridge Inventory and Evaluation (MKE Associates, 2013) identified the bridge as a significant historic property in accordance with HAR §13-275-6 requirements.

Work Plan

1. Provide a Traffic Control Plan per construction documents to allow single-lane vehicle travel way across the bridge during repairs
2. Install BMPs to protect the surrounding environment from project activity
3. Demolish and remove existing asphalt pavement on and on either side of the bridge
4. Demolish and remove existing guardrails and posts
5. Complete structural repairs and rehabilitation work on bridge
6. Clean and paint repaired bridge
7. Repave asphalt concrete roadway
8. Install guardrail and end treatment
9. Install signing and striping
10. De-mobilization: remove all materials and equipment from the work area.

Materials

- Debris Containment/Catchment System
- Polymer modified concrete and mortar
- Epoxy
- Filter Socks as required
- Inlet Protection as required
- Scaffolding as required

Equipment

- Hand Tools
- Scaffolding/Temporary Structure (Contractor option)
- Protective Clothing



Figure 1: Location map showing the project site in the Hawaiian Islands

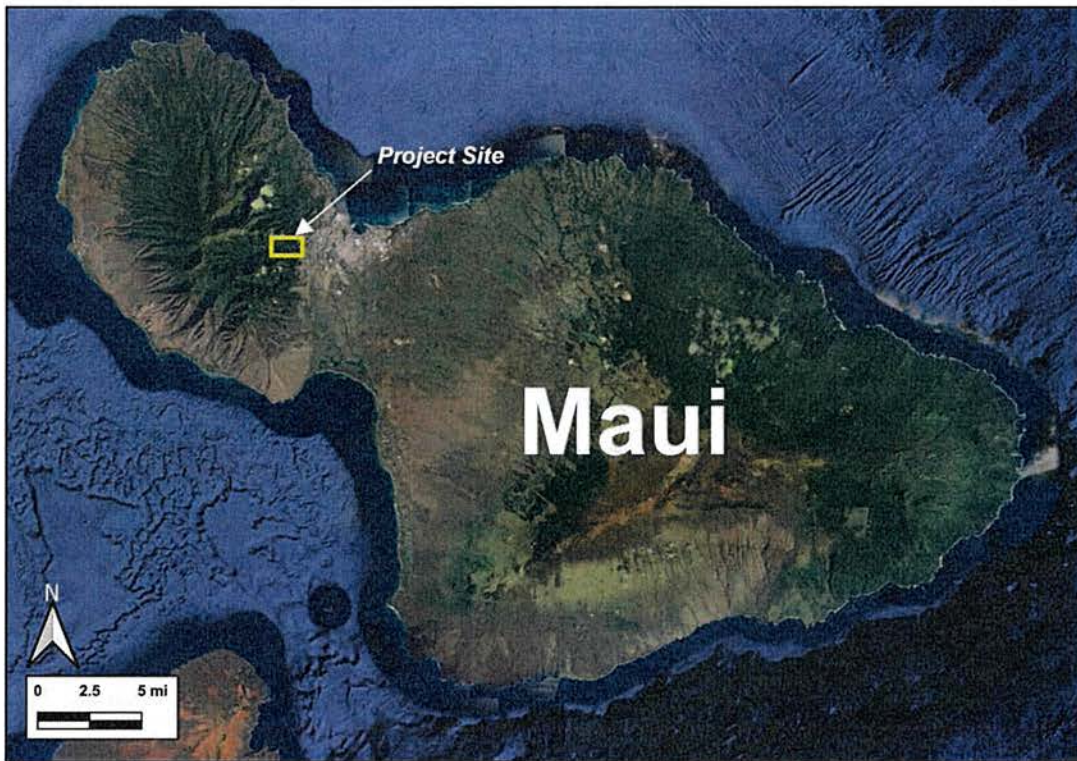


Figure 2: Location map showing the project site on Maui Island



Figure 3: Vicinity map showing the project site in Wailuku



Figure 4: TMK map of the project site in Wailuku

GENERAL REQUIREMENTS

This section covers the requirements of environmental and pollution control during construction activities. The Contractor shall be responsible for conformance to all appropriate State of Hawaii Statutes.

1. With the exception of those measures set forth elsewhere in this plan, environmental protection shall consist of the prevention of environmental pollution as the result of construction operations under this project. For the purpose of this plan, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare, unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utilization of the environment for aesthetic and recreational purposes. This includes Water Pollution, as defined by Hawaii Revised Statute Title 19, Chapter 342D.1.
2. The work shall include the following:
 - A. Make sure that all permits required for this plan are obtained and valid for the construction period.
 - B. Provide all facilities, equipment, and structural controls for minimizing adverse impacts upon the environment during the construction period.
3. Applicable Regulations: In order to provide for abatement and control of environmental pollution arising from the construction activities of the Contractor and his subcontractors in the performance of the work performed shall comply with the intent of the applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement, including, but not limited to the following regulations:
 - A. State of Hawaii, Department of Health, Administrative Rules. Chapter 55. WATER POLLUTION CONTROL: Chapter 54, WATER QUALITY STANDARDS.
 - B. State of Hawaii, Department of Health, Administrative Rules, Chapter 59, AMBIENT AIR QUALITY: Chapter 60, AIR POLLUTION CONTROL LAW.
 - C. State of Hawaii, Occupational Safety and Health Standards, Title 12, Department of Labor and Industrial Relations, Subtitle 8, Division of Occupational Safety and Health, Subparagraph 12-202-13, ASBESTOS DUST: Environmental Protection Agency, Code of Federal Regulations Title 40, Part 61 Subpart A, NATIONAL EMISSION STANDARDS FOR AIR POLLUTANTS and Subpart B, NATIONAL EMISSION STANDARDS FOR ASBESTOS; and U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos Regulations, Code of Federal Regulations Title 29, Part 1910.

DEPARTMENT OF THE ARMY REGIONAL CONDITIONS – NWP REQUIREMENTS

1. Pre-construction BMPs:

- a. Prior to commencement of the authorized work in wetlands, other special aquatic sites and other waters, the geographic limits of such waters (i.e., High Tide Line, Mean High Water Mark, Ordinary High-Water Mark, approved wetland boundary) affected by the authorized work and as approved by the Corps and demarcated on your drawings must be clearly identified in the field. The delineation of these geographic bounds may be accomplished by staking, flagging, painting, silt fencing, signage, buoys, etc. and in all cases must be maintained and remain observable throughout the construction period. The project limits of the Corps-authorized fill footprint must also be demarcated in the field to ensure that dredged or fill material is not discharged beyond the authorized limits. No activity will be conducted in or such that it affects wetlands, other special aquatic sites and other waters that require prior authorization from the Corps, outside of the permitted limits of disturbance (as shown on the permit drawings).

2. During Construction BMPs:

- a. Turbidity and the suspension or re-suspension of sediment from project-related work will be minimized and contained to the immediate vicinity of the authorized activity through the appropriate use of effective containment devices or measures and based on project-specific conditions. Silt fences, silt curtains, or other diversion or containment devices will be installed to contain sediment and turbidity at the work site (a) parallel to, and along the toe of any fill or exposed soil which may introduce sediment to an adjacent aquatic site; and (b) adjacent to any fill placed or soil exposed within an aquatic site. All silt curtains, and other devices will be installed according to the manufacturer's guidelines and properly maintained throughout the construction period and until the impact area is stabilized and/or elevated turbidity levels have returned to ambient levels.
- b. All project-related materials (e.g., fill, rocks, landscaping, structures, etc.) and equipment (e.g., dredges, barges, backhoes, etc.) authorized to be used or placed in wetlands, other special aquatic sites and other waters, will be free of pollutants and invasive plant and animal species.
- c. Any temporary tethering, anchoring, mooring or similar in-water structural components will be placed in a manner to avoid direct physical impact to coral and seagrass beds during installation and throughout the duration of its use in wetlands, other special aquatic sites and other waters.
- d. Any temporary in-water structures will be removed in their entirety upon completion of the authorized work in or affecting wetlands, other special aquatic sites and other waters. The authorized work is not complete until these temporary structures are removed.
- e. Unless specifically authorized, stockpiling of project-related materials (e.g., fill, dredged material, revetment rock, pipe, etc.) or unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) in or in close proximity to wetlands, other special aquatic sites and other

waters such that the stockpiled materials could be carried into such waters by wind, rain, or high surf is prohibited.

- f. Upland containment areas, if sited in uplands near wetlands, other special aquatic sites and other waters for the purpose of stockpiling, dewatering, etc. will be bounded by impermeable material to prevent return flows of dewatered effluent into such waters. The runoff or overflow from a contained disposal area into such waters requires separate authorization. There is no anticipated return flow for the proposed project.

3. Post-Construction BMPs:

- a. Native plants appropriate for current site conditions will be used for re-vegetation for the purposes of restoring areas temporarily disturbed by the authorized work.

PROJECT RELATED PRACTICES

Waste Management

1. Unless otherwise specified, the Contractor is responsible for the proper handling, storage, and/or disposal of all waste generated by construction activities including grubbing, and excess excavated materials. Any material brought to the County landfills will be subject to the instituted tipping fee system with no exceptions or exemptions.
2. The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways, and other areas. The cost incurred for any necessary remedial action ordered by the Director of Public Works shall be paid by the contractor.
3. Construction debris and waste shall be deposited at an appropriate work site. The Contractor shall inform the Director of Public Works of the location of disposal sites. The disposal sites must fulfill the requirements of the grading ordinance. The Contractor shall minimize its construction debris and solid wastes.
4. Grub material, demolition wastes, and construction wastes shall be disposed of at an authorized site having a Department of Health Solid Waste Management Permit. Open burning is prohibited.
5. Cold planed or excavated roadway material shall be removed and disposed of at the Contractor's expense.

Erosion and Sediment Control Measures

1. The Contractor shall remove and dispose all silt and debris deposited in drainage facilities, roadways, and other areas resulting from project work. The cost incurred for any necessary remedial action ordered by the Director of Public Works shall be paid by the Contractor.
2. The Contractor shall be responsible for cleaning and removal of all silt and debris deposited and accumulated within downstream waterways, ditches and drain pipes, and on public and private roadways generated by project work. If the contractor agrees to reimburse the County of Maui for all costs expended in performance of the above work if required for public health and safety, or made necessary by non-performance by the Contractor.
3. Temporary ground cover shall be applied within a period of 14 calendar days after the site has been graded, or bared of vegetation or if final grading of the site will be suspended for more than 21 calendar days. All cost for maintaining irrigating and removing temporary erosion control measures will be borne by the Contractor.
4. The Contractor shall grass all exposed areas that have been constructed to final grades. Sites that will not be disturbed for a period of twenty-one (21) days or more will be stabilized fourteen (14) days after the last disturbance as per section 20.08.035(G) of the Maui County Code. All costs for maintaining and watering permanent erosion control measures will be borne by the Contractor.
5. The Contractor may use hydro-mulch to apply the temporary and permanent ground cover.

6. Permanent Bermuda ground cover shall consist of 75 lbs per acre Bermuda grass, 50 lbs per acre Rye grass, 6,000 lbs per acre Gypsum based geobinder, 2,000 lbs per acre wood cellulose fiber mulch, and 400 lbs per acre 10-30-10 fertilizer.
7. Permanent ground cover along natural drainageways shall consist of 100 lbs per acre Bermuda grass, 50 lbs per acre Rye grass, 1,500 lbs per acre wood cellulose fiber mulch, 400 lbs per acre 10-30-10 fertilizer, and permanent erosion control/turf reinforcement matting.

Grading Control Measures

1. All grading and stockpiling work shall be in accordance with Maui County Code, Title 20, Chapter 8.
2. All debris shall be removed from the site and premises left in a "rake clean" condition.
8. All grading operations shall be performed in conformance with the applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, of Title 11, Administrative Rules of the State Department of Health, and if applicable, the NPDES Permit for the project.
9. All planter areas shall be sodded or planted as soon as final grades have been established. Planting shall not be delayed until all grading work has been completed. Grading to final grade shall be continuous and any area within which work has been interrupted or delayed shall be planted. Planting shall be maintained to minimize erosion.
10. No grading work shall be done on Saturdays, Sundays, and holidays at any time without prior notice to the Chief Engineer.
11. All grading operations shall be performed in conformance with the applicable provisions of the grading ordinance to prevent violation of the State Administrative rules, Department of Health, Water Pollution Control and Water Quality Standards (11-54, 11-55) due to erosion and runoff to State waters.
12. Compaction requirements: testing of materials shall be conducted by an approved independent testing agency in accordance with the Hawaii Standard Specifications.

Vehicle and Equipment Management

1. No construction equipment shall be parked within the road right-of-way in such a manner that the equipment will obstruct the normal movement and sight distance of the driving motorist, except during actual working hours.

Historic or Cultural Features

1. Should historic sites such as walls, platforms, pavements, or mounds, or remains such as artifacts, burials, concentration of shell or charcoal be encountered during construction activities, all work shall cease immediately in the immediate vicinity of the find and the find shall be protected for further damage. The Contractor shall notify the State Historic

Preservation Division at 808-692-8015, which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary.

Environmental Protection

1. Environmental protection notes pertaining to air and water pollution shall be administered and monitored by the Department of Health
2. The Contractor, at their own expense, shall provide effective measures for the control of fugitive dust emissions from the project and surrounding areas caused by his operations, these measures shall meet the requirements of the State Administrative Rules, Department of Health, Air Pollution Control (11-60.1).
3. Permits required:
 - a. A NPDES permit may be required to be obtained from the Clean Water Branch of the Department of Health for construction activity, stormwater discharge if limits of disturbance exceed one acre, and hydrotesting.
 - b. A dewatering permit may be required to be obtained from the Clean Water Branch of the Department of Health if discharging into State waters.
 - c. Permits must be obtained prior to the start of construction.
 - d. If a NPDES permit is required for the project, the Contractor shall maintain a Storm Water Pollution Prevention Plan (SWPPP) which includes a "Site Specific Best Management Practices Plan" in accordance with the NPDES permit and State of Hawaii, Department of Health, Clean Water Branch requirements. Contractor is responsible to file any amendments to the NPDES permit with the Department of Health, Clean Water Branch.

Protected Species

1. Constant vigilance shall be kept for the presence of Federally Listed Species (Exhibit B).
2. All on-site project personnel must be apprised of the status of any listed species potentially present in the project area and the protections afforded to those species under federal laws.
3. The Contractor shall keep a record of all protected species sightings, incidents of disturbance, or injury.
4. Scaffolding materials shall not be deployed in stream areas containing significant resources.

Dust Control

1. The Contractor, at their own expense, shall keep the project and surrounding areas free from dust nuisance.
2. Excavation, embankment, and imported materials shall be kept dampened with water during the grading operations. The Contractor shall maintain a suitable water system and dampen the graded or grubbed site with water. At the end of each day, seven (7) days a week, the

project site shall be kept damp with water. The site shall be sufficiently dampened so that the site will remain moistened during the night.

3. The Contractor, at their own expense, shall provide effective measures for the control of fugitive dust emissions from the project and surrounding areas caused by operations. These measures shall meet the requirements of State Administrative Rules, Department of Health, Air Pollution Control (11-60.1)

Utility Management

1. Wherever crossings or connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines to verify their locations and depths prior to excavation for the new lines.
2. The Contractor shall protect existing utilities and shall be responsible for damages to the facilities whether shown or not on the plans.
3. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but are not guaranteed as to the accuracy of the encountering of other obstacles during the course of the location of uncharted utilities. The Contractor shall be responsible and shall pay for all damages to existing utilities.
4. The Contractor shall make his own arrangements for, and pay for all temporary utilities required for the work.
5. If existing utilities, whether or not shown on plans, are damaged during construction, the Contractor shall at their own expense be required to repair such utilities.
6. If the clearance between a wastewater line and a new or existing waterline is eighteen inches (18") or less, the wastewater line shall be concrete jacketed in accordance with the standard details of Public Works Construction dated September 1984, as amended.
7. Any existing irrigation lines, landscape and/or decorative features disturbed during construction shall be restored to existing or better condition at no cost to the owner.
8. All existing drainage systems shall be functional at all times during construction.
9. The underground pipes, cables, or ductlines known to exist by the engineer from their search of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
10. All materials used and methods of construction of water system facilities shall be in accordance with the latest revisions of DWS standards. The Contractor shall obtain the latest revisions of the DWS standard details before commencing construction.

11. All water system work shall be performed by contractors possessing valid State of Hawaii Contractor's licenses, regardless of the value of the work.
12. Contractor shall protect existing waterline during the course of construction and support exposed waterline to prevent any movement.
13. The exact depth and location of existing waterlines, service laterals and other utilities are not known. It shall be the Contractor's responsibility to locate prior to trenching for the new waterline. The cost of lowering, relocating, or adjusting existing waterlines, service laterals, and appurtenances, whether shown or not shown on the construction plans at the Contractor's expense.
14. Contractor shall verify the location of existing DWS valves manholes, when affected by the work, prior to start of construction.
15. All water valve and water manhole concrete collars within the project limits shall be demolished and reconstructed DWS Standard Detail V12 and V23, respectively, at the contractor's expense.
16. The Contractor shall install concrete collars at all manholes and water valves.
17. Existing utilities shown are from "as-built" or record drawings. Contractor to verify the location of any existing irrigation, sewer drain, water, gas, and electrical utilities within the vicinity of the construction work.

Operational Controls

1. All construction work shall be done in accordance with "Hawaii Standard Specifications for Road and Bridge Construction, 2005" as amended, and the "Standard Details for Public Works Construction," dated September 1984, as amended, of the Department of Public Works, City and Counties of the State of Hawai'i, the "State of Hawaii, Department of Transportation Standard Plans" 2008, the "Manual on Uniform Traffic Control Device f Streets and Highways", 2009, and the construction drawings, details, and specifications prepared for this project.
2. The Contractor shall employ a Hawaii-registered professional land surveyor to perform all construction stakeouts, the cost of which shall be borne by the contractor.
3. The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incidental to the due and lawful prosecution of the work.
4. The Contractor shall restore all existing facilities including but not limited to pavement, drainage facilities, curbs, gutters, signs, landscaping, irrigation system, etc., removed or damaged as a result of his operation using materials and workmanship in accordance with "Hawaii Standard Specifications for Road and Bridge Construction", 2005 as amended, "Standard Details", September 1984 for public works construction of the Department of Public Works, County of Maui, as amended.

5. All dimensions and details shown on the drawings shall be checked and verified prior to the start of construction, and any discrepancies shall be immediately brought to the attention of the engineer for clarification.
6. The Contractor shall submit one hardcopy and one complete electronic set (TIF or PDF) of the final field posted as-built drawings prior to the final approval and acceptance of the improvements.
7. The Contractor shall submit a TIFF and five (5) copies of the "as-built" drawings prior to the final approval of the improvements.
8. Contractor shall obtain a permit to perform work on County highways from the department services administration two weeks prior to the commencement of work.
9. Standard detail drawings and standard specifications of the Department of Public Works shall be included as part of the construction plans.
10. All construction work shall strictly conform to the latest version of the Hawaii Standard Specifications of the Department of Public Works Construction, and the September 1984 "Standard Details" for Public Works Construction of the Department of Public Works, as amended.
11. The Contractor shall notify the Department of Water Supply (DWS), in writing, one (1) week prior to the commencement of work.
12. If construction of water system improvements will affect DWS consumers, the Contractor shall notify consumers by radio/newspaper two (2) days before and on day of connection. Contractor shall also notify consumers house-to-house one (1) day before connection work.
13. Contractor shall follow all Local, State, and Federal laws, rules, and regulations regarding the handling, removal, and disposal of asbestos pipe.
14. Contractor to fill all existing expansion joints which are one-half inches and wider with joint filler for all sidewalks within the construction limits.
The contractor shall patch concrete sidewalks which are chipped or broken.
15. For existing curb ramps with no detectable warning mats, contractor shall furnish and install new detectable warning mats.
16. Contractor to grind all sidewalks to provide a smooth transition where there is greater than one-quarter inch vertical difference between sidewalk panels.
17. Minimum height of new signs, measured vertically from the bottom of the sign to finish grade shall be in accordance with current MUTCD and DPW Standards. Replace existing posts as necessary to ensure minimum height requirements. Reset any posts which are not vertically upright. Refer to DPW Std. Det. T-2 for height and lateral location of signs.

18. Contractor to deliver all existing signs removed from the project to the Department of Public Works, Traffic Signs and Marking section, Wailuku Baseyard, 1827 Kaohu St., Wailuku, Maui, Hawaii. Contractor to contact and coordinate delivery with the Traffic Signs and Markings Section. (Ph. (808) 270-7455).

Structure, Authority, and Responsibility

1. The Director of Public Works has the right to stop construction should any work be found contrary to the approved construction plan or detrimental to the public's interest.
2. The County of Maui is not responsible for any park, roadway, easement (including but not limited to drainage sewer, access, reclaimed water, or avigation easement), or any other interest in real property shown on this map or shown on these plans, unless the Maui County Council has accepted its dedication by a resolution approved by a majority of council members at a regular or special meeting of the Maui County Council or the County of Maui has signed its acceptance via a conveyance document recorded in the Bureau of Conveyances of the State of Hawaii in compliance with Maui County Code Section 3.44.015.

Training

3. Employees will be instructed in the proper installation of the BMPP materials.
4. BMPs will be covered in a toolbox safety meeting.
5. Train each employee performing work that disturbs lead prior to the job in accordance with 29 CFR 1926.21, 29 CFR 1926.62, and State and local regulations where appropriate.

Health and Safety Plan

1. Except during actual working hours, all signs which do not pertain to construction activity, such as "men working" and "flagmen ahead" shall be covered or laid down. However, all signs necessary for the safety of the public shall be maintained.
2. Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, and other protective devices for the protection, safety, and convenience of the public according to the "Manual on Uniform Traffic Control Devices for Streets and Highways" 2009, and the "Rules and Regulations Governing the Use of Traffic Control Devices at Work Sites on/or Adjacent to Public Streets and Highways", adopted by the Highway Administration "Manual on Uniform Traffic Control Devices for Highway Construction and Maintenance Operations", dated 2009.
3. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones, and other protective facilities and shall take all necessary precautions for the protection, convenience, and safety of the public.
4. All existing traffic signals, if applicable, shall be kept operational during the course of construction. The Contractor shall account for the disturbance and replacement of existing

traffic signal detection loops in their bid due to pavement resurfacing, cold planning, pavement reconstruction, and/or utility trenching work. Approved detection devices used on a temporary basis during construction shall be installed three (3) working days prior to any work that may affect the signaled intersection. This work shall be done in accordance with the Hawaii Standard Specifications for Road and Bridge Construction, 2005.

5. The Contractor shall provide vehicular and pedestrian access routes at all times to all existing facilities.
6. The Contractor shall observe and comply with all Federal, State, and Local laws required for the protection of public health, safety, and environmental quality.
7. Steel plate warning signs are required for all steel plates in the right-of-way.
8. Wheelchair ramp inspection/certification forms shall be required for all newly constructed ramps.
9. All striping and pavement markings shall of thermoplastic material.

Emergency Procedures

1. Natural disaster-related pollutant discharge: See Contingency Plan
2. Spill prevention and control: See Emergency Spill Response Plan.

Record Keeping and Documentation

1. A copy of this plan will be kept on site.
2. All BMP inspection reports will be kept on site.
3. Records of inspection and repair of control measures will be retained in the project files for a minimum of five years.
4. Contractor shall verify all existing conditions and bridge dimension before commencing work. Notify the engineer in writing of any discrepancies.
5. Contractor shall submit erection drawings, sketches and calculations stamped by a structural engineer licensed to practice in the State of Hawaii for devices and assemblies that rely on the existing bridge for support such as shoring and debris containment.
6. In addition to other records required under the contract, the Contractor shall maintain at the job site two sets of full-size drawings, marking them in red to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction. Where a choice of materials or methods is permitted herein, or where variations in scope or character of work differ from that of the

original contract are authorized, mark the drawings to define the construction actually provided. Show on the drawings the size, manufacturer's name, model number, and power input or output characteristics of the equipment installed. The representations of such changes shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction. Update drawings on a daily basis.

Suspension of Work

1. Violations of any of the above requirements or any other pollution control requirements which may be specified in the Technical Specifications herein shall be cause for suspension of the work creating such violation. No additional compensation shall be due to the Contractor for remedial measures to correct the offense. Also, no extension of time will be granted for delays caused by such suspensions.
2. If no corrective action is taken by the Contractor within 72 hours after a suspension is ordered by the Owner, the Owner reserves the right to take whatever action is necessary to correct the situation and to deduct all cost incurred by the Owner in taking such action from monies due to the Contractor.
3. The Owner may also suspend any operations which they feel are creating pollution problems although they may not be in violation of the above-mentioned requirements. In this instance, the work shall be done by force account.

Contingency Plan

The following plan will be implemented by the Contractor to prevent/respond to polluted discharges resulting from a severe storm or natural disaster. It is the Contractor's responsibility to abide by the following plan as well as any other binding plan, agreement, regulation, rule, law, or ordinance applicable.

All contractors associated with the following construction project, Iao Bridge Lead Abatement, will follow this plan when a severe storm is either forecast or anticipated. Contractors must:

- a. Regularly monitor local weather reports for forecasted and/or anticipated severe storm events, advisories, watches, warnings or alerts. The Contractor shall inspect and document the condition of all erosion control measures on that day prior, during, and after the event. The Contractor shall prepare for forecasted and/or anticipated severe weather events to minimize the potential for polluted discharges.
- b. Secure the construction site. Securing the site should generally include:
 - i. Removing or securing equipment, machinery, and maintenance materials.
 - ii. Cleaning up all maintenance debris.
 - iii. Implementing all Best Management Practices (BMPs) detailed in this BMPP. This includes BMPs for materials management, spill prevention, and erosion and sediment control.
- c. In the event of a severe weather advisory (hurricanes, tropical storms, natural disasters) or when deemed necessary, cease regular construction operations. Work crews must finalize securing the project site, and evacuate until the severe weather condition has passed.
- d. Upon return to the site, all BMPs shall be inspected, repaired, and/or re-installed as needed. If repair is necessary, it shall be initiated immediately after the inspection, and repairs or replacement will be complete within 48 hours. To facilitate repair or replacement, the Contractor will be required to store surplus material on the project site if the site is located where replacement materials will not be readily available.
- e. When there either has been a discharge that violates Hawaii Water Pollution rules and regulations or there is an imminent threat of a discharge that violates Hawaii Water Pollution rules and regulations and/or endangers human and/or environmental health, the permittee shall at a minimum execute the following steps:
 - i. Assess whether construction needs to stop or if additional BMPs are needed to stop or prevent a violation.
 - ii. Take all reasonable measures to protect human and environmental health.
 - iii. Immediately notify the DOH of the incident. The notification shall also include the identity of the pollutant sources and the implemented control or mitigation measures.
 1. Department of Health Clean Water Branch (during regular working hours): 808-586-4309;
 2. Hawaii State Hospital Operator (after hours): 808-247-2191
 - iv. Document corrective actions, take photographs of discharge and receiving waters.
 - v. Revise BMPP to prevent future discharges of a similar nature.

Emergency Spill Response Plan

Pre-Emergency Planning

- a. An initial and periodic assessment shall be made of the project site and potential hazardous spills that may be encountered during the normal course of work. This plan is not intended to address issues relating to materials such as PCB, Lead, Asbestos, etc., since these types of materials would have specific work plans already developed. This plan should be revised as necessary to correspond to the assessment and resubmitted to the appropriate regulatory agencies.
- b. A Hazardous Materials inventory list and MSDS sheets, to include subcontractors' materials, will be filed in a binder and located in the Project Office. The inventory list and MSDS sheets will be updated and maintained by the Project Manager and site safety officer as new materials are added.
- c. Personnel will consult the applicable MSDS sheet prior to its use.
- d. Personnel will handle hazardous materials safely and use personal protective equipment (PPE), recommended/required by the MSDS, when handling hazardous materials.
- e. Personnel will receive "Hazard Communication" training within three (3) working days of arrival and "product specific" training prior to the initial use/exposure of a product. This training will be conducted by the Project Manager/Superintendent or site safety officer.
- f. All personnel will be trained on the contents of this plan within the first month of maintenance and at least annually thereafter. The training should include a rehearsal of this plan. An attendance sheet will be kept on file at the Project Office.
- g. Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved safety cans or DOT-approved containers shall be used for the handling and use of flammable liquids in quantities of five (5) gallons or less. For quantities of one (1) gallon or less, only the original container or approved metal safety can be used, for storage, use, and handling of flammable liquids.
- h. Flammable or combustible liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

Personal Protective and Emergency Spill Response Equipment

- a. ABC fire extinguishers will be located in the project field office and in each of the company vehicles. There will be at least one fire extinguisher, rated at not less than 10B, within 50 feet of any stockpile of 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas storage.

NOTE: Fire extinguishers should not be located "directly" with hazardous materials, so as to endanger first responders.

- b. Spill kits will be located at the project field office and/or within 50 feet of the hazardous material storage area. The spill kit contents shall be determined by the Project Manager/Superintendent based on the anticipated hazardous materials to be stored and/or used on the project. The spill kits will be inventoried quarterly, and appropriate logbook entries made.
- c. Emergency response personal protective equipment (PPE) consists of:

- i. Face shield
- ii. Tyvex coveralls
- iii. Rubber gloves
- iv. Air-purifying respirators with HEPA and organic vapor combination cartridges will be issued to the Emergency Response Team members and maintained in the project office. Separate Respiratory Protection Equipment shall be designated and labeled as such; this equipment will be inspected at least every 30 calendar days and appropriate logbook entries made.

Personnel Roles, Lines of Authority and Communication

- a. Emergency Response Coordinator (ERC)
 - i. The Project Superintendent is the designated ERC. If the Project Superintendent is not available, the safety officer is the designated ERC.
 - ii. The ERC will be in charge of and will coordinate the appropriate emergency response procedures in this plan.
- b. Emergency Response Team (ERT)
 - i. The ERT consists of Construction General Foreman, Labor Foreman, and a Laborer designated by the Project Superintendent.
 - ii. The ERT will appropriately respond to the emergency in accordance with this plan at the direction of the ERC.

Emergency Alerting and Response Procedures

- a. Any person causing or discovering a known hazardous or unknown release or spill will:
 - i. Immediately alert nearby personnel who may be exposed to the effects of the release or spill.
 - ii. Report the release or spill immediately to the ERC and the ERT. All pertinent information regarding the release should be provided to the ERC, such as the amount and type of material released, location of the release, and other factors, which may affect the response operation.
 - iii. If the spill or release is a petroleum product or known non-toxic chemical, the person will take immediate and appropriate measures to stop or limit the rate of release, (i.e., close the spigot to the drum or form oil or curing compound) and or contain or stop the migration of the release (i.e., create a berm of dirt around the release) until the ERC and ERT arrive.
 - iv. If the spill release is a toxic, highly flammable, or unknown chemical, the person will first notify the ERC before approaching the spill area from upwind to determine the source, type, and quantity of the release. The person should monitor the spill until the ERC and ERT arrive.
 - v. The ERC will assess possible hazards to human health or the environment that may result from the release, fire, or explosion.
 - vi. If the spill or release is less than 25 gallons of a known petroleum product or non-toxic chemical, the ERC will direct the ERT to contain and cleanup the spill or release.
 - vii. If the spill or release is toxic or unknown, the ERC will immediately notify the County of Maui Fire Department and ask for assistance from the HAZMAT Response Team.

- viii. Immediately after the emergency, the ERC will arrange for disposing of the recovered waste, contaminated soil or any other material that results from the release, fire, or explosion at the project site in accordance with the County of Maui and State regulations and manufacturer's instructions (if source of spill or release is known).

Emergency Notification and Reporting Procedures

- a. In the event that a release enters the storm or sewer system, the ERC will immediately notify the National Response Center (NRC) at 1-800-424-8802, and the Hawaii Department of Health, Hazard Evaluation and Emergency Response Office (HEER) at 808-586-4249.
- b. The ERC will immediately notify appropriate agencies and submit written follow-up notification in accordance with the Hazardous Substance Release Notification Guideline.

Safe Distance Staging Area

- a. A staging area at a safe distance upwind and higher than the location of the spill or release and its source will be immediately established.
- b. Access to the spill or release location will be cleared for emergency vehicles and equipment to be used to contain and clean up the spill or release.

Site Security and Control

- a. If the spill or release is located on or near the roadway, stop all traffic until the release is cleaned up.
- b. If the spill or release is located away from vehicle or pedestrian traffic, install barricades/safety fencing around the affected area.
- c. If the spill or release occurs during night operations, provide adequate light and use ground guides to escort emergency vehicles to the affected area.

Evacuation Routes and Procedures

- a. Persons injured during the emergency condition will be evacuated to the staging area where they will be treated and or further evacuated to the nearest medical facility. The appropriate MSDS(s) will be provided to emergency service personnel and are intended to be delivered to the emergency room physicians.
- b. Persons working at the affected area and who are not needed in the response effort will report to the staging areas for accountability.

Decontamination and Disposal Procedures

- a. Persons involved in the spill clean-up are required to perform personal hygiene, utilizing soap and fresh water prior to eating, drinking, or smoking.
- b. Contaminated PPE shall be appropriately cleaned and disinfected if possible. If this is not possible it shall be disposed of per the same requirements of the contaminated substance.
- c. Sorbent pads/materials and the spilled substance will be placed in appropriate containers and disposed of as specified by the appropriate MSDS.

- d. Contaminated soil will be placed in an appropriate container(s) or on plastic sheeting. The ERC will arrange with an environmental services company to properly characterize, prepare the manifest, label the containers, transport, and dispose of the contaminated soil. The generator's copy of the manifest will be kept in the project files for a minimum of three (3) years.
- e. In the event of a substantial release (25 gallons or more) of a suspected or known toxic chemical, the Fire Department HAZMAT Response Team will be called to control/cleanup the release. They will establish and provide the decontamination operations as required.

Emergency Medical Treatment and First Aid

- a. First aid kits will be maintained at the project field office, all company vehicles, and gang boxes.
- b. Injured person(s) will be treated at the staging area by a certified first aid trained individual at the project site until the ambulance arrives or they are evacuated to the nearest medical facility.
- c. The appropriate MSDS(s) will be provided to emergency service personnel and are intended to be delivered to the emergency room physicians.

After the Spill Procedures

- a. The ERC will review what happened and implement changes, corrections, and/or improvements to prevent the spill from occurring and to improve the spill response and clean-up procedures. This plan will be revised to reflect those changes, corrections, and/or improvements implemented.
- b. The ERC will prepare a record of the spill response and keep it in the project files for a minimum of three (3) years.
- c. The ERC will submit Follow-up Notification to HEER when required.
- d. Spill response kits shall be replenished directly after the emergency.

Emergency Contacts

National Response Center (NRC)	<i>1-800-424-8802</i>
Hawaii State Department of Health Hawaii Evaluation and Emergency Response (HEER)	<i>1-808-586-4249</i>
State Historic Preservation Division	<i>1-808-692-8015</i>
Kahului Fire Department	<i>911</i>
Kyle Shinyama, Project Manager Austin Tsutsumi Associates	<i>1-808-533-3646</i>

ATTACHMENTS:

BMPP Exhibit A

INSPECTION AND MAINTENANCE REPORT FORM

IAO BRIDGE NO. 59 REPAIRS
TMK (2) 3-5-003:999, 001
IAO VALLEY ROAD
WAILUKU, HAWAII 96793

OCTOBER 3, 2024

Best Management Practice Plan (BMPP)
Inspection and Maintenance Report Form

Report No. _____ Weather: _____ Date: ____/____/____

Activities: _____

Type of Report: ☐ Daily ☐ Weekly ☐ Other: _____

DUST CONTROL MEASURES:

Are adequate dust control measures employed?
Are the nearshore waters and travel ways kept clean of waste?
Are the loads in the truck beds covered?

YES	NO	N/A
☐	☐	☐
☐	☐	☐
☐	☐	☐

DUST CONTROL MEASURES REQUIRED:

IN-WATER CONFINEMENT MEASURES:

Are waste catchment devices deployed?
Are the control measures adequate to prevent water and/or
sediment from being discharged into the stream?

YES	NO	N/A
☐	☐	☐
☐	☐	☐

IN-WATER CONFINEMENT MEASURES REQUIRED:

PROTECTION AROUND CRITICAL AREAS:

Is there someone on-site during construction to monitor for endangered species?
If protected and endangered species present, were photographs taken to assist
with identification of the protected and endangered species?
If protected and endangered species present, was work ceased until the
species voluntarily left the project site?
If protected and endangered species present, were any agencies notified of the
species? If yes, agency: _____

YES	NO	N/A
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

PROTECTION OF CRITICAL AREAS REQUIRED:

HOUSEKEEPING:

Are areas kept clean of rubbish, construction debris, spills, etc.?
Is waste frequently vacuumed/cleaned?

YES	NO	N/A
☐	☐	☐
☐	☐	☐

HOUSEKEEPING REQUIRED:

MATERIAL/WASTE MANAGEMENT:

- Are materials stored under shelter or covered and above ground?
Are flammable/reactive materials stored properly?
Are material containers in good condition (not rusted, damaged or leaking)?
Are all construction debris collected and covered daily?

YES	NO	N/A
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

CORRECTIVE MEASURES REQUIRED:

VEHICLE AND EQUIPMENT MANAGEMENT:

- Are vehicles and equipment cleaned before being brought on-site?
Is equipment fueled away from any drain or the shoreline?
Are spill cleanup materials readily accessible?
Is all equipment leak free or if leaking, a spill pan placed to catch the leaks?

YES	NO	N/A
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

CORRECTIVE MEASURES REQUIRED:

PUBLIC PROTECTION:

- Are protective measures installed around the work site to prevent pedestrians from entering?
Are there signs informing the public of the project activities?

YES	NO	N/A
☐	☐	☐
☐	☐	☐

MAINTENANCE PUBLIC PROTECTION REQUIRED:

Photographs shall be date stamped and attached to the applicable Report Form.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Inspected by: _____ Title: _____

Signature: _____ Date: ____/____/____

BMPP Exhibit B

**ENDANGERED AND THREATENED SPECIES THAT MAY
OCCUR IN THE PROJECT VICINITY**

IAO BRIDGE No. 59 REPAIRS
TMK (2) 3-5-003:999, 001
IAO VALLEY ROAD
WAILUKU, HAWAII 96793

OCTOBER 3, 2024

TABLE 1. PROTECTED SPECIES THAT MAY OCCUR IN THE PROJECT VICINITY
USFWS IPAC (INFORMATION FOR PLANNING AND CONSULTING) COMPARED TO
SPECIES OBSERVED BY AECOS IN SEPTEMBER 2023.

NAME	SCIENTIFIC NAME	STATUS	OBSERVED?
`AIEA	NOTHOCESTRUM LATIFOLIUM	ENDANGERED	No
BAND-RUMPED STORM-PETREL	OCEANODROMA CASTRO	ENDANGERED	No
`ENA`ENA	PSEUDOGNAPHALIUM SANDWICENSUM VAR. MOLOKAIENSE	ENDANGERED	No
HAWAII AKEPA	LOXOPS COCCINEUS	ENDANGERED	No
HAWAIIAN COOT	FULICA AMERICANA ALAI	ENDANGERED	No
HAWAIIAN (KOLOA) DUCK	ANAS WYVILLIANA	ENDANGERED	No
HAWAIIAN GOOSE	BRANTA (NESOCHEN) SANDVICENSIS	THREATENED	No
HAWAIIAN HOARY BAT	LASIURUS CINEREUS SEMOTUS	ENDANGERED	No
HAWAIIAN PETREL	PTERODROMA SANDWICHENSIS	ENDANGERED	No
HAWAIIAN STILT	HIMANTOPUS MEXICANUS KNUDSENI	ENDANGERED	No
KO`OKO`OLAU	BIDENS CAMPYLOTHECA SSP. PENTAMERA	ENDANGERED	No
KO`OKO`OLAU	BIDENS CAMPYLOTHECA SSP. WAIHOIENSIS	ENDANGERED	No
KO`OKO`OLAU	BIDENS MICRANTHA SSP. KALEALAHA	ENDANGERED	No
LANAI SANDALWOOD (`ILIAHI)	SANTALUM HALEAKALAE VAR. LANAIENSE	ENDANGERED	No
LOULU	PRITCHARDIA MUNROI	ENDANGERED	No
MAKOU	PEUCEDANUM SANDWICENSE	THREATENED	No
NEWELL'S TOWNSEND'S SHEARWATER	PUFFINUS AURICULARIS NEWELLI	THREATENED	No
PAUOA	CTENITIS SQUAMIGERA	ENDANGERED	No
PUA`ALA	BRIGHAMIA ROCKII	ENDANGERED	No
ROUND-LEAVED CHAFF-FLOWER	ACHYRANTHES SPLENDENS VAR. ROTUNDATA	ENDANGERED	No
UHI UHI	MEZONEURON KAVAIENSE	ENDANGERED	No

-	BONAMIA MENZIESII	ENDANGERED	NO
-	GOUANIA HILLEBRANDII	ENDANGERED	NO
-	MICROLEPIA STRIGOSA VAR. MAUIENSIS	ENDANGERED	NO
-	SPERMOLEPIS HAWAIIENSIS	ENDANGERED	NO
-	SCHIEDEA SALICARIA	ENDANGERED	NO
-	VIGNA O-WAHUENSIS	ENDANGERED	NO

Avoidance and Minimization Measures for Protected Species

Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities.

Hawaiian Hoary Bat

To avoid and minimize impacts to the endangered Hawaiian hoary bat, the following measures could be incorporated into the project:

- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing

Hawaiian goose

To avoid and minimize potential project impacts to nene, the following measures could be incorporated into the project:

- Do not approach, feed, or disturb nene.
- If nene are observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with nene nesting behavior survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
- Cease all work immediately and contact the USFWS for further guidance if a nest is discovered within a radius of 150 feet of proposed project, or a previously undiscovered nest is found within the 150-foot radius after work begins
- In areas where nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

Hawaiian Waterbirds

While we do not anticipate any standing water at the project site, project plans and specifications could require the Contractor to prevent ponding by employing the use of appropriate stormwater BMPs at staging areas. If adverse weather conditions cause unavoidable standing water in any work or staging areas and Hawaiian Waterbirds are observed at the site, the Contractor would be required to contact the USFWS for further guidance.

To avoid and minimize potential project impacts to Hawaiian Waterbirds, the following measures could also be incorporated into the project:

- In areas where Hawaiian Waterbirds are present, post and enforce reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.
- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys, where appropriate habitat occurs within the vicinity of the proposed project site, prior to project initiation. Repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found:
 - Contact the Service within 48 hours for further guidance.
 - Establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
 - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

Hawaiian Seabirds

No night work is anticipated for this project. However, should night work be required, these additional measures could be incorporated into the project to avoid and minimize potential project impacts to Hawaiian seabirds:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- Turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird-fledging period (September 15 to December 15).

To avoid and minimize the likelihood of collision, the following measures could be incorporated into the project:

- Where fences extend above vegetation, integrate three strands of polytape into the fence to increase visibility.
- For powerlines, guywires and other cables, minimize exposure above vegetation height and vertical profile.

Flowering Plants, Ferns, and Allies

To avoid and minimize potential project impacts to flowering plants, the following measures could be incorporated into the project:

- Minimize disturbance outside of existing developed or otherwise modified areas. When disturbance outside existing developed or modified sites is proposed, conduct a botanical survey for listed plant species within the project action area, defined as the area where direct and indirect effects are likely to occur. Surveys should be conducted by a knowledgeable botanist with documented experience in identifying native Hawaiian and Pacific Islands plants, including listed plant species. Botanical surveys should optimally be conducted during the wettest part of the year (typically October to April) when plants and identifying features are more likely to be visible, especially in drier areas. If surveys are conducted outside of the wet season, the Service may assume plant presence.

- The boundary of the area occupied by listed plants should be marked with flagging by the surveyor. The following websites are good resources to use when choosing landscaping plants:
 - Landscape Industry Council of Hawai'i Native Plant Poster (<http://hawaiiscape.wpengine.com/publications/>)
 - Native Hawaiian Plants for Landscaping, Conservation, and Reforestation (<https://www.ctahr.hawaii.edu/oc/freepubs/pdf/of-30.pdf>)
 - Best Native Plants for Landscapes (<https://www.ctahr.hawaii.edu/oc/freepubs/pdf/OF-40.pdf>)
- If listed plants occur in a project area, the avoidance buffers are recommended to reduce direct and indirect impacts to listed plants from project activities. However, where project activities could occur within the recommended buffer distances, additional consultation is required. The impacts to the plants of concern within the buffer area may be reduced by placing temporary fencing or other barriers at the boundary of the disturbance, as far from the affected plants as practicable. Where disturbed areas do not need to be maintained as an open area, restore disturbed areas using native plants as appropriate for the location.
- Ensure that all equipment, personnel and supplies are properly checked and are free of contamination (weed seeds, organic matter, or other contaminants) before entering project areas. Quarantines and or management activities occurring on specific priority invasive species proximal to project areas need to be considered or adequately addressed. This information can be acquired by contacting local experts such as those on local invasive species committees (Kauai: <https://www.kauaiisc.org/>)

TABLE 2. RECOMMENDED BUFFER DISTANCES TO MINIMIZE AND AVOID POTENTIAL ADVERSE IMPACTS TO LISTED PLANTS FROM ACTIVITIES LISTED.

Action		Buffer Distance (feet (meters)) - Keep Project Activity This Far Away from Listed Plant	
		Grasses/Herbs/Shrubs and Terrestrial Orchids	Trees and Arboreal Orchids
Walking, hiking, surveys		3 ft (1 m)	3 ft (1 m)
Cutting and Removing Vegetation By Hand or Hand Tools (e.g., weeding)		3 ft (1 m)	3 ft (1 m)
Mechanical Removal of Individual Plants or Woody Vegetation (e.g., chainsaw, weed eater)		3 ft up to height of removed vegetation (whichever greater)	3 ft up to height of removed vegetation (whichever greater)
Removal of Vegetation with Heavy Equipment (e.g., bulldozer, tractor, "bush hog")		2x width equipment + height of vegetation	820 ft (250 m)
Use of Approved Herbicides (following label)	Ground-based Spray Application; hand application (no wand applicator; spot	10 ft (3 m)	Crown diameter

	treatment)		
	Ground-based Spray Application; manual pump with wand, backpack	50 ft (15 m)	Crown diameter
	Ground-based Spray Application; vehicle-mounted tank sprayer	50 ft (15 m)	Crown diameter
	Aerial Spray (ball applicator)	250 ft (76 m)	250 ft (76 m)
	Aerial Application – herbicide ballistic technology (individual plant treatment)	100 ft (30 m)	Crown diameter
	Aerial Spray (boom)	Further consultation required	Further consultation required
Use of Insecticides (pollinators, seed dispersers)		Further consultation required	Further consultation required
Ground/Soil Disturbance/Outplanting/Fencing (Hand tools, e.g. shovel, etc.; Small mechanized tools, e.g., auger)		20 ft (6 m)	2x crown diameter
Ground/Soil Disturbance (Heavy Equipment)		328 ft (100 m)	820 ft (250 m)
Surface Hardening/Soil compaction	Trails (e.g., human, ungulates)	20 ft (6 m)	2x crown diameter
	Roads/Utility Corridors, Buildings/Structures	328 ft (100 m)	820 ft (250 m)
Prescribed Burns		Further consultation required	Further consultation required
Farming/Ranching/Silviculture		820 ft (250 m)	820 ft (250 m)

Definitions (Wagner et al. 1999)

Crown: The leafy top of a tree.

Herb: A plant, either annual, biennial, or perennial, with the non-woody stems dying back to the ground at the end of the growing season.

Shrub: A perennial woody plant with usually several to numerous primary stems arising from or relatively near the ground.

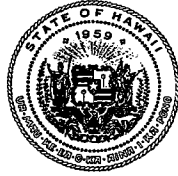
Tree: A woody perennial that usually has a single trunk

Additional Best Management Practices

Additionally, the following measures will be implemented, which include applicable measures from the USFWS list on “Recommended Standard Best Management Practices” for aquatic environments:

- Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.
 - All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see <https://www.fws.gov/policy/A1750fw1.html>) can help to prevent attraction and introduction of non-native species.
 - Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.
 - Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.
 - All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.
-

DAVID Y. IGE
GOVERNOR OF HAWAII



ELIZABETH A. CHAR, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

WQC1092.FNL.22

April 28, 2022

David S. Hobbie
Regional Regulatory Chief
Honolulu District
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Hobbie:

**Subject: Blanket Section 401 Water Quality Certification (WQC) for
Certain 2021 Department of the Army (DA)
Nationwide Permits (NWP) and Activities
File No. WQC1092**

Purpose. This letter is a blanket Section 401 WQC (Blanket Certification) and sets forth applicable qualifications and activity-specific conditions to certain NWPs and activities, as described below. This Blanket Certification may be utilized by any applicant that is seeking authorization and/or verification from the U.S. Army Corps of Engineers (USACE), Honolulu District of the Pacific Ocean Division (POH) for work in Waters of the United States.

This Blanket Certification supersedes and replaces previous WQC0901.FNL.20 issued in May and November of 2020 (WQC0901). The following shall apply:

1. Requirements and conditions set forth in WQC0901 which are not set forth in this Blanket Certification shall no longer be applicable;
2. Activities covered under WQC0901 shall be subject to this Blanket Certification, including requirements and conditions different from or in addition to WQC0901;
3. Pending applications, including those currently under review by USACE or the Department of Health (DOH), shall be subject to this Blanket Certification.

Note: A previous version of this Blanket Certification was public noticed on September 23 and 24, 2020, for the proposed 2020 NWPs. Since the aforementioned public notices, the NWPs were reissued and modified in 2021, the federal Section 401 WQC regulations were revised, and the State Section 401 WQC rules were revised. This Blanket Certification incorporates these revisions.

Overview. The DA has published a list of NWP's and applicable general conditions that attach to those NWP's.¹ Certain NWP's may require a Section 401 WQC from the State of Hawaii. The DOH has the authority to issue a Blanket Certification and may qualify or condition the Blanket Certification. The conditions in this Blanket Certification become additional conditions to the NWP's. The qualifications would set forth the applicability of the Blanket Certification to a NWP or other described activity.

The DOH reviewed the NWP and General Conditions published in the Federal Register: Final Rules and the additional comments submitted by USACE POH. DOH believes that when all requirements and conditions contained in this Blanket Certification are fully complied with, there is a reasonable assurance that the activities will be conducted in a manner which will not violate the applicable State water quality standards and will comply with the applicable provisions of the CWA, Sections 301, 302, 303, 306, and 307.

The NWP's and activities in Item 2.a below do not require a Section 401 WQC. The NWP's and activities in Item 2.b below are covered under this Blanket Certification. The DOH has determined that projects authorized by the USACE POH for the NWP's and activities in Item 2.b below, subject to the requirements of the General Conditions in Item 3 below, will not cause adverse environmental impacts or effects; are in the public interest; and represent the optimum balance between economic development and environmental quality.

1. Term of this Blanket Certification
 - a. This Blanket Certification becomes effective with respect to a specific project on **April 28, 2022**.
 - b. This Blanket Certification will expire at midnight, **March 14, 2026**.
 - c. This Blanket Certification's coverage is administratively extended to a certain project beyond midnight, March 14, 2026, when the USACE POH extends the project authorization/verification.
2. Coverage of this Blanket Certification
 - a. The NWP's and activities listed below do not require a Section 401 WQC.
 - NWP 1 – Aids to Navigation
 - NWP 8 – Oil and Gas Structures on the Outer Continental Shelf

¹ The DA NWP authorizes activities under 1) Section 404 of the Clean Water Act (CWA), 2) Section 10 of the Rivers and Harbors Act of 1899 (RHA), and/or 3) a Letter of Permission. The NWP's were published on September 15, 2020, in the Federal Register, Volume 85, Number 179 and December 27, 2021, Volume 86, Number 245 (Federal Register).

- Projects in response to a public emergency proclaimed by the President of the United States or Governor of Hawaii where HRS Chapter 342D has been suspended
 - Any emergency project as determined by the Director of Health
 - Projects granted an exemption under Act 048 of 2017 (temporary exemption of certain bridge rehabilitation projects)
 - Activities exempt under CWA, Section 404(f)(1)
 - Directional drilling under a waterbody where entry and exit pits are located on land and all slurry/spoils/runoff is contained on land
 - Structures over a waterbody where debris and other pollutants associated with the installation, construction, and operation do not enter the waterbody
 - Installation of temporary Best Management Practices (BMPs) with inert material in State waters, excluding material used to divert or dam stream flow
 - Comprehensive Environmental Response, Compensation, and Liability Act actions with oversight from DOH Hazard Evaluation and Emergency Response (HEER) Office and/or EPA
 - DOH HEER response actions
 - Bridge inspections
 - Improvements or modifications to Department of Land and Natural Resources, Division of Boating and Ocean Recreation permitted existing offshore moorings installed prior to October 4, 2017
 - Coral transplant with National Oceanic and Atmospheric Administration oversight
 - Fireworks where visible debris is collected after event
 - Lanterns and rubber duckies collected after event
 - Ashes from funeral ceremonies 3 miles away from shore
 - After-The-Fact applications for USACE POH enforcement actions²
- b. The NWP and activities listed below are hereby granted coverage under this Blanket Certification in the State of Hawaii if the applicant of the activity/discharge complies with the General Conditions (Item No. 3) and USACE POH provides notification (Item No. 4). Any person, including any public body, conducting activities authorized by these NWPs and activities that cannot or will not comply with this Blanket Certification must apply for and obtain an individual Section 401 WQC from DOH Clean Water Branch (CWB).
- NWP 2 – Structures in Artificial Canals
 - NWP 3 – Maintenance

² DOH has decided not to process After-The-Fact applications so the USACE POH can proceed with their enforcement action.

- NWP 4 – Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
- NWP 5 – Scientific Measurement Devices
- NWP 6 – Survey Activities
- NWP 7 – Outfall Structures and Associated Intake Structures
- NWP 9 – Structures in Fleeting and Anchorage Areas
- NWP 10 – Mooring Buoys
- NWP 11 – Temporary Recreational Structures
- NWP 12 – Oil or Natural Gas Pipeline Activities
- NWP 13 – Bank Stabilization
- NWP 14 – Linear Transportation Projects
- NWP 15 – U.S. Coast Guard Approved Bridges
- NWP 16 – Return Water from Upland Contained Disposal Areas
- NWP 17 – Hydropower Projects
- NWP 18 – Minor Discharge
- NWP 19 – Minor Dredging
- NWP 20 – Response Operations for Oil or Hazardous Substances
- NWP 22 – Removal of Vessels
- NWP 23 – Approved Categorical Exclusions
- NWP 25 – Structural Discharges
- NWP 27 – Aquatic Habitat Restoration, Establishment, and Enhancement Activities
- NWP 28 – Modifications of Existing Marinas
- NWP 29 – Residential Developments
- NWP 31 – Maintenance of Existing Flood Control Facilities
- NWP 32 – Completed Enforcement Actions
- NWP 33 – Temporary Construction, Access and Dewatering
- NWP 35 – Maintenance Dredging of Existing Basins
- NWP 36 – Boat Ramps
- NWP 37 – Emergency Watershed Protection and Rehabilitation
- NWP 38 – Cleanup of Hazardous and Toxic Waste
- NWP 39 – Commercial and Institutional Developments
- NWP 40 – Agricultural Activities
- NWP 41 – Reshaping Existing Drainage Ditches
- NWP 42 – Recreational Facilities
- NWP 43 – Stormwater Management Facilities
- NWP 45 – Repair of Uplands Damaged By Discrete Events
- NWP 46 – Discharges in Ditches
- NWP 48 – Commercial Shellfish Mariculture Activities
- NWP 51 – Land-Based Renewable Energy Generation Facilities
- NWP 53 – Removal of Low-Head Dams
- NWP 54 – Living Shorelines

- NWP 55 – Seaweed Mariculture Activities
- NWP 56 – Finfish Mariculture Activities
- NWP 57 – Electric Utility Line and Telecommunications Activities
- NWP 58 – Utility Line Activities to Water and Other Substances
- NWP 59 – Water Reclamation and Reuse Facilities
- Letters of Permission – Section 10 only activities with no discharge of fill material
- Any activity conducted in compliance with DOH pre-approved Standard Operating Procedures

c. Limitations on Coverage

This Blanket Certification shall not cover:

- (1) Discharge(s) regulated under CWA, Section 402.
- (2) Any project that may result in downstream/downdrift post construction impacts to the physical, chemical, and/or biological environment.
- (3) Concrete lining any section of natural streambed or bank.³
- (4) Projects involving the removal of dams, impoundments, structures, or sand bars that will result in the downstream/downdrift mobilization of material, sediment, and/or water pollutants.
- (5) Waste Discharges to natural lakes and anchialine pools as specified in HAR 11-54 or any State waters.
“Waste” means sewage, industrial and agricultural matter, and all other liquid, gaseous, or solid substance, including radioactive substance, whether treated or not, which may pollute or tend to pollute the waters of this State. Hawaii Revised Statutes (HRS) §342D-1.
Non-contaminated and suitable dredge and fill material authorized under a 2021 NWP is not considered waste.
- (6) New sewage discharges and new industrial discharges to estuaries as specified in HAR 11-54. New industrial discharges do not include the repair and/or replacement within the footprint of an existing structure.
- (7) New sewage and industrial discharges to Embayments: Class AA and Class A as identified in HAR 11-54. New industrial discharges do not include the repair and/or replacement within the footprint of an existing structure.

³ This type of activity is prohibited as it will result in adverse post construction impacts by eliminating ground water recharge, raising pH, and lowering dissolved oxygen or causing downstream bank erosion.

3. General Conditions

The applicant of the activity/discharge shall:

- a. Report any non-compliance with the conditions of this Blanket Certification to the USACE POH. Do not report or submit compliance related information to DOH. This Blanket Certification is a condition of the USACE POH permit.⁴
- b. Maintain records at the project site or in the nearby field office demonstrating that all Blanket Certification requirements have been fully complied with.
- c. Ensure that all activities are conducted in a manner that will comply with the "Basic Water Quality Criteria Applicable to All Waters" as specified in HAR 11-54.
- d. Ensure that all material(s) placed or to be placed in State waters are free of waste metal products, organic materials, debris, and any pollutants at toxic or potentially hazardous concentrations to aquatic life as specified in HAR 11-54.
- e. Ensure that the activities will not permanently interfere with or become injurious to any designated uses and/or existing uses of the receiving State water. Any permanent adverse impacts to the designated uses and/or existing uses of the receiving State water is a violation of HAR Chapter 11-54.
- f. Ensure that pollution control measures and BMPs are utilized that prevent water pollutants from leaving the in-water work area authorized by the USACE POH permit.⁵ Any visual plume emanating from the authorized in-water work area is a violation of HAR Chapter 11-54.
- g. Ensure that all construction debris from any portion of the activities (including but not limited to debris caused by hydraulic saws, water jets, or drilling equipment) are contained and prevented from entering or re-entering State waters. All construction debris and sidecast material shall be properly removed from the aquatic environment and disposed of at an upland State and county approved site. Before the start of the activities, a Solid Waste Disclosure Form for Construction Sites shall be completed and returned to the DOH's Solid and Hazardous Waste Branch,

⁴ With respect to USACE projects granted coverage under Item 2.c above, non-compliance reports from USACE POH should be submitted to DOH CWB.

⁵ With respect to USACE projects granted coverage under Item 2.c above, the relevant in-water work area is identified in the USACE project.

Office of Solid Waste Management. No construction material or construction related materials shall be stockpiled in the aquatic environment or stored or placed in ways that will disturb the aquatic environment. The Solid Waste Disclosure Form for Construction Sites is available online at:

<https://health.hawaii.gov/shwb/files/2018/04/swdiscformapr2018.pdf>.

- h. Utilize only BMPs that are inert and not sources of pollution themselves. Examples of inappropriate in-water porous material BMPs include but are not limited to: compost biosocks since they are a source of nutrients; and a soil berm since the soil particles will erode.
- i. Collect activity/discharge related water pollutants utilizing appropriate catchment/detention devices (e.g. construction debris, airborne particulates, dust, concrete slurry, concrete chips, concrete surface preparation washing effluent, excess water and overflow from boring related activity, horizontal directional drilling slurry, etc.) from localized work areas and minimize or prevent the release of these water pollutants into State waters, including the in-water work area.
- j. Utilize BMPs for all upland project activity to minimize the discharge of water pollutants into State waters, including the designated in-water work area.
- k. For a stream, ditch, or gulch: Allow unimpeded flow around the in-water work area to allow for aquatic animal migration and/or to prevent work site and downstream flooding situations. The unimpeded flow shall be equivalent to a 2-year, 24-hour duration storm event and/or the existing flow capacity of the stream, ditch, or gulch. Pumped diversions may be utilized if the stream, ditch, or gulch is dry or there is only standing/ponded water without the existence of living aquatic animals.
- l. Not discharge any type of wash water and/or effluent into State waters without first obtaining from DOH a National Pollutant Discharge Elimination System (NPDES) permit authorizing such type of water pollutant discharge to State waters.
- m. Not allow any concrete truck wash water to be disposed by percolation into the ground.
- n. Ensure that all areas temporarily impacted, either directly or indirectly, by the project construction activities are fully restored to its pre-construction conditions. For example: Incidental construction debris is cleaned up prior to removal of BMPs; remove all scientific measurement devices and any other structures or fills associated with installation and use of these

devices (e.g., foundations, anchors, buoys, lines, etc.) when no longer in use; etc.

o. When projects involve dredging/excavation activities:

- (1) Be required to check the DOH, HEER Office Sites, Incidents and Records through the "Viewer" in iHEER at:
<https://eha-cloud.doh.hawaii.gov/iheer>.⁶
- (2) Be required to contact the HEER Office at (808) 586-4249 and through e-permitting Form "Notification of Construction Activities" at Form Finder <https://eha-cloud.doh.hawaii.gov/epermit/finder> if contaminated soil, sediment, vapor, or groundwater is known to be present at your project site. The applicant shall notify the HEER Office at least 90 days prior to surface and subsurface disturbing activities that may disturb the ground surface at HEER sites. If the 90-days prior notification is missed, the applicant shall notify the HEER Office as soon as possible to avoid any potential delays regarding the covered project.
- (3) Contain return flow or runoff from upland dredged spoils dewatering site(s)/disposal site(s), including the confined disposal facility (CDF), which shall be contained on land and not allowed to discharge and/or re-enter any State waters without first obtaining the required discharge permit from USACE POH or CWB. Unless authorized by a USACE POH or NPDES permit, the applicant shall not allow any runoff, return flow, or airborne particulate pollutants from the excavated or dredged material dewatering or stockpiling site, including the CDF, to enter or re-enter State waters.
- (4) Properly deploy warning signs, which shall be maintained until the portion of the in-water work is completed and the affected area water quality has returned to its preconstruction condition and turbidity control devices have been removed from the waterway.

p. When projects involve moorings:

- (1) Avoid locating moorings (including anchors and floats) in sensitive aquatic habitats such as coral reefs, fish spawning areas, and submerged aquatic vegetation (unless location is acceptable to the Department of Land and Natural Resources, Division of Aquatic Resources or the National Oceanic Atmospheric Administration);
- (2) Ensure moorings (including anchors and floats) are made of clean, inert material. Treated lumber shall not be used as it may contain

⁶ 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 it to the HEER Office. Users will then be notified when they are able to download all information via the iHEER system website.

- compounds that can be released into the water and become toxic to the aquatic environment;
- (3) Pre-cast and cure concrete anchors, if required, away from State waters prior to use to prevent seepage of potentially toxic substances into the waterbody;
 - (4) Locate moorings in depths that allow structures and vessels to remain afloat at the lowest possible water levels and that prevent propellers from disturbing bottom sediments;
 - (5) Select mooring anchors of an adequate size to secure vessels or structures and prevent the anchor from shifting or dragging along the bottom of the State water;
 - (6) Size the length of mooring lines, chains, or cables to avoid excess line, chain, or cable accumulation on the bed of the State water;
 - (7) Ensure native beach material such as logs, sand, gravel, and boulders that are important components of fish habitat are not used as mooring structures and are left in place on the foreshore;
 - (8) Properly dispose of derelict or unused floats, lines, chains, or cables in accordance with appropriate laws and rules; and
 - (9) Ensure moorings are kept in good repair by regularly inspecting and maintaining the structure. Mooring maintenance must be performed into perpetuity (or until it is properly disposed of) or it will itself become a pollution source.
4. USACE POH shall e-mail to CWB (cleanwaterbranch@doh.hawaii.gov and darryl.lum@doh.hawaii.gov) a pdf copy of all issued final verifications. This Blanket Certification coverage shall become valid with respect to an activity only when USACE POH notifies CWB via email of a project authorization/verification and conditions of this Blanket Certification have been incorporated as part of the USCE POH final verification; provided, that this email notification requirement shall not apply to activities that do not require a pre-construction notification, and this Blanket Certification shall automatically become valid with respect to such activities.

Mr. David S. Hobbie
April 28, 2022
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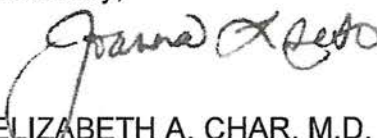
WQC1092.FNL.22

If you agree with the terms and conditions of this Blanket Certification, please sign and date below; make a copy for your administrative record; and submit this entire letter with your original signature to CWB within 14 calendar days from your signature date.

If you have any questions, please contact Mr. Darryl Lum of the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

for


ELIZABETH A. CHAR, M.D.
Director of Health

- c: Regulatory Office, POH, COE [via e-mails linda.speerstra@usace.army.mil only]
Ms. Debra Mendes, CZM Program, Office of Planning, DBEDT
[via e-mail debra.l.mendes@hawaii.gov only]
U.S. Fish and Wildlife Service [via e-mail pifwo_admin@fws.gov only]
U.S. National Marine Fisheries Service [via e-mail pirohonolulu@noaa.gov only]
Division of Aquatic Resources, DLNR [via e-mail dlnr.aquatics@hawaii.gov only]
CWRM, DLNR [via e-mail dlnr.cwrn@hawaii.gov only]
OCCL, DLNR [via e-mail dlnr.occl@hawaii.gov only]
DHO (Hawaii, Maui, Kauai) and EHS, Molokai/Lanai [via e-mail only]

I AGREE WITH THE TERMS AND CONDITIONS OF THIS LETTER:



David S. Hobbie
Regional Regulatory Chief
Honolulu District

4-28-22

DATE