

SECTION 02281 – DREDGING (Revised per Addendum No. 1 dated July 12, 2024)

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

Work shall consist of furnishing all labor, tools, materials, and equipment necessary and required to dredge to the lines and grades indicated on the plans and as specified herein. Work includes the installing of pollution controls, removing, transporting, dewatering, hauling, stockpiling, and disposal of the dredged material. All work areas are shown on the plans.

1.02 DEFINITION

- A. Excavation is defined as the removal of volcanic debris above 2 feet mean lower low water level (MLLW).
- B. Dredging is defined as the removal of volcanic debris below 2 feet MLLW.
- C. Hard material is defined as material requiring blasting or the use of special equipment for economical removal.

1.03 MATERIAL TO BE REMOVED

The material to be removed is loose sand, gravel, cobbles, and boulders. The removal of hard material not included as a part of the project.

1.04 SUBMITTALS

Operation Plan and Performance Schedule: Not later than thirty (30) days after the award of the Contract, the Contractor shall submit an operation plan and performance schedule for accomplishing the dredging work. No work shall commence until the operation plan and performance schedule have been submitted and approved by the Engineer. The operation plan and performance schedule shall include a plan and schedule of work; method of dredging, including schedule of all plant, equipment, auxiliaries and appurtenances; method of protection of surrounding structures, equipment and vessels; method of sweeping and sounding; and the method of stockpiling/disposal of excavated materials, including details for containment of the dredged materials.

Pre-Construction and Post-Construction Bathymetric and Site Surveys: The Contractor shall prepare a pre-construction topographic survey prior to the start of any dredging operations and verify excavation and dredging quantities based on pre-construction survey elevations. Area shall include the grading areas identified on the plan, area surrounding the existing boat ramp, existing boat ramp, and shoreline area to M.L.L.W. elevation. Mean Higher High Water (M.H.H.W.) elevation shall also be provided. The pre-construction topographic survey and verified quantities shall be submitted to the Engineer at least thirty (30) days prior to the start of any earth moving activities. A post-construction bathymetric and site topographic survey shall be conducted for grading areas to verify finish elevations and shall be submitted to the Engineer.

1.05 EXISTING CONDITIONS

The plans show soundings that were taken in May 2022. For bidding purposes, the material quantity to be removed is estimated to be approximately 42,000 cubic yards. The material consists primarily of sand, gravel, and cobbles. The areas to be dredged are indicated on the plans.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

Dredging shall consist of the excavation, removal, and disposal of every type of material encountered within the lines, slopes, elevations, and limits shown on the drawings. The Contractor shall dredge indicated areas to between -6 feet and -10 feet M.L.L.W.

The deposit of dredged material in unauthorized areas is forbidden. The Contractor shall be required to remove any misplaced material at his own expense. Return flow or runoff from dredged material deposited at the stockpile site shall not enter State waters.

3.02 SCHEDULE

The Contractor shall start and complete work in accordance with the detailed schedule approved by the Engineer.

3.03 PERMITS

The Contractor shall comply with all conditions and requirements of the project permits. Copies

of all permits obtained will be provided to the Contractor prior to issuance of Notice to Proceed. The Contractor shall be responsible for obtaining all required permits not provided by the Engineer and pay for the necessary permit fees.

3.04 PLANT

The excavation and dredging equipment shall be of the type and size sufficient to meet the requirements of the work, and shall be kept at all times in safe and operational condition for efficient work. The dredging may be done using mechanical means such as clamshell or dragline. Contractor shall submit an operations plan and schedule as specified in Paragraph 1.01 SUBMITTALS. Upon completion of the work, promptly remove plant, including all temporary ranges, buoys, piles, and other markers or obstructions.

3.05 LIGHTS AND BUOYS

Each night, between sunset and sunrise and during periods of restricted visibility, provide lights for floating plants, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation. When night work is in progress, maintain lights from sunset to sunrise for the observation of dredging operations. Lighting shall conform to United States Coast Guard requirements for visibility and color.

3.06 RANGES, GAUGES AND LINES

Furnish, set, and maintain ranges, buoys and markers needed to define the work and to facilitate inspection. Establish and maintain gauges in locations observable from all parts of the work so that the depth may be determined. Suspend dredging when the gauges or ranges cannot be seen or followed. Survey lines, points, and elevations necessary for setting the ranges, gauges, and buoys are shown on the plans.

3.07 OVERDEPTH

Dredging shall follow, as closely as practicable, the lines indicated. To cover inaccuracies in the dredging process, material removed from within the areas to be dredged to a depth of not more than one (1) foot below indicated depth will be allowed at no cost to the State.

3.08 SIDE SLOPES

Dredging on side slopes shall follow, as closely as practicable, the lines indicated.

3.10 DISPOSAL OF DREDGED MATERIALS

The Contractor shall be responsible for transport and placement of the dredged material at the stockpile site.

Dredged material shall be removed from the water and hauled to the stockpile site. The dredged material shall be unloaded into watertight truck beds or other methods approved by the Engineer. The hauling route shall be periodically cleaned of sediment as directed by the Engineer. Return flow or runoff from dredged material deposited in the stockpile site shall not enter State waters. Dredged material shall remain the property of the State. Contractor shall provide security of the sites as specified in Section 01530 BARRICADES.

The Contractor shall use dredged material to fill existing voids and level the stockpiling site as necessary to transport and place dredged material. The remaining dredged material shall be placed in mounds in accordance with the parameters indicated in the plans. Mounds shall be accessible from at least one side at all times.

The Contractor shall follow the Sediment Sampling Program and submit test results of the dredged material to the State Department of Health, Solid and Hazardous Waste Branch for approval to be used as unrestricted fill.

Any damage to the existing area caused by the Contractor's operations shall be repaired by the Contractor to the satisfaction of the Engineer.

### 3.11 SEDIMENT SAMPLING AND ANALYSIS

A Sediment Sampling and Analysis Plan has not been prepared for this project. The Contractor shall prepare a Sediment Sampling and Analysis Plan for the project and obtain all applicable approvals of the plan from the State Department of Health, Solid and Hazardous Waste Branch, and Office of Hazard Evaluation and Emergency Response (HEER Office). The Contractor shall make any changes to the Sediment Sampling and Analysis Plan to the satisfaction of the Engineer at no additional cost to the State. The Contractor shall comply with all conditions required by the State Department of Health for sediment sampling and analysis. The Contractor shall perform and pay for all sampling, testing, and reporting required in the Sediment Sampling and Analysis Plan and by the State Department of Health.

### 3.12 SWEEPING AND FINAL ACCEPTANCE

As soon as practicable after completion of the dredging, the Contractor, at his expense, shall retain a licensed surveyor registered in the State of Hawaii to provide a post-dredge survey by sounding at 10-foot stations. Sweeping shall be done first and the area re-swept as necessary

until the project depth is obtained.

Sweeping operations shall be carried out from the reference lines, control points, and benchmarks as indicated on the plans. Ranges required by the Contractor to carry out the sweeping operations shall be set by the Contractor at his own expense. The Contractor's method and plan for accomplishing the sweeping operation shall be included in the Contractor's Operation Plan.

Should any shoals, lumps, or other lack of contract depth be disclosed by the examination, the Contractor will be required to remove same by dragging the bottom or by excavating, but if the bottom is soft and the shoal areas are small and form no material obstruction to navigation, the removal of such shoal may be waived at the discretion of the Engineer or his authorized representative.

Above ground areas within the grading limits shall be surveyed for verification of finish elevations and slopes.

The Engineer or his authorized representative will be notified when soundings are to be made, and will be permitted to accompany the survey party. When the entire dredging area is found to be in a satisfactory condition, it will be accepted finally. The soundings shall be taken by a Land Surveyor licensed in the State of Hawaii and experienced in hydrographic surveying. Final post-dredge surveys shall be submitted to the State on a full-size 24-inch by 36-inch reproducible vellum sheet at scale 1 inch= 40 feet, in AutoCAD format on CD, and in PDF format.

#### PART 4 - MEASUREMENT AND PAYMENT

##### 4.01 PER UNIT PAYMENT UP TO 42,000 CUBIC YARDS

The material removed will be measured by cubic yard in place by means of soundings taken before and after dredging. The measurement and payment for the completion of work required under this Section, including all equipment, labor and material required to accomplish the work, shall be per cubic yard of the volcanic debris removal. No payment will be made for overdredging beyond the depths shown on the plans.

##### 4.02 PAYMENT FOR PRE-CONSTRUCTION AND POST-CONSTRUCTION BATHYMETRIC AND SITE TOPOGRAPHIC SURVEY

Pre-construction and Post-construction bathymetric and site topographic surveys shall be included in the Construction Survey and Layout item in the proposal.

4.03 PAYMENT FOR SEDIMENT SAMPLING PROGRAM

Sediment sampling program will not be measured nor paid for separately, but shall be considered incidental to and included in the prices bid for the various items of work in this project.

END OF SECTION