STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS

ADDENDUM NO. 1
FOR
INTERSTATE ROUTE H-1 SEISMIC RETROFIT
WAIALAE VIADUCT INBOUND AND OUTBOUND
DISTRICT OF HONOLULU
ISLAND OF OAHU
FEDERAL-AID PROJECT NO. NH-H1-1(277)

November 14, 2024

This Addendum shall make the following amendment(s) to the Solicitation:

A. SPECIFICATIONS

1. Delete **SECTION 657 – EXTERNALLY BONDED FIBER REINFORCED POLYMER SYSTEM**, dated 03/18/24 in its entirety and replace it with attached **SECTION 657 – EXTERNALLY BONDED FIBER REINFORCED POLYMER SYSTEM**, dated r11/14/2024.

2. Delete **FEDERAL WAGE RATES** dated 07/19/2024 and replace it with the attached **FEDERAL WAGE RATES** dated 10/25/2024.

B. PLANS

1. Delete **PLANS SHEET S-4, PARTIAL BRIDGE FRAMING PLAN** and replace it with attached **PLANS SHEET S-4, PARTIAL BRIDGE FRAMING PLAN.**

C. PRELIMINARY CONSTRUCTION ENVIRONMENTAL HAZARD MANAGEMENT PLAN

1. Add and make a part of the specifications the attached Project-Specific Preliminary Construction Environmental Hazard Management Plan (PC-EHMP).

The following is provided for information.

D. PRE-BID MEETING MINUTES

1. The attached **PRE-BID MEETING MINUTES** are provided for information.

E. RESPONSES TO REQUEST FOR INFORMATION (RFI'S/QUESTIONS)

1. The attached **RESPONSES TO REQUEST FOR INFORMATION** are provided for information.

Please acknowledge receipt of this **ADDENDUM NO. 1** by recording the date of its receipt in the space provided on **PAGE P-4** of the Proposal.

Henry Kennedy

HENRY KENNEDY
Engineering Program Manager

Make this section a part of the Standard Specifications.

"SECTION 657 – EXTERNALLY BONDED FIBER REINFORCED POLYMER SYSTEM

657.01 Description and Materials. This section describes furnishing and installing the Fiber Reinforced Polymer (FRP) system at the locations and to the dimensions shown on the plans.

The FRP system shall be supplied by a single system manufacturer with mechanical properties conforming to the minimum requirements in Table 1 – Minimum FRP Composite Properties.

Table 1 - Minimum FRP Composite Properties

FRP Characteristic Values	Test Method	Minimum Value, FRP Composite
Minimum ultimate tensile strength in primary fiber direction[a], (ksi)	ASTM D3039	130
Minimum ultimate elongation[a], (%)	ASTM D3039	0.9
Minimum tensile modulus in primary fiber direction[a], (ksi)	ASTM D3039	12,600
Minimum glass transition temperature, (°F)	ASTM D3418 or ASTM D4065	140
Effective composite thickness per layer, (in.)[b,c]	ASTM D1777	0.04
[a] FRP Composite properties shall be met by any proposed FRP composite. Design tensile properties calculated in accordance with ASTM D7290.		
[b] Number of layers shown on the plans is based upon the composite thickness of 0.04 inch per layer.		
[c] The total cumulative composite jacket thickness shown on the plans shall be provided regardless of composite properties. All FRP composite materials shall be designed with the listed FRP composite properties and not with the calculated and published manufacturer values, even if said properties are higher than the required minimum.		

Materials must be protected from dirt, moisture, chemicals, extreme temperatures, and physical damage.

(A) Fabric. The reinforcing fabric must be composed of unidirectional continuous carbon.

(B) Resin. Two-part, 100% solids epoxy resins shall be used. No alternative resin is allowed for the FRP system. Resins, including

primer coat, filler materials, and final protective coats, must be system compatible epoxy. All components of epoxy resin must be used within their shelf life.

(C) FRP Anchors. FRP anchors must consist of unidirectional carbon fibers and must be saturated with compatible epoxy at the job site. Anchors must be shipped directly from the manufacturer. Anchor labels must have the date of manufacture, the lot number, and the minimum weight per unit length. Anchor length and diameter must be consistent with plans and minimum anchor weight shall be checked at the job site. The fiber anchors shall have mechanical properties conforming to the minimum requirements in Table 2 – Minimum FRP Anchor Properties.

Table 2 - Minimum FRP Anchor Properties

FRP Anchor Characteristic Value [a]	Test Method	Minimum Value, FRP Anchor
Minimum ultimate tensile strength (ksi)	ASTM D7205	100
Minimum ultimate elongation, (%)	ASTM D7205	0.8
Minimum tensile modulus, (ksi)	ASTM D7205	11,900
Minimum anchor density (lb/in) [b]	--	0.025
[a] Characteristic value of the composite anchor and not of the dry fiber.		
[b] Minimum Anchor Weight per inch length.		

(D) Finish Coat. The finish coat must be compatible with the FRP system. The finish coat shall be acrylic stucco or exterior-grade paint (color to be approved by owner).

No substitution of any constituents of the approved FRP System shall be allowed.

657.02 Construction. Before conducting surface preparation, check for unsound concrete at areas that FRP will be placed. Unsound concrete is concrete that emits a dead or hollow sound when chained or tapped with a metal tool. The Engineer determines the soundness of concrete.

Repairing and patching unsound concrete and epoxy injection activities shall be considered a separate scope of work or change order work. These activities shall be as per relevant special provisions.

(A) Surface Preparation. Prepare the concrete surface as follows.

(1) Repair and patch unsound concrete as required.

(2) Conduct epoxy injection activities as required.

(3) Round the corners and chamfers to a minimum of 3/4inch radius.

(4) Concrete surface must have an International Concrete Repair Institute (ICRI) surface profile of CSP 3 prepared by abrasive blasting or grinding for bond critical application (all elements except for beam or column confinement with an equal or lesser than aspect ratio of 2:1).

(5) Fill voids larger than ½ inch diameter by 1/8 inch in depth with thickened epoxy or epoxy-based filler.

(6) For existing elements with architectural treatment, place high strength, non-shrink grout in architectural treatment to provide a flat surface for FRP placement.

(7) Cutting of fabrics, mixing of epoxy, and fabric saturation must be performed in an area free of moisture, oils, debris or dust.

(B) Installation Requirements. At the time of installation, the following must apply.

(1) There must be no moisture present on the concrete surface or any contact surfaces.

(2) Concrete surface or any contact surfaces must be free of efflorescence, oils, loose materials, dust and laitance.

(3) The temperature of the epoxy resin components must be within the range of 60 to 100 degrees F during FRP material installation.

(4) Relative humidity must be less than 90 percent.

(5) Surface temperature must be 5 degrees F above the dew point.

(6) The surface temperature shall be within the range of 50 to 100 degrees F.

(C) Installation Procedure.

(1) Proportion the components of epoxy resin and use automatic equipment to mix the components according to manufacturer's recommendations.

(2) Apply the epoxy primer coat to the concrete surface.

(3) Apply thickened epoxy as required for vertical and overhead surface FRP applications.

(4) Saturate FRP fabric with approved epoxy resin using a mechanical saturator or saturate manually if a manufacturer's manual saturation method is provided. Apply the fiber sheet to the surface in a manner that produces a uniform tensile force distribution across the entire width of the fiber sheet. Remove excess resin.

(5) Dry lay-up installation methods shall not be allowed.

(6) Squeeze out entrapped air beneath each layer before the epoxy sets or before subsequent layers are applied.

(7) Place successive layers before complete cure of the previous layer of epoxy to achieve complete bond between layers.

(8) Upon installation of final layer, apply thickened epoxy to all fabric edges, including termination points and seams, as well as exposed surfaces.

(9) Coat the exterior surface with a final coat of resin that produces a uniform finished surface after the application.

(10) Apply aesthetic finish coat of acrylic stucco or exterior-grade paint over installed FRP.

(D) Cleaning and Painting of Completed Exposed FRP Surfaces. Prior to the application of the finish coat, the epoxy surface must be hard to the touch but tacky to the feel without transferring resin from the finished FRP to the touch medium. Paint with protective coating (approved by the owner) before the FRP has reached full cure to avoid surface preparation for the protective coating. The protective coating must firmly adhere to the finished FRP surface without signs of shrinkage, cracking or flaking off.

If the FRP has reached a full cure, is no longer tacky to the feel, or 7 days after the installation, whichever occurs first, clean and prepare the FRP surfaces as follows:

(1) Abrasive blast/brush-off blast the surfaces with an abrasive no greater than 80 mesh and air pressure less than 80 psi or by hand scuff sanding to break the gloss on the cured FRP.

(2) Do not expose the fiber portion of the FRP during blasting or scuff sanding by hand.

(3) Wipe the surface with dry cloth.

The surfaces must be completely dry and thoroughly cleaned of dust and loose material which will interfere with applied coating before receiving at least 2 finish coats of an owner approved exterior grade paint.

(E) Other Points to Consider.

(1) Rain protection and heating may be required for installations during inclement weather.

(2) Shading or night work may be required for installations during hot weather.

(3) Complete each FRP section with specified number of layers within manufactured recommended timeline.

(4) The orientation of the fiber sheet must not deviate from a straight line, along the axis of the member, by more than 0.5 inch per foot.

(5) Overlap length must be per manufacturer's instructions, but not less than 12 inches. Splices must be overlapped in the fiber direction of individual layers.

(6) The resin application for each layer of FRP must ensure complete saturation of the fiber sheet.

(7) Protect the cured FRP from rainfall or water submersion for a period of at least 7 days after installation is completed.

(F) Contractor Qualifications. Submit documentation for at least 3 completed wet lay-up FRP installations that the FRP manufacturer

trained certified applicator contractor performed in the last 3 years including:

(1) Project name and location.

(2) Substantial completion date of project (month and year).

(3) Manufacturer and material used.

(4) Project's owner and project owner's contact person's name and telephone number.

(5) Submit a manufacturer's training certificate for at least three workers that will perform and supervise the FRP work. The certified workers must be present during the preparation and installation of the FRP.

(6) Measures for protecting workers and the public from hazardous materials that may be generated during construction.

(7) Measures to permit application and curing of the FRP during inclement weather or excessive heat exposure as directed by system manufacturer.

657.03 Submittals.

(A) Working Drawings:

(1) Submit stamped working shop drawings prepared and sealed by a professional engineer detailing the type, locations, dimensions, numbers of layers, and orientation of all FRP materials and coatings to be installed.

(B) Product Information:

(1) Submit test results (minimum 20 test specimens as per ASTM D3039) showing composite material properties (i.e., tensile modulus, tensile strength, ultimate strain) and characteristic values as computed in accordance with ASTM D7290 (Weibull distribution) for the proposed fiber composite system. Properties shall be based on gross laminate thickness as reported by the manufacturer. See Table 1 in the materials section of this special provision for minimum FRP composite system properties.

(2) Submit product technical data indicating product standards, physical and chemical characteristics, and

limitations. Manufacturer's material Safety Data Sheets (SDS) for all materials to be used.

(3) Written consent from the FRP manufacturer that the surface bonded FRP composite systems are installed by trained certified applicators as per contractor qualifications section of this special provision.

(4) Submit manufacturer's published Installation Inspection Manual.

(5) Submit a list of three qualified third-party laboratory materials testing facilities for conducting ASTM D3039 FRP material tensile testing.

(6) Submit a certificate of compliance for each material used and for each shipment. The material certified must be the same as those used in the prequalified system.

(C) Fiber Anchors:

(1) Fiber anchor manufacturer shall submit independent laboratory testing verifying the ultimate tension strength, tensile modulus, and ultimate strain as per ASTM D7205. Test results shall address each size/diameter anchor proposed on the project. See Table 2 in the Materials section of this special provision for minimum fiber anchor properties.

(2) Fiber anchor label shall have the date of manufacture, lot number and minimum weight per unit length.

(3) Fiber anchor manufacturer shall submit large-scale test results validating the fiber anchor performance on relevant test specimens. Compatibility between composite anchors and the composite system shall be verified through large-scale assembly testing.

(4) Submit manufacturer's published installation instructions (MPII).

(D) Field Quality Control Requirements. Submit daily installation logs. The log must provide material traceability and process records for ech installation during shift.

The daily installation log must include:

(1) Personnel performing FRP installation, saturation, and supervision.

(2) Bridge number, location, date, and time of installation.

(3) Product description, date of manufacture, and lots or batch numbers.

(4) Fabrication, inspection, and verification data including:

- List of materials and quantities used.
- Number of layers and FRP thickness measurement.
- Ambient and resin temperature, and humidity readings at beginning, middle and end of shift.
- Thickness and type of final protective coating on completed FRP.

(E) Field FRP Sampling:

(1) Record lot number of fabric and epoxy resin used, and location of installation including the structural element identification numbers where used. Measure square footage of fabric and volume of epoxy used each day. Label each sample from each day's production.

(2) Contractor shall make one "sample batch" per day. A "sample batch" shall consist of two 12" x 12" samples of cured FRP. The owner is to keep one 12" x 12" sample and the certified applicator shall keep the other from each sample batch. The number of samples to be tested shall be a percentage of the samples retained by the owner or owner's representative. The reported properties for the ultimate tensile stress and the tensile modulus shall be based on the gross laminate thickness as indicated on the product data sheet.

(F) Preparation of Field FRP Samples:

(1) Prepare samples on a smooth, flat, level surface covered with polyethylene sheeting, or 16 mil plastic film, ensure the sheeting or film is free of dust and debris, and prime with epoxy resin. Then place saturated fabric and apply additional topping of epoxy. Samples can be 1 or 2 layers depending on the product's thickness and as per manufacturer's instructions. Cover with plastic film.

(2) A "sample" shall consist of two layers of standard thickness (taken as 0.04 inches) carbon fiber laminate or one layer of double thickness (taken as 0.08 inches) carbon fiber laminate, for a total "sample" nominal thickness of 0.08 inches.

(3) Samples shall not be moved for a minimum of 48 hours after casting. After removing from sample table, samples shall be stored in a secured location / box. The prepared, identified samples shall be given to a pre-approved and experienced testing laboratory. The laboratory shall then precondition samples for 48 hours at 140°F before testing.

(G) ASTM D7565 and/or ASTM D3039 – Material Tension Tests:

(1) A minimum of 15% of the owner's samples shall be tested. One ASTM D3039 sample test is comprised of 5 test coupons which are retrieved from each 12"x12" FRP sample. If one sample fails (the tensile modulus average of 5 test coupons is below the minimum requirements shown on Table 1 of this specification), an additional sample shall be randomly chosen and tested. If this sample also fails, another 12" x 12" sample shall be randomly chosen and shall be sent to an alternate testing lab to be tested. In the extreme case that this sample also fails, remedial measures, per required remediations section, will be taken to ensure integrity of the system.

(H) Core Sample Tests: Core sample testing shall be used for bond-critical applications to check adhesion strength to the substrate, interlaminar bond and total accumulated thickness of the installed FRP.

(1) Bond critical applications shall require adhesion testing in accordance with ASTM D7522 as follows:

- Pull-off tests shall be performed on a representative area adjacent to the repair location whenever possible. If no adjacent areas exist, the tests shall be conducted on areas where the installed FRP system will be subjected to relatively low stress during service. Patch pull-off test locations if the test is conducted on the areas requiring strengthening (e.g. if an adjacent representative area was not available).

1. Carry out the first adhesion test prior to beginning project-designated installation to qualify the process. From there, a minimum of one test location per 1,000 ft^2 of surface area, per type of substrate, type of structure, or for each surface preparation technique used. Each test location requires a minimum of three pull-off tests.

- Core samples must not be taken at joints, overlap locations, or transition zones.

- Test and visually inspect the number of layers.

- Special care is required during the coring operations to ensure that no damage occurs to the adjacent FRP.

(2) Core samples shall be:

- 0.5-inch minimum and 2.0-inch maximum in diameter.

- Undamaged.

- Location shall not be taken from an overlap or spliced zone.

- Testing in accordance with ASTM D7522. Tested cores must have a bond strength of the cured FRP to concrete of at least 200 psi or failure occurring in the concrete substrate.

- Labeled with sample location identified and placed in a labeled and sealed polyethylene bag before submitting to the Owner/Engineer. The test sample label shall also identify the date, size/diameter of pull-off test and tested value (psi).

(3) Fill cored hole with a system compatible resin and smooth the surface flush.

(l) Required Remediation.

(1) Small voids [on the order of 1" diameter] shall be injected or back filled with epoxy.

(2) Voids and delaminations greater than 1-1/4” in diameter shall be reported to the engineer of record and remediation shall be submitted by the contractor for approval.

(3) Removal and replacement should be avoided, if possible, but certain workmanship defects may require coordinated removal and replacement that shall be reviewed and accepted by the manufacturer, owner and EOR.

(4) Remediation work shall be at no additional cost to the owner.

(J) If the calculated mean from the Material Tension Tests are lower than the FRP minimum tensile modulus value as per Table 1 of this specification, the following remedial measures shall be considered:

(1) Perform calculations using the tested value to demonstrate that the original design demand is met, as accepted by the owner and engineer of record (EOR).

(2) Install additional material as accepted by the owner and EOR at no additional cost to the owner.

(K) Acceptance of FRP. The Engineer accepts the completed wet lay-up FRP if repair of all defect areas has been authorized and complete, job control testing meets specified requirements, and visual inspection of installed FRP shows the following:

(1) No evidence of defects consisting of external abrasions or blemishes, delamination, voids, damaged edges, external cracks, chips, cuts, loose fibers, foreign inclusions, depressible raised areas, or wrinkles.

(2) Laminate is in full contact with the concrete member or subsequent layers.

(3) Surfaces of horizontal joints are flush with adjacent surfaces.

(4) No defects or voids with a dimension more than 1-1/4.”

(5) No defect areas greater than 1 square inch.

(6) No defect areas of any size being within 1 foot from another defect area of similar size.

(7) No undulations in the surfaces exceeding 0.25 inch per foot in any direction.

657.04 Measurement.

(A) Fiber Reinforced Polymer System will be paid on a lump sum basis. Measurement for payment for Fiber Reinforced Polymer System will not apply.

(B) The Engineer will only measure Additional Utility Work for FRP required and requested by the Engineer on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation.

657.05 Payment. The Engineer will pay for the accepted pay items listed below at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and the contract documents.

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

Pay Item		Pay Unit
(A)	Fiber Reinforced Polymer System	Lump Sum
(B)	Additional Utility Work for FRP	Force Account

Fiber Reinforced Polymer System shall include saving, shoring and working around existing utilities and reconstruction existing utility hatches as shown on the plans.

Additional Utility Work for FRP shall include replacing or relocating existing utilities originally assumed to be saved when directed by the Engineer, and unforeseen utility work not shown on the plans. An estimated amount for force account may be allocated in the proposal schedule under 'Additional Utility Work for FRP', but actual amount to be paid will be the sum shown on accepted force account records, whether this sum be more or less than the estimated amount allocated in the proposal schedule."

END OF SECTION 657

"General Decision Number: HI20240001 10/25/2024

Superseded General Decision Number: HI20230001

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: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.20 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 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2024
1	01/12/2024
2	01/19/2024
3	04/19/2024
4	05/17/2024
5	06/07/2024
6	07/19/2024
7	08/30/2024
8	09/06/2024
9	10/04/2024
10	10/25/2024

ASBE0132-001 09/01/2024

	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	$ 45.80	30.35

BOIL0627-005 01/01/2021

	Rates	Fringes
BOILERMAKER	$ 37.25	31.25

BRHI0001-001 09/05/2023

	Rates	Fringes
BRICKLAYER		
Bricklayers and Stonemasons	$ 48.03	32.23
Pointers, Caulkers and Weatherproofers	$ 48.28	32.23

BRHI0001-002 09/05/2023

	Rates	Fringes
Tile, Marble & Terrazzo Worker		
Terrazzo Base Grinders	$ 44.69	33.00
Terrazzo Floor Grinders and Tenders	$ 43.14	33.00
Tile, Marble and Terrazzo Workers	$ 46.50	33.00

CARP0745-001 10/01/2021

	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.....$ 51.25 24.84
Millwrights and Machine Erectors.....$ 51.50 24.84
Power Saw Operators (2 h.p. and over).....$ 51.40 24.84

CARP0745-002 09/04/2023

	Rates	Fringes
Drywall and Acoustical Workers and Lathers	$ 53.00	27.74

ELEC1186-001 08/25/2024

	Rates	Fringes
Electricians:		
Cable Splicers	$ 62.77	32.46
Electricians	$ 55.55	32.25
Telecommunication worker	$ 40.00	15.50

ELEC1186-002 08/25/2024

	Rates	Fringes
Line Construction:		
Cable Splicers	$ 62.77	32.46
Groundmen/Truck Drivers	$ 41.66	26.50
Heavy Equipment Operators	$ 50.00	29.90
Linemen	$ 55.55	32.25
Telecommunication worker	$ 40.00	15.50

ELEV0126-001 01/01/2024

	Rates	Fringes
ELEVATOR MECHANIC	$ 70.90	37.885+a+b

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.

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* ENGI0003-002 09/02/2024

	Rates	Fringes
Diver (Aqua Lung) (Scuba))		
Diver (Aqua Lung) (Scuba) (over a depth of 30 feet)	$ 78.96	36.825
Diver (Aqua Lung) (Scuba) (up to a depth of 30 feet)	$ 69.59	36.825
Stand-by Diver (Aqua Lung) (Scuba)	$ 60.21	36.825
Diver (Other than Aqua Lung)		
Diver (Other than Aqua		

Lung)	$ 78.96	36.825
Diver Tender (Other than Aqua Lung)	$ 57.18	36.825
Stand-by Diver (Other than Aqua Lung)	$ 60.21	36.825
Helicopter Work		
Airborne Hoist Operator for Helicopter	$ 58.76	36.825
Co-Pilot of Helicopter	$ 58.90	36.825
Pilot of Helicopter	$ 59.07	36.825
Power equipment operator - tunnel work		
GROUP 1	$ 55.20	36.825
GROUP 2	$ 55.31	36.825
GROUP 3	$ 55.48	36.825
GROUP 4	$ 55.75	36.825
GROUP 5	$ 56.06	36.825
GROUP 6	$ 56.71	36.825
GROUP 7	$ 57.03	36.825
GROUP 8	$ 57.14	36.825
GROUP 9	$ 57.25	36.825
GROUP 9A	$ 57.48	36.825
GROUP 10	$ 57.54	36.825
GROUP 10A	$ 57.69	36.825
GROUP 11	$ 57.84	36.825
GROUP 12	$ 58.20	36.825
GROUP 12A	$ 58.56	36.825
Power equipment operators:		
GROUP 1	$ 54.90	36.825
GROUP 2	$ 55.01	36.825
GROUP 3	$ 55.18	36.825
GROUP 4	$ 55.45	36.825
GROUP 5	$ 55.76	36.825
GROUP 6	$ 56.41	36.825
GROUP 7	$ 56.73	36.825
GROUP 8	$ 56.84	36.825
GROUP 9	$ 56.95	36.825
GROUP 9A	$ 57.18	36.825
GROUP 10	$ 57.24	36.825
GROUP 10A	$ 57.39	36.825
GROUP 11	$ 57.54	36.825
GROUP 12	$ 57.90	36.825
GROUP 12A	$ 58.26	36.825
GROUP 13	$ 55.18	36.825
GROUP 13A	$ 55.45	36.825
GROUP 13B	$ 55.76	36.825
GROUP 13C	$ 56.41	36.825
GROUP 13D	$ 56.73	36.825
GROUP 13E	$ 56.84	36.825

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.

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* ENGI0003-044 09/02/2024

	Rates	Fringes
Power Equipment Operators (PAVING)		

Asphalt Concrete Material Transfer	$ 55.88	37.32
Asphalt Plant Operator	$ 56.31	37.32
Asphalt Raker	$ 54.92	37.32
Asphalt Spreader Operator	$ 56.40	37.32
Cold Planer	$ 56.71	37.32
Combination Loader/Backhoe (over 3/4 cu.yd.)	$ 54.92	37.32
Combination Loader/Backhoe (up to 3/4 cu.yd.)	$ 53.94	37.32
Concrete Saws and/or Grinder (self-propelled unit on streets, highways, airports and canals)	$ 55.88	37.32
Grader	$ 56.71	37.32
Laborer, Hand Roller	$ 54.42	37.32
Loader (2 1/2 cu. yds. and under)	$ 55.88	37.32
Loader (over 2 1/2 cu. yds. to and including 5 cu. yds.)	$ 56.20	37.32
Roller Operator (five tons and under)	$ 54.65	37.32
Roller Operator (over five tons)	$ 56.08	37.32
Screed Person	$ 55.88	37.32
Soil Stabilizer	$ 56.71	37.32

IRON0625-001 09/01/2024

	Rates	Fringes
Ironworkers:	$ 48.00	41.86

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.

LABO0368-001 09/02/2024

	Rates	Fringes
Laborers:		
Driller	$ 44.75	25.96
Final Clean Up	$ 31.40	21.37
Gunite/Shotcrete Operator and High Scaler	$ 42.25	25.96
Laborer I	$ 41.75	25.96
Laborer II	$ 39.15	25.96
Mason Tender/Hod Carrier	$ 42.25	25.96
Powderman	$ 42.75	25.96
Window Washer (bosun chair)	$ 41.25	25.96

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 09/03/2024

	Rates	Fringes
Landscape & Irrigation Laborers		
GROUP 1	$ 28.40	17.15
GROUP 2	$ 29.40	17.15
GROUP 3	$ 23.00	17.15

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.

LABO0368-003 09/05/2023

	Rates	Fringes
Underground Laborer		
GROUP 1	$ 41.25	24.96
GROUP 2	$ 42.75	24.96
GROUP 3	$ 43.25	24.96
GROUP 4	$ 44.25	24.96
GROUP 5	$ 44.50	24.96
GROUP 6	$ 44.60	24.96
GROUP 7	$ 44.85	24.96

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 01/01/2024

	Rates	Fringes
Painters:		
Brush	$ 41.65	30.05
Sandblaster; Spray	$ 41.65	30.05

PAIN1889-001 07/01/2024

	Rates	Fringes

Glaziers.....$ 46.00 37.15

PAIN1926-001 03/05/2023

	Rates	Fringes
Soft Floor Layers	$ 39.77	33.80

PAIN1944-001 01/07/2024

	Rates	Fringes
Taper	$ 45.20	31.40

PLAS0630-001 09/04/2023

	Rates	Fringes
PLASTERER	$ 46.12	34.53

PLAS0630-002 09/04/2023

	Rates	Fringes
Cement Masons:		
Cement Masons	$ 44.12	33.63
Trowel Machine Operators	$ 44.27	33.63

PLUM0675-001 01/07/2024

	Rates	Fringes
Plumber, Pipefitter, Steamfitter & Sprinkler Fitter	$ 52.83	31.02

ROOF0221-001 11/06/2022

	Rates	Fringes
Roofers (Including Built Up, Composition and Single Ply)	$ 43.15	21.21

SHEE0293-001 03/05/2023

	Rates	Fringes
Sheet metal worker	$ 47.37	31.71

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* 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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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.20) or 13658

($12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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 https://www.dol.gov/agencies/whd/government-contracts.

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) (iii)).

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.

State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R §1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

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

National Office because National Office has 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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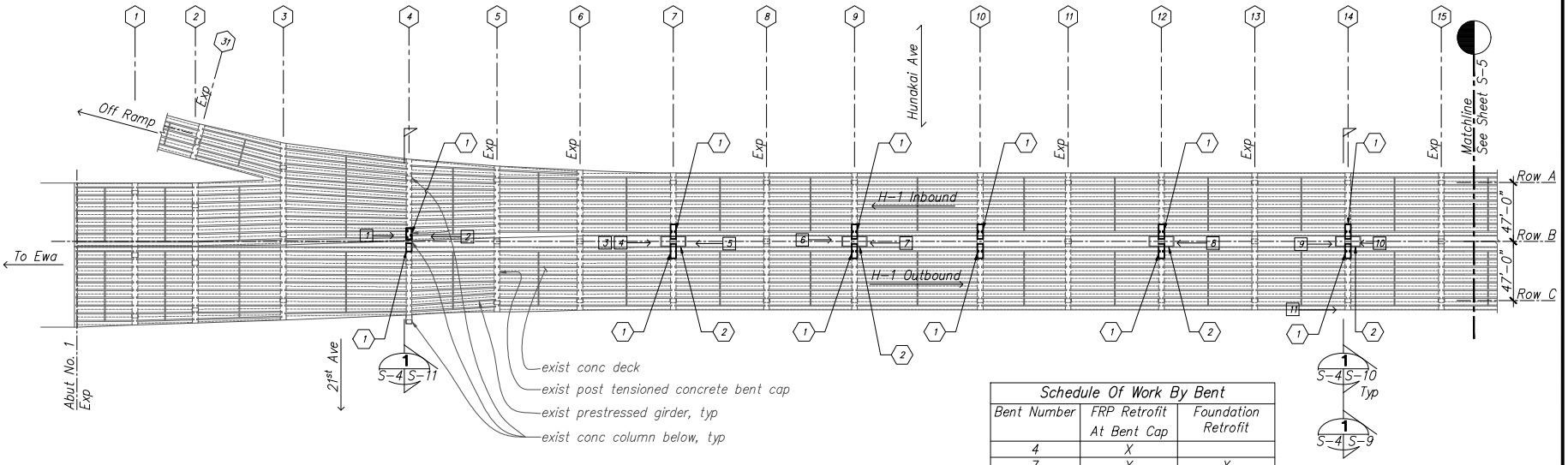
END OF GENERAL DECISION"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-HI-1(277)	2024	39	52



Schedule Of Work By Bent		
Bent Number	FRP Retrofit At Bent Cap	Foundation Retrofit
4	X	
7	X	X
9	X	
10	X	
12	X	X
14	X	X
16	X	
18	X	
20	X	X
22	X	X
24	X	
25	X	
27	X	
28	X	
Note: Foundation retrofits occur below all columns at bent.		

Legend:

(1) Wrap Bent Cap w/ FRP

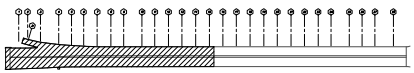
(2) Existing Planter

[X] Indicates Photograph Location, See Sheet S-17 For Photographs

North

PARTIAL BRIDGE FRAMING PLAN — 1 / S-4 S-4

Scale: 1" = 40'



Key Plan

Graphic Scale

1" = 40' 40' 0' 40' 80'

Scale In Feet

GRANT J. OKUNAGA
LICENSED PROFESSIONAL ENGINEER
No. 13001-S
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
EXP. 04-30-26

MKE ASSOCIATES LLC

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PARTIAL BRIDGE FRAMING PLAN

INTERSTATE ROUTE H-1: Seismic Retrofit
Waialae Viaduct Inbound and Outbound
Federal-Aid Project No. NH-HI-1(277)

Scale: As Noted Date: July 2024

SHEET No. S-4 OF 52 SHEETS

ADD. 1

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

Cover Sheet

The purpose of this Construction Environmental Hazard Management Plan (C-EHMP) is to specify the actions that will be taken by the construction company engaged in the Waialae Viaduct Seismic Retrofit Project for the Hawaii Division of Highways. Environmental Site Investigations conducted around the site have identified the presence of several contaminants in the soils nearby and upgradient of the project site that may be encountered during ground disturbing activities on the construction project (E2 2023). The preparation of a C-EHMP is a requirement of the Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office to be able to conduct any construction and demolition activities (including excavation, grading, grubbing, etc.) at a site with known or potential contamination.

The area around the highway project is impacted with the presence of petroleum hydrocarbons from gasoline service stations, dry cleaning chemicals from laundry services, and chemicals possibly leached from a nearby cemetery. No samples were collected directly within the areas that will be excavated, however several of the sources are directly upgradient from the work areas providing the potential for the migration of the contaminants in the direction of the project site.

This plan is intended to define the procedures that will be put in place to ensure that workers are not significantly exposed to the site contaminants, that the contaminants are not dispersed into the environment during handling, and that all contaminated materials are properly disposed of or placed in a location in which they do not present a significant hazard to human health or the environment. The plan includes work practices, protective equipment, engineering controls to contain the contaminants on the site, disposal procedures, sampling and analysis procedures for further characterization of potentially contaminated media, and actions to be taken in the event of a release of any significant quantity of contamination from the site.

Upon completion of construction, the project owner or the project owner's representative will contact the HDOH HEER Office in writing to confirm that all contamination was managed in accordance with the approved C-EHMP. All appropriate manifests, tracking logs, and photos will be included with the written confirmation. It is likely that some level of impacted soils and groundwater will be left on-site following the completion of construction; therefore, a site-specific Environmental Hazard Evaluation (EHE) and an Environmental Hazard Management Plan (EHMP) will be completed to manage the contamination in the long-term. The EHE and EHMP shall be submitted to the HDOH for review and approval following the completion of construction activities detailed in this C-EHMP.

The Contractor shall be responsible for completing the C-EHMP for approval by HDOH. The preliminary C-EHMP is provided as a template for the Contractor's use. E2 will not be responsible for approval of the C-EHMP by HDOH.

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Project-Specific Preliminary Construction Environmental Hazard Management Plan (C-EHMP)

for

Seismic Retrofit of Waialae Viaduct
PE2-Design Phase (Contract #HDOT-2021-042)

Located in

Honolulu, Oahu, Hawaii

Prepared by:

INSERT CONTRACTOR INFORMATION HERE

Prepared by:

Element Environmental, LLC
98-030 Hekana Street, Unit 9
Aiea, Hawaii 96701

February 2024

Signatures

This document is not finalized until it is signed. A signed copy will be maintained on-site at all times during construction of the project.

I certify that as the property owner, I am responsible for ensuring all parties who work or reside at my site are aware of the contamination at my property, and the associated hazards, and that the information in this document is true and accurate to the best of my knowledge. I am responsible for ensuring compliance with all land use controls as well as advance notifications to the State of Hawaii Department of Health (HDOH) of anticipated land use changes or groundbreaking activity at my property.

Property Owner or Representative of Property Owner

I certify that I am a qualified environmental professional, capable of ensuring compliance with the requirements of this Construction Environmental Hazard Management Plan (C-EHMP). It is my duty on this project to understand the requirements of this document and be on-site during groundbreaking activities. I will communicate hazards, management protocols, and other C-EHMP requirements to construction professionals at the site. I will document such activities and communicate with HDOH, as needed.

Qualified Environmental Professional

As Construction Manager, I am responsible for understanding the requirements of this C-EHMP, effectively communicating the requirements and hazards to my crews and subcontractors and providing the required training and personal protective equipment to site workers. I will work with the Qualified Environmental Professional to ensure compliance with this C-EHMP during work at this property.

Construction Manager

Table of Contents

Table of Contents (Continued)

Section Page

Tables

Appendices

List of Acronyms and Abbreviations

bgs	below ground surface
C-EHMP	Construction Environmental Hazard Management Plan
CFR	Code of Federal Regulations
COPC	contaminant of potential concern
CY	cubic yard
DPP	Department of Planning and Permitting
DRO	diesel range organics
EAL	Environmental Action Level
EHE	Environmental Hazard Evaluation
EHMP	Environmental Hazard Management Plan
EPA	United States Environmental Protection Agency
GRO	gasoline range organics
HAR	Hawaii Administrative Rules
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDOH	State of Hawaii Department of Health
HDOT	State of Hawaii Department of Transportation
HAECO	Hawaiian Electric Company, Inc.
HFD	Honolulu Fire Department
HRS	Hawaii Revised Statutes
LEPC	Local Emergency Planning Committee
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
msl	mean sea level
N/A	Not Applicable
NFA	No Further Action
NRC	National Response Center
NRCS	Natural Resources Conservation Service
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PID	photoionization detector
PM	Project Manager
PPE	personal protective equipment
ppm	parts per million
QEP	Qualified Environmental Professional
ROW	right-of-way
RRO	residual range organics
SHWB	Solid and Hazardous Waste Branch
SMA	Special Management Area
SSHO	Site Safety and Health Officer

TBD	To Be Determined
TCE	trichloroethylene
TGM	Technical Guidance Manual
TMK	Tax Map Key
TPH	total petroleum hydrocarbons
UIC	underground injection control
USCG	United States Coast Guard
USDA	United States Department of Agriculture
UST	underground storage tank
VOC	volatile organic compound

Section 1 Introduction and Purpose

1.1 Project Purpose

This Project-Specific Construction Environmental Hazard Management Plan (C-EHMP) provides guidance to environmental consultants, owners, operators, tenants, and construction/utility workers, who are conducting construction-related and ground-disturbing activities at sites with known, presumed, or suspected contamination. Examples of such activities include, but are not limited to, demolition, grading, excavation, trenching, or drilling at sites with identified or potential contamination. These guidelines will be used by all who may be hired to assist any of the activities described above to keep workers, site users, the environment, and the general public safe from exposure to contamination on-site and prevent contaminants of potential concern (COPCs) from leaving the site without proper management. *Not adhering to this plan may have serious consequences, including, but not limited to, stopping construction and being liable for any damage or harm caused by on-site contamination*.

These guidelines are specific to the demolition and/or construction phase(s) of the specific project described in Section 6 only and do not address the property operations subsequent to construction. Future projects at the site may require a separate C-EHMP if contaminated media will be impacted.

In general, the C-EHMP is no longer required once ground-disturbing activities are completed and all contaminated materials are properly disposed of, unless above-ground soil vapor management is required. Since there are no buildings on the construction site and this project will not affect the flow of contaminants to surrounding buildings it is not likely that soil vapor management would be required.

If contaminated media will be left on-site following the completion of construction, an Environmental Hazard Evaluation (EHE) must be conducted, and a separate Environmental Hazard Management Plan (EHMP) will have to be prepared to manage the contamination in the long-term. EHEs and EHMPs must be submitted to the State of Hawaii Department of Health (HDOH) for review and approval following the completion of construction activities detailed in this C-EHMP. At this time, no sampling has been conducted on the highway right of way, only on surrounding properties.

Section 2 Background

2.1 Project Site Location and Description

This C-EHMP applies to the property area identified in Figure 1, included in Appendix A. Property identification is listed in Table 2-1.

Table 2-1: Property Identification

Main Address:	Waialae Viaduct is located within the State of Hawaii ROW for the H-1 Freeway and Waialae Avenue from 21st Avenue to Kealaolu Avenue.
TMK No.:	No TMK; Adjacent to Kahala Center Co. (1) 3-5-016:001
Latitude/Longitude:	21° 16’ 42.9” N / 157° 47’ 11.9” W
Owner:	HDOT

Note: HDOT = State of Hawaii Department of Transportation ROW = right-of-way TMK = Tax Map Key

2.2 Site Conditions

Built in the late 1960s, Waialae Viaduct is 29-span, precast concrete bridge that spans an extension of the H-1 Freeway over Waialae Avenue. The viaduct begins near the intersection of Waialae Avenue and 21st Avenue on the west end and terminates near Kealaolu Avenue to the east, where the H-1 Freeway then transitions to Kalanianaole Highway. Under the viaduct, Waialae Avenue is an approximately 94-foot-wide divided roadway with a 10-foot-wide median. Pedestrian facilities include sidewalks along both sides of the roadway.

The viaduct consists of a separate Inbound (Structure No. 003000H10202706) and Outbound (Structure No. 003000H10202705) superstructure supported by common bent substructures. The Inbound and Outbound superstructures are generally constructed of a reinforced concrete deck atop precast, prestressed concrete tee girders. The bents consist of a post-tensioned concrete bent cap supported by reinforced concrete columns with supplemental post-tensioning, with either shallow spread footings or prestressed concrete piles with a concrete pile cap. During this project, fifteen of the footers and pile caps will be exposed and reinforced to provide additional structural support in the event of an earthquake.

A summary of site conditions in the area of the Waialae Viaduct are identified in Table 2-2.

Table 2-2: Site Conditions

Distance to Nearest Surface Water Body (feet):	The Waialae Stream is located near the east end of the project area and another surface water body is located south of the project area mostly in a shallow ditch. Both surface water bodies drain surface waters to Pacific Ocean, located 0.9 miles to the south southeast of the project area.
Approximate Depth to Groundwater (feet msl):	The water table at the project site is approximately 11 to 13.5 feet bgs.
Property Above or Below UIC Line:	The property is located above (mauka of) the UIC line, indicating that groundwater is a potential source of drinking water.
Is the first-encountered groundwater classified as a potential source of drinking water in the Mink & Lau Aquifer Identification and Classification Report?	No. The System Identifier for the site is 30105116(23421)/30105121(21113), which underlies the project site (Mink, John F.; Lau, L. Stephen 1990). The upper groundwater aquifer has potential use as neither a drinking water or ecologically important utility. The groundwater contains high salinity (5,000-15,000 mg/L of chlorine) and is considered replaceable. The groundwater has a high vulnerability to contamination.
Current Property Use Type (Residential, Commercial, Zoning, etc.)	The current and future property use is not anticipated to change, it is within a State ROW and zoned for B-2 Community Business use. An approximately 0.07-acroe portion of the project extents will be within the SMA boundary, including the temporary construction staging area. Pursuant to ROH, Chapter 25, "development" does not include the repair or maintenance of roads and highways within existing ROW or the repair and maintenance of existing structures. As such, during consultation for the Project, the CCH DPP concurred that an SMA Use Permit would not be needed.
Proposed/Future Property Use Type (Residential, Commercial, Zoning, etc.)	
Typical Soil Profile from Surface to Groundwater (Include Depth Range, Lithology)	The soil type at the site has been mapped by the USDA NRCS as Molokai silty clay loam, 7 to 15 percent slopes (MuC) in the west and Ewa stony silty clay, 6 to 12 percent slopes (EwC) in the east. According to the NRCS, MuC formed in material weathered from basic igneous rock, and is underlain by soft, weathered rock, and EwC consists of soil on alluvial fans and terraces. Readily available subsurface information from previous borings for the original project indicates that subsurface conditions at the viaduct site generally consisted of a thin layer of fill material on the surface underlain by alluvial soils. The alluvial soils generally consisted of medium stiff to stiff clay interbedded with clayey gravel and boulders. Below the alluvial soils, subsurface conditions generally consist of basalt. The top of basalt generally slopes downward in the easterly direction.

Utilities Serving Site (e.g., Sewer (specify, Cesspool, Septic, Other), Storm Drains, Electrical, Gas, Water)	Potable Water is provided to the area through the CCH BWS system and fire hydrants. There are no faucets or spigots supplied to the project directly as this is a public roadway.
	Sewer: A public sanitary sewer system is in operation in the area around the project, however no facilities to access the system are present in the highway ROW.
	Storm Drains: Storm drains are present along Waialae Avenue in the curb on the side of the road below the viaduct. These drains direct storm and surface waters into the storm sewer piping system to the ocean.
	Electrical: HECo provides electrical service to the homes and businesses in the area as well as to the highway lighting systems on the viaduct. There are no hookups present in the project area.
	Solid Waste Disposal: Solid waste collection, transport, and disposal operations are the responsibility of the CCH in the area around the highway project. Private dumpster and trash pickup services are available through a number of local hauling and disposal companies.
	Fire, Police, and Medical Services: The nearest HFD fire station is Station 5 Kaimuki located at 971 Koko Head Avenue, approximately 1 mile west of the project site. The nearest HPD station is the Waikiki Police Station located at 2425 Kalakaua Ave., approximately 3 miles southwest of the project site. The nearest full-service hospital is Queen's Medical Center, located at 1301 Punchbowl St, approximately 4 miles west of the project site.

Notes:
bgs = below ground surface
CCH = City and County of Honolulu
HECo = Hawaiian Electric Company, Inc.
mg/L = milligrams per liter
NRCS = Natural Resources Conservation Service
ROW = right-of-way
UIC = underground injection control
BWS = Board of Water Supply
DPP = Department of Planning and Permitting
HFD = Honolulu Fire Department
msl = mean sea level
ROH = Revised Ordinances of Honolulu
SMA = Special Management Area
USDA = United States Department of Agriculture

2.3 Existing Environmental Conditions

The Waialae Viaduct is located in a mixed use commercial and residential area. It is a major transportation corridor that connects the central Honolulu area to the neighborhoods of Hawaii Kai and Aina Haina to the east. South of the viaduct is a large retail outlet, Kahala Mall, surrounded by gasoline service stations, restaurants, offices, and other commercial establishments as well as residential development.

Built in the late 1960s, Waialae Viaduct is 29-span, precast concrete bridge that spans over Waialae Avenue. The Waialae Viaduct accommodates traffic on the H-1 Freeway above Waialae Avenue and begins near the intersection of Waialae Avenue and 21st Avenue to the west and terminates near Kealaolu Avenue to the east, where the H-1 Freeway then transitions to Kalanianaole Highway. Under the viaduct, Waialae Avenue is an approximately 94-foot-wide divided roadway with an approximately 10-foot-wide median. Pedestrian facilities include sidewalks along both sides of the roadway.

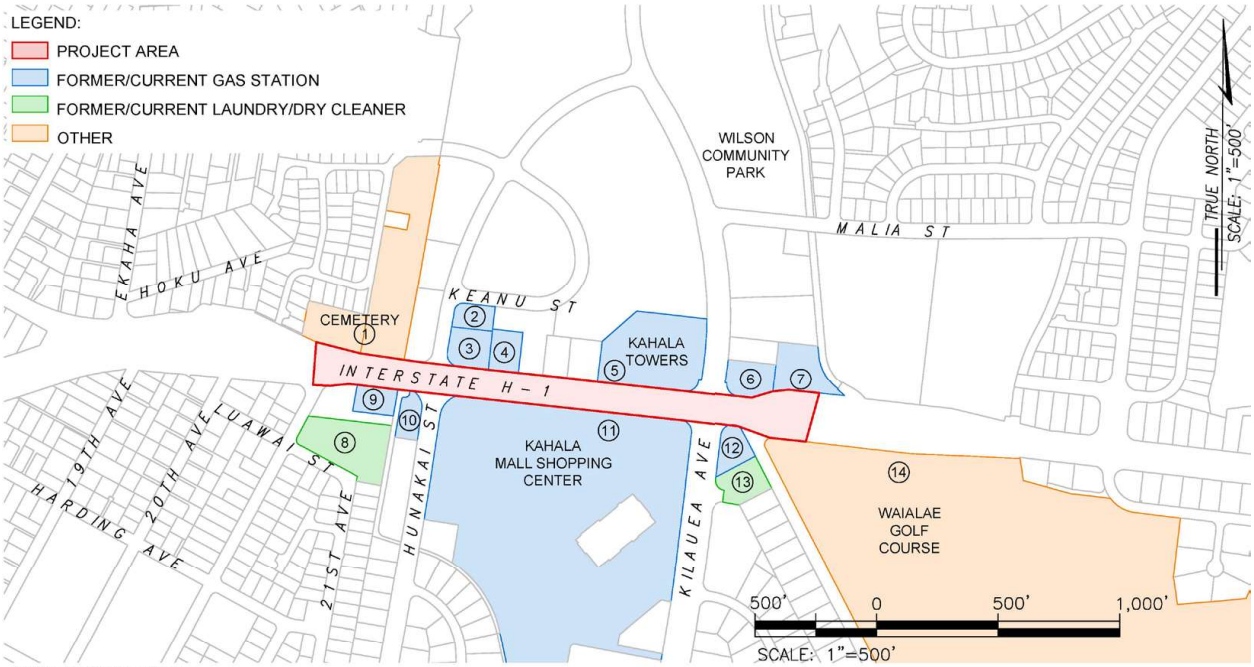
The viaduct consists of a separate Inbound (Structure No. 003000H10202706) and Outbound (Structure No. 003000H10202705) superstructure supported by common bent substructures. The Inbound and Outbound superstructures are generally constructed of a reinforced concrete deck atop precast, prestressed concrete tee girders. The bents consist of a post-tensioned concrete bent cap supported by reinforced concrete columns with supplemental post-tensioning, with either shallow spread footings or prestressed concrete piles.

The seat-type abutments are built of reinforced concrete retaining walls with shallow spread footings. There is a reinforced concrete approach slab at the west abutment, but no approach slab at the east

abutment. Reinforced concrete railings are present along the edges of each superstructure. In addition, atop every other concrete bents are concrete planter boxes located in the gap between the Inbound and Outbound superstructures. Transverse expansion joints in the superstructures occur at every other or two bents due to the long length of the bridge.

The lateral load resisting system primarily consists of moment frames in each direction.

Numerous sites with potential environmental impacts were identified during the historical and regulatory records review, including releases from former and/or current gasoline service stations and auto repair stations, dry cleaners (launderettes), and potential releases associated with the Ocean View Cemetery, developed in 1918, and the Waialae Golf Course, which was developed in 1927. The illustration below depicts the locations of the findings of the environmental assessments and the major potential sources of contamination that may be encountered on the project.



PROPERTY IDENTIFICATION

1. 4100 WAIALAE AVENUE AND 4120 WAIALAE AVENUE, TMKs: (1) 3-3-012:110 & 001
2. 1339 HUNAKAI STREET, KAHALA MARKETPLACE, TMK: (1) 3-5-017:028
3. 4202 WAIALAE AVENUE, SHELL, TMK: (1) 3-5-017:009
4. 4210 WAIALAE AVENUE, KAHALA MARKET, TMK: (1) 3-5-017:008
5. 4300 WAIALAE AVENUE, KAHALA TOWERS, TMK: (1) 3-5-017:004
6. 4346 WAIALAE AVENUE, TMK: (1) 3-5-017:003
7. 4400 KALANIANAOLE HIGHWAY, TMK: (1) 3-5-017:001
8. 1173 21ST AVENUE, TIMES SUPERMARKET, TMK: (1) 3-2-041:001
9. 4117 WAIALAE AVENUE AND 21ST, WAIALAE TEXACO, TMK: (1) 3-2-041:055
10. 4137 WAIALAE AVENUE, HAWAIIUSA FEDERAL CREDIT UNION, TMK: (1) 3-5-016:004
11. 4211 WAIALAE AVENUE, KAHALA MALL SHOPPING CENTER, TMK: (1) 3-5-016:001
12. 4339 WAIALAE AVENUE, ALOHA ISLAND MART KAHALA, TMK: (1) 3-5-025:001
13. 1174 KEALAOLU AVENUE, TMK: (1) 3-5-025:002
14. 4997 KAHALA AVE, WAIALAE GOLF COURSE, TMK: (1) 3-5-023:001

The surface and shallow groundwater in the area of the viaduct flows from north to south. This flow is more likely to carry contaminants from the sites on the northern, upgradient side and toward the viaduct. Sites that are south of the viaduct are less likely to affect the conditions around the viaduct, however there are a few gasoline stations along the southern edge of the viaduct that are close to areas that will be excavated which may cause contamination concerns at those locations. The northwestern corner of the Waialae Golf Course is located approximately 800 feet from the nearest excavation site on the project and is hydraulically

downgradient making it unlikely that any chemicals applied to the golf course would migrate to the area being excavated.

There are 5 bents that will be excavated for the seismic project, 7, 12, 14, 20, and 22 (see construction plans in Appendix B) and Table 2-3. Each bent has three columns and footers that will be excavated. The following list identifies the locations of the proposed excavations and the sites that are closest and that present the greatest potential for impacts to soil or groundwater.

Table 2-3: Environmental Conditions at Excavation Sites

Excavation Sites	Location	Nearby Sites (see Figure 2)
Bent 7	Westernmost excavation located west of Hunakai St.	1 – Kahala Cemetery 8 – Times Market – former dry cleaner 9 – Waialae Texaco Gas station 10 – Former Gas station
Bents 12 and 14	East of Hunakai St.	2 – Kahala Marketplace with cesspools and petroleum contamination 3 – Shell Gas station 4 – Kahala Market with diesel tank and laundry. 11 – Kahala Mall – former gas stations
Bents 20 and 22	West of Kilauea Ave.	5 – Kahala Towers – former gas stations 6 – Chevron Gas station – former auto repair 7 – Former Auto repair shop 11 – Kahala Mall - former gas stations 12 – Current Aloha Mart gas station 13 - Former dry cleaner

The summary in Table 2-4, provides information on each of the potential sources of contamination in the area around the Waialae Viaduct that may affect soil conditions at the excavation sites.

Table 2-4: Potential Sources of Contamination

Site No.	Description
Site No. 1 Ocean View Cemetery 4100 Waialae Avenue	This cemetery, formerly known as the Waialae Ranch Burial Grounds, has been in use for nearly 100 years. Cemeteries can be a source of chemical contamination from the use of embalming fluids, such as arsenic, formaldehyde, glutaraldehyde, and methanol. No environmental assessments of this property have been reviewed for this site.
Site No. 2 Kahala Marketplace 1339 Hunakai Street	This retail building has housed a number of different shops and stores over many years. Environmental assessments of the property revealed the presence of petroleum hydrocarbons, chlorinated volatile organic compounds (PCE and TCE) possibly from dry cleaning shops, and chlordane a chlorinated pesticide used for termite treatment. There were a couple of cesspools on the property as well. The cesspools were excavated and filled and contaminated soil was removed from the site.
Site No. 3 Shell Gasoline Service Station 4202 Waialae Avenue	This gas station was recently closed, the building was demolished, and the tanks were removed. While clean up actions were completed, there may still be residual petroleum contamination in areas downgradient of the site.

Site No.	Description
Site No. 4 Kahala Market 4210 Waialae Ave	This retail shopping center contained several stores over the years, including a supermarket and a dry cleaning shop. This address is adjacent to the Shell Station (Site 3) which may have contributed to contamination found at this site. An underground fuel storage tank used for diesel fuel is out of use but no closure report was filed. Soil and groundwater samples identified the presence of lead, PAHs (specifically benzo(a)pyrene), volatile chlorinated compounds (PCE and TCE), volatile petroleum compounds (ethylbenzene and benzene), PCBs, and TPH-GRO, TPH-RRO, and TPH-DRO.. A sheen was also detected on the groundwater in this area at a depth of around 13 feet bgs. During excavation of contaminated soils on this property, one area could not be remediated, the soil around a large force main pipeline that runs east to west along the southern property line of this location. There was concern that digging around the pipe might affect the integrity of this sewer main. This pipeline may contribute to the migration of contamination through the bedding materials around the pipe. It is possible that some of these compounds are present at excavation locations downgradient of this site (Bents 12 and 14).
Site No. 5 Kahala Towers 4300 Waialae Avenue	A residential tower building currently occupies the site, however the property was used for gasoline stations in the past. This site could be the source of petroleum contamination at downgradient locations.
Site No. 6 Assaggio Plaza 4346 Waialae Ave	This property currently houses a café style restaurant but was formerly the site of a gasoline station. The most recent station was closed in 2006 and remediation work was completed with a No Further Action Letter issued by the HDOH indicating that no significant contamination was present. There is still a possibility of off-site contamination around the property.
Site No. 7 Shopping Center 4400 Kalanianaole Highway	This small shopping center houses a few small retail outlets. According to Sanborn maps, there was an auto repair shop there from 1949 to1978. This operation could be a source of petroleum contamination in the area.
Site No. 8 Times Supermarket 1173 21st Avenue	This property is currently a supermarket but was the former location of a dry cleaning operation. This site could be the source of PCE and TCE (volatile chlorinated compounds). It is located downgradient of the excavation sites.
Site No. 9 Waialae Texaco 4117 Waialae Avenue	This gasoline service station has been in use since the 1950's. There have been several stations at this location, some with leaking USTs. The older tanks were removed and cleaned up. No problems with the current operations were reported. Some petroleum contamination is still possible around this location.
Site No. 10 HUSA Credit Union 4137 Waialae Avenue	This property is the former site of several gasoline stations from around 1952 to 1995. All tanks were removed and remediation work was completed with a NFA letter issued in 1995. Some contamination may still be present in this area.
Site No. 11 Kahala Mall Shopping Center 4211 Waialae Avenue	This large shopping center does not currently have any significant sources of chemical contamination. In the 1940s, there were a couple of gasoline stations on the property. The site was redeveloped for the mall in 1956.
Site No. 12 Aloha Island Mart 4339 Waialae Avenue	This property is currently being used as a gasoline service station and mini mart. A gas, oil, and auto repair shop were originally on the site in 1949. The older fuel storage tanks were removed and remediated. This site is downgradient of all of the excavations planned for the construction project.
Site No. 13 Kahala Professional Building 1174 Kealaolu Avenue	This property is currently an office building with a dental office. In the past, the property housed a Mobile Drapery business that may be the source of dry cleaning chemicals. This property is downgradient and unlikely to affect the nearest excavation locations on the bridge project.
Site No. 14 Waialae Golf Course 4997 Kahala Ave	This golf course was first established in 1927. Golf courses are often the source of chemical contamination and runoff from the use of chemical pesticides, fertilizers, and other chemicals. Recycled water is used on this course as well. There are no maintenance facilities on this property close to the viaduct. Due to its location, approximately 800 feet at its closest point, to the nearest excavation site, and the fact that it is downgradient from the highway project, it is not likely to affect soil or groundwater quality on the project.

Notes: GRO=gasoline range organics; DRO=diesel range organics; NFA=No Further Action; PAH=polynuclear aromatic hydrocarbons; PCB=polychlorinated biphenyls; PCE=tetrachloroethylene; TCE=trichloroethylene; TPH=total petroleum hydrocarbons; RRO=residual range organics

2.4 Contaminants of Potential Concern

Historical petroleum and solvent releases have been reported in the area around the project site and with the exception of the force sewer main setback to the north of the project, releases have been remediated to HDOH Environmental Action Levels (EALs) at the time the work was completed. Petroleum contamination may remain in the sewer main setback and it is not known how far contamination has migrated, if at all. With recent improvements to sampling methodology and HDOH's periodic updates to the EALs, it is possible that impacted soil and groundwater remain in the vicinity of the project site at concentrations that may negatively impact proposed construction.

COPCs associated with petroleum include the following: TPH-GRO, TPH-DRO, TPH-RRO; volatile organic compounds (VOCs); PAHs; PCBs; and metals. Additionally, methane gas, often associated with the degradation of historical petroleum releases, may be present.

The COPCs listed in Table 2-3 have been detected above the most protective EALs and may pose human health and environmental hazards if contaminated material is exposed and/or removed from the ground/site. Soil with contaminants exceeding EALs that are exported from the site are considered waste material and must be handled according to HDOH Solid and Hazardous Waste Branch (SHWB) Rules and Regulations (Hawaii Revised Statutes [HRS] 342H, Hawaii Administrative Rules [HAR] 11 58). Mishandling of waste may lead to fines.

Suspected soil contamination based on environmental investigations on adjacent properties potentially present at the project site is summarized in Table 2-5, along with HDOH EAL concentrations for direct exposure hazard action levels and direct exposure values for the construction/trench worker scenario.

Table 2-5: Suspected Soil Contamination

COPC	Detectable Concentration Range (mg/kg)	EAL* (mg/kg)	Direct Exposure EAL for Construction/Trench Worker (mg/kg)
Diesel Range Organics	Unknown	100	500
Residual Range Organics		500	65,000
Gasoline Range Organics		100	4,500
Benzene		0.31	110
Ethylbenzene		1.6	550
Benzo(a)Pyrene		0.15	18
Trichloroethylene		0.21	320
Perchloroethylene		0.07	32
Chlordane		16	520
Polychlorinated Biphenyls (PCBs)		1.1	25
Lead		200	800

Note: * Environmental Action Level (EAL) for Unrestricted; < 150m from surface water; above drinking water.
COPC = contaminants of potential concern mg/kg – milligrams per kilogram

2.4.1 Contaminants of Potential Concern and Construction Materials

If COPCs are present in the soil, groundwater, or soil vapor at concentrations above the HDOH Tier 1 EALs for unrestricted land use where groundwater is a potential drinking water resource and the nearest surface water body is <150 meters, and the answer is "yes" to any questions in Table 2-6, then the specified

construction methods need to be assessed to determine whether they affect potential exposures to the COPCs at the site-specific concentrations.

Table 2-6: Construction Material Questions

Question	Yes	No
Are storm drains (including interceptors), or will storm drains be present at the site?	✓	
Will any portion of a storm drain (including interceptors) be present at an elevation that is potentially in contaminated groundwater?		✓
Will any portion of a utility corridor be present at an elevation that is potentially in contaminated groundwater?		✓
Will a portion of any other utility or subsurface structure (other than foundations) extend potentially into contaminated groundwater?		✓
Are any potentially flammable or explosive COPCs present at the site (e.g., methane, total petroleum hydrocarbons as gasoline range organics)?		✓
Will any electrical lines/utility corridors be subsurface?		✓
Are any COPCs in vapors present at or above 10 percent of the lower explosive limit?		✓
Will any elevator shafts or escalator pits, potentially extend into contaminated groundwater?		✓

Notes: COPC = contaminants of potential concern

2.4.1.1 Construction Materials Assessment

CONSTRUCTION CONTRACTOR NEEDS TO COMPLETE

Identifying the need for special materials in areas where contamination is present prior to development is essential to preventing project slowdowns that may occur during construction. Soil vapor contamination, including COPCs which do not have EALs but where the low explosive limit or permissible exposure limit may be exceeded, can present unique problems during and after construction. Identifying these potential problems ahead of time and planning for how to address them can help keep your construction project on schedule.

Conduct an evaluation of whether the construction materials planned for use are compatible with the COPCs present at the site. The evaluation should state how it was determined that the materials are appropriate for use under the site conditions, and for those materials that are determined not to be appropriate for use, an alternative material should be proposed for substitution.

Table 2-7: Construction Materials Assessment

CONSTRUCTION CONTRACTOR NEEDS TO COMPLETE

Construction Material in Contact with Contaminated Media	COPC, Concentration, and Media	Proposed Material to be Used	Material Safe with COPC	
			Yes*	No
(ex. Sewer pipe)	(ex. TCE, 50 ppm in groundwater)	(ex. 8" PVC piping)		
Concrete				
Aggregates				
Rebar (iron steel)				

Notes: * Documentation that material is safe to use and will remain functional in the presence of the identified contamination should be included as an attachment to the C-EHMP.
COPC = contaminant of potential concern

Section 3 Summary of Potential Environmental Hazards

Table 3-1 shows the pathways, exposure routes, and impacts to potential receptors posed by environmental hazards based on current and future land use and the HDOH most restrictive EALs for unrestricted land use where groundwater is a potential drinking water resource, and the nearest surface water body is <150 meters. This list summarizes contaminants that were found in samples collected around the project site at some point in time before and after remediation activities were completed. Some of these compounds may be present in soil or groundwater in areas that will be excavated for this project.

Table 3-1: Environmental Hazard Table

COPC	Media			Hazard					Potential Receptors				
	Soil	Water	Vapor	Direct Exposure	Leaching	Gross Contamination	Ecotoxicity	Vapor Intrusion	Construction Workers	Site Visitors	Site Occupants	General Public	Future Site Users
TPH-DRO	✓	✓		✓		✓			✓		NA		NA
TPH-RRO	✓	✓				✓			✓		NA		NA
TPH-GRO	✓	✓	✓			✓		✓	✓		NA		NA
Benzene	✓		✓	✓		✓		✓	✓		NA		NA
Ethylbenzene	✓		✓			✓		✓	✓		NA		NA
Trichloroethylene	✓		✓			✓		✓	✓		NA		NA
Perchloroethylene	✓		✓			✓		✓	✓		NA		NA
Benzo(a)Pyrene	✓			✓					✓		NA		NA
Chlordane	✓			✓					✓		NA		NA
PCBs	✓			✓					✓		NA		NA
Lead	✓			✓					✓		NA		NA

Note: **Areas that contain contaminants of potential concern (COPCs) will be covered with asphalt and/or concrete underlain by 4 inches of clean fill; therefore, no exposure pathways for future site users.
DRO = diesel range organics GRO = gasoline range organics NA = Not applicable
PCB = polychlorinated biphenyl RRO = residual range organics

A detailed description of the effects of exposure to known COPCs at the site will be included in the site-specific Health and Safety Plan (HASP) for the project. A copy of the HASP that details the measures that will be implemented to protect workers is included in Appendix C. Details include how to recognize potential exposure to COPCs, how to avoid exposure to COPCs, and required training and personal protective equipment (PPE) to use when working around the COPCs. Table 3-2 is a simplified table for easy reference.

Table 3-2: Chronic and Acute Direct Exposure Hazards

COPC	Direct Exposure Hazard				Acute Exposure[2]	Chronic Exposure[2]
	Ingestion	Inhalation	Absorption	Injection		
TPH-DRO	✓	✓	✓		• In high concentrations, vapors are narcotic and may cause headache, fatigue, dizziness, and nausea. • Causes serious eye irritation. • Ingestion may cause nausea, headache, dizziness, and intoxication. May cause irritation to the mouth and throat. Ingestion of large amounts may cause unconsciousness. • Excessive exposure may cause irritations to the nose, throat, lungs, and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.	• Human inhalation (chronic) >500 ppm (approx. 1.8 mg/L/ day. Effects: May cause vomiting, diarrhea, insomnia, headache dizziness, anemia, muscle & neurological symptoms. • Prolonged or frequent contact may cause redness, itching, eczema, and skin cracking.
TPH-RRO	✓	✓	✓		• Contact with eyes and face may cause irritation. • Inhalation may cause irritation. • Ingestion may cause gastrointestinal disturbance, and central nervous system effects.	• Long-term exposure to eyes or skin may cause dermatitis (itching, irritation, pain, and swelling).
TPH-GRO	✓	✓	✓		• Irritating to the eyes, skin, and respiratory tract. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause adverse effects on the central nervous system.	• Substance defats the skin, which may cause dryness or cracking. The substance may have adverse effects on the central nervous system and immune system. Contains chemicals carcinogenic to humans.
Benzene	✓	✓			• Neurological effects • Dermal exposure may cause skin and eye irritation • Drowsiness, nausea, fatigue	• Neurological effects (primarily central nervous system depression) • Low levels of inhalation may cause hematological, immunological, and lymphoreticular effects • Oral exposure may cause hematological effects

COPC	Direct Exposure Hazard				Acute Exposure[2]	Chronic Exposure[2]
	Ingestion	Inhalation	Absorption	Injection		
						• Dermal exposure may cause hematological and immunological effects
Ethylbenzene	✓	✓			• Neurological effects • Dermal exposure may cause skin and eye irritation • Hearing loss • Increased lymphocyte counts • Decreased hemoglobin	• Neurological effects (primarily central nervous system depression) • Inhalation route may cause carcinogenic effects. • Liver damage • Respiratory irritation • Damage to blood forming organs
Trichloroethylene		✓	✓		• Irritation of skin, eyes, and respiratory system • CNS damage • Tremors, dizziness, nausea	• May cause liver and kidney cancer • Chronic heart arrythmia • Central nervous system damage • Irritation of skin, eyes, and respiratory system
Perchloroethylene		✓	✓		• Central nervous system depression • Eye, skin, respiratory irritation • Carcinogenesis • Dizziness • Liver damage • Absorbed through skin	• Nervous system damage • Eye, skin, respiratory system irritation • Liver damage
PCBs	✓	✓	✓		• Dermal exposure may cause chloracne, a specific skin lesion)	• Hematologic effects (liver) • Dermatologic effect (dermal lesions) • Respiratory effects • Endocrine effects (thyroid) • Reproductive and Developmental effects • Carcinogenic effects
OCPs (chlordane)	✓	✓			• Convulsions, headache, dizziness, nausea, vomiting, tremors, confusion, muscle weakness, slurred speech, salivation, and sweating	• Developmental effects • Respiratory effects • Neurological effects (central nervous system) • Renal effects (liver, kidney) • Endocrine effects (thyroid) • Coma
Lead	✓	✓			• Inhalation exposure of high concentrations may cause effects on multiple organs • Abdominal pain, cramps, and vomiting	• Reproductive effects • Gastrointestinal effects • Musculoskeletal effects (joint and muscle pain) • Nervous System • Central System effects (memory or concentration)
Benzo(a)pyrene	✓	✓	✓		• Can cause cancer	• Can cause cancer

COPC	Direct Exposure Hazard				Acute Exposure[2]	Chronic Exposure[2]
	Ingestion	Inhalation	Absorption	Injection		
					• Reproductive effects	• Reproductive effects to men and women • Developmental effects on children

Areas to be excavated are included in the Plans and Specifications in Appendix B. The Potential Hazard Map (Figure 2) delineates the location of known, presumed, or suspected contamination at the site and what type of hazard the contamination represents. The sampling of COPCs at the site did not indicate a Direct Exposure Hazard to Construction Workers or other Site Users, however no sampling of the excavation areas has been completed to date. All excavated media must be assumed to be contaminated and properly handled and stockpiled in accordance with the guidance in this C-EHMP. Mishandling of contaminated media could result in spreading the contamination to uncontaminated areas of the site, which could result in fines and other penalties.

Section 4 Notification Requirements

The effective environmental management of any project requires a coordinated effort from all individuals involved. The following sections outline the need to identify the responsibilities of key personnel involved in project construction.

4.1 Key Project Personnel

The project owner (owner/developer) is expected to maintain a list of project contacts throughout the construction phase of the project.

The key project personnel are as listed in Table 4-1. An updated key project personnel list needs to be maintained throughout the project and submitted to the HDOH HEER Office in writing whenever a change in key project personnel occurs.

Table 4-1: Key Project Personnel

NEEDS TO BE UPDATED BY THE CONTRACTOR PRIOR TO THE START OF WORK

Role	Company	Name	Phone #	e-mail
Construction PM:				
Construction Foreman:				
On-site QEP:				
Owner:	State of Hawaii Department of Transportation Highways Division			
Owner's Agent/Architect	MKE Associates		(808) 488-7579	

Role	Company	Name	Phone #	e-mail
Civil:	MKE Associates		(808) 488-7579	
Structural:	MKE Associates		(808) 488-7579	
Mechanical:				
Electrical/ Telecommunications				
Fire Protection:				
CCH Oversight				
HECO Contacts:	HECO	Planning and Design	(808) 543-5654	
		Installation Department	(80) 543-7846	
		Trouble Dispatcher	(808) 548-7961	
		One Call	(866) 423-7287	
Gas Company Contact:	Hawaii Gas	Field Location	(866) 423-7287	
		Distribution Department	(808) 594-5556	
		Trouble Dispatcher	(808) 535-5933	
Hawaiian Telcom Contacts:	Hawaiian Telcom	Excavation Permit Section	(808) 546-7746	
		Trouble Dispatcher	#611	
CCH Fire Department	Honolulu Fire Department	Battalion Chief Thomas Perkins	(808) 831-7735	
		Battalion Chief Douglas Hooper	(808) 831-7757	
CCH	Department of Planning and Permitting	Civil Engineering Branch	(808) 768-8084	
NPDES Permit Contact:				
DPP Building Permit Contact:	Civil Engineering Branch		(808) 768-8084	
HDOH Oversight:	HDOH HEER Office PM	Sven Lindstrom	(808) 586-4249	sven.lindstrom@doh.hawaii.gov
Landfill Disposal Contact:				
Waste Transporter Contact:				
Contact Export Site (if exporting soil):				
Contact Import Site (if importing soil):				

Note: CCH = City and County of Honolulu
HECO = Hawaiian Electric Company, Inc.
PM = Project Manager
TBD = To Be Determined
DPP = Department of Planning and Permitting
HEER = Hazard Evaluation and Emergency Response
QEP = Qualified Environmental Professional
HDOH = State of Hawaii Department of Health
NPDES = National Pollutant Discharge Elimination
SSHO = Site Safety and Health Officer

If site conditions or planned building configurations change following submittal and acceptance of this C-EHMP by the HDOH HEER Office, then the following agencies must be notified at least 90 days prior to conducting ground-disturbing activities or as soon as the change has been identified. Please note that if the HDOH is notified of a change in site conditions or planned building configuration less than 90 days prior to ground-disturbing activities, there could be delays in construction if additional assessment work needs to be conducted. The initial notification of construction activities and any changes can be submitted through the HDOH e-permitting portal using the website link below.

Agency	Phone	Link/Website
HDOH HEER Office	(808) 586-4249	https://eha-cloud.doh.hawaii.gov/epermit/app/#/formversion/ed9ca916-7863-459b-b5dd-e66f881381d5

Section 5 Requirements for On-site Environmental Oversight

Effective on-site monitoring is a key component of ensuring that the procedures detailed in this C-EHMP are implemented properly and function as intended (e.g., appropriate installation and location of erosion and sediment control measures, cleanliness of equipment, the suitability of secondary containment for fuel storage, screening of potentially contaminated material, and stockpile segregation, etc.).

A QEP will be retained as the environmental monitor to provide guidance on implementing the recommended measures and to develop additional mitigation measures if the need arises. The on-site QEP will have at least 5 years of experience providing environmental oversight for construction projects and must have completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and a recent refresher course, as stipulated in 29 Code of Federal Regulations (CFR) 1910.120, within the last year.

Monitoring events will be conducted at an appropriate frequency based on specific work tasks/procedures and the potential for adverse impacts to occur. An appropriate schedule (frequency and duration of site visits) will be established between the QEP and all involved regulatory agencies regarding when the QEP is on-site. In general, the QEP will be familiar with the day-to-day conduct of project activities and be on-site during activities with the potential to impact human health or the environment, when contaminated media will be disturbed, when mitigation measures are implemented, or as determined in discussion with the regulatory agencies. Monitoring should be conducted with greater frequency during periods of inclement weather (e.g., heavy precipitation, strong winds) and during critical components/tasks of the project, such as working in contaminated groundwater. The QEP will be on-site whenever potentially contaminated soil or groundwater may be disturbed and when hazardous vapors may be present. If demolition activities include abatement of lead-based paint or asbestos, abatement activities must be completed in accordance with all State and Federal laws and regulations prior to demolition. This is necessary to ensure the protection of construction workers, the general public, and the environment. Key monitoring stages may include, but are not necessarily limited to:

- During site preparations and set up of soil stockpile areas, personal and equipment decontamination facilities,
- During environmental sampling,
- During soil exposing (e.g., concrete/asphalt removal) and soil movement activities (e.g., grading, excavation, soil stockpiling, soil disposal),
- Prior to and after heavy rain/storm events,
- During engineering control installation and testing, and

- During the installation of erosion and sediment control measures.

The primary responsibility of the QEP is to ensure that the environmental and human health protection measures are implemented and are adhered to and that any movement, transport, and disposal of contaminated material (on-site and to an off-site location) is properly documented ***and approved by HDOH HEER Office prior to transporting the soil off-site***.

Typical responsibilities of the QEP include those identified below; however, specific items are expected to be refined and/or expanded as per the needs of the project:

- Monitor excavation activities to assist in the identification of contaminated soil, other media, or other environmental hazards.
- Direct the segregation of contaminated soil.
- Communicate the requirements of the C-EHMP to project members during pre-job and tailgate meetings.
- Remain on-site as per the schedule established between parties prior to the project start. The QEP will remain on-call during non-critical work periods to respond to emerging environmental issues.
- Review the contractor's work procedures to ensure functionality and compliance with the C-EHMP and applicable regulations, standards, and BMPs.
- Provide advice in preparing for work activities in a manner that mitigates adverse environmental or health effects.
- Exercise the authority to modify and/or halt any construction activity at any time if deemed necessary for the protection of human health and the environment.
- Advise project members if project activities have caused or are likely to cause an environmental incident and make recommendations for corrective action.
- Monitor compliance with the C-EHMP and relevant permit conditions.
- Liaise directly with project members and provide technical advice for the purpose of resolving situations that may impact human health and the environment as they arise.
- Maintain complete records of activities related to the implementation of the C-EHMP. This includes any measurements taken (e.g., photoionization detector [PID] readings, air monitoring, equipment calibration, manifests, truck receipts, truck counting spreadsheets), photographs, and reports.
- Complete and submit environmental monitoring reports to the HDOH HEER Office and report any unanticipated adverse effects on the environment. Such reports must include the nature of the effect, its cause, mitigation and/or remediation implemented, and whether a work stoppage was ordered, as well as photographs, analyses, and measurements, if applicable.
- Report unanticipated encounters with contamination at the site in accordance with HRS 128D. Reportable releases include contamination not already identified at the site, as well as tanks, drums, and/or abandoned pipelines that are not identified in advance and are encountered during excavation.

Responsibilities of the SSHO are provided in the HASP included in Appendix C.

Project Activities and monitoring equipment that will be used by the QEP specific to the site are listed in Table 5-1.

Table 5-1: Project Activities when QEP Must be Present

PLEASE FILL OUT AS APPROPRIATE FOR CONSTRUCTION ACTIVITIES ONCE QEP SELECTED

Activity	Planned at Site?		QEP Monitoring		Equipment to be Used by QEP
	Yes	No	Yes	No	
Environmental Sampling by Environmental Consultant	✓		✓		Miscellaneous sampling and decontamination equipment.
Geotechnical Sampling		✓		✓	
Silt Fence Installation	✓			✓	Inspect fence after installation and prior to ground disturbance
Demolition		✓		✓	
Grading		✓		✓	
Excavation	✓		✓		PID to identify grossly contaminated soils
Pile Installation		✓		✓	
UST Removal		✓		✓	
Dewatering	✓		✓		
Utility Trenching		✓		✓	PID
Soil Stockpiling	✓		✓		
Soil Export/Import	✓		✓		
Vapor Barrier Installation		✓		✓	
Vapor Extraction		✓		✓	
Confined Space Work		✓		✓	
Work Below High-Water Mark		✓		✓	
Engineering Control Installation and Testing	✓		✓		
Pipeline Tapping		✓		✓	
Installation of Erosion/ Sediment Controls	✓		✓		Visually inspect after installation and periodically afterwards.
Prior to/During Rainstorm Events	✓		✓		
Removal of lead-based paint and asbestos containing material		✓		✓	

Note: PID= photoionization detector UST = underground storage tank

Section 6 Construction Activities

TO BE COMPLETED BY THE CONTRACTOR

Please provide site-specific information about what type of construction activities will be conducted in detail and provide construction plans or drawings on where these activities take place (e.g., if piles are to be installed, describe how the piles will be installed and how soil and groundwater/slurry mixture from the locations of the piles will be extracted, sampled, and handled to avoid contaminating surrounding areas; provide maps of where single piles are to be placed; do the same for other types of excavations as listed below, etc.).

Describe if storm drains or other potential preferential pathways will be re-routed, checked for integrity, and/or sealed. Indicate if potential vapor pathways (e.g., sewer lines) are planned and include a map with the planned location.

If engineering controls such as vapor barriers or an active/passive vapor extraction system need to be installed include a general sketch of these controls on a figure and separately submit a detailed Remedial Design Plan, if required. If potential explosive vapors may be present, include what intrinsically safe equipment will be used to avoid potential explosions during construction activities that may create sparks.

Frac tanks, storage drums, soil stockpiles, silt fencing, and other temporary engineering controls and BMPs (e.g., exclusion zones, decontamination areas, stockpile containment areas, etc.) should be diagramed on the plans and specs. These features may also be indicated on a figure, where appropriate. If during construction, the locations of engineering controls are changed or moved, revised diagrams should be submitted to the HDOH as soon as possible.

If you have already prepared an Erosion and Sediment Control Plan, attach it to this C-EHMP.

The Interstate Route H-1 Seismic Retrofit of the Waialae Viaduct Inbound and Outbound project is being constructed by the Hawaii DOT Highways Division. The project will be started in the year 2024 and intends to provide additional structural support to the viaduct to protect the structure in the event of an earthquake in the area. Plans and Specifications for the project are attached in Appendix B of this plan.

Planned excavations that may impact areas that are potentially contaminated with hazardous chemicals from historical uses of neighboring properties are outlined in Table 6-1.

Table 6-1: Planned Types of Excavations

TO BE COMPLETED BY THE CONTRACTOR (CONFIRM AND ADD TO INFORMATION PROVIDED BELOW)

Excavation Type	Maximum Depth (feet bgs)
Piles	N/A
Caissons	N/A
Potholing for Utility Locating	5 feet bgs
Elevator Shafts	N/A
Landscaping	N/A
Utility Corridors	N/A
Storm Drain	N/A
Mass Excavation	N/A
Footings	N/A
Grading	Cutting of concrete and asphalt around existing columns, excavate to 5 feet bgs, backfilling with aggregate, drilling and installing rebar, pouring concrete around existing footers and pile caps

Note: bgs = below ground surface N/A = Not Applicable

Major construction activities include the following tasks:

The project will consist of the following three (3) components:

(1) Wrap the “outrigger” portion of several existing bent caps with fiber reinforced polymers (FRP) to strengthen the beam torsional capacity and transfer the bending movement from the superstructure to the center column(s) due to loading in the longitudinal direction. This will also

address potential bent cap shear problems due to loading in the transverse direction. Installation of the FRP will require demolition and reconstruction of a portion of various concrete planters atop the bentcaps. No disturbance of potentially contaminated soil is required for this phase of the project.

(2) Thicken pile caps in several locations and add a top layer of reinforcing steel and dowels to support piles in tension and increase shear strength. This work will require excavation and backfill work not to exceed 5 feet bgs, and removal and reconstruction of the sidewalk and median. This task involves excavation around 15 of the columns supporting the viaduct.

(3) Demolish and rebuild several concrete planter boxes on the upper level of the viaduct. There are no excavations into potentially contaminated areas associated with this activity.

The project is located approximately one mile inland from the shoreline; therefore, no significant impacts on marine species are anticipated. During the construction period, work and staging areas will be contained within the State ROW.

Best Management Practices will be implemented to minimize the potential impact of stormwater runoff on the marine environment.

The amount of material that will be excavated from each column location is estimated to be 50 – 100 cubic yards of soil, gravel, and concrete. There are 15 columns that will be excavated during the course of this project representing a total of 750 – 1500 cubic yards of material.

Section 7 Soil Management Plan

The purpose of this section is to provide guidance to ensure that contaminated soil is properly managed and managed during the construction project. Since the full extent of contaminated soil is unknown (i.e., the contamination is not delineated), then all soil at the site must be treated as potentially contaminated. The management of potentially contaminated soil will be overseen by an on-site QEP or contaminated soil specialist. Construction drawings and specifications are included in Appendix B.

7.1 Soil Management for Contaminated Soils

At the time of the preparation of this C-EHMP, there has been no complete characterization for the presence of chemical contamination performed for the soil that will be disturbed. There are several potential sources of contamination in the area, particularly upgradient of the excavations, however no sampling of the actual material around the columns has been completed.

Due to the location of the excavations within the roadway of Waialae Avenue and the need to quickly complete the work at each location to facilitate reopening of the street, soils will be stockpiled at a separate location for sampling and a determination of the proper disposition of the material. The excavated material will be placed directly into a dump truck or roll-off bin and moved to the soil stockpile area. If obvious signs of soil contamination are noted during the excavation, the sides of the trench will be lined with plastic and rock or clean soil placed on the bottom surface to prevent workers from directly contacting the exposed contaminated soil and to allow work in the trench to proceed.

The quality of the soil being disturbed at the site will be continuously monitored and documented by a QEP. Where known or suspect contaminated soil is encountered during excavation work, the appropriate response actions must be taken that conform with HDOH and United States Environmental Protection Agency (EPA) guidance, laws, and regulations. The soil management plan includes proactive planning to ensure that workers have the appropriate level of PPE, and that equipment and materials are available to ensure that contaminated soil is properly managed when excavated. Tasks associated with properly managing contaminated soil include the following:

- All soil removed from each excavation site will be assumed to be contaminated until sampling and testing by the QEP indicates that the material does not contain any contaminants above the HDOH EAL and then it can be considered to be suitable for unrestricted use.
- Where contaminated soil is encountered, a QEP shall provide field oversight to ensure:
  - that grossly contaminated soil is segregated from non-grossly contaminated soil,
  - that contaminated soil is properly stored and covered with plastic sheeting,
  - that the contaminated soil is managed properly during and following excavation, and
  - that health and safety guidelines related to the potential exposure of workers to COPCs is provided.
- The soil stockpiles will consist of three separate categories, 1) grossly contaminated, 2) either contaminated or untested, and 3) those soils that have been tested and demonstrated to be clean. Locations of the soil stockpile areas will be identified on the final C-EHMP once a contractor is selected and this site is identified.
- Establish a control area around active contaminated soil disturbance areas in order to prevent unauthorized entry of personnel. Provide, erect, and maintain temporary safety barriers and security devices to reasonably prevent public entry into active contaminated soil disturbance areas.
- Workers who may come into contact with contaminated soil must wear the appropriate level of PPE. The level of protection will be included in the Health and Safety Plan for the project. In general, workers will be protected from the contaminated materials using chemically protective articles and clothing to prevent direct exposure of work clothing and exposed skin to the potentially contaminated soil.
- Workers who may come into contact with contaminated soil must have required training (at a minimum, 40-hour HAZWOPER training and a recent refresher course, as stipulated in 29 CFR 1910.120, within the last year).
- Field managers and supervisors who are directly responsible for, or who supervise employees engaged in contaminated soil and hazardous waste operations, must have successfully completed the 40-hour HAZWOPER training, HAZWOPER Site Supervisor training, and the refreshed courses, as required by 29 CFR 1910.120.
- Workers who may be exposed to hazardous substances and/or contaminated soils during the execution of work must be trained in identifying and anticipating potential health hazards, in implementing engineering controls, and using the appropriate PPE.

- Excavated soil will be placed directly into roll-off bins, dump trucks or other containers and moved to the soil stockpile area designated for the project for storage, sampling, and a determination of the proper use or disposal of the material.
- Loading of trucks and transport of the soil to the stockpile area will be conducted in a manner that does not allow any of the material to be released to the environment around the project or in transit. Trucks will be sealed, lined, or otherwise protected to prevent leakage. The loading area will be regularly cleaned to prevent erosion of or dispersion of the soil.
- Soil trucked off-site shall be in a lined bed and covered with polyethylene sheeting during transport. All vehicles and equipment that comes into contact with contaminated materials will be thoroughly decontaminated prior to use in clean areas or moved from the site.
- If newly encountered soil contamination is discovered at a previously unknown source or location, the HDOH HEER Office must be immediately notified of its discovery by reporting it as a new release.

7.1.1 Field Identification of Contaminated Soil

Some COPCs, including, but not limited to, metals, pesticides, and PCBs, cannot be identified in the field through visual or olfactory observations. In some cases, previous sampling or historical research into previous operations have identified areas where these COPCs are likely present at concentrations above the most restrictive HDOH EALs that are targeted for excavation. As the site contains COPCs that are not identifiable via qualitative field observations (i.e., lead), the contaminated soil must be managed in a manner protective of site workers, the public, and the environment.

Areas of known or suspected contaminated soil are depicted in Figure 2. Soil in these areas must be segregated and stockpiled separately from clean soil. Since soil contamination has not been delineated, all excavated soil at the site must be presumed to be contaminated with site-specific COPCs and identified as "suspect" or "presumed" contaminated in this section.

Other types of contaminated soil may be identified in the field through visual and olfactory observations. Petroleum-contaminated soil typically exhibits petroleum staining and/or a noticeable petroleum hydrocarbon odor. Free product may or may not be observed. Petroleum and solvent-contaminated soil may exhibit a solvent or sweet-smelling odor, and in some instances, an iridescent sheen on the groundwater or soil. Petroleum-contaminated soil may also be detected indirectly via a rotten egg odor stemming from anaerobic degradation of the product that produces hydrogen sulfide in oxygen-starved zones. Suspect contaminated soil should be segregated from clean or materials with lower contaminant levels.

Soil with strong petroleum or solvent odor and/or free phase product should be segregated separately from the moderately impacted soil or unknown material, as soil that is considered grossly contaminated must be removed, may not be replaced in the excavation, and must be properly disposed of. During the excavation of known or suspected contaminated soil, the QEP must perform the following activities:

- Monitor the location of excavation activities to ensure that soil depicted on the Hazard Map is properly managed as contaminated, even when there is no field evidence of contamination.

- Visually screen soils for staining, debris, soil waste, discoloration, or other evidence of contamination as the soils are removed from the excavation.
- Check for petroleum or other unusual chemical odors emanating from the soil.
- Collection of soil screening samples in sealable inert bags and test the headspace within each bag for VOCs using a PID and following the Maine Department of Environmental Protection PID Bag Headspace Test procedure described in detail in Section 8.4.2 of the Technical Guidance Manual (TGM) (HDOH HEER Office 2018 and updates). Prior to testing, PID meters must be calibrated in accordance with device manufacturer instructions.
- Use the field observations, VOC measurements, and any other field screening tests, such as the glove and paper towel tests, to segregate the soil properly.
- Ensure there shall be no eating, smoking, drinking, or storing food or drink within work areas.
- At the completion of work in an area, the work area shall be cleaned as necessary, and all contaminated clothing, disposable PPE surface coverings, and waste material shall be properly disposed of.

TO BE COMPLETED ONCE CONSTRUCTION DETAILS ARE COMPLETED AND QEP SELECTED

Indicate the purpose of the screening (e.g., delineation, soil segregation, etc.) and how the screening will take place in detail (e.g., take the sample from the excavation site wall or cuttings, collect a sample from the excavator bucket, collect a sample from stockpile right after deposition, etc.). Include the frequency of screening (e.g., every 5 minutes, every 5 cy, etc.). In general, if the site has previously not been completely assessed due to surface obstructions such as buildings, etc., additional delineation and removal of the main mass of contamination, followed by confirmation sample collection may be required ("opportunistic remediation"). The process of how this will be achieved should be discussed in detail for the screening and confirmation sample collection.

7.1.2 Dust and Erosion Control

Dust and erosion controls at the site will be continuously monitored and documented by the QEP, with at least five years of experience in environmental oversight associated with construction projects. Prior to excavation activities, the Contractor and the QEP must evaluate and establish erosion control and dust control measures. The dust and erosion control measures must prevent impacted soils from migrating away from the excavation area. A complete listing of the controls that will be implemented to prevent the release of the soil and groundwater contaminants (referred to as Best Management Plans or BMPs) will be included in the Dust and Erosion control Plan for the project. Typically, BMPs are employed to control erosion and prevent the spread of contamination via runoff or wind. A copy of the final Dust and Erosion Plan will be included in Appendix D of this C-EHMP once developed by the contractor.

Dust control measures should ensure compliance with ambient air quality standards established in the HAR 11-59 and should comply with air pollution control requirements specified in HAR 11-60.1. This project does not include any mass excavation or handling of large amounts or areas of excavation therefore dust emission during intrusive activities is likely to be minimal. During excavation and handling of impacted soil, the following dust control measures must be implemented to minimize dust generation:

- The Contractor shall keep the project area and surrounding area free from dust nuisance. BMPs shall be the continuous practice of good housekeeping measures throughout the duration of the construction and documented through weekly inspections.
- Roadways shall be kept clean and free of dirt or mud to prevent creating a dust hazard. Water trucks, street sweepers, or manual means may be used to clean dirt from roads around the excavations, soil stockpiles, and truck loading areas on a regular basis during soil handling.
- Equipment decontamination: • Equipment decontamination: BMPs to control the transport of contaminated soil from the site and within the site shall be used to limit the tracking of soil away from the excavation or the stockpiling areas. Decontamination areas should be set up where contaminated media will be disturbed, adjacent to stockpile areas, and where vehicles and equipment leave the site. Decontamination protocols are described in Section 14.0. Construction details for ingress/egress are shown on XXX, included in Appendix B.
- Wetting/misting: BMPs associated with dust control measures shall include the use of water to be sprayed on the soil during excavation activities and possible off-site transport. During excavation, water shall be sprayed on the surface of the soil to prevent dust from being generated. However, the amount of water used for dust control shall be minimized so as not to create runoff away from the excavation. In addition to water spraying, vacuuming and other engineering controls shall be used to minimize airborne contaminated soil dust.
- Do not expose or disturb surface area of earth material (including clearing, grubbing, or excavation) until BMP measures are installed and accepted in writing by HDOT Engineer. Protect temporarily or permanently disturbed soil surface from rainfall impact, runoff and wind before end of workday.
- A Dust Control and Monitoring Plan will be completed before the start of soil disturbing activities. (If you have already prepared a Dust Control and Monitoring Plan, attach it to this C-EHMP).

BMPs will also be employed to reduce stormwater runoff to the storm sewer system, nearby streams, and ultimately the marine environment.

- Storm drain inlets will be protected to prevent infiltration of potentially contaminated soils excavated at the column locations. Silt fencing will be installed where needed around the project work areas in accordance with the established BMP plan.
- Each excavation will be protected from infiltration of stormwaters into the hole and mixing with contaminated soils.
- Concrete pours will be protected from infiltration of stormwaters to prevent erosion of the uncured and corrosive products and release to the environment.
- Concrete wash out areas will be protected from stormwater entering the area and to prevent the release of corrosive products to the environment.
- Soil stockpiles will be protected from release to the environment.
- Fuel storage areas will be protected with a secondary containment system to prevent release of fuels during fueling operations and storage.

- Heavy rain forecasted in the Next 48 Hours: BMPs associated with the prediction of heavy rain include the suspension of active grading, grubbing, and trenching; inspection of all sediment basins, temporary ditches/swales, perimeter controls, and inlet protection devices, and maintain as needed; reinstall any perimeter controls that were removed due to ongoing work in the area; if a severe storm is expected, remove inlet protection devices to prevent flooding on surrounding streets; cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater; place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products and properly dispose of any accumulated oil-water after the rain event; and re-inspect after the approaching heavy rains and replace or maintain BMPs as needed.

7.1.3 Stockpiling

Since the areas planned for excavation have not been sampled or tested, all graded, excavated, and disturbed soils shall be considered contaminated and managed as such until soil samples are collected and tested. Separate holding cells shall be constructed for non-grossly and grossly contaminated soil, contaminated concrete/asphalt, contaminated sediment, and landfill debris. On-site soil, including soil from grading and utility excavation, shall be considered contaminated and will need to be tested prior to on-site reuse or off-site disposal. The following tasks must be performed with respect to managing contaminated soil.

- Stockpile locations will be determined by the Contractor and QEP and shall be approved by the HDOT and local tenants prior to construction of the holding cells. Stockpile locations are shown in Figure X.
- Grossly contaminated soil will be segregated from non-grossly contaminated soil. The QEP shall direct the segregation of the soil into two (2) separate soil holding cells based on visual and olfactory observations, or the use of tools such as PID, portable X-ray fluorescence device, immunoassay test kits, or a field gas chromatography-mass spectrometry unit:
    - Holding Cell No. 1 will consist of soil excavated from areas found to be contaminated or suspected to be contaminated (e.g., PID reading below 10 parts per million [ppm], unusual odors, or staining) and
    - Holding Cell No. 2 will consist of soil that is grossly contaminated (e.g., contains mobile, free liquids based on visual inspection, PID reading above 10 ppm or higher, strong odor, or heavy staining). This soil may not be reused and shall be disposed of at a permitted landfill.
- Contaminated concrete and asphalt debris shall be segregated under the direction of the QEP into four holding cells, one each for non-contaminated concrete and asphalt debris and one each for contaminated concrete and asphalt debris. The QEP shall observe the debris excavation for visual evidence of petroleum staining, in which case, the debris shall be considered contaminated. Non-contaminated concrete and asphalt may be recycled and reused on-site. Contaminated concrete shall be handled and reused/disposed of offsite by the Contractor. Contaminated asphalt shall be recycled or disposed of off-site.
- As needed, orange permeable geotextile membrane fabric shall be used to delineate clean backfill from suspected contaminated soil remaining.

- Water removed from within excavated soils will be allowed to drain back into the excavation after soil removal. The water can be pumped into a tank truck, frac tank, or other device to hold the water until excavation work is done. The water can be released back into the excavation when the work in the trench is complete. If two excavations within 150 feet are open at once, any ground water removed from one trench can be pumped to the second trench.
- Stockpiled soil shall be placed on a layer of 20-mil plastic and covered with 6 mil plastic sheeting at the end of each day and during major wind or rain events. The plastic sheeting must be secured with enough ballast so that it will not be dislodged by strong winds. Ensure there is no nuisance odor that may affect off site persons. If so, maintain a cover on the stockpile at all times when not adding material.
- Underlay the edges of the plastic sheeting with clean soil or other material to create a berm around the stockpile.
- Ensure the holding cell is watertight and that the berm is at least 1.5 feet above the ground surface. The polyethylene sheeting shall extend to the top of the berm. To the extent practicable, no overlaps, seams, joints, or defects shall be allowed in the polyethylene liner. The QEP shall approve the cell construction quality and size prior to placement.
- Soil containment areas shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the CCH ROW. Sediment barriers or silt fences shall be used around the base of all stockpiles.
- Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require 8-foot wide benching in accordance with Revised Ordinance of Honolulu Chapter 14, Article 15. Each stockpile shall not exceed 100 cubic yards.
- Soil stockpiles must remain on-site and cannot be transported or stored off-site without prior authorization or characterization. (Off-site storage of soil will likely require a Temporary Storage and Disposal Facility permit and may require other permits as well.)
- Prior to the start of excavation or removal of contaminated materials, the HDOE Construction Engineer must be notified at least 48 hours prior.
- Confirmation sampling of the underlying soil may be required following stockpile removal to ensure that COPCs did not leach into the ground. Stockpile sampling is outlined in Section 7.2.

The proposed locations of soil stockpiles have not been determined as of yet; the C-EHMP will be updated to include that information, when available. The HDOT shall approve the location of the holding cells prior to construction. If the location of stockpile(s) changes or stockpiles are moved, then updated figures must be provided to HDOH as soon as possible.

7.2 Soil Reuse and Disposal

Prior to disposal at a licensed disposal facility, all soil will be sampled to ensure that it is appropriately characterized, so the final disposition of the soil may be determined. Below are the planned location(s) for soil disposal. If other locations are later planned following approval of this plan, then the HDOH HEER Office must be notified and provide approval prior to any material being transported.

Soil stockpile sampling should be conducted using *MULTI INCREMENT* sampling in accordance with the HEER TGM (http://www.hawaiidoh.org/tgm.aspx) (HDOH HEER Office 2018 and updates) and the Fill Material and Stockpile Guidance (https://health.hawaii.gov/heer/files/2019/12/Clean-Fill-Guidance-HDOH-Oct-2017-1.pdf) (HDOH HEER Office 2017). See also the HDOH SHWB policy and Q&A regarding MULTI INCREMENT sampling and use of the HDOH HEER Office TGM (https://health.hawaii.gov/shwb/files/2019/01/20190131_SHWB-TGM-Memo-Draft-complete.pdf) (HDOH HEER Office 2011). The QEP once selected will develop a site-specific Sampling and Analysis Plan and attach to this document.

Soil samples collected at the site shall be analyzed to verify that the remaining soil does not pose threats to human health and ecological receptors. At the minimum, the following shall be conducted:

- Collect *MULTI INCREMENT* samples of stockpiled soils generated from grading and earthmoving activities per the HDOH HEER Office October 2017 Guidance Document, Guidance for Soil Stockpile Characterization and Evaluation of Imported and Exported Fill Material (HDOH HEER Office 2017).
- Collect and analyze soil samples of suspected contaminated soils observed to have discoloration and/or olfactory signs of contamination per the HDOH HEER Office TGM (HDOH HEER Office 2018 and updates).
- Soil samples shall be tested for the analytes outlined in Table 7-1. If groundwater is encountered, groundwater shall be tested for the same analytes. If groundwater is encountered, the water will be reintroduced back into the excavation from which it was removed or another trench within 150 feet at a time that does not conflict with construction activities. No ground water will be allowed to be released into storm drains or other areas of the project.

Table 7-1: Soil Disposal Sampling

TO BE COMPLETED BY QEP ONCE SELECTED

Chemicals to Analyze	Analytical Method(s)	Sampling Frequency (cy per sample)
TPH-GRO	8015B	100 cy
TPH-DRO and RRO	8015D	
BTEX	8260B	
PAHs	8270C	
RCRA-8 Metals plus antimony, copper, and zinc	6010/7471	
PCBs	8082A	
OCPs	8081A	
Dioxins TEQ	8290	

Note: CY = cubic yard
GRO = gasoline range organics
DRO = diesel range organics
RRO = residual range organics
BTEX = benzene, toluene, ethylene and total xylenes
PAH = polynuclear aromatic hydrocarbon
RCRA = Resource Conservation and Recovery Act
PCB = polychlorinated biphenyl
OCP = organochlorine pesticides

This information will be communicated to the soil hauler, and it will be ensured that the hauler only disposes of soil at locations approved in this plan. The QEP will monitor and review hauling manifests and disposal records to ensure adherence to the plan. Disposal of soil at a location not previously approved could result in fines.

On-site Reuse of Known or Suspect Contaminated Soil

In general, non-grossly contaminated soil may be reused on-site. The QEP will ensure that contaminated soil is not spread to uncontaminated areas of the site without prior approval from HDOH. Suspected contamination within the site vicinity is shown in Figure 2, included in Appendix A. Areas where contaminated soil is anticipated to be reused (if any), have not been determined as of yet. All reused soil at the site will be covered or placed under a building, asphalt pavement, or concrete slab, at the site.

7.2.1 Stockpile Sampling for Disposal at a Disposal Facility

Table 7-2 lists the amount of potentially contaminated soil to be excavated from the site and temporarily stockpiled on-site until it can be characterized for proper disposal at an approved landfill. Plans and specs are included in Appendix B. The soil acceptance documentation and soil tracking forms are included in Appendix E.

Table 7-2: Stockpile Sampling for Disposal at a Disposal Facility

	Disposal Facility
Total Estimated Soil Volume of Stockpiled Soil:	*1,500 cy*
Proposed Sampling for disposal:	*To be determined by the QEP*
# of increments per MULTI NCREMENT sample:	*50*
Preliminary list of analytes (subject to landfill discretion):	*To be determined by the QEP TPH-GRO, -DRO, RRO, BTEX, PAHs, RCRA-8 Metals, PCBs, OCPs, OPPs, TCLP 8 RCRA Metals, Ignitability*
Permitted Disposal Facility:	PVT Land Company, Ltd. 87-2020 Farrington Highway Waianae, HI 96792
Transporter Name:	*To be determined by the Contractor*
Transporter Address:	*To be determined by the Contractor*

Ex-situ MULTI INCREMENT samples will be collected from stockpiled soil in accordance with HDOH guidance and analyzed to estimate the representative concentration of each COPC. CONTRACTOR TO PROVIDE SAMPLING METHODOLOGY AND TYPE OF EQUIPMENT AND BUCKET VOLUME IN ORDER TO DETERMINE DU AND SAMPLING FREQUENCY prior to placement in the stockpile. Each *MULTI INCREMENT* sample typically consists of at least 50 to 75 increments. Individual 5-gram increments for volatiles shall be collected using Terra Core® or a similar device and extruded into a laboratory-provided container with a premeasured volume of preservative. There should be a minimum of a 1:1 ratio of sampling preservative to sample media. Non-volatile samples will be collected using a stainless-steel sampling device, collecting a predetermined number of equally sized increments, and extruding into a sealable inert bag. The samples with be further processed by the laboratory, i.e., subsampled using *MULTI NCREMENT* processing procedures.

7.2.2 Record Keeping

The QEP will maintain a log of all soil that leaves the site and its final disposition. All waste manifests, truckload counts at both source and receiving sites, weight tickets, and soil/groundwater profiles will be included in a final report that documents the environmental oversight conducted during construction. The report will be submitted to the HDOH HEER Office at the conclusion of the project.

In addition, whenever soil is exported from the site, summary reports of the disposal records, including copies of documents, will be submitted to the HDOH HEER Office on a weekly or monthly basis, unless waived in writing by the HDOH HEER Office PM. For all soil disposed of at a disposal facility, a manifest with all required signatures will be submitted and included in the final report.

If the soil will be imported to the site, the QEP must collect and maintain similar records and provide them to the HDOH HEER Office for review and approval. The soil generator must provide documentation that the imported material is clean, and a soil agreement must be signed between the generator and the site owner. If contaminated soil will be brought onto the site and used for fill, then the QEP must document where the contaminated soil will be used, the volume of soil, and COPC concentrations. This information must be incorporated into an EHE/EHMP for the site following the completion of the project, and the contaminated soil must be managed for as long as it remains present at the site.

Section 8 Groundwater Management Plan

Controlling the release of groundwater is an important aspect of preventing contaminants from spreading to the environment during construction activities. The average depth to groundwater measured during previous work in the area is about 13 feet bgs and the maximum depth of excavation is around 5 feet bgs.

The current construction plans do not anticipate encountering groundwater at this site; therefore, a groundwater management plan is not needed for this C-EHMP. If plans change or new information indicates that groundwater will be impacted, then this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.

In some cases, dewatering may be required to remove small amounts of groundwater from some excavations for concrete pours or other activities. In this case, the water will be pumped into a tank or tanker truck and reintroduced back into the same excavation after work is completed or to a nearby excavation to be used as an infiltration area. No groundwaters will be allowed to leave the property and it will be contained so as not to allow it to carry site contaminants off the site or enter any stormwater inlets.

If there is a sheen present on the groundwater in any of the excavations, the sheen will be removed by absorbing the oil using absorbent pads before it is pumped out of the trench. Similarly, if there is a free product on the surface of the groundwater, the product will be removed prior to pumping the water into a tank or other container.

If ground water is encountered due to periods of wet weather, these waters will not be allowed to leave the site. Berns, ditches, or other means will be engineered to contain all ground waters on the site. In some cases, dewatering may be required to remove ground waters from some excavations for building foundations; the water will be pumped to another area of the property and contained so as not to allow it to carry site contaminants off the site.

Section 9 Free Product Management Plan

The current construction plans do not anticipate encountering groundwater at this site; therefore, a free product management plan should not be required for this C-EHMP. If plans change or new information is

received that indicates that groundwater will be encountered, then this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.

During the environmental site investigations conducted at this property, there has been no evidence of significant quantities of petroleum hydrocarbons being present in the area of the roadway project. There were several gasoline service stations located upgradient of the construction site, however these sites were closed and remediated when the underground storage tanks were closed. No free product is likely to be encountered during this project and no Free Product Management Plan will be required.

Table 9-1: Free Product Management

Questions	Yes	No	Unknown
Is free product known or suspected to be present at the site?		✓	
Is the groundwater at the site tidally influenced?		✓	
Is groundwater at the site confined?		✓	
Will excavation activities at the site potentially encounter free product?		✓	

9.1 Free Product Management

If any free product is encountered during this project, all construction activities will be stopped, the QEP will be notified, and the source, nature and extent of the contamination will be determined. The HDOH will be notified as quickly as possible to report the discovery and they will be notified of all actions taken to remediate the condition.

In general, no pumping of the free product is permitted. All free product and petroleum sheen on the water must be removed and disposed of separately prior to pumping or movement of the groundwater.

Section 10 Stormwater Management Plan

Proactive actions must be taken to prevent stormwater from coming into contact with contaminated groundwater and soil at the site. The actions listed below will minimize the potential for contaminating stormwater and releasing contaminants uncontrolled to the environment. These provisions will be included in the BMP for Dust and Erosion Control Plan for the project.

TO BE COMPLETED ONCE CONSTRUCTION DETAILS AND COMPLETED AND QEP SELECTED

- All storm drain inlets on-site, and those off-site which may receive runoff from the site shall use an inlet protection device unless they are directed to a sediment basin.
- Sediment levels may not exceed one-third of the height of a sediment barrier, or inlet protection devise at any point along the length of the sediment barrier or the inlet protection devise.
- Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
- Torn, weathered, or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.

- Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use and waste disposal.
- Eliminate and minimize the discharge of pollutants to stormwater from vehicle and equipment cleaning operations by using off-site facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
- Eliminate and minimize the discharge of pollutants to stormwater from vehicle and equipment maintenance operations by using off-site facilities when feasible, performing work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.
- Prevent or reduce the discharge of pollutants to the land, groundwater, and in stormwater from solid waste or construction and demolition waste by providing designated waste collection areas; collecting site trash daily; and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.
- Place contaminated soil on plastic sheeting in a lined, bermed, and covered area to prevent stormwater from contacting contaminated soil.
- Open excavations should be backfilled as soon as practicable to prevent stormwater and direct precipitation from entering the excavation. When possible, open excavations should be bermed to prevent stormwater runoff from entering the excavation.
- Regularly monitor the weather throughout the day for signs of approaching rainstorms.
- If heavy rains are forecasted in the next 48 hours, inspection of all sediment basins, temporary ditches/swales, perimeter controls, and inlet protection devices will be conducted and maintained, as needed. If a severe storm is expected, the inlet protection devices shall be removed to prevent flooding on the surrounding streets. After the storm, re-inspect, replace, or maintain BMPs, as needed. Reinstall any perimeter controls that were removed due to active work in the area.

Section 11 Vapor Monitoring Plan

The purpose of the Vapor Monitoring Plan is to identify and quantify VOC vapors and toxic gases that could adversely affect air quality during construction. Included are procedures to detect and mitigate potential fire and explosion hazards posed by explosive vapors.

There have been a few volatile organic compounds present in some of the properties around the construction project site, including gasoline, aromatic compounds (benzene and ethylbenzene), and chlorinated compounds (trichlorethylene, and perchloroethylene). Each of these contaminants have been found in relatively low concentrations that will not likely present a significant hazard to site workers, off site receptors, or nearby buildings. During this project, there will be no buildings constructed or other work that would likely divert, trap, or contain vapors or to allow them to accumulate and cause a nuisance, inhalation hazard, or explosion hazard. This project will not have the effect of diverting volatile compounds to other buildings or properties around the site. Therefore, a vapor management plan is not needed for this C-EHMP.

The project QEP will monitor initial excavations at each of the identified sites for air contaminants using a PID and if results indicate a potential explosion hazard monitoring will be performed using a 4-gas detector or multi-gas monitor. If elevated readings persist after the initial excavation, then additional air sampling may be required to quantify worker exposure to the vapors.

If new information is reviewed that indicates that hazardous soil vapors may be present, then this C-EHMP and the HASP will be revised and re-submitted to the HDOH HEER Office for review and approval at least 90 days prior to conducting soil/groundwater disturbing activities or as soon as the change has been identified.

Section 12 Spill or Release Response

Releases of hazardous materials or contaminated media uncontrolled to the environment, should they occur, must be reported in accordance with HRS 128D and HAR 11-451. In addition to Contractor releases, a release may include a spill of contaminated materials from the site, spill or release of chemicals used in construction or maintenance, or newly discovered pre-existing contamination encountered during construction activities. If new contamination is discovered that is different from any known previously reported releases, the release must be reported as described in the abovementioned regulations.

12.1 Release Response

If a release occurs, the following actions must be taken:

- Any releases that occur at the site should be reported to the Jayar Construction Superintendent as listed in Table 12-2.
- Determine the identity of what was spilled, the source of the spill, the volume of the spill, the severity of the spill, and if immediate emergency response actions are necessary.
- Stop work if contaminant releases are extremely large and cannot be contained. If an imminent threat to human health or the environment exists, or if human or environmental receptors are impacted (e.g., human receptors falling ill or suffering sudden illness), notify the CCH Fire Department by calling 9-1-1.
- If the spill is of a volatile, flammable, or combustible liquid or vapor, possible ignition sources will be eliminated, and workers will be directed to remain upwind. In addition, monitor for explosive vapors using a lower explosive level meter.
- Small spills of less than 25 gallons of petroleum products which are capable of being cleaned up within 72 hours and do not threaten ground or surface waters shall be cleaned up immediately.
- Stop work if an unusually large release or contaminated area is encountered unexpectedly or if there is any release of chemicals or hazards not covered by the plan.
- Stop work and take immediate emergency response actions if a worker or member of the general public is injured.
- Eliminate the source of the spill to the extent practicable (e.g., shutting off a valve, righting an overturned container), if it is safe to do so. Do not attempt to stop a release from an active fuel pipeline.

- Protect sensitive ecological receptors threatened by the spill.
- Any spill that enters a body of water, onto an adjoining shoreline, or discharges into the storm drain system, HDOH CWB must also be immediately notified and the National Response Center notified within 24 hours. Report significant spills to surface waters to the US Coast Guard.

12.2 Release Reporting

In the event of a release of a hazardous substance that causes an imminent threat to human health or the environment, the first call will be to 9-1-1. Examples of releases requiring a call to 9-1-1 include, fuel or gas leaking from an active pipeline, an ammonia tank leak, or workers and/or the public becoming ill. The contact information for spills is included in Table 12-1.

Table 12-1: Emergency Spill Contact Information

Situation	Company	Phone Number
For a release/spill that threatens immediate harm to the public or the environment	Local Emergency Planning Committee (LEPC)	9-1-1
All releases	HDOH HEER Office	(808) 586-4249 (work hours) (808) 247-2191 (after hours)
Non-emergency release/spill	LEPC	(808) 723-8960 (non-emergency)
Any damage to HECo electrical lines	HECo Trouble Dispatcher	(808) 548-7961
Any damage to HECo fuel pipelines	HECo Security Command Center	(808) 543-7685

The HDOH HEER Office and the LEPC must be contacted by telephone or in-person immediately following a release. Note, that there is no penalty for reporting a release unnecessarily, but there are large penalties for not reporting a release.

If petroleum is observed on surface water, then notify the U.S. Coast Guard (USCG) through the National Response Center (NRC) at (800) 424-8802. Note, that petroleum observed in groundwater is not reportable to the NRC. For oil and hazardous substance spills that threaten or occur in navigable waters, the USCG is the lead agency.

Any damage to HECO lines must be immediately reported to the HECO Trouble Dispatcher at (808) 548-7961.

In the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources, Historic Preservation Division at (808) 692-8015, and inform the Civil Engineering Branch of the Department of Planning and Permitting at (808) 768-8084.

The on-site personnel responsible for ensuring the appropriate release notifications are conducted are listed below. In the case of an emergency or imminent threat to the environment, any on-site personnel can contact 9-1-1. The personnel responsible for release notification(s) is outlined in Table 12-2. Any releases that occur at the site should be reported to the personnel identified in Table 12-2.

Table 12-2: Personnel Responsible for Release Notification

TO BE COMPLETED BY THE CONTRACTOR

Name	Company	Title	Phone Number

Section 13 Worker Protection

A Site-Specific HASP must be prepared for the site in accordance with the appropriate occupational health and safety regulations. These regulations and requirements include but are not limited to the use of the appropriate level of PPE and appropriate personal hygiene steps associated with the identified COPCs at the site. A copy of the HASP is not available at the time that the C-EHMP is being submitted for review and approval by the HDOH. Prior to the start of construction activities, the HASP will be prepared and attached to the C-EHMP as Appendix C.

Administrative Controls for Protecting Workers from COPC hazards (to be further detailed in the HASP) include:

- A QEP with at least five years of experience in environmental oversight associated with construction projects will be present when contaminated media will be moved or disturbed. The QEP will be responsible for establishing exclusion areas during excavation activities that may encounter hazardous or explosive soil vapors.
- 40-hour HAZWOPER training and a recent refresher course, as stipulated in 29 CFR 1910.120, within the last year) for all workers who may come into contact with contaminated media.
- 40-hour HAZWOPER training, HAZWOPER Site Supervisor training, and the refreshed courses, as required by 29 CFR 1910.120, for all field managers and supervisors who are directly responsible for, or who supervise employees engaged in contaminated media and hazardous waste operations.
- A minimum of two personnel with current Basic First Aid and CPR training must be on-site at all times.
- Medical clearance satisfying 29 CFR 1910.120 and 29 CFR 1910.134 for all workers.
- A Hazard Communication Program, as required by 29 CFR 1926.59, shall be established and implemented.
- A Health and Safety Plan that meets the specifications of 29 CFR 1926 Subparts C and D shall be established and implemented.
- A discussion of COPC hazards that may be encountered will be discussed during daily tailgate safety meetings and shall include identifying and anticipating potential health hazards, implementing engineering controls, and using the appropriate PPE.
- Confined Space Entry Permits are required for workers who will enter trenches or pits deeper than four feet.

Engineering Controls for Protecting Workers from COPC hazards (to be further detailed in the HASP) include:

- • The appropriate level of PPE shall be selected based on the potential hazards and COPCs associated with the individual construction activity. The level of PPE may be upgraded or downgraded depending on the task being conducted and the level of contact with the soil. At a minimum, Modified Level D PPE consisting of appropriate eye protection, coverall suits, chemical-resistant boots, and nitrile gloves is to be required for workers directly exposed to contaminated soils within the trenches and excavations. For this project, hard hat, steel-toed and steel shank boots, safety glasses with side shields, gloves of a composition appropriate to the hazard being handled, and any additional insulating or impermeable clothing to protect against relevant work or weather conditions will be required.
- Workers will not be allowed to directly come into contact with soils that are grossly contaminated or are suspected of being contaminated. The side walls of an excavation can be lined with plastic sheeting and the floor of the excavation can be covered with clean aggregate or soil to prevent direct contact to contaminated soil.
- Hazard tape shall be used to delineate exclusion areas where COPCs are present, and access is restricted.
- A handwashing station will be made available for site workers.
- At no time shall workers be allowed to smoke, drink, or eat within the exclusion area and/or near contaminated soil.

Section 14 Decontamination

Prior to excavation activities, the Contractor and the QEP must designate areas for decontamination activities. The QEP must also evaluate and establish decontamination procedures for personnel, tools, equipment, and vehicles, prior to construction. Decontamination procedures for personnel and BMPs to limit direct exposure to COPCs will also be discussed in the Site-Specific HASP that will be attached to this C-EHMP. When selected, Decontamination Areas will be depicted in the C-EHMP.

14.1 Decontamination of Tools and Equipment Used for Handling and Placement of Contaminated Soil

Appropriate personal hygiene practices shall be adhered to at all times when handling potentially impacted soil. Washing facilities shall be made available on the job site to allow workers to wash their hands and avoid cross-contamination before eating, drinking, smoking, and/or heading home for the day.

After contact with the impacted soil, proper decontamination procedures shall be conducted, including the removal, segregation, and disposal of used PPE. Any used PPE shall be placed in plastic garbage bags, double-bagged, and deposited in the site dumpster, for disposal at a municipal landfill.

Hand-held and manual tools in direct contact with impacted soil must be decontaminated to remove any contaminated soil or water prior to handling un-impacted material that is assumed to be uncontaminated, and before they are removed from the work area. The decontamination of tools must include the following:

- At the excavation location, physically remove soil adhering to the surface of the equipment using appropriate hand tools. Soil removed during this step should be placed back into the impacted area, excavation, or the appropriate stockpile following removal.
- Rinse off contaminated groundwater at the excavation location, allowing rinse water to drain back into the excavation or be collected in a container for proper disposal.
- While the tools are located at the excavation, water should be used to wash the surfaces of the tools that were exposed to impacted material. The water used to wash the exposed surfaces should be directed back to the impacted area or excavation and allowed to infiltrate.

During equipment decontamination, proper PPE shall be used to minimize worker exposure to COPCs. Proper PPE should include Modified Level D PPE with nitrile gloves, chemical-resistant boots, waterproof coverall suits, and an appropriate face shield.

Personnel decontamination will also be addressed in the HASP.

14.2 Decontamination of Vehicles and Equipment

Decontamination of vehicles and equipment (e.g., haul trucks and heavy machinery) should occur following their use if direct contact with impacted soil. The equipment decontamination procedures are intended to describe methods for reducing and controlling the spread of site COPCs to unimpacted materials, unimpacted portions of the site, and/or off-site locations.

Equipment and vehicles in direct contact with impacted soil must be decontaminated to remove any contaminated soil before they leave the work area. The decontamination of vehicles and equipment must include the following:

- At the excavation location, physically remove soil adhering to the surface of the equipment using appropriate hand tools. Soil removed during this step should be placed back into the impacted area, excavation, or the appropriate stockpile following removal.
- While the vehicle/equipment is located at the excavation, water should be used to wash the surfaces of the vehicle/equipment that were exposed to impacted material. The water used to wash the exposed surfaces should be directed back to the impacted area or excavation and allowed to infiltrate.

During vehicle/equipment decontamination, proper PPE shall be employed to minimize worker exposure to COPCs. Proper PPE may include Modified Level D PPE with nitrile gloves, chemical-resistant boots, a waterproof coverall suit, and an appropriate face shield.

14.3 Final Cleanup of Work Area

When work which contaminated soil has been completed, the area will be cleaned up to remove any contaminated materials. Soil in the area will be collected with a shovel, swept up, and placed in the soil stockpile area, or washed into the excavation.

The barricades or other boundaries set up around the control area will not be removed until the area has been thoroughly cleaned with no evidence of contaminated materials present.

Section 15 Recordkeeping and Reporting Requirements

Detailed records of all environmental activities conducted during construction should be kept. These records may include air monitoring results, stockpile sampling, soil segregation, soil and/or groundwater sampling methodologies and results, dewatering activities, free product recovery, vapor suppression, soil disposal or reuse, and any other environmental activities conducted in association with construction activities.

In addition to maintaining these records, within 30 days of the completion of ground-disturbing activities, a removal action report summarizing the environmental activities conducted during construction is to be submitted to HDOH for review and comment. Guidance for the preparation of a removal action report can be found in Section 18 of the HDOH HEER Office TGM (HDOH HEER Office 2018 and updates). The report should also include copies of all disposal receipts, truck logs, and laboratory analytical results, as well as a map illustrating the approximate GPS location(s) where any contaminated soil was encountered and/or reused on-site.

If contaminated media is left on-site following the construction activity, the property owner must complete an EHE and prepare an EHMP to manage the contamination in the long term. EHEs and EHMPs must be submitted to the HDOH HEER Office for review and approval following the completion of construction activities detailed in this C-EHMP.

Section 16 References

E2. 2023. "Environmental Document Review. Seimic Retrofit of Waialae Viaduct Inbound and Outbound, Phase PE1a & PE1b, Honolulu, Oahu, Hawaii."

Mink, John F.; Lau, L. Stephen. 1990. "Technical Report No. 179, Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii." University of Hawaii, Water Resources Research Center, February.

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State of Hawaii Department of Health [HDOH]. 2011. "Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control." December 20.

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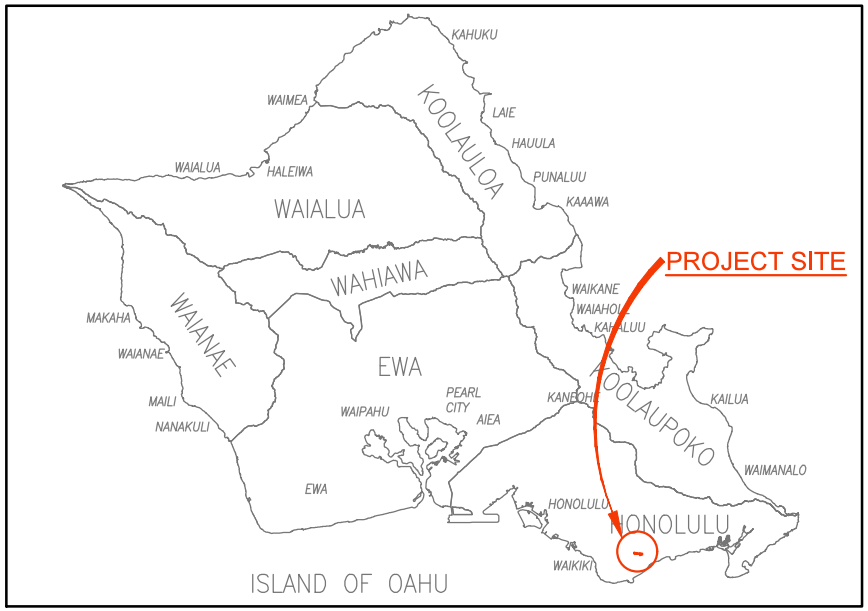
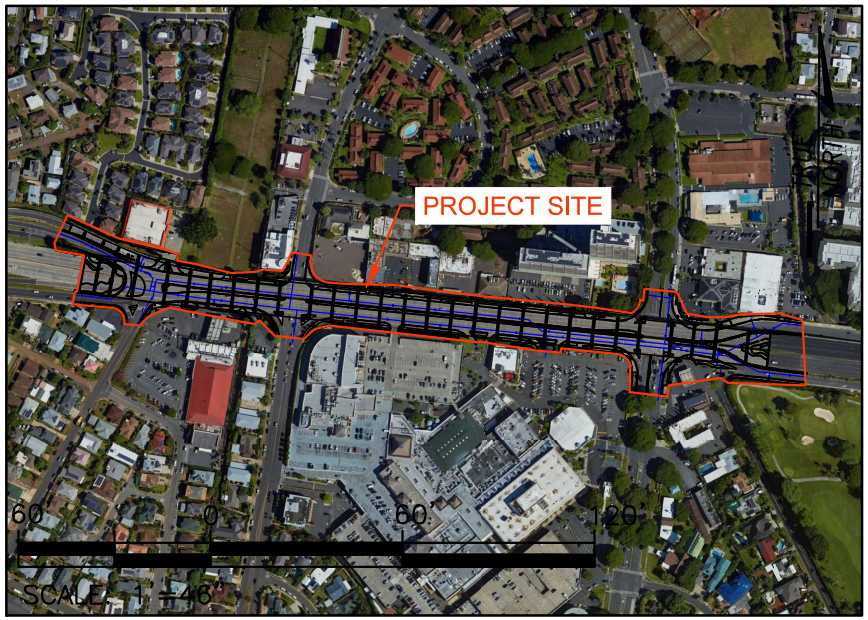
—. 2017. "Guidance for Soil Stockpile Characterization and Evaluation of Imported and Exported Fill Material." October.

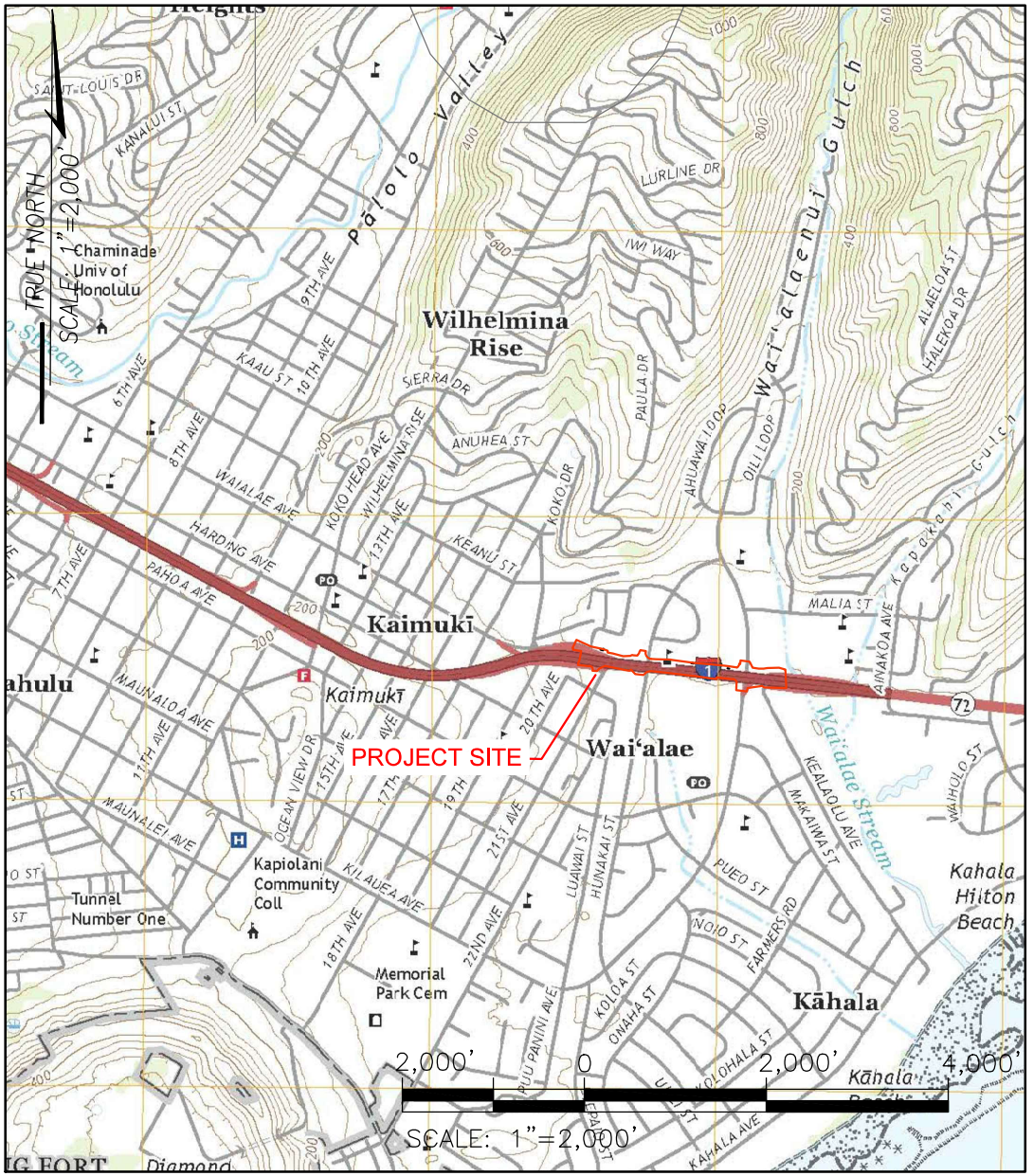
—. 2018 and updates. "Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan." http://www.hawaiidoh.org/tgm.aspx.

Appendix A

Figures

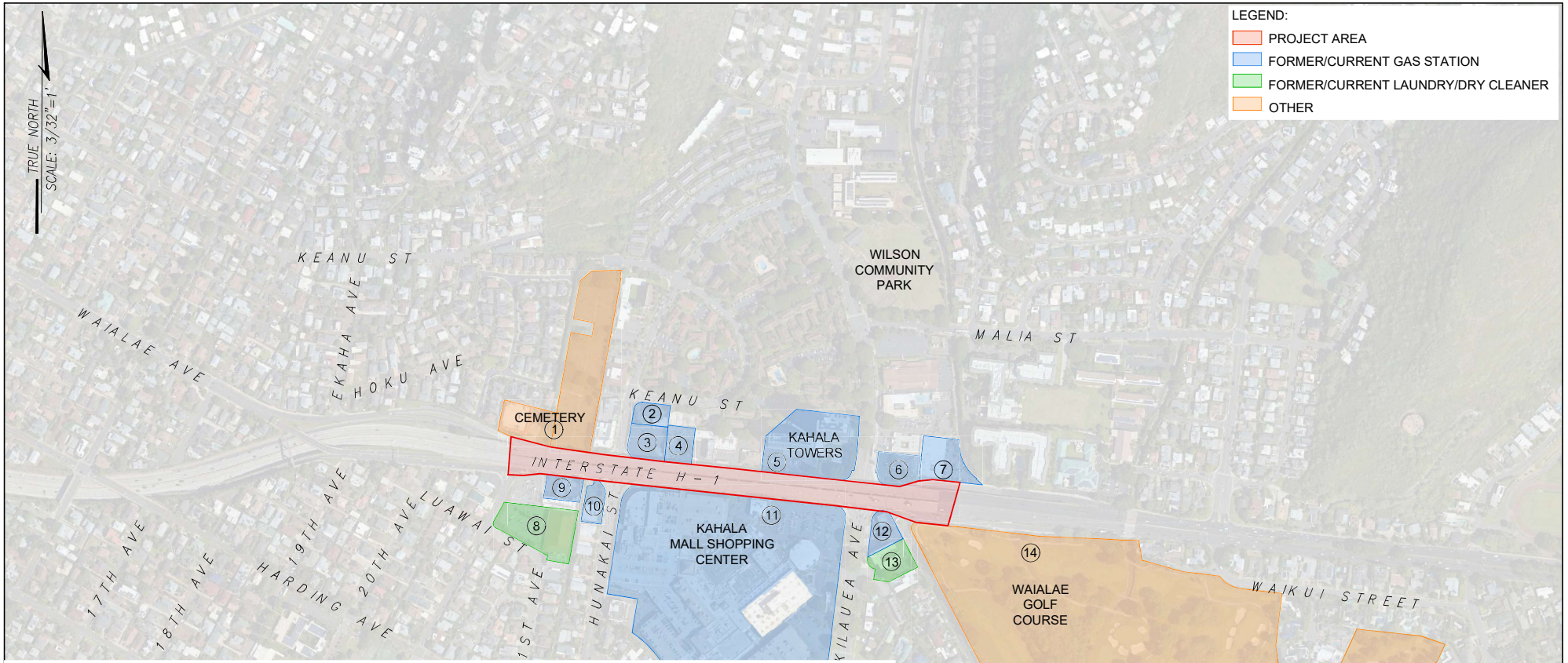






	DATE: FEB 2024	PROJECT TITLE: SEISMIC RETROFIT OF WAIALAE VIADUCT PE2-DESIGN PHASE (CONTRACT #HDOT-2021-042) HONOLULU, OAHU, HAWAII
	FIGURE TITLE: SITE VICINITY AND LAYOUT	FIGURE NO.: 1

REFERENCES: STATE OF HAWAII 2017, USGS 2017, AND GOOGLE EARTH 2024



PROPERTY IDENTIFICATION

1. 4100 WAIALAE AVENUE AND 4120 WAIALAE AVENUE, PUBLIC STORAGE AND OCEAN VIEW CEMETERY, TMKs: (1) 3-3-012:110 AND 001
2. 1339 HUNAKAI STREET, KAHALA MARKETPLACE, TMK: (1) 3-5-017:028
3. 4202 WAIALAE AVENUE, SHELL, TMK: (1) 3-5-017:009
4. 4210 WAIALAE AVENUE, KAHALA MARKET, TMK: (1) 3-5-017:008
5. 4300 WAIALAE AVENUE, KAHALA TOWERS, TMK: (1) 3-5-017:004
6. 4346 WAIALAE AVENUE, TMK: (1) 3-5-017:003
7. 4400 KALANIANAOLE HIGHWAY, TMK: (1) 3-5-017:001
8. 1173 21ST AVENUE, TIMES SUPERMARKET, TMK: (1) 3-2-041:001
9. 4117 WAIALAE AVENUE AND 21ST, WAIALAE TEXACO, TMK: (1) 3-2-041:055
10. 4137 WAIALAE AVENUE, HAWAIIUSA FEDERAL CREDIT UNION, TMK: (1) 3-5-016:004
11. 4211 WAIALAE AVENUE, KAHALA MALL SHOPPING CENTER, TMK: (1) 3-5-016:001
12. 4339 WAIALAE AVENUE, ALOHA ISLAND MART KAHALA, TMK: (1) 3-5-025:001
13. 1174 KEALAOLU AVENUE, TMK: (1) 3-5-025:002
14. 4997 KAHALA AVE, WAIALAE GOLF COURSE, TMK: (1) 3-5-023:001

element environmental llc
environmental · engineering · water resources

PROJECT TITLE:
SEISMIC RETROFIT OF WAIALAE VIADUCT
PE2-DESIGN PHASE (CONTRACT #HDOT-2021-042)
HONOLULU, OAHU, HAWAII

FIGURE TITLE:
POTENTIAL HAZARD MAP

DATE:
FEBRUARY 2024

FIGURE NO.:
2

Appendix B

Plans and Specifications

Appendix C

Site-Specific Health and Safety Plan
Soil Acceptance Agreement
and
Soil Tracking Logs

Appendix D

Sampling and Analysis Plan

Dust Control and Monitoring Plan

Erosion and Sediment Control Plan

Appendix E

Soil Acceptance Agreement
and
Soil Tracking Logs

PRE-BID MEETING MINUTES

Interstate Route H-1, Seismic Retrofit Waialae Viaduct Inbound and Outbound
Federal-Aid Project No. NH-H1-1(277)
Island of Oahu

Date/Time: October 30, 2024; 10:00 a.m.

Location: Teams Virtual Meeting

Attendees: Andrew Hirano (HWY-DS, Project Manager & HIePRO buyer)
Marvin Chun (HWY-OR/OU, Oahu District Construction Engineer)
Daniel Williams (Office of Civil Rights)
Jesus Navarro (Office of Civil Rights)
Grant Okunaga (MKE Associates LLC)
Leah Miyasato (MKE Associates LLC)
Noe Lum (MKE Associates LLC)
Emmanuel Minde (Global Specialty Contractors, Inc.)
Cristian Caicedo (Triton Marine Construction Corp.)
Kaikor Construction

Discussion items:

1. Andrew Hirano, introduced himself as the project manager and HIePRO buyer for the project. Individuals on the call introduced themselves.

2. This meeting is being recorded to ensure accuracy of the pre-bid meeting. The meeting minutes and attendance will be included as part of a solicitation addendum. However, the recording will not be part of the addendum.

3. The project is located at the Waialae Viaduct on the H-1 Freeway, on the island of Oahu. This project will provide seismic retrofit actions on the bridge including the installation of fiber reinforced polymer system at bent caps along the viaduct and thickening pile caps and spread footings with an additional layer of reinforced concrete at selected locations of the bridge. Temporary detours during construction will be required.

4. Some items to be aware of:
    a. The construction contract was solicited on October 18, 2024.
    b. The construction proposals are due by November 21, 2024, at 2:00pm.
    c. Attendance for this pre-bid conference is optional. This is an informational meeting.
    d. Any questions will not be addressed during this pre-bid meeting. All questions must be submitted in writing, and submitted in the HIePRO system by November 7, 2024, at 2:00pm.
    e. Answers to the questions will be published in the HIePRO system a week before bid opening.
    f. The HIePRO solicitation documents shall govern. Any changes to the solicitation will be done by an addendum to HIePRO.
    g. This project has a Disadvantaged Business Enterprise requirement which will require the contractor to submit certifications to the Project Manager by November 26, 2024, at 4:30 pm,

which is five days after bid opening. Jesus Navarro or Daniel Williams, from the Office of Civil Rights, will be addressing this.

h. The Contractor should account for the establishment of detours during construction.
i. The construction Contractor shall develop a project web page with applicable project construction information such as project scope, contact information, site map, work progress, and lane closures and detours.
j. Normal working hours is 7:00am to 3:30pm, Monday through Friday, excluding holidays.
k. A National Pollutant Discharge Elimination System (NPDES) permit has been obtained for this project, filing number is HIR10H560.

5. Disadvantaged Business Enterprise (DBE) requirements were reviewed by Jesus Navarro or Daniel Williams of the Office of Civil Rights:

Policy of the State of Hawaii, Department of Transportation's (HDOT) DBE Program:
To ensure equal opportunity and non-discrimination in the award and administration of United States DOT-assisted contracts. Contractors shall take all necessary and reasonable steps in accordance with the regulations (49 CFR, Part 26) to ensure that DBE's have an equal opportunity to compete for and perform on contracts.

DBE Goal for this project: **6.2%**

- Be sure to document discussions, phone calls, faxes or memos relating to your efforts in meeting the DBE goal.
- DBEs must be certified by the bid opening date.
- DBE subcontractors, manufacturers, suppliers, trucking companies and any second tier subcontractors shall be listed on the respective DBE forms in order to receive credit.

The following forms are due to the Department's Project Manager or designee by the close of business, 4:30 P.M. Hawaii Standard Time (HST), five (5) calendar days after bid opening. These forms are confidential documents and should not be included with the submitted proposals.

1. **DBE Confirmation and Commitment Agreement**. This form must be **signed by the bidder/offeror and each DBE** subcontractor, manufacturer, supplier, or trucking company. Information to be provided on the form shall include, among other things, the project number, the DBE's NAICS codes, description of work, bid items with corresponding price information, prime contractor name and contact information, DBE name and contact information and subcontractor name and contact information if the DBE is a second tier subcontractor.

   To count toward meeting a goal, each DBE firm must be certified in a NAICS code applicable to the kind of work the firm would perform on the contract.

2. **DBE Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction**. List the dollar amount of all subcontractors, manufacturers, suppliers, and trucking companies (both DBE and non-DBE firms). Bidder/offeror must also list the DBE project goal on this form. The bidder/offeror must submit documentation demonstrating how the DBE goal was met or how the bidder/offeror attempted to meet the goal if the goal was not met. This documentation shall include quotations for both DBE and non-DBE

subcontractors when a non-DBE is selected over a DBE for the project.

Documentation of good faith efforts is required irrespective of whether the bidder/offeror met the DBE project goal.

The above forms must be complete and provide the necessary information to properly evaluate bids/proposals. Failure to provide any of the above shall be cause for bid/proposal rejection. **It is in best interest of the bidder to ensure that that dollar amount listed for DBEs on the DBE Confirmation and Commitment Agreement and the DBE Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction are consistent and in alignment with each other.**

In determining calendar days, the day from which the period begins to run is not counted, and when the last day of the period is a Saturday, Sunday, or Federal or State holiday, the period extends to the next day that is not a Saturday, Sunday, or Federal or State holiday.

- Calculation of the DBE contract goal for this project is the proportionate contract dollar value of work performed, materials, and goods to be supplied by DBEs. DBE credit shall not be given for mobilization, force account items and allowance items. This DBE contract goal is applicable to all the contract work performed for this project.

  DBE contract goal percentage = Contract Dollar Value of the work to be performed by DBE subcontractors, truckers/haulers, and manufacturers, plus 60% of the contract dollar value of DBE suppliers, divided by the sum of all contract items (sum of all contract items is the total amount for comparison of bids less mobilization, force account items, and allowance items).

  The Department shall adjust the bidder's/offeror's DBE contract goal to the amount of the project goal if it finds that the bidder/offeror met the goal but erroneously calculated a lower percentage. If the amount the bidder/offeror submits as its contract goal exceeds the project goal, the bidder/offeror shall be held to the higher goal.

- In the bid documents be sure to refer to the DBE Requirements section and pay special attention to:
  - Section VIII. Demonstration of Good Faith Efforts for Contract Award, which summarizes the kinds of efforts that will be considered demonstrative of good faith efforts, and
  - Section IX. Administrative Reconsideration, which describes the process the apparent low bidder may take if they failed to meet the provisions of 49 CFR Sections 26.53(a)

- All federally funded projects awarded after October 1, 2017 are required to use the Certification and Contract Compliance Management System program, an online payment tracking system. This project will be required to use the Certification and Contract Compliance Management System program. HDOT OCR will work with the Project Engineer and selected bidder to get the contract information to create a contract record for the project. Subcontractors, suppliers, manufacturers, trucking companies, etc. that are selected to work on this project are expected to log in (on a regular basis) and indicate if payment was prompt

and provide all required information.

- BIDDER REGISTRATION FORM. All firms bidding or quoting on DOT projects, including vendors, subcontractors, manufacturers, truckers, etc., must register as a bidder. Certified DBEs are automatically registered as a bidder with the HDOT.
  Bidder Registration Form can be found at:
  https://hidot.hawaii.gov/administration/files/2019/03/Bidder-Registration-Fillable-Form.pdf

- Be sure to check the DBE Directory online at: https://hdot.dbesystem.com/ to ensure the DBEs listed are certified.
- Accessing HDOT DBE Directory.pdf

  Surveys for Small Business information:
  https://forms.office.com/g/iFuWtNKzN6 - General Contractors/Primes

Meeting was adjourned at 10:22 am.

RESPONSE TO REQUEST FOR INFORMATION (RFI'S / QUESTIONS)

INTERSTATE ROUTE H-1
SEISMIC RETROFIT
WAIALAE VIADUCT INBOUND AND OUTBOUND
ISLAND OF OAHU

FEDERAL-AID PROJECT NO. NH-H1-1(277)

1. Question: Please advise if any repairs of unsound concrete and crack injection will be paid under Force Account or Change Order in the limits of the Fiber Reinforced Polymer system installation?

   Response: Repairs are not anticipated, but if any are encountered, they can be paid and repaired under Force Account or Change Order.

2. Question: Are there expected work areas where the contractor will encounter contaminated soils?

   Response: Presence and extent of contamination is unknown. Please refer to the environmental overview attached (excerpt from the MKE Letter Report, dated December 16, 2022 summarizing the findings of structural analysis) and PC-EHMP (included in Addendum No. 1 attachments) for summary of potentially contaminated areas.

3. Question: How many core samples/pull tests will the agency conduct for the installed FRP system?

   Response: Section 657.03(H) has been updated to clarify the core sample requirements. Refer to the updated Section 657 included in Addendum No. 1.

4. Question: Can the agency provide as-builts of the existing planter boxes of the existing waterproofing that is installed?

   Response: As-built drawings of existing planter boxes are attached.

5. Question: Please advise that the creation of the project web page, the creation of the hotline and project engineering time to attend public informational meetings will be paid by force account?

   Response: Per Special Provision Section 695.05, all items are to be paid by Force Account under pay item "Public Education Materials or Services."

6. Question: I sent an email to Andrew on 10/31/24 referring to a request for a variance for Fiber Reinforced Polymer (FRP) System and FRP Anchors for this project “INTERSTATE ROUTE H-1; Seismic Retrofit Waialae Viaduct Inbound and Outbound Federal-Aid project No. NH-H1-K(277)”. The specified system is Tyfo SCH-41 and Tyfo SCH Composite Anchors. The items that GeoTree would like to submit for would be GeoTree Soluitions’ RenewWrap CF600 FRP system and RenewWrap FRP Anchors. We are willing to provide any necessary material properties and other required information that the EOR may request.

   Response: The variance is not acceptable. Based on the submitted Technical Data Sheets, the RenewWrap CF600 FRP System does not meet or exceed the Minimum FRP Composite Properties specified in Table 1 of Section 657. Specifically, the Ultimate Tensile Strength is less than 130 ksi and the Tensile Modulus of Elasticity is less than 12,600 ksi.

7. Question: Is there an active irrigation system at the planter boxes?

   Response: It is assumed there is an active irrigation system at the planter boxes.

8. Question: Can the agency provide a cross-section detail of the planter box of the specific waterproofing system, foam/non-structural membrane thickness and quantity of soil that the contract needs to restore in the planters?

   Response: Waterproofing is assumed to be liquid-applied waterproofing and shall be verified during construction. Record drawings of planter boxes are included as an attachment.

9. Question: For the plants in the planter boxes, can the agency verify the type of plant species that the contractor would need to restore in the planter boxes?

   Response: Plants in planter boxes appear to be miscellaneous weeds/plants. Contractor to restore with sod or similar.

10. Question: Can the contractor set up multiple left-lane or right-lane traffic controls to work on multiple columns?

    Response: As long as the detours don’t conflict, working on multiple columns is possible.

11. Question: Can the agency verify if there are any live irrigation systems in the Ewa side staging area and the Koko Head side Staging Area?

    Response: There does not appear to be any live irrigation systems in either staging yard.

12. Question: There is a utility box that would be in the excavation limits of column

C20, can the agency verify if the existing utility is energized and if the contractor would need to reconstruction the utility hatch?

Response: The electrical box approximately 40' west of column C20 is assumed to be energized, but not within the excavation limits of C20.

13. Question: There is a bid item for a driveway transition section. Is the intent for the bid item to completely restore the concrete driveway near column C7 or to restore the concrete within the extent of excavation for the footing?

Response: Restoration of the entire driveway is not necessary. The contractor shall replace any concrete that is damaged or removed.

14. Question: In row A of the bridge foundation of the project, there are special plant species within the excavation limits. Can the agency confirm if installing hydroseed or sod be acceptable to restore the area? If not, can the agency provide the plant species the contractor would need to restore?

Response: Contractor shall attempt to identify plant species and restore areas with same or similar species.

15. Question: For the purpose of preparing a competitive bid how many gallons of contaminated ground water should prospective bidders account for profiling and disposal?

Response: Contaminated groundwater is not anticipated to be encountered at the site, at the proposed excavation depths. However, if contaminated groundwater is encountered on the site, it would require removal of any observed sheen or free-product and then could be re-infiltrated into the trench it came from or a nearby trench. The removal and disposal of free product is considered incidental to construction.

16. Question: Please confirm that contaminated soil profiling, handling and disposal as well as contaminated ground water profiling handling and disposal will both be paid under line item 230.0100

Response: No, contaminated groundwater handling is considered incidental to construction costs.

17. Question: Has the NDPES permit been secured? If the NPDES permit has been secured and copies of the permit be shared with prospective bidders?

Response: The coverage for the NPDES general permit form C (for construction) has already been issued, however, the Contractor is responsible for being aware of and complying with all general permit requirements. The Contractor must also update the Storm Water Pollution Prevention Plan (SWPPP) template that was prepared for the project, prior to the start of construction. Refer to the coverage

for the NPDES general permit form C (for construction) and SWPPP, which are attached with the solicitation documents.

18. Question: Is there a holiday period where additional work restrictions apply?

    Response: Refer to Standard Specification 645.03(F) for lane closure restrictions.

19. Question: Can the temperature and dew point temperature requirements listed under section B of Specification 657 be relaxed?

    Response: No.

20. Question: For the purpose of preparing a competitive bid, should prospective bidders include efforts to sound concrete areas where FRP will be installed?

    Response: Yes, refer to Section 657.02.

21. Question: Most of the Approx. Quantities shown on the proposal schedule are L.S, will the successful bidder be allowed to submit payments for partially completed L.S items or only once the individual item for which payment is requested is fully completed? How will quantity growths/reductions be handled? Will the successful bidder be allowed to change the UOM of these quantities from L.S to applicable UOM (e.g SF, LF, etc)

    Response: The successful bidder will be allowed to submit payments for partially completed L.S. items. Significant quantity growth/reductions are not anticipated. The unit of measurement is not permitted to be changed.

22. Question: For the FRP installation – if field samples fail, will the remedy include removal of 100% of the area represented by the sample?

    Response: Refer to Sections 657.03(E-J) for sampling procedures, requirements, and required remediation.

ATTACHMENTS:

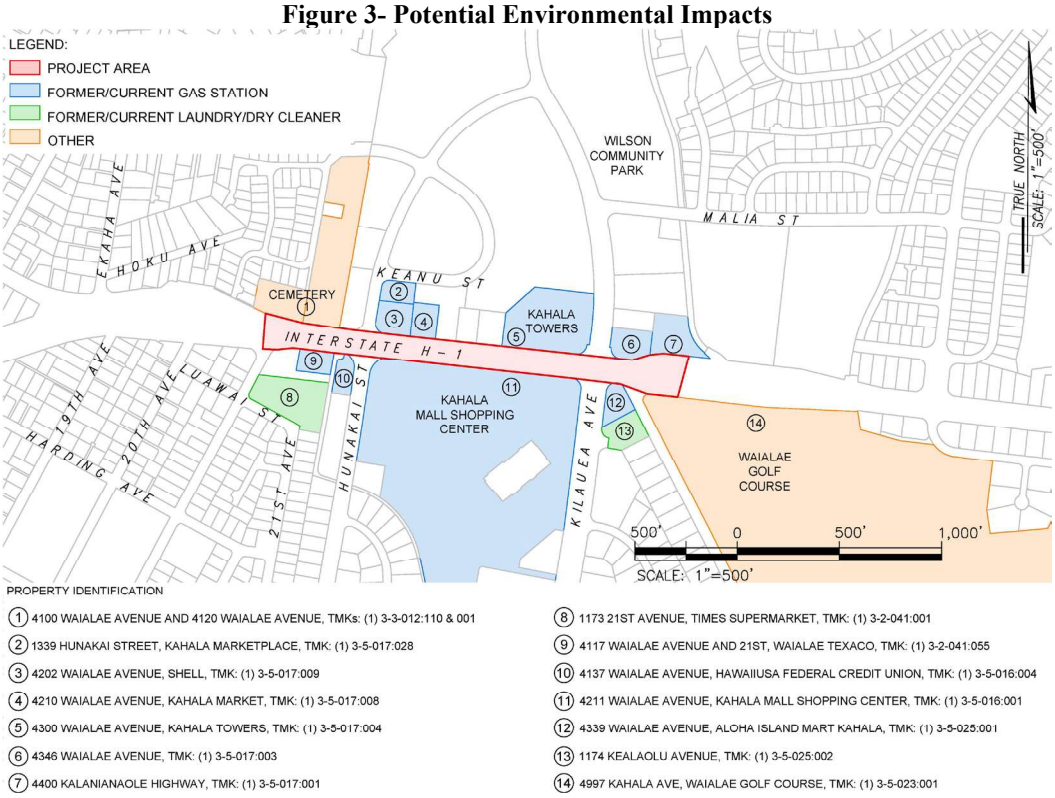
Environmental Overview (excerpt from MKE Letter Report, dated December 16, 2022)

Planter Box Details (from record drawings)

Potential Environmentally Sensitive Areas

It is possible that contaminated soil and groundwater are present beneath the project site. Numerous sites with potential environmental impacts were identified during the historical and regulatory records review, including releases from former and/or current service and auto repair stations and dry cleaners (launderettes) and potential releases associated with the Ocean View Cemetery, developed in 1918, and the Waialae Golf Course, which was developed in 1927 (see Figure 3).

Figure 3- Potential Environmental Impacts



Historical petroleum and solvent releases have been reported and with the exception of the force sewer main setback, shown in Figure 3, releases have been remediated to State of Hawaii Department of Health (HDOH) environmental action levels (EALs) at the time the work was completed. Petroleum contamination remains in the setback and it is not known how far contamination has migrated, if at all. With recent improvements to sampling methodology and HDOH's periodic updates to the EALs, it is possible that impacted soil and groundwater remain in the vicinity of the project site at concentrations that may negatively impact proposed construction. Contaminants of potential concern (COPCs) associated with petroleum include the following: Total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), as diesel range organics (DRO), and as residual range organics (RRO); volatile organic compounds (VOCs), including chlorinated VOCs; polynuclear aromatic hydrocarbons (PAHs); polychlorinated biphenyls (PCBs); and metals. Additionally, methane gas, often associated with petroleum releases, may be present.

Although there are no reported releases for the Ocean View Cemetery and the Waialae Golf Course sites, it is possible that pesticide impacted soil and groundwater associated with 90 to 100 years of grounds maintenance, is present. Additionally, old cemeteries are known to be potential sources of contamination associated with historical embalming and burial practices. COPCs associated with old cemeteries may include solvents from coffin varnishes and sealers and embalming fluids with a variety of metals, mainly arsenic, which was a common embalming chemical around the turn of the century.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(6) UNIT 3	1966	208	235

GENERAL NOTES

DESIGN SPECIFICATION: Design is in accordance with AASHO Standard Specification for Highway Bridges (Eighth Edition)

DESIGN LOADS: HS 20-44 ; defined in design specifications.

DESIGN STRESSES:

Prestressed Concrete		
	f'_c = 6,000 psi	f'_c = 5,000
f_c = 1,200 psi	f_c = 2,400 psi	f_c = 2,000
n = 10	n = 5	n = 5
f_s = 20,000 psi-tension		

MATERIALS:

1. All concrete shall be class A-1 except concrete for Prestressed and Post Tension members ~~Prestressed members~~ see Special Provisions.
2. Concrete clear cover for reinforcing bars shall be as follows unless noted otherwise: 1½" for stirrups on sides of beams, 2½" to main reinforcing of pier caps ~~2½"~~ to main reinforcing of column. 2" for form walls, 3" for footings.
3. Concrete seats receiving steel plates, or neoprene pads shall be poured monolithically with supporting structures and top surfaces of the concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
4. Reinforcing bars shall be detailed in accordance with AC! "Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures" unless otherwise noted.
5. Reinforcing bars shall be securely tied at all intersections and lap splices, and shall be held in place during pouring to maintain their proper locations as shown on plans.
6. All reinforcing steel to be ASTM Designation A15 Billet steel, intermediate grade, except as otherwise noted.

CONSTRUCTION METHODS:

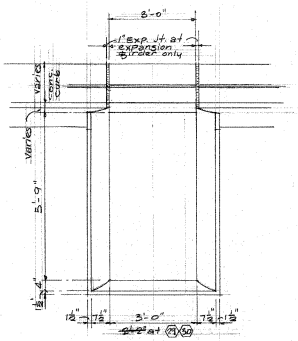
1. Shop placement and detail drawings for all reinforcing steel in deck are required. For splices, see General Notes, Standard Bridge Details.
2. Sides of footings shall be excavated and poured to neat lines when called for on plans. For excavation of bottom of footings, see Standard Specifications. Over excavation beyond neat lines for sides of footing and the elevations indicated on the plans for the bottom of footings shall be backfilled with a minimum of Class D concrete at the Contractor's expense and as directed by the Engineer.
3. All backfill behind abutments shall be completely in place before placing of superstructure.
4. Forms for all exposed surfaces of concrete, see General Notes, Standard Bridge Details.
5. Concrete Finish - See Standard Specifications and/or Special Provisions.
6. All welding for structure steel shall conform to the latest Specifications for Welded Highway and Railway Bridge Design Construction & Repair of the American Welding Society.
7. Vert. Col. bars shall be arranged in such a manner as to miss Pier Cap reinf. above.
8. In general, top of concrete deck of structure shall be constructed to follow the roadway vertical and horizontal curves and grades.
9. Tees should be placed symmetrically starting near the base line (tee "⑦) and alternately moving outward. Tees may be placed in any other sequence provided no more than four consecutive tees are loaded on one span of the carrying girder without loading the other span.
10. Deck slab shall not be poured until the tee stringers on both sides of the girder are in place.

GENERAL:

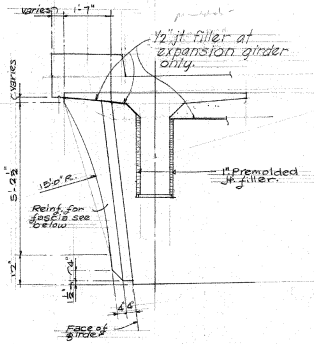
In general, all elevations, stations and location of supporting structure shall be verified in the field before commencing with the work. The contractor shall verify the location of all existing utility lines. The contractor shall furnish shop placement and detail drawings for all structural steel work including bearing assemblage for deck joints.

Connection angles and rods for prestressed Tee flanges shall be galvanized. All angles, plates, and channels for prestressed Tee Bearings shall be galvanized. Galvanizing shall be in accordance to the requirements of Standard specification 50 article 44.3 (H) and (I).

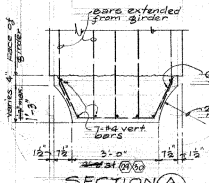
Elastomeric pads shall be glued top and bottom with approved adhesive so as to prevent displacement from structure.



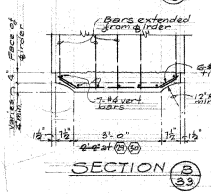
ELEVATION - FRONT



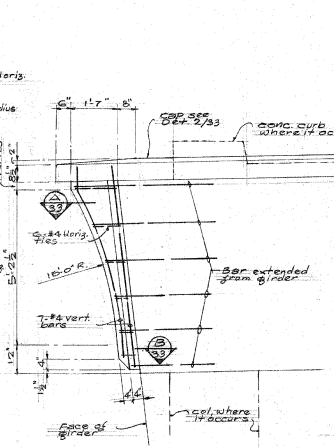
ELEVATION - SIDE



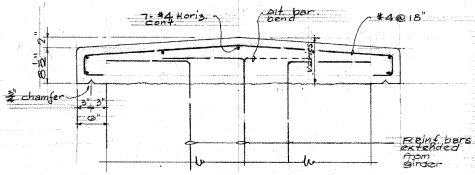
SECTION (A 33)



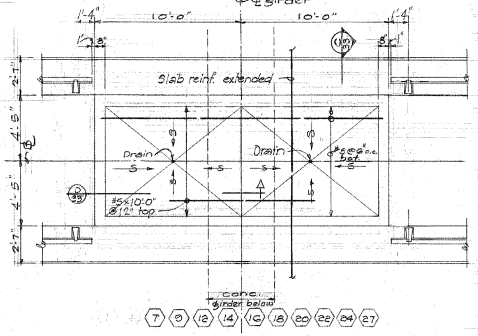
SECTION (B 33)



ELEVATION

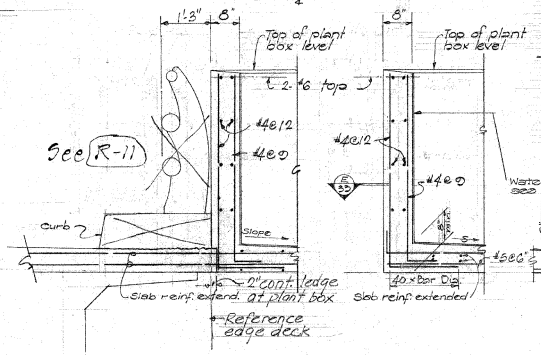


(2 33) CAP DETAIL
Scale: 1"=1'-0"



(7) (9) (12) (14) (16) (18) (20) (22) (24) (27)

PLAN
Scale: ½"=1'-0"



SECTION (C 33)
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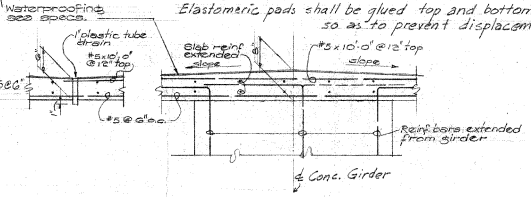
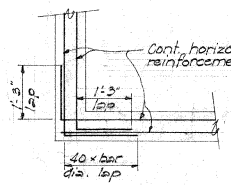


SECTION (D 33)
Scale: 3/4"=1'-0"

(1 33) FASCIA DETAIL
Scale: ½"=1'-0"



PLAN - SECTION (E 33)
(TYPICAL CORNER REINFORCEMENT)

(3 33) PLANT BOX DETAIL

WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIALAE AVE. VIADUCT
(STRUCTURE NO. 20 & 21)
MISCELLANEOUS DETAILS

INTERSTATE HIGHWAY (LUNALILO FWY.)
F.A.I. PROJ. NO. I-HI-1(6) UNIT 3
DATE: JAN. 1965

SHEET No. 33 OF 33 SHEETS

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

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