STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1
for
INTERSTATE ROUTE H-1
AIRPORT VIADUCT IMPROVEMENTS
VICINITY OF VALKENBURGH STREET TO MIDDLE STREET, PH 2

FEDERAL-AID PROJECT NO. NH-H1-1(276)

NOVEMBER 6, 2020

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

A. NOTICE TO BIDDERS

Prospective bidders are hereby notified that receiving of bids will be re-scheduled for 2:00 P.M., December 1, 2020. The attached NOTICE TO BIDDERS shall be incorporated and made part of the NOTICE TO BIDDERS.

B. SPECIFICATIONS

1. Replace TABLE OF CONTENTS dated 8/31/20 with the attached TABLE OF CONTENTS dated r11/4/20.

2. Replace Section 102 – BIDDING REQUIREMENTS AND CONDITIONS dated 5/22/20 with the attached Section 102 – BIDDING REQUIREMENTS AND CONDITIONS dated r10/13/20.

3. Add Section 632 - MARKERS dated r10/28/20.

4. Add Section 635 – E-CONSTRUCTION dated r11/4/20.

5. Replace Section 645 – WORK ZONE TRAFFIC CONTROL dated 8/31/20 with the attached Section 645 – WORK ZONE TRAFFIC CONTROL dated r10/28/20.

6. Replace Section 680 – SURFACE TREATMENT dated 8/31/20 with the attached Section 680 – SURFACE TREATMENT dated r11/06/20.

7. Replace Section 682 – DEFECTIVE CONCRETE dated 8/31/20 with the attached Section 682 – DEFECTIVE CONCRETE dated r11/06/20.

8. Replace Section 683 – PENETRATING SEALER FOR BRIDGE DECKS dated 8/31/20 with the attached Section 683 – PENETRATING SEALER FOR BRIDGE DECKS dated r11/06/20.

9. Replace Wage Rates dated 9/25/2020 with the attached Wage Rates dated 10/30/2020.

C. PROPOSAL

1. Replace PROPOSAL SCHEDULE Pages P-8 through P-9 dated 9/25/2020 with the attached PROPOSAL SCHEDULE Pages P-8 through P-9 dated r11/5/2020.

D. PLANS

1. Replace Plan Sheet No. 159 with the attached Plan Sheet No. ADD. 159.

2. Add Plan Sheet No. ADD. 159S-1.

3. Replace Plan Sheet Nos. 161, 162, and 163 with the attached Plan Sheet Nos. ADD. 161, ADD. 162, and ADD. 163.

4. Add Plan Sheet Nos. ADD. 163S-1, ADD. 163S-2 and ADD. 163S-3.

5. Replace Plan Sheet Nos. 164 to 193 with the attached Plan Sheet Nos. ADD. 164 to ADD. 193.

6. Add Plan Sheet Nos. ADD. 193S-1 to ADD. 193S-11 and ADD. 197S-1.

7. Replace Plan Sheet Nos.198 and 199 with the attached Plan Sheet Nos. ADD. 198 and ADD. 199.

8. Add Plan Sheet Nos. ADD. 200S-1 and ADD. 200S-2.

9. Replace Plan Sheet Nos. 201 and 209 with the attached Plan Sheet Nos. ADD. 201 and ADD. 209.

10. Add Plan Sheet No. ADD. 209S-1.

11. Replace Plan Sheet Nos. 210, 211, and 214 with the attached Plan Sheet Nos. ADD. 210, ADD. 211, and ADD. 214.

The following is provided for information:

A. PRE-BID MEETING MINUTES

Attached are the October 29, 2020 Pre-Bid Meeting Notes for your information.

B. CONTRACTOR'S RFI

The response to Contractor's RFI are attached for your information.

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

JADE T. BUTAY
Director of Transportation

NOTICE TO BIDDERS

The receiving of sealed bids for **INTERSTATE ROUTE H-1 AIRPORT VIADUCT IMPROVEMENTS, VICINITY OF VALKENBURGH STREET TO MIDDLE STREET, PH 2, FEDERAL-AID PROJECT NO. NH-H1-1(276), DISTRICT OF HONOLULU, ISLAND OF OAHU**, in HIePRO, is hereby re-scheduled for 2:00 P.M., December 1, 2020.

JADE T. BUTAY
Director of Transportation

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645	Work Zone Traffic Control	645-1a – 645-4a
678	Hybrid Polymer Concrete (HPC)	678-1a – 678-10a
680	Surface Treatment	680-1a – 680-9a
682	Defective Concrete Repairs	682-1a – 682-18a
683	Penetrating Sealer for Bridge Decks	683-1a – 683-7a
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Requirement of Chapter 104, HRS
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Confirmation by DBE

Surety Bid Bond

Sample Forms

Contract

Performance Bond (Surety)

Performance Bond

Labor and Material Payment Bond (Surety)

END OF TABLE OF CONTENTS

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.

Documents attached to the proposal submittal are part of the proposal. The bidder shall not detach or alter the documents 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 Issuance of Proposal Forms. Not applicable.

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.

1 **(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) Lack of competency or adequate machinery, plant, and other equipment (which determination may be based on the financial statement and experience questionnaires required under Subsection 102.01 - Prequalification of Bidders);

(10) Uncompleted work that might hinder or prevent the prompt completion of additional work if awarded;

(11) Failure to pay or settle bills due for labor and material on former contracts in force at the time of issuance of the solicitation;

(12) Failure to comply with qualification regulations of the Department;

(13) Default under previous contracts; or

(14) Lack of responsibility and cooperation from past work.

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

(16) 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 in HIePRO. 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.

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102.15 Preferences. Hawaii Products and Recycled Products shall not apply to this project.

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

SECTION 632 – MARKERS

Make the following amendment to said Section:

(I) Amend **Section 632.03 – Construction** by adding the following after line 78:

> "**(C) Flexible Delineator.** Provide white flexible delineator posts that match the existing flexible posts. On each post provide RM-2 Reflector Markers. Reflector Markers shall be Type III or IV retroreflective sheeting. Furnish and utilize adhesive that will adhere to the new deck surface per manufacturer's recommendations. Furnish and install necessary materials for installation."

(II) Amend **Section 632.04 - Measurement** by replacing lines 79 to 81 to read:

"**632.04 Measurement.** The Engineer will measure flexible delineator per each as complete units of the type and design specified in the proposal."

(III) Amend **Section 632.05 – Payment** by replacing lines 83 to 100 to read:

"**632.05 Payment.** The Engineer will pay for flexible delineator at the contract price per each for the type and design specified complete in place. Payment will be full compensation for furnishing and installing materials, furnishing equipment, tools, labors and incidentals necessary to complete the work.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	**Pay Unit**
Flexible Delineator	Each"

END OF SECTION 632

Make the following Section a part of the Standard Specifications:

"SECTION 635 – E-CONSTRUCTION

635.01 Description. This section is for furnishing e-construction software for the Project.

635.02 General Requirements. The Contractor shall:

(A) Provide licenses for the designated E-Construction platform designated by HDOT.

635.03 Not used.

635.04 Measurement. The Engineer will measure the fee for the license(s) associated with the "E-Construction Program" on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation.

635.05 Payment. The Engineer will pay for the fee for the license for the E-construction Program on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation. Payment will be full compensation for the "E-Construction" licensing fee as prescribed in this section and contract documents. The actual amount to be paid will be the sum shown on the accepted force account records whether this sum be more or less than the estimated amount allocated in the proposal schedule."

Pay Item	**Pay Unit**
E-Construction License	Force Account

END OF SECTION 635

SECTION 645 – WORK ZONE TRAFFIC CONTROL

Make the following amendments to said Section:

(I) Amend **645.03 - Construction** by adding the following after the sentence on line 61:

"In addition to the advisory signs and electronic message boards shown on the traffic control plans, furnish, install and maintain six (6) advisory signs and three (3) electronic message boards (126 inches wide and 76 inches high), locations to be determined by the Engineer."

(II) Amend **Subsection 645.03(F) Lane Closures** by revising lines 248 to 252 to read as follows:

"(F) Lane Closures. Lane closures will be allowed only in one direction at a time on the Interstate Route H-1 Viaduct. Lane closures on Interstate Route H-1 Eastbound and Westbound directions cannot be closed at the same time.

All lanes shall be open to vehicular traffic except during the following allowable time frames:

(1) Interstate Route H-1 Viaduct Eastbound (Excluding Ramps). Median Shoulder Lane is counted as an Open Lane, where available.

a) Maintain Three Open Thru Lanes for public traffic:

Sunday	12:00 a.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri	12:00 a.m. to 4:30 a.m. 6:00 p.m. to 11:59 p.m.
Saturday	12:00 a.m. to 11:59 p.m.

b) Maintain Two Open Thru Lanes for public traffic:

Sunday	12:00 a.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri	12:00 a.m. to 4:30 a.m. 7:00 p.m. to 11:59 p.m.
Saturday	12:00 a.m. to 11:59 p.m.

c) Maintain One Open Thru Lane for public traffic. This traffic control is only allowed for work involving Eastbound

Lane 3.

Sunday	12:00 a.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri	12:00 a.m. to 4:00 a.m. 9:00 p.m. to 11:59 p.m.
Saturday	12:00 a.m. to 11:59 p.m.

(2) Interstate Route H-1 Viaduct Westbound (Excluding Ramps):

a) Maintain Two Open Thru Lanes for public traffic:

Sunday	12:00 a.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri.	12:00 a.m. to 3:30 a.m. 8:00 p.m. to Midnight
Saturday	12:00 a.m. to 9:00 a.m. 6:00 p.m. to 11:59 p.m.

b) Maintain One Open Thru Lane for public traffic. This traffic control is only allowed for work involving Westbound Lanes 2 & 3:

Sunday	12:00 a.m. to 8:00 a.m. 9:00 p.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri.	12:00 a.m. to 3:30 a.m. 11:00 p.m. to 11:59 p.m.
Saturday	12:00 a.m. to 8:00 a.m. 9:00 p.m. to 11:59 p.m.

(3) Nimitz Highway Eastbound. When work on Interstate Route H-1 Eastbound has the possibility of debris falling onto Nimitz Highway Eastbound or the frontage road, the appropriate Nimitz Highway lanes and/or frontage road shall be closed. One thru lane shall remain open on Nimitz Highway. Lane closures on Nimitz Highway shall correspond to the work on Interstate Route H-1 Viaduct Eastbound and the hours associated with that work. Sufficient public notice (three working days prior) shall be provided for temporarily restricting parking along the Nimitz Highway frontage road. If the work on Interstate Route H-1 Viaduct will not impact Nimitz Highway, lane closures for Nimitz Highway are not required.

(4) Ramps.

a) Ramp closures shall follow the appropriate Interstate Route H-1 Closure when ramps are closed in conjunction with the Interstate Route H-1 Lane Closures.

b) Ramp Closures, with no closures on Interstate Route H-1, are allowed during the following times:

Sunday	12:00 a.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri	12:00 a.m. to 4:00 a.m. 9:00 p.m. to 11:59 p.m.
Saturday	12:00 a.m. to 11:59 p.m.

(c) When work on the Airport Ramps has the possibility of debris falling onto roads and properties beneath, the Contractor shall provide traffic control plans and measures to protect motorists, pedestrians and infrastructure beneath. The traffic control plans and measures shall be submitted to the Engineer and the Airport Duty Manager two weeks prior to construction for acceptance.

(5) Rolling Closures (Mobile Closures) shall be per MUTCD and allowed during the following time frames provided no other lane closures are occurring:

Sunday	12:00 a.m. to 3:00 p.m. 9:00 p.m. to 11:59 p.m.
Mon, Tues, Wed, Thurs, & Fri	12:00 a.m. to 4:00 a.m. 9:00 a.m. to 3:00 p.m. 9:00 p.m. to 11:59 p.m.
Saturday	12:00 a.m. to 3:00 p.m. 9:00 p.m. to 11:59 p.m.

The Contractor shall temporarily close off area to vehicular and pedestrian traffic directly below the viaduct structure while deck demolition is in progress. 

⚠1 The Contractor shall coordinate with Airport Duty Manager, telephone number 808-836-4634, two (2) weeks prior to construction for all work on the Interstate Route H-1 airport access ramps and all work that revises traffic patterns to and from the airport on Interstate Route H-1 and Nimitz Highway.

The Contractor shall coordinate with Alex Oshiro, Highways Division, HWY-O, telephone number 808-630-7514, 20 working days prior to any work affecting the Zipper Lane. The Zipper Lane deployment is approximately from 12:30 a.m. to 12:30 p.m.

The Zipper Lane Deployment Area (ZLDS) shall be free of debris during the project duration.

The Contractor shall be responsible for any costs associated with the Zipper Lane deployment beyond its normal operations.

⚠1 A Noise Variance application for this project has been submitted to the Department of Health. The Contractor shall be responsible for obtaining the Noise Permit.

The Contractor shall coordinate lane closures with adjacent projects at no increase to the contract price or contract time.

Exceptions to the lane closure hours specified shall require a written request 10 working days prior for the Engineer's approval prior to any adjustments specified."

END OF SECTION 645

Make the following Section a part of the Standard Specifications:

"SECTION 680 – SURFACE TREATMENT

680.01 Description. The work in this section describes applying surface treatment by spreading resin binder and aggregate on Portland cement concrete surfaces.

680.02 Materials.

(A) Resin Binder System. Provide a resin binder system, meeting the requirements of Table 1 below, recommended by the manufacturer as suitable for use on the intended pavement surface. A sample of the resin binder system for each lot/batch shall be supplied upon request.

Note: All materials shall be virgin; free of secondary components, volatile solvents, and external/conventional flexibilizers. Component batches shall be interchangeable.

Table 1

TWO COMPONENT RESIN BINDER REQUIREMENTS		
Property	**Requirement**	**Test Method**
Viscosity	10-30 Poise	ASTM D2556*[1]
Cure Rate (Set to Touch)	3 hours max	ASTM D1640*[2]
Shore D Durometer Hardness	60-80	ASTM D2240
Compressive Modulus	130,000 psi maximum	ASTM D695
Ultimate Tensile Strength	2,000-4,000 psi	ASTM D638*[3]
Elongation at Break Point	40%-70%	ASTM D638*[3]
Adhesive Strength (Bond to Concrete at 24 hrs)	250 psi min. or 100% concrete substrate failure	ASTM C1583*[4]
Thermal Compatibility	PASS	ASTM C884
Water Absorption	1% max	ASTM D570

*ASTM Material Properties Test Method Table Notes:

1. Mix test sample for 2 minutes. Test at a temperature of 73 ± 1°F.
2. Prepare specimens of 50-55 wet mil thickness.
3. Prepare Type I specimens.
4. Follow manufacturer's recommendation for curing before testing.

- A test report* consisting of a certification by an *AASHTO resource/CCRL* accredited independent testing laboratory showing compliance with the requirements of this specification and material properties. Include the accredited laboratory's test results with the certification.
- Product data sheets and specifications from the manufacturer showing instructions, application recommendations and methods, product properties.

*Dated within 90 days of contract award.

Table 2

WORKING TIME	
Surface Temperature (ºF)	**Maximum Working Time* (minutes)**
50	45
60	35
70	20
80	11
90	9
100	7
110	6
120	4

*Includes mix time, resin binder and aggregate placement.
Note: Consult manufacturer for surface temperatures exceeding 120ºF.

(B) **Aggregate.** Furnish aggregate meeting the requirements listed in tables below unless otherwise specified by the Engineer. Deliver the aggregate to the construction site in bags or super sacks labeled clearly for identification. Provide aggregate that is virgin, clean, dry, and free from foreign matter. A sample of the aggregate lot/batch shall be supplied upon request.

(C)

Table 3

Test Data Description	Test Procedure	Testing Lab. Requirements
Gradation	ASTM C136	See Table 4
Moisture	ASTM C566	NCAT 0.0%
MOHS Hardness	MOHS Scale	Krazen & Associates 7.1
Micro-Deval	AASHTO T327	ODOT 2.6%
Absorption	ASTM C127	NCAT 1.0%

Table 4

Armorstone	980-3 - #4 x #16
Sieve size	Percentage passing
No. 4	100
No. 8	30-75
No. 16	0-5

680.03 Construction Requirements.

(A) Submittal Requirements. Prior to the start of this work, provide six copies of the following submittals in one complete set for acceptance. Indicate clearly the name of the product and its manufacturer on pertinent submittals. No work that is related to these submittals shall be performed until written acceptance has been received.

(1) The name and contact information of the resin binder and aggregate manufacturer's technical representative and other key personnel.

(2) A warranty on the products provided by the epoxy binder manufacturer. Warranty shall be for a minimum of 10 years.

(B) Quality Control (QC) Plan. Submit a QC Plan to the Engineer for acceptance a minimum of 30 days prior to the installation and the Just-In-Time Training (JITT). Resubmittal of the document will require another 30 days for each resubmittal. Discuss the QC Plan requirements at the JITT, pre-construction, pre-installation, and progress meetings. The JITT shall not be held unless the QC Plan is accepted 30 days before the scheduled JITT date. Work shall not start on the surface treatment, including the test application, until the JITT has been completed and the QC Plan and the Work Plan have both been accepted. The QC Plan shall contain at a minimum the following information:

(1) Names and contact information for key personnel, project superintendent, and lead technician responsible for field quality control sampling and testing.

(2) Location of resin binder production plants and batch production records.

(3) Location of aggregate production plants and batch production records.

(4) Proposed method of installation at each location identified to receive surfacing.

(5) Resin binder and aggregate manufacturer's material information including:

(a) Recommended placement instructions.

(b) Mixing instructions.

(c) Recommended installation temperatures.

(d) Anticipated gel and cure times at various expected ambient temperatures for all sites.

(e) Methods of safe storage and handling.

(f) Applicable installation and material limitations.

(g) Disposable methods for excess mixed resin binder and associated components.

(h) Production plant location contact information for the quality control/quality assurance (QC/QA) personnel where additional information can be requested concerning record keeping methods, inspection methods, equipment calibration records, and accreditation certificates.

The QC Plan shall designate a QC Manager, who shall be present at the jobsite and have full authority to request any action necessary for the operation of the QC Plan providing it complies with the contract documents and acceptance of the Engineer.

The QC Manager shall be certified in all test methods used and be responsible for the required field quality control in sampling and testing in conformance with the accepted quality control plan, test methods and contract documents. All sampling shall be performed in the presence of and with no direction by the Engineer. The Engineer is not responsible or shall be regarded as part of the contractor's QC team. It is the responsibility of the contractor and the QC Manager to ensure that the test procedure being used is compliant with the test method standard. Inspections are performed for the exclusive benefit of the State. The inspection of or the failure to inspect the work shall not relieve the Contractor of obligations to fulfill the contract as prescribed, to correct defective work, and to replace unsuitable or rejected materials regardless of whether payment for such work has been made. The Engineer has the right to reject the test if the Engineer feels that it is non-compliant, e.g., the technician who performed the test is not certified or the material testing laboratory is not accredited to perform the required tests. The Engineer is under no obligation to correct or direct non-compliant procedures if observed. Maintain and have available upon request, the current test standard methods documentation being used, referenced documents, complete records of sampling, testing, corrective actions, and quality control inspection results.

A technical representative from the resin binder manufacturer shall be present at the JITT, Test Application, e.g., deck repair, surface preparation, installation and acceptance of the surface treatment, and at the construction

site for the first two days of the surfacing treatment installation.

(C) Work Plan. Submit a Work Plan to the Engineer for approval 14 days prior to the installation. Discuss the Work Plan requirements at the pre-construction, pre-installation, and progress meetings. The Work Plan shall contain at a minimum the following information:

(1) Method of surface preparation and required surface condition for adequate bonding.

(2) Method of crack repair/defective concrete repair of existing concrete deck.

(3) Construction during inclement weather, Plan for the occurrence of rain, moisture and temperature requirements for the materials being used.

(4) Mixing ratio and application rates for resin binder and aggregate.

(5) Application Method.

(6) Curing time and requirements for opening to traffic.

(7) Corrective actions that will be taken for unsatisfactory installation practices.

(D) Just-In-Time-Training. JITT shall be held and shall conform to Section 695 – JUST IN TIME TRAINING.

(E) Surface Preparation. Surface preparation for concrete decks with a penetrating sealer and aggregate topping overlay shall conform to the following requirements:

(1) Sweep the surface clean with a vacuum sweeper.

(2) Blow the surface clean using oil-free air to remove dust, laitance, and other deleterious material that may affect the bonding of the surface treatment from the surface.

(3) All laitance, contaminants, paint, markers and foreign material that may inhibit the bond of the surface treatment, shall be removed from the surface before sweeping with vacuum sweeper.

(4) If the prepared surface is contaminated prior to installing the surface treatment, abrasive blast, sweep and blow the surface clean.

Surface preparation for existing steel from expansion joints shall be shotblasted prior to application of the surface treatment. Contractor shall follow manufacturer's recommendations during surface preparation of all joints.

(F) Test Application. The test application shall be a part of the production location before starting production work. Resin binder manufacturer's representative shall be present during the test application. The test application shall meet the following requirements:

(1) Install a minimum of 200 square yards.

(2) Shall be constructed using the same method and equipment as the production work.

(3) Shall construct an additional test application for each method proposed for the production work.

(4) Shall replicate field conditions, including ambient and surface temperatures, time period, anticipated for production work.

(5) Shall demonstrate surface preparation method as outlined in the QC plan.

(6) Shall demonstrate that the data management system is capable of documenting ambient and surface temperatures, quantities of resin binder and aggregate, coverage rates and reporting application rates in real time.

(7) Determine the initial set time for the resin binder.

(G) Surface Application. The following information is required in a real time reporting method:

(1) The volume of mixed resin binder per square yard being applied.

(2) The mixed resin binder mil thickness on average throughout the application width per square yard.

(3) The volume of aggregate applied throughout the application width per square yard.

(4) The ambient and pavement surface temperature during the application period.

Apply the blended resin binder on the pavement surface plane in a uniform

application with a minimum thickness of 60 mils. Verify thickness using a Wet-Mil film thickness gauge every 75-100 lineal feet of application and by comparing theoretical quantity to actual quantity of epoxy placed using table 5. Ensure the surfacing aggregate is applied uniformly at a rate of 14-17 pounds per square yard within the working time per Table 2.

Table 5

METHOD OF CALCULATION	
Mil Thickness	**Square Foot per Gallon**
60	26.73

(H) Application Method. Expansion joints, drains and grates shall be adequately isolated to prevent any surface treatment from entering drainage and joint systems. The surface treatment discharged from the mixer shall be uniform in composition and consistency. Mixing capability shall be such that initial and final finishing operations can proceed at a steady pace.

Continuous application must be performed by approved, calibrated, self-propelled application equipment capable of continuously and thoroughly blending the resin binder components to the ratio recommended by the manufacturer. The continuous application equipment shall have an aggregate distribution system capable of mechanically placing aggregate from a maximum height of 12" into the wet resin binder evenly across the full width of the installation. The application equipment shall be capable of containing enough resin binder and aggregate to install a minimum of 2000 square yards of surfacing. The application equipment must have an independent recirculating heating system capable of heating the resin binder to a minimum of 95ºF.The application equipment shall install the surfacing at a minimum application rate of 20 linear ft per minute. Perform a final sweep of loose aggregates and debris from the areas adjacent to the applied surface treatment within end of work shift. Ensure all expansion joints are free of loose aggregate, epoxy and other debris.

For small, odd shaped areas inaccessible to the continuous applicator truck, mixed epoxy is dispensed from the truck by hand through a mixing wand onto the area to be treated. Contractor shall use a notched squeegee to evenly spread the epoxy according to the manufacturer's recommendations. Broadcast aggregate by hand onto the wet epoxy until rejection and epoxy surface is completely covered with aggregate.

(I) Curing. Traffic and construction equipment shall not be permitted on the completed surface treatment overlay for 2 hours or until the surface treatment is tack free whichever is later.

(J) Acceptance and Corrective Action. The completed surface treatment shall be free of any smooth or wet areas such as those resulting from

insufficient quantities of topping aggregate. Completed overlay surface must be uniform in thickness, texture and appearance.

At the discretion of the Engineer, Tensile Bond testing shall be performed for each placement per day. Testing may be conducted on a separate concrete substrate representing the field conditions upon approval of the Engineer. Testing will be performed in accordance with ASTM C 1583 and the manufacturer's recommendations. A passing test is the failure of the concrete substrate or bond strength above 250 psi at 24 hours. Fill cored holes with approved material specified in Section 682 – Defective Concrete Repairs.

Correct all defects in material and work, as directed, at no additional cost to the Engineer, according to the following:

(1) Remove and replace surfacing treatment that the Engineer determines has any raveling, delamination, streaking, or bond test failure.

(2) Replace with acceptable surfacing treatment at the installer's expense. Ensure the minimum replacement is the full lane width and the length of the defect plus five lane feet on the up-station and down-station side of the edge of the defect area and as accepted by the engineer. Replaced areas will be retested and evaluated for acceptance or further corrective action.

(3) Any roadway features disturbed by the work or the installer's operations shall be restored with the same materials and design as directed by the Engineer at no additional cost to the agency.

680.04 Measurement. Surface Treatment will be measured per square foot as shown on the plans or as specified in the proposal.

680.05 Payment. The Engineer will pay for accepted quantities of Surface Treatment at a contract unit price, per square foot for the pay item listed below, which appears in the proposal. Payment for JITT shall be considered as incidental for this section.

⚠1 Payment will be full compensation for furnishing and placing all materials, and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified.

No separate or additional payment will be made for preparing road surface, placing materials in final position, sweeping or for the minimum testing of the materials and placement as defined in this specification.

No separate or additional payment will be made for reinstallation and

retesting of surface treatment where the initial installation was determined to be defective.

Payment will be made under:

Pay Item	**Pay Unit**
Surface Treatment _____	Square Foot”

END OF SECTION 680

Make the following Section a part of the Standard Specifications:

"SECTION 682 – DEFECTIVE CONCRETE REPAIRS

682.01 Description. This section is for locating and confirming the size of defective areas in the concrete deck and repairing of all concrete spalls, delaminations, honeycombing, and other defective concrete within the existing concrete deck. This section applies to the locations as designated on the plans as well as all other locations encountered by the Contractor and Engineer.

682.02 Materials. The Contractor shall use a polymer modified repair mortar of which shall herein be referred to as a "VESLMC" for all existing concrete deck repairs. VESLMC shall conform to Section 503 – Concrete structures and the specifications stated in this section.

(A) VESLMC:

(1) A factory blended cementitious patching material (containing no gypsum) combined with a polymer type admixture, water, and a corrosion inhibitor. The 3-hour and 28-day compressive strength shall be at least 3,000 psi and 6,000 psi respectively. The 3-hour bond strengths shall be at least 250 psi respectively. The repair material must be able to bond to itself achieving the minimum bond strength of 250 psi.

(2) Repair materials shall consist of:

⚠1

(a) Western Materials FASTRAC 246 Concrete or approved equal

(b) Western Materials Ready-To-Use FASTRAC Polymer or approved equal

(c) 1½ pints per cubic yard of CORTEC MCI 2005 NS or approved equal

(d) 5 lbs of ¾ inch long Forta Ferro macrofibers or approved equal

(B) Water. Shall comply with Subsection 712.01 Water.

(C) Curing Compound. For curing of VESLMC, cover with wet burlap or approved equal. Leave wet burlap on until opening to traffic.

(D) Other Materials: All other materials, not specifically described but required for the successful completion and installation of the work shall be as selected by the Engineer.

(E) Substitution of Materials.

(1) Use only materials specified herein. Other materials of the same manufacturer or of other manufacturers may not be substituted for those specified without written approval of the Engineer. This is not to be construed as to limit competition but to establish a standard of quality. Other manufacturers of equal or better system of products may be considered as a substitution to the system of products specified herein. However, complete documentation proving that the substituted product meets or exceeds the performance of the specified product shall be provided in order to provide a basis for evaluation and comparison. Submission of incomplete, inadequate, incongruous, vague material and installation data will be grounds for disapproval without review.

(F) Mandatory pre-construction meeting.

(1) Prior to the start of work, but no later than 3 days prior, the Contractor shall attend an on-site pre-construction meeting to discuss construction procedures, timelines, and contract requirements. Required attendees should be HDOT, Contractor, Designer of Record, and material manufacturer's representative.

No pre-construction meeting shall be held until all material submittals, material samples and required documentation related to this Section have been submitted and accepted by the Engineer. Work related to this Section shall not start until the pre-construction meeting has been successfully held and completed.

682.03 Construction.

(A) Submittals. Submit a minimum of 30 days prior to the start of this work and providing a minimum of ten complete sets consisting of copies of the following submittals for acceptance. Clearly indicate the name of the product and its manufacturer on pertinent submittals as well as what portion of the Contract Document it is being submitted for, e.g., subsection, line number. No work that is related to these submittals shall be performed until written acceptance has been received by the Contractor. Sets that are not complete in the sole opinion of the Engineer or MTRB shall be rejected and no review will take place. The Contractor shall resubmit required sets to start the review process again.

(1) Material Safety Data Sheets: Furnish the manufacturer's Material Safety Data Sheets for each of the materials present at any time on the job site.

(2) Manufacturer's data sheets and certificates of compliance

signed by the manufacturer for the following:

(a) Pre-packaged polymer modified repair mortar.

(b) Ready-to-use liquid polymer admixture.

(c) Corrosion inhibitor.

(d) Fibers.

(e) Materials for curing VESLMC.

(f) Equipment: Submit descriptive literature describing the kinds, types, model numbers and operational features of the mixing and application proposed for use on this project.

(3) Detailed information on all equipment and materials that will be used for all aspects of the repair work including equipment for sounding and evaluating the existing concrete deck (utilizing impact echo technology or approved equal), determining surface profiles and compressive strengths, demolishing concrete, cleaning the repair areas, quality control/quality assurance (QC/QA) plan, placing (handling, mixing, consolidating, finishing, curing and texturing) of VESLMC, and post repair testing for delaminations. Contractor shall submit consultants for sounding and evaluating the bridge deck (utilizing impact echo technology or approved equal). See subsection 682.03 (B)(1) for more information.

(4) Detailed step by step procedures for all aspects of the repair work including sounding and evaluating the existing concrete deck (utilizing impact echo technology or approved equal)**,** determining surface profiles and compressive strengths, demolishing concrete, cleaning the repair areas, quality control/quality assurance (QC/QA) plan, placing (handling, mixing, consolidating, finishing, curing and texturing) of VESLMC, and post repair testing for delaminations. See subsection 682.03 (B)(1) for more information.

(5) Detailed plans and procedures to be in compliance with the requirements of Section 107 – Legal Relations and Responsibility to the Public and Section 620 – Dust Control including complying to noise variances, and controlling of work to appropriately minimize dust and air borne debris from concrete demolition, abrasive blasting, mixing and placing concrete, and cleaning operations, and to prevent water runoffs.

(6) Planned procedures for concrete repair areas and emergency work that cannot be appropriately constructed within the allotted closure hours or if work results in a complete depth penetration of the deck.

(7) Planned procedures to maintain adherence to limitations and requirements of ambient air temperature, wind speed, temperature of plastic concrete, relative humidity, evaporation rate of concrete, and rain.

(8) Procedures for documentation of all aspects of repair work including the measurement and locations of repair areas.

(9) Test reports of compressive strengths and maturity readings of repaired areas during the progress of the work.

1 **(B) Non-Destructive Testing (NDT) Deck Survey.** The roadway plans are a guide to illustrate the general locations of areas and not as a specification of specific repair areas. Repair areas will be determined by the Engineer in accordance with visual observation, sounding, and non-destructive testing utilizing impact echo technology or approved equal. The NDT Deck Survey shall mark the locations and limits of deteriorations and delaminations as determined by the visual, sounding, and NDT methods described in this section. The perimeters of the proposed repair areas shall be shown perpendicular and parallel to the traffic lanes. After the NDT Deck Survey is completed the Contractor shall submit a report of the NDT Deck Survey findings. The NDT deck survey shall be completed prior to any repair work on the bridge deck. The Contractor shall not begin any repair until the Engineer verifies and accepts the location and size of the area to be repaired. The Engineer may direct the Contractor to do repairs outside of the areas determined in the NDT deck survey. In addition to visual observation and sounding, NDT Deck Survey and reporting must at a minimum include and be based on the following:

(1) Submittals

1 **(a)** The NDT testing firm shall have a minimum of 5 years of experience with Impact Echo Scanning of bridge decks, plus experience with Impact Echo Scanning testing at least one bridge deck in the State of Hawaii. The NDT testing firm shall also have a registered Professional Engineer in the State of Hawaii on-staff with experience in analysis of bridge deck NDT data to review and approve the testing results.

(b) Procedures. Complete outline and details of scanning procedures which shall be in accordance with ASTM C 1383 and ACI 228.2 Impact Echo (IE) method and shall be able to:

1. Use measurement of resonant echo through the entire deck thickness

2. Allow for identification and mapping of hidden delaminations and cracking parallel to the deck surface for delaminations at both the top and bottom rebar mats.

3. Measure and record the deck thickness in areas where no cracking or other damage is present.

4. Collect IE test points along continuous scan lines at intervals of nominally 6 inches or less along each line with line spacings of one or two feet across the entire width of the bridge.

(c) Calibration. The IE results shall be verified and calibrated at the time of data collection through either testing over or within one area of a "known thickness" location or with the spectral analysis of surface waves test method. IE scanning data shall be adjusted such that the results match the known thickness. The calibration interval shall be no more than one test per mile of bridge deck.

(d) Impact Echo (IE) Scanning. The IE scanning shall be conducted in continuous lines parallel to the direction of traffic, with minimum scan line lengths of 100 feet. GPS readings of each test point shall be required. Testing shall be continuous through areas of deck damage. Field notes at the time of testing and photogrammetry data shall be used to identify these areas.

(e) Results. The results of the IE scanning shall be presented graphically with color scales to allow easy visualization of sound areas as well as various identified defects. The results shall also be tabulated with a summary of total area found of each type of anomaly compared to the total deck area tested.

(f) Bridge deck preparation. Provide details for cleaning of bridge deck and traffic control for lane openings and closures of traffic lanes.

(g) Equipment. List equipment to be used including 6 copies of technical brochures and instructions for use and maintenance.

⚠1 **(2) Limits of NDT Deck Survey.** The locations of the NDT deck survey on the bridge deck shall be as shown on the contract documents. NDT deck survey shall be the full width of the bridge.

(C) Quality Assurance.

(1) The Contractor shall be experienced (5 years or more) and have expertise in the field of repairs of reinforced concrete structures, proper application of corrosion inhibiting admixtures, and be familiar with the type of materials specified for this project. The Contractor will employ and provide a full-time supervisor to be on site at all times during the duration of the work covered in this Section. This person will work very closely with the manufacturer of the repair systems, the Engineer and the State's representative.

(2) Codes and Standards: Comply with all locally applicable codes, regulations and requirements pertaining to this work.

(3) Rejection of Installed Work: The Engineer shall have the right to reject all work which is not in compliance with the requirements of the drawings and specifications.

(4) Indication of lack of skill on the part of installation and application mechanics shall be sufficient grounds for the Engineer to reject applied products and to require their immediate removal and complete reinstallation and application until the Engineer accepts the work at no additional cost to the State. Mechanics lacking skill shall be replaced. Method to fix the Contractor's non-compliant repair shall be submitted to the Engineer for review and acceptance before the reconstruction of the remedial surface prep is started.

(5) Replacement of rejected work may require that the materials in place in the rejected areas be entirely removed to the solid concrete deck. Use methods that shall produce acceptable work. Additional surface preparation and a change of surface preparation or primer materials may be required. The Contractor shall research and define these procedures and complete the additional surface preparation and reapplication of the VESLMC at no extra cost to the State or additional contract time.

(6) A minimum of three specimens per test age will be prepared and tested by the Engineer for each LOT in accordance with ASTM C39. These test ages are 3 hours, 7-days, and 28-days. A LOT shall be one day's production, once every maximum of 2500 square feet of repaired area. When more than one production facility or

continuous volumetric mixers is used for the same mix design, apply the sampling and testing frequency per production facility or per continuous volumetric mixer.

(D) Delivery, Handling, and Storage.

(1) Delivery of Materials: Deliver all materials in original tightly sealed containers or unopened packages, clearly labeled and containing manufacturer's name, labels, date of manufacture, lot number, product identification, manufacturer's instructions for mixing, and warning for handling and toxicity.

(2) Storage: Store materials at the Contractor's place of business in cool, dry and safe location out of weather in original containers or unopened packages as recommended by the manufacturer. Temperature and humidity requirements of the manufacturer are to be adhered to at all times. No storage of material or debris shall be allowed other than material needed for the shift's work or debris created during the shift.

(3) Handling: Handle all materials in a safe manner and in a way to avoid breaking container seals.

(4) Environmental Requirements: Container shall comply with manufacturer's recommendations as to environmental conditions under which the materials may be applied.

(E) Job Conditions.

(1) Adhere to the manufacturer's printed instructions regarding weather and climate condition restrictions on the use of all materials supplied in this section.

(2) Do not apply the materials if it is raining or if rain is imminent. Take proper precautions to protect newly placed and completed repairs from weather conditions such as strong wind or rain.

(3) Do not man scaffolds or lift equipment in wind or rain conditions that makes working dangerous.

(4) Protection: Precautions shall be taken to avoid damage to any surface near the work area due to spillage.

(5) Barricades: Erect temporary barricades and railings, to prevent people from entering the project area. Coordinate with the State's representative on final location and placement. The extent of barricade and railings may be adjusted by HIOSH requirements at no extra cost to the State.

(F) Protection of the Work. Use all means necessary to protect the materials of this section before and during installation and to protect this work and the work of all other trades. In the event of damage during installation, immediately make repairs and replacements necessary to the approval of the State's representative at no additional cost to the State.

(G) Early Strength Monitoring. Provide a minimum of two sacrificial sensor type maturity meters meeting the requirements of ASTM C1074 to determine concrete conformance to early strength requirements. The maturity meters shall have a secure and unalterable means of collecting data.

Verify the calibration of the maturity meters in the presence of the Engineer prior to use on the project by placing a temperature sensor in a controlled temperature water bath and recording whether the indicated temperature agrees with the known temperature of the water bath. Perform temperature comparison test at approximately 5 different temperatures, 75°F, 100°F, 125°F, 150°F and 175°F. The temperature recording device shall be accurate to within ± 2°F.

Develop strength-maturity relationship using only maturity meters, materials and conditions to be used or encountered on the project for VESLMC prior to placing any VESLMC on the project. Notify the Engineer when the development of the maturity curve will be done and conduct all tests in the presence of the Engineer in accordance with ASTM C 1074 Estimating Concrete Strength by the Maturity Method at the VESLMC producer's laboratory or other approved laboratory facilities. For every VESLMC design, prepare a minimum size of each batch of VESLMC of at least one cubic yard and cast a minimum of 15 cylinders in accordance with AASHTO T23. Test three cylinders at ages of 3, 4, 6, 12, and 24 hours. Submit all results and curves to the Engineer for review and acceptance.

Any alterations in mix proportions or material source or type of material, in excess of those tolerable by batching variability, requires the development of a new strength-maturity relationship prior to use. This includes a change in material type, source, or proportion of cement, fly ash, coarse aggregate, fine aggregate, fibers or admixtures. The Engineer will require the development of a new strength-maturity relationship for any changes in the water to cement ratio of greater than 0.02.

Submit the following information of the strength-maturity relationship prior to placing any VESLMC on the project.

(1) Project number, VESLMC mix number and test date.

(2) Air content, slump and total free water of the batch of VESLMC.

(3) Type and amount of admixtures used in the batch of VESLMC.

(4) Strength of each specimen and average strength of specimens at each test age.

(5) Maturity index for each instrumented test specimen and the average maturity index for the instrumented specimens at each test age.

(6) Graphs of the average compressive strength verses the average value of the maturity index as described in the strength-maturity relationship of ASTM C 1074.

Provide a minimum of two maturity meters at the project site for monitoring the early strength of VESLMC during each section of VESLMC placement. Assure that the batteries for the maturity meters are adequately charged prior to use. Use the same brand and type of maturity meters and thermocouple sensors as those used to develop and verify the strength-maturity relationship.

Install at least two maturity meter sensors per VESLMC placement such that there is a minimum of one sensor in each half of the length of the deck slab to be poured. Place sensors no closer than 4 inches from any formed surface or edge of slab being placed. Modify means and methods subsequent to failures of sensors to prevent any reoccurrence. The Engineer may designate location of maturity meter sensors.

Conduct a validation test after each day of VESLMC placement by comparing an average compressive strength of three cylinders to the compressive strength as determined in the accepted strength-maturity relationship to verify that the in-place VESLMC compressive strengths are accurately represented. Submit the validation data with the same extent of information as the initial strength-maturity relationship submittal. The Engineer will consider the strength-maturity relationship valid for the predicted strengths within 5 percent of the actual compressive strength. Make a mathematical adjustment to the strength-maturity relationship when the actual average compressive strength for three validation tests are 5 to 10 percent above or below the predicted compressive strength as directed by the Engineer. Develop a new strength-maturity relationship when the actual average compressive strength for three validation tests exceeds 10 percent above or below the predicted compressive strengths.

The Engineer will not accept VESLMC which does not meet the compressive VESLMC strength of 3,000 pounds per square inch at 3 hours as determined by the maturity meter readings.

(H) Just-In-Time-Training. JITT shall be held and shall conform to Section 695 – JUST IN TIME TRAINING.

(I) Execution.

(1) All repairs shall be made in accordance with the specifications, appropriate Repair Application Procedures (RAP) publications by the American Concrete Institute (ACI), recommendations by the International Concrete Repair Institute (ICRI), and the manufacturer's recommendations.

(2) The Contractor shall inspect all areas of the concrete deck in question and all concrete surfaces surrounding the repair area for spalling and/or other deterioration. Contractor shall utilize the contract documents, the NDT Deck Survey, visual inspection, an auditory hammer sounding, and exploratory removal methods. Areas identified for repair shall be marked on the surface, and marked on the project as-built plans.

(3) Defective Concrete Removal:

(a) General: Execute all work in an orderly and careful manner. Protect all surfaces and items to remain. The Contractor is responsible for any and all damages, repairs or replacement of existing surfaces and items to remain. Carefully cut and remove defective materials indicated or found without damaging adjacent material surfaces or items that are to remain. Provide catchment device or platform to collect all concrete chips and other debris for proper disposal offsite.

(b) Where concrete work is to be repaired, make a 1/2 – inch deep square saw cut along straight lines at 90-degree angles, 1 inch beyond the edge of the damaged area or spall into sound concrete, unless noted otherwise. Hydrodemolition, pneumatic tools weighing less than 15 pounds, or approved equal may be used to remove the remaining unsound concrete. When a saw-cut edge cannot be achieved because of tool interferences, face of the top edge of the patch shall be chipped out to provide a vertical face a minimum of 1/2-inch to 3/4-inch depth, unless shown otherwise. The remainder of the defective concrete shall be chipped out with a chipping gun to solid sound concrete.

Adjust saw-cut depth so as not to cut existing concealed reinforcing bars. Do not extend saw-cut beyond the limits of removal work. Contractor shall take extra care to minimize any "blow-outs" in the bridge deck. A "blow-out" is demolishing through the entire concrete bridge deck.

(c) Spalled and Loose Surfaces: Remove all loose concrete and check all spalled areas that are indicated or are obvious upon visual examination. Contractor shall remove a minimum of 1½ inch depth from the concrete deck for the VESLMC repair to ensure a sound repair.

(d) Sounding: Inspect the remaining exterior concrete surfaces around the repair area for the bridge span in question for any other defective concrete by utilizing non-destructive testing equipment approved by the Engineer.

(e) Partially exposed reinforcing bar(s) where more than ½ of the bar is exposed shall be fully exposed throughout its length, within the patch area. There shall be a minimum of 1/2-inch of space between the reinforcing bars and the concrete all around the bar. Do not vibrate the reinforcing bar when removing concrete.

Strengthen any reinforcing steel that is found to have lost 25% or more of the original cross-sectional area by weld lap splicing new reinforcing steel as shown in the Contract Documents.

(f) Remove deteriorated concrete, prepare and clean surfaces to be patched. Clean all chipped concrete surfaces to remove all foreign material and laitance before application of VESLMC.

Do not remove more than 50% depth of the structural member. Notify the Engineer if unsound concrete still remains. If the Contractor removes more than 50% depth of the existing concrete deck or exposes the top of the bottom layer of reinforcing steel then the contractor will need to perform a full depth repair upon approval of the Engineer at no increase in contract time and price. Contractor shall provide full depth repair details and traffic control in the initial submittal for acceptance by the Engineer.

(g) All concrete surfaces to receive repair material shall be roughened to a minimum of ¼ inch amplitude or a Concrete Surface Profile (CSP) of 7.

(h) No material is allowed to fall or flow into streams or drainage systems.

(4) Surface Preparation:

(a) Cleaning: After removal of all defective concrete, remaining concrete surfaces to be patched shall be structurally sound, clean, free of dirt, powdered concrete, loose mortar particles, paint, film, protective coatings, efflorescence, laitance, and other matter detrimental to proper adhesion of the new VESLMC. Contractor shall use methods such as pressure washing or approved equal to ensure proper cleanliness. Work surfaces must be free of ridges, fins or sharp projections. All reinforcing bars in the repair area shall be made free of all scale and loose rust by using either powered rotary wire bristle brush or abrasive blasting. Needle gunning may be used as preliminary step for removal of loose rust. Do not overly vibrate the reinforcing bars. Following all concrete removal and steel cleaning, the entire repair area shall be cleaned. Any areas not patched within the work shift shall be recleaned.

1. Immediately prior to placing VESLMC, the repair area shall be cleaned of all dust, debris, and other deleterious material with oil-free compressed air at a minimum of 100 psi with a Safety Air Blow Gun OSHA Compliant, with alloy nozzle and extension.

2. Certify that all of the manufacturer's recommendations for preparation, bonding and application have been followed.

(5) Formwork: All formwork, supports, and bracing shall be adequately designed to support the anticipated weight of the wet repair material. Caulk all edges to ensure forms are watertight. Set elevation of formwork such that the minimum concrete clear cover, as shown in the drawings, is provided. A Hawaii licensed Structural Engineer shall be used for the design work when required, stamp drawings and calculations.

(6) Application of VESLMC:

(a) VESLMC manufacturer's representative shall be present for initial repair and as necessary to ensure proper preparation and application techniques are being utilized. Concrete substrate should be saturated surface dry (SSD) prior to placing VESLMC. The contractor shall adhere to recommendations made by the technical representative and accepted by the Engineer at no increase in contract time or contract price.

(b) Mix VESLMC and apply in strict conformance with the manufacturer's published instructions or job specific written instructions. If patch exceeds maximum thickness, extend with aggregate as recommended by manufacturer.

(c) Make batches large enough to assure continued placement of VESLMC within repair area prior to initial set.

(d) Finish: Finish all patch work to match existing surfaces in texture and appearance or as otherwise directed by the State's representative. Do not feather edge VESLMC onto adjacent surfaces. Grind any high spots, transition areas, or protrusions.

(e) Curing:

1. Allow VESLMC to cure for a minimum 3-hours prior to opening to traffic. Cover with wet burlap or approved equal and remove prior to opening to traffic.

2. Immediately following formwork removal, cure VESLMC as recommended by the manufacturer.

(f) Falsework: Any falsework and formwork required shall be considered incidental to this work.

(7) Field Quality Control: The Contractor's representative will conduct field trials to verify compressive strength.

(a) Sampling: The Contractor's representative will prepare cylindrical concrete specimens for compressive strength testing by an independent testing laboratory once per LOT.

(b) Testing: An accredited independent testing laboratory shall have the compressive strength tests performed by personnel certified in the test method used. Notify the

Engineer 72 hours in advance of the test date and time so it may attend compressive strength tests.

Test the QC laboratory cured samples for compressive strength at the ages of 3 hours, 7 days, and 28 days in a laboratory meeting and maintaining at all times the qualification requirements in the Highways Division's Quality Assurance Manual for Materials. Notify the Engineer of the Quality Control Laboratory compressive test results within 24 hours.

If the compressive strength test results fail to meet the specified requirements after two tests, the repairs made using the batched material represented by the samples tested shall be rejected. Areas of rejected repairs shall be removed, replaced and re-tested until acceptable at no additional cost to the State. The inspection of or the failure to inspect the work shall not relieve the Contractor of obligations to fulfill the contract as prescribed, to correct defective work, and to replace unsuitable or rejected materials regardless of whether payment for such work has been made.

(c) Special Inspection:

1. Examine the VESLMC at the job site to verify that the materials used at the jobsite are the selected and approved materials referenced in the test results of design mixes or certificates of compliance.

2. Examine the surface preparations, mixing, application and curing procedures of the VESLMC to determine conformance with the requirements specified.

(d) In-Place Test of Repairs:

1. Utilizing a 2-pound hammer, test all completed concrete spall repairs to locate hollow or ringing sounding areas. A hollow sound generally will indicate that either the repair material has not completely filled the space from which the damaged concrete was removed or that it has not adequately bonded to the concrete substrate. Submit revised method of installation to prevent the non-compliant work from happening again.

2. The Contractor shall remove the VESLMC from those hollow or ringing sounding areas, prepare the surfaces of the exposed reinforcing bars and the sound concrete substrate, if necessary, form and then place, cure and finish the new VESLMC at no additional cost to the State. Upon completion, the repairs will be retested by the State's representative.

(8) Cleaning:

(a) Surfaces Not Involved in the Repairs: Adjacent surfaces damaged by staining left by concrete work, or other concrete materials shall be completely restored to the original new condition with respect to color and texture to the acceptance by the State's representative.

(b) Uncured VESLMC can be cleaned from tools with water. Cured VESLMC can only be removed mechanically.

(c) Removal:

1. Remove debris and rubbish from the site daily. Prevent debris and rubbish from entering the waterway. Debris and rubbish shall not be allowed to accumulate on the site. Debris shall be removed and transported in a manner that will prevent spillage into the open channel, onto the adjacent ground and streets.

2. Upon completion of the work, remove all materials, tools, forming materials, catchments, work platforms, refuse and debris generated by the work specified in this section.

(J) Traffic and Equipment Control on Bridge.

(1) Construction vehicles shall not exceed a 5-mph speed limit within 200 feet of the placement area in both directions during VESLMC placement and curing.

(2) Equipment and vehicles shall not contaminate the prepared deck surface.

(3) The Contractor shall not permit compressors or other equipment that produce vibrations on the span undergoing deck

VESLMC work. Equipment shall not be located on spans undergoing deck VESLMC unless approved by the Engineer.

(4) Vehicular traffic shall not exceed a 35-mph speed limit on the bridge span during VESLMC pour and cure.

(5) The VESLMC shall have a minimum compressive strength of 3000 psi as determined by Early Strength Monitoring and by testing according to manufacturer's recommendations prior to opening to traffic.

(6) The bridge deck shall not be used as a storage area for equipment or for stockpiling materials. Loads exceeding eight tons shall not be used on the bridge unless approved by the Engineer.

(7) The contractor shall not allow any equipment or vehicles within 4 feet laterally from any repair for the duration of traffic control.

(K) Surface Testing. The finished bridge deck shall conform to the following requirements when tested by the Contractor in the presence of the engineer within 14 days following the placement of concrete:

(1) Surface Flatness. The surface of the replaced pavement shall not vary more than 1/8 inch under a 10-foot straightedge placed parallel to or perpendicular to the traffic lanes to within the limits of the repaired area after the repair has cured.

(2) Joint smoothness. The surface smoothness at the repair edges or joints shall be such that neither side of the joint will vary from a true plane enough to permit a 1/16 inch thick shim 3 inches wide to pass under a one-yard straightedge adjacent to either side of the joint when the straightedge is laid on the pavement perpendicular to joint and its midpoint at the joint.

(3) Surface Elevation. The surface elevation of the repair shall be between 0 to 0.00525 feet above the surface determined by the top elevation of the existing deck slabs adjacent to all four edges of the repaired deck surface.

(4) Surface Condition. The repaired area shall be sound and free from cracks greater than 0.010 inch in width.

(L) Acceptance. Hardened concrete will be accepted or rejected on the basis of strength tests and sounding methods. Do not discard a cylinder strength test result based on a low strength (strength below the

specified minimum strength). When QC strength test results are verified, the Engineer will accept at full payment only at LOTS of concrete represented by strength test results equal or exceed the respective specified minimum strength. The compressive strength results of the LOT shall meet the specified minimum strengths of 3000 psi at 3 hours* and 6000 psi at 28 days. The Engineer may accept the average compressive strength of three individual test results in lieu of individual strength test result provided that no single test result is less than 90 percent of the average value.

* As determined by the maturity meter readings.

(M) Documentation of Repairs. Include in the preparation of posted drawing as required in Section 648, records of each repaired concrete area.

The documentation shall include the following:

(1) The replacement concrete pour date.

(2) The location of the center of each repair rectangle as indicated by:

(a) The baseline station number.

(b) The transverse offset from the baseline with offset direction information.

(3) The dimensions of the rectangle in the following directions:

(a) Longitudinally in the direction of traffic flow.

(b) Transversely perpendicular to the direction of traffic flow.

(4) Identification of the repair area represented by the maturity sensors and cylinder sample collected or that the test was performed on strength test results of cylinders and maturity meter readings shall be included for all repair areas.

(5) QC/QA and Acceptance test data.

(6) The Contractor shall also prepare a spread sheet tabulation of the above information.

(N) Post-Construction Survey, Sealing Cracks and Repairing Delaminations. Perform a post-construction survey with the Engineer present between three and nine months, or prior to overlay placement. Contractor shall survey all repairs in accordance with ASTM D4580 including visual inspections for cracks and other defects in the presence of the Engineer. Seal cracks that are greater than 0.01 inch in width with epoxy materials which are compatible with the repair materials and acceptable to the Engineer. Remedy, remove, or replace unacceptable areas with VESLMC as specified in this section at no increase in contract time or contract price. Repaired areas will be subject to re-inspection. Provide documents of the post construction surveys that are acceptable to the Engineer.

682.04 Measurement. The Engineer will measure the Defective Concrete Repair per cubic foot of repaired and accepted section. The Engineer will measure NDT Deck Survey on a force account basis.

682.05 Payment. The Engineer will pay for the accepted quantities of Defective Concrete Repair at the contract unit price per cubic foot, complete in place. The Engineer will pay for NDT Deck survey on a force account basis. Payment for JITT shall be considered as incidental for this section.

The payment will be full compensation for chipping, removing and disposing of defective concrete found within the limits of the spall and patch repair work; locating existing reinforcing steel bars, extending the probing to beyond the end of corrosion and removing concrete around the corroded reinforcing steel; cleaning and preparing concrete surfaces; removing corrosion damage from reinforcing steel; providing forms and falsework; placing, finishing and curing concrete repair materials; repairing defects; sampling and testing concrete; for clean-up; and for furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

Pay Item	**Pay Unit**
Defective Concrete Repairs _____	Cubic Foot
Non-Destructive Testing (NDT) Deck Survey _____	Force Account"

END OF SECTION 682

Make this Section a part of the Standard Specifications:

"SECTION 683 – PENETRATING SEALER FOR BRIDGE DECKS

683.01 Description. This work consists of providing all labor, materials, and equipment required to prepare, clean, and apply a penetrating epoxy sealer system to concrete bridge decks.

683.02 Materials.

(A) Penetrating Sealer. Epoxy Sealer shall be a solvent-free 0-VOC, two-component, 100% solids, moisture insensitive, low viscosity, low modulus epoxy penetrating sealer. Epoxy shall meet the current ASTM C881 and AASHTO M235, Type III, Grade 1, Classes B & C specifications and the requirements listed in Table 1 below.

Table 1

Property	Requirement
Viscosity (ASTM D2393)	<150 cps
Gel Time (60 g mass)	>15 minutes
Tack Free Time (73º F or 23º C)	2 to 5 hours
Tensile Properties (ASTM D638), 7 day cure	Tensile Strength >1,000 psi (12.4 MPa)
	Tensile Elongation: 50%
Compressive Properties (ASTM D695), 7 day cure	Compressive Strength: >2,500 psi (20.9 MPa)
	Compressive Modulus: <130,000 psi (620 MPa)
Bond Strength (ASTM C1583/ACI 503R)	250 psi (2.0 MPa)
Thermal Compatibility (ASTM C884)	Pass
Water Absorption (ASTM D570)	0.2% (24 hr)
Chloride Ion Permeability (AASHTO T277)	0.0 coulomb

(B) Topping Aggregate. Furnish aggregate meeting the requirements listed in tables 2 and 3 below unless otherwise specified by the Engineer. Deliver the aggregate to the construction site in bags or super sacks labeled clearly for identification. Provide aggregate that is virgin, clean, dry, and free from foreign matter. Ensure aggregate meets the requirements in Tables 2 and 3. Ensure aggregate is angular, consists of natural silica sand, basalt, or other nonfriable aggregate, and contains less than 0.2 percent moisture when tested in accordance with ASTM C 566. A sample of the aggregate lot/batch shall be supplied upon request.

Table 2

Property	Test Method	Testing Lab. Results
Gradation	ASTM C136	See Table 3
Moisture	ASTM C566	NCAT 0.0%
MOHS Hardness	MOHS Scale	Krazen & Associates 7.1
Micro-Deval	AASHTO T327	ODOT 2.6%
Absorption	ASTM C127	NCAT 1.0%

Table 3

Armorstone	992-3 - #14 x #50
Sieve size	Percentage passing
No. 10	100
No. 12	99
No. 14	98
No. 16	84
No. 20	37
No. 30	9
No. 40	2
No. 50	0.5
No. 60	0.1
No. 100	0.1
Pan	0

683.03 Construction.

(A) Submittal Requirements. Prior to the Just-In-Time Training (JITT) and the start of this work, provide 10 copies (2 copies for HWY-L) of the following submittals in one complete set for acceptance. Clearly indicate the section the material is being submitted for, including the test method identification, table it is located on in the section, name of the product and its manufacturer on pertinent submittals. No work that is related to these submittals shall be performed until written acceptance has been received.

(1) Name and contact information of the resin binder and aggregate manufacturer's technical representative and other key personnel.

(2) A warranty on the products provided by the epoxy binder manufacturer. Warranty shall be for a minimum of 10 years.

(B) Storage and Handling. All materials shall be delivered in their original containers bearing the manufacturer's label, specifying date of manufacturing, batch number, trade name, and quantity. Each shipment of resin binder shall be accompanied by a Safety Data Sheet (SDS).

(1) Store materials at the Contractor's place of business in cool, dry and safe location out of weather in original containers or unopened packages as recommended by the manufacturer. Temperature and humidity requirements of the manufacturer are to be adhered to at all times. No storage of material or debris shall be allowed other than material needed for the shift's work or debris created during the shift. Handle all materials in a safe manner and in a way to avoid breaking container seals.

Any material which is rejected based on failure to meet the required tests or that has been damaged to a point where it is unsuitable for use shall be immediately replaced at no additional cost to the State.

The contractor shall arrange to have the material supplier furnish technical service related to application of material and health and safety training for personnel who are to handle the penetrating sealer.

(C) Work Plan. Submit a Work Plan to the Engineer for approval 30 days prior to the JITT, pre-construction meeting, and pre-installation meeting, whichever is earliest. No installation work shall start until the Work Plan is accepted and discussed in the JITT, pre-construction meeting, and pre-installation meeting. Discuss the Work Plan requirements at the pre-construction, pre-installation, and progress meetings. The Work Plan shall contain at a minimum the following information:

(1) Method of surface preparation and required surface condition for adequate bonding.

(2) Method of crack repair and defective concrete repair of existing concrete deck.

(3) Construction during inclement weather. Plan for the occurrence of rain, moisture in the pavement, and temperature requirements for the materials being used.

(4) Mixing ratio and application rates for resin binder and aggregate.

(5) Application Method.

(6) Curing time and requirements for opening to traffic.

(7) Corrective actions that will be taken for unsatisfactory installation practices.

(D) Just-In-Time-Training. JITT shall be held and shall conform to Section 695 – JUST IN TIME TRAINING.

(E) Equipment. For the epoxy penetrating sealer, provide a distribution system or distributor capable of accurately blending the epoxy resin and hardening agent, and uniformly and accurately applying the epoxy materials at the specified rate to the bridge deck in such a manner as to cover 100 percent of the work area. Provide a fine aggregate spreader capable of uniformly and accurately applying dry aggregate to cover 100 percent of the epoxy material. Provide a self-propelled vacuum truck to remove all loose aggregate.

(1) For hand applications, provide calibrated containers, a-Jiffy® type mixer for mixing, and stiff bristle brooms suitable for applying the epoxy. Aggregate shall be broadcast by hand until refusal onto the wet epoxy.

(2) For mechanical applications, provide meter-mixing equipment that will automatically and accurately proportion the components in accordance with the manufacturer's recommendations and will mix and continuously place the penetrating sealer. Ensure the operation proceeds in such a manner that will not allow the mixed materials to segregate, dry, be exposed or otherwise harden in such a way as to impair the retention and bonding of broadcasted aggregate.

(F) Surface Preparation. Surface preparation shall conform to the following requirements:

(1) The existing concrete deck shall be roughened by shotblasting or approved equal.

(2) Sweep the surface clean with a vacuum sweeper. Then blow the surface clean with oil-free compressed air to remove dust and laitance.

(3) Clean and prepare cracks greater than 0.010-inches wide per resin binder manufacturer's recommendations.

(4) All laitance, contaminants, paint, markers and foreign material, must be removed from the pavement surface.

(G) Placement.

(1) Mixing.

(a) Hand Mixing. Precondition material to 65°-85°F (18°-29°C) before using. Measure and mix one part by volume of Part A with one part by volume of Part B for three minutes with a low speed (< 450 rpm) drill using a jiffy mixer or paddle. Mix only as much material as can be used within the pot life. Air, material, and surface temperature must be a minimum of 50°F (10°C) prior to mixing or installation.

(b) Mechanical Mixing. Application equipment shall be calibrated, self-propelled, and capable of continuously and thoroughly blending the resin binder components to the ratio recommended by the manufacturer. For mechanical applications consult material manufacturer for proper mixing and dispensing equipment.

(2) Application. Expansion joints, drains and grates shall be adequately isolated to prevent any penetrating sealer from entering drainage and joint systems. The surface treatment discharged from the mixer shall be uniform in composition and consistency. Mixing capability shall be such that initial and final finishing operations can proceed at a steady pace.

Continuous application must be performed by approved, calibrated, self-propelled application equipment capable of continuously and thoroughly blending the resin binder components to the ratio recommended by the manufacturer. After the epoxy mixture has been prepared, immediately distribute evenly and work into concrete for a minimum of 5 minutes for maximum penetration. Keep ponding epoxy into cracks until refusal. Penetrating sealer shall have a minimum thickness of 25-30 mils. Verify thickness using a Wet-Mil film thickness gauge every 75-100 lineal feet of application.

The continuous application equipment shall have an aggregate distribution system capable of mechanically placing aggregate from a maximum height of 12" into the wet resin binder evenly across the full width of the installation. The application equipment shall install the surfacing at a minimum application rate of 20 linear ft per minute. Ensure the surfacing aggregate is applied uniformly at a rate of 14-17 pounds per square yard within the working time.

Ensure handling and mixing of the epoxy resin and hardening agent is performed in a safe manner to achieve the desired results in accordance with the manufacturer's recommendations or as directed by the Engineer. Do not place penetrating sealer when the concrete surface is less than 50 degrees Fahrenheit (F) or ambient air temperature is

forecast to fall below 50 degrees F within 8 hours of application. Do not place penetrating sealer materials if weather or surface conditions are such that the material cannot be properly handled, placed, and cured according to the manufacturer's requirements and the specified requirements for traffic control. Penetrating sealer shall only be placed after the existing concrete is cleaned according to Subsection 683.03 (F) Surface Preparation.

Ensure no bleed through or wet spots are visible in the material. Minimize all foot traffic on the uncured epoxy and ensure any foot traffic will only be done with steel spiked shoes approved by the Engineer. Do not allow traffic or equipment on the penetrating sealer surface during the curing period. Remove all loose aggregate after the curing period with a vacuum or broom without tearing or damaging the surface. Perform a final sweep of loose aggregates and debris from the areas adjacent to the applied surface treatment within end of work shift. Ensure all expansion joints are free of loose aggregate, epoxy and other debris.

(3) Curing. Traffic and construction equipment shall not be permitted on the completed penetrating sealer for 3 hours or until the surface treatment is tack free whichever is later.

(H) Testing. Test for any raveling, delamination, streaking, or bond test failure according to the manufacturer's recommendations.

(I) Acceptance. The completed penetrating sealer shall be free of any smooth or wet areas such as those resulting from insufficient quantities of topping aggregate. Completed surface must smooth out the existing deck to achieve a uniform thickness, texture and appearance. Minimum bond strength shall be 250 psi or failure of the substrate at 24 hours in accordance with ASTM C1583 and the manufacturer's recommendations. Fill cored holes with approved material specified in Section 682 – Defective Concrete Repairs.

(J) Corrective Action. Correct all defects in material and work, that is not compliant with the requirements of the Contract Documents, at no additional cost to the Engineer, according to the following:

(1) Remove and replace any penetrating sealer that the Engineer determines has any raveling, delamination, streaking, or bond test failure. Removal and replacement shall be in accordance with the manufacturer's recommendations and accepted by the Engineer.

(2) Ensure the minimum replacement is the full lane width and the length of the defect plus five lane feet on the up-station and down-station side of the edge of the defect area and as accepted by the engineer.

(3) Any roadway features disturbed, damaged or defaced by the work or the installer's operations shall be restored with the same materials and design as directed by the Engineer at no additional cost to the agency.

683.04 Measurement. Penetrating sealer will be measured per square foot as shown on the plans and contract documents.

683.05 Payment. The Engineer will pay for the accepted quantities of penetrating sealer complete in place at the contract unit price per square foot. Payment for JITT shall be considered as incidental for this section. Payment will be full compensation for the work prescribed in this section and the contract documents.

⚠1 Payment will be full compensation for furnishing and placing all materials, and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified.

No separate or additional payment will be made for preparing road surface, placing materials in final position, sweeping or for the minimum testing of the materials and placement as defined in this specification.

No separate or additional payment will be made for reinstallation and retesting of penetrating sealer where the initial installation was determined to be defective.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	Pay Unit
Penetrating Sealer _____	Square Foot"

END OF SECTION 683

"General Decision Number: HI20200001 10/30/2020

Superseded General Decision Number: HI20190001

State: Hawaii

Construction Types: Building, Heavy (Heavy and Dredging), Highway and Residential

Counties: Hawaii Statewide.

BUILDING CONSTRUCTION PROJECTS; RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories); HEAVY AND HIGHWAY CONSTRUCTION PROJECTS AND DREDGING

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/31/2020
2	02/07/2020
3	02/21/2020
4	03/06/2020
5	03/20/2020
6	04/03/2020
7	07/24/2020
8	08/21/2020
9	08/28/2020
10	09/18/2020
11	09/25/2020
12	10/02/2020
13	10/09/2020
14	10/16/2020
15	10/30/2020

ASBE0132-001 08/31/2015

	Rates	Fringes

Asbestos Workers/Insulator
Includes application of all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems. Also the application of firestopping material for wall openings and penetrations in walls, floors, ceilings and curtain walls.....$ 39.65 23.50

BOIL0627-005 01/01/2013

	Rates	Fringes
BOILERMAKER	$ 35.20	27.35

BRHI0001-001 08/31/2020

	Rates	Fringes
BRICKLAYER		
Bricklayers and Stonemasons	$ 45.95	29.59
Pointers, Caulkers and Weatherproofers	$ 46.21	29.59

BRHI0001-002 08/31/2020

	Rates	Fringes
Tile, Marble & Terrazzo Worker		
Terrazzo Base Grinders	$ 41.69	28.11
Terrazzo Floor Grinders and Tenders	$ 40.14	28.11
Tile, Marble and Terrazzo Workers	$ 43.50	28.11

CARP0745-001 08/31/2020

	Rates	Fringes
Carpenters:		
Carpenters; Hardwood Floor Layers; Patent Scaffold Erectors (14 ft. and over); Piledrivers; Pneumatic Nailers; Wood Shinglers and Transit and/or Layout Man	$ 50.50	23.59
Millwrights and Machine Erectors	$ 50.75	23.59
Power Saw Operators (2 h.p. and over)	$ 50.65	23.59

CARP0745-002 08/31/2020

	Rates	Fringes
Drywall and Acoustical Workers and Lathers	$ 50.50	23.59

ELEC1186-001 08/23/2020

	Rates	Fringes
Electricians:		
Cable Splicers	$ 56.71	31.16
Electricians	$ 51.55	29.58
Telecommunication worker	$ 32.69	12.96

ELEC1186-002 08/23/2020

	Rates	Fringes
Line Construction:		
Cable Splicers	$ 56.71	31.16
Groundmen/Truck Drivers	$ 38.66	25.63
Heavy Equipment Operators	$ 46.40	28.00
Linemen	$ 51.55	29.58
Telecommunication worker	$ 32.69	12.96

ELEV0126-001 01/01/2020

	Rates	Fringes
ELEVATOR MECHANIC	$ 61.14	34.765

a. VACATION: Employer contributes 8% of basic hourly rate for 5 years service and 6% of basic hourly rate for 6 months to 5 years service as vacation pay credit.

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day and Christmas Day.

ENGI0003-002 09/03/2018

	Rates	Fringes
Diver (Aqua Lung) (Scuba))		
Diver (Aqua Lung) (Scuba) (over a depth of 30 feet)	$ 66.00	31.26
Diver (Aqua Lung) (Scuba) (up to a depth of 30 feet)	$ 56.63	31.26
Stand-by Diver (Aqua Lung) (Scuba)	$ 47.25	31.26
Diver (Other than Aqua Lung)		
Diver (Other than Aqua Lung)	$ 66.00	31.26
Diver Tender (Other than Aqua Lung)	$ 44.22	31.26
Stand-by Diver (Other than Aqua Lung)	$ 47.25	31.26
Helicopter Work		
Airborne Hoist Operator for Helicopter	$ 45.80	31.26
Co-Pilot of Helicopter	$ 45.98	31.26
Pilot of Helicopter	$ 46.11	31.26
Power equipment operator - tunnel work		
GROUP 1	$ 42.24	31.26
GROUP 2	$ 42.35	31.26
GROUP 3	$ 42.52	31.26
GROUP 4	$ 42.79	31.26
GROUP 5	$ 43.10	31.26

GROUP 6	$ 43.75	31.26
GROUP 7	$ 44.07	31.26
GROUP 8	$ 44.18	31.26
GROUP 9	$ 44.29	31.26
GROUP 9A	$ 44.52	31.26
GROUP 10	$ 44.58	31.26
GROUP 10A	$ 44.73	31.26
GROUP 11	$ 44.88	31.26
GROUP 12	$ 45.24	31.26
GROUP 12A	$ 45.60	31.26
Power equipment operators:		
GROUP 1	$ 41.94	31.26
GROUP 2	$ 42.05	31.26
GROUP 3	$ 42.22	31.26
GROUP 4	$ 42.49	31.26
GROUP 5	$ 42.80	31.26
GROUP 6	$ 43.45	31.26
GROUP 7	$ 43.77	31.26
GROUP 8	$ 43.88	31.26
GROUP 9	$ 43.99	31.26
GROUP 9A	$ 44.22	31.26
GROUP 10	$ 44.28	31.26
GROUP 10A	$ 44.43	31.26
GROUP 11	$ 44.58	31.26
GROUP 12	$ 44.94	31.26
GROUP 12A	$ 45.30	31.26
GROUP 13	$ 42.22	31.26
GROUP 13A	$ 42.49	31.26
GROUP 13B	$ 42.80	31.26
GROUP 13C	$ 43.45	31.26
GROUP 13D	$ 43.77	31.26
GROUP 13E	$ 43.88	31.26

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Fork Lift (up to and including 10 tons); Partsman (heavy duty repair shop parts room when needed).

GROUP 2: Conveyor Operator (Handling building material); Hydraulic Monitor; Mixer Box Operator (Concrete Plant).

GROUP 3: Brakeman; Deckhand; Fireman; Oiler; Oiler/Gradechecker; Signalman; Switchman; Highline Cableway Signalman; Bargeman; Bunkerman; Concrete Curing Machine (self-propelled, automatically applied unit on streets, highways, airports and canals); Leveeman; Roller (5 tons and under); Tugger Hoist.

GROUP 4: Boom Truck or dual purpose ""A"" Frame Truck (5 tons or less); Concrete Placing Boom (Building Construction); Dinky Operator; Elevator Operator; Hoist and/or Winch (one drum); Straddle Truck (Ross Carrier, Hyster and similar).

GROUP 5: Asphalt Plant Fireman; Compressors, Pumps, Generators and Welding Machines (""Bank"" of 9 or more, individually or collectively); Concrete Pumps or Pumpcrete Guns; Lubrication and Service Engineer (Grease Rack); Screedman.

GROUP 6: Boom Truck or Dual Purpose ""A""Frame Truck (over 5 tons); Combination Loader/Backhoe (up to and including 3/4 cu. yd.); Concrete Batch Plants (wet or dry); Concrete Cutter, Groover and/or Grinder (self-propelled unit on streets, highways, airports, and canals); Conveyor or Concrete Pump (Truck or Equipment Mounted); Drilling

Machinery (not to apply to waterliners, wagon drills or jack hammers); Fork Lift (over 10 tons); Loader (up to and including 3 and 1/2 cu. yds); Lull High Lift (under 40 feet); Lubrication and Service Engineer (Mobile); Maginnis Internal Full Slab Vibrator (on airports, highways, canals and warehouses); Man or Material Hoist; Mechanical Concrete Finisher (Large Clary, Johnson Bidwell, Bridge Deck and similar); Mobile Truck Crane Driver; Portable Shotblast Concrete Cleaning Machine; Portable Boring Machine (under streets, highways, etc.); Portable Crusher; Power Jumbo Operator (setting slip forms, etc., in tunnels); Rollers (over 5 tons); Self-propelled Compactor (single engine); Self-propelled Pavement Breaker; Skidsteer Loader with attachments; Slip Form Pumps (Power driven by hydraulic, electric, air, gas, etc., lifting device for concrete forms); Small Rubber Tired Tractors; Trencher (up to and including 6 feet); Underbridge Personnel Aerial Platform (50 feet of platform or less).

GROUP 7: Crusher Plant Engineer, Dozer (D-4, Case 450, John Deere 450, and similar); Dual Drum Mixer, Extend Lift; Hoist and/or Winch (2 drums); Loader (over 3 and 1/2 cu. yds. up to and including 6 yards.); Mechanical Finisher or Spreader Machine (asphalt), (Barber Greene and similar) (Screedman required); Mine or Shaft Hoist; Mobile Concrete Mixer (over 5 tons); Pipe Bending Machine (pipelines only); Pipe Cleaning Machine (tractor propelled and supported); Pipe Wrapping Machine (tractor propelled and supported); Roller Operator (Asphalt); Self-Propelled Elevating Grade Plane; Slusher Operator; Tractor (with boom) (D-6, or similar); Trencher (over 6 feet and less than 200 h.p.); Water Tanker (pulled by Euclids, T-Pulls, DW-10, 20 or 21, or similar); Winchman (Stern Winch on Dredge).

GROUP 8: Asphalt Plant Operator; Barge Mate (Seagoing); Cast-in-Place Pipe Laying Machine; Concrete Batch Plant (multiple units); Conveyor Operator (tunnel); Deckmate; Dozer (D-6 and similar); Finishing Machine Operator (airports and highways); Gradesetter; Kolman Loader (and similar); Mucking Machine (Crawler-type); Mucking Machine (Conveyor-type); No-Joint Pipe Laying Machine; Portable Crushing and Screening Plant; Power Blade Operator (under 12); Saurman Type Dragline (up to and including 5 yds.); Stationary Pipe Wrapping, Cleaning and Bending Machine; Surface Heater and Planer Operator, Tractor (D-6 and similar); Tri-Batch Paver; Tunnel Badger; Tunnel Mole and/or Boring Machine Operator Underbridge Personnel Aerial Platform (over 50 feet of platform).

GROUP 9: Combination Mixer and Compressor (gunite); Do-Mor Loaderand Adams Elegrader; Dozer (D-7 or equal); Wheel and/or Ladder Trencher (over 6 feet and 200 to 749 h.p.).

GROUP 9A: Dozer (D-8 and similar); Gradesetter (when required by the Contractor to work from drawings, plans or specifications without the direct supervision of a foreman or superintendent); Push Cat; Scrapers (up to and including 20 cu. yds); Self-propelled Compactor with Dozer; Self-Propelled, Rubber-Tired Earthmoving Equipment (up to and including 20 cu. yds) (621 Band and similar); Sheep's Foot; Tractor (D-8 and similar); Tractors with boom (larger than D-6, and similar).

GROUP 10: Chicago Boom; Cold Planers; Heavy Duty Repairman or Welder; Hoist and/or Winch (3 drums); Hydraulic Skooper

(Koehring and similar); Loader (over 6 cu. yds. up to and including 12 cu. yds.); Saurman type Dragline (over 5 cu. yds.); Self-propelled, rubber-tired Earthmoving Equipment (over 20 cu. yds. up to and including 31 cu. yds.) (637D and similar); Soil Stabilizer (P & H or equal); Sub-Grader (Gurries or other automatic type); Tractors (D-9 or equivalent, all attachments); Tractor (Tandem Scraper); Watch Engineer.

GROUP 10A: Boat Operator; Cable-operated Crawler Crane (up to and including 25 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (up to and including 1 cu. yd.); Dozer D9-L; Dozer (D-10, HD41 and similar) (all attachments); Gradall (up to and including 1 cu. yd.); Hydraulic Backhoe (over 3/4 cu. yds. up to and including 2 cu. yds.); Mobile Truck Crane Operator (up to and including 25 tons) (Mobile Truck Crane Driver Required); Self-propelled Boom Type Lifting Device (Center Mount) (up to and including 25 tons) (Grove, Drott, P&H, Pettibone and similar; Trencher (over 6 feet and 750 h.p. or more); Watch Engineer (steam or electric).

GROUP 11: Automatic Slip Form Paver (concrete or asphalt); Band Wagon (in conjunction with Wheel Excavator); Cable-operated Crawler Cranes (over 25 tons but less than 50 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (over 1 cu. yd. up to 7 cu. yds.); Gradall (over 1 cu. yds. up to 7 cu. yds.); DW-10, 20, etc. (Tandem); Earthmoving Machines (multiple propulsion power units and 2 or more Scrapers) (up to and including 35 cu. yds.,"" struck"" m.r.c.); Highline Cableway; Hydraulic Backhoe (over 2 cu. yds. up to and including 4 cu. yds.); Leverman; Lift Slab Machine; Loader (over 12 cu. yds); Master Boat Operator; Mobile Truck Crane Operator (over 25 tons but less than 50 tons); (Mobile Truck Crane Driver required); Pre-stress Wire Wrapping Machine; Self-propelled Boom-type Lifting Device (Center Mount) (over 25 tons m.r.c); Self-propelled Compactor (with multiple-propulsion power units); Single Engine Rubber Tired Earthmoving Machine (with Tandem Scraper); Tandem Cats; Trencher (pulling attached shield).

GROUP 12: Clamshell or Dipper Operator; Derricks; Drill Rigs; Multi-Propulsion Earthmoving Machines (2 or more Scrapers) (over 35 cu. yds ""struck""m.r.c.); Operators (Derricks, Piledrivers and Cranes); Power Shovels and Draglines (7 cu. yds. m.r.c. and over); Self-propelled rubber-tired Earthmoving equipment (over 31 cu. yds.) (657B and similar); Wheel Excavator (up to and including 750 cu. yds. per hour); Wheel Excavator (over 750 cu. yds. per hour).

GROUP 12A: Dozer (D-11 or similar or larger); Hydraulic Excavators (over 4 cu. yds.); Lifting cranes (50 tons and over); Pioneering Dozer/Backhoe (initial clearing and excavation for the purpose of providing access for other equipment where the terrain worked involves 1-to-1 slopes that are 50 feet in height or depth, the scope of this work does not include normal clearing and grubbing on usual hilly terrain nor the excavation work once the access is provided); Power Blade Operator (Cat 12 or equivalent or over); Straddle Lifts (over 50 tons); Tower Crane, Mobile; Traveling Truss Cranes; Universal, Liebher, Linden, and similar types of Tower Cranes (in the erection, dismantling, and moving of equipment there shall be an additional Operating Engineer or Heavy Duty Repairman);

Yo-Yo Cat or Dozer.

GROUP 13: Truck Driver (Utility, Flatbed, etc.)

GROUP 13A: Dump Truck, 8 cu.yds. and under (water level); Water Truck (up to and including 2,000 gallons).

GROUP 13B: Water Truck (over 2,000 gallons); Tandem Dump Truck, over 8 cu. yds. (water level).

GROUP 13C: Truck Driver (Semi-trailer. Rock Cans, Semi-Dump or Roll-Offs).

GROUP 13D: Truck Driver (Slip-In or Pup).

GROUP 13E: End Dumps, Unlicensed (Euclid, Mack, Caterpillar or similar); Tractor Trailer (Hauling Equipment); Tandem Trucks hooked up to Trailer (Hauling Equipment)

BOOMS AND/OR LEADS (HOURLY PREMIUMS):

The Operator of a crane (under 50 tons) with a boom of 80 feet or more (including jib), or of a crane (under 50 tons) with leads of 100 feet or more, shall receive a per hour premium for each hour worked on said crane (under 50 tons) in accordance with the following schedule:

Booms of 80 feet up to but not including 130 feet or Leads of 100 feet up to but not including 130 feet	0.50
Booms and/or Leads of 130 feet up to but not including 180 feet	0.75
Booms and/or Leads of 180 feet up to and including 250 feet	1.15
Booms and/or Leads over 250 feet	1.50

The Operator of a crane (50 tons and over) with a boom of 180 feet or more (including jib) shall receive a per hour premium for each hour worked on said crane (50 tons and over) in accordance with the following schedule:

Booms of 180 feet up to and including 250 feet	1.25
Booms over 250 feet	1.75

ENGI0003-004 09/04/2017

	Rates	Fringes
Dredging: (Boat Operators)		
Boat Deckhand	$ 41.22	30.93
Boat Operator	$ 43.43	30.93
Master Boat Operator	$ 43.58	30.93
Dredging: (Clamshell or Dipper Dredging)		
GROUP 1	$ 43.94	30.93
GROUP 2	$ 43.28	30.93
GROUP 3	$ 42.88	30.93
GROUP 4	$ 41.22	30.93
Dredging: (Derricks)		
GROUP 1	$ 43.94	30.93
GROUP 2	$ 43.28	30.93

GROUP 3	$ 42.88	30.93
GROUP 4	$ 41.22	30.93
Dredging: (Hydraulic Suction Dredges)		
GROUP 1	$ 43.58	30.93
GROUP 2	$ 43.43	30.93
GROUP 3	$ 43.28	30.93
GROUP 4	$ 43.22	30.93
GROUP 5	$ 37.88	26.76
Group 5	$ 42.88	30.93
GROUP 6	$ 37.77	26.76
Group 6	$ 42.77	30.93
GROUP 7	$ 36.22	26.76
Group 7	$ 41.22	30.93

CLAMSHELL OR DIPPER DREDGING CLASSIFICATIONS

GROUP 1: Clamshell or Dipper Operator.
GROUP 2: Mechanic or Welder; Watch Engineer.
GROUP 3: Barge Mate; Deckmate.
GROUP 4: Bargeman; Deckhand; Fireman; Oiler.

HYDRAULIC SUCTION DREDGING CLASSIFICATIONS

GROUP 1: Leverman.
GROUP 2: Watch Engineer (steam or electric).
GROUP 3: Mechanic or Welder.
GROUP 4: Dozer Operator.
GROUP 5: Deckmate.
GROUP 6: Winchman (Stern Winch on Dredge)
GROUP 7: Deckhand (can operate anchor scow under direction of Deckmate); Fireman; Leveeman; Oiler.

DERRICK CLASSIFICATIONS

GROUP 1: Operators (Derricks, Piledrivers and Cranes).
GROUP 2: Saurman Type Dragline (over 5 cubic yards).
GROUP 3: Deckmate; Saurman Type Dragline (up to and including 5 yards).
GROUP 4: Deckhand, Fireman, Oiler.

ENGI0003-044 09/03/2018

	Rates	Fringes
Power Equipment Operators (PAVING)		
Asphalt Concrete Material Transfer	$ 42.92	32.08
Asphalt Plant Operator	$ 43.35	32.08
Asphalt Raker	$ 41.96	32.08
Asphalt Spreader Operator	$ 43.44	32.08
Cold Planer	$ 43.75	32.08
Combination Loader/Backhoe (over 3/4 cu.yd.)	$ 41.96	32.08
Combination Loader/Backhoe (up to 3/4 cu.yd.)	$ 40.98	32.08
Concrete Saws and/or Grinder (self-propelled unit on streets, highways, airports and canals)	$ 42.92	32.08
Grader	$ 43.75	32.08
Laborer, Hand Roller	$ 41.46	32.08
Loader (2 1/2 cu. yds. and		

under)	$ 42.92	32.08
Loader (over 2 1/2 cu. yds. to and including 5 cu. yds.)	$ 43.24	32.08
Roller Operator (five tons and under)	$ 41.69	32.08
Roller Operator (over five tons)	$ 43.12	32.08
Screed Person	$ 42.92	32.08
Soil Stabilizer	$ 43.75	32.08

IRON0625-001 09/01/2019

	Rates	Fringes
Ironworkers:	$ 41.50	37.55

a. Employees will be paid $.50 per hour more while working in tunnels and coffer dams; $1.00 per hour more when required to work under or are covered with water (submerged) and when they are required to work on the summit of Mauna Kea, Mauna Loa or Haleakala.

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* LABO0368-001 09/02/2020

	Rates	Fringes
Laborers:		
Driller	$ 39.70	22.68
Final Clean Up	$ 29.65	18.17
Gunite/Shotcrete Operator and High Scaler	$ 38.55	21.52
Laborer I	$ 38.70	22.68
Laborer II	$ 36.10	22.68
Mason Tender/Hod Carrier	$ 39.20	22.68
Powderman	$ 39.05	21.52
Window Washer (bosun chair)	$ 38.20	22.68

LABORERS CLASSIFICATIONS

Laborer I: Air Blasting run by electric or pneumatic compressor; Asphalt Laborer, Ironer, Raker, Luteman, and Handroller, and all types of Asphalt Spreader Boxes; Asphalt Shoveler; Assembly and Installation of Multiplates, Liner Plates, Rings, Mesh, Mats; Batching Plant (portable and temporary); Boring Machine Operator (under streets and sidewalks); Buggymobile; Burning and Welding; Chainsaw, Faller, Logloader, and Bucker; Compactors (Jackson Jumping Jack and similar); Concrete Bucket Dumpman; Concrete Chipping; Concrete Chuteman/Hoseman (pouring concrete) (the handling of the chute from ready-mix trucks for such jobs as walls, slabs, decks, floors, foundations, footings, curbs, gutters, and sidewalks); Concrete Core Cutter (Walls, Floors, and Ceiling); Concrete Grinding or Sanding; Concrete: Hooking on, signaling, dumping of concrete for treme work over water on caissons, pilings, abutments, etc.; Concrete: Mixing, handling, conveying, pouring, vibrating, otherwise placing of concrete or aggregates or by any other process; Concrete: Operation of motorized wheelbarrows or buggies or machines of similar character, whether run by gas, diesel, or electric power; Concrete Placement Machine Operator: operation of Somero Hammerhead, Copperheads, or similar machines; Concrete Pump Machine (laying, coupling, uncoupling of all connections and cleaning of equipment); Concrete and/or Asphalt Saw (Walking or Handtype) (cutting walls or flatwork) (scoring

old or new concrete and/or asphalt) (cutting for expansion joints) (streets and ways for laying of pipe, cable or conduit for all purposes); Concrete Shovelers/Laborers (Wet or Dry); Concrete Screeding for Rough Strike-Off: Rodding or striking-off, by hand or mechanical means prior to finishing; Concrete Vibrator Operator; Coring Holes: Walls, footings, piers or other obstructions for passage of pipes or conduits for any purpose and the pouring of concrete to secure the hole; Cribbers, Shorer, Lagging, Sheeting, and Trench Jacking and Bracing, Hand-Guided Lagging Hammer Whaling Bracing; Curbing (Concrete and Asphalt); Curing of Concrete (impervious membrane and form oiler) mortar and other materials by any mode or method; Cut Granite Curb Setter (setting, leveling and grouting of all precast concrete or stone curbs); Cutting and Burning Torch (demolition); Dri Pak-It Machine; Environmental Abatement: removal of asbestos, lead, and bio hazardous materials (EPA and/or OSHA certified); Falling, bucking, yarding, loading or burning of all trees or timber on construction site; Forklift (9 ft. and under); Gas, Pneumatic, and Electric tools; Grating and Grill work for drains or other purposes; Green Cutter of concrete or aggregate in any form, by hand, mechanical means, grindstone or air and/or water; Grout: Spreading for any purpose; Guinea Chaser (Grade Checker) for general utility trenches, sitework, and excavation; Headerboard Man (Asphalt or Concrete); Heat Welder of Plastic (Laborers' AGC certified workers) (when work involves waterproofing for waterponds, artificial lakes and reservoir) heat welding for sewer pipes and fusion of HDPE pipes; Heavy Highway Laborer (Rigging, signaling, handling, and installation of pre-cast catch basins, manholes, curbs and gutters); High Pressure Nozzleman - Hydraulic Monitor (over 100# pressure); Jackhammer Operator; Jacking of slip forms: All semi and unskilled work connected therewithin; Laying of all multi-cell conduit or multi-purpose pipe; Magnesite and Mastic Workers (Wet or Dry)(including mixer operator);Mortar Man; Mortar Mixer (Block, Brick, Masonry, and Plastering); Nozzleman (Sandblasting and/or Water Blasting): handling, placing and operation of nozzle; Operation, Manual or Hydraulic jacking of shields and the use of such other mechanical equipment as may be necessary; Pavement Breakers; Paving, curbing and surfacing of streets, ways, courts, under and overpasses, bridges, approaches, slope walls, and all other labor connected therewith; Pilecutters; Pipe Accessment in place, bolting and lining up of sectional metal or other pipe including corrugated pipe; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, HDPE, metallic or non-metallic, conduit, and any other stationary-type of tubular device used for conveying of any substance or element, whether water, sewage, solid, gas, air, or other product whatsoever and without regard to the nature of material from which tubular material is fabricated; No-joint pipe and stripping of same, Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, treating Creosote and similar-type materials (6-inch) pipe and over); Piping: resurfacing and paving of all ditches in preparation for laying of all pipes; Pipe laying of lateral sewer pipe from main or side sewer to buildings or structure (except Contactor may direct work be done under proper supervision); Pipe laying, leveling and marking of the joint used for main or side sewers and storm sewers; Laying of all clay, terra cotta,

ironstone, vitrified concrete, HDPE or other pipe for drainage; Placing and setting of water mains, gas mains and all pipe including removal of skids; Plaster Mortar Mixer/Pump; Pneumatic Impact Wrench; Portable Sawmill Operation: Choker setters, off bearers, and lumber handlers connected with clearing; Posthole Digger (Hand Held, Gas, Air and Electric); Powderman's Tender; Power Broom Sweepers (Small); Preparation and Compaction of roadbeds for railroad track laying, highway construction, and the preparation of trenches, footings, etc., for cross-country transmission by pipelines, electrical transmission or underground lines or cables (by mechanical means); Raising of structure by manual or hydraulic jacks or other methods and resetting of structure in new locations, including all concrete work; Ramming or compaction; Rigging in connection with Laborers' work (except demolition), Signaling (including the use of walkie talkie) Choke Setting, tag line usage; Tagging and Signaling of building materials into high rise units; Riprap, Stonepaver, and Rock Slinger (includes placement of stacked concrete, wet or dry and loading, unloading, signaling, slinging and setting of other similar materials); Rotary Scarifier (including multiple head concrete chipping Scarifier); Salamander Heater, Drying of plaster, concrete mortar or other aggregate; Scaffold Erector Leadman; Scaffolds: (Swing and hanging) including maintenance thereof; Scaler; Septic Tank/Cesspool and Drain Fields Digger and Installer; Shredder/Chipper (tree branches, brush, etc.); Stripping and Setting Forms; Stripping of Forms: Other than panel forms which are to be re-used in their original form, and stripping of forms on all flat arch work; Tampers (Barko, Wacker, and similar type); Tank Scaler and Cleaners; Tarman; Tree Climbers and Trimmers; Trencher (includes hand-held, Davis T-66 and similar type); Trucks (flatbed up to and including 2 1/2 tons when used in connection with on-site Laborers'work; Trucks (Refuse and Garbage Disposal) (from job site to dump); Vibra-Screed (Bull Float in connection with Laborers' work); Well Points, Installation of or any other dewatering system.

Laborer II: Asphalt Plant Laborer; Boring Machine Tender; Bridge Laborer; Burning of all debris (crates, boxes, packaging waste materials); Chainman, Rodmen, and Grade Markers; Cleaning, clearing, grading and/or removal for streets, highways, roadways, aprons, runways, sidewalks, parking areas, airports, approaches, and other similar installations; Cleaning or reconditioning of streets, ways, sewers and waterlines, all maintenance work and work of an unskilled and semi-skilled nature; Concrete Bucket Tender (Groundman) hooking and unhooking of bucket; Concrete Forms; moving, cleaning, oiling and carrying to the next point of erection of all forms; Concrete Products Plant Laborers; Conveyor Tender (conveying of building materials); Crushed Stone Yards and Gravel and Sand Pit Laborers and all other similar plants; Demolition, Wrecking and Salvage Laborers: Wrecking and dismantling of buildings and all structures, with use of cutting or wrecking tools, breaking away, cleaning and removal of all fixtures, All hooking, unhooking, signaling of materials for salvage or scrap removed by crane or derrick; Digging under streets, roadways, aprons or other paved surfaces; Driller's Tender; Chuck Tender, Outside Nipper; Dry-packing of concrete (plugging and filling of she-bolt holes); Fence and/or Guardrail Erector: Dismantling and/or re-installation of all fence; Finegrader; Firewatcher; Flagman (Coning,

preparing, stablishing and removing portable roadway barricade devices); Signal Men on all construction work defined herein, including Traffic Control Signal Men at construction site; General Excavation; Backfilling, Grading and all other labor connected therewith; Digging of trenches, ditches and manholes and the leveling, grading and other preparation prior to laying pipe or conduit for any purpose; Excavations and foundations for buildings, piers, foundations and holes, and all other construction. Preparation of street ways and bridges; General Laborer: Cleaning and Clearing of all debris and surplus material. Clean-up of right-of-way. Clearing and slashing of brush or trees by hand or mechanical cutting. General Clean up: sweeping, cleaning, wash-down, wiping of construction facility and equipment (other than ""Light Clean up (Janitorial) Laborer. Garbage and Debris Handlers and Cleaners. Appliance Handling (job site) (after delivery unlading in storage area); Ground and Soil Treatment Work (Pest Control); Gunite/Shotcrete Operator Tender; Junk Yard Laborers (same as Salvage Yard); Laser Beam ""Target Man"" in connection with Laborers' work; Layout Person for Plastic (when work involves waterproofing for waterponds, artificial lakes and reservoirs); Limbers, Brush Loaders, and Pilers; Loading, Unloading, carrying, distributing and handling of all rods and material for use in reinforcing concrete construction (except when a derrick or outrigger operated by other than hand power is used); Loading, unloading, sorting, stockpiling, handling and distribution of water mains, gas mains and all pipes; Loading and unloading of all materials, fixtures, furnishings and appliances from point of delivery to stockpile to point of installation; hooking and signaling from truck, conveyance or stockpile; Material Yard Laborers; Pipelayer Tender; Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, Creosote, and similar-type materials (pipe under 6 inches); Plasterer Laborer; Preparation, construction and maintenance of roadbeds and sub-grade for all paving, including excavation, dumping, and spreading of sub-grade material; Prestressed or precast concrete slabs, walls, or sections: all loading, unloading, stockpiling, hooking on of such slabs, walls or sections; Quarry Laborers; Railroad, Streetcar, and Rail Transit Maintenance and Repair; Roustabout; Rubbish Trucks in connection with Building Construction Projects (excluding clearing, grubbing, and excavating); Salvage Yard: All work connected with cutting, cleaning, storing, stockpiling or handling of materials, all cleanup, removal of debris, burning, back-filling and landscaping of the site; Sandblasting Tender (Pot Tender): Hoses and pots or markers; Scaffolds: Erection, planking and removal of all scaffolds used for support for lathers, plasters, brick layers, masons, and other construction trades crafts; Scaffolds: (Specially designed by carpenters) laborers shall tend said carpenter on erection and dismantling thereof, preparation for foundation or mudsills, maintenance; Scraping of floors; Screeds: Handling of all screeds to be reused; handling, dismantling and conveyance of screeds; Setting, leveling and securing or bracing of metal or other road forms and expansion joints; Sheeting Piling/trench shoring (handling and placing of skip sheet or wood plank trench shoring); Ship Scalers; Shipwright Tender; Sign Erector (subdivision traffic, regulatory, and street-name signs); Sloper; Slurry Seal Crews (Mixer Operator, Applicator, Squeegee Man, Shuttle Man, Top Man); Snapping of wall ties and removal of tie rods; Soil Test operations of semi and unskilled labor

such as filling sand bags; Striper (Asphalt, Concrete or other Paved Surfaces); Tool Room Attendant (Job Site); Traffic Delineating Device Applicator; Underpinning, lagging, bracing, propping and shoring, loading, signaling, right-of-way clearance along the route of movement, The clearance of new site, excavation of foundation when moving a house or structure from old site to new site; Utilities employees; Water Man; Waterscape/Hardscape Laborers; Wire Mesh Pulling (all concrete pouring operations); Wrecking, stripping, dismantling and handling concrete forms an false work.

LABO0368-002 09/01/2020

	Rates	Fringes
Landscape & Irrigation Laborers		
GROUP 1	$ 26.40	14.25
GROUP 2	$ 27.40	14.25
GROUP 3	$ 21.70	14.25

LABORERS CLASSIFICATIONS

GROUP 1: Installation of non-potable permanent or temporary irrigation water systems performed for the purposes of Landscaping and Irrigation architectural horticultural work; the installation of drinking fountains and permanent or temporary irrigation systems using potable water for Landscaping and Irrigation architectural horticultural purposes only. This work includes (a) the installation of all heads, risers, valves, valve boxes, vacuum breakers (pressure and non-pressure), low voltage electrical lines and, provided such work involves electrical wiring that will carry 24 volts or less, the installation of sensors, master control panels, display boards, junction boxes, conductors, including all other components for controllers, (b) and metallic (copper, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe including all work incidental thereto, i.e., unloading, handling and distribution of all pipes fittings, tools, materials and equipment, (c) all soldering work in connection with the above whether done by torch, soldering iron, or other means; (d) tie-in to main lines, thrust blocks (both precast and poured in place), pipe hangers and supports incidental to installation of the entire irrigation system, (e) making of pressure tests, start-up testing, flushing, purging, water balancing, placing into operation all irrigation equipment, fixtures and appurtenances installed under this agreement, and (f) the fabrication, replacement, repair and servicing oflandscaping and irrigation systems. Operation of hand-held gas, air, electric, or self-powered tools and equipment used in the performance of Landscape and Irrigation work in connection with architectural horticulture; Choke-setting, signaling, and rigging for equipment operators on job-site in the performance of such Landscaping and Irrigation work; Concrete work (wet or dry) performed in connection with such Landscaping and Irrigation work. This work shall also include the setting of rock, stone, or riprap in connection with such Landscape, Waterscape, Rockscape, and Irrigation work; Grubbing, pick and shovel excavation, and hand rolling or tamping in connection with the performance of such Landscaping and Irrigation work; Sprigging, handseeding,

and planting of trees, shrubs, ground covers, and other plantings and the performance of all types of gardening and horticultural work relating to said planting; Operation of flat bed trucks (up to and including 2 1/2 tons).:

GROUP 2. Layout of irrigation and other non-potable irrigation water systems and the layout of drinking fountains and other potable irrigation water systems in connection with such Landscaping and Irrigation work. This includes the layout of all heads, risers, valves, valve boxes, vacuum breakers, low voltage electrical lines, hydraulic and electrical controllers, and metallic (coppers, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe. This work also includes the reading and interpretation of plans and specifications in connection with the layout of Landscaping, Rockscape, Waterscape, and Irrigation work; Operation of Hydro-Mulching machines (sprayman and driver), Drillers, Trenchers (riding type, Davis T-66, and similar) and fork lifts used in connection with the performance of such Landscaping and Irrigation work; Tree climbers and chain saw tree trimmers, Sporadic operation (when used in connection with Landscaping, Rockscape, Waterscape, and Irrigation work) of Skid-Steer Loaders (Bobcat and similar), Cranes (Bantam, Grove, and similar), Hoptos, Backhoes, Loaders, Rollers, and Dozers (Case, John Deere, and similar), Water Trucks, Trucks requiring a State of Hawaii Public Utilities Commission Type 5 and/or type 7 license, sit-down type and ""gang"" mowers, and other self-propelled, sit-down operated machines not listed under Landscape & Irrigation Maintenance Laborer; Chemical spraying using self-propelled power spraying equipment (200 gallon capacity or more).

GROUP 3: Maintenance of trees, shrubs, ground covers, lawns and other planted areas, including the replanting of trees, shrubs, ground covers, and other plantings that did not ""take"" or which are damaged; provided, however, that re-planting that requires the use of equipment, machinery, or power tools shall be paid for at the rate of pay specified under Landscape and Irrigation Laborer, Group 1; Raking, mowing, trimming, and runing, including the use of ""weed eaters"", hedge trimmers, vacuums, blowers, and other hand-held gas, air, electric, or self-powered tools, and the operation of lawn mowers (Note: The operation of sit-down type and ""gang"" mowers shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer, Group 2); Guywiring, staking, propping, and supporting trees; Fertilizing, Chemical spraying using spray equipment with less than 200 gallon capacity, Maintaining irrigation and sprinkler systems, including the staking, clamping, and adjustment of risers, and the adjustment and/or replacement of sprinkler heads, (Note: the cleaning and gluing of pipe and fittings shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer(Group 1); Watering by hand or sprinkler system and the peformance of other types of gardening, yardman, and horticultural-related work.

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* LABO0368-003 09/02/2020

	Rates	Fringes
Underground Laborer		
GROUP 1	$ 39.30	22.68

GROUP 2	$ 40.80	22.68
GROUP 3	$ 41.30	22.68
GROUP 4	$ 42.30	22.68
GROUP 5	$ 42.55	22.68
GROUP 6	$ 42.65	22.68
GROUP 7	$ 42.90	22.68

GROUP 1: Watchmen; Change House Attendant.

GROUP 2: Swamper; Brakeman; Bull Gang-Muckers, Trackmen; Dumpmen (any method); Concrete Crew (includes rodding and spreading); Grout Crew; Reboundmen

GROUP 3: Chucktenders and Cabletenders; Powderman (Prime House); Vibratorman, Pavement Breakers

GROUP 4: Miners - Tunnel (including top and bottom man on shaft and raise work); Timberman, Retimberman (wood or steel or substitute materials thereof); Blasters, Drillers, Powderman (in heading); Microtunnel Laborer; Headman; Cherry Pickerman (where car is lifted); Nipper; Grout Gunmen; Grout Pumpman & Potman; Gunite, Shotcrete Gunmen & Potmen; Concrete Finisher (in tunnel); Concrete Screed Man; Bit Grinder; Steel Form Raisers & Setters; High Pressure Nozzleman; Nozzleman (on slick line); Sandblaster-Potman (combination work assignment interchangeable); Tugger

GROUP 5: Shaft Work & Raise (below actual or excavated ground level); Diamond Driller; Gunite or Shotcrete Nozzleman; Rodman; Groundman

GROUP 6: Shifter

GROUP 7: Shifter (Shaft Work & Raiser)

PAIN1791-001 01/01/2020

	Rates	Fringes
Painters:		
Brush	$ 38.90	30.59
Sandblaster; Spray	$ 38.90	30.59

PAIN1889-001 07/01/2020

	Rates	Fringes
Glaziers	$ 39.50	34.85

PAIN1926-001 03/03/2020

	Rates	Fringes
Soft Floor Layers	$ 36.65	31.29

PAIN1944-001 01/05/2020

	Rates	Fringes
Taper	$ 43.10	29.90

PLAS0630-001 09/02/2019

	Rates	Fringes

PLASTERER.....$ 42.64 30.58

PLAS0630-002 09/02/2019

	Rates	Fringes
Cement Masons:		
Cement Masons	$ 41.10	30.68
Trowel Machine Operators	$ 41.25	30.68

PLUM0675-001 07/05/2020

	Rates	Fringes
Plumber, Pipefitter, Steamfitter & Sprinkler Fitter	$ 47.23	27.63

ROOF0221-001 09/06/2020

	Rates	Fringes
Roofers (Including Built Up, Composition and Single Ply)	$ 41.80	20.50

SHEE0293-001 09/02/2018

	Rates	Fringes
Sheet metal worker	$ 42.55	27.44

SUHI1997-002 09/15/1997

	Rates	Fringes
Drapery Installer	$ 13.60	1.20
FENCE ERECTOR (Chain Link Fence)	$ 9.33	1.65

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within

the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in

the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

PROPOSAL SCHEDULE

ITEM NO.	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
209.0100	Installation, Maintenance, Monitoring and Removal of BMP	LS	LS	LS	$ _____
209.1100	Additional Water Pollution, Dust, and Erosion Control	FA	FA	FA	$100,000.00
515.1000	Deck Expansion Joint, Eastbound Viaduct	620	LIN FT	$ _____	$ _____
602.1000	Reinforcing Steel for Defective Concrete	FA	FA	FA	$50,000.00
629.1011	4-inch Pavement Striping (Tape, Type I or Thermoplastic Extrusion)	1,000	LIN FT	$ _____	$ _____
629.1012	6-inch Pavement Striping (Tape, Type III or Thermoplastic Extrusion)	52,500	LIN FT	$ _____	$ _____
629.1013	8-inch Pavement Striping (Tape, Type I or Thermoplastic Extrusion)	21,500	LIN FT	$ _____	$ _____
629.1014	12-inch Pavement Striping (Tape, Type III or Thermoplastic)	6,200	LIN FT	$ _____	$ _____
629.1015	4-inch Pavement Striping (Profiled Thermoplastic)	57,200	LIN FT	$ _____	$ _____
629.1020	Pavement Number (Type III Tape or Thermoplastic Extrusion)	6	EACH	$ _____	$ _____
629.1030	Pavement Arrow (Type III Tape or Thermoplastic Extrusion)	6	EACH	$ _____	$ _____
629.1040	Pavement Word (Type III Tape or Thermoplastic Extrusion)	22	EACH	$ _____	$ _____
629.1050	Pavement Symbol (Tape, Type III Tape or Thermoplastic Extrusion)	12	EACH	$ _____	$ _____
629.2020	Type A Raised Pavement Markers	800	EACH	$ _____	$ _____
629.2030	Type C Raised Pavement Markers	2,600	EACH	$ _____	$ _____
629.2070	Type H Raised Pavement Markers	1,100	EACH	$ _____	$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
632.0100	Flexible Delineator	16	EACH	$ _____	$ _____
635.0100	E-Construction License	FA	FA	FA	$320,700.00
645.0100	Traffic Control	LS	LS	LS	$ _____
645.0200	Additional Police Officers, Additional Traffic Control Devices, and Advertisement	FA	FA	FA	$500,000.00
648.0100	Field Posted Drawings	LS	LS	LS	$ _____
678.1000	Hybrid Polymer Concrete (HPC)	21	CU FT	$ _____	$ _____
680.1000	Surface Treatment, Eastbound Viaduct	1,156,000	SF	$ _____	$ _____
682.1000	Defective Concrete Repairs, Eastbound Viaduct	3,000	CU FT	$ _____	$ _____
682.1100	Non-Destructive Testing (NDT) Deck Survey, Eastbound Viaduct	FA	FA	FA	$250,000.00
682.1101	Non-Destructive Testing (NDT) Deck Survey, Westbound Viaduct	FA	FA	FA	$250,000.00
692.1102	Non-Destructive Testing (NDT) Deck Survey, Ramps	FA	FA	FA	$200,000.00
683.1000	Penetrating Sealer for Bridge Decks, Eastbound Viaduct	1,156,000	SF	$ _____	$ _____
696.1000	Maintenance of Trailers	FA	FA	FA	$50,000.00
696.2000	Field Office Trailer (Not to Exceed $32,000.00)	LS	LS	LS	$ _____
699.0100	Mobilization (Not to Exceed 6 Percent of the Sum of All Items Excluding the Bid Price of this Item)	LS	LS	LS	$ _____

Sum of All Items ..... $ _____

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

INTERSTATE ROUTE H-1
AIRPORT VIADUCT IMPROVEMENTS
VICINITY OF VALKENBURGH STREET TO MIDDLE STREET, PH 2

FEDERAL-AID PROJECT NO. NH-H1-1(276)

PRE-BID MEETING NOTES
OCTOBER 29, 2020

The following notes are from the Hawaii Department of Transportation (HDOT) pre-bid meeting with prospective bidders for the Interstate Route H-1 Airport Viaduct Improvements, Vicinity of Valkenburgh Street to Middle Street, Ph 2 project.

The meeting was conducted virtually via Microsoft Teams at 10:00 am.

All attendees were notified of the following:

- HDOT will be adding new scope to the project. Two ramps in the Eastbound direction, into and out of the airport, will be added. Ramps WA and AE. New information will be included in Addendum No. 1.
- The contract time will be increased to 440 Working Days.
- There will be night work on this project. Please refer to Spec Section 645 for lane closure details.
- HDOT is in the process of obtaining a noise variance for this project.
- The bid opening date is still set for November 19, 2020 at 2:00pm.
- Please email all RFIs to Holly Yuen at holly.yuen@hawaii.gov.

Attendance List:
HDOT
KSF, Inc.
Triton Marine Construction
American Civil Constructors
Road and Highway Builders

The meeting ended at 10:05 am.

All items discussed at this meeting are for clarification only. The bid documents shall govern over anything said at the meeting and discrepancies shall be clarified in Addendum No. 1.

Contractor's RFI:

1. Due to the complexity of this project and number of bids that are due at the same week for different agencies, we respectfully request to extend the bid due date for at least two weeks to allow all bidders and their subcontractors to provide competitive pricing.

   The bid due date has been extended to December 1, 2020.

2. What are the names and manufacturers of these products?"

   1) ITEM NO. 680 1000 Surface Treatment, Eastbound Viaduct.
   2) ITEM NO. 683 1000 Penetrating Sealer for Bridge Decks, Eastbound Viaduct.

   Does Hawaii DOT have an Approved Products List or a QPL ?

   All products used in this project must meet the specified requirements stated in the Special Provisions. Please refer to Sections 680 and 683 for material requirements and details.