STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1

TO

SPECIAL PROVISIONS, PROPOSAL, CONTRACT AND BOND

FOR

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 3
DISTRICT OF HONOLULU, ISLAND OF OAHU
FEDERAL-AID PROJECT NO. NH-0300(144)

January 9, 2023

This Addendum shall make the following amendments to the Bid Documents:

A. NOTICE TO BIDDERS

1. Prospective bidders are hereby notified that the receiving of sealed bids, scheduled for 2:00 P.M. Hawaii Standard Time (HST), January 12, 2023 is **HEREBY POSTPONED** until 2:00 P.M (HST), January 26, 2023. The deadline to submit the Disadvantaged Business Enterprise (DBE) Contract Goal Verification and Good Faith Efforts documentation scheduled for 4:30 P.M. (HST), January 17, 2023 is **HEREBY POSTPONED** until 4:30 PM (HST), January 31, 2023.

2. Delete Notice to Bidders in its entirety and replace with the attached Notice to Bidders pages NB-1 through NB-4 dated r01/09/23.

B. SPECIFICATIONS

1. Table of Contents

   a. Delete Table of Contents its entirety and replace with the attached Table of Contents pages 1 through 4 dated r01/09/23.

2. SECTION 102 – BIDDING REQUIREMENTS AND CONDITIONS.

   a. Delete Special Provisions Section 102 in its entirety and replace with the attached Special Provisions Section 102 dated r01/09/23.

3. SECTION 675 – PREPARATION AND COATING OF GALVANIZED BRIDGE COMPONENTS.

   a. Delete Special Provisions Section 675 dated 9/29/22 in its entirety and replace with the attached Special Provisions Section 675 dated r01/09/23.

4. SECTION 697 – CLEAN AND PAINT NEW STEEL.

   a. Delete Special Provisions Section 697 dated 9/29/22 in its entirety and replace with the attached Special Provisions Section 697 dated r01/09/23.

C. PROPOSAL SCHEDULE

1. Replace Proposal Schedule pages P-8 to P-11 dated 12/1/22 with the attached revised Proposal Schedule pages P-8 to P-11 dated r01/09/23.

D. PLANS

1. Replace Plan Sheet No. 13 with the attached revised Plan Sheet No. ADD. 13.

2. Replace Plan Sheets No. 105 thru 108 with the attached revised Plan Sheets No. ADD. 105 thru ADD. 108.

3. Replace Plan Sheets No. 110 thru 129 with the attached revised Plan Sheets No. ADD. 110 thru ADD. 129.

4. Replace Plan Sheet No. 130 with the attached revised Plan Sheet No. ADD. 130.

5. Replace Plan Sheet No. 132 with the attached revised Plan Sheet No. ADD. 132.

6. Replace Plan Sheet No. 136 with the attached revised Plan Sheet No. ADD. 136.

7. Replace Plan Sheet No. 137 with the attached revised Plan Sheet No. ADD. 137.

8. Replace Plan Sheet No. 139 with the attached revised Plan Sheet No. ADD. 139.

9. Replace Plan Sheet No. 143 with the attached revised Plan Sheet No. ADD. 143.

10. Replace Plan Sheet No. 144 with the attached revised Plan Sheet No. ADD. 144.

11. Replace Plan Sheets No. 146 thru 165 with the attached revised Plan Sheets No. ADD. 146 thru ADD. 165.

12. Replace Plan Sheets No. 167 thru 169 with the attached revised Plan Sheets No. ADD. 167 thru ADD. 169.

13. Add and make part of the PLANS the attached Sheet ADD. 127S-1.

The following is provided for information.

E. PRE-BID MEETING MINUTES

1. A Pre-bid meeting was scheduled for December 27, 2022 at 10:00 AM (HST) via Microsoft Teams. No prospective bidders were in attendance.

Please acknowledge receipt of this Addendum No. 1 by recording the date of its receipt in the space provided on page P-4 of the Proposal.

ROBIN K. SHISHIDO
Deputy Director, Highways Division

NOTICE TO BIDDERS
(Chapter 103D, HRS)

The receiving of SEALED BIDS for INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3, Federal Aid Project No. NH-0300(144), DISTRICT OF HONOLULU, ISLAND OF OAHU, will begin as advertised on December 16, 2022 in HIePRO. Bidders are to register and submit bids through HIePro only. See the following HIePRO link for important information on registering: https://hiepro.ehawaii.gov/welcome.html.

Deadline to submit bids is Bid Opening Day, January 26, 2023 at 2:00 pm Hawaii Standard Time (HST). Bids received after said due date and time shall not be considered.

The following documents are made part of the Contract Documents and are included in HIePRO; Variance for Community Noise Control, Community Noise Permit, Community Noise Permit extension, Community Noise Permit amendment, and Geotechnical Engineering Exploration report dated February 3, 2022.

The scope of work for this project includes construction of overhead sign structures, sign frames, and drilled shafts; reconstruction of concrete barriers, glare screens; grading; installation of metal guardrail, destination sign panels, pavement markings; modifications to the electrical conduits and pullboxes; maintenance and removal of temporary erosion control measures; and traffic control. The five overhead sign structures to be replaced are located on various highway routes on Oahu. These are shown on the Title Sheet of the plans. The estimated cost of construction is between $8,000,000 and $10,000,000.

To be eligible for award, bidders must possess a valid State of Hawaii General Engineering "A" license prior to the award of contract.

A 5% bid adjustment for bidders that are parties to apprenticeship agreements pursuant to Section 103-55.6, Hawaii Revised Statutes (HRS), is applicable to this project.

Compliance with Act 192, SLH 2011 and the Bipartisan Infrastructure Law, Section 25019(a), - is a requirement for this project whereby a minimum of 80% of the bidder's work force on this project must consist of Hawaii residents.

A pre-bid conference is scheduled for December 27, 2022 at 10 am on Microsoft Teams. All prospective bidders or their representatives (employees) are encouraged to attend, but attendance is not mandatory. Due to the impacts of COVID 19, the pre-bid meeting will be conducted virtually. Please call Microsoft Teams to join the Pre-bid meeting at (808) 829-4853,Phone Conference ID: ID: 170 131 137#.

ALL requests for information (RFI) shall be received in writing via HIePRO no less than 14 calendar days before bid opening. Questions received after the deadline will not be addressed. Verbal requests for information will not receive a response. Anything said at the conference is for clarification purposes and any changes to the bid documents will be made by addendum and posted in HIePRO.

Any protest of this solicitation shall be submitted in writing to the Director of Transportation, in accordance with §103D-701, HRS and §3-126, HAR.

Campaign contributions by State and County Contractors. Contractors are hereby notified of the applicability of Section 11-355, HRS, which states that campaign contributions are prohibited from specified State or county government contractors during

the term of the contract if the contractors are paid with funds appropriated by the legislative body. For more information, contact the Campaign Spending Commission at (808) 586-0285.

The U.S. Department of Transportation Regulation entitled "Nondiscrimination in Federally-Assisted Programs of the U.S. Department of Transportation," Title 49, Code of Federal Regulations (CFR), Part 21 is applicable to this project. Bidders are hereby notified that the Department of Transportation will affirmatively ensure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color, national origin or sex (as directed by 23 CFR Part 200).

The Equal Employment Opportunity Regulations of the Secretary of Labor implementing Executive Order 11246, as amended shall be complied with on this project.

The U.S. Department of Transportation Regulations entitled "Participation by Disadvantaged Business Enterprise in Department of Transportation Programs", Title 49, Code of Federal Regulations , Part 26 is applicable to this project. Bidders are hereby notified that the Department of Transportation will strictly enforce full compliance with all of the requirements of the Disadvantaged Business Enterprise (DBE) program with respect to this project.

Bidders are directed to read and be familiar with the Disadvantaged Business Enterprise (DBE) Requirements, which establishes the program requirements pursuant to Title 49 Code of Federal Regulations Part 26 and, particularly, the requirements of certification, method of award, and evidence of good faith. All Bidders must e-mail the Engineer at james.fu@hawaii.gov, the Disadvantaged Business Enterprise (DBE)

Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction, Disadvantaged Business Enterprise (DBE) Confirmationand Commitment Agreement – Trucking Company and Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement –Subcontractor, Manufacturer, or Supplier by January 31, 2023 2:00 pm (HST). Failure to provide these documents shall be cause for bid/proposal rejection.

Driving While Impaired (DWI) Education. HDOT encourages all organizations contracted with the DOT to have an employee education program preventing DWI. DWI is defined as operating a motor vehicle while impaired by alcohol or other legal or illegal substances. HDOT promotes this type of program to accomplish our mission to provide a safe environment for motorists, bicyclists and pedestrians utilizing our State highways, and expectsits contractors to do so as well.

For additional information, contact James Fu, Project Manager, by phone at (808)692-7611, by fax at (808)692-7617 or email at james.fu@hawaii.gov.

The State reserves the right to reject any or all proposals and to waive any defects in said proposals for the best interest of the public.

ROBIN K. SHISHIDO
Deputy Director, Highways Division

Posted:

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Disadvantaged Business Enterprise (DBE) Contract Goal Verification and Good Faith Efforts (GFE) Documentation For Construction

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Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement – Subcontractor, Manufacturer, or Supplier

Surety Bid Bond

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Make this section a part of the Standard Specifications:

"**SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS**

102.01 Prequalification of Bidders. Prospective bidders shall be capable of performing the work for which they are bidding.

In accordance with HRS Chapter 103D-310, the Department may require any prospective bidder to submit answers to questions contained in the 'Standard Qualification Questionnaire For Prospective Bidders On Public Works Contracts' furnished by the Department, properly executed and notarized, setting forth a complete statement of the experience of such prospective bidder and its organization in performing similar work and a statement of the equipment proposed to be used, together with adequate proof of the availability of such equipment. Whenever it appears to the Department, from answers to the questionnaire or otherwise, that the prospective bidder is not fully qualified and able to perform the intended work, the Department will, after affording the prospective bidder an opportunity to be heard and if still of the opinion that the bidder is not fully qualified to perform the work, refuse to receive or consider any bid offered by the prospective bidder. All information contained in the answers to the questionnaire shall be kept confidential. Questionnaire so submitted shall be returned to the bidders after serving their purpose.

No person, firm or corporation may bid where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in payments owed to the State or its political subdivisions or is in default as a surety or failure to do faithfully and diligently previous contracts with the State.

102.02 Contents of Proposal Forms. The Department will furnish prospective bidders with proposal forms posted in HIePRO stating:

(1) The location,

(2) Description of the proposed work,

(3) The approximate quantities,

(4) Items of work to be done or materials to be furnished,

(5) A schedule of items, and

(6) The time in which the work shall be completed.

Papers bound with or attached to the proposal form are part of the proposal. The bidder shall not detach or alter the papers bound with or attached to the proposal when the bidder submits its proposal through HIePRO.

Also, the bidder shall consider other documents including the plans and specifications a part of the proposal form whether attached or not.

102.03 (Unassigned).

102.04 Estimated Quantities. The quantities shown in the contract are approximate and are for the comparison of bids only. The actual quantity of work may not correspond with the quantities shown in the contract. The Department will make payment to the Contractor for unit price items in accordance with the contract for only the following:

(1) Actual quantities of work done and accepted, not the estimated quantities; or

(2) Actual quantities of materials furnished, not the estimated quantities.

The Department may increase, decrease, or omit each scheduled quantities of work to be done and materials to be furnished. When the Department increases or decreases the estimated quantity of a contract item by more than 15% the Department will make payment for such items in accordance with Subsection 104.06 - Methods of Price Adjustment.

102.05 Examination of Contract and Site of Work. The bidder shall examine carefully the site of the proposed work and contract before submitting a proposal.

By the act of submitting a bid for the proposed contract, the bidder warrants that:

(1) The bidder and its Subcontractors have reviewed the contract documents and found them free from ambiguities and sufficient for the purpose intended;

(2) The bidder and its workers, employees and subcontractors have the skills and experience in the type of work required by the contract documents bid upon;

(3) Neither the bidder nor its employees, agents, suppliers or subcontractors have relied upon verbal representations from the Department, its employees or agents, including architects, engineers or consultants, in assembling the bid figure; and

(4) The basis for the bid figure are solely on the construction contract documents.

Also, the bidder warrants that the bidder has examined the site of the work. From its investigations, the bidder acknowledges satisfaction on:

(1) The nature and location of the work;

(2) The character, quality, and quantity of materials;

(3) The difficulties to be encountered; and

(4) The kind and amount of equipment and other facilities needed;

Subsurface information or hydrographic survey data furnished are for the bidders' convenience only. The data and information furnished are the product of the Department's interpretation gathered in investigations made at the specific locations. These conditions may not be typical of conditions at other locations within the project area or that such conditions remain unchanged. Also, conditions found at the time of the subsurface explorations may not be the same conditions when work starts. The bidder shall be solely responsible for assumptions, deductions, or conclusions the bidder may derive from the subsurface information or data furnished.

If the Engineer determines that the natural conditions differ from that originally anticipated or contemplated by the Contractor in the items of excavation, the State may treat the difference in natural conditions, as falling within the meaning of Subsection 104.02 – Changes.

102.06 Preparation of Proposal. The submittal of its proposal shall be on forms furnished by the Department. The bidder shall specify in words or figures:

(1) A unit price for each pay item with a quantity given;

(2) The products of the respective unit prices and quantities

(3) The lump sum amount; and

(4) The total amount of the proposal obtained by adding the amounts of the several items.

The words and figures shall be in ink or typed. If a discrepancy occurs between the prices written in words and those written in figures, the prices written in words shall govern.

When an item in the proposal contains an option to be made, the bidder shall choose in accordance with the contract for that particular item. Determination of an option will not permit the Contractor to choose again.

The bidder shall sign the proposal properly in ink. A duly authorized representatives of the bidder or by an agent of the bidder legally qualified and acceptable to the Department shall sign, including one or more partners of the bidder and one or more representatives of each entity comprising a joint venture.

When an agent, other than the officer(s) of a corporation authorized to sign contracts for the corporation or a partner of a partnership, signs the proposals, a 'Power of Attorney' shall be on file with the Department or submitted with the proposal. Otherwise, the Department will reject the proposal as irregular and unauthorized.

The bidder shall submit acceptable evidence of the authority of the partner, member(s) or officer(s) to sign for the partnership, joint venture, or corporation respectively with the proposal. Otherwise, the Department will reject the proposal as irregular and unauthorized.

102.07 Irregular Proposals. The Department may consider proposals irregular and may reject the proposals for the following reasons:

(1) The proposal is a form not furnished by the Department, altered, or detached;

(2) The proposal contains unauthorized additions, conditions, or alternates. Also, the proposal contains irregularities that may tend to make the proposal incomplete, indefinite, or ambiguous to its meaning;

(3) The bidder adds provisions reserving the right to accept or reject an award. Also, the bidder adds provisions into a contract before an award;

(4) The proposal does not contain a unit price for each pay item listed except authorized optional pay items; and

(5) Prices for some items are out of proportion to the prices for other items.

(6) If in the opinion of the Director, the bidder and its listed subcontractors do not have the Contactor's licenses or combination of Contractor's licenses necessary to complete the work.

Where the prospective bidder is bidding on multiple projects simultaneously and the proposal limits the maximum gross amount of awards that the bidder can accept at one bid letting, the proposal is not irregular if the

limit on the gross amount of awards is clear, and the Department selects the awards that can be given.

102.08 Proposal Guaranty. The Department will not consider a proposal of $25,000 or more unless accompanied by:

(1) A deposit of legal tender; or

(2) A valid surety bid bond, underwritten by a company licensed to issue bonds in the State of Hawaii, in the form and composed, substantially, with the same language as provided herewith and signed by both parties; or

(3) A certificate of deposit, share certificate, cashier's check, treasurer's check, teller's check, or official check drawn by, or a certified check accepted by and payable on demand to the State by a bank, savings institution, or credit union insured by the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Administration (NCUA).

(a) The bidder may use these instruments only to a maximum of $100,000.

(b) If the required security or bond amount totals over $100,000 more than one instrument not exceeding $100,000 each and issued by different financial institutions shall be acceptable.

(c) The instrument shall be made payable at sight to the Department.

(d) Proposal Guaranty listed in (1) and (3) shall be in its original form, and shall be received at the Contracts Office, Department of Transportation, 869 Punchbowl Street, Honolulu, Hawaii 96813 before the bid deadline.

In accordance with HRS Chapter 103D-323, the above shall be in a sum not less than 5% of the amount bid.

102.09 Delivery of Proposal. The bidder shall submit the proposal in HIePRO. Bids received after said due date and time shall not be considered. Original bid documents do not have to be submitted. Award will be made based on proposals submitted in HIePRO.

102.10 Withdrawal or Revision of Proposals. A bidder may withdraw or revise a proposal after the bidder submits the proposal in HIePRO. Withdrawal

or revision of proposal must be completed before the time set for the receiving of bids.

102.11 Public Opening of Proposals. Not applicable.

102.12 Disqualification of Bidders. The Department may disqualify a bidder and reject its proposal for the following reasons:

(1) Submittal of more than one proposal whether under the same or different name.

(2) Evidence of collusion among bidders. The Department will not recognize participants in collusion as bidders for any future work of the Department until such participants are reinstated as qualified bidders.

(3) Lack of proposal guaranty.

(4) Submittal of an unsigned or improperly signed proposal.

(5) Submittal of a proposal without a listing of subcontractors or containing only a partial or incomplete listing of subcontractors.

(6) Submittal of an irregular proposal in accordance with Subsection 102.07 - Irregular Proposals.

(7) Evidence of assistance from a person who has been an employee of the agency within the preceding two years and who participated while in State office or employment in the matter with which the contract is directly concerned, pursuant to HRS Chapter 84-15.

(8) Suspended or debarred in accordance with HRS Chapter 104-25.

(9) Failure to complete the prequalification questionnaire, if applicable.

(10) Failure to attend the mandatory pre-bid meeting, if applicable.

102.13 Material Guaranty. The successful bidder may be required to furnish a statement of the composition, origin, manufacture of materials, and samples.

102.14 Substitution of Materials and Equipment Before Bid Opening. See Subsection 106.13 for Substitution Of Materials and Equipment After Bid Opening.

(A) General. When brand names of materials or equipment are specified in the contract documents, they are to indicate a quality, style, appearance, or performance and not to limit competition. The bidder shall

base its bid on one of the specified brand names unless alternate brands are qualified as equal or better in an addendum. Qualification of such proposed alternate brands shall be submitted via email to the Contact person listed in HIePRO for the solicitation and also post a question in HIePRO under the question/answer tab referencing the email with the request. The request must be posted in HIePRO no later than 14 calendar days before the bid opening date, not including the bid opening date.

An addendum will be issued to inform all prospective bidders of any accepted substitution in accordance with Subsection 102.17 – Addenda.

(B) Statement of Variances. The statement of variances must list all features of the proposed substitution that differ from the contract documents and must further certify that the substitution has no other variant features. The brochure and information submitted shall be clearly marked showing make, model, size, options, and any other features requested by the Engineer and must include sufficient evidence to evaluate each feature listed as a variance. A request will be denied if submitted without sufficient evidence. If after installing the substituted product, an unlisted variance is discovered, the Contractor shall immediately replace the product with a specified product at no increase in contract price and contract time.

(C) Substitution Denial. Any substitution request not complying with the above requirements will be denied.

102.15 Preferences. Preferences shall not apply to this project. 1

102.16 Certification for Safety and Health Program for Bids in excess of $100,000. In accordance with HRS Chapter 396-18, the bidder or offeror, by signing and submitting this proposal, certifies that a written safety and health plan for this project will be available and implemented by the notice to proceed date for this project. Details of the requirements of this plan may be obtained from the State Department of Labor and Industrial Relations, Occupational Safety and Health Division (HIOSH).

102.17 Addenda. Addenda issued shall become part of the contract documents. Addenda to the bid documents will be provided to all prospective bidders via HIePRO. Each addendum shall be an addition to the contract documents. The terms and requirements of the bid documents (i.e., drawings, specifications and other bid and contract documents) cannot be changed prior to the bid opening except by a duly issued addendum."

END OF SECTION 102

Make the following Section a part of the Standard Specifications:

"SECTION 675 – PREPARATION AND COATING OF GALVANIZED BRIDGE COMPONENTS

675.01 Description of Work. This specification defines the material and execution requirements for the preparation and coating of hot dip galvanized (HDG) overhead steel signage structures on the Island of Oahu. 1

This specification is to supplement the specification Section 697 - Clean and Paint New Steel. It is limited in scope to cleaning, surface preparation and coating of galvanized steel substrates. The galvanized pieces will be prepared as described herein, and coated with a 2 coat epoxy and fluoropolymer system, including stripe coating of edges.

REFERENCE STANDARDS

American Society for Testing Materials (ASTM)

ASTM D-4285 "Standard Test Method for Indicating Oil and Water in Compressed Air"

ASTM D-4940 "Standard Test Method for Conductimetric Analysis of Blasting Media.

ASTM D-6386 "Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting"

ASTM D-4417C "Standard Test Method for Field Measurement of Surface Profile of Blast Cleaned Steel

Society of Protective Coatings (SSPC), now AMPP

SSPC Volume 1 "Good Painting Practices"

SSPC-SP-1 "Solvent Cleaning

SSPC – SP-2 "Hand Tool Cleaning"

SSPC-SP-3 "Power Tool Cleaning"

SSPC-PA-2 "Measurement of Dry Coating Thickness with Magnetic Gages"

SSPC-QP-3, "Quality Procedure for Shop Painting Accreditation Program."

SSPC-SP-16 “Brush off Blast Cleaning of Uncoated and Coated Galvanized Steel”

Other Standards

American Galvanizers Assn. (AGA) publication “Suggested Specification for Preparing Hot-Dip Galvanized Surfaces for Painting”, February 2002

Federal Standard 595B, Federal Standard Colors, FED-STD-595B

675. 02 Material Requirements.

(A) General. Coating material requirements in this section supersede coating material listed in the base specification Section 697 – Clean and Paint New Steel.

For the galvanized components: A duplex system, consisting of an epoxy intermediate and a fluoro-urethane topcoat will be applied over the HDG system. The intermediate, stripe, and topcoat shall all be supplied by the same manufacturer.

(1) Primer - An industrial grade epoxy polyamide intermediate manufactured by the following companies are authorized for use in this application: Sherwin Williams, and Tnemec Company, Inc.

(2) Stripe coat - The stripe coat shall be the same product as the intermediate coat and supplied in a contrasting color.

(3) Topcoat- The topcoat shall be of Fluoropolymer FEVE technology and selected from the following manufacturers: Sherwin Williams (Fluorekem 100HS), and Tnemec Company, Inc.(Fluoronar Series 1070).

(4) Topcoat color - The formulated color of the topcoat shall conform to Federal Standard 595B color 14062 Dark Green, possessing a minimum 80^{o} gloss finish.

(B) Thinners and Additives. Thinners or additives shall be those recommended by the coating manufacturer. Thinner shall be primarily used for cleaning of equipment. Thinner may not be added in amounts exceeding the limits set forth in the manufacturer’s product data sheet (PDS)

675.03 Construction Requirements. The work of this section shall compliment ASTM D-6386 and AGA Suggested Specification listed in the Other Standards section. Surface preparation method will be chosen based on the

condition of the new HDG steel, per ASTM D6386 and the AGA Suggested Specification.

All coating work shall be performed in an enclosed shop facility holding a current SSPC-QP-3 accreditation.

(A) Inspection. Inspect surfaces to verify suitability of the surfaces to receive paints prior to the commencement of surface preparation and paint application. Establish an initial average applied DFT of the galvanizing using equipment described in SSPC-PA-2. Report, in writing, to the Engineer or his designated representative any condition that may affect proper application or overall performance.

(1) Surface Smoothing. Zinc high spots, such as a metal drip line, shall be removed by cleaning with hand tools or power tools as described in SSPC Surface Preparation Specification SSPC-SP-2 or SSPC-SP3. The zinc shall be removed until it is level with the surrounding area, taking care that the base galvanized layer is not damaged.

(B) Surface Preparation.

(1) Solvent Cleaning: Visible grease and oil shall be removed prior to the surface preparation. This shall be accomplished in accordance with SSPC-SP-1 (Solvent Cleaning) or power washing (low pressure water cleaning under 5000psi). Water break test may be performed to insure removal of contaminants prior to surface preparation and coating.

(2) Ambient Conditions: Final surface preparation which exposes bare steel shall not be performed under damp environmental conditions or when the surface temperature is less than 5°F above the dew point temperature of the surrounding air.

(3) Compressed Air Cleanliness: The supply air used for cleaning, blow down, or paint application using conventional and airless paint equipment shall be free from moisture and oil contamination. The air cleanliness shall be verified daily using the ASTM D 4285 method.

NOTE: Items (4) through (10) apply to abrasive brush-off blasting. Abrasive blasting per SSPC-SP-16 of the galvanized pieces may be required by the guidelines set forth in ASTM D6386, the AGA publication referenced herein, or any on-site agent authorized by the Engineer.

(4) Abrasives/ Profile: Abrasives used for sweep blasting shall be clean and uniformly graded, free of oil, soluble salts and other similar substances. Sweep blast abrasives shall have hardness less than 5 on the Mohs scale and a particle size in the 200-500 micron range. All abrasives shall be tested per ASTM D-4940 prior to use.

(5) Abrasive Brush-Off blasting of galvanized surfaces shall be accomplished according to SSPC-SP-16, to achieve a general, uniform roughened texture of no more than 0.75 mils.

(6) Abrasive size and nozzle pressure should be adequate to achieve the desired profile.

(7) After SSPC-SP-16 has been accomplished, blow down all surfaces with clean-dry compressed air to ensure all dust is removed prior to painting.

(8) Subsequent to brush-off blasting, visually examine all surfaces to ensure completeness of surface preparation.

(9) Random profile measurements shall be made according to ASTM-D4417C to ensure proper technique. Baseline DFT measurements shall be taken over brush-off blasted galvanizing to ensure preservation of the original galvanized thickness and to establish a baseline thickness to be used to evaluate final coating system thickness.

(10) Any areas of galvanizing that have been blasted to bare steel or damaged during mechanical tool cleaning shall be touched up with an organic zinc rich epoxy (from the selected NEPCOAT List B) prior to subsequent coating application. 1

(C) Coating Application.

(1) Surface Condition: The surface shall exhibit the degree of preparation specified immediately prior to painting. Coating of the prepared pieces shall be accomplished within 24 hours of completion of surface preparation.

(2) Surface Cleanliness:

(a) Prior to coating, thoroughly clean all surfaces to be coated and remove spent abrasive, dirt, dust, or other contaminates.

(b) Follow these cleaning steps on the initial cleaning and between coats of a multi-coat system and during curing process.

(c) Adequate dust collection, containment and/or dust removal is required for the project. Proper ventilation shall be maintained during surface preparation, coating application and cure.

(d) No dust is allowed to remain on the substrate or allowed to fall on the freshly applied coating during the coating application and/or during curing process.

(e) Embedded abrasive or dust on the substrate or in the coating film must be removed prior to any coating application.

(3) Grease / Oil. Remove any oil and grease that may have been deposited on the prepared surface prior to application of the specified coating system by solvent cleaning (SP-1).

(4) Ambient Conditions: Apply coatings within the environmental condition ranges specified in the individual Product Data Sheets (PDS). As a general rule, the following conditions apply:

(a) Surface and Air Temperature: Maintain between 50°F and 95°F.

(b) Relative Humidity: 85% or less.

(c) Dew Point: Surface temperatures of the substrate shall be at least 5°F greater than the dew point temperature of the surrounding air.

(d) Atmosphere: Do not paint when the air adjacent to the surface contains a fog, mist, dust, or other particulate matter. Do not perform coating operations during winds in excess of 15 mph.

(D) Coating Coverage and Continuity.

(1) Stripe Coat: Apply a stripe coat of the un-thinned intermediate coat by brush to, crevices, bolt heads, welds, and pits or other surface continuities prior to the application of the intermediate coat.

(2) Coverage: Apply coatings via conventional spray or airless spray to all surfaces with special attention to hard-to-reach areas such as underneath support brackets, back to back angles, skip welding or deep pits.

(3) Continuity: All coats shall have a smooth surface and be free from dryspray, overspray, and orange peel. Pinholes, bubbles, and misses are not acceptable. Brush out runs and sags while material is still wet.

(4) Observe all applicable recoat windows as specified in the respective coating Product Data Sheet (PDS). If no recoat window is specified, a minimum of 12 hours and maximum of 24 hours shall be observed as the applicable recoat window.

(5) Dry Film Thickness

(a) Apply each coat to the thickness range specified in the PDS. Contractor shall be required to record DFT readings.

(b) Dry Film Deficiencies: Apply additional coat(s) to all surfaces having less dry film thickness specified, at no additional cost to the owner.

(c) Average baseline galvanized steel thickness shall be subtracted from average DFT readings of each coat to calculate true coating thickness.

(E) Repair of Damaged or Deficient Coating on the Substrate. Repair all damaged or deficient coatings prior to the project completion.

(1) Preparation of Localized Damages: Power tool clean the damaged area in accordance with the appropriate power tool cleaning specification, SSPC-SP-3 “Power Tool Cleaning”. After preparation, the area shall be needle-gunned to re-establish a profile if any grinding was performed. Follow ASTM D 6386 for galvanized substrate repairs.

(2) Preparation of Extensive Damage: Repair in accordance with the original specification.

(3) Coating Application: When the base of the substrate is exposed, re-apply all coats of the coating system. When the damage area does not extend to the base substrate, re-apply only the affected coats. Exercise special care to maintain the specified thickness of the system in the overlapped area onto the existing intact coat.

(G) Holdpoints. All Hold Points for Quality Control listed in Section 697 – Clean and Paint New Steel, shall be accomplished, in addition to the following:

(1) Masking of slip critical bolted areas

(2) Calculation of baseline DFT of galvanizing

(3) Surface smoothing of galvanizing defects

(4) Surface cleanliness (water break test) prior to surface preparation by brush-off blasting

(5) Blast air quality, blast grit cleanliness

(6) Visual examination for dust after blasting and prior to striping of bolted connections and crevices

(7) Visual cleanliness examination prior to intermediate coat and topcoat application

(8) Profile of brush-off blasted surface

(9) Repair of defects

(10) Final DFT and workmanship

675.04 Measurement. The Engineer will not measure Preparation and Coating of Galvanized Bridge Components for payment.

675.05 Payment. The Engineer will not pay for accepted Preparation and Coating of Galvanized Bridge Components separately. The Engineer shall consider the cost for the accepted Preparation and Coating of Galvanized Bridge Components as included in the contract price of the various contract items. The cost is for the work prescribed in this section and the contract documents."

END OF SECTION 675

Make the following Section a part of the Standard Specifications:

1

"SECTION 697– CLEAN AND PAINT NEW STEEL

697.01 Description of Work. This work includes power washing, near white metal blast finishing (if required), and painting all new structural steel for overhead sign structures. Painting includes application of primer, stripe coat to all edges, corner and bolted connections (see exclusions), intermediate coat and topcoat. Bolted connections (faying surfaces) are to be masked as detailed in this specification. Field touch up is to be accomplished after erection and will include application of intermediate and topcoat to the bolted connections after proper cleaning.

1

This specification is to be used as a "base specification" for more detailed work, such as painting of Hot Dip Galvanized (HDG) steel, supplemented in Section 675 – Preparation and Coating of Galvanized Bridge Components.

The Contractor awarded the work will be required to attend a pre-job conference to discuss the pertinent issues of the work, discuss schedule, and to address the specification. A walk-through of the location where the painting is to take place and additional walk-throughs at each work site must be part of the pre-job conference. The field work site walk-through must have an explanation of how the steel structure is to be offloaded, erected, and repair touch-up painting to be done. At a minimum the Contractor's field foreman and QC representative shall be present. The pre-job conference will be required for shop painting of new steel, galvanized steel, as well as field touch-up after erection.

697.02 Material Requirements.

(A) General. In this section, the terms: coat; paint; coating and painting are interchangeable. The term "system", when referencing coat or paint, means the final product of several different, compatible coatings of paint.

(1) The coating system for all steel surfaces to be painted on this project shall be in accordance with Special Provisions Section 675. Include a separate brush applied coat over all edges, corners, bolts, rivet heads, and weld seams (stripe coat).

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(2) Do not mix manufacturers. The same manufacturer shall furnish the primer, intermediate, stripe, and topcoat.

(3) Color. Final colors shall be as determined by the Engineer or other referenced State Specifications. Paint sheen and specific color scheme shall be determined by Engineer.

Colors shall be according to Federal Standard 595B 'Federal Standard Colors'. The Contractor shall submit color selection to the Engineer for review and final selection before ordering paint system products. Each coat of paint, in its wet and cured conditions, shall have distinctly contrasting shades between subsequent coats applied to aid in application and inspection of the coating.

(4) The Manufacturer shall submit a Certificate of Compliance for the protective coatings stating that the Contractor can apply each coating between temperatures of 50-95F, and at relative humidity no greater than 85%.

(5) The manufacturer shall prepare the paint at the factory, ready for application. The Engineer will not permit the addition of a thinner or other material to the paint after shipping the paint.

(6) The Contractor shall furnish paint manufacturer's certification that the paint complies with paint system requirements as specified herein.

(7) Tinting. The Manufacturer shall add the tinting materials required to the paint at the factory. The Engineer shall not allow field tinting.

(8) Labeling. Labels on containers shall show the exact title of the paint. The title must indicate which layer it must be used for, the manufacturer's name, date of manufacture, date of expiration, the manufacturer's batch number, product code and the lot number if appropriate. Package the paint in new approved containers. Precautions concerning the handling and application of paint shall be shown on the label of all paint and solvent containers.

(B) Coatings Specified. See Special Provisions Section 675 for specific paint system requirements.

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(C) Paint System Requirements.

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(1) When the proposed Paint System manufacturer's literature requires a higher degree of surface preparation or a greater film

thickness than specified herein, that degree of surface preparation and film thickness shall be applied, at no additional cost to the State.

(2) The proposed paint system shall have a minimum of two years' field exposure on similar structures.

(3) The Contractor shall submit any proposed equivalent paint system for review and approval after award of contract.

697.03 Construction Requirements.

(A) General.

(1) The coating Contractor shall comply with the current, State, Federal and local laws and regulations pertaining to the protection of the environment in the performance of this type of work. These include but are not limited to regulations required by the State Department of Health (DOH), Federal Environmental Protection Agency (EPA), rules and regulations.

(2) The coating Contractor shall comply with the current Federal Occupational Safety and Health Administration (OSHA) and Hawaii Occupational Safety and Health (HIOSH) requirements for worker protection and safety equipment during all work on this project.

(3) The shop facility performing the blasting and painting (prior to shipment to the construction site) shall be certified to SSPC-QP-3, Shop Painting Certification Program.

(4) The field touch-up contractor shall be certified to SSPC-QP-1, Field Application to Complex Marine and Industrial Structures.

(5) All surface preparation and painting operations, whether in the shop or field, shall be inspected by a NACE CIP Level 2 certified coating inspector.

(B) Site Preparations.

(1) The Contractor's work shall, at all times, be made accessible to the Engineer. Contractor shall provide all safety, fall protection, access and scaffolding needs for the Engineer. The Contractor shall make ground level or superstructure access to all bents using man-lifts, ladders and/or scaffolding or stairs.

(C) Containment of Work and Protection of the Environment

(1) SHOP: This specification requires all fabricated steel be cleaned via pressure washing with fresh-water to remove construction debris and any other surface contaminants. Solvent cleaning will be necessary to remove any fabrication grease, oils and markings.

(2) FIELD: In order to protect the surrounding natural environment and work environment, the Contractor will be required to contain each work area so that there is no escape of water-wash effluent to the surrounding area. In addition, care should be taken to contain any overspray to escape into the surrounding environment, above and under the structure.

(3) Wash water effluent shall be removed on an ongoing basis throughout the project as to not interfere with ongoing operations. Containment of the work area shall remain in place until the final coat of paint has been cured, inspected, and accepted by the Engineer.

(D) Surface Cleaning and Preparation. The coating shop shall prepare the steel as specified below:

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(1) Before any surface preparation, remove all visible and non-visible contaminants described herein by methods specified in SSPC-SP1 Solvent Cleaning. General cleaning shall be accomplished using Low Pressure Water Cleaning (as defined in SSPC WJ-2/NACE WJ-2) at minimum working pressures of 1000 psi, not to exceed 3000 psi using fresh water. For the purposes of this specification, fresh water shall be defined as local potable water quality.

(2) (NOTE: For field touch-up, after arrival at the erection site, if the existing steel member coatings have any surface contaminants such as sea salts, dirt, construction debris, grease, oils, bird droppings, and other contamination not listed herein they shall be cleaned according to Subsection 697.03(D)(1).

(3) Vacuum or air blow-down (using clean, dry and oil-free air) shall be used to remove any standing water and to aid in drying surfaces prior to mechanical methods of surface preparation.

(4) Surface preparation of all new steel (does not apply to HDG steel) shall be in accordance with Society of Protective Coatings standard SSPC-SP-10 Near White Metal Blasting. Blast profile shall be an anchor tooth profile of 2.0 – 3.5 mils, and shall be accomplished with a proper steel shot/grit mix. Brush-off blasting of hot dip galvanized components shall be in accordance with SSPC-SP-16, and Special Provisions Section 675.

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NOTE ON QC CHECKPOINTS - Coating Contractor shall inform Engineer at least one working day prior to QC Checkpoint operations. In the event the Engineer is not present at the requested time, the Contractor may proceed to the next evolution, provided that Contractor documents QC data on the required data sheets.

QC Checkpoint - Cleanliness

All surfaces to be prepared shall meet the requirements of SSPC-SP-1 Solvent Cleaning. Surfaces shall be cleaned so that chloride measurements taken on the washed steel measure under 10 µg/cm^2 chlorides as measured with any method detailed in SSPC TU-4, Shop Methods for Retrieval and Analysis of Soluble Salts on Substrates. A minimum of 1 measurement shall be made for each 1000 ft^2 of surface washed.

(E) Surface Preparation and Coating Application for Touch-up areas. (Applicable to both shop and field painting.) A touch-up area is any area on the steel which includes a surface defect such as a gouge, scrape, or any area that has been damaged during the handling, transportation, ongoing construction, or erection of the structure. Areas burned by torch cutting and welding are also included as touch-up.

(1) Prepare damaged area(s) to sound coating or steel using methods described in SSPC-SP-2 Hand Tool Cleaning, SSPC-SP-3 Power Tool Cleaning, and SSPC-SP-11 Power tool cleaning to Bare Metal. If damaged area is to bare steel, ensure that the exposed steel has a surface profile of 1.0 – 3.5 mils profile, using methods described in ASTM D4417. Note that rotary disc sanding will destroy existing profile on the steel, so establishment of a profile by mechanical impact tooling such as needle guns, Bristle Blasters™, or roto-peens will be necessary.

(2) Ensure that the surrounding area to intact coating is feathered smooth to eliminate rough edges.

(3) Any single repair area under 4 in^2 may be repaired with SP-2/SP-3 methods when accepted by the Engineer. Any repair area over 4 in^2 or that has bare rusting steel shall be prepared in accordance with SP-11.

(4) Remove any dust, residue and debris prior to paint touch-up according to SP-1.

(5) Apply touch-up coats of the entire approved paint system including primer, intermediate, and topcoat by brush to specified thicknesses, in accordance with manufacturer's Product Data Sheet (PDS)

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(6) Follow Subsection 697.03(G) Application Requirements (Primer, Intermediate and Topcoat)" for application of coats.

QC Preparation and Application for Touch-Up areas - All areas prepared and touched-up shall be verified for completeness by the Engineer prior to application of stripe coat.

(F) Application of Stripe Coat

(1) Prior to strip coating, verify all surfaces are clean and contaminant free according to SSPC SP-1.

(2) All stripe coating shall be accomplished by brush. Striping shall be applied to all edges, crevices, nuts, bolts, weld seams and tight metal-to-metal joints, with the selected epoxy intermediate coating. Splice connections that have been bolted up will receive a brush stripe coat of intermediate, followed up by application of topcoat, as described in this specification, or supplemental referenced State Specification.. Stripe coat shall be of distinctly contrasting color of intermediate and topcoat to aid in determining coverage. During application, immediately brush out any runs, drips, sags or puddles. Stripe coating shall cover all edges of the structure, extending approximately ½" on either side of the edge, where applicable.

(3) Galvanized nuts and bolts shall be wire brushed, solvent wiped and striped and painted as described herein.

QC Checkpoint – Stripe Coat

Verify stripe coat is applied to all applicable surfaces with no visible holidays and in accordance with good painting practice as detailed in SSPC PA-1.

(G) Application Requirements (Prime Coat, Intermediate, and Topcoat).

(1) The Contractor shall paint the repair areas according to the best practices of the trade, in conformance with the recommendations of the coating manufacturer as delineated in the Product Data Sheets, observing all recommended environmental conditions, recoat windows, wet and dry film thicknesses, and in conformance with applicable portions of the Steel Structures Painting Council Specification SSPC-PA 1, except where superseded by these specifications.

(2) Coating applicators shall use wet film thickness (WFT) gages periodically to ensure proper application thicknesses. Periodic WFT measurements shall be made during paint application utilizing an approved wet film thickness gage. After sufficient cure time, dry film thickness readings shall be taken with a calibrated electronic gage, of each coat in accordance with SSPC- PA-2. DFT measurements shall not be made in areas of stripe coat, as these will be higher than specified ranges. Where thickness measurements fall below the specified minimum, make additional application of paint as necessary to meet the thickness required, at no additional cost to the State.

QC Checkpoints- Intermediate and Topcoat

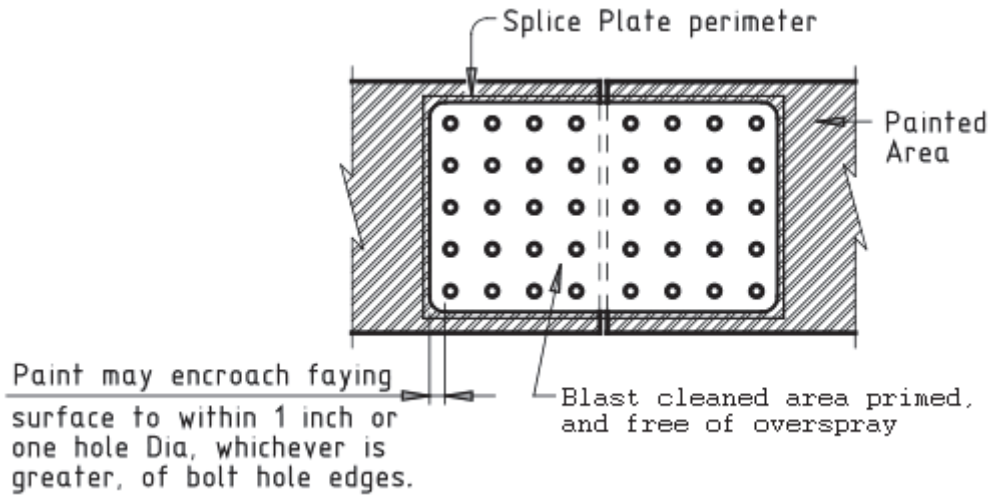
Verify substrate cleanliness immediately prior to prime coat application. Clean in accordance with SSPC SP-1 if not clean prior to application of prime coat.

After cure of prime coat, accomplish a visual holiday inspection and rectify any discrepancies according to the Engineer.

Verify substrate cleanliness immediately prior to intermediate application. Clean in accordance with SSPC SP-1 if not clean prior to application of intermediate coat.

NOTE for MASKING:
Masking will apply to all slip-critical connections which include splice plate connection and cross-bracing connection faying surfaces. After sufficient cure of primer (or Hot Dip Galvanizing, if the structure is galvanized steel), slip critical splice connection surfaces shall be masked according to the detail below using suitable means that will

not damage the underlying primer or surrounding area. Masking shall be removed from all connection areas within 48 hours of topcoat application.



Slip critical splice plates, shall only be blasted and primed according to this specification. After erection, the primed splice plates and bolts shall be touched up with intermediate and topcoat according to this specification.

NOTE: See plan sheets for additional paint masking details.
After cure of intermediate coat, accomplish a visual holiday inspection and rectify any discrepancies according to the Engineer.

Verify substrate cleanliness immediately prior to topcoat application. Clean in accordance with SSPC SP-1 if not clean prior to application of topcoat.

After cure of topcoat, accomplish a visual holiday inspection and rectify any discrepancies according to the Engineer.

Verify DFT readings of prime, intermediate and topcoats in accordance with SSPC PA-2, according to the DFT schedule listed for the selected coating system from NEPCOAT List B.

(3) Sufficient time shall elapse between successive coats to permit them to dry properly for recoating. Consult specific Product Data Sheet (PDS) for proper cure times. If any appreciable time elapses between painting operations, as judged by the Engineer, the coating manufacturer or Contractor shall re-clean surfaces before restarting painting operations.

(4) Apply coatings via airless spray utilizing approved equipment standard to the industry according to the instruction of the paint manufacturer. (All stripe coating shall be applied by brush.)

(H) Submittals.

(1) Paint Manufacturer's Product Data Sheet (PDS). The Contractor shall submit paint manufacturer's paint product data sheet with their written warranty, including the conditions limiting the warranty. Product Certificates of Conformance (CoC's) shall accompany all material used under this specification and shall be submitted. Any alternate materials, as described above shall be submitted to the Engineer at least 30 days before the start of production work for review and acceptance.

(2) Paint Manufacturer's Safety Data Sheets (SDS). The contractor shall submit the corresponding SDS for each material supplied, including intermediate, stripe, and topcoats, along with thinning/cleaning solvents.

(3) Abrasive. If applicable, type and size of abrasive, along with any pertinent documentation and Certificates of Conformance shall be submitted for the abrasive used in abrasive blasting operations.

(4) Coating contractor's Quality Control (QC) reports. The Contractor shall maintain daily surface preparation and coating inspection reports in accordance with details of the QP-3 Shop Certification, which detail the work performed, noting areas prepared/painted, environmental conditions throughout the day (to include Substrate Temperature, Ambient Temperature, Dew Point, and Relative Humidity), product applied, batch numbers, date of manufacture, acceptance criteria, QC data, notes and any problems encountered. A weekly report shall be compiled from the daily reports and submitted to the Engineer on a weekly basis. A sample blank copy of the daily inspection report to be used shall be submitted to the Engineer prior to the start of production work.

(5) Coating Contractor's Work Plan. Within two weeks of starting production work, the contractor shall submit a Coating Work Plan, detailing a timetable of significant events for the entire process. The work plan, at a minimum, will detail coating or

shop facility name and location, dates of mobilization/demobilization, preparation and coating activities, specific equipment and methods used, and abrasive media (if applicable) data sheets.

(6) Name and resume of proposed NACE CIP Level 2 coating inspector, detailing past inspection activities

(I) Cleanup and Disposal. The Contractor shall clean up the entire project site of painting, cleaning debris, containment, masking material, BMP's and other debris caused by the Contractor's operations, before receiving final payment. This work shall be considered incidental to the other contract items.

697.04 Measurement.

(A) The Engineer will not measure Clean and Paint New Steel Members for payment.

697.05 Payment. The Engineer will not pay for accepted Clean and Paint New Steel Members separately. The Engineer shall consider the cost for the accepted Clean and Paint New Steel Members as included in the contract price of the various contract items. The cost is for the work prescribed in this section and the contract documents."

END OF SECTION 697

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
201.1000	Clearing and Grubbing	150	SY	$_____	$ _____
202.0100	Removal of Existing Signs and Sign Structures	LS	LS	LS	$ _____
202.0200	Removal of Existing Barriers	LS	LS	LS	$ _____
203.1000	Roadway Excavation	35	CY	$_____	$ _____
209.0100	Installation, Maintenance, Monitoring, and Removal of BMP	LS	LS	LS	$ _____
209.0200	Additional Water Pollution, Dust, and Erosion Control	FA	FA	FA	$ 10,000.00
301.1000	Hot Mix Asphalt Base Course	60	Ton	$_____	$ _____
401.1000	HMA Pavement, Mix No. IV	15	Ton	$_____	$ _____
503.0100	Concrete for Sign Structure Pedestal and Corbel on Bridge for H1WB-505	15	CY	$_____	$ _____
503.0200	Concrete for Sign Structure Pier and Pedestal on Bridge for H1WB-511	10	CY	$_____	$ _____
503.0300	Concrete for Drilled Shaft Pedestals	41	CY	$_____	$ _____
507.1000	Concrete Barrier Reconstruction for H1EBR-253	LS	LS	LS	$ _____
507.2000	Concrete Barrier Reconstruction for H1EB-305	LS	LS	LS	$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
507.3000	Concrete Barrier Reconstruction for H1WB-511	LS	LS	LS	$ _____
511.0100	Furnishing Drilled Shaft Drilling Equipment	LS	LS	LS	$ _____
511.0200	Obstructions	20	Hour	$_____	$ _____
511.0300	Unclassified Shaft Excavation (60-inch Diameter Shafts)	98	LF	$_____	$ _____
511.0400	Drilled Shaft (60-inch Drilled Shafts)	98	LF	$_____	$ _____
511.0500	Coring for Integrity Testing for Acceptable Drilled Shaft	30	LF	$_____	$ _____
603.0400	Clean Existing Culverts	FA	FA	FA	$ 25,000.00
606.1100	Guardrail Type 3, Strong Post W-Beam Guardrail	100	LF	$_____	$ _____
607.1000	3-Feet, Chain Link Fence for H1 EBR-253	40	LF	$_____	$ _____
607.2000	6-Feet, chain Link Fence for H1-305	20	LF	$_____	$ _____
629.1100	1/2-Inch Pavement Strping (Thermoplastic Extrusion)	1,100	LF	$_____	$ _____
629.1200	4-Inch Pavement Striping (Profiled Thermoplastic)	3,300	LF	$_____	$ _____
629.1300	6-Inch Pavement Striping (Thermoplastic Extrusion)	1,100	LF	$_____	$ _____
629.2100	Type C Pavement Marker	85	Each	$_____	$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
629.2200	Type H Pavement Marker	30	Each	$_____	$ _____
630.1000	Panel for Destination Signs	2,700	SF	$_____	$ _____
630.2000	Type I Post and Arms for H1EBR-253	1	Each	$_____	$ _____
630.0300	Type I Post and Arms for 78EBR-830	1	Each	$_____	$ _____
630.0400	Type III Post and Arms for H1EB-305	1	Each	$_____	$ _____
630.0500	Type I Post and Arms for H1WB-505	1	Each	$_____	$ _____
630.0600	Type I Post and Arms for H1WB-511	1	Each	$_____	$ _____
636.1000	Additional E-Construction Programs, additional licenses or additional equipment	FA	FA	FA	$ $ 10,000.00
641.1000	Hydro-mulch Seeding	LS	LS	LS	$ _____
643.0100	Maintenance of Existing Landscape Areas	FA	FA	FA	$ $ 25,000.00
645.1101	Traffic Control - Sign H1EBR-253	LS	LS	LS	$ _____
645.1102	Traffic Control - Sign 78EBR-830	LS	LS	LS	$ _____
645.1103	Traffic Control - Sign H1EB-305	LS	LS	LS	$ _____
645.1104	Traffic Control - Sign H1WB-505	LS	LS	LS	$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
645.1105	Traffic Control - Sign H1WB-511	LS	LS	LS	$
645.2000	Additional Police Officers, Additional Traffic Control Devices and Advertisement	FA	FA	FA	$ 200,000.00
648.1000	FieldPosted Drawings	LS	LS	LS	$
695.1000	Removal and Disposal of Lead Based Paint	FA	FA	FA	$ 300,000.00
696.1000	Maintenance of Trailers	FA	FA	FA	$ 50,000.00
699.0100	Mobilization (Not to Exceed 6 Percent of the Sum of All Items Excluding the Bid Price of this Item)	LS	LS	LS	$

a. TOTAL AMOUNT FOR COMPARISON OF BIDS..... $

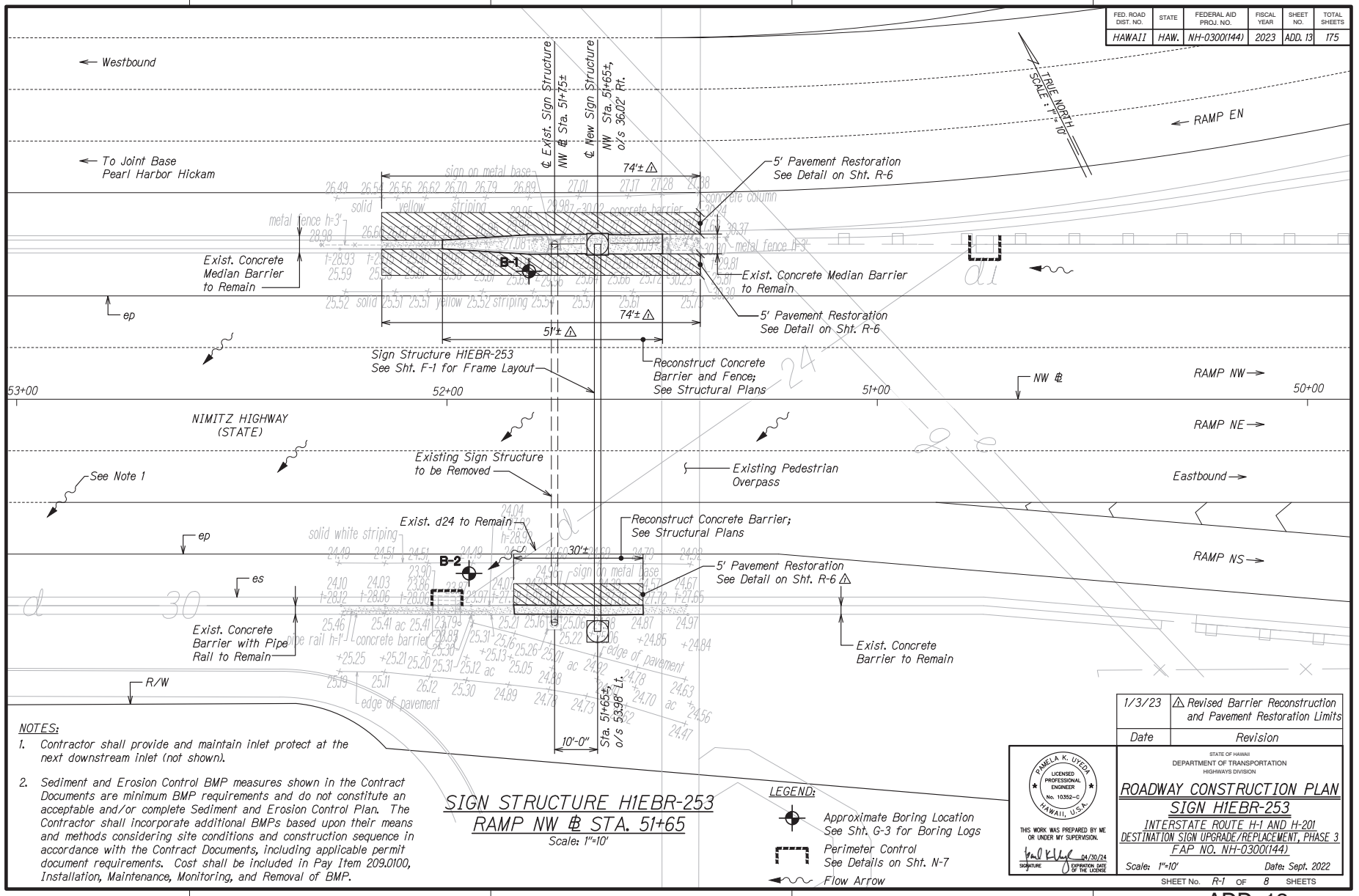
Bids shall include all Federal, State, County and other applicable taxes.

The TOTAL AMOUNT FOR COMPARISON OF BIDS will be used to determine the lowest responsible bidder.

In case of a discrepancy between unit price and the total in said bid, the unit price shall prevail.

NOTE: Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 13	175



NOTES:

1. Contractor shall provide and maintain inlet protect at the next downstream inlet (not shown).
2. Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering site conditions and construction sequence in accordance with the Contract Documents, including applicable permit document requirements. Cost shall be included in Pay Item 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP.

SIGN STRUCTURE HIEBR-253
RAMP NW ⊕ STA. 51+65

Scale: 1"=10'

LEGEND:

- Approximate Boring Location See Sht. G-3 for Boring Logs
- Perimeter Control See Details on Sht. N-7
- Flow Arrow

Date	Revision
1/3/23	⚠ Revised Barrier Reconstruction and Pavement Restoration Limits

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

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY CONSTRUCTION PLAN
SIGN HIEBR-253

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: 1"=10' Date: Sept. 2022

SHEET No. R-1 OF 8 SHEETS

ADD. 13

INDEX OF STRUCTURAL DRAWINGS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 105	175

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 4-30-24

DATE	REVISION
1/3/23	1 Add. 1 - Revised Index

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INDEX OF STRUCTURAL DRAWINGS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None — Date: Sept. 2022

SHEET No. S1.1 OF 5 SHEETS

ADD. 105

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

DRAWING NAME: Z:\00 ONGOING\00 # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU-S0101 INDEX ADD1.DWG PLOT TIME: 01-03-23, 8:45 PM)

STRUCTURAL GENERAL NOTES

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 106	175

1. Standard Specifications and Plans:

   A. Hawaii Department of Transportation (HDOT), Hawaii Standard Specifications for Road and Bridge Construction, 2005.

   B. HDOT Highways Division Design Branch - Standard Plans dated 2008.

2. Design Specifications:

   A. American Association of State Highway and Transportation Officials (AASHTO) 2020 "LRFD Bridge Design Specifications", 9th Edition as amended by HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures".

   B. AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 1st Edition, including the 2017 Interim Revisions.

   C. HDOT document dated August 8th, 2014 with subject title "Design Criteria for Bridges and Structures" and HDOT memorandum dated January 8, 2018 with subject title "Changes to Design Criteria for Bridges and Structures".

3. General:

   A. Before preparation of shop drawings for the sign support frame structures, the Contractor shall verify in the field the exact location of each anchor bolt and the shelf elevation at the top of pier caps.

4. Wind Loads:

   A. Basic Wind Speed: 130 mph

   B. Recurrence Interval: 1700 years

   C. Fatigue Importance Factor shall be based on Fatigue Category I.

   D. Galloping and natural wind gusts have been considered for cantilevered sign structures.

   E. Natural wind gusts have been considered for all sign structures.

   F. Sign structures have been designed for a truck induced gust based on a truck speed of 20 mph over the posted speed.

   G. An additional 9 square foot sign that is centered 10-feet above finish grade is included in the design for all sign structures. /1

   H. Railing Test Level: TL-3

5. Steel:

   A. All structural steel shall conform to the following requirements:

1. Plates, splice plates, cover plates, and base plates	ASTM A709, fy =36 ksi
2. Angles	ASTM A709, fy = 36 ksi
3. Wide Flanges	ASTM A709, fy = 50 ksi
4. All others	ASTM A709, fy = 36 ksi

   B. All new steel structures shall be ASTM A123 hot-dip zinc galvanized after fabrication. Post-galvanizing quenching/passivation shall not be utilized if steel is going directly to paint. Coordinate with coating Contractor.

   C. Vent holes shall be provided in members for hot-dip zinc galvanized operation. Size and location of holes shall be determined by galvanizing contractor, unless otherwise shown on the drawings. /1 Vent hole sizes and locations shall be included on the structural steel shop drawings. All holes shall be filled with zinc plugs following galvanizing operation.

   D. All shop fabricated holes shall be full-size drilled or sub-punched and reamed.

   E. Plates for columns, cover plates, base plates, angles, HSS tubes, and wide flange sections shall meet the longitudinal Charpy V-Notch requirements for a non-fracture critical member in Zone 1.

   F. Steel plates for columns shall be cut and fabricated so that the primary direction of rolling is parallel to the column length. For splice plates, the direction shall be parallel to the direction of the splice.

   /1

   G. Bolts which connect steel to steel shall be high-strength bolts conforming to ASTM F3125, Grade A325, Type 1. Bolts shall be snug tightened unless otherwise shown on plans. All pretensioned/slip-critical bolts shall utilize Direct Tension Indicating (DTI) washers. Bolts shall be inspected following installation.

   H. Anchor bolts which connect steel to concrete shall be high-strength threaded rods conforming to ASTM F1554, Grade 105 and shall be straight rod with anchor plate details at the end as shown in the contract drawings. Anchor bolts shall be pretensioned by the turn of the nut method. See anchor bolt pretensioning schedule.

   I. New and existing anchor bolts shall utilize a double nut connection with a leveling nut and top nut.

   /1 J. All nuts shall be ASTM A563 DH heavy-hex and all hardened washers shall be ASTM F436. DTI Washer shall be ASTM F959 and shall be installed under either the bolt head or a hardened washer.

   K. Threaded couplers shall be ASTM A194 heavy-hex and capable of developing 125% of the full yield strength of the anchor bolts.

5. Steel (Cont.):

   L. All hardware, including bolts, anchor bolts, nuts, washers, and couplers shall be ASTM A153 hot-dip zinc galvanized. Nut and coupler threads may be chased following the galvanizing process.

   M. All welding shall conform to the latest ANSI/AASHTO/AWS D1.5 Bridge Welding Code. Welding shall be performed in accordance with a Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) as required in AWS D1.5 and approved by the Engineer. The WPS variables shall be within the parameters established by the filler-metal manufacturer.

   N. All weld sizes are shown in inches.

   O. All welds shall utilize E70XX Electrodes where Shielded Metal Arc Welding is utilized. Where other welding processes are used, filler metal shall have matching strength to base metal.

   P. All welding shall be done in a manner to minimize distortion.

   Q. Field welding shall not be permitted except at field splice locations as shown on the drawings.

   R. Shop welds and field welds shall be identified in the shop drawings.

   S. Fabricate sign structures with camber as specified on the plans. Two post sign structures shall have a smooth parabolic camber.

DATE	REVISION
1/3/23	/1 Add. 1 - Revised notes

CALVIN T. MIYAHIRA
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4-30-24
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None Date: Sept. 2022

SHEET No. S1.2 OF 5 SHEETS

ADD. 106

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0102 GENNOTES ADD1.DWG PLOT TIME: 01-03-23, 8:45 PM

STRUCTURAL GENERAL NOTES

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 107	175

6. Concrete:

A. All concrete, other than drilled shafts, shall have a minimum 28-day compressive strength f'c = 5000 psi, maximum W/C ratio of 0.45, and a maximum cementitious material content of 615 (lbs/cyd) unless otherwise noted.

B. An alkali-resistant glass macro fiber shall be added to the concrete mix. The fiber shall have an aspect ratio of 67 and a length of 1 1/2". The dosage shall be 13 lbs per cubic yard of concrete.

C. A migrating corrosion inhibitor amine carboxylate water-based admixture shall be added to the concrete mix. The minimum dosage requirement shall be 24 ounces per cubic yard of concrete.

1 D. Drilled shaft concrete shall have a minimum cementitious material content of 720 (lbs/cyd) . For drilled shaft concrete see Special Provisions Section 511.

1 E. All concrete must comply with the C02 footprint reduction requirements of Special Provisions Section 601.

7. Steel Reinforcing:

A. All reinforcing steel shall be ASTM A615 Grade 60 deformed bars unless otherwise noted.

B. Reinforcing steel shall be ASTM A706 Type W where welded connections are required.

C. The clear cover, measured from the surface of the concrete to the face of any reinforcing bars, shall be as follows, except as otherwise shown.

1). Concrete cast against and permanently exposed to earth = 3" unless otherwise noted

2). All others unless otherwise noted = 2"

D. Reinforcing bars shall be detailed in accordance with the latest edition of the American Concrete Institute (ACI) Detailing Manual, unless otherwise noted.

E. Reinforcing bars shall be placed and installed in accordance with the CRSI Manual of Standard Practice and CRSI Placing Reinforcing Bars, unless otherwise noted.

F. Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non-bundled bars). In no case shall the clear distance between edge of the bars be less than 1 1/2 times the maximum size of the coarse aggregate or 1 1/2", whichever is greater.

G. All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.

H. Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than one foot in each directions, in which case alternate intersections shall be tied.

8. Construction Notes:

A. The Contractor shall verify all dimensions and site conditions and shall report any discrepancies in writing to the Engineer before commencing work or ordering materials.

B. The Contractor shall verify all site conditions and not rely upon these plans for existing dimensions, elevations and azimuths. Roadway location, gutters, curbs and sidewalks, etc., conditions may differ from those shown.

C. The Contractor shall be solely responsible for the protection of adjacent properties, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.

D. The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.

E. Except as otherwise noted, all vertical dimensions are measured plumb.

F. For concrete finish see Standard Specifications.

G. Construction joints may be relocated or additional ones added subject to the acceptance of the Engineer.

H. Unless otherwise noted, all exposed concrete edges shall be chamfered 3/4" x 3/4".

1 I. Prior to performing any drilling or coring operations into existing reinforced concrete, the Contractor shall verify the location of all existing reinforcing steel using an appropriate ground penetrating radar rebar scanner. Inform the Engineer of any conflicts, for review, if the planned drilled/cored hole cannot be moved.

J. Epoxy anchoring material shall be an injectable, two-component adhesive that has a current Evaluation Service Report from ICC-ES (International Code Council Evaluation Service Inc.) and has a characteristic bond strength, $\tau_{k,uncr}$, of at least 1,600 psi for a #5 reinforcing bar at Temperature Range A.

K. Epoxy anchoring adhesive shall be injected into drilled hole using a piston-plug delivery system when installed overhead.

L. All individuals performing drilled reinforcing dowel work shall hold a current ACI/CRSI Adhesive Anchor Installer certification.

M. Drilling procedures, equipment, material and certifications shall be submitted to the Engineer for approval.

N. In no case shall any adhesive anchor be installed closer than 6-inches to any concrete edge or joint unless shown on plans.

O. All holes drilled into concrete that go unused shall be completely filled with a fast setting, two-component, polymer-modified, non-sag, cementitious patching and repair mortar containing a migratory corrosion inhibitor.

8. Construction Notes (Cont.):

P. All drilled holes shall have dowels installed within same work shift or shall otherwise be completely filled with a patching and repair mortar.

1 Q. Contractor shall follow all epoxy anchoring adhesive Manufacturer's Printed Installation Instructions (MPII).

R. Location of drilled holes in existing concrete for reinforcing steel dowels as shown on the plans are approximate. Prior to placing holes in concrete, the Contractor shall locate all reinforcing steel, anchor bolts, thru bolts holes, etc. and adjust the location of the drilled holes to clear all of them. Final hole locations are subject to the acceptance of the Engineer.

S. Epoxy shall fully cure prior to pouring concrete around reinforcing steel dowels.

T. All holes shall be hammer drilled using a hollow bit connected to a vacuum system in accordance with a current Evaluation Service Report from ICC-ES.

U. All demolition work of concrete, unless otherwise explicitly stated, shall be performed using no larger than a 30-lb demolition hammer.

V. When only portions of concrete are to be demolished the intersections between the demolished concrete and the concrete that are to remain shall have a 1/2-inch deep sawcut around the entire perimeter of the demolished area.

1 W. All existing concrete substrate surfaces which new concrete is poured against shall be roughened to a minimum 1/4" amplitude and Saturated Surface Dry (SSD) prior to the placement of new concrete.

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SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None Date: Sept. 2022

SHEET No. S1.3 OF 5 SHEETS

ADD. 107

ORIGINAL PLAN | NOTE BOOK No. | DATE | DESIGNED BY | DRAWN BY | TRACED BY | QUANTITIED BY | CHECKED BY

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0102 GENNOTES ADD1.DWG PLOT TIME: 01-03-23, 8:46 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 108	175

8. Construction Notes (Cont.):

X. All existing reinforcing shall remain in place unless otherwise noted. Any existing reinforcing damaged during concrete removal that was not permitted to be removed shall be repaired, with approval from the Engineer, at no cost to the State.

Y. Existing reinforcing that is to be partially removed shall be cut back to provide 2" clear from finish concrete surface.

Z. New concrete surfaces shall match the finish of the existing structure. Any reveals, patterns, or decorative features shall also match the existing structure, unless otherwise noted.

1 AA. Aluminum members, stainless steel and other dissimilar metals in contact with structural steel shall be isolated with an appropriate dielectric material as approved by the Engineer.

AB. Anchor bolts shall be installed using a template to ensure proper layout. Anchor bolts shall be installed with misalignments of less than 1:40 from vertical. After installation, firm contact shall exist between the anchor bolt nuts, washers, and base plate on any anchor bolt installed in a misaligned position.

AC. New roadway signs shall be installed before existing signs are removed. Existing roadway signs shall be removed immediately after new signs are installed.

AD. Existing pavement, concrete, riprap, etc. shall be restored to its original condition after completion of work.

AE. All attachments on the sign structures shall be considered as part of the sign structure and its removal will not be paid for separately.

AF. Existing sign structures H1EBR-253, 78EBR-830, and H1WB-511 are believed to contain lead-based paint in excess of 5000 PPM as defined by the U.S. Environmental Protection Agency (EPA). See Special Provisions Section 695 for removal and disposal requirements.

AG. Existing sign structures H1EB-305 and H1WB-505 are believed to contain lead-containing paint below the 5000 PPM concentration threshold.

AH. The Contractor is responsible for conducting work in accordance with 29 CFR 1926.62 OSHA Lead Construction Standard including an air monitoring assessment during lead paint disturbance if necessary.

AI. The Contractor is responsible for conducting their own independent paint chip sampling of the existing sign structures to identify the presence, extent, and condition of existing paint suspected of containing lead.

1 AJ. The Contractor shall perform a thorough survey of all sign structure locations to verify elevations of existing roadway, bridge decks, bent caps, corbels, barriers, pedestals, etc. and to verify sign structure lengths. This survey shall be performed prior to submittal of structural steel shop drawings.

9. Paint:

1 A. New sign structures shall be hot-dip zinc galvanized prior to being painted with an epoxy intermediate and a highly weatherable Fluoropolymer top coat.

B. Sign structures shall be painted at an offsite location by an 1 approved SSPC-QP-3 certified shop approved by the Engineer. Only touch up painting shall be allowed at the construction site.

C. Finish color shall be Dark Green. 1

D. See Special Provisions Section 675 and 697 for further coating requirements including surface preparation and stripecoating.

ORIGINAL PLAN
NOTE BOOK
No.
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DATE

DRAWING NAME: Z:\OD ONGOING\OD_# PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-50102 GENNOTES ADD1.DWG PLOT TIME: 01-03-23, 8:46 PM)

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4-30-24
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DATE	REVISION
1/3/23	1 Add. 1 - Revised notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

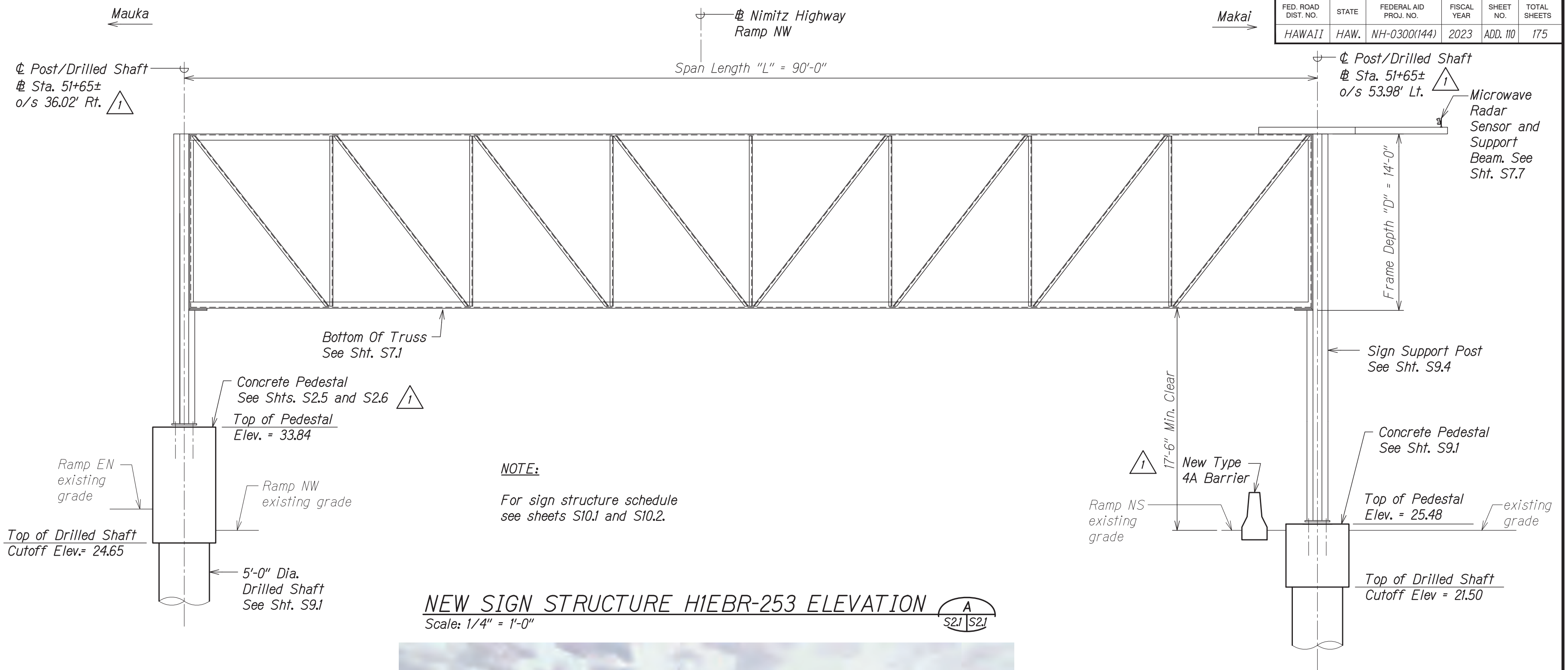
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: None Date: Sept. 2022

SHEET No. S1.4 OF 5 SHEETS

ADD.108

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 110	175



NOTE:

For sign structure schedule see sheets S10.1 and S10.2.

NEW SIGN STRUCTURE H1EBR-253 ELEVATION

A S2.1 S2.1

Scale: 1/4" = 1'-0"

EXISTING SIGN STRUCTURE H1EBR-253

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DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE
H1EBR-253 ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

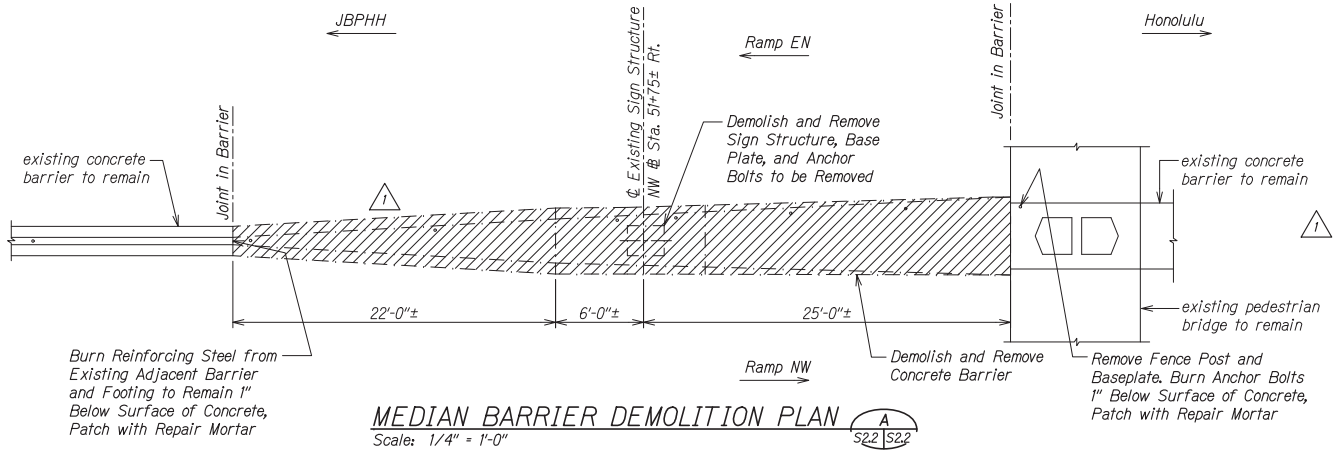
Scale: As Noted Date: Sept. 2022

SHEET No. S2.1 OF 9 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0201 H1EBR-253-ELEV (UPDTD)ADD1.DWG PLOT TIME: 01-03-23, 8:46 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 111	175



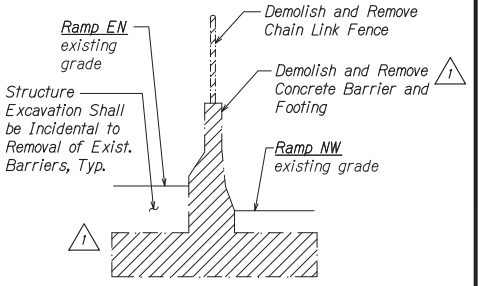
MEDIAN BARRIER DEMOLITION PLAN

Scale: 1/4" = 1'-0"

A S2.2 | S2.2

LEGEND:

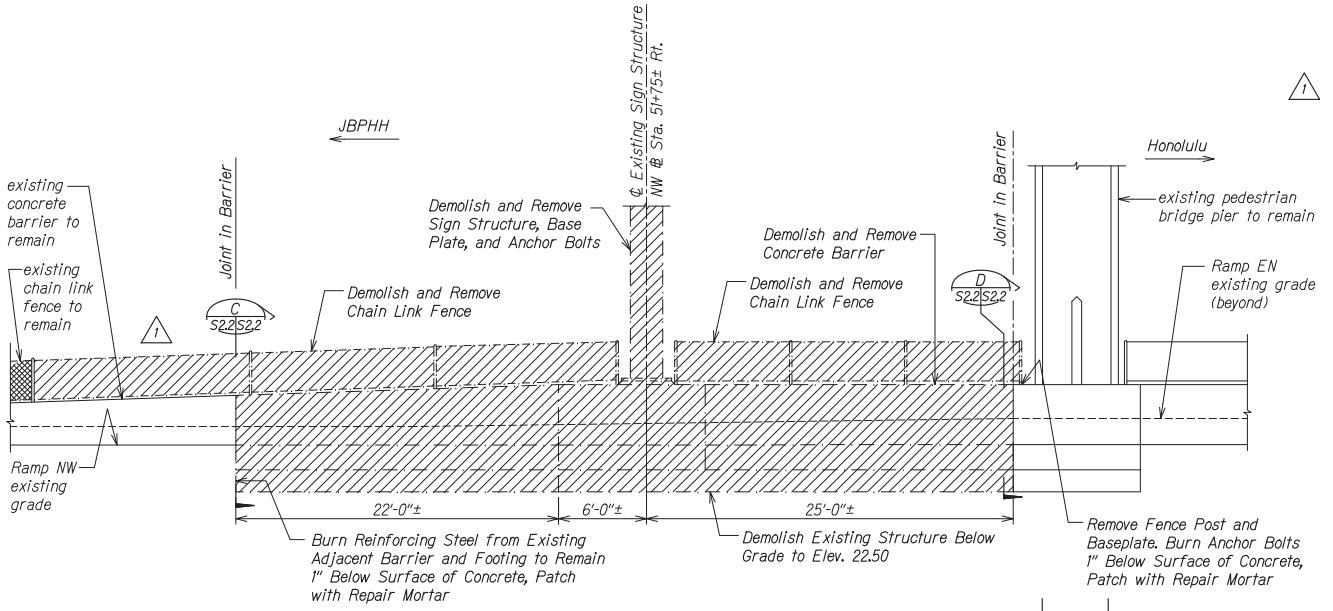
Demolish and Remove



MEDIAN BARRIER DEMOLITION SECTION

Scale: 3/4" = 1'-0"

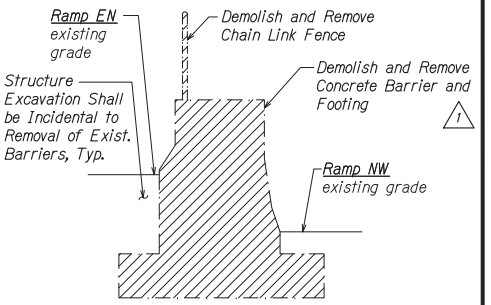
C S2.2 | S2.2



MEDIAN BARRIER DEMOLITION ELEVATION

Scale: 1/4" = 1'-0"

B S2.2 | S2.2



MEDIAN BARRIER DEMOLITION SECTION

Scale: 3/4" = 1'-0"

D S2.2 | S2.2

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

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SIGN STRUCTURE - H1EBR-253 BARRIER DEMO. PLAN, ELEV., AND SECTS.

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

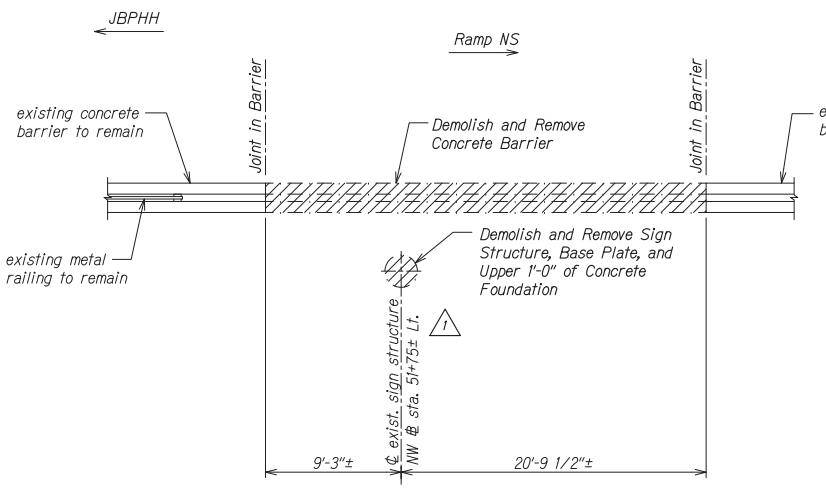
SHEET No. S2.2 OF 9 SHEETS

ADD. 111

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

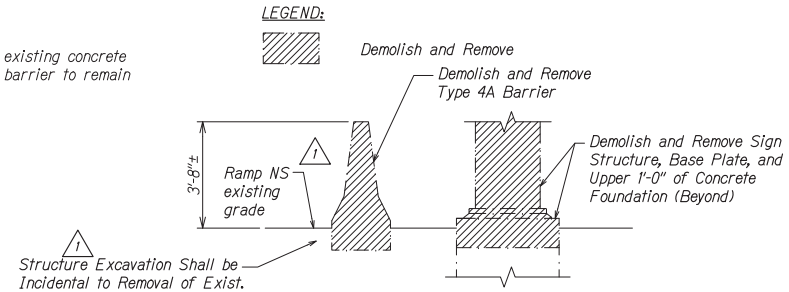
DRAWING NAME: Z:\00 ONGOING\00 # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S2202 H1EBR-253-DEMO ELEV ADD1.DWG PLOT TIME: 01-03-23, 8:47 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 112	175



BARRIER DEMOLITION PLAN (A S2.3 | S2.3)

Scale: 1/4" = 1'-0"



BARRIER DEMOLITION SECTION (C S2.3 | S2.3)

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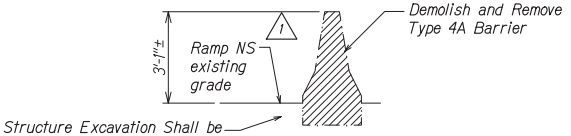

BARRIER DEMOLITION SECTION (D S2.3 | S2.3)

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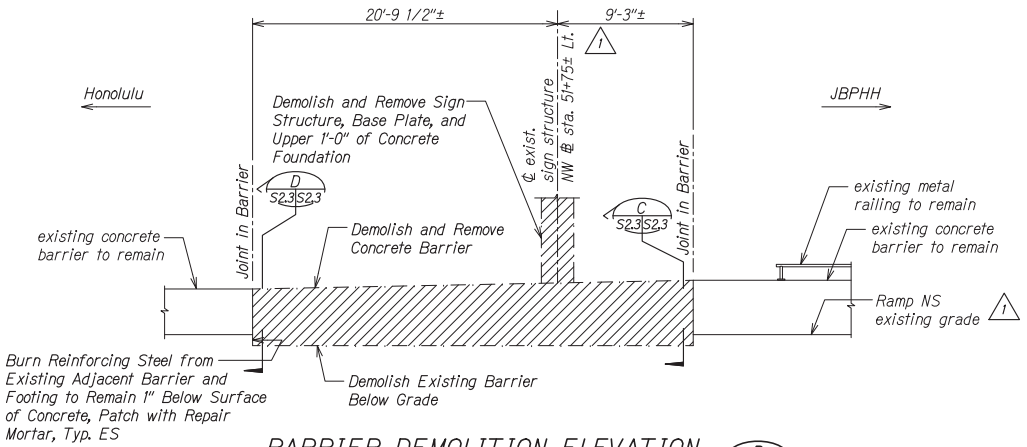
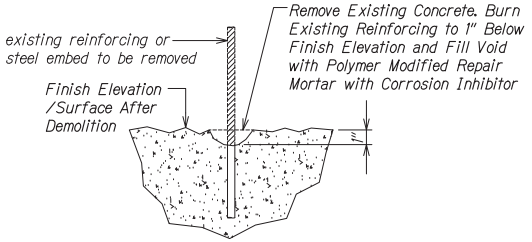


BARRIER DEMOLITION ELEVATION (B S2.3 | S2.3)

Scale: 1/4" = 1'-0"



REINFORCING REMOVAL DETAIL (A S2.3 | S2.3)

Scale: 3" = 1'-0"

CALVIN T. MITAMURA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

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SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE HIEBR-253
BARRIER DEMO. PLAN, ELEV., AND SECTS.

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

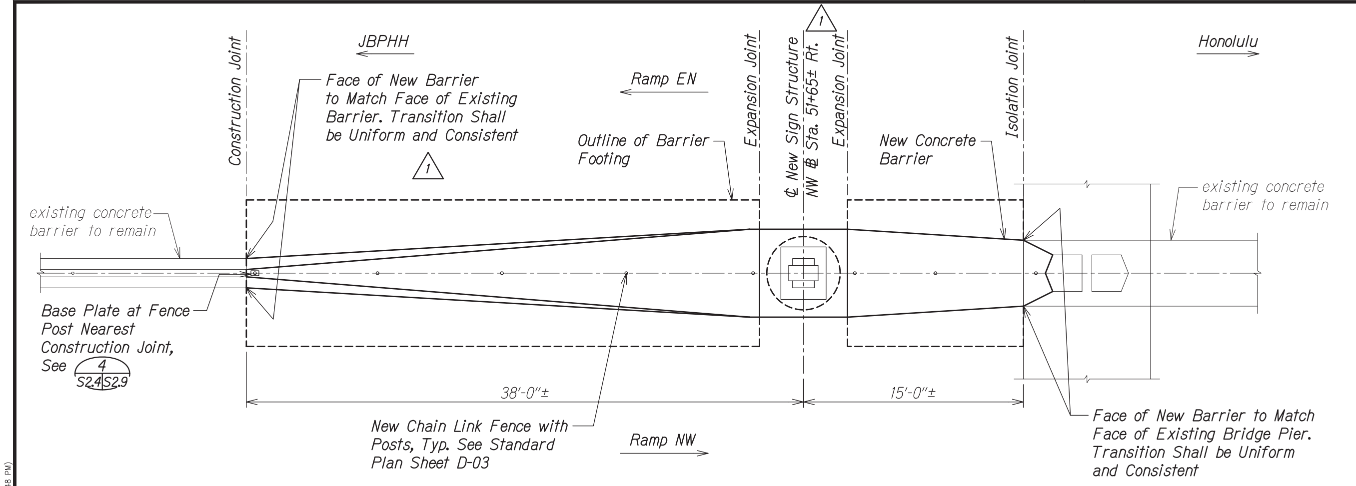
SHEET No. S2.3 OF 9 SHEETS

ADD. 112

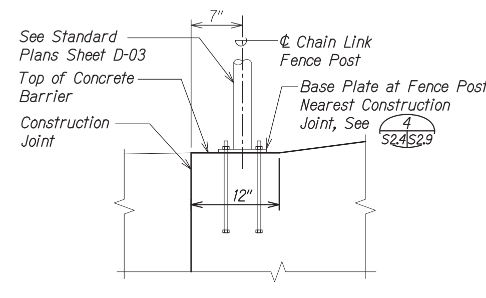
ORIGINAL PLAN | NOTE BOOK No. | DETAILED BY: DRAWN BY: TRACED BY: QUANTITIES BY: CHECKED BY: DATE:

DRAWING NAME: Z:\OS ONGOING\OO_F PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\1OSU-S2003 H1EBR-253-BARR DEMO ADD1.DWG PLOT TIME: 01-03-23, 8:47 PM)

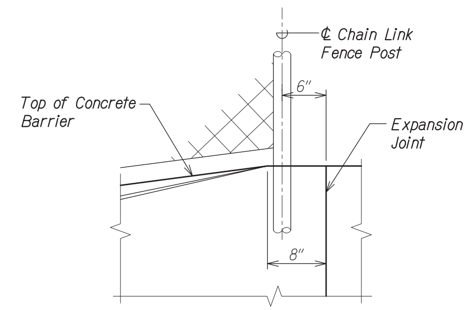
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 113	175



MEDIAN BARRIER PLAN A S2.4 S2.4
Scale: 1/4" = 1'-0"



DETAIL 1 S2.4 S2.4
Scale: 1 1/2" = 1'-0"



DETAIL 2 S2.4 S2.4
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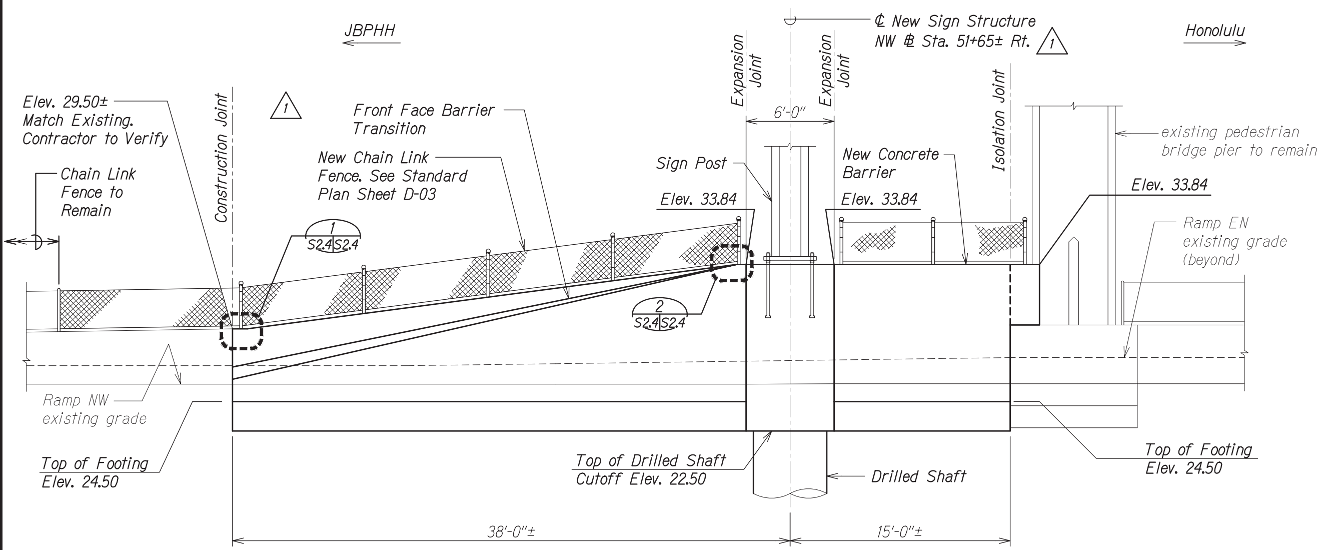
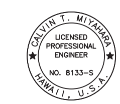


MEDIAN BARRIER ELEVATION B S2.4 S2.4
Scale: 1/4" = 1'-0"



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4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Added details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EBR-253
BARRIER PLAN AND ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

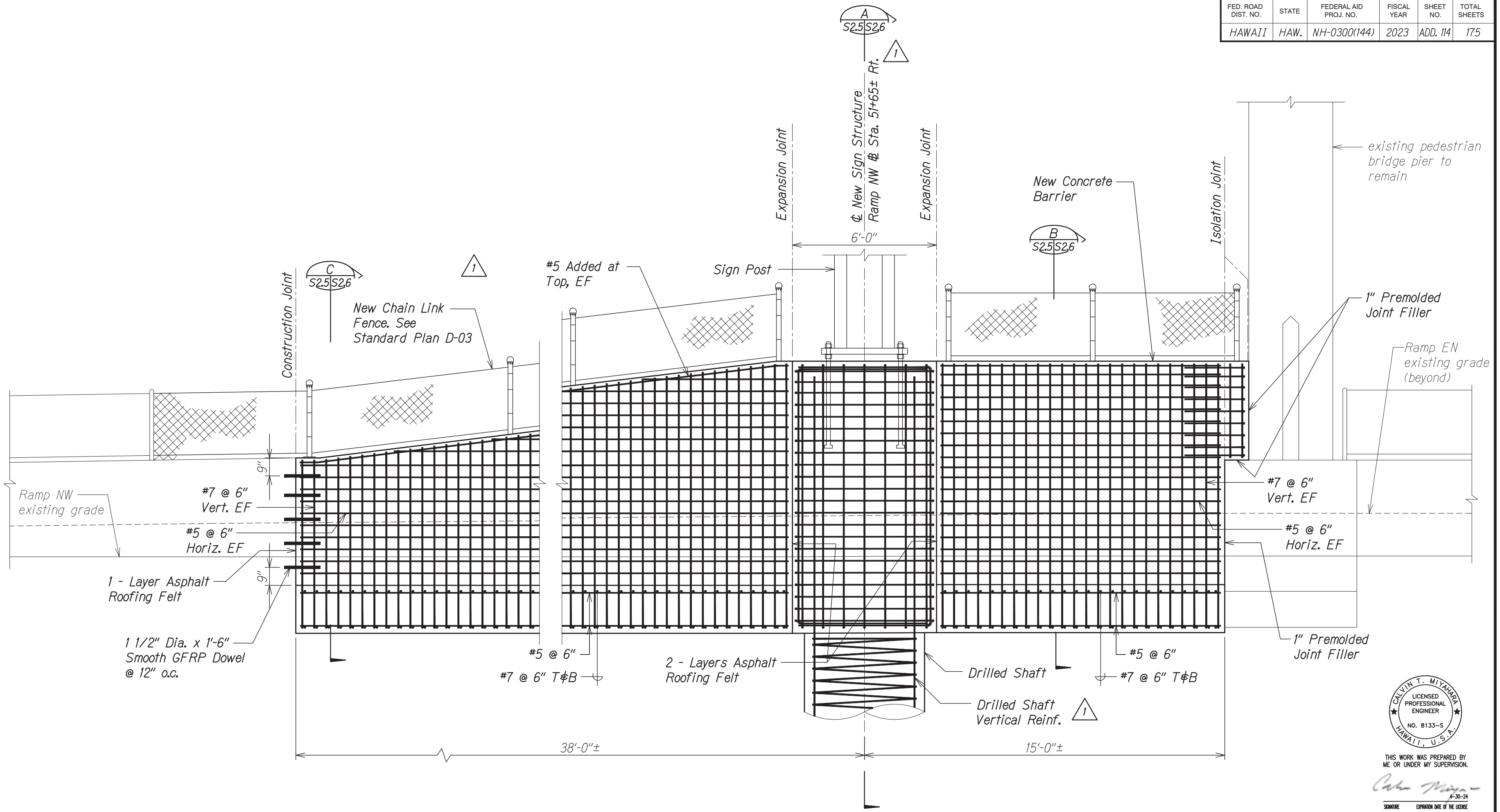
Scale: As Noted Date: Sept. 2022

SHEET No. S2.4 OF 9 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0204 H1EBR-253-REP ELEV (UPDTD)ADD1.DWG PLOT TIME: 01-03-23, 8:48 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 114	175



BARRIER REINFORCING ELEVATION A S2.5 S2.5
Scale: 1/2" = 1'-0"

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EBR-253
BARRIER REINFORCING ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

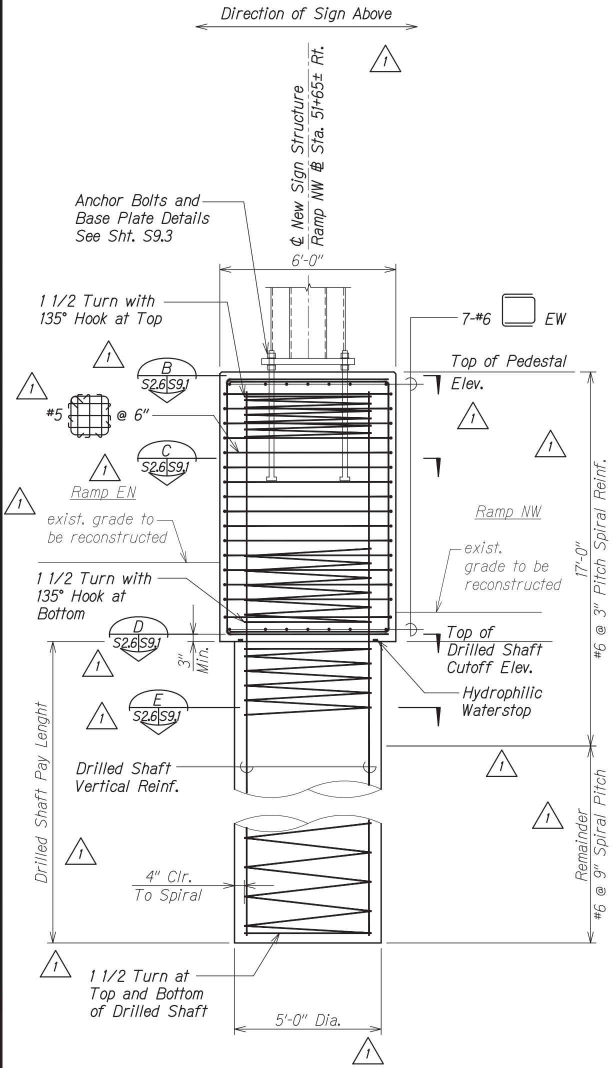
Scale: As Noted — Date: Sept. 2022

SHEET No. S2.5 OF 9 SHEETS

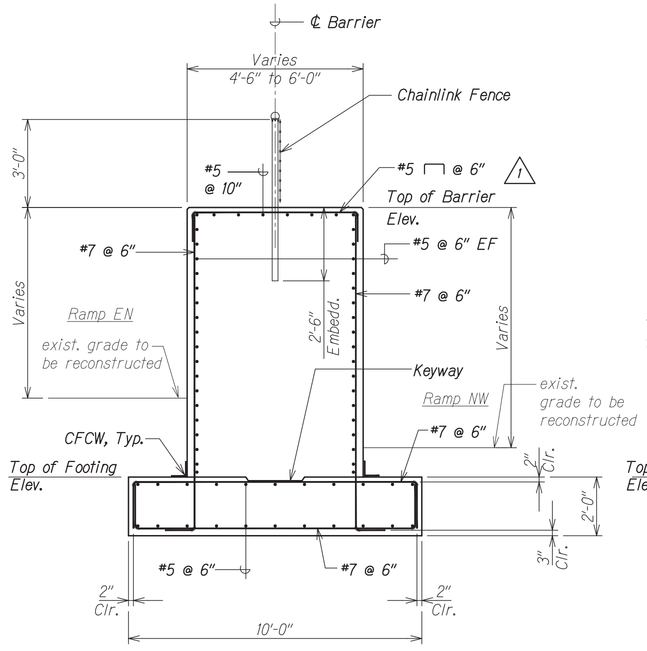
ADD. 114

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

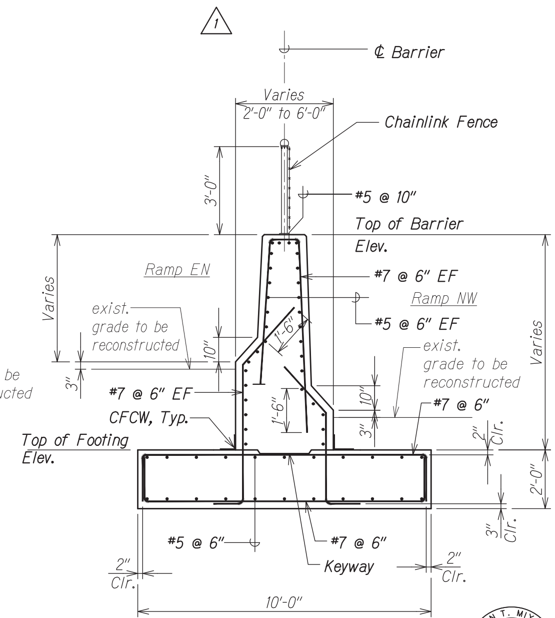
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 115	175



SECTION A
Scale: 1/2" = 1'-0" S2.5 S2.6



SECTION B
Scale: 1/2" = 1'-0" S2.5 S2.6



SECTION C
Scale: 1/2" = 1'-0" S2.5 S2.6

Note:

Structure backfill work adjacent to barriers shall be incidental to barrier work.

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EBR-253
SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

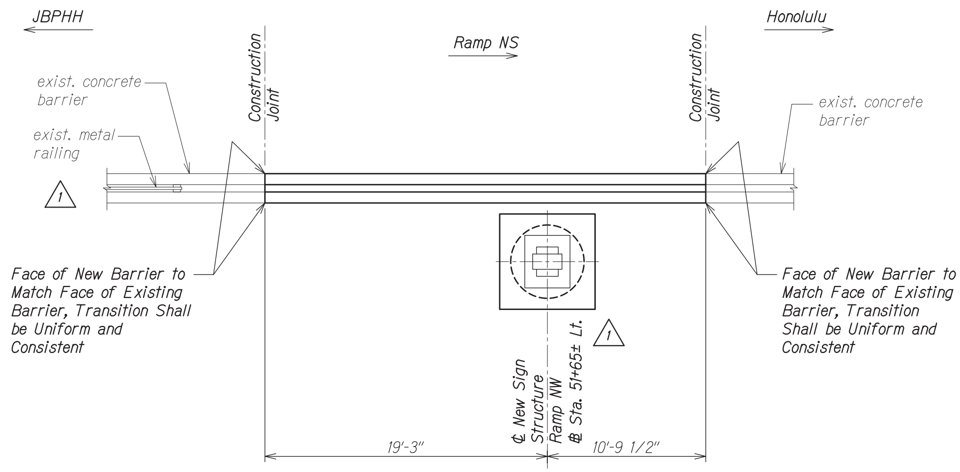
Scale: As Noted Date: Sept. 2022

SHEET No. S2.6 OF 9 SHEETS

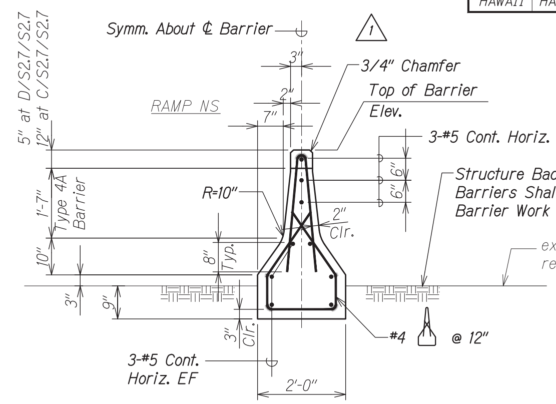
ORIGINAL PLAN | NOTE BOOK No. | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0205 H1EBR-253-REINF ADD1.DWG PLOT TIME: 01-03-23, 8:48 PM

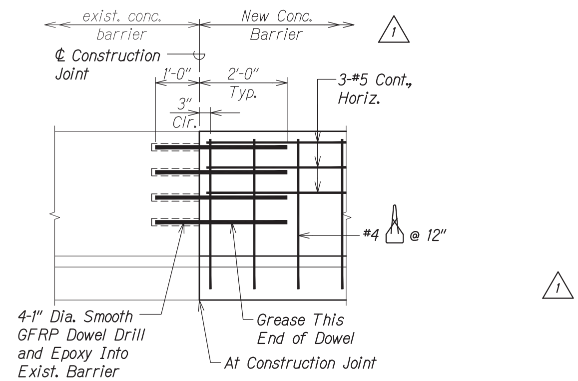
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 116	175



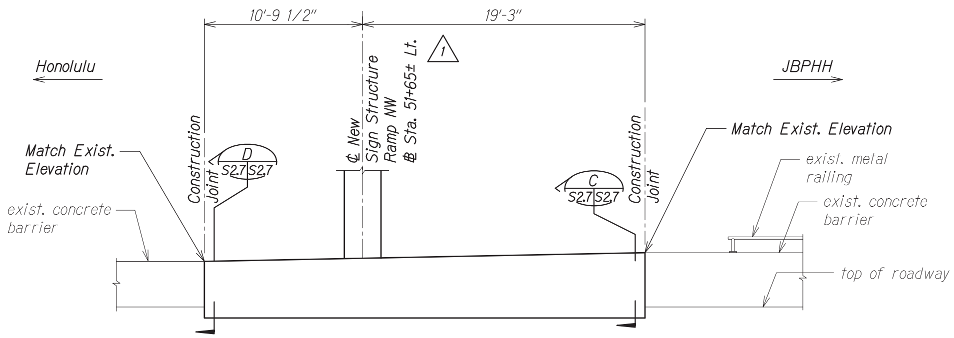
BARRIER PLAN (A, S2.7 | S2.7)
Scale: 1/4" = 1'-0"



BARRIER SECTION (C, S2.7 | S2.7) (D, S2.7 | S2.7)
Scale: 3/4" = 1'-0"



CONSTRUCTION JOINT DETAIL (1, S2.7 | S2.7)
Scale: 3/4" = 1'-0"



BARRIER ELEVATION (B, S2.7 | S2.7)
Scale: 1/4" = 1'-0"

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
4-30-24
SIGNATURE — EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EBR-253
BARRIER PLAN, ELEV., AND SECTS.

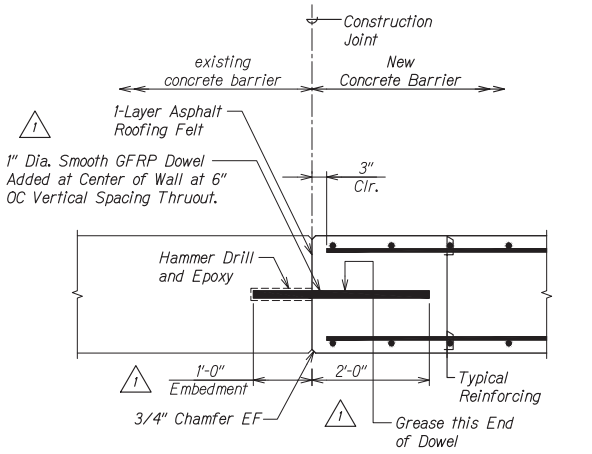
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted — Date: Sept. 2022

SHEET No. S2.7 OF 9 SHEETS

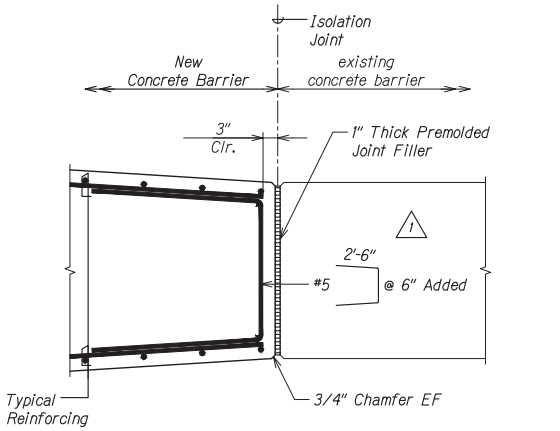
ADD. 116

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 117	175



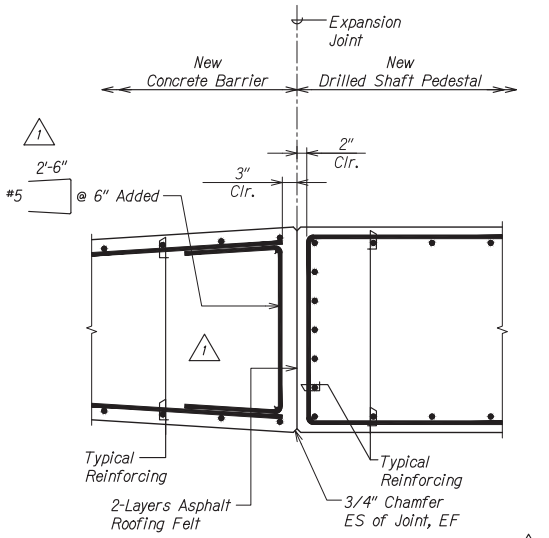
CONSTRUCTION JOINT DETAIL 1 S2.8 | S2.8

Scale: 1" = 1'-0"



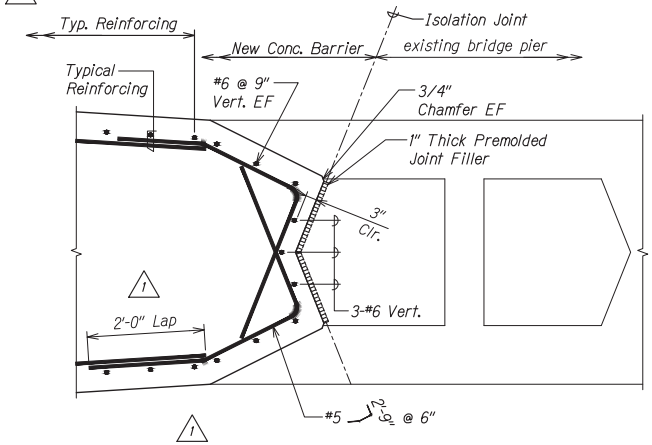
ISOLATION JOINT DETAIL IN MEDIAN BARRIER 3 S2.8 | S2.8

Scale: 1" = 1'-0"



EXPANSION JOINT DETAIL 2 S2.8 | S2.8

Scale: 1" = 1'-0"



ISOLATION JOINT DETAIL IN MEDIAN BARRIER 4 S2.8 | S2.8

Scale: 1" = 1'-0"

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

ORIGINAL PLAN | NOTE BOOK | No.

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

DRAWING NAME: Z:\OD ONGOING\OD # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\USU-S2208 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 8:49 PM)

CALVIN T. MIYAHIRA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EBR-253 BARRIER JOINTING DETAILS

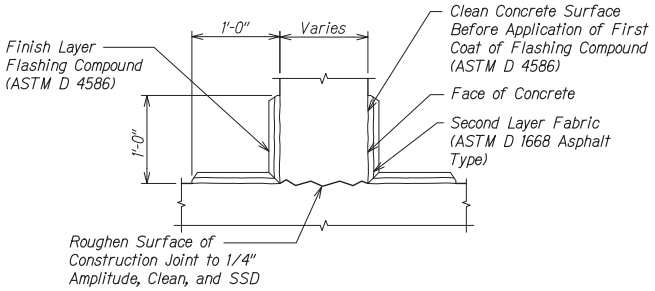
INTERSTATE ROUTE H-1 AND H-201 DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3 FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S2.8 OF 9 SHEETS

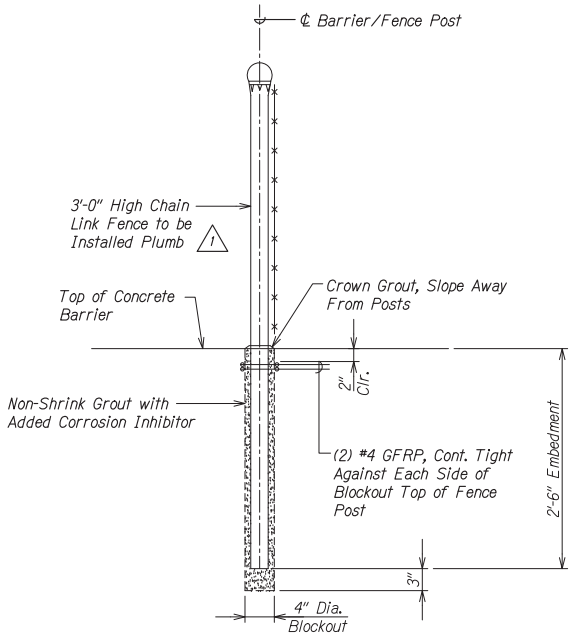
ADD. 117

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 118	175



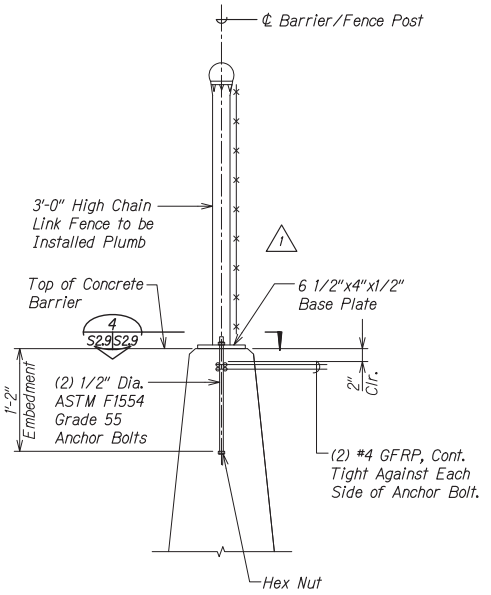
CFCW DETAIL 1 S2.9 | S2.9

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



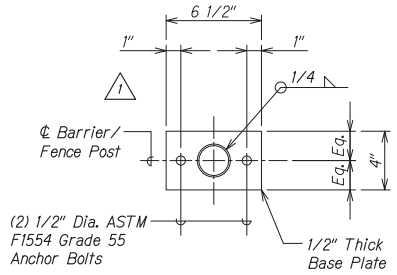
FENCE POST DETAIL 2 S2.9 | S2.9

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



FENCE POST DETAIL 3 S2.9 | S2.9

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



BASE PLATE DETAIL 4 S2.9 | S2.9

Scale: 3" = 1'-0"

NOTE:

1 Base plate shall be welded to fence post prior to hot-dip zinc galvanizing per ASTM A123.

DATE		REVISION
1/3/23	1	Add. 1 - Added details

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: A-30-24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EBR-2S3
TYPICAL DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted — Date: Sept. 2022

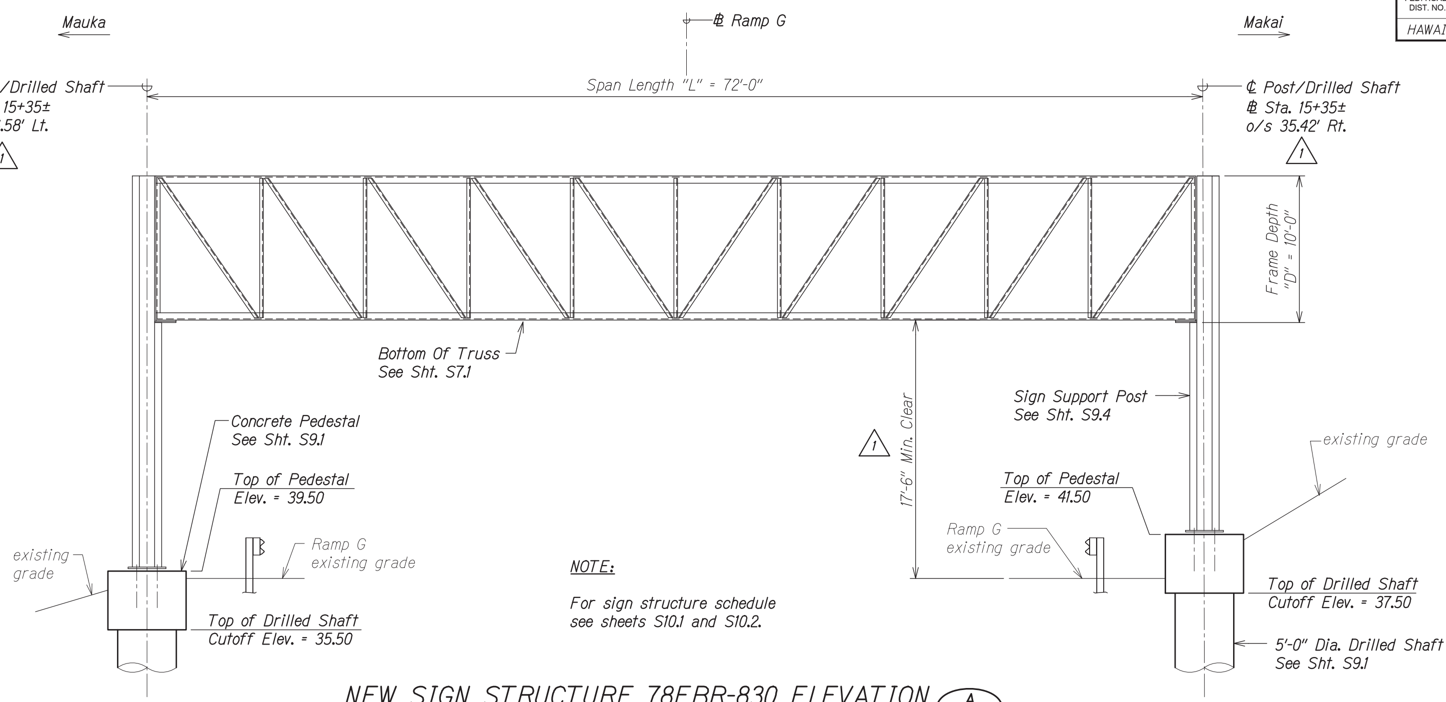
SHEET No. S2.9 OF 9 SHEETS

ADD. 118

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S2099 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 8:49 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 119	175



NOTE:

For sign structure schedule see sheets S10.1 and S10.2.

NEW SIGN STRUCTURE 78EBR-830 ELEVATION (A S3.1 | S3.1)

Scale: 1/4" = 1'-0"

EXISTING SIGN STRUCTURE 78EBR-830

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE 78EBR-830 ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

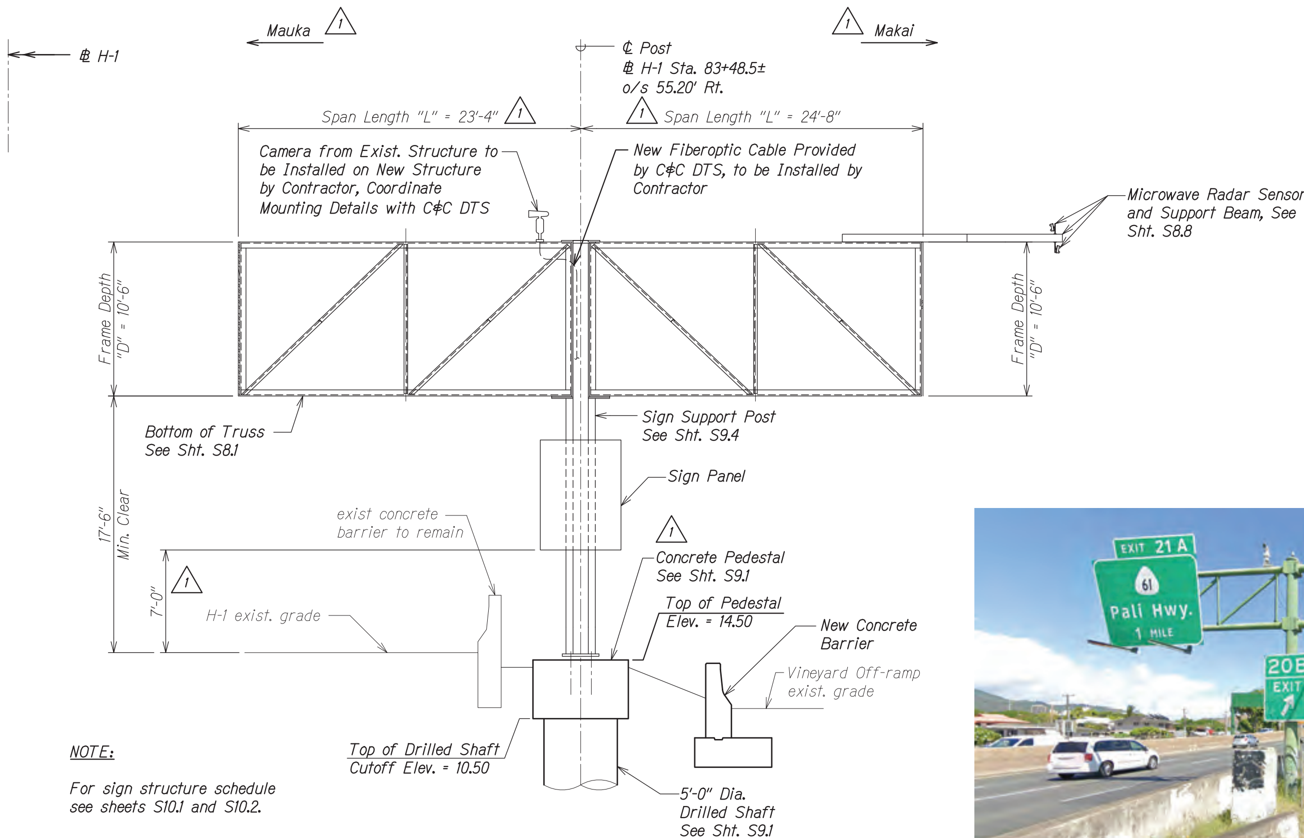
Scale: As Noted Date: Sept. 2022

SHEET No. S3.1 OF 1 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0301 H1EBR-830-ELEV ADD1.DWG PLOT TIME: 01-03-23, 8:49 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 120	175



NOTE:

For sign structure schedule see sheets S10.1 and S10.2.

NEW SIGN STRUCTURE H1EB-305 ELEVATION (A / S4.1 S4.1)

Scale: 1/4" = 1'-0"

EXISTING SIGN STRUCTURE H1EB-305

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

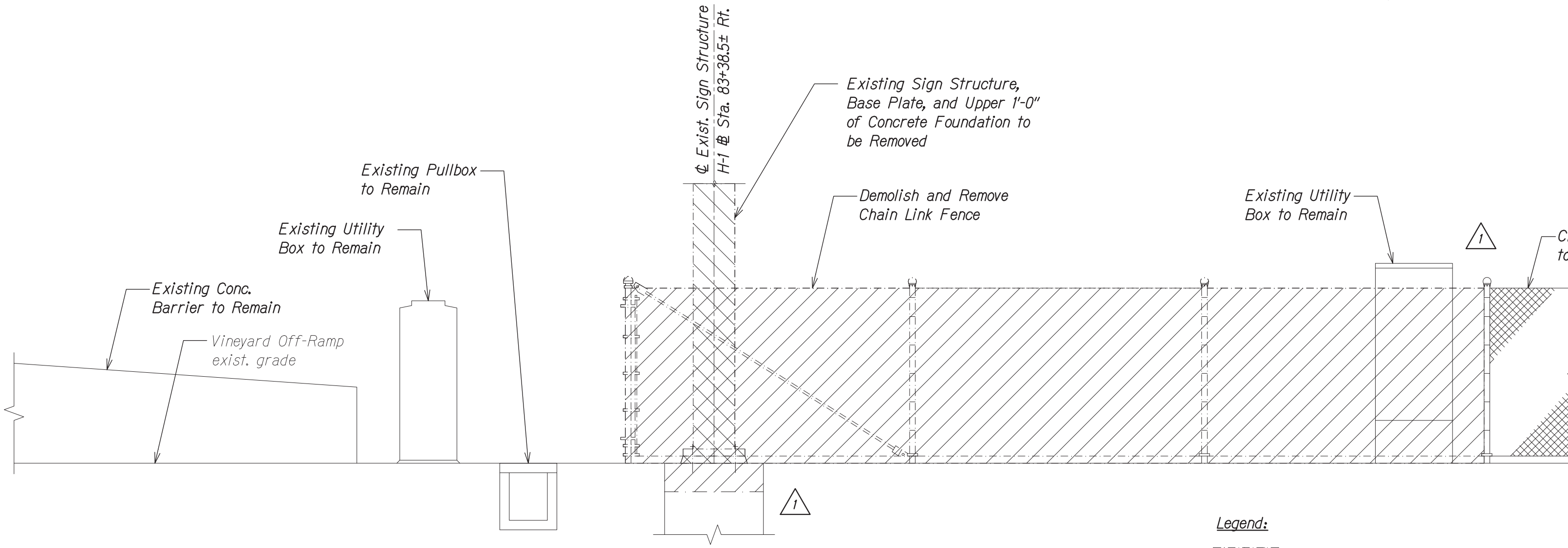
SIGN STRUCTURE H1EB-305 ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted   Date: Sept. 2022

SHEET No. S4.1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 121	175



DEMOLITION ELEVATION (A / S4.2 S4.2)
Scale: 1/2" = 1'-0"

Legend:

Demolish and Remove

Note:

Elevation is shown from Vineyard Boulevard.

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EB-305
DEMOLITION ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

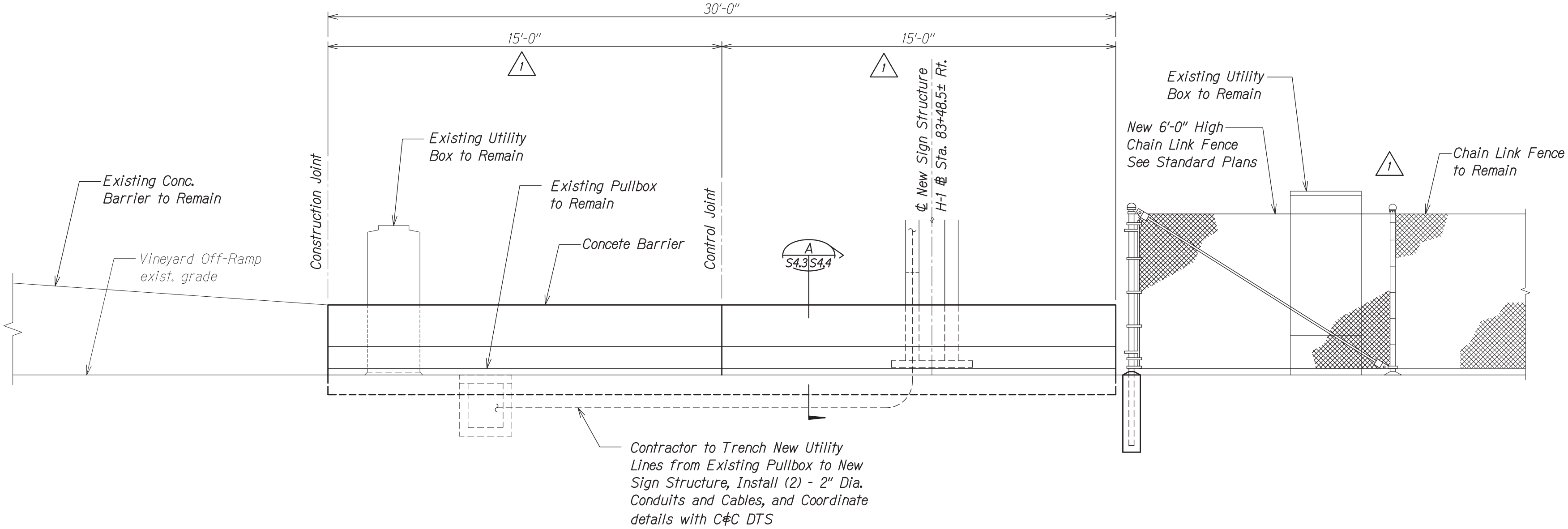
SHEET No. S4.2 OF 4 SHEETS

ADD. 121

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0401 TO S0403 HIEB-305 ELEV ADD1.DWG PLOT TIME: 01-03-23, 8:51 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 122	175



BARRIER ELEVATION (A — S4.3 | S4.3)

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

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EB-305
BARRIER ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted   Date: Sept. 2022

SHEET No. S4.3 OF 4 SHEETS

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

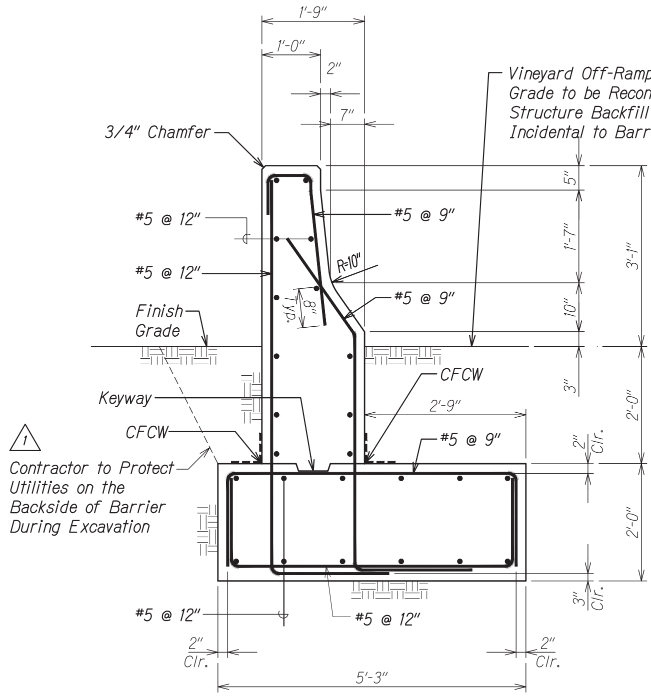
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE   EXPIRATION DATE OF THE LICENSE

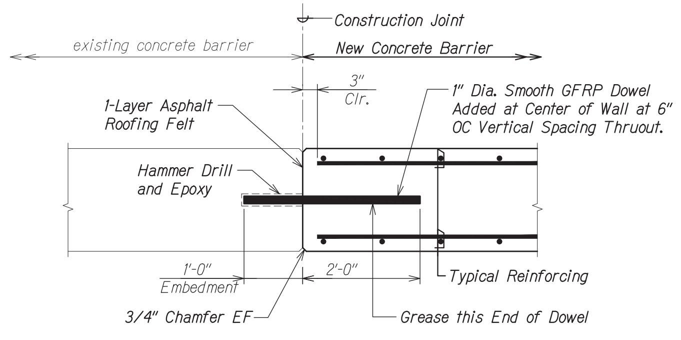
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | NOTE BOOK | No. | DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0401 TO S0403 H1EB-305 ELEV ADD1.DWG PLOT TIME: 01-03-23 8:51 PM

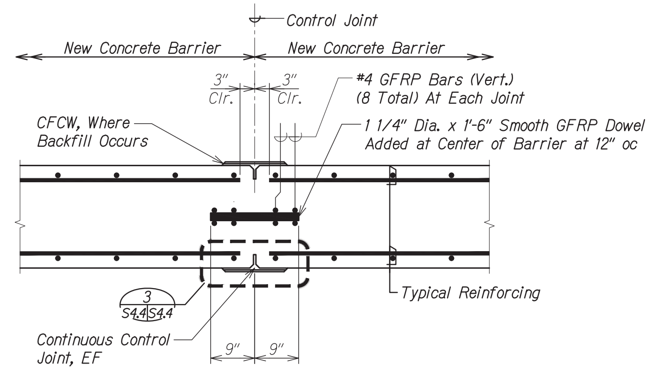
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 123	175



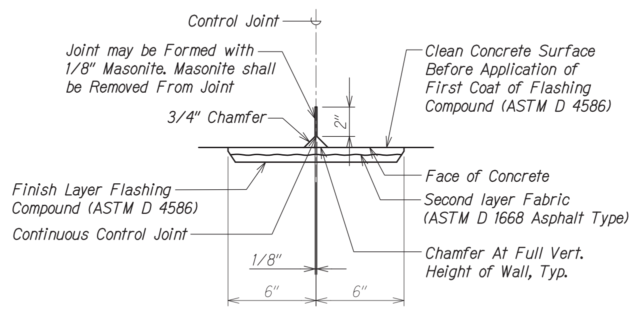
SECTION A (S4.3 | S4.4)
Scale: 1" = 1'-0"



CONSTRUCTION JOINT DETAIL 1 (S4.4 | S4.4)
Scale: 1" = 1'-0"



CONTROL JOINT DETAIL 2 (S4.4 | S4.4)
Scale: 1" = 1'-0"



CONTROL JOINT DETAIL WITH CFCW 3 (S4.4 | S4.4)
Scale: 1" = 1'-0"

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Added details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1EB-305
BARRIER SECTION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

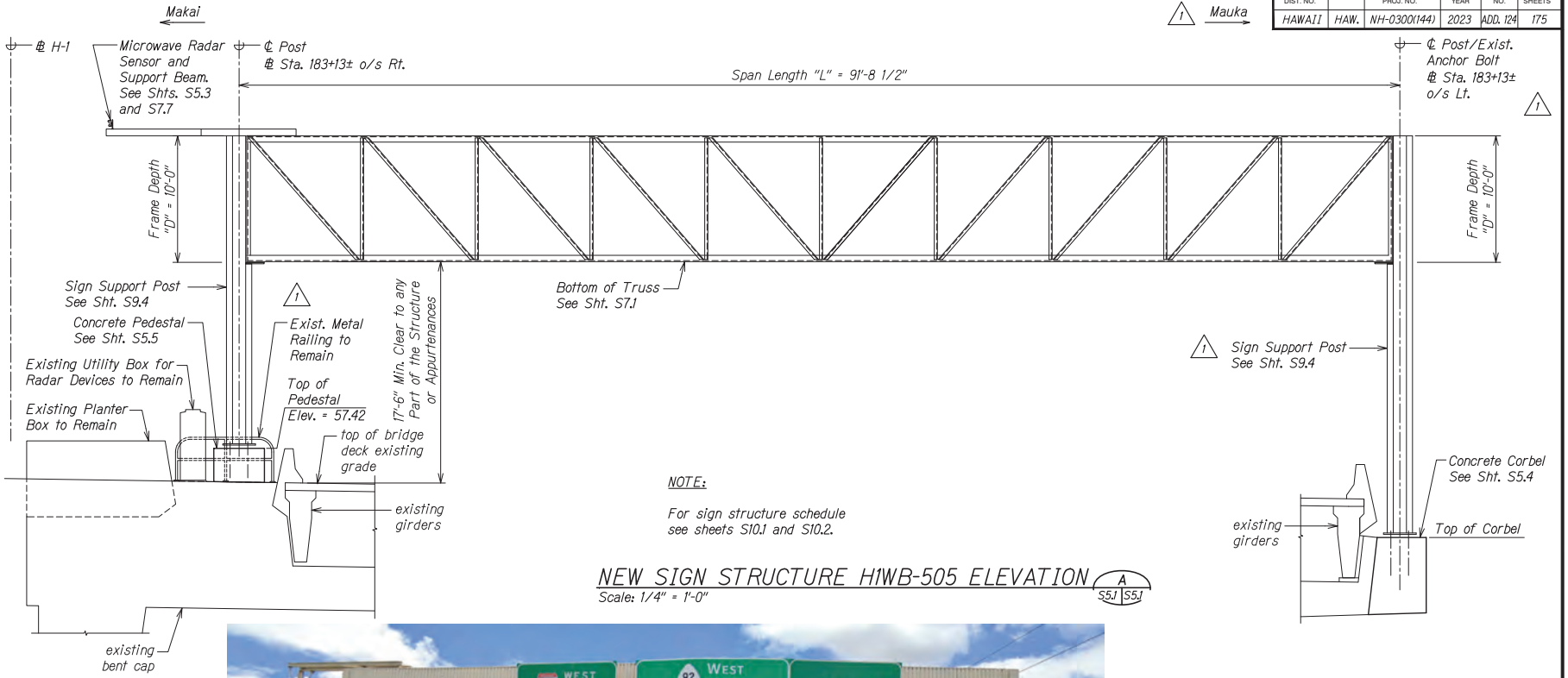
SHEET No. S4.4 OF 4 SHEETS

ADD. 123

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0404 SECT ADD1.DWG PLOT TIME: 01-03-23, 8:52 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 124	175



NOTE:

For sign structure schedule see sheets S10.1 and S10.2.

NEW SIGN STRUCTURE H1WB-505 ELEVATION

Scale: 1/4" = 1'-0"

EXISTING SIGN STRUCTURE H1WB-505

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 4-30-24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1WB-505 ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

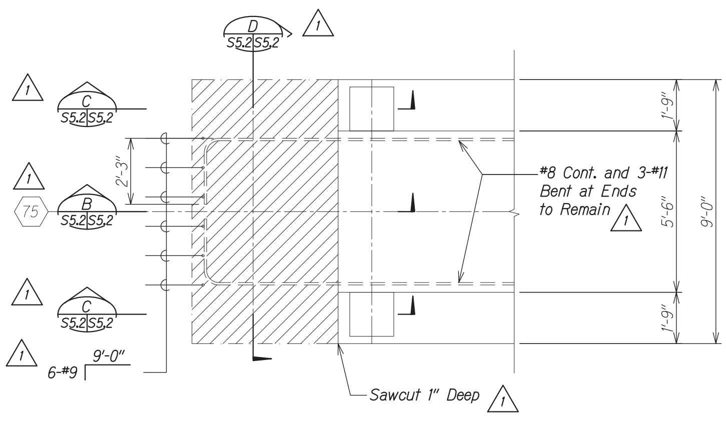
SHEET No. S5.1 OF 6 SHEETS

ADD. 124

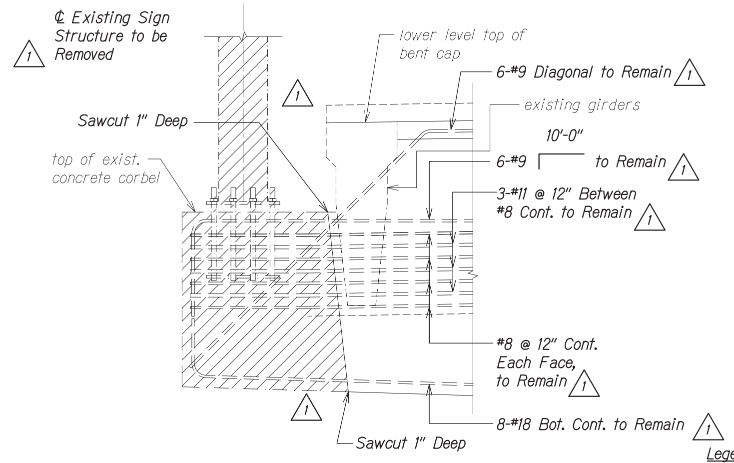
ORIGINAL PLAN
SURVEY PLOTTED BY: DATE
DRAWN BY:
TRACED BY:
DESIGNED BY:
QUANTITIES BY:
CHECKED BY:
NOTE BOOK
No.

DRAWING NAME: Z:\OS ONGOING\OO_F PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\USU-S050 H1WB-505 ELEV ADD.DWG PLOT TIME: 01-03-23, 8:52 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 125	175



DEMOLITION PLAN (A, S5.2 | S5.2)
Scale: 1/2" = 1'-0"



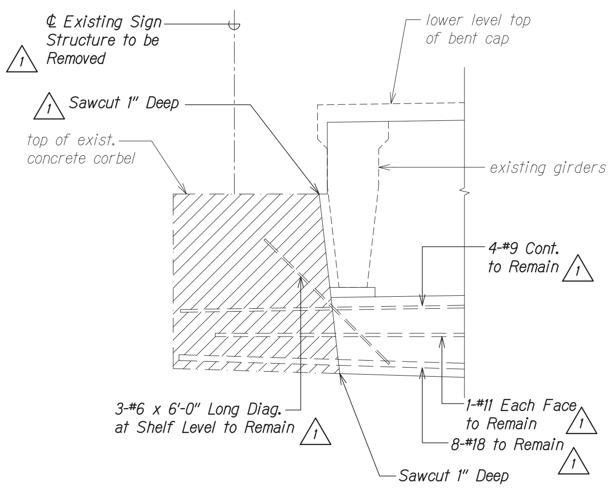
DEMOLITION SECTION (B, S5.2 | S5.2)
Scale: 1/2" = 1'-0"

Legend:

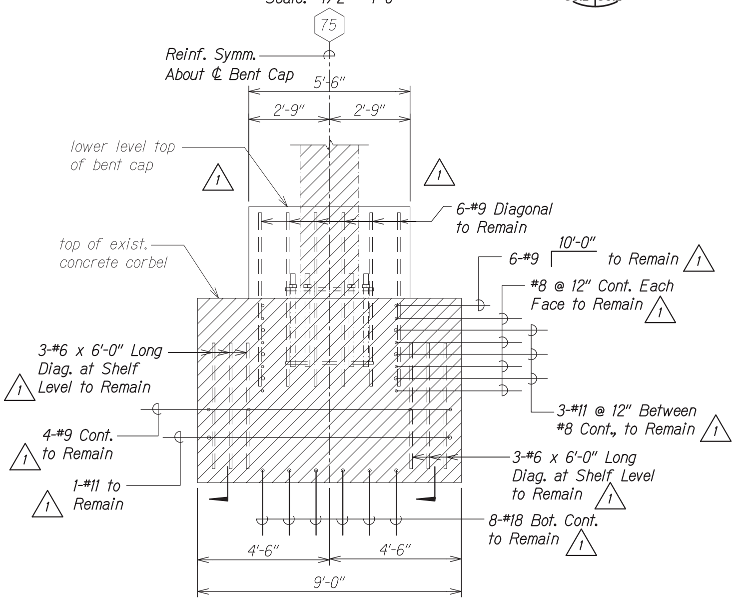
- Demolish and Remove
- Existing Reinforcing to Remain. Do Not Damage.

Notes:

1. All reinforcing steel noted as "to Remain" shall not be damaged during concrete removal. The Contractor shall use extreme care while chipping concrete in the vicinity of the reinforcing steel.
2. Demolition hammer shall be no larger than 30-pounds.



DEMOLITION SECTION (C, S5.2 | S5.2)
Scale: 1/2" = 1'-0"



DEMOLITION SECTION (D, S5.2 | S5.2)
Scale: 1/2" = 1'-0"

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 4-30-24

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts, legend & added notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE - H1WB-505
PEDESTAL SUPPORT DEMOLITION PLAN AND SECTS.

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

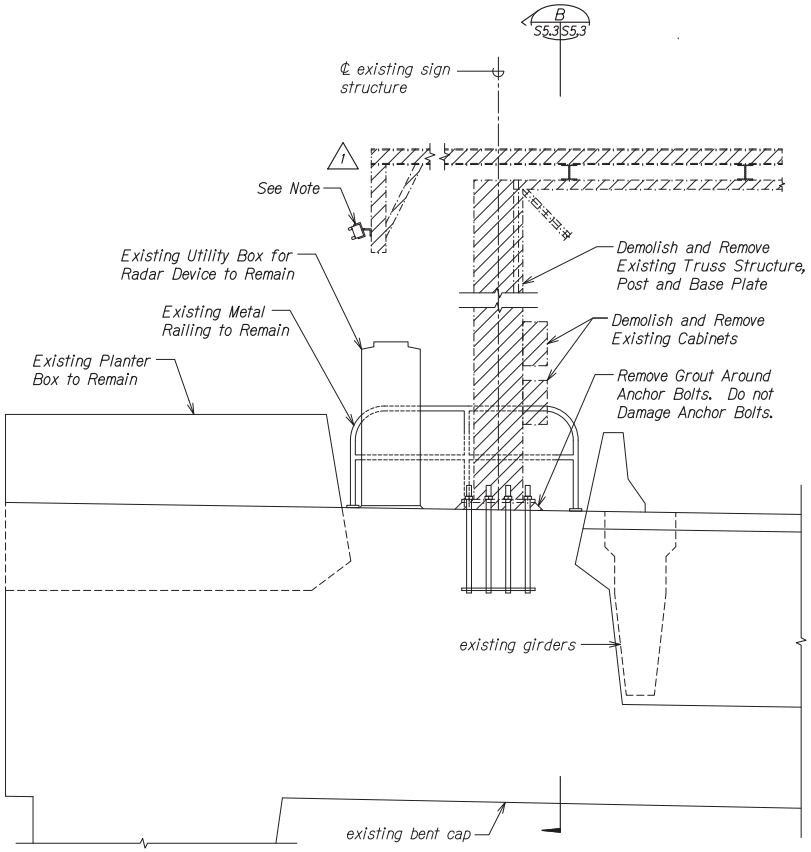
Scale: As Noted — Date: Sept. 2022

SHEET No. S5.2 OF 6 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0502 TO S0505 H1WB-505 DEMO ADD1.DWG PLOT TIME: 01-03-23, 8:54 PM

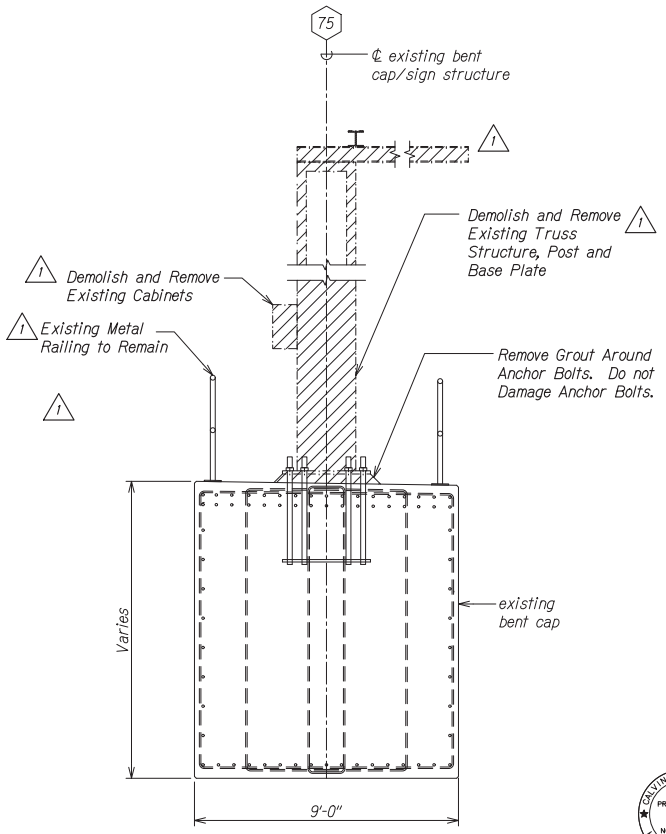
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 126	175



DEMOLITION ELEVATION

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

A S5.3 S5.3



DEMOLITION SECTION

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

B S5.3 S5.3

NOTE:

Notify Jonathan Lott at (808) 587-6335 a minimum of 2-weeks before the sign structure is removed. The State will remove the radar sensors and hardware that is to be recycled. Everything that remains shall be removed and disposed of. This cost shall be considered incidental to the various pay items. 1

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE - HIWB-505
PIER CAP DEMOLITION ELEV. AND SECTION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

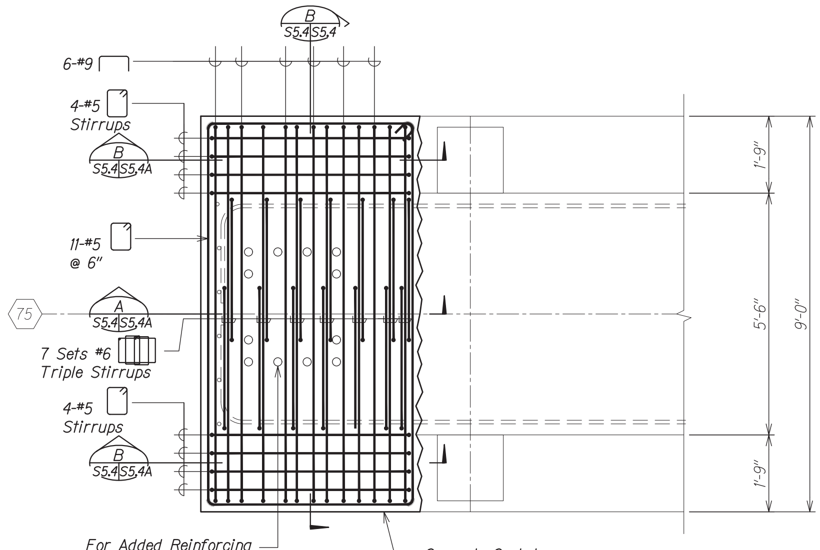
SHEET No. S5.3 OF 6 SHEETS

ADD. 126

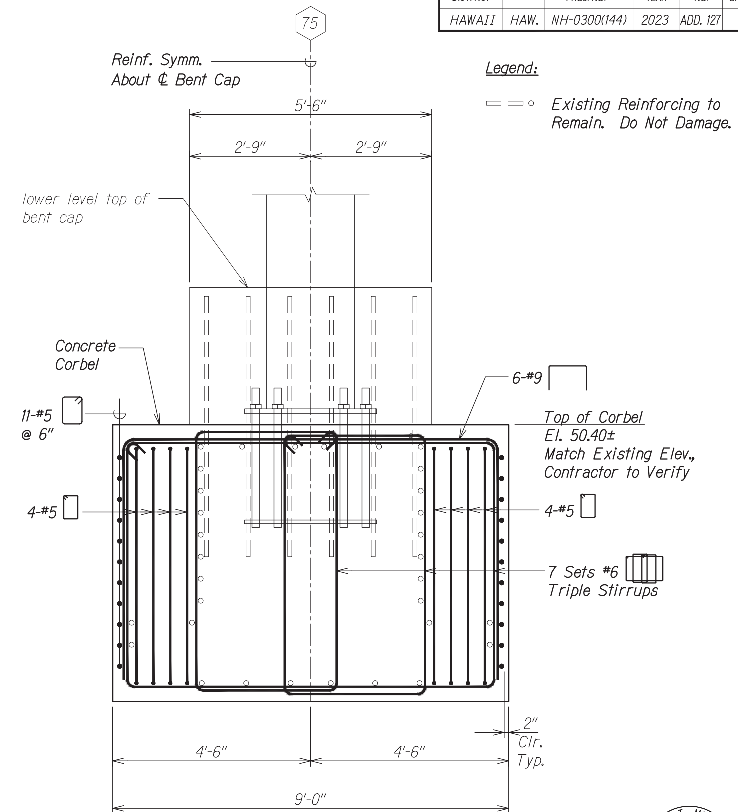
ORIGINAL PLAN
NOTE BOOK
No.
DESIGNED BY
DRAWN BY
TRACED BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: Z:\DOT ONGOING\DOT IF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSUI-S0502 TO S0505 HIWB-505 DEMO ADD1.DWG PLOT TIME: 01-03-23, 8:54 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 127	175



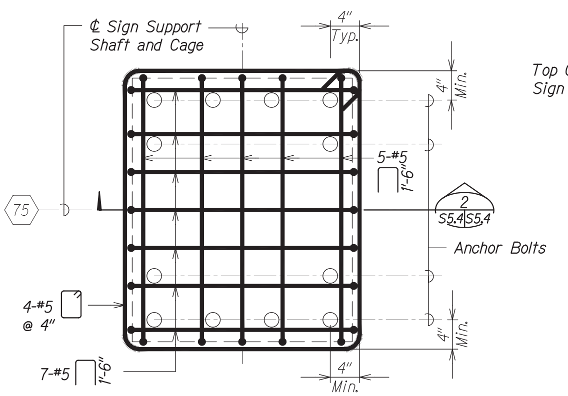
1 PLAN A S5.4 S5.4
Scale: 3/4" = 1'-0"



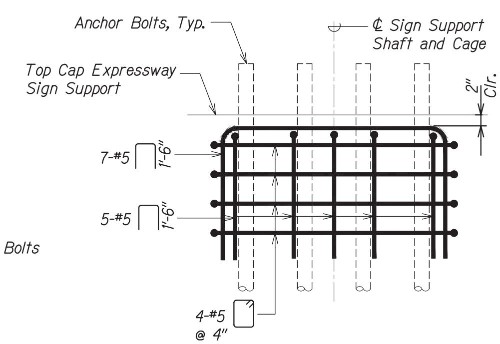
Legend:

Existing Reinforcing to Remain. Do Not Damage.

1 SECTION B S5.4 S5.4
Scale: 3/4" = 1'-0"



1 DETAIL 1 S5.4 S5.4
Scale: 1 1/2" = 1'-0"



1 DETAIL 2 S5.4 S5.4
Scale: 1 1/2" = 1'-0"

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts and added details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE - H1WB-505
CORBEL SUPPORT PLAN AND SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

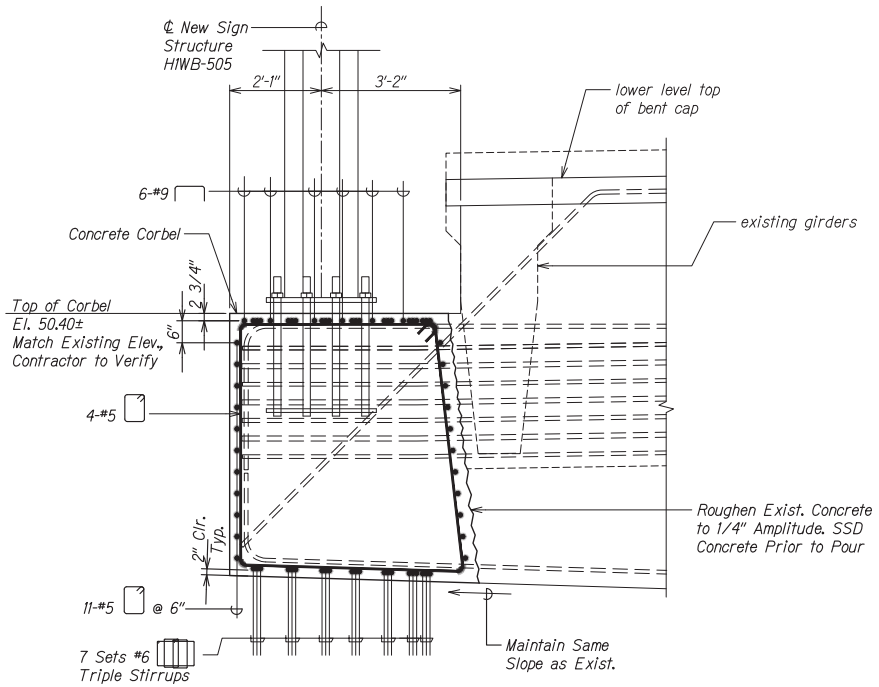
Scale: As Noted Date: Sept. 2022

SHEET No. S5.4 OF 6 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0502 TO S0505 H1WB-505 DEMO ADD1.DWG PLOT TIME: 01-03-23, 9:15 PM)

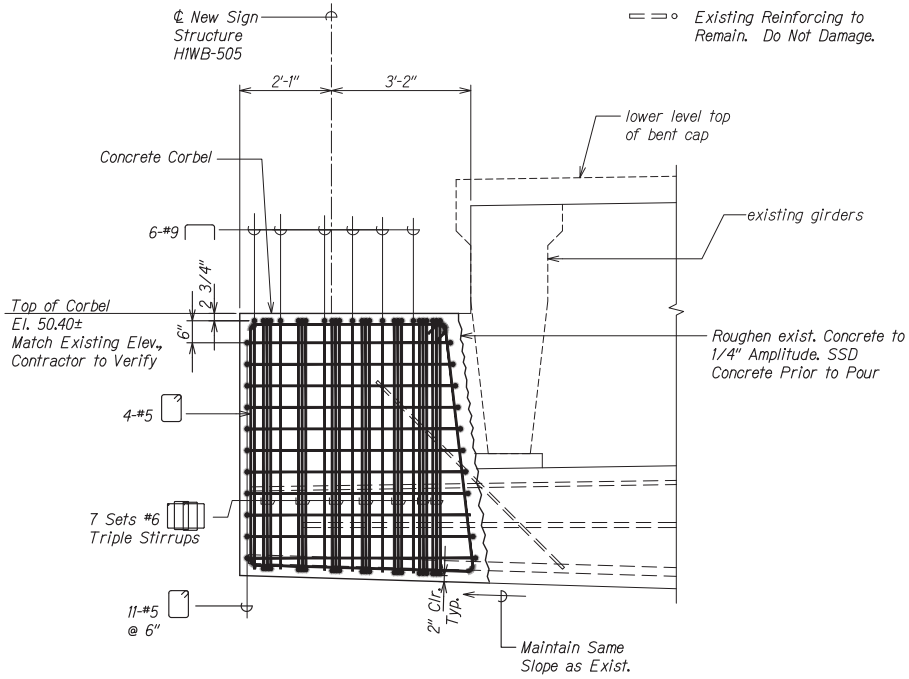
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 127S-1	175



SECTION A
Scale: 3/4" = 1'-0"
S5.4 | S5.4A

Legend:

Existing Reinforcing to Remain. Do Not Damage.



SECTION B
Scale: 1/2" = 1'-0"
S5.4 | S5.4A

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE - HIWB-505
CORBEL SUPPORT SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S5.4A OF 6 SHEETS

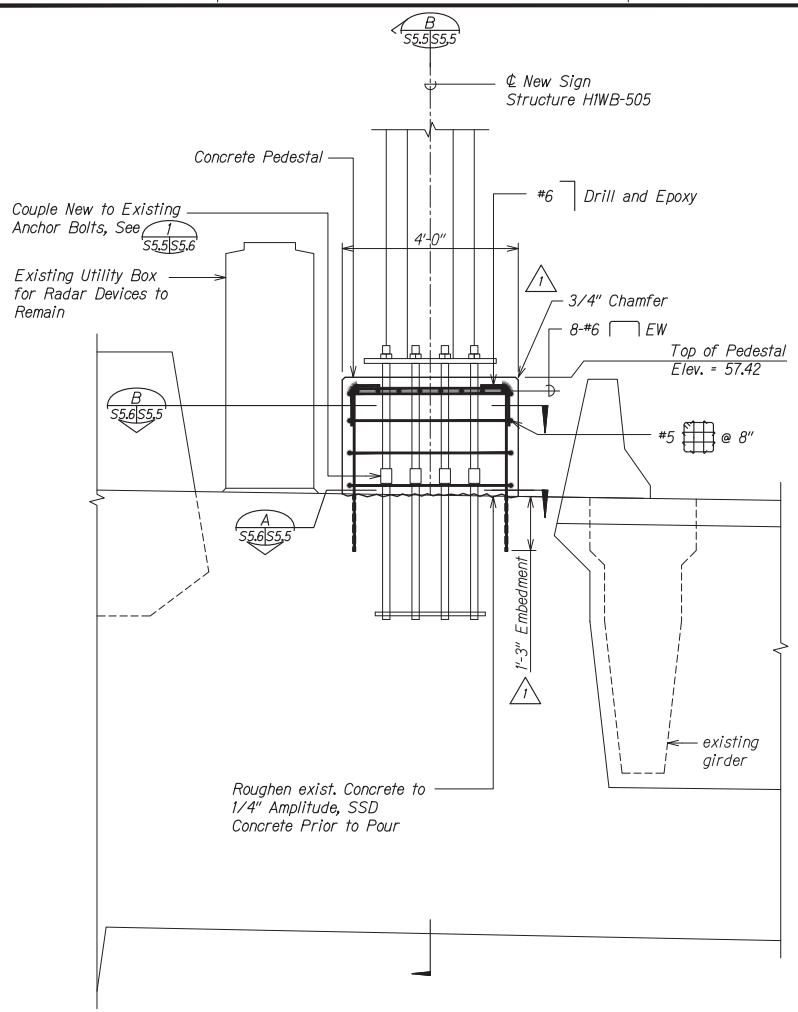
DATE	REVISION
1/3/23	1 Add. 1 - New sheet

1 ADD. 127S-1

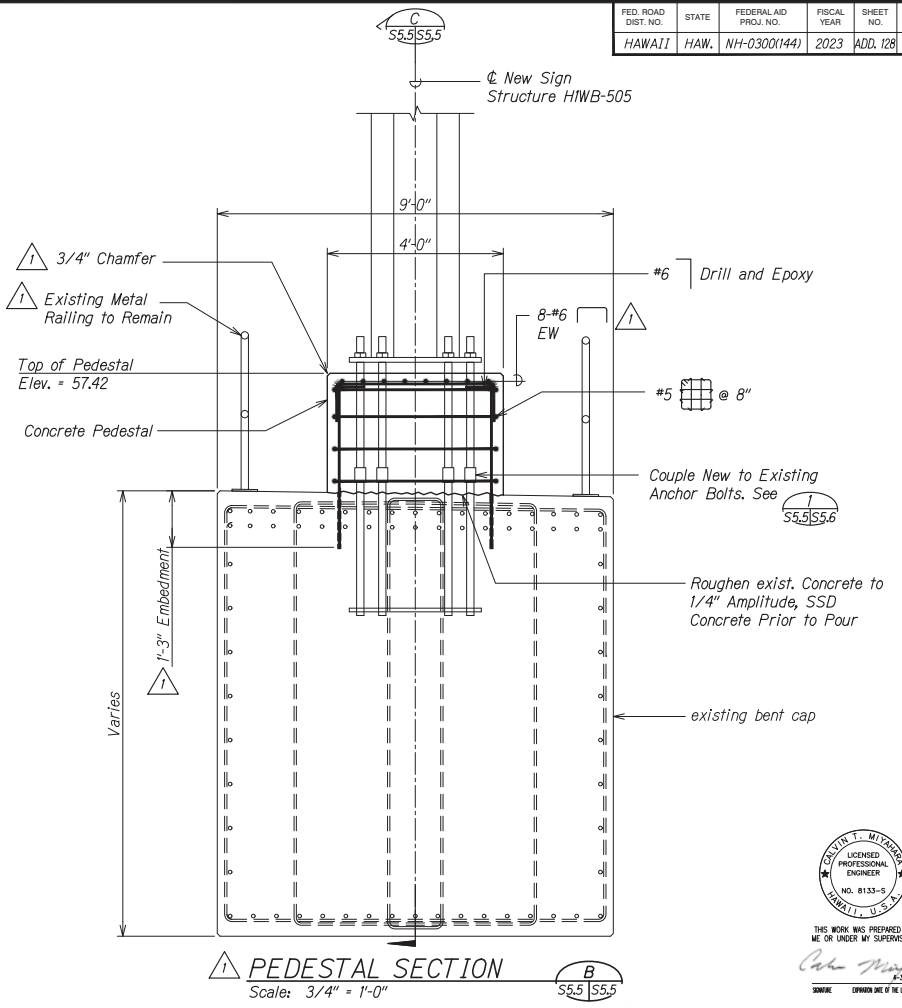
ORIGINAL PLAN
NOTE BOOK No.
DESIGNED BY:
DRAWN BY:
TRACED BY:
DESIGNED BY:
QUANTITIES BY:
CHECKED BY:
DATE:

DRAWING NAME: Z:\DOT ONGOING\DOT # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0502 TO S0505 HIWB-505 DEMO ADD1.DWG PLOT TIME: 01-03-23, 8:55 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 128	175



1 PEDESTAL SECTION A S5.5 S5.5
Scale: 3/4" = 1'-0"



1 PEDESTAL SECTION B S5.5 S5.5
Scale: 3/4" = 1'-0"

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE - HIWB-505
PEDESTAL SUPPORT ELEV. AND SECTION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

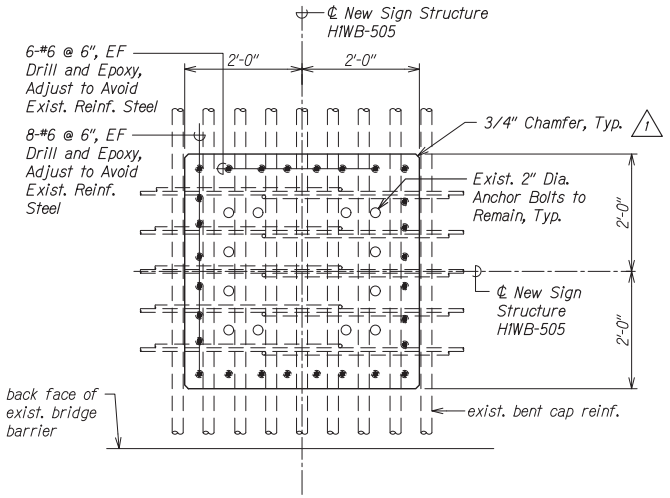
SHEET No. S5.5 OF 6 SHEETS

ADD. 128

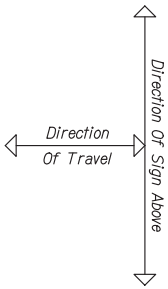
ORIGINAL PLAN | NOTE BOOK | No.
DESIGNED BY | DRAWN BY | TRACED BY | CHECKED BY | QUANTITIES BY | CHECKED BY | DATE

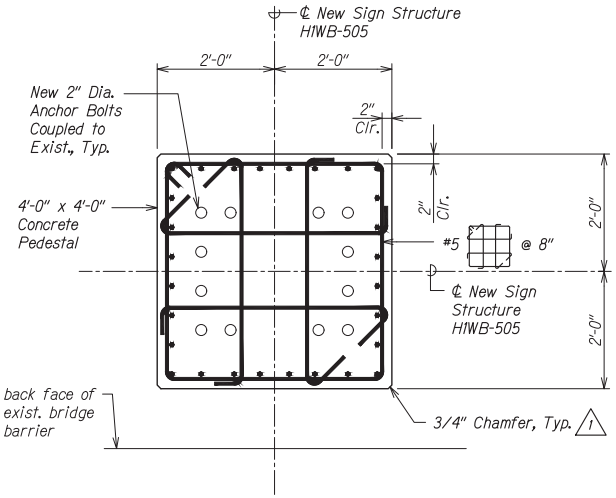
DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\USU-S0002 TO S0005 HIWB-505 DEMO ADD1.DWG PLOT TIME: 01-03-23, 8:55 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 129	175

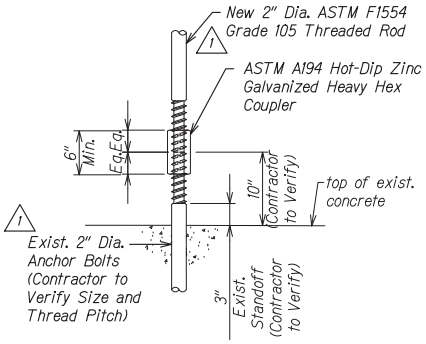


SECTION A
Scale: 1" = 1'-0" S5.6 | S5.6





SECTION B
Scale: 1" = 1'-0" S5.6 | S5.6



COUPLING DETAIL 1
Scale: 1 1/2" = 1'-0" S5.5 | S5.6

NOTE:

Prior to any hammer drilling work, a survey of the concrete bent cap top in the area of the new concrete pedestal shall be completed. The survey shall be conducted using a ground penetrating radar scanner to located all existing top layer reinforcing steel. Adjust locations of #6 ⌉ dowel bars to avoid conflict with or damaging existing reinforcing steel.

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

DRAWING NAME: Z:\00 ONGOING\00 # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\USU-S0506 PED SPFT.DWG PLOT TIME: 01-03-23, 8:55 PM

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE HIWB-505 PEDESTAL SUPPORT SECTS. AND DET.

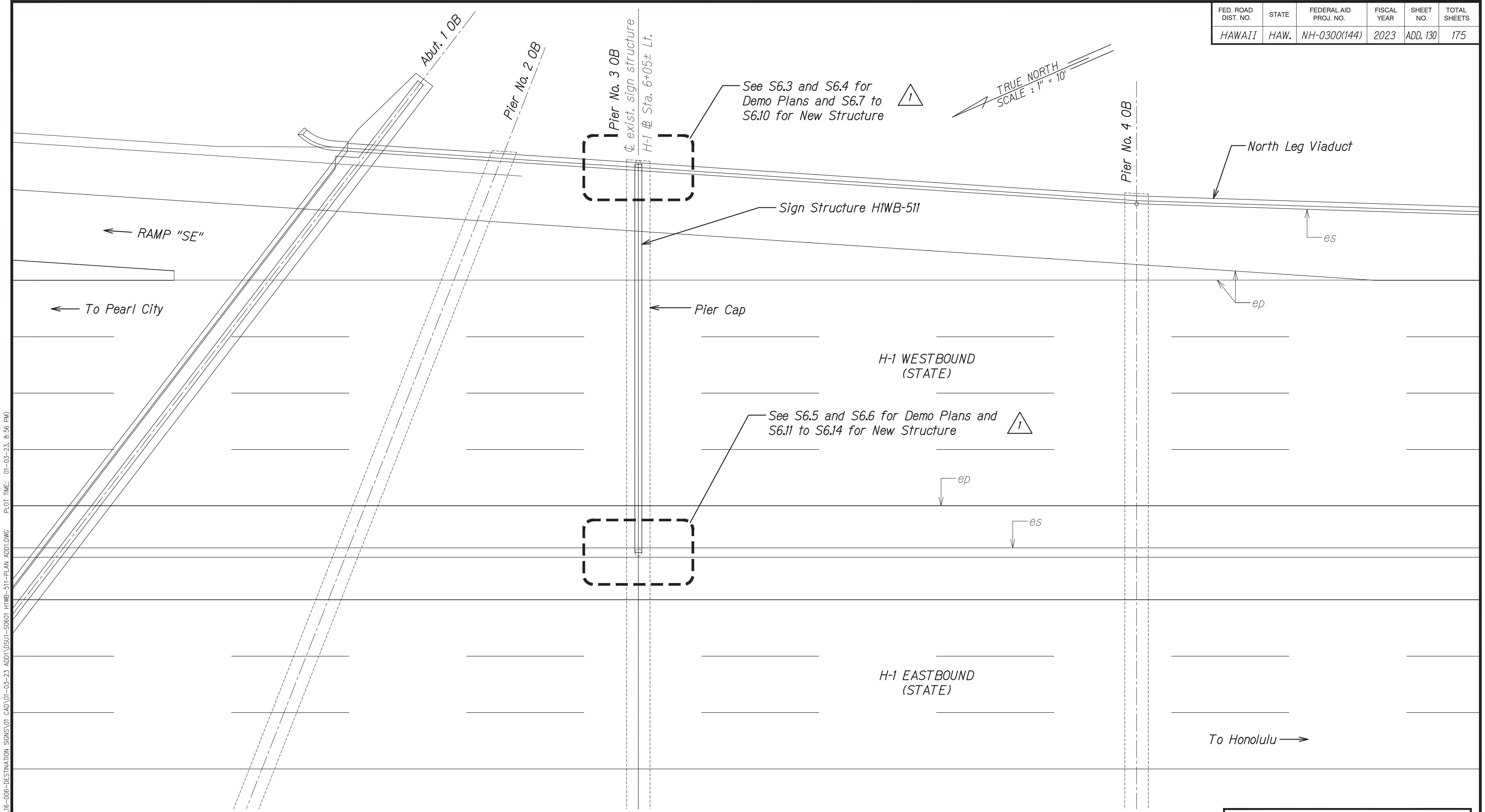
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S5.6 OF 6 SHEETS

ADD. 129

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 130	175



SIGN STRUCTURE H1WB-511
Scale: 1"=10'

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYAHARA, LICENSED PROFESSIONAL ENGINEER, NO. 8133-S, HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

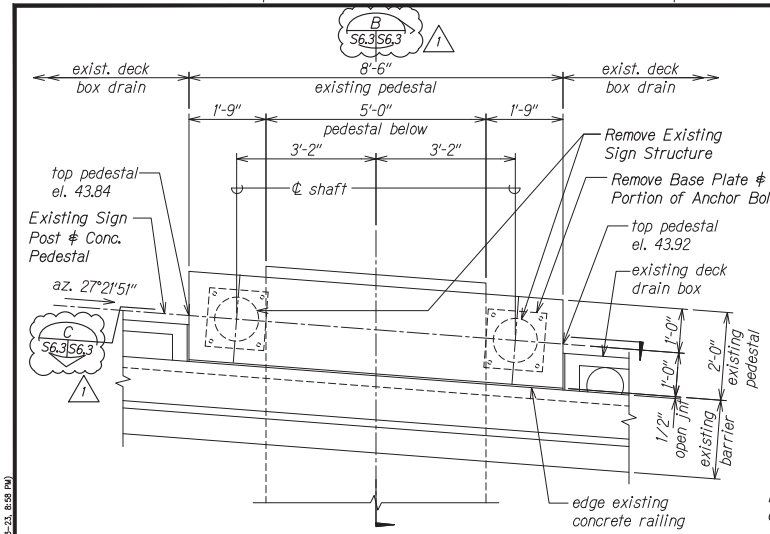
SIGN STRUCTURE H1WB-511
SITE PLAN

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

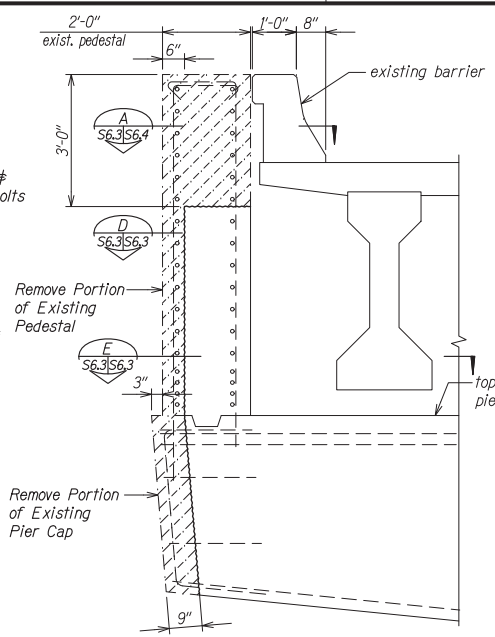
Scale: As Noted — Date: Sept. 2022

SHEET No. S6.1 OF 14 SHEETS

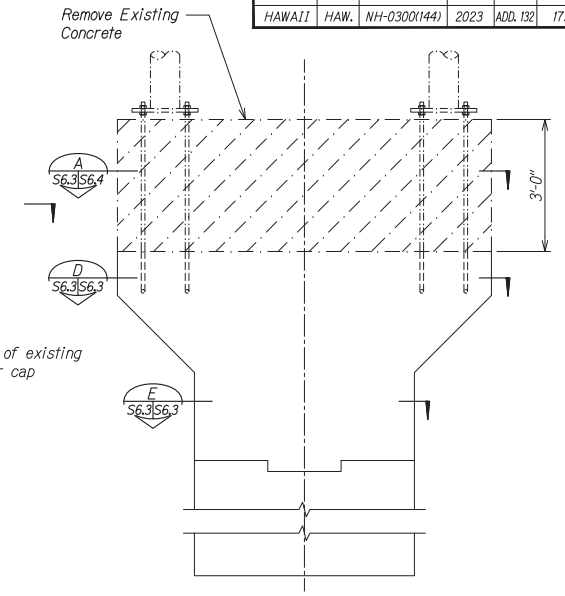
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 132	175



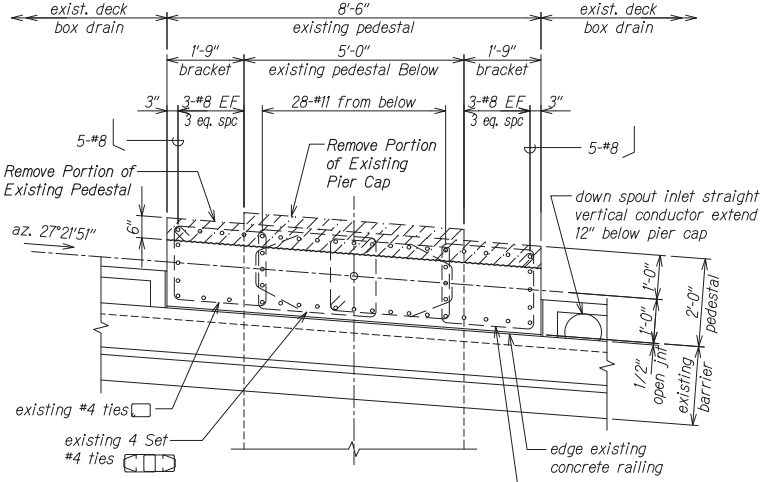
SECTION A S6.3 S6.3 1
Scale: 3/4" = 1'-0"



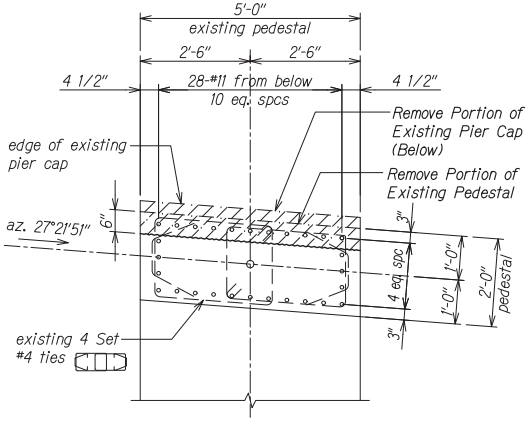
SECTION B S6.3 S6.3
Scale: 3/4" = 1'-0"



SECTION C S6.3 S6.3
Scale: 3/4" = 1'-0"



SECTION D S6.3 S6.3
Scale: 3/4" = 1'-0"



SECTION E S6.3 S6.3
Scale: 3/4" = 1'-0"

NOTE:

All reinforcing is existing and shall remain in place and shall not be damaged unless otherwise noted.

CALVIN T. MITAMURA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Added section cuts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1WB-511
DEMOLITION SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

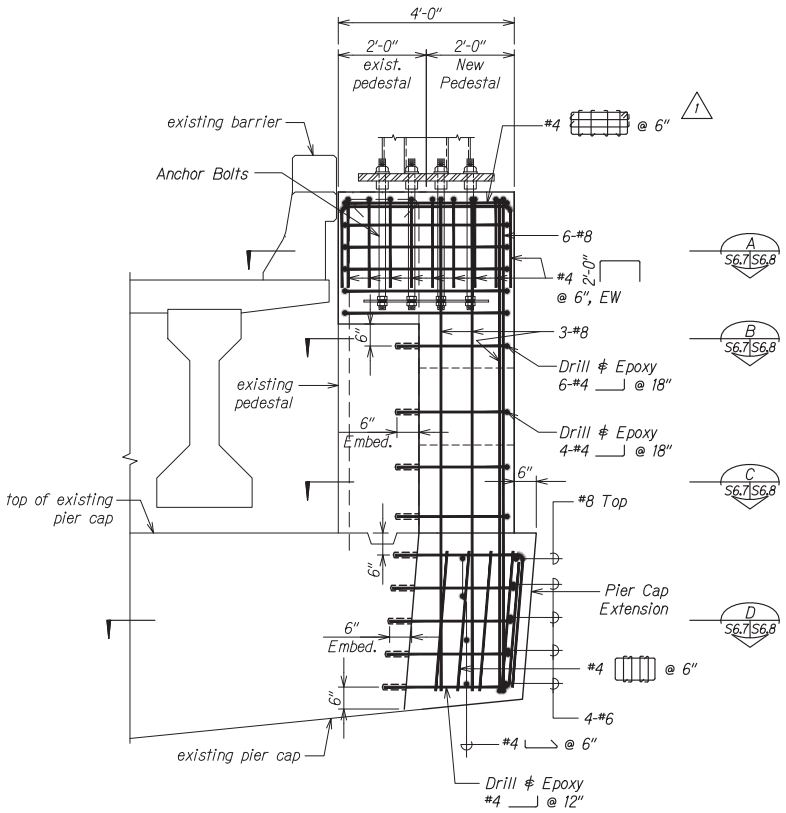
SHEET No. S6.3 OF 14 SHEETS

ADD. 132

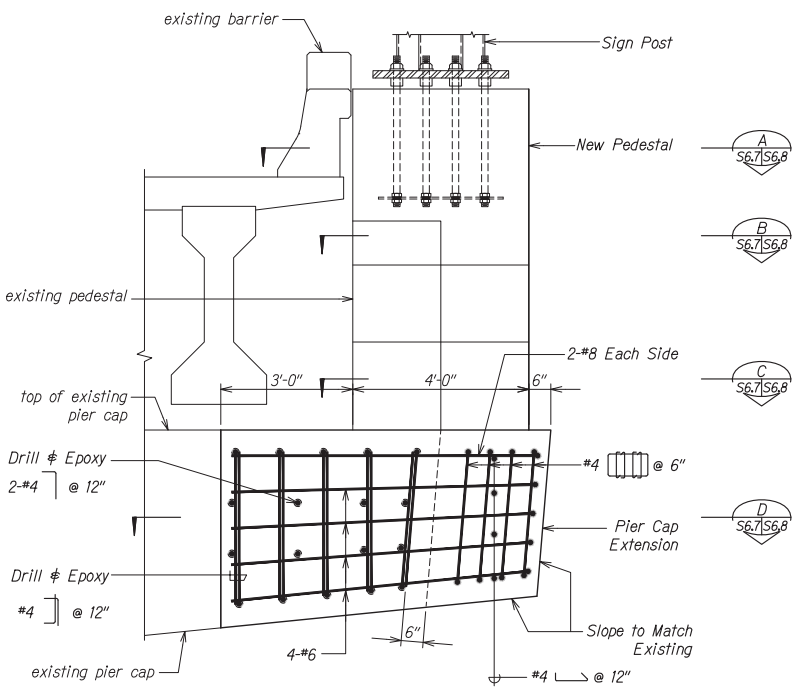
ORIGINAL PLAN | REVISED PLAN | NOTE BOOK No. | DATE | DESIGNED BY | DRAWN BY | TRACED BY | QUANTITIES BY | CHECKED BY

DRAWING NAME: Z:\00 ONGOING\00 # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\USU-S0603 TO S0606 H1WB-511-DEMO ADD1.DWG PLOT TIME: 01-03-23, 8:58 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 136	175



SECTION A
Scale: 3/4" = 1'-0"



SECTION B
Scale: 3/4" = 1'-0"

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callout

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1WB-511 SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

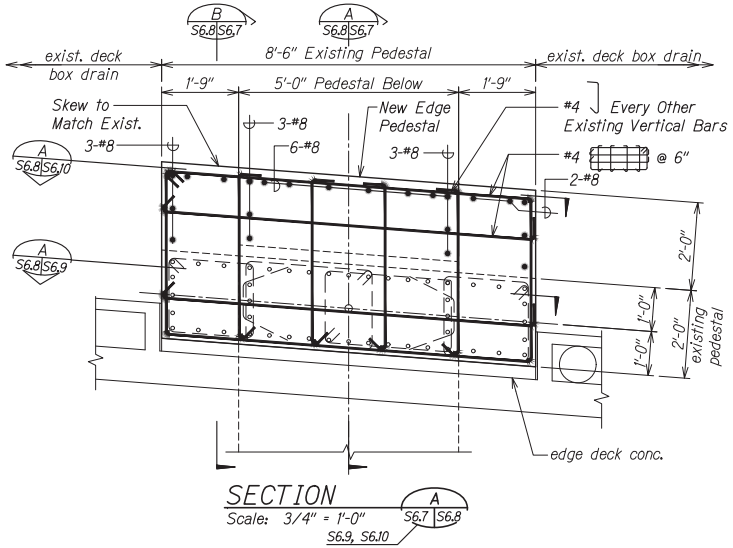
SHEET No. S6.7 OF 14 SHEETS

ADD. 136

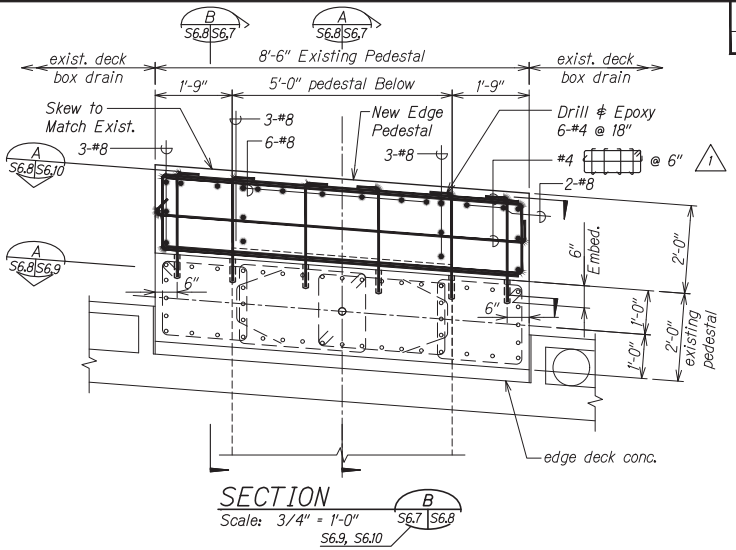
ORIGINAL PLAN
NOTE BOOK
No.
DESIGNED BY
DRAWN BY
TRACED BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: Z:\OS ONGOING\OO_F PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0607 TO S0610 H1WB-511-SECTS ADD1.DWG PLOT TIME: 01-03-23, 8:58 PM)

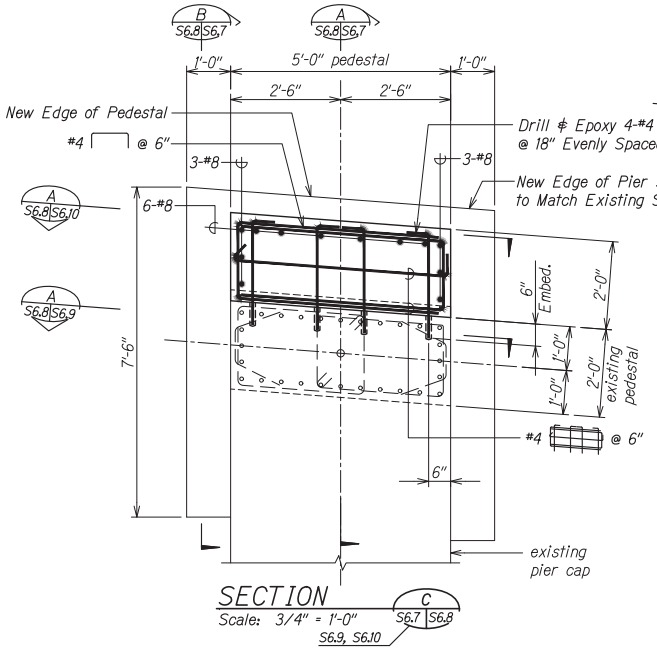
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 137	175



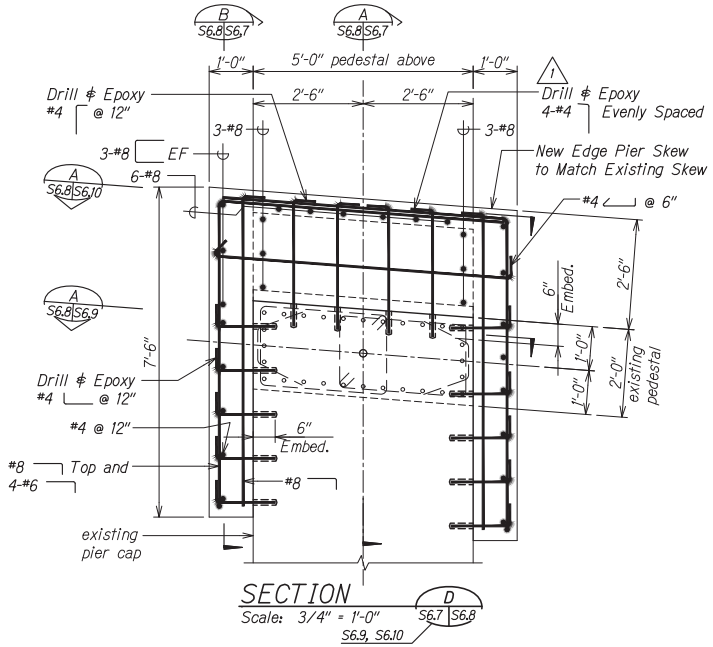
SECTION A
Scale: 3/4" = 1'-0"
S6.7 S6.8
S6.9, S6.10



SECTION B
Scale: 3/4" = 1'-0"
S6.7 S6.8
S6.9, S6.10



SECTION C
Scale: 3/4" = 1'-0"
S6.7 S6.8
S6.9, S6.10



SECTION D
Scale: 3/4" = 1'-0"
S6.7 S6.8
S6.9, S6.10

DATE	REVISION
1/3/23	1 Add. 1 - Revised callout

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

DRAWING NAME: Z:\00 ONGOING\00 # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0607 TO S0610 H1WB-511-SECTS ADD1.DWG PLOT TIME: 01-03-23, 8:58 PM)

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1WB-511
SECTIONS

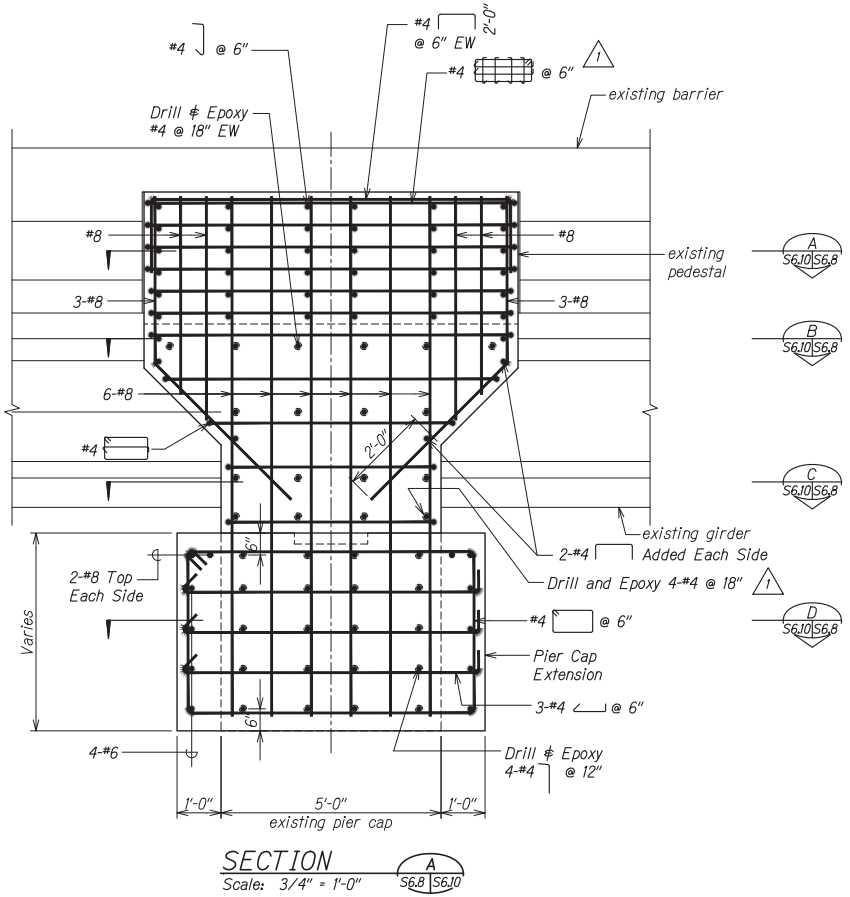
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S6.8 OF 14 SHEETS

ADD. 137

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 139	175



SECTION A
Scale: 3/4" = 1'-0"
S6.8 S6.10

DRAWING NAME: Z:\OD ONGOING\OD # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0607 TO S0610 H1WB-511-SECTS ADD1.DWG PLOT TIME: 01-03-23, 8:59 PM)

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

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1WB-511
SECTION

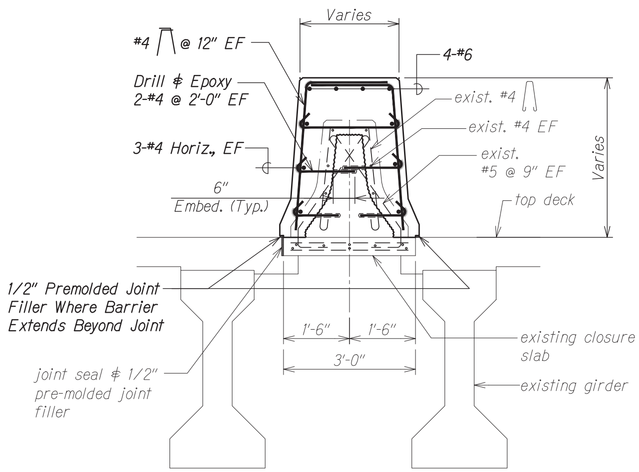
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

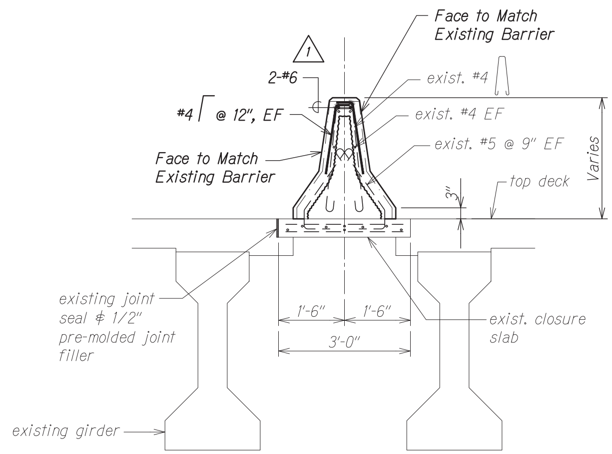
SHEET No. S6.10 OF 14 SHEETS

ADD. 139

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 143	175



SECTION A (S6.11 / S6.14)
Scale: 3/4" = 1'-0"



SECTION B (S6.11 / S6.14)
Scale: 3/4" = 1'-0"

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE — EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE H1WB-511
SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted — Date: Sept. 2022

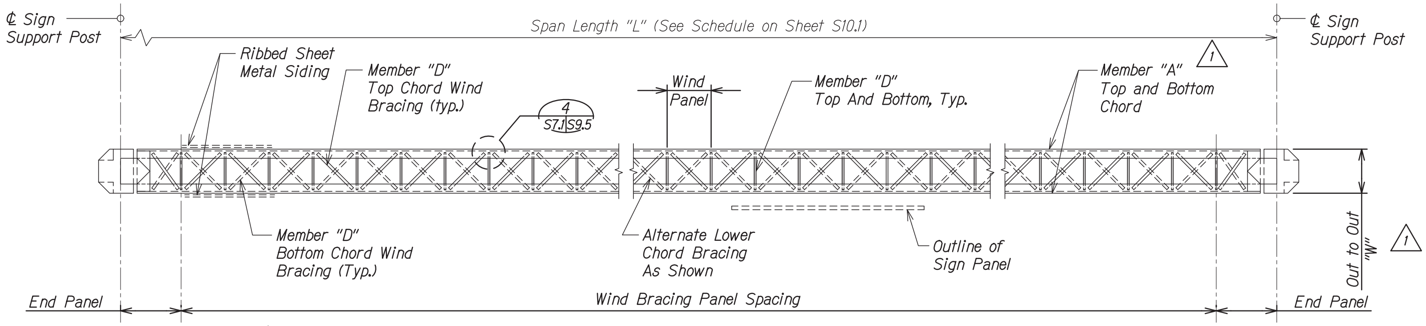
SHEET No. S6.14 OF 14 SHEETS

ADD. 143

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DS11-S0611 TO S0614 H1WB-511-SECTS ADD1.DWG PLOT TIME: 01-03-23, 9:00 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 144	175

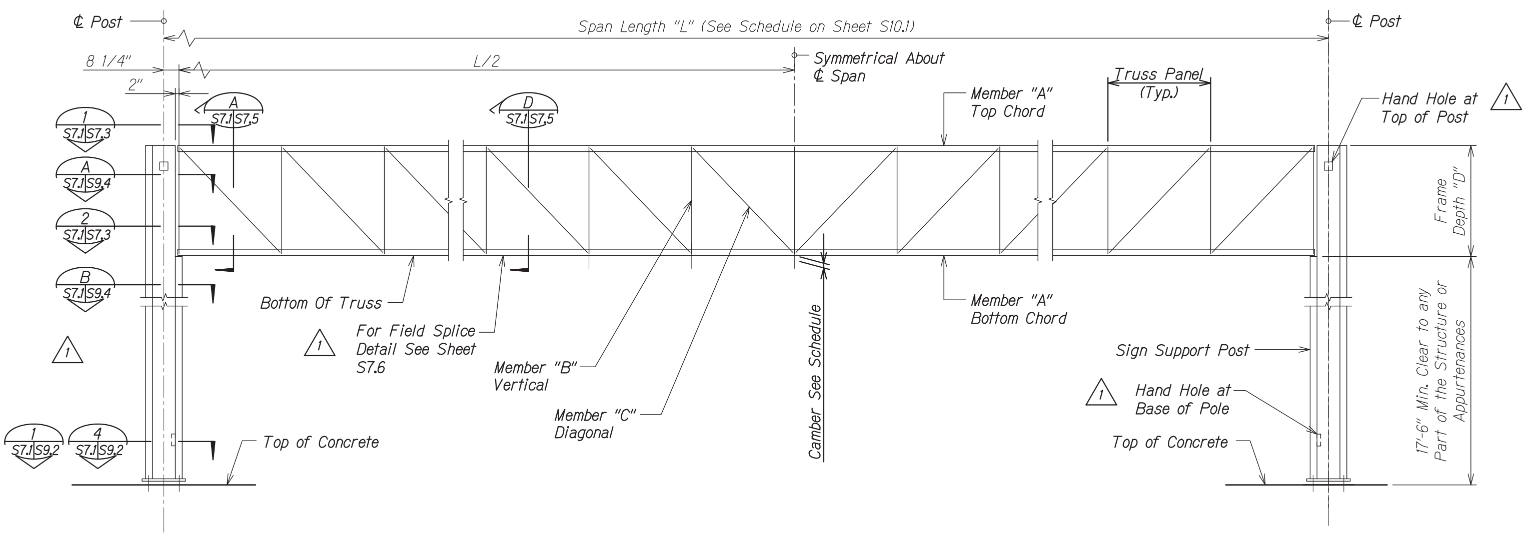


BOX TRUSS PLAN - TOP AND BOTTOM WIND BRACE FRAMING (A S7.1/S7.1)

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

NOTES:

1. For sign structure schedule see sheet S10.1 and S10.2
2. This sign structure type shall be paid for under "Type I" as shown on the proposal schedule.



BOX TRUSS SIGN STRUCTURE ELEVATION (B S7.1/S7.1)

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

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SIGN STRUCTURE PLAN AND ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted   Date: Sept. 2022

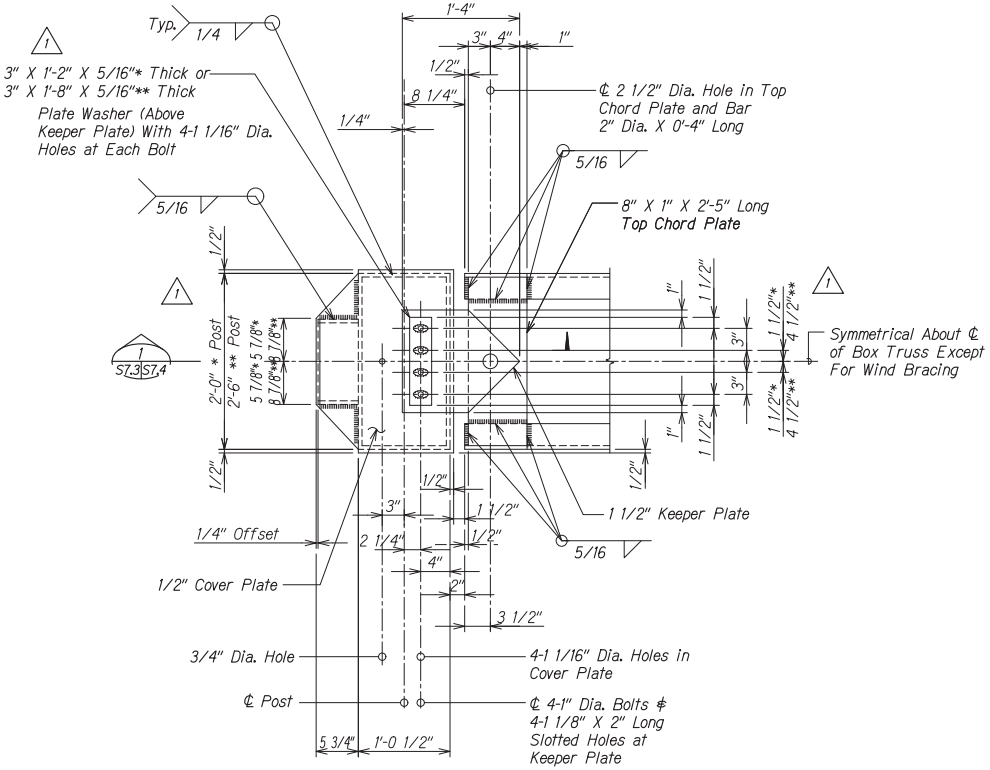
SHEET No. S7.1 OF 7 SHEETS

ADD. 144

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0701 TO S0706 TYP BOX TRUSS SIGNADD1.DWG PLOT TIME: 01-03-23, 9:02 PM

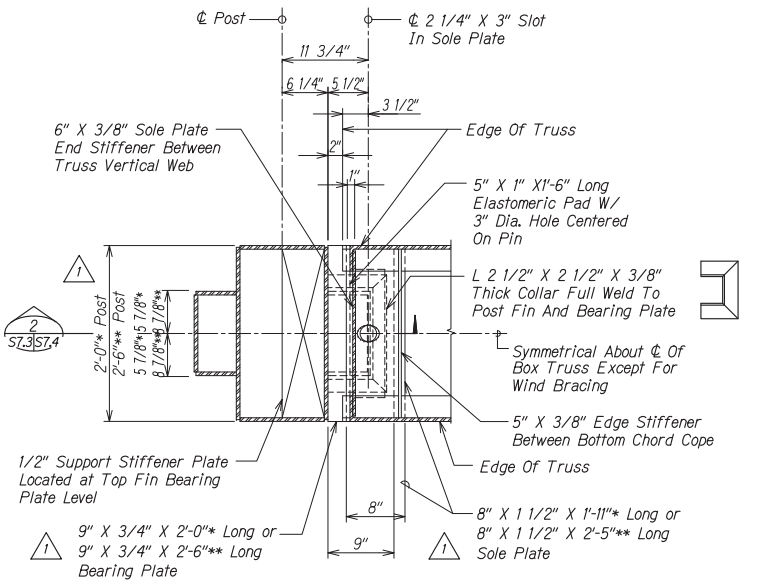
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 146	175



PLAN AT TOP OF COLUMN

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

1 S7.1 S7.3



PLAN AT TRUSS BEARING SUPPORT

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

2 S7.1 S7.3 S7.4

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE: 4-30-24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SIGN STRUCTURE DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted — Date: Sept. 2022

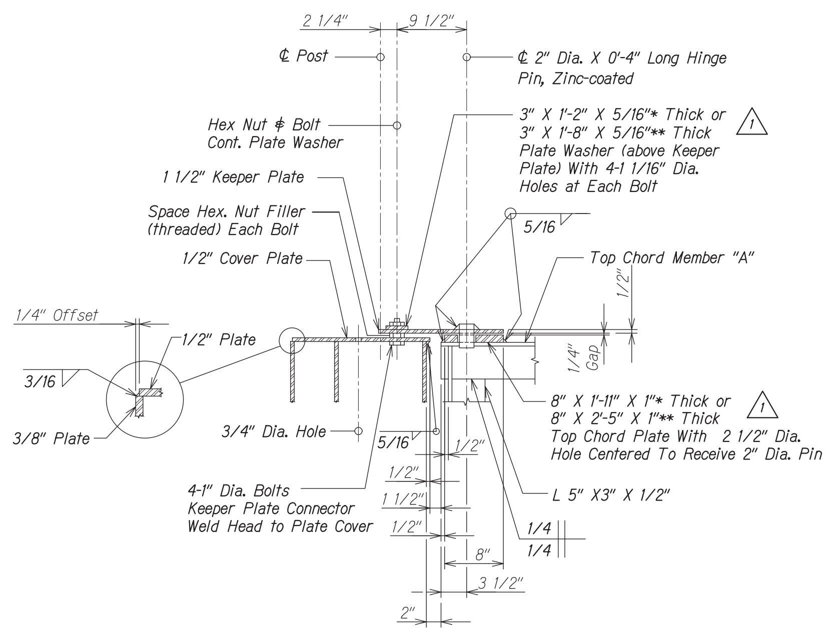
SHEET No. S7.3 OF 7 SHEETS

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

ADD. 146

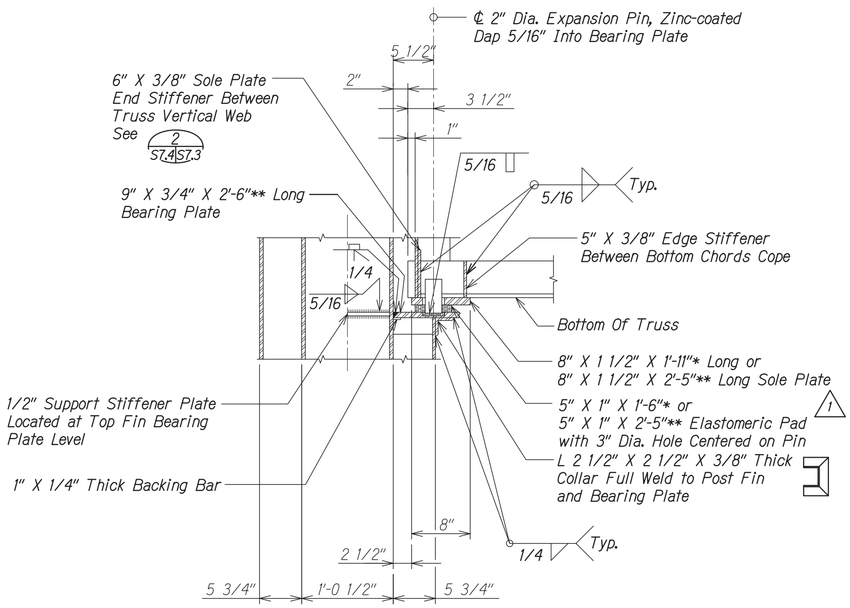
ORIGINAL PLAN | NOTE BOOK | No.
DESIGNED BY:
DRAWN BY:
TRACED BY:
CHECKED BY:
QUANTITIES BY:
DATE:

DRAWING NAME: Z:\DOT ONGOING\DOT # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0701 TO S0706 TYP BOX TRUSS SIGNADD1.DWG PLOT TIME: 01-03-23, 9:02 PM)



TYPICAL UPPER JUNCTURE CONNECTION DETAIL 1 (S7.3 | S7.4)

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



TYPICAL LOWER JUNCTURE CONNECTION DETAIL 2 (S7.3 | S7.4) △1

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

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE 4-30-24

DATE	REVISION
1/3/23	△1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SIGN STRUCTURE DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

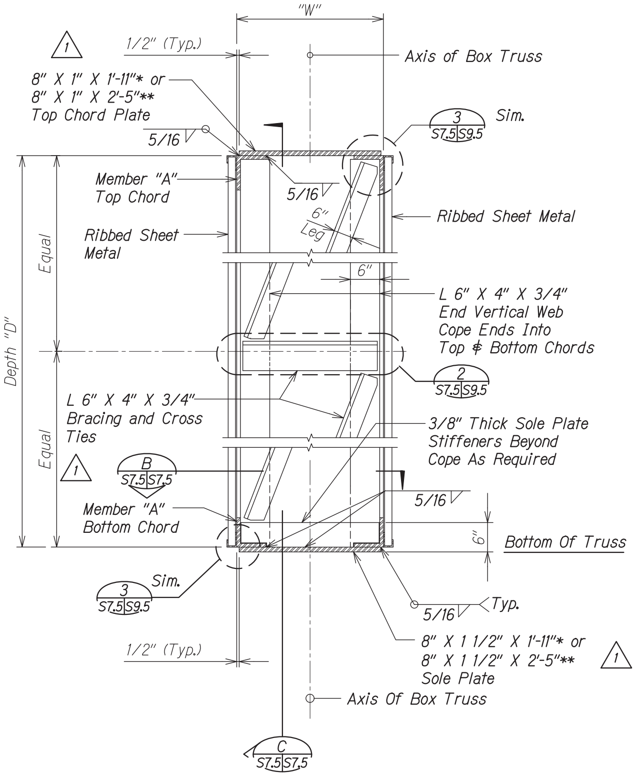
Scale: As Noted — Date: Sept. 2022

SHEET No. S7.4 OF 7 SHEETS

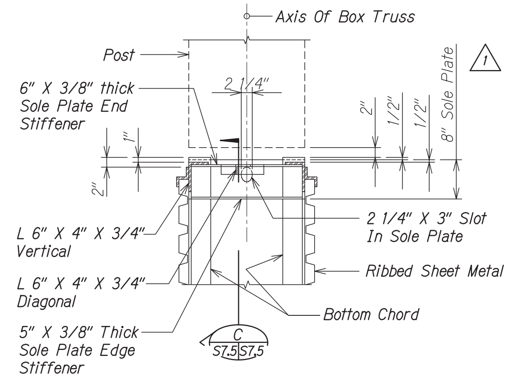
ORIGINAL PLAN | NOTE BOOK No. | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0701 TO S0706 TYP BOX TRUSS SIGNADD1.DWG PLOT TIME: 01-03-23 9:03 PM

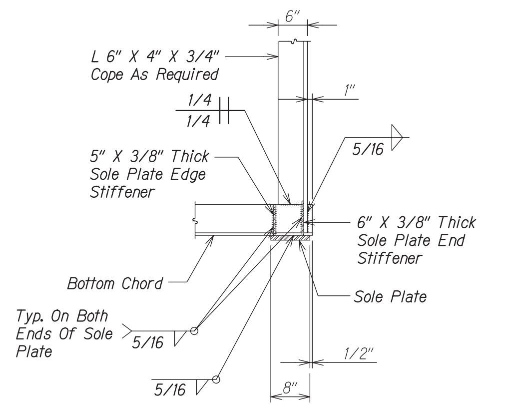
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 148	175



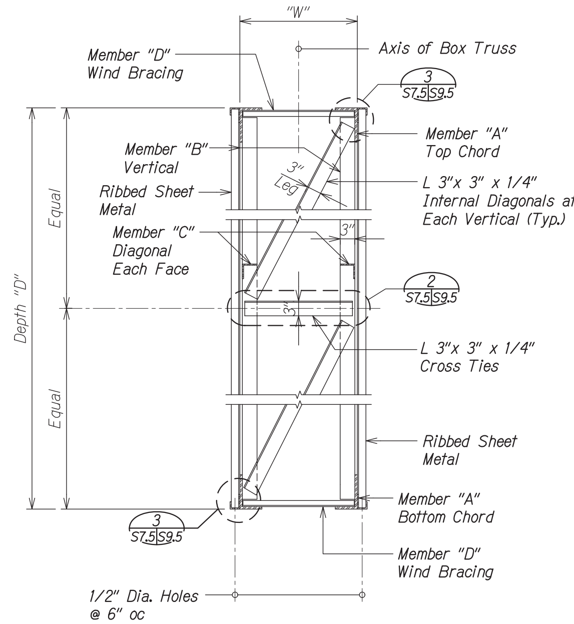
SECTION AT ENDS (A)
Scale: 1" = 1'-0" S7.1 | S7.5



SECTION (B)
Scale: 1" = 1'-0" S7.5 | S7.5



SECTION (C)
Scale: 1" = 1'-0" S7.5 | S7.5



TYPICAL SECTION (D)
Scale: 1" = 1'-0" S7.1 | S7.5

NOTES:

1. See S7.1 for sign structure elevation.
2. See S10.1 for sign structure schedule.

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SIGN STRUCTURE
SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

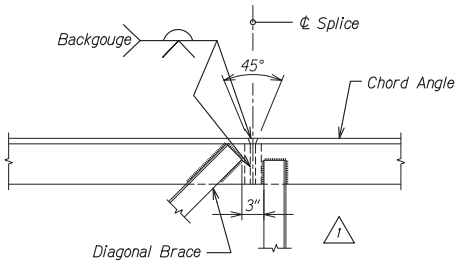
SHEET No. S7.5 OF 7 SHEETS

ADD. 148

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0701 TO S0706 TYP BOX TRUSS SIGNADD1.DWG PLOT TIME: 01-03-23, 9:03 PM

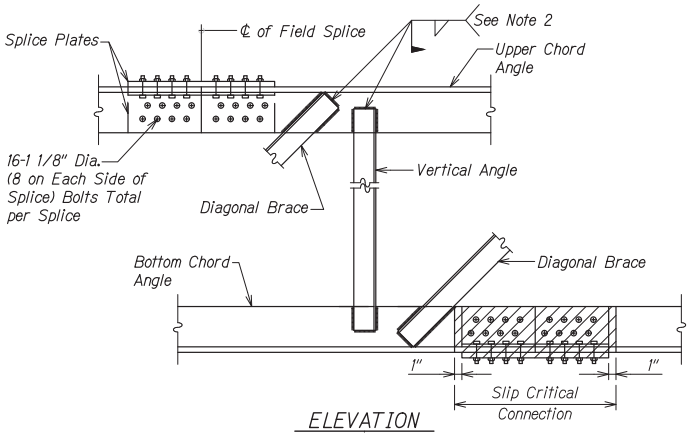
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 149	175



ELEVATION

TYPICAL SHOP SPLICE DETAIL (1 S7.6 | S7.6)

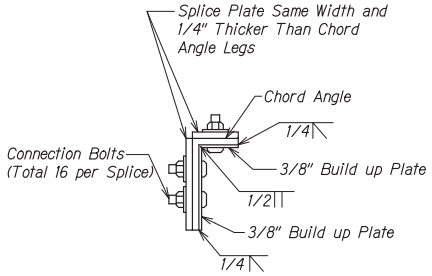
Scale: 1 1/2" = 1'-0"



ELEVATION

1 TYPICAL FIELD SPLICE DETAIL (2 S7.6 | S7.6)

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



SECTION

TYPICAL SHOP SPLICE DETAIL (1 S7.6 | S7.6)

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

SPLICE NOTES:

1. Splices are for signs with 2 posts. No splices are allowed for cantilever sign frames.
2. Splice location of top and bottom chords at each truss shall be staggered and at alternate locations. Submit splice locations on shop fabrication drawings to the Engineer for approval.
3. In no case shall splices be located at ends or near midspan of truss.
1. 4. The build-up plates welded to the angle legs on the inside shall be welded before punching/drilling the bolt holes. They shall be the same length as the splice plate.
1. 5. All galvanized metal surfaces damaged by field splice welding shall be properly cleaned, and repaired by a zinc-based solder in accordance with ASTM A780, and coated using the approved paint system.

1 LEGEND:

Do not shop paint. To be field painted following pre-tensioned bolting.

DATE	REVISION
1/3/23	1 Add. 1 - Revised Details

CALVIN T. MIYAHIRA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SIGN STRUCTURE DETAIL

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

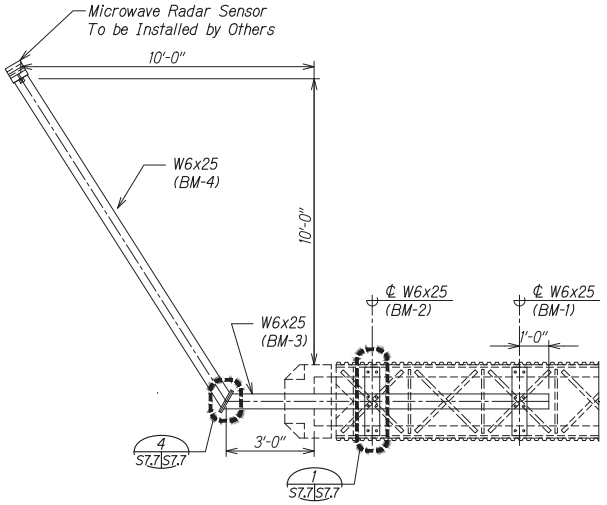
SHEET No. S7.6 OF 7 SHEETS

ADD. 149

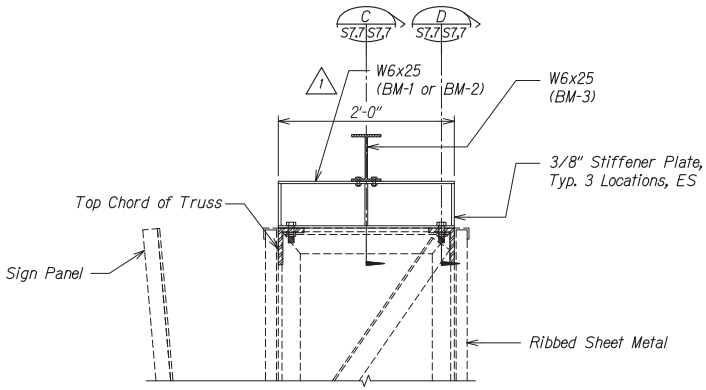
ORIGINAL PLAN | NOTE BOOK No. | CHECKED BY | QUANTITIES BY | TRACED BY | DRAWN BY | CHECKED BY | DATE

DRAWING NAME: Z:\DOT ONGOING\DOT # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0701 TO S0706 TYP BOX TRUSS SIGNADD1.DWG PLOT TIME: 01-03-23, 9:04 PM

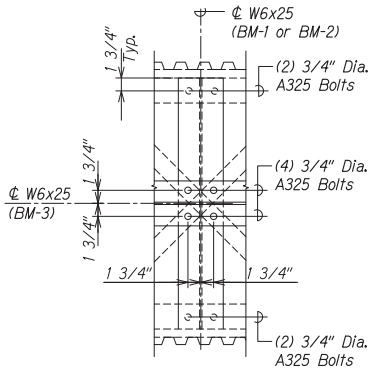
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 150	175



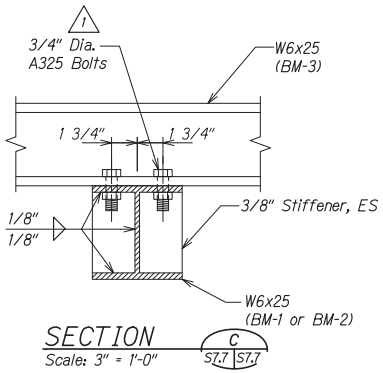
PLAN - H1EBR-253 AND H1WB-505 (A, S7.7 S7.7)
Scale: 1/2" = 1'-0"



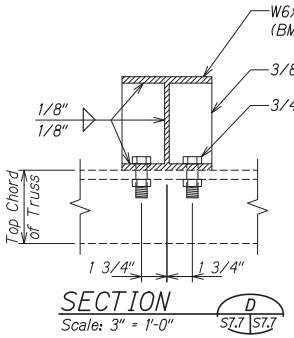
SECTION (B, S7.7 S7.7)
Scale: 1 1/2" = 1'-0"



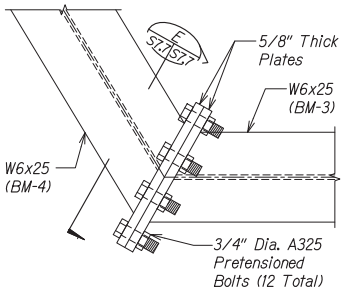
1 DETAIL (1, S7.7 S7.7)
Scale: 1 1/2" = 1'-0"



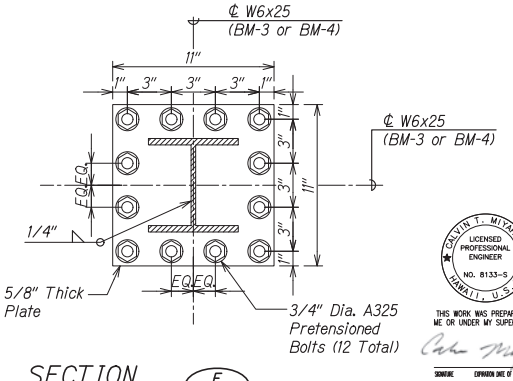
SECTION (C, S7.7 S7.7)
Scale: 3" = 1'-0"



SECTION (D, S7.7 S7.7)
Scale: 3" = 1'-0"



DETAIL (4, S7.7 S7.7)
Scale: 3" = 1'-0"



SECTION (E, S7.7 S7.7)
Scale: 3" = 1'-0"

NOTE:

Ship W6x25 Beams and Hardware loose. To be field installed by General Contractor. Installation of Microwave Radar Sensors by others.

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE
4-30-24
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SIGN STRUCTURE - MICROWAVE RADAR SUPPORT PLAN, SECTS., AND DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

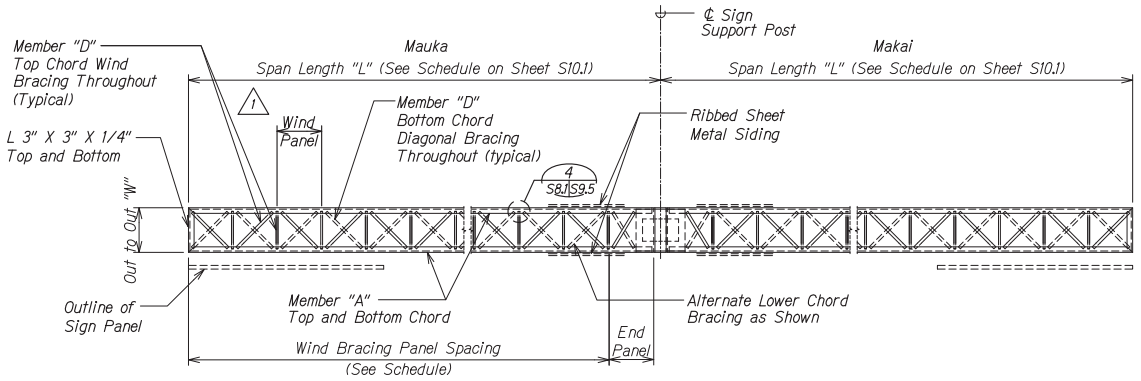
SHEET No. S7.7 OF 7 SHEETS

ADD. 150

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

DRAWING NAME: Z:\00 ONGOING\00 # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\150\1-S0707 XEH DETECTOR.DWG PLOT TIME: 01-03-23, 9:05 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 151	175



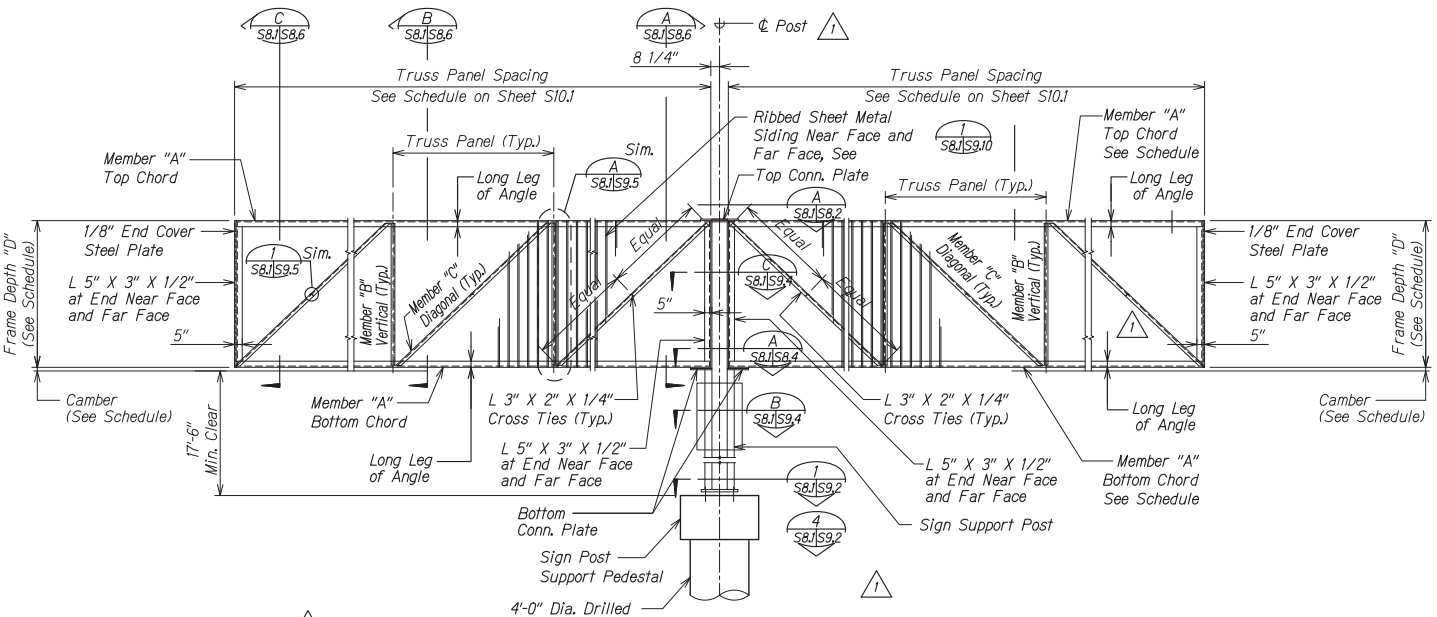
DOUBLE CANTILEVER BOX TRUSS PLAN - TOP AND BOTTOM WIND BRACE FRAMING

A S8.1 | S8.1

Scale: 1/4" = 1'-0"

NOTES:

1. For sign structure schedule see sheets S10.1 and S10.2.
2. This sign structure type shall be paid for under "Type III" as shown on the proposal schedule.
3. Truss panels at each end are measured from back of angle at end vertical members to ℄ angles at intermediate vertical members.



DOUBLE CANTILEVER BOX TRUSS ELEVATION

B S8.1 | S8.1

Scale: 1/4" = 1'-0"

DATE		REVISION
1/3/23	1	Add. 1 - Revised callouts

ORIGINAL PLAN | NOTE BOOK | No.

DESIGNED BY: | DRAWN BY: | TRACED BY: | CHECKED BY: | QUANTITIES BY: | CORRECTED BY:

DATE:

DRAWING NAME: Z:\OD ONGOING\OD_IF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0801 TO S0807 DBL CANTILVR BOX TRUSS SIGN ADD1.DWG PLOT TIME: 01-03-23, 8:05 PM

CALVIN T. MITAMURA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE PLAN AND ELEVATION

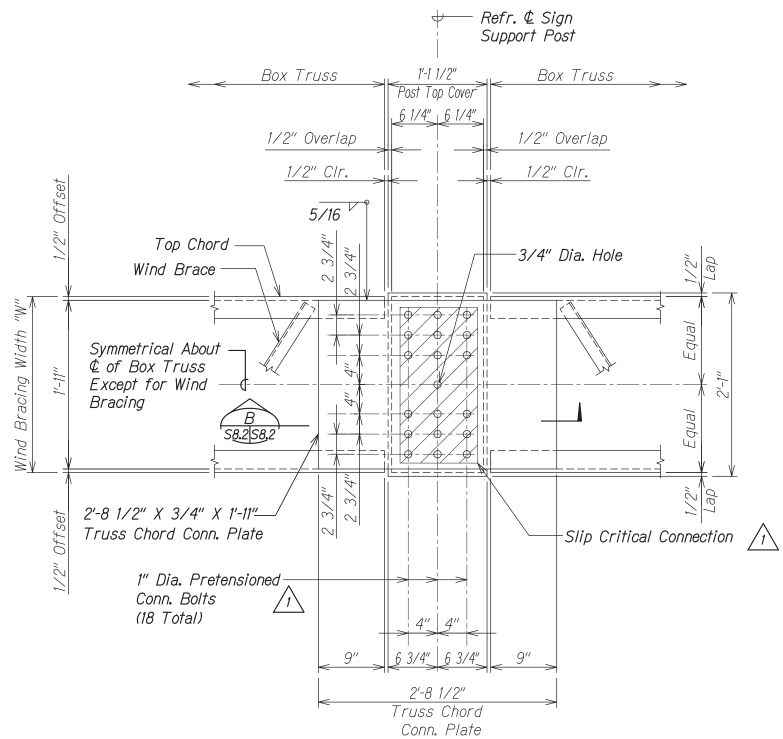
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

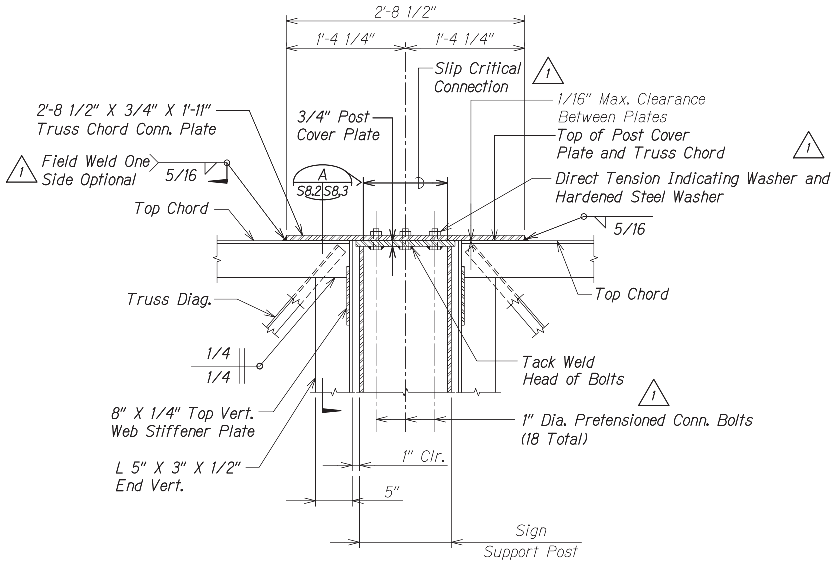
SHEET No. S8.1 OF 8 SHEETS

ADD. 151

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 152	175



PLAN - SECTION AT TOP OF COLUMN (A, S8.1 | S8.2)
Scale: 1 1/2" = 1'-0"



SECTION (B, S8.2 | S8.2)
Scale: 1 1/2" = 1'-0"

LEGEND:

Do not shop paint top surface of truss chord conn. plate. To be field painted following pre-tensioned bolting. (1)

NOTE:

All field welds shall be sufficiently cleaned, repaired using a zinc based solder in accordance with ASTM A780, and coated using the entire approved paint system.

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	(1) Add. 1 - Revised details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE

SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

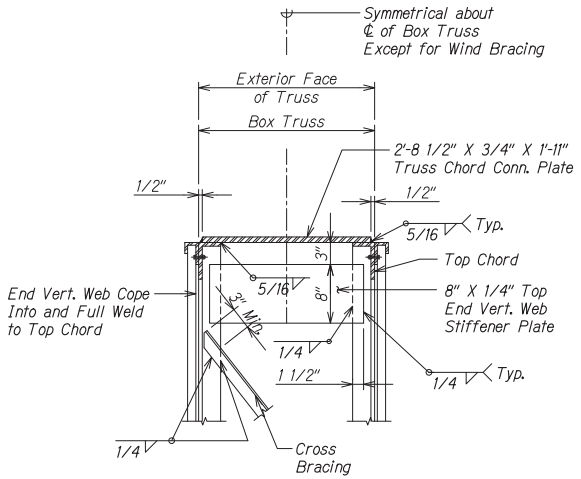
Scale: As Noted Date: Sept. 2022

SHEET No. S8.2 OF 8 SHEETS

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DS11-S0801 TO S0807 DBL CANTLVR BOX TRUSS SIGN ADD1.DWG PLOT TIME: 01-03-23, 9:06 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 153	175



SECTION (A) S8.2 | S8.3 △1

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

ORIGINAL PLAN | REVISED PLAN | NOTE BOOK No.___ | DESIGNED BY: | DRAWN BY: | TRACED BY: | QUANTITIES BY: | CHECKED BY: | DATE

DRAWING NAME: Z:\OD ONGOING\OD_# PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0801 TO S0807 DBL CANTILVR BOX TRUSS SIGN ADD1.DWG PLOT TIME: 01-03-23 8:06 PM

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE

SECTION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

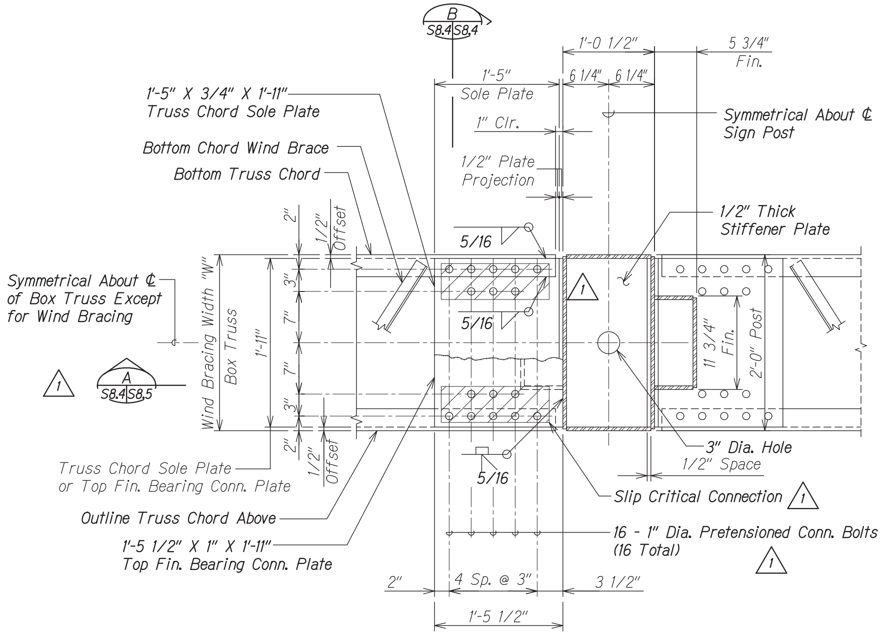
Scale: As Noted Date: Sept. 2022

SHEET No. S8.3 OF 8 SHEETS

DATE	REVISION
1/3/23	△1 Add. 1 - Revised callouts

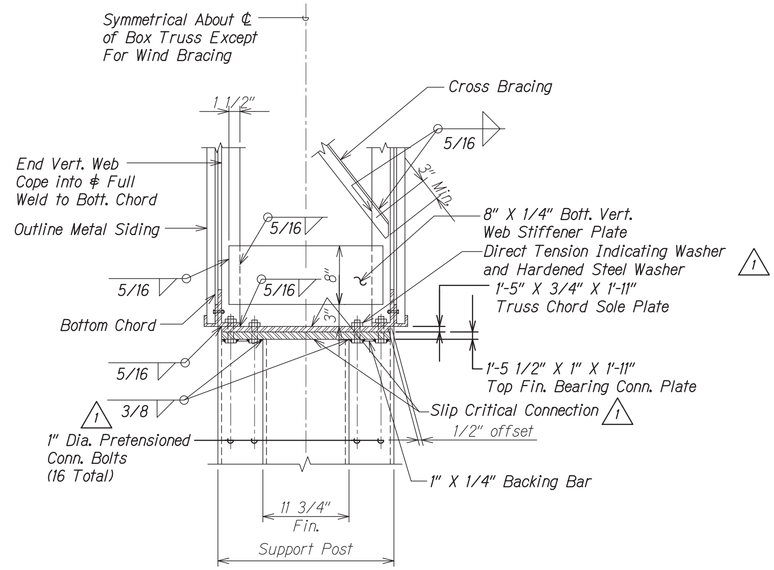
ADD. 153

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 154	175



PLAN - SECTION AT TRUSS BEARING SUPPORT (A S8.1 S8.4)

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



SECTION (B S8.4 S8.4)

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

LEGEND:

Do not shop paint bottom of bearing conn. plate, top of truss chord sole plate, or ends of bottom chord. To be field painted following pre-tensioned bolting.

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24

SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE

SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

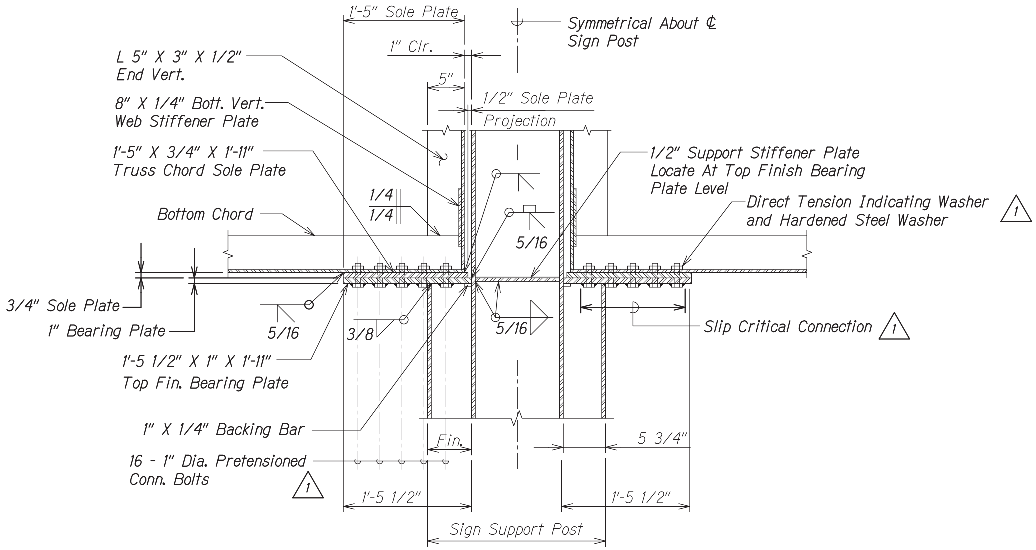
Scale: As Noted Date: Sept. 2022

SHEET No. S8.4 OF 8 SHEETS

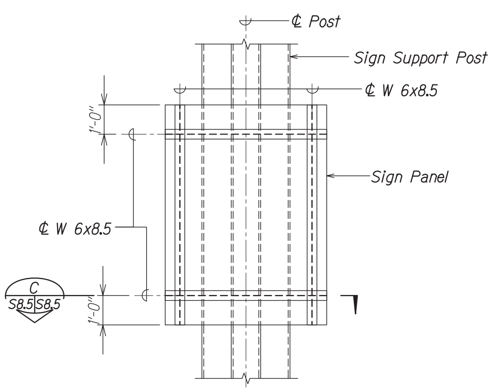
ORIGINAL PLAN | NOTE BOOK No. | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0801 TO S0807 DBL CANTLVR BOX TRUSS SIGN ADD1.DWG PLOT TIME: 01-03-23, 9:06 PM

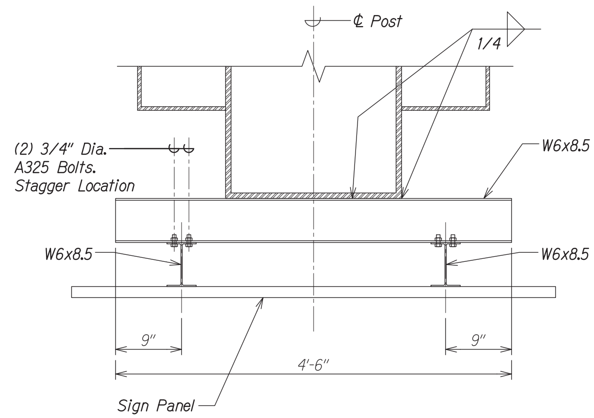
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 155	175



SECTION A (S8.4 / S8.5)
Scale: 1 1/2" = 1'-0"



COLUMN MOUNT SIGN PANEL FRAMING ELEVATION B (S8.5 / S8.5)
Scale: 1/2" = 1'-0"



SECTION C (S8.5 / S8.5)
Scale: 1 1/2" = 1'-0"

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Added details

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE
SECTION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

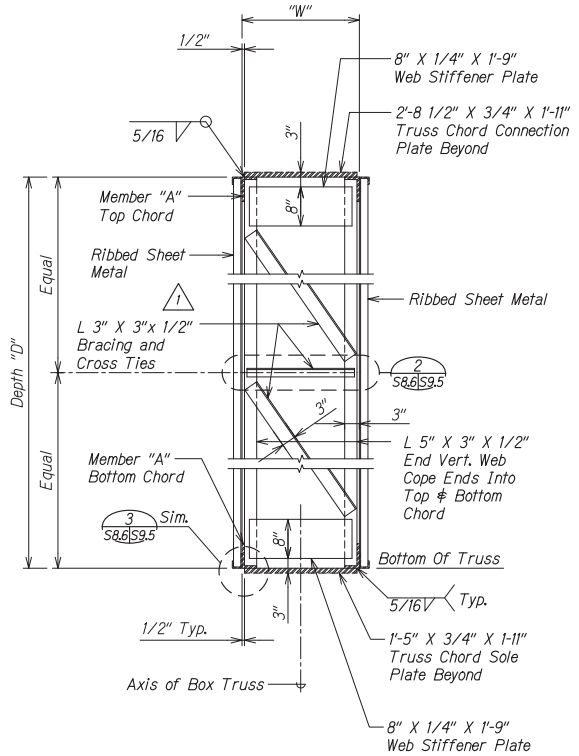
SHEET No. S8.5 OF 8 SHEETS

ADD. 155

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0801 TO S0807 DBL CANTLVR BOX TRUSS SIGN ADD1.DWG PLOT TIME: 01-03-23, 9:07 PM

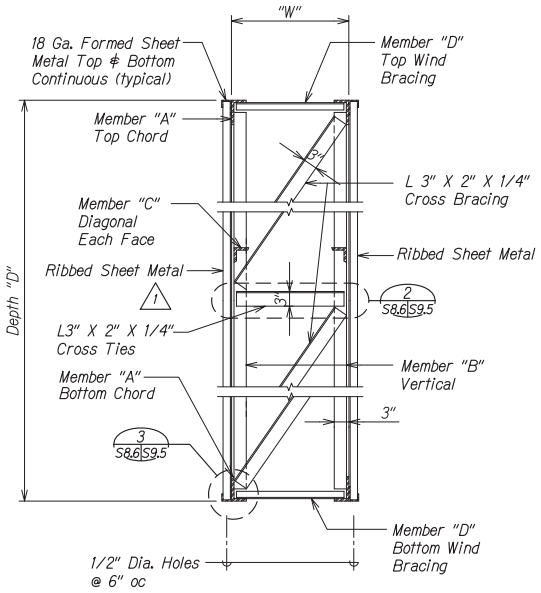
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 156	175



SECTION AT COLUMN END

Scale: 1" = 1'-0"

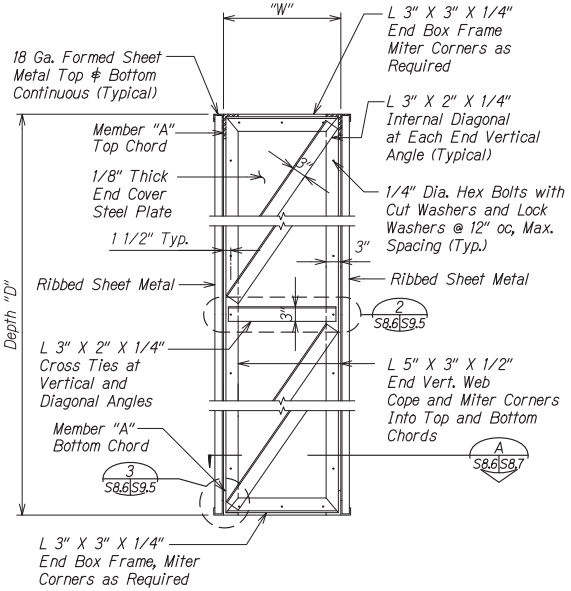
A S8.1 S8.6 /1



TYPICAL SECTION

Scale: 1" = 1'-0"

B S8.1 S8.6 /1



SECTION AT FREE END

Scale: 1" = 1'-0"

C S8.1 S8.6 /1

CALVIN T. MITAMURA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE

SECTIONS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S8.6 OF 8 SHEETS

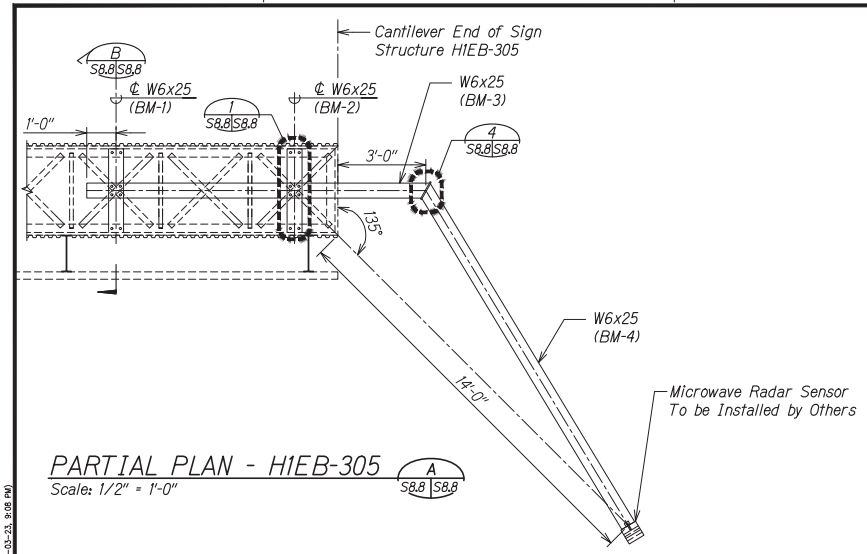
DATE	REVISION
1/3/23	/1 Add. 1 - Revised callouts

ADD. 156

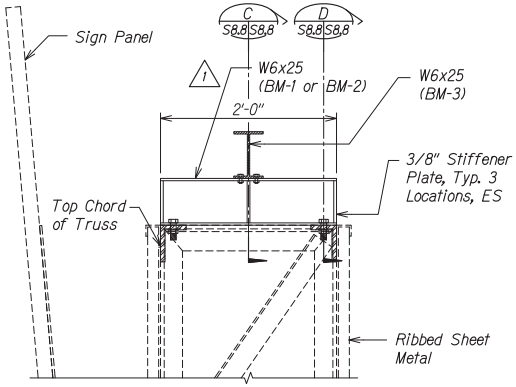
ORIGINAL PLAN
NOTE BOOK
No.
DESIGNED BY:
DRAWN BY:
TRACED BY:
DESIGNED BY:
QUANTITIES BY:
CHECKED BY:
DATE:

DRAWING NAME: Z:\OS ONGOING\OO_F PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0801 TO S0807 DBL CANTILVR BOX TRUSS SIGN ADD1.DWG PLOT TIME: 01-03-23 8:07 PM

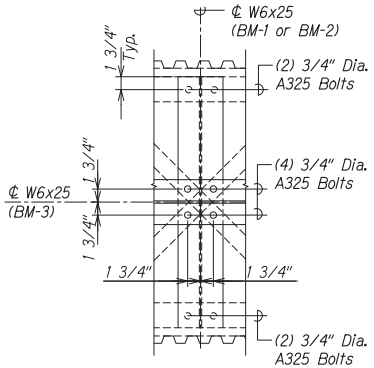
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 158	175



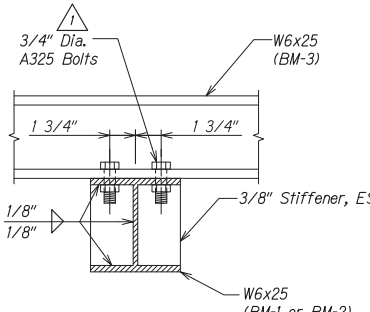
PARTIAL PLAN - H1EB-305 (A S8.8 S8.8)
Scale: 1/2" = 1'-0"



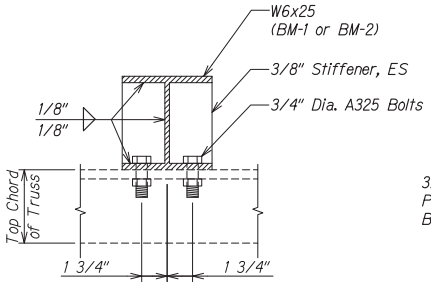
SECTION (B S8.8 S8.8)
Scale: 1 1/2" = 1'-0"



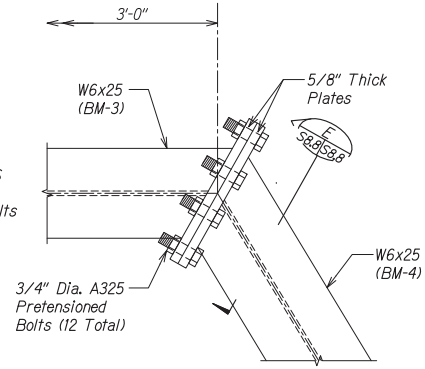
1 DETAIL (1 S8.8 S8.8)
Scale: 1 1/2" = 1'-0"



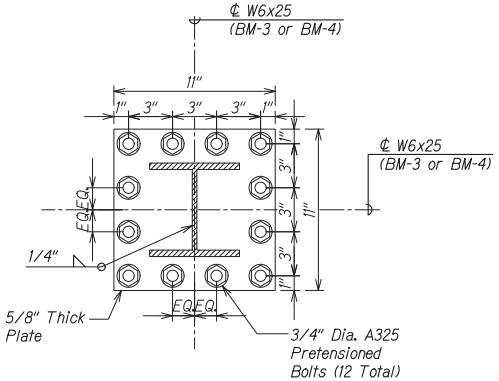
SECTION (C S8.8 S8.8)
Scale: 3" = 1'-0"



SECTION (D S8.8 S8.8)
Scale: 3" = 1'-0"



DETAIL (4 S8.8 S8.8)
Scale: 3" = 1'-0"



SECTION (E S8.8 S8.8)
Scale: 3" = 1'-0"

NOTE:

Ship W6x25 Beams and Hardware loose. To be field installed by General Contractor. Installation of Microwave Radar Sensors by others.

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

CALVIN T. MIYASHIRO LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DOUBLE CANTILEVER BOX TRUSS SIGN STRUCTURE MICROWAVE RADAR SUPPORT PLAN, SECTS, AND DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

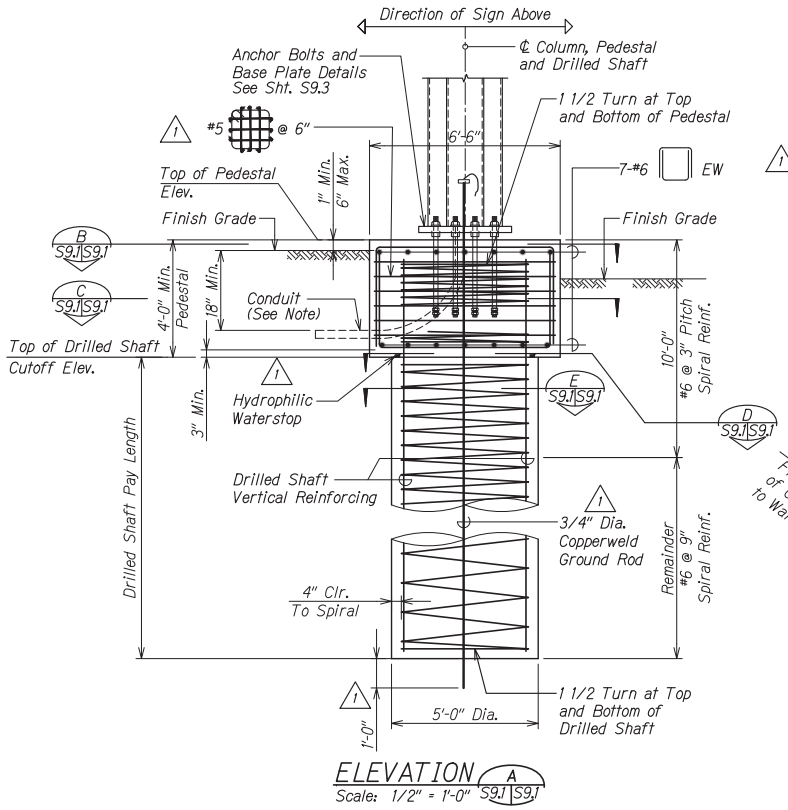
SHEET No. S8.8 OF 8 SHEETS

ADD. 158

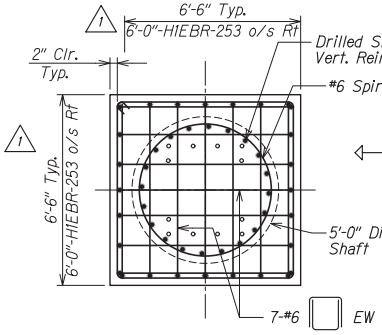
ORIGINAL PLAN
NOTE BOOK
No.
DETAILED PLOTTED BY:
DRAWN BY:
TRACED BY:
DESIGNED BY:
QUANTITIES BY:
CHECKED BY:
DATE:

DRAWING NAME: Z:\DOT ONGOING\DOT IF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\DSU1-S0808 DBL CANTILVR BOX TRUSS SIGNLTNG PLOT TIME: 01-03-23, 9:08 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 159	175

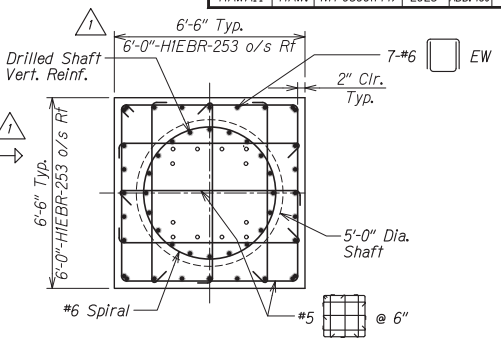


ELEVATION A
Scale: 1/2" = 1'-0" S9.1 S9.1

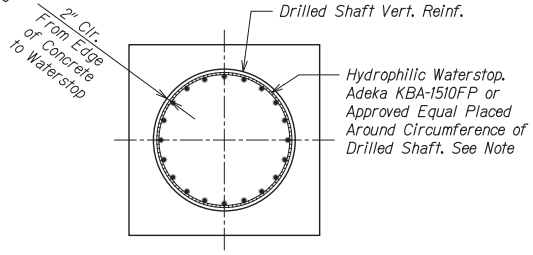


SECTION B
Scale: 1/2" = 1'-0" S9.1 S9.1 S2.6

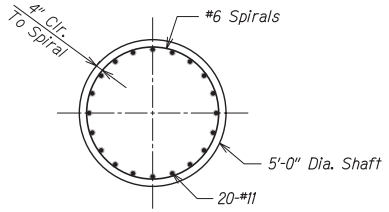
Direction Of Sign Above
Direction Of Travel



SECTION C
Scale: 1/2" = 1'-0" S9.1 S9.1 S2.6



SECTION D
Scale: 1/2" = 1'-0" S9.1 S9.1 S2.6



SECTION E
Scale: 1/2" = 1'-0" S9.1 S9.1 S2.6

NOTES:

1. Install (2)-2" Dia. Conduits at Sign Structure HIEB-305 only.
2. Grounding conductor shall be bonded to sign support as directed by the Engineer.
3. Drilled shaft vertical reinforcing shall be placed so that it does not conflict with the anchor and anchor plates.
4. Hydrophilic Waterstop shall be submitted to the Engineer for review and approval.

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DRILLED SHAFT AND PEDESTAL

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

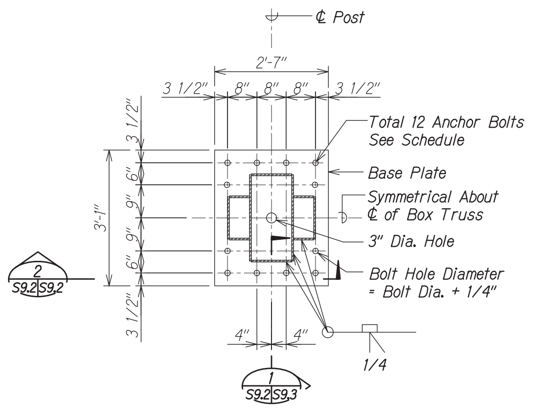
SHEET No. S9.1 OF 10 SHEETS

ADD. 159

ORIGINAL PLAN | NOTE BOOK | No.
REVISED PLOTTED BY: DATE
REVISED DRAWN BY:
REVISED TRACED BY:
REVISED QUANTITIES BY:
REVISED CHECKED BY:

DRAWING NAME: Z:\DOT ONGOING\DOT # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0901 TYP DS PEDESTAL ADD1.DWG PLOT TIME: 01-03-23, 8:08 PM

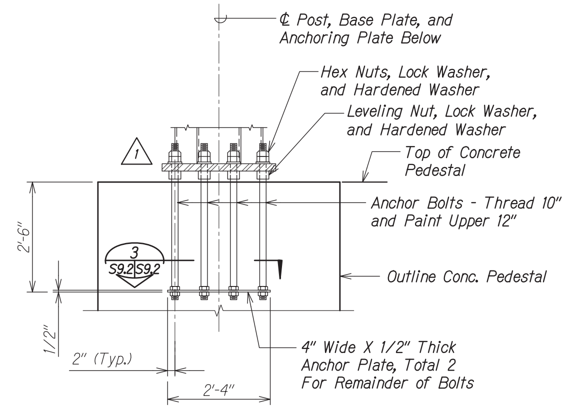
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 160	175



TYPICAL BASE PLATE DETAIL "W"=2'-0" FOR BOX TRUSS STRUCTURE (1 S7.1 S9.2)

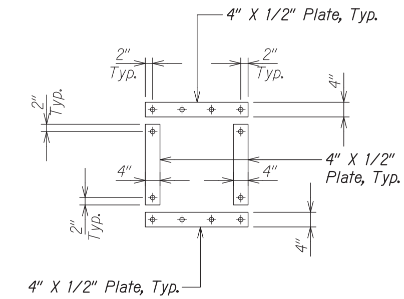
Not to Scale

S8.1 (1)



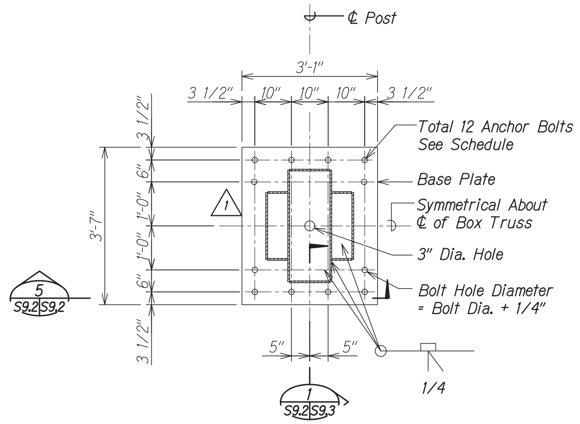
ANCHORAGE DETAIL "W"=2'-0" FOR BOX TRUSS STRUCTURE (2 S9.2 S9.2)

Not to Scale



SECTION (3 S9.2 S9.2)

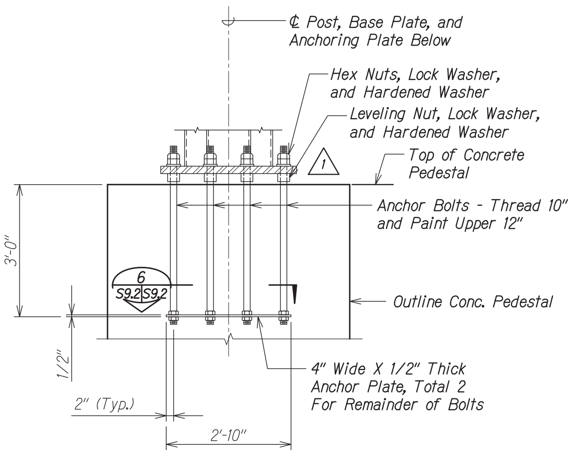
Not to Scale



BASE PLATE DETAIL "W"=2'-6" FOR BOX TRUSS STRUCTURE (4 S7.1 S9.2)

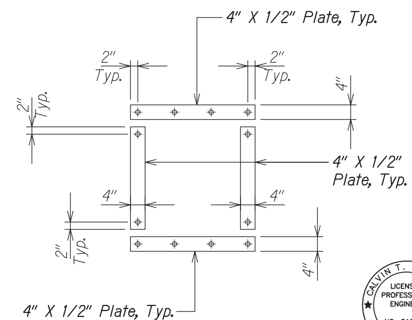
Not to Scale

S8.1 (1)



TYPICAL ANCHORAGE DETAIL "W"=2'-6" FOR BOX TRUSS STRUCTURE (5 S9.2 S9.2)

Not to Scale



SECTION (6 S9.2 S9.2)

Not to Scale

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4-30-24

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DATE	REVISION
1/3/23	(1) Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL BASE PLATE AND ANCHOR BOLT DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

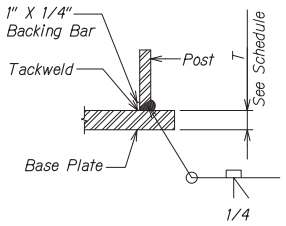
SHEET No. S9.2 OF 10 SHEETS

ADD. 160

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0902 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 9:09 PM

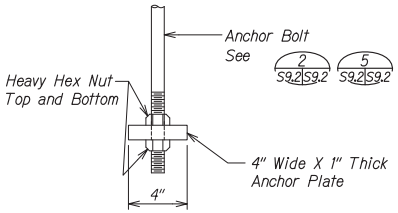
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 161	175



TYPICAL POST TO BASE PLATE WELDING DETAIL

Not to Scale

1 | S9.2 | S9.3

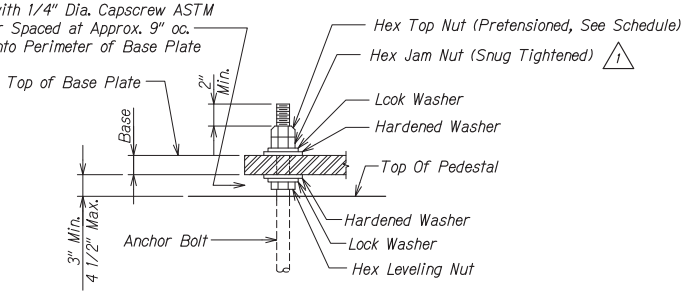


ANCHOR PLATE DETAIL

Not to Scale

2 | S9.3 | S9.3

Provide Welded Galvanized Cloth 1/16" X 7/16" Square. Wrap Around Base Plate Perimeter with 3" Min. Lap. Fasten with 1/4" Dia. Capscrew ASTM F593 with SS Washer Spaced at Approx. 9" oc. Drilled and Tapped into Perimeter of Base Plate



TYPICAL BASE PLATE ANCHOR BOLT CONNECTION DETAIL

Not to Scale

3 | S9.2 | S9.3

ORIGINAL PLAN | NOTE BOOK | No.

DESIGNED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

DRAWING NAME: Z:\DOT ONGOING\DOT # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSUI-S0903 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 8:09 PM)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL BASE PLATE AND ANCHOR BOLT DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

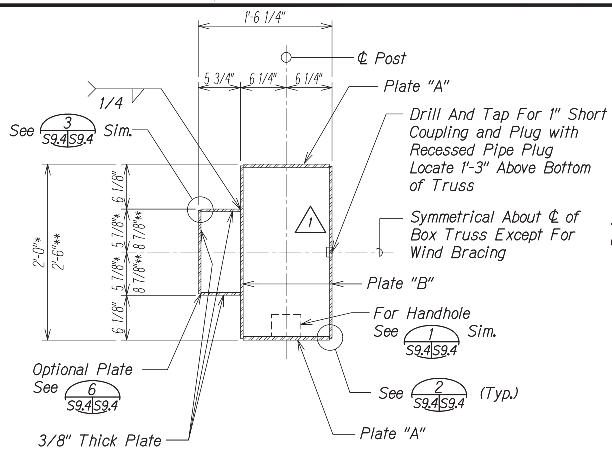
Scale: As Noted Date: Sept. 2022

SHEET No. S9.3 OF 10 SHEETS

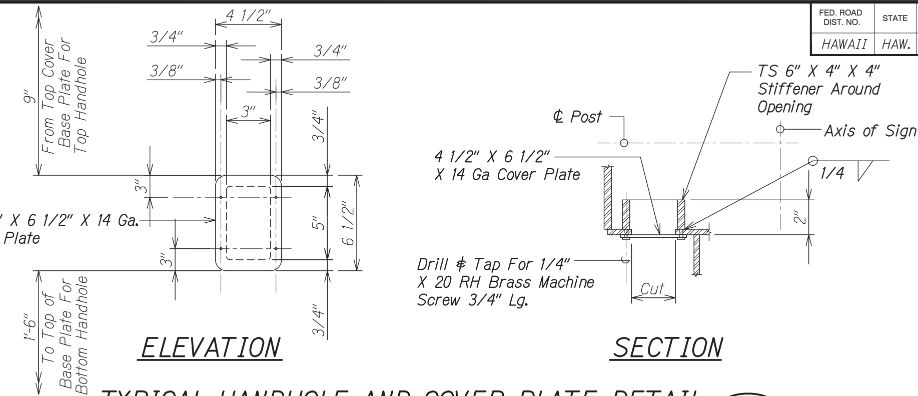
DATE	REVISION
1/3/23	1 Add. 1 - Revised details

ADD. 161

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 162	175

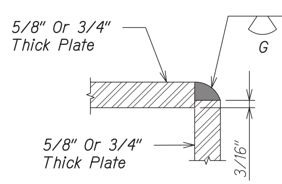


TYPICAL COLUMN SECTION ABOVE BEARING SUPPORT A S7.1 S9.4
Not to Scale

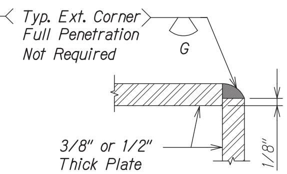


TYPICAL HANDHOLE AND COVER PLATE DETAIL 1 S9.4 S9.4
Not to Scale

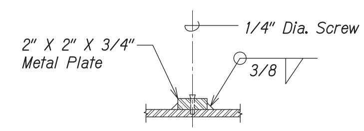
* For W = 2'-0"
** For W = 2'-6"



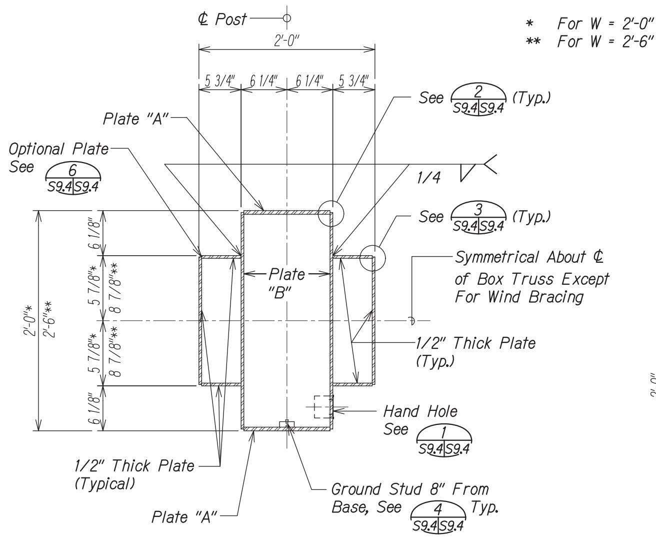
CONN. DETAIL 2 S9.4 S9.4
Not to Scale



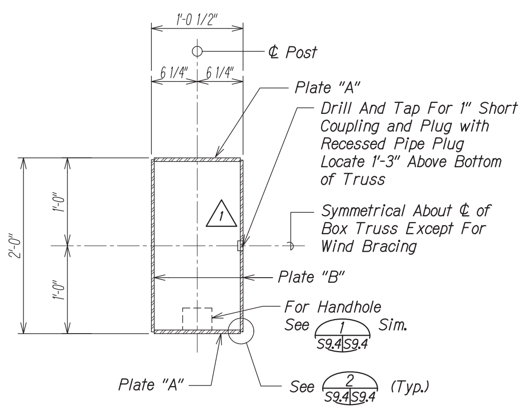
CONN. DETAIL 3 S9.4 S9.4
Not to Scale



TYPICAL GROUND STUD DETAIL 4 S9.4 S9.4
Not to Scale



TYPICAL COLUMN SECTION BELOW BEARING SUPPORT B S7.1 S9.4
Not to Scale
S8.1



DOUBLE CANTILIVER COLUMN SECTION ABOVE BEARING SUPPORT C S8.1 S9.4
Not to Scale

DATE	REVISION
1/3/23	1 Add. 1 - Revised details

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL COLUMN SECTIONS AND DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

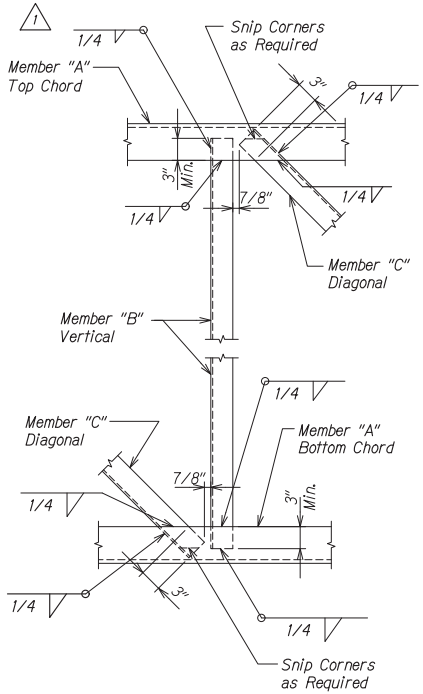
SHEET No. S9.4 OF 10 SHEETS

ADD. 162

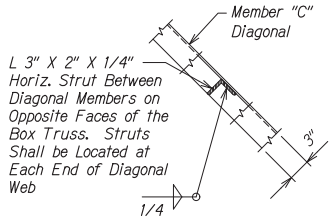
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | NOTE BOOK | No. | DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0904 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 9:10 PM

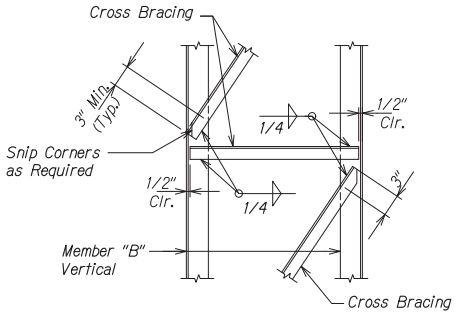
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 163	175



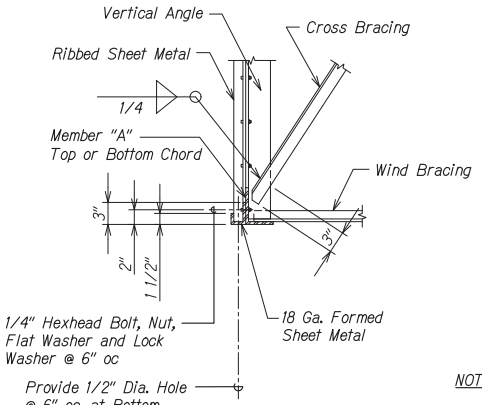
TYPICAL SECTION
Not to Scale
A — S7.2 | S9.5
1 — S8.1



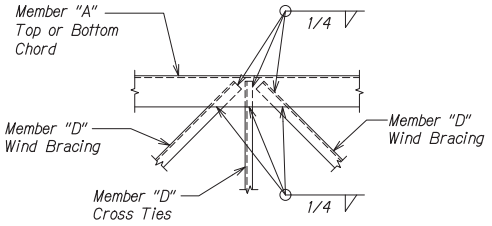
TYP. CONN. DETAIL
Not to Scale
1 — S7.2 | S9.5
S8.1



TYP. DETAIL
Not to Scale
2 — S7.5 | S9.5
S8.6



TYPICAL DIAGONAL CROSS BRACING CONNECTION DETAIL
Not to Scale
3 — S7.5 | S9.5
1 — S8.6



TYPICAL TOP AND BOTTOM WIND BRACING CONNECTION DETAIL
Not to Scale
4 — S7.2 | S9.5
1 — S8.1

NOTE:

At top chord similar except as noted.

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

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SIGNATURE EXPIRATION DATE OF THE LICENSE

ORIGINAL PLAN | NOTE BOOK | No.
DESIGNED BY:
DRAWN BY:
TRACED BY:
CHECKED BY:
QUANTITIES BY:
CORRECTED BY:
DATE:

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\165U1-S0995 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 3:10 PM)

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL CONNECTION DETAILS

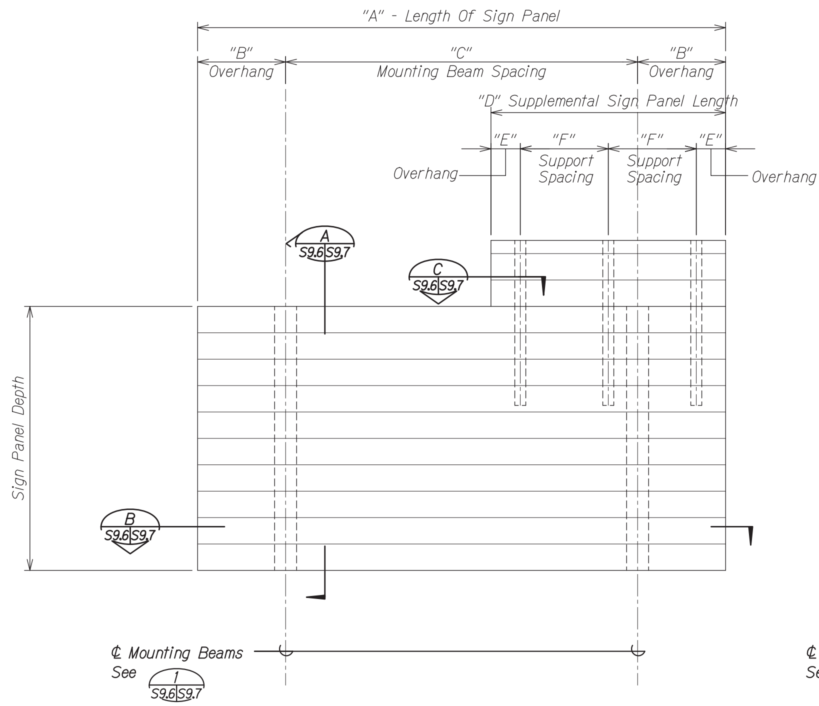
INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

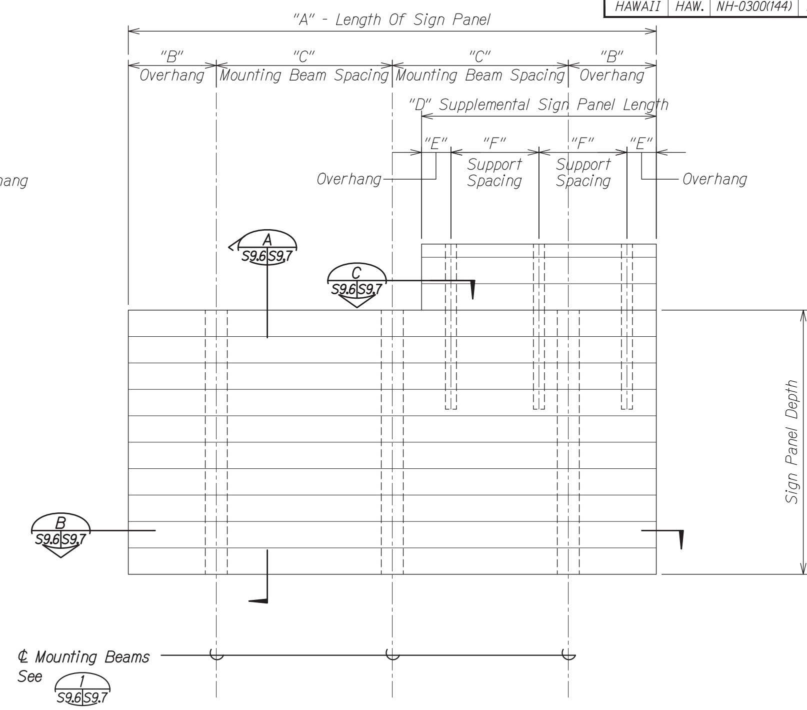
SHEET No. S9.5 OF 10 SHEETS

ADD. 163

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 164	175



SIGN PANEL LENGTH 5'-0" TO 14'-0"



SIGN PANEL LENGTH 15'-0" TO 29'-0" (1)

TYPICAL SIGN PANEL ELEVATION (A S9.6 S9.6)

Not to Scale

NOTES:

(1) 1. See schedule on sheet S9.7 for "A", "B", and "D" dimensions.

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DATE	REVISION
1/3/23	(1) Add. 1 - Revised panel length

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SIGN PANEL ELEVATION

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

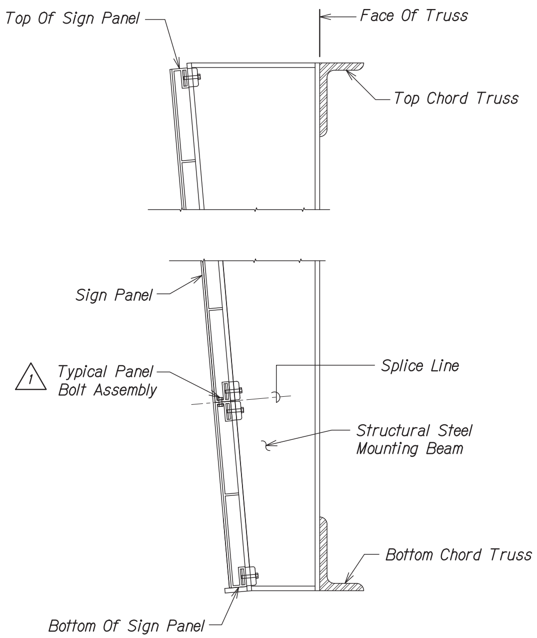
Scale: As Noted — Date: Sept. 2022

SHEET No. S9.6 OF 10 SHEETS

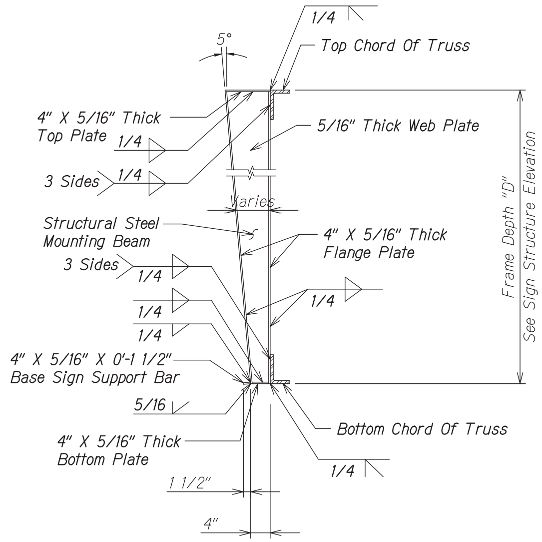
ORIGINAL PLAN | NOTE BOOK | No. — SURVEY PLOTTED BY / DRAWN BY / TRACED BY / DESIGNED BY / QUANTITIES BY / CHECKED BY / DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0906 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 9:11 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 165	175



SECTION A
Not to Scale
S9.6 | S9.7

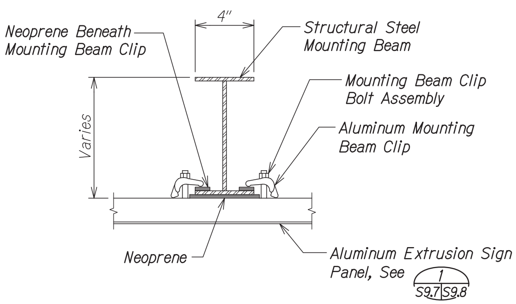


TYPICAL MOUNTING BEAM DETAIL
Not to Scale
1
S9.6 | S9.7

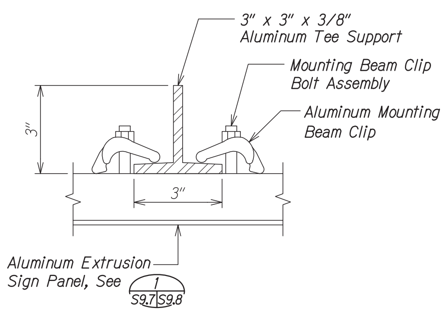
MOUNTING BEAM SCHEDULE			
Sign Panel Length "A"	Number of Mounting Beams	Overhang "B"	Mounting Beam Spacing "C"
5'-0"	2	6"	4'-0"
6'-0"	2	6"	5'-0"
7'-0"	2	12"	5'-0"
8'-0"	2	12"	6'-0"
9'-0"	2	12"	7'-0"
10'-0"	2	18"	7'-0"
11'-0"	2	18"	8'-0"
12'-0"	2	24"	8'-0"
13'-0"	2	24"	9'-0"
14'-0"	2	24"	10'-0"
15'-0"	3	6"	7'-0"
16'-0"	3	6"	7'-6"
17'-0"	3	12"	7'-6"
18'-0"	3	12"	8'-0"
19'-0"	3	12"	8'-6"
20'-0"	3	18"	8'-6"
21'-0"	3	18"	9'-0"
22'-0"	3	24"	9'-0"
23'-0"	3	24"	9'-6"
24'-0"	3	24"	10'-0"
25'-0"	4	6"	8'-0"
26'-0"	4	12"	8'-0"
27'-0"	4	18"	8'-0"
28'-0"	4	24"	8'-0"
29'-0"	4	12"	9'-0"

1

SUPPLEMENTAL SIGN PANEL SUPPORT SCHEDULE			
Supplemental Sign Panel Length "D"	Number of Supports	Overhang "E"	Support Spacing "F"
9'-0"	3	6" Min. 12" Max.	3'-6" Min. 4'-0" Max.



SECTION B
Scale: 3"=1'-0"
S9.6 | S9.7



SECTION C
Scale: 6" = 1'-0"
S9.6 | S9.7

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4-30-24
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DATE	REVISION
1/3/23	1 Add. 1 - Revised schedule

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL MOUNTING BEAM DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted — Date: Sept. 2022

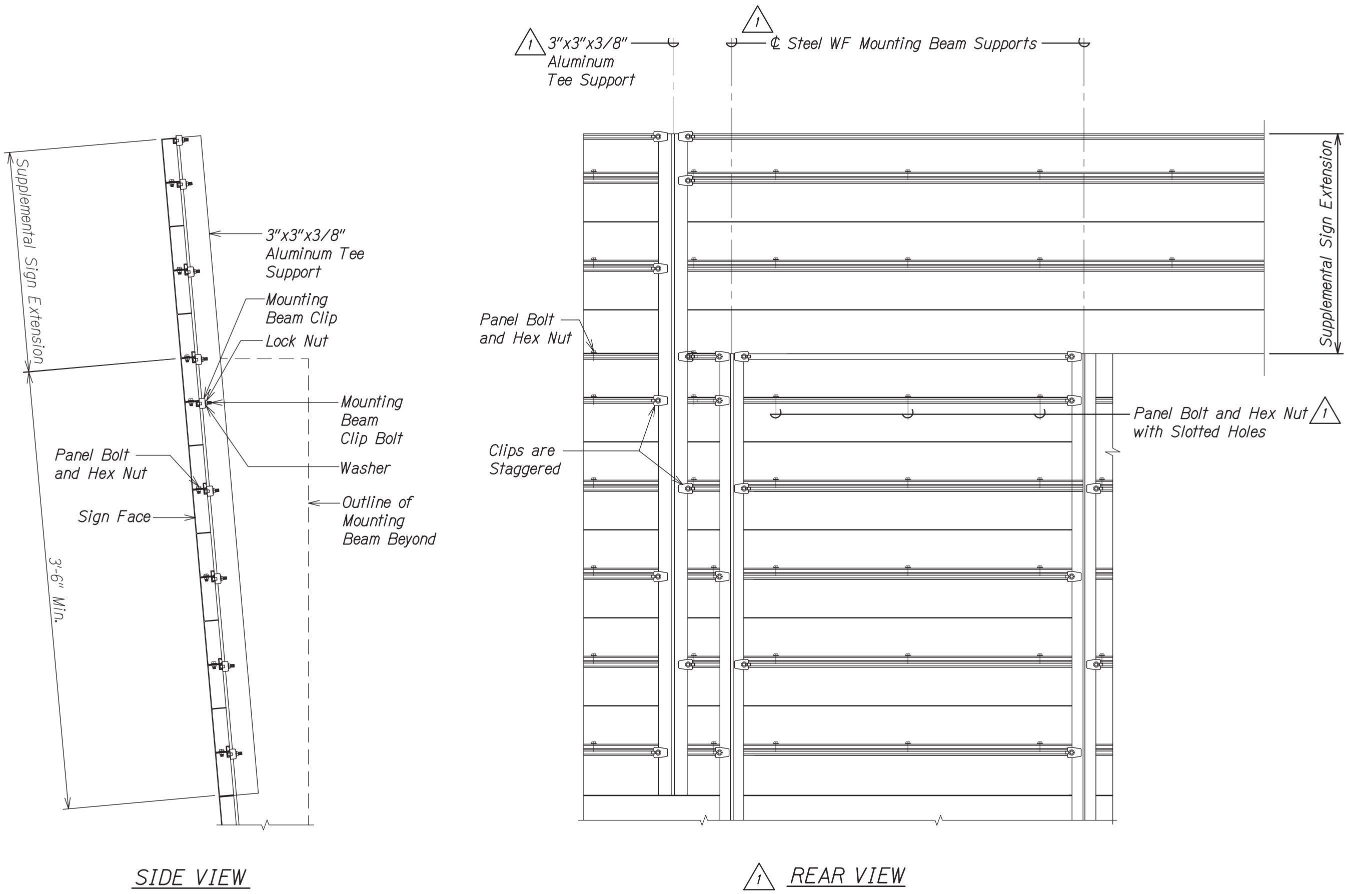
SHEET No. S9.7 OF 10 SHEETS

ADD. 165

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

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0907 TYP DTLS ADD1.DWG PLOT TIME: 01-03-23, 9:11 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 167	175



ASSEMBLY AT SUPPLEMENTAL SIGN EXTENSION (A S9.9 S9.9)

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

DATE	REVISION
1/3/23	1 Add. 1 - Revised callouts, and Rear View

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SIGN PANEL ASSEMBLY

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

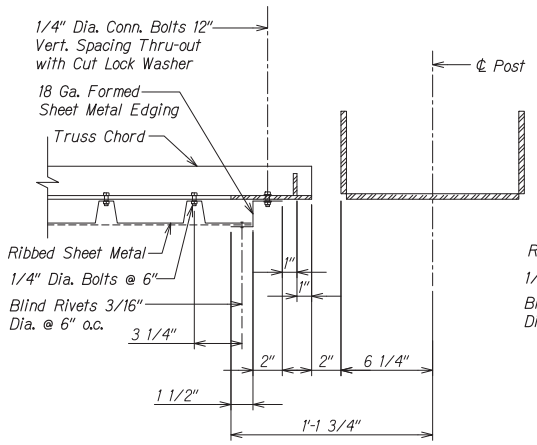
SHEET No. S9.9 OF 10 SHEETS

ADD. 167

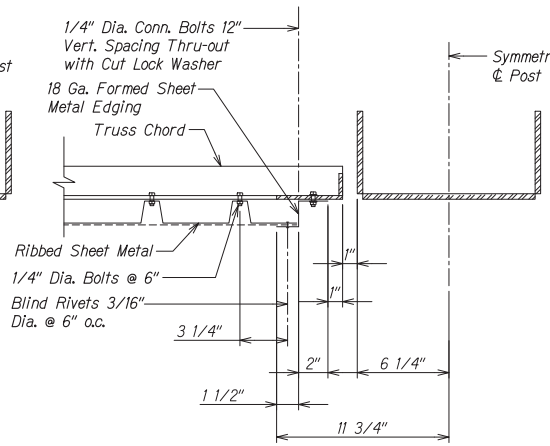
ORIGINAL PLAN | NOTE BOOK | No. | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

DRAWING NAME: Z:\00 ONGOING\00 JF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S0908 TYP DTLS.DWG PLOT TIME: 01-03-23, 9:12 PM

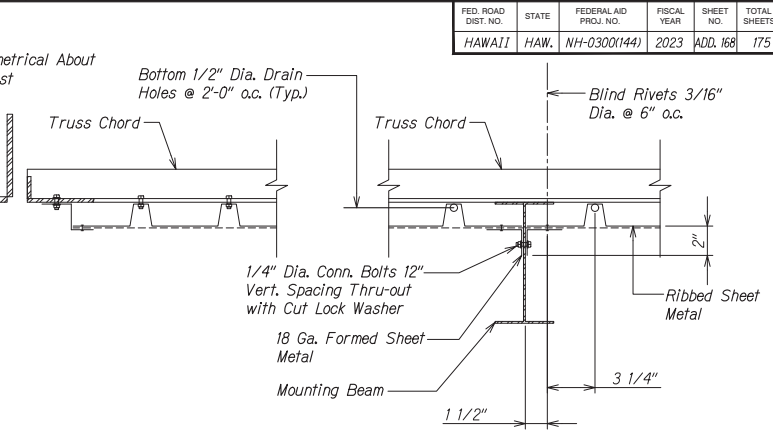
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 168	175



END AT SIGN SUPPORT
FOR TWO POST SIGN STRUCTURE



END AT SIGN SUPPORT
FOR DOUBLE CANTILEVER SIGN STRUCTURE

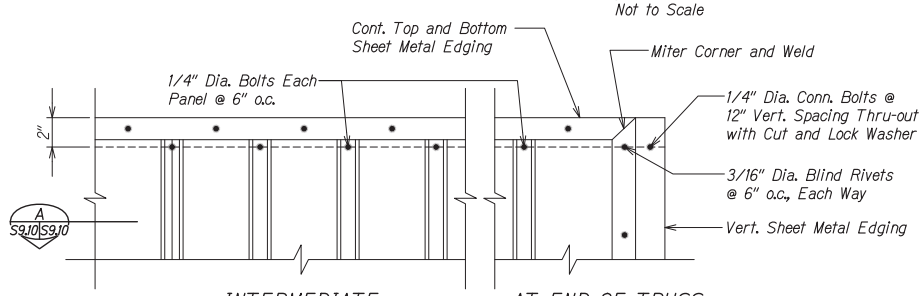


AT MOUNTING BEAM

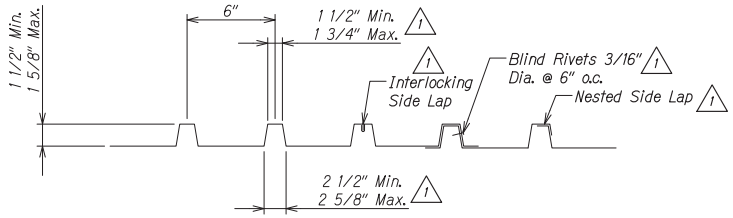
TYPICAL HORIZONTAL SECTION AT POST

Not to Scale

A S9.10|S9.10



INTERMEDIATE AT END OF TRUSS



TYPICAL RIBBED SHEET METAL DETAIL

Not to Scale

1 S7.2|S9.10

S8.1

RIBBED SHEET METAL NOTES:

1. All ribbed sheet metal formed edging and the connections shall be capable of resisting the loads described on the Structural General Notes sheet. The ribbed sheet metal shall span from top chord to bottom chord. Shop drawings and calculations shall be submitted to the Engineer for approval.
2. (1) All ribbed sheet metal and formed edging shall be galvanized steel conforming to ASTM designation A653-SS, Grade 50 minimum with a minimum yield of 50 ksi. Coating designation shall conform to ASTM designation: A653, G90.
3. (1) Ribbed sheet metal shall be a minimum 18 gage thickness, typical. Ribbed sheet metal shall be a minimum 16 gage thickness for Sign Structures HIEBR-253 and HIWB-511.
4. (1) Connection bolts, nuts and washers to be hot-dip galvanized steel ASTM A307.
5. (1) Blind rivets shall be galvanized and submitted to the Engineer for approval.

CALVIN T. MIYAHIRA
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NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	(1) Add. 1 - Revised callouts, & added notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL RIBBED SHEET METAL DETAILS

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S9.10 OF 10 SHEETS

ADD. 168

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

DRAWING NAME: Z:\OS ONGOING\OO_IF PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD\1050-S0910 TYP DTLSLDWG PLOT TIME: 01-03-23, 9:12 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0300(144)	2023	ADD. 169	175

SIGN SCHEDULE

								FRAMING SIZES					
SIGN	SPAN LENGTH "L"	DEPTH "D"	TRUSS PANELS NO.	SPACING	WIND PANELS NO.	SPACING	WIDTH "W"	MEMBER "A" T&B CHORDS	MEMBER "B" VERTICAL	MEMBER "C" DIAGONAL	MEMBER "D" T&B CHORD WIND BRACING	CAMBER	COMMENTS
H1EBR-253	90'-0"	14'-0"	8	Equal Spaces	40	Equal Spaces	2'-6"	L6 x 6 x 7/8	L3 1/2 x 3 x 1/4	L3 x 3 x 1/4	L3 x 3 x 3/8	1"	
78EBR-830	72'-0"	1 10'-0"	10	Equal Spaces	32	Equal Spaces	2'-6"	L6 x 4 x 3/4	L3 1/2 x 3 x 1/4	L3 x 3 x 1/4	L2 x 2 x 1/4	1/2"	
H1EB-305 (Mauka) H1EB-305 (Makai)	23'-4" 24'-8"	10'-6" 10'-6"	2 2	Equal Spaces	12 12	Equal Spaces	2'-0" 2'-0"	L5 x 3 1/2 x 3/4 1 L5 x 3 1/2 x 3/4	L3 x 3 x 1/4 L3 x 3 x 1/4	L3 x 3 x 1/4 L3 x 3 x 1/4	L2 x 2 x 1/4 L2 x 2 x 1/4	1 1/2" 1 1/2"	Double Cantilever
H1WB-505	91'-8 1/2"	10'-0"	1 10	Equal Spaces	1 46	Equal Spaces	1 2'-0"	1 L6 x 6 x 7/8	L3 1/2 x 3 x 1/4	L3 x 3 x 1/4	L3 x 3 x 3/8	1"	On Structure
H1WB-511	82'-8"	1 12'-6"	8	Equal Spaces	1 36	Equal Spaces	2'-6"	L6 x 4 x 7/8	L3 1/2 x 3 x 1/4	L3 x 3 x 1/4	L2 x 2 x 3/8	3/4"	On Structure

ORIGINAL PLAN
NOTE BOOK
No.

DESIGNED BY
DRAWN BY
TRACED BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: Z:\OD ONGOING\OD # PROJECTS\16-006-DESTINATION SIGNS\01 CAD\01-03-23 ADD1\DSU1-S1001 TO S1002 SCHED.DWG PLOT TIME: 01-03-23, 9:13 PM

CALVIN T. MIYAHIRA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

DATE	REVISION
1/3/23	1 Add. 1 - Revised values

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN SCHEDULE

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/REPLACEMENT, PHASE 3
FAP NO. NH-0300(144)

Scale: As Noted Date: Sept. 2022

SHEET No. S101 OF 2 SHEETS

ADD. 169