JOSH GREEN, M.D.
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SYLVIA LUKE
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STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809



Oct 12, 2023

Mary Alice Evans, Director
Office of Planning and Sustainable Development
Environmental Review Program
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment - Anticipated Finding of No Significant Impact (DEA-AFONSI)
North Kawaihae Small Boat Harbor Breakwater Improvements
Waimea, Hawai'i 96743
Tax Map Keys (3) 6-1-003:023, 045

Dear Ms. Evans:

With this letter, the State Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) is submitting the Draft Environmental Assessment (DEA) that assesses the potential effects of the North Kawaihae Small Boat Harbor Breakwater Improvements. This transmittal is pursuant to requirements set forth in Hawai'i Chapter 343. As the proposing and approving agency, the State Board of Land and Natural Resources (BLNR) anticipates that the proposed action is not likely to have significant effects and is therefore issuing an Anticipated Finding of No Significant Impact (AFONSI).

Please publish notice of this DEA-AFONSI in the next edition of *The Environmental Notice.* We have uploaded an electronic copy of this letter, the publication form, and the DEA to your online submittal site. We are also providing the action summary, significance criteria, and other required information via the Environmental Notice online submittal platform.

Please contact our consultant, Ms. Berna Senelly at (808) 954-4221 or bsenelly@oceanit.com if you have questions.

Sincerely,

Dawn N.S. Chang, Chairperson
Board of Land and Natural Resources

cc: Finn McCall, Project Manager (DLNR – DOBOR)

**From:** State of Hawaii Webmaster
**To:** DBEDT OPSD Environmental Review Program
**Subject:** New online submission for The Environmental Notice
**Date:** Monday, October 16, 2023 1:12:25 PM

---

**Action Name**

North Kawaihae Small Boat Harbor Breakwater Improvements

**Type of Document/Determination**

Draft environmental assessment and anticipated finding of no significant impact (DEA-AFNSI)

**HRS §343-5(a) Trigger(s)**

- (1) Propose the use of state or county lands or the use of state or county funds
- (2) Propose any use within any land classified as a conservation district
- (3) Propose any use within a shoreline area

**Judicial district**

North Kohala, Hawai'i

**Tax Map Key(s) (TMK(s))**

(3) 6-1-003:023
(3) 6-1-003:045

**Action type**

Agency

**Other required permits and approvals**

Section 10, Work in Navigable Waters of the U.S. (USACE); Section 404, Clean Water Act, for Fill in Waters of the U.S. (USACE); Section 401 Water Quality Certification; Essential Fish Habitat review; Endangered Species Act Review; Conservation District Use Permit; Coastal Zone Management Federal Consistency

**Proposing/determining agency**

Dept. of Land and Natural Resources, Division of Boating and Ocean Recreation

**Agency contact name**

Finn McCall

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United States
Map It

**Was this submittal prepared by a consultant?**

Yes

**Consultant**

Oceanit

**Consultant contact name**

Berna Senelly

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828 Fort Street Mall
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Map It

**Action summary**

DOBOR proposes to redesign and improve the damaged North Kawaihae Small Boat Harbor (NKSBH) main breakwater to better withstand winter swells. The existing breakwater elevation will be raised four (4) feet from six (6) feet above mean lower low water (MLLW) to ten (10) feet MLLW. The breakwater section will be ten (10) feet wide at its crest to accommodate maintenance equipment and have 1.5H:1V side slopes. The bottom width of the structure will be below the waterline and vary from about 40 to 60 feet. The modified breakwater will be designed to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. The breakwater structure will be extended approximately 80 feet landward from the existing end of the breakwater to prevent siltation of the boat ramp during high wave conditions.

**Reasons supporting determination**

Please see Section 6, Findings and Reasons Supporting Anticipated Determination, of the Draft Environmental Assessment.

**Attached documents (signed agency letter & EA/EIS)**

- North-Kawaihae-SBH-Breakwater-Impr_Draft-EA_Agency-Transmittal-Ltr-part-1-signed.pdf
- NKSBH-Draft-EA.FINAL_ALL.pdf

**Action location map**

- Action-Location-Map.shp.zip

**Authorized individual**

Berna Senelly

**Authorization**

The above named authorized individual hereby certifies that he/she has the authority to make this submission.

# DRAFT
# ENVIRONMENTAL ASSESSMENT

## North Kawaihae Small Boat Harbor Breakwater Improvements

Waimea, Hawai'i 96743
Tax Map Keys (3) 6-1-003:023, 045
Contract Number: 65611


**Prepared for:**
Division of Boating and Ocean Recreation
Department of Land and Natural Resources
4 Sand Island Access Road
Honolulu, Hawai'i 96813

**Prepared by:**
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, HI 96813

**October 2023**

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# CONTENT CHECKLIST

| HAR § 11-200.1 EA Content Requirements | | Draft EA Compliance |
|---|---|---|
| Subchapter 8: Preparation | | |
| (d) | The draft EA shall contain, but not be limited to, the following information | |
| (1) | Identification of the applicant or proposing agency | Summary sheet<br>Section 1, Introduction<br>Section 2, Project Description and Alternatives |
| (2) | For applicant actions, identification of the approving agency | Summary Sheet |
| (3) | List of all required permits and approvals (s t a t e , federal, and county) and, for applicants, identification of which approval necessitates chapter 343 , HRS, environmental review | Section 4.4, List of Permits and Approvals |
| (4) | Identification of agencies, citizen groups, and individuals consulted in preparing the draft EA | Section 5, Consultation |
| (5) | General description of the action's technical, economic, social, cultural, historical, and environmental characteristics | Executive Summary |
| (6) | Summary description of the affected environment, including suitable and adequate regional, location, and site maps such as Flood Insurance Rate Maps, Floodway Boundary Maps, United States Geological Survey topographic maps, or state sea level rise exposure area maps | Section 3, Description of Existing Environment, Impacts and Mitigation Measures |
| (7) | Identification and analysis of impacts and alternatives considered | Section 3, Description of Existing Environment, Impacts and Mitigation Measures |
| (8) | Proposed mitigation measures | Section 3, Description of Existing Environment, Impacts and Mitigation Measures |
| (9) | Proposing agency or approving agency anticipated determination, including findings and reasons supporting the anticipated FONSI, if applicable | Section 6, Findings and Reasons Supporting Anticipated Determination |
| (10) | Written comments, if any, and responses to the comments received, if any, and made pursuant to the early consultation provisions of subsection ( a ) and statutorily prescribed public review periods | Appendix E, Draft EA Pre-Consultation Correspondence |

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## LIST OF FIGURES

**LIST OF TABLES**



## APPENDICES

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| % | Percent |
| § | Section |
| ° | Degree(s) |
| ALR | Archaeological Literature Revise |
| AOC | Administrative Order of Consent |
| bgs | Below Ground Surface |
| BMP | Best Management Practice |
| BPBM | Bernice Pauahi Bishop Museum |
| BS | Beaches |
| CCH | City and County of Honolulu |
| CDUA | Conservation District Use Application |
| CDUP | Conservation District Use Permit |
| CFR | Code of Federal Regulations |
| CIA | Cultural Impact Assessment |
| CWA | Clean Water Act |
| CZM | Coastal Zone Management |
| CZMA | Coastal Zone Management Act |
| DAGS | Department of Accounting and General Services |
| DAR | Division of Aquatic Resources, DLNR |
| dBA | Decibels |
| DEA | Draft Environmental Assessment |
| DBEDT | Department of Business, Economic Development and Tourism |
| DDC | Department of Design and Construction |
| DLNR | State of Hawai'i Department of Land and Natural Resources |
| DOBOR | Division of Boating and Ocean Recreation, DLNR |
| DOH | State of Hawai'i Department of Health |
| DOH-CWB | State of Hawai'i Department of Health, Clean Water Branch |
| DPS | Distinct Population Segment |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| EFFA | Essential Fish Habitat Assessment |
| ERP | Environmental Review Program, OPSD, DBEDT |
| ESA | Endangered Species Act |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| FONSI | Finding of No Significant Impacts |
| FR | Final Rule |
| ft | Foot or feet |
| ft/yr | Feet per Year |
| FWCA | Fish and Wildlife Coordination Act |

| | |
|---|---|
| GMSL | Global Mean Sea Level |
| GPD | Gallons per Day |
| GPM | Gallons per Minute |
| GPS | Global Positioning System |
| HAR | Hawai'i Administrative Rules |
| HCD | Habitat Conservation District |
| HDOA | Hawai'i Department of Agriculture |
| HELCO | Hawai'i Electric Light Company |
| Hg | Mercury |
| HRS | Hawai'i Revised Statutes |
| ID | Identification |
| IWDP | Industrial Wastewater Discharge Permit |
| JaC | Jaucas |
| KCC | Kawaihae Canoe Club |
| KDDH | Kawaihae Deep Draft Harbor |
| LUPAG | Land Use Pattern Allocation Guide |
| m | Meter(s) |
| MBTA | Migratory Bird Treaty Act |
| mg/L | milligrams per liter |
| MLCD | Marine Life Conservation District |
| MHHW | Mean Higher High Water (2.11 feet above Mean Sea Level) |
| MLLW | Mean Lower Low Water (0.91 feet below Mean Sea Level) |
| MSL | Mean Sea Level |
| MUS | Management Unit Species |
| NAAQS | National Ambient Air Quality Standards |
| NMFS | National Marine Fisheries Service |
| No. | Number |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |
| NSW | Natural Seawater |
| NTU | Nephelometric Turbidity Units |
| O&M | Operation and Maintenance |
| OCCL | Office of Conservation and Coastal Lands, DLNR |
| OPSD | Office of Planning and Sustainable Development, DBEDT |
| PacIOOS | Pacific Islands Ocean Observing System |
| PCSI | Pacific Consulting Services, Incorporated |
| PIFWSO | Pacific Islands Fish and Wildlife Service |
| PIRO | Pacific Islands Regional Office |
| PM | Particulate Matter |
| RTE | Rare, Threatened, and Endangered |
| SIHP | State Inventory of Historic Places |
| SLR | Sea Level Rise |

| | |
|---|---|
| SLR-XA | Sea Level Rise Exposure Area |
| SLUD | State Land Use District |
| SMA | Special Management Area |
| TCP | Traditional Cultural Property |
| TMK | Tax Map Key |
| TSS | Total Suspended Solids |
| U.S. | United States |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UV | Ultraviolet |
| WQC | Water Quality Certification |
| WQS | Water Quality Standards |
| ZOM | Zone of Mixing |

# SUMMARY SHEET

| | |
|---|---|
| **Type of Document** | Draft Environmental Assessment (DEA) |
| **Project Name** | North Kawaihae Small Boat Harbor Breakwater Improvements |
| **Applicant:** | Division of Boating and Ocean Recreation (DOBOR)<br>State of Hawai'i Department of Land and Natural Resources<br>4 Sand Island Access Road<br>Honolulu, HI 96813<br>Mr. Edward Underwood, Administrator |
| **Approving Agency** | State of Hawai'i Board of Land and Natural Resources |
| **Project Location** | North Kawaihae Small Boat Harbor<br><br>Kawaihae, Hawai'i Island, Hawai'i, 96743 |
| **Tax Map Key (TMK)** | (3) 6-1-003:023, 045 |
| **Project Summary** | DOBOR proposes to redesign and improve the damaged North Kawaihae Small Boat Harbor (NKSBH) main breakwater to better withstand winter swells. The existing breakwater elevation will be raised four (4) feet from six (6) feet above mean lower low water (MLLW) to ten (10) feet MLLW. The breakwater section will be ten (10) feet wide at its crest to accommodate maintenance equipment and have 1.5H:1V side slopes. The bottom width of the structure will be below the waterline and vary from about 40 to 60 feet. The modified breakwater will be designed to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. The breakwater structure will be extended approximately 80 feet landward from the existing end of the breakwater to prevent siltation of the boat ramp during high wave conditions. |
| **Regulatory Context** | Chapters 343 and 344, Hawai'i Revised Statutes (HRS), and Chapter 11-200.1, Hawai'i Administrative Rules (HAR) |
| **Triggers for the EA** | Use of State Lands, Use within a Conservation District, Use of State Funds |
| **Anticipated Determination** | Finding of No Significant Impact (FONSI) |
| **Estimated Cost** | $5 million |
| **Time Frame** | 6 to 8 months |

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# EXECUTIVE SUMMARY

This Environmental Assessment was conducted to assess potential environmental impacts associated with the North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements project. The Proposed Action is intended to better withstand winter swells, improve safety conditions for harbor users, and increase the usability of the small boat harbor.

Proposed improvements are designed to repair and strengthen the compromised breakwater that has been damaged from repeated wave action, and extend the breakwater landward to prevent sand from accumulating in the boat ramp during high wave conditions.

The existing breakwater elevation will be raised four (4) feet, from six feet above mean lower low water (MLLW) to 10 feet MLLW. The breakwater section will be 10 feet wide at its crest to accommodate maintenance equipment and have 1.5H:1V side slopes. The bottom width of the structure will be below the waterline and vary from about 40 to 60 feet. The modified breakwater will be designed to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. The breakwater structure will be extended approximately 80 feet landward from the existing end of the breakwater to prevent siltation of the boat ramp during high wave conditions.

The EA includes a discussion of the No Action alternative and the following four alternatives:

- Alternative A: Breakwater Crest Elevation of 12 ft Above MLLW
- Alternative B: Modification with New Shore Berm Construction
- Alternative C: Breakwater Modification with New Shore Berm Construction Plus Harbor Entrance Modification Option 1
- Alternative D: Breakwater Modification with New Shore Berm Construction Plus Harbor Entrance Modification Option 2

The alternatives analyses evaluated navigation effects, maintenance requirements, cost, ease of permitting and construction, and community preferences. The Proposed Action was selected because it met project objectives while surpassing Alternatives A through D and the No Action in the alternatives analysis. Further, community participants in outreach interactions expressed preference for the design elements of the Proposed Action.

The following potentially impacted environments were evaluated for the Proposed Action and the No Action Alternative and discussed in this Draft Environmental Assessment (EA):

- Climate and topography
- Geology and soils
- Hydrogeology and water resources
- Ocean water quality
- Air and noise quality
- Climate change and sea level rise
- Flood, tsunami and hurricane hazards
- Terrestrial and marine biological resources
- Demographics and the economy
- Archaeological and cultural resources
- Public services and facilities

The Proposed Action is designed to have long term positive impacts on harbor operations, harbor users including fishermen, recreational boaters and other users, ocean water quality, and benthic habitats.

Potential negative impacts are limited to short-term effects related to construction. These impacts will be mitigated by employing construction Best Management Practices (BMPs) to eliminate or minimize impacts to maximum extent practicable, limiting activities to daytime hours, curtailing construction activities to avoid impacts on terrestrial and marine biological resources, coordinating with public agencies, and monitoring by qualified professionals, such as an archaeologist.

No negative cumulative and secondary impacts are anticipated.

Hawai‘i Administrative Rule (HAR) §11-200-11.2 establishes procedures for determining if a Finding of No Significant Impact (FONSI) is warranted. In accordance with the provisions set forth in Chapter 343, HRS, and HAR §11-200-11.2, this Draft EA has preliminarily determined that the Proposed Action will not have significant adverse impacts on the environment. As such, a Finding of No Significant Impact (FONSI) is anticipated.

# 1. INTRODUCTION

The State of Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) is proposing repairs and improvements to the main breakwater for its North Kawaihae Small Boat Harbor (NKSBH) located in Kawaihae, Hawai‘i Island. The proposed improvements are designed to repair and strengthen the compromised breakwater that has been damaged from repeated wave action and extend the breakwater landward to prevent sand from accumulating in the boat ramp during high wave conditions. The Proposed Action is intended to improve safety conditions for harbor users and increase the usability of the small boat harbor.

## 1.1 Project Site and Surrounding Area

NKSBH is located in the Kawaihae 1 Ahupua’a and Kohala Moku, off the Kohala Coast on the northwest side of the Island of Hawai‘i. NKSBH is located at the northern edge of the Kawaihae Deep Draft Harbor (KDDH) within TMK (3) 6-1-003, Parcels 023 and 045. The small boat harbor is at the north end of Kawaihae-Mahukona Harbor Road and is bounded by the Pacific Ocean and the larger KDDH to the south (Figure 2-1). The beach north of the NKSBH ends at a rocky headland about 400 ft from the harbor. Akoni Pule Highway lies to the northeast of the harbor.

NKSBH was constructed by the United States Army Corps of Engineers (USACE) in the late 1950s. It is managed by the State of Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR), which operates and maintains NKSBH to service local fishers and commercial and recreational users. NKSBH is located along the shoreline across the entrance channel to the KDDH, which is operated by the State Department of Transportation (DOT) Harbors Division.

## 1.2 Scope and Authority

This Environmental Assessment (EA) was prepared in accordance with Chapter 343 of the Revised Statues (HRS) relating to Environmental Impacts Statements (EIS) and Hawai‘i Administrative Rules (HAR) Title 13, Chapter 5, which specifies procedures for projects located in the State Conservation District.

HRS Chapter 343 is triggered by the use of state or county land or the use of state or county funds, project location within the conservation district, and project location within the shoreline area. HAR §13-5-31 requires a draft or final EA as part of the application for a Conservation District Use Permit (CDUP).

This Draft EA is prepared to determine impacts associated with a proposed action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen (13) criteria. If after considering comments made regarding the Draft EA, the approving agency confirms that no significant impacts are expected, then the agency would issue a Finding of No Significant Impact (FONSI), and the action would be permitted to

occur. This Draft EA examines potential environmental impacts of the Proposed Action and seeks agency and public comment on subject areas that should be addressed. Preparation of this Draft EA is in accordance with Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200.1, which provides procedures, content requirements, and criteria for HRS Chapter 343 environmental documentation.

# 2. PROJECT DESCRIPTION AND ALTERNATIVES

## 2.1 Purpose and Need for Action

The purpose of the Proposed Action is to improve safety conditions within NKSBH, restore its functionality and increase its resilience to coastal hazards such as sea level rise (SLR) and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor.

NKSBH is located across the entrance channel of KDDH , as shown on Figure 2-1. Although the small boat harbor's entrance is mostly shielded by the KDDH breakwater, the main breakwater of NKSBH is exposed to large waves and swells that frequently occur in the fall and winter months. High waves frequently overtop the main breakwater and hit the underside of the wooden wharf, thereby creating unsafe conditions for harbor users (Figure 2-2). Large swells from a storm event between December 31, 2019 and January 1, 2020 repeatedly overtopped NKSBH's main breakwater, causing an approximately 40-foot breach in the breakwater structure and severe damage to the marginal wooden wharf (Figures 2-2b and 2-c). The marginal wooden wharf was condemned by the DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor. Existing conditions based on Google Earth image from November 2021 is shown in Figure 2-3.

The landward end of the main breakwater is at a beach berm that slopes down to a concrete boat ramp. Uprush from waves breaking on the beach overtop the low part of the sand berm and carry large amounts of sand, which block the boat ramp and impede its function or render it unusable (Figure 2-2a). Sand accretion at the ramp is further exacerbated by the breach in the breakwater and voids along the breakwater that allow as more sand and sediment to enter the harbor.


**Figure 2-1: Project Location Map**

(a) May 2018. Concrete boat ramp with accreted sand.

(b) January 2020. Breached section of Main Breakwater.

(c) January 2020. Incoming waves hit underside of marginal wooden wharf and damaged structure. Wharf was condemned.

(d) January 2015. Parking lot during storm conditions. Waves can be seen overtopping main breakwater, resulting in flooding of parking lot.

*(Photo credit: J. f Newton)*

**Figure 2-2: Photographs showing damaged or compromised areas and flooding of the NKSBH**

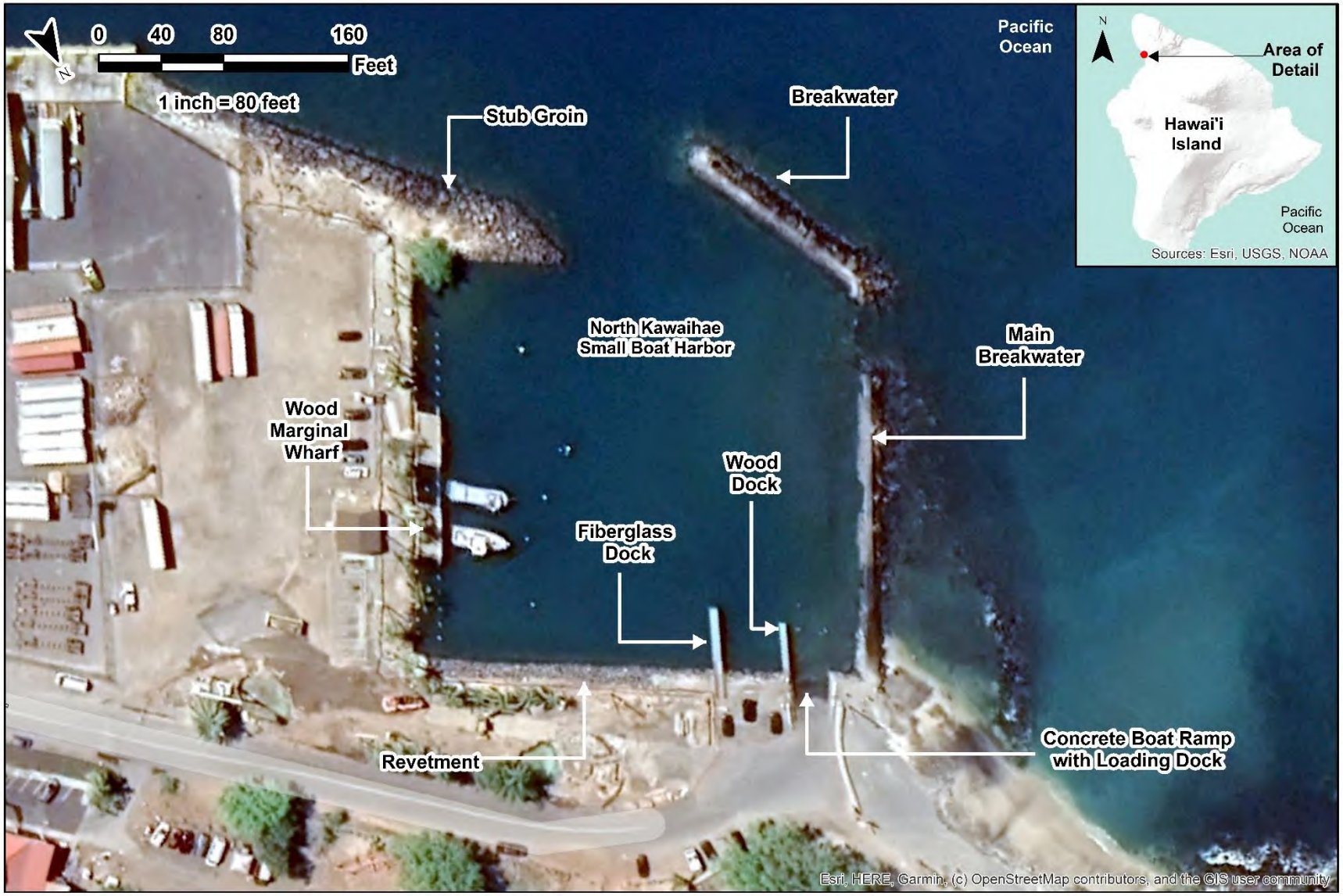



**Figure 2-3: Existing Conditions**

A detailed wave analysis for NKSBH was performed in 2019 and concluded that the existing breakwater was inadequate to withstand wave forces and protect vessels and harbor users. If the main breakwater is left in its present state, NKSBH will be unable to function as a harbor. Further, as sea levels rise, the frequency and magnitude of wave overtopping will increase and create even greater threats to harbor users.

The objectives of the Proposed Action are to:

1) Improve the existing breakwater to provide safe mooring conditions during high wave conditions; and

2) Increase the usability of the concrete boat ramp by reducing sand accumulation.

The Proposed Action includes repair and modification of the existing main breakwater design to provide current and future protection against wave action for NKSBH. In addition, the breakwater will be extended approximately 80 feet landward to reduce beach sediments from accreting onto the concrete boat ramp.

## 2.2 Description of Project Site

NKSBH is located at the northwest corner of the KDDH and at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway. It consists of a 1.6-acre basin protected by a 390 feet (ft) long main breakwater that runs along the north and northwest boundary and by a stub groin on the east side of the NKSBH entrance. Two 30 ft long wooden marginal wharfs, which were rebuilt after the damage of the original 200 ft long wharf by a storm event in January 2020, run along the eastern edge of the harbor, and a 45 ft fiberglass dock, 30-ft wood dock, and a concrete boat ramp are located on the northeast side of the harbor (Figure 2-3). Vessels entering NKSBH use the deep draft harbor entrance for the initial approach, and then make a left turn to enter the harbor basin. Only a few boats have been moored at the NKSBH due to limited berthing space after the damage of the original wharf. Onshore, the NKSBH property includes a parking lot and restroom and water facilities along the south side of the harbor.

### *2.2.1 Existing Uses*

The harbor land is owned by the State of Hawai‘i and is zoned General Industrial (MG-1-a), Village Commercial (CV-10) and Multi-Family Residential (RM 1.5) by Hawai‘i County. The harbor supports various activities including:

- Launching of small boats and canoe club canoes at the concrete boat ramp;
- Several moorings and facilities at the wooden wharf;
- Water and restroom facilities for users;
- Parking facilities for users; and
- Fishing from breakwaters by local fishers.

The beach berm west of the harbor is traversed by canoe paddlers on their path from the Kawaihae Canoe Club Hale to the boat ramp. The breakwater is located on State Conservation land under the jurisdiction of the DLNR. A small number of tour vessels was previously moored at the marginal wooden wharf within the harbor. Since the storm event in January 2020 damaged the main breakwater and condemned the marginal wooden wharf, most of the moored vessels were relocated elsewhere.

### *2.2.2 Existing Main Breakwater*

The existing main breakwater is approximately 390 linear feet (LF) and runs along the north and northwest boundaries of the harbor. The breakwater is constructed with a mixed rock core covered with roughly 1,000-pound (lb) armor stones, topped with a concrete crest. The elevation of the breakwater varies between five (5) to seven (7) ft above mean lower low water level (MLLW) and has a 1H:1V side slope. MLLW is defined at the average height of the lowest tide recorded at a tide station each day during a 19-year recording period, which, for Kawaihae, is 0.91 ft below Mean Sea Level (MSL) . The breakwater crest is a 10-inch thick concrete slab between three (3) and five (5) ft wide. The landward end of the breakwater is at the beach berm at about seven (7) ft MLLW elevation, which lowers to about 5 ft at the concrete boat ramp.

Every winter season, waves frequently overtop the structure during large swells and cause damage to harbor facilities (Figure 2-2). An assessment of the harbor and wave analysis indicated that the breakwater in its current condition is not adequate to withstand the wave climate at this site. Many years of repeated heavy winter swells and storm events have heavily damaged the main breakwater by washing out the concrete crest, displacing armor rocks, and completely removing the breakwater core spanning an approximately 40-ft section. An inspection of the structure in May 2018 concluded that the structural condition and overall function of the breakwater was poor and unsatisfactory.

### *2.2.3 Tides*

Tide data for KDDH is available from the NOAA tide gage 1617433 (NOAA, 2020). The local tides are mixed semi-diurnal and have a range of approximately two (2) feet. At Kawaihae, the Mean Higher High Water mark (MHHW) is 2.11 feet above MSL and the MLLW is 0.91 feet below MSL.

### *2.2.4 Wave Analyses*

A detailed wave analysis for the NKSBH was performed in 2019 to investigate the level of wave penetration into the harbor and to evaluate whether the existing breakwater was adequate to withstand wave forces and provide recommendations for improvements. A wave gauge sensor was installed on one of the pilings supporting the marginal wooden pier to collect water level and wave data for twelve months (Figure 2-4). Phase 1 of the measurements covered the period between December 21, 2017, and May 03, 2018, while Phase 2 spanned between May 03, 2018, and November 07, 2018.

Water level data were analyzed to determine the frequency distribution of the water level and assess the available freeboard of the marginal wooden wharf. From these analyses, water level variations with periodic oscillations greater than 30 seconds were identified. These longer period oscillations reflect effects generated by a surf beat or possible interaction with the KDDH basin. The wave analyses showed two distinct wave periods within the NKSBH. The shorter wave has an approximately 14-second period, while the longer wave has an approximately 130-second period. This longer wave period may be attributed to a local wave oscillation interaction between KDDH and NKSBH. A 2006 USACE study of the KDDH identified a 130.5-second oscillation in the harbor basin. (USACE, 2006), which supports the interaction hypothesis. The full wave analyses study is included in Appendix A.

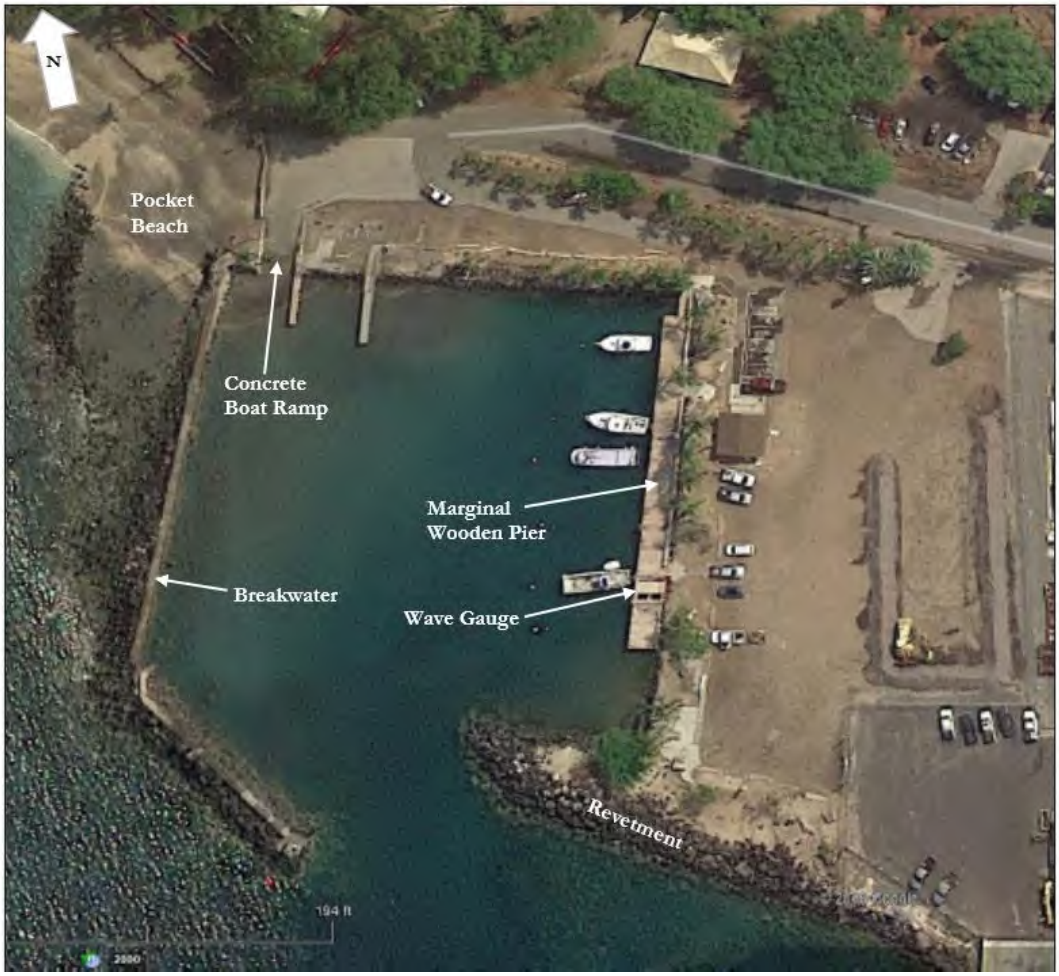



**Figure 2-4: Wave Gauge Location**

Wave heights measured in the harbor basin varied from 0.18 ft (2 inches) to 1.91 ft (23 inches). The average wave height for the measurement period was 0.45 ft (5.4 inches). The wave heights exceeded 0.5 ft about 40% of the time, and one foot about 5% of the time. Data showed that in its present state, the NKSBH does not provide the level of protection for a small boat harbor recommended by the American Society of Civil Engineers (ASCE).

Maximum significant wave heights for various types of vessels are discussed in the ASCE *Manuals and Reports; Engineering Practice Number (No.) 129 (1)* (ASCE, 2014). The limiting wave heights for small craft marinas and fishing boats are shown in Table 6.4 of the manual and are one foot and 1.3 ft, respectively. Criteria for "good" wave conditions in small craft harbors are shown in Table 2.5 of *ASCE Manuals and Reports; Engineering Practice No. 50 (2)* (ASCE, 2012). This table is replicated as Table 2-1 for reference.

**Table 2-1: Criteria for Good Wave Conditions in Small Craft Harbors**

| Wave Period and Craft Heading | Significant Wave Height, $H_s$ | |
|---|---|---|
| | 50 – Year Wave Event | Yearly Maximum Wave Event |
| Less than 2 seconds in head seas | - | Less than 0.3 m wave height |
| Greater than 2 seconds in head seas | Less than 0.6 m wave height | Less than 0.3 m wave height |
| Less than 2 seconds in beam seas | - | Less than 0.3 m wave height |
| Greater than 2 seconds in beam seas | Less than 0.25 m wave height | Less than 0.15 m wave height |

*Source: ASCE, 2012.*

*Note: For criteria for an 'excellent' wave climate, multiply heights by 0.75 and for 'moderate' wave climate multiply by 1.25.*

## 2.3 Proposed Action

The purpose of the Proposed Action is to reduce wave action inside the harbor basin by repairing and modifying the existing west main breakwater and to prevent sand intrusion into the boat ramp by extending the breakwater inland. Based on the assessment of the harbor and wave analysis, the following improvements at the NKSBH are recommended:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping; and
- Extend the existing breakwater by 80 feet inland.

The proposed improvements are located at the main breakwater and the backshore area adjacent to the harbor. The proposed site plan is depicted in Figure 2-5 and typical sections are shown in Figure 2-6. To repair the main breakwater, demolition /dismantling of the existing structure will be needed prior to placing the foundation bedding layer. The breakwater consists of a trapezoidal underlayer overlaid by two layers of armor rocks. Some of the material from the existing breakwater will be used to supplement imported materials. The final modified breakwater will have a crest elevation of 10 feet MLLW with 1.5H:1V side slopes. The increased height will make

the structure more resilient to wave actions from storm events. The design crest width is 10 feet to accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

The breakwater will be extended approximately 80 feet landwards past the top of the boat ramp to prevent sand intrusion onto the boat ramp. The extended portion of the breakwater will have the same dimensions as the main breakwater as shown in Figure 2-6.

Other project characteristics are as follows:

- From an economic standpoint, the Proposed Action will have a positive short-term impact by creating direct and indirect employment related to construction. Further, improvements to the breakwater structure reduce future maintenance and repair that would otherwise be needed if the breakwater were not repaired and improved. The proposed landward extension of the breakwater will decrease maintenance needed to clear the concrete boat ramp from sediment accumulation and the repaired main breakwater will decrease damage to the wooden wharf, boats, and harbor. Section 3.2.3 presents further discussion on the economy and Section 2.1 through 2.3 describe the extent of breakwater damage and how the Proposed Action design will help to reduce future costs related to maintenance and repair.

- The Proposed Action will not have any effects on demographics. In terms of other social -related impacts, the Proposed Action is consistent with and supportive of public policies and plans related to recreational resources and activities. It will improve the coastal infrastructure to make the harbor more resilient to wave action and future Sea Level Rise (SLR) conditions, thereby maintaining the recreational value of the harbor. Section 3.4.1 discusses demographic impacts and public policies and plans are discussed in Section 4. Section 3.3.1 presents a discussion on impacts on recreational facilities.

- An Archaeological and Literature Review and Field Inspection Report is presented in Appendix C and summarized in Section 3.2.4. The recommended effect determination for the project, pursuant to HRS Chapter 6E and its implementing regulations at HAR §13-275-7(1), is “no historic properties affected” as the construction work will not affect any historic properties. No further work is recommended.

- No significant cultural impacts are anticipated as a result of the Proposed Action. In the Archaeological Literature Research (ALR), no historic properties have been recorded at Kawaihae Harbor and it was noted that it is extremely unlikely that any traditional Hawaiian cultural deposits, human burials, or buried post contact historic properties are related to the project area. Additionally, cultural consultation conducted to date and the Ka Pa‘akai analysis did not identify significant cultural impacts related to the Proposed

Action. The Cultural Impact Assessment is contained in Appendix D and summarized in Section 3.2.5.

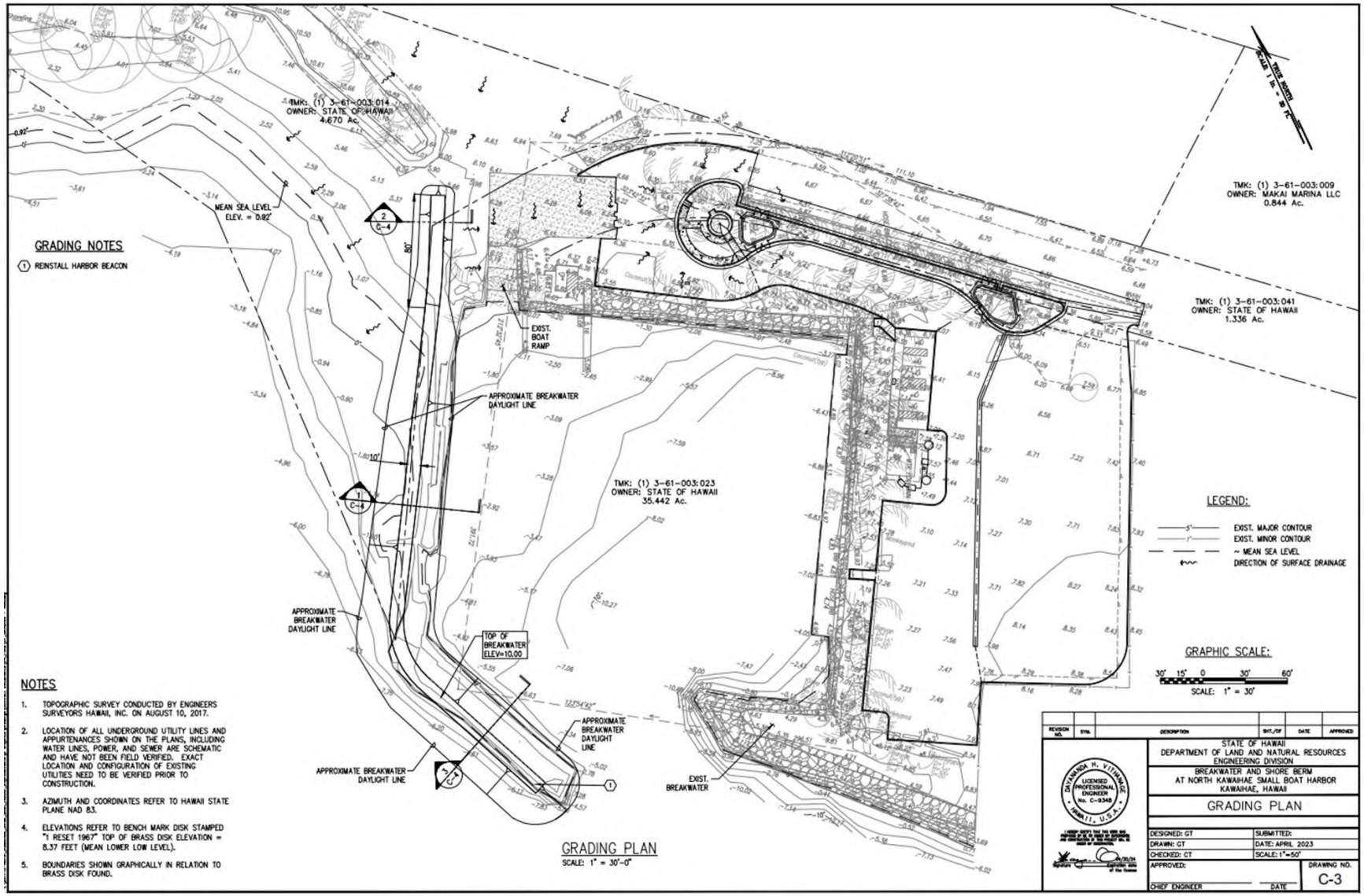



**Figure 2-5: Proposed Action**

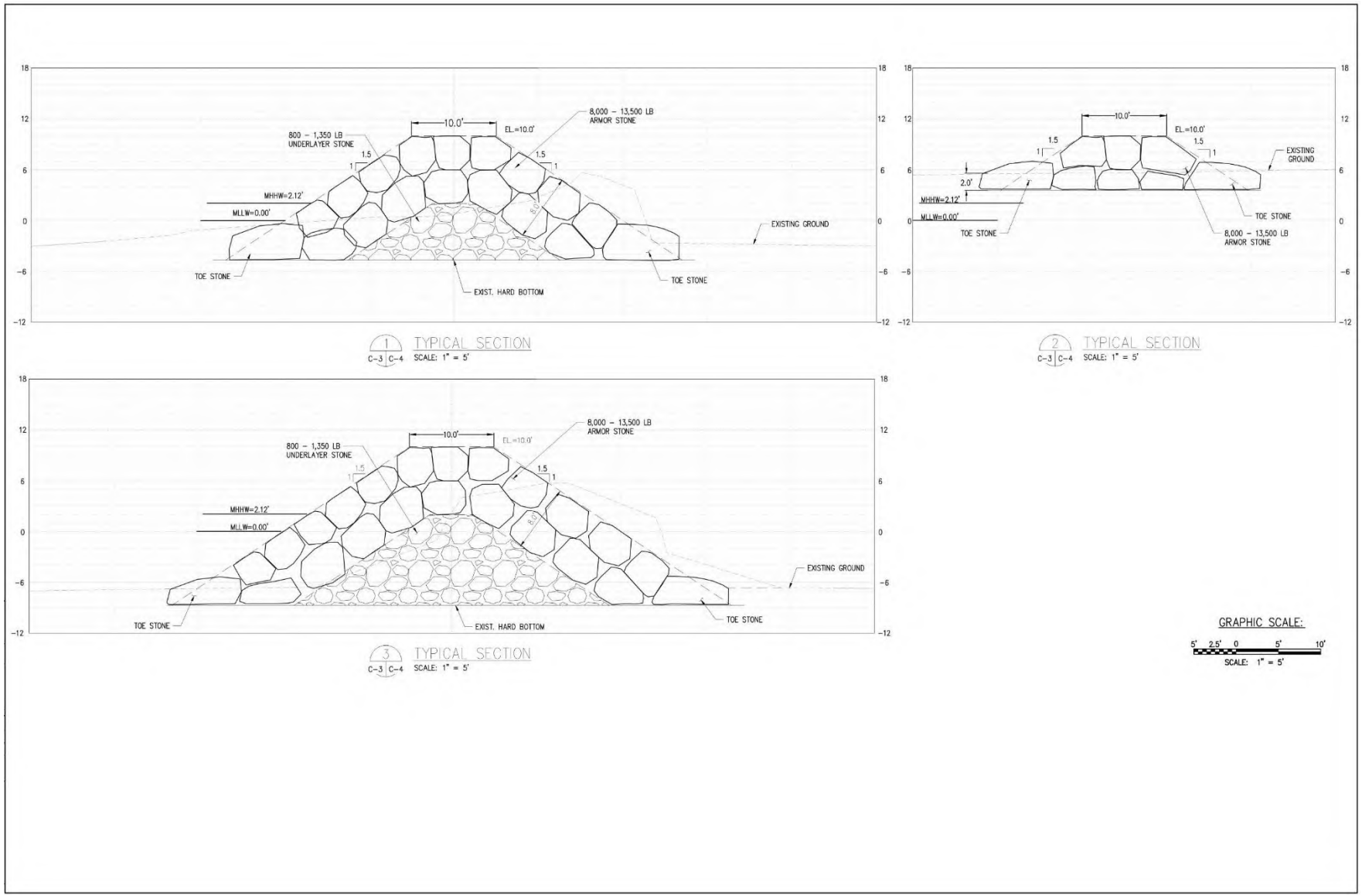



**Figure 2-6: Typical Cross Section Details for Modified Breakwater in Proposed Action**

## 2.4 Alternatives Considered

### *2.4.1 Alternative A: Breakwater Crest Elevation of 12 ft Above MLLW*

Alternative A is similar to the Proposed Action in terms of breakwater layout and design but has a higher crest elevation at 12 feet above MLLW. A higher breakwater would reduce wave overtopping and provide better protection for the harbor basin.

This alternative was not selected for the following reasons.

- In a community pre-consultation meeting held on March 31, 2023, at NKSBH, participants preferred the lower elevation because they were concerned that, while standing on the beach, the canoe paddling coach may not be able to maintain visual contact with the paddlers while canoes were in the KDDH channel.

- Larger boats need clear visual access of the NKSBH for safety reasons. Existing crest elevation of the breakwater is about 6 feet. Elevating the structure to 10 feet instead of 12 feet would have less impact on the visibility of the objects in the harbor basin to larger boats outside.

- As the high waves reach the shore, water flow will go around the breakwater and travel to the boat ramp of the harbor regardless because the land elevation is low (5 to 6 ft MLLW). Elevating the structure to 12 feet would significantly increase construction and maintenance costs without commensurate significance in benefits and therefore is not further considered.

### *2.4.2 Alternative B: Breakwater Modification with New Shore Berm Construction*

Alternative B includes repairing and modifying the existing breakwater structure as in the Proposed Action and constructing a new shore berm barrier. The purpose of the new shore berm would be to prevent sand from accreting onto the boat ramp. The new berm would extend approximately 80 ft from the end of the breakwater at the shore and then turn southeast perpendicular to the shore forming a L-shape (Figure 2-7). The berm would consist of sand-filled geotubes covered with stones with an articulating concrete block mat (ACBM) armor layer placed on top.

Alternative B is not further considered based on a site visit during the aforementioned community meeting at NKSBH. Participants expressed strong concerns regarding negative effects related to obstruction to the beach and boat ramp access.

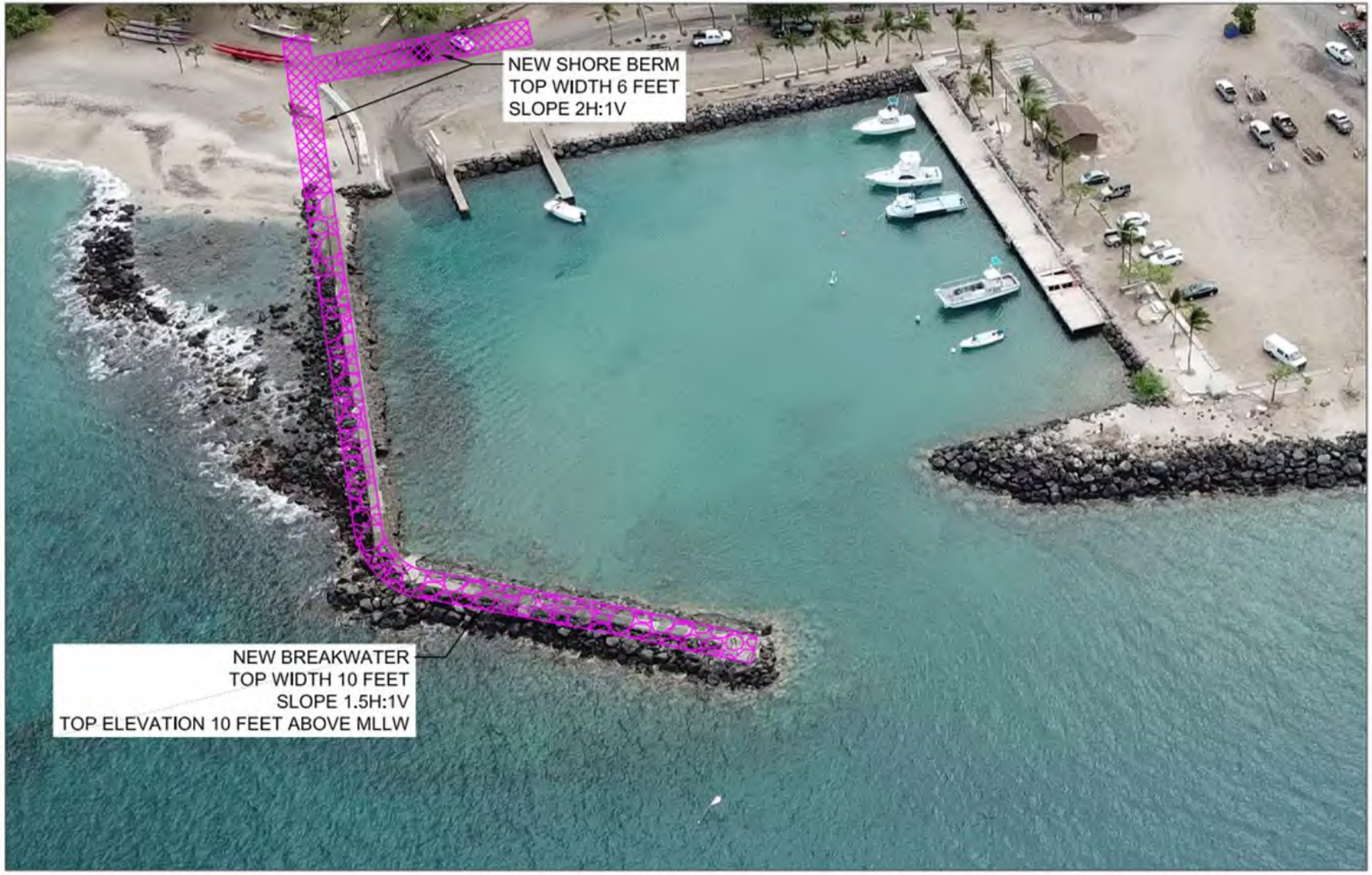



**Figure 2-7: Alternative B: Breakwater Modification with Shore Berm Construction**

### *2.4.3 Alternative C: Breakwater Modification with New Shore Berm Construction Plus Harbor Entrance Modification Option 1*

In Alternative C, in addition to the breakwater and the new shore berm as described in Alternative B, modifications for harbor entrance were considered to further improve harbor condition and safety. Wave studies show that the existing configuration of harbor entrance allows for wave penetration into the harbor, which had caused damage to the marginal wharf in the past and will continue to pose risks to harbor structures and vessels. The entrance modifications involve extending the revetment at the east end of the entrance into the harbor (Figure 2-8), which serves as a barrier to help dissipate wave energy. Written and verbal pre-consultation comments from boat operators expressed major concern that the revetment extension is located in a critical approach to the harbor and will decrease maneuvering space during gusty wind conditions. Wind direction and speed can change rapidly causing challenging docking conditions, so the ability to quickly maneuver is crucial for safety. The harbor entrance modification is not further considered given the above reason.

### *2.4.4 Alternative D: Breakwater Modification with New Shore Berm Construction Plus Harbor Entrance Modification Option 2*

Alternative D is based on the same concept as Alternative C except the extension of revetment is replaced by a concrete pile structure that also functions as wave barrier (Figure 2-9). Although the pile structure requires a much smaller footprint than the revetment extension, the intrusion of the pile structure similarly would pose risks for vessel maneuvering. This option is therefore not further considered.

### *2.4.5 No Action Alternative*

The "No Action" alternative will result in continuation of the damage, inadequate harbor safety and recurrent repairs. The wave climate may become more severe with climate change, and anticipated sea level rise will worsen damage resulting in higher maintenance costs. Harbor operations will become more hazardous due to waves overtopping the breakwater resulting in major damage to the existing pier, dock and boat launching facilities. Currently, waves overtopping the beach flows into the harbor basin through the boat ramp, and deposits sand at the base of the structure, limiting its use. The situation will continue or worsen if no action is taken to prevent the siltation.

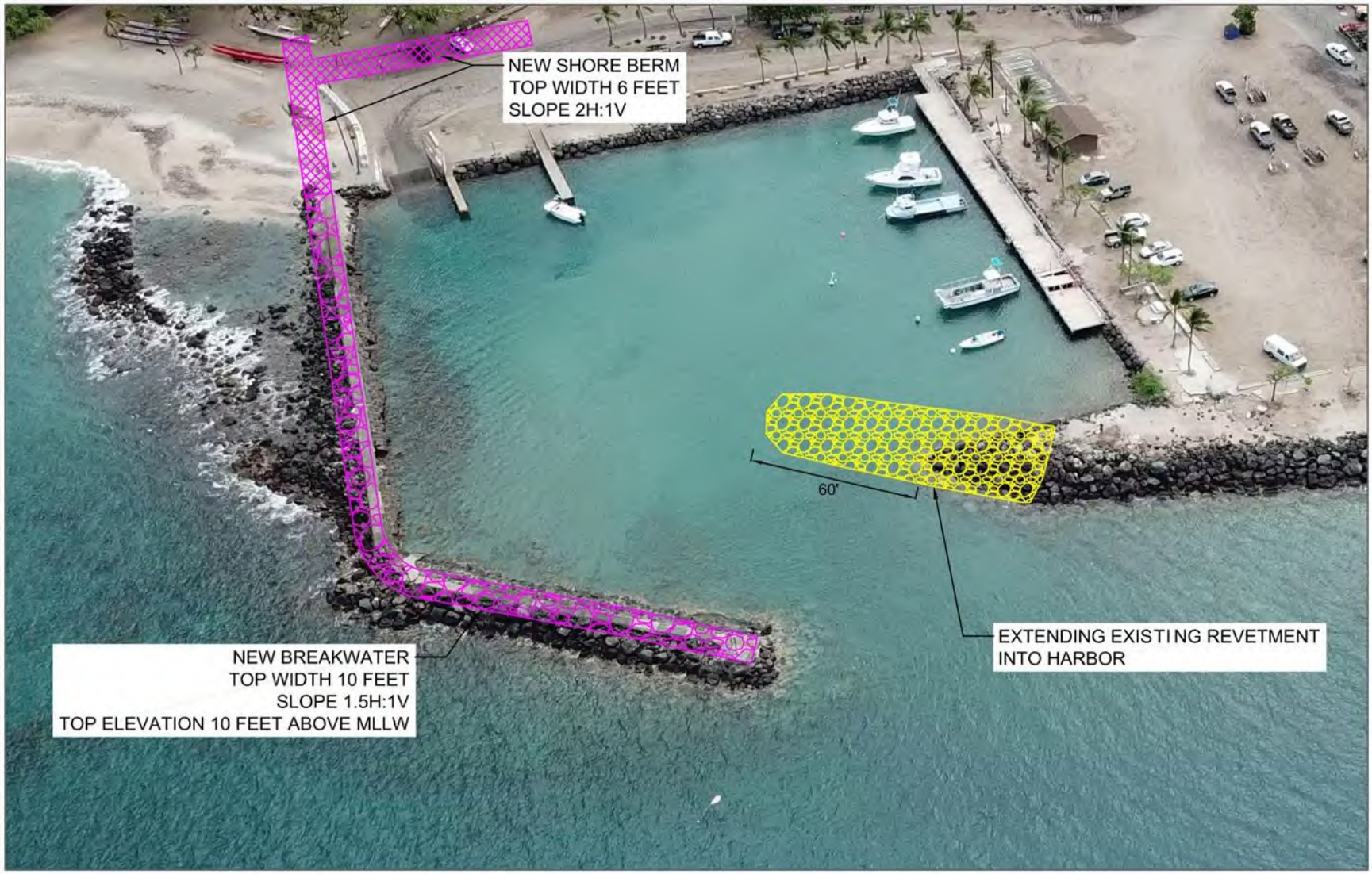



**Figure 2-8: Alternative C: Breakwater Modification with Shore Berm Construction Plus Entrance Modification**

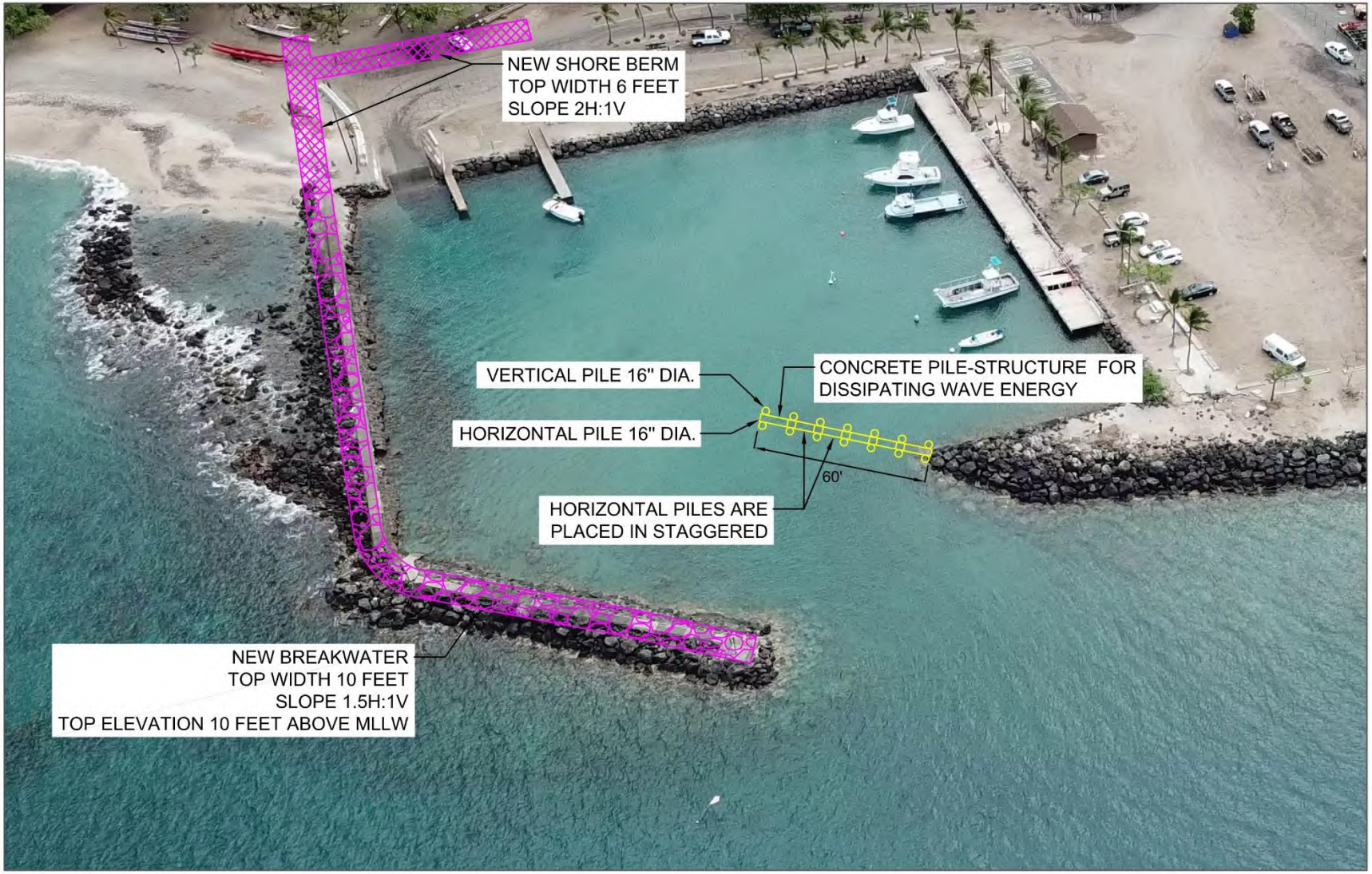



**Figure 2-9: Alternative D: Breakwater Modification with Shore Berm Construction Plus Entrance Modification**

## 2.5 Project Costs and Schedule

Project construction cost is estimated in a rough order of magnitude of $5 million, and will be refined as design documents are completed. The time frame for construction is six (6) to eight (8) months.

# 3. DESCRIPTION OF EXISTING ENVIRONMENT, IMPACTS, AND MITIGATION MEASURES

## 3.1 Natural and Physical Environment

### *3.1.1 Climate*

*Existing Conditions*

The main Hawaiian Island chain is located in the Pacific Ocean and is one of the most remote land masses on Earth. A large eastern Pacific semi-permanent high-pressure cell to the north of the islands dictates much of the air circulation patterns and climate in the region. This high-pressure cell produces northeasterly winds, called trade winds, over the Hawaiian Islands. The tropical climate varies very little in temperature by season and there are two seasons in Hawai‘i: the wet cool season between November and March when northeasterly trade winds dominate, and the drier warmer season between April and October when southerly or westerly winds dominate.

Average temperatures in Kawaihae are 74.9 degrees Fahrenheit (˚F), with the coolest months between December and March and the warmest months between July and October (Giambelluca et al, 2014). Relative humidity is usually about 70 percent (Giambelluca et al, 2014). Mean annual rainfall is 11.08 inches, with the most rain in January (1.81 inches) and the least rain in July (0.37 inches) (Giambelluca et al, 2013). Kawaihae is not exposed to a lot of trade winds as it is located on the leeward side of Hawai‘i Island. Instead, westerly “Waimea winds” usually dominate the area.

The proposed project will not impact the climate of Kawaihae and no mitigation measures are required or proposed. The proposed action will be designed to withstand predicted future climatic conditions, including Sea Level Rise (SLR). The relationship between the proposed project and SLR is discussed further in Section 3.1.10.

### *3.1.2 Topography and Bathymetry*

*Existing Conditions*

The project site is near the entrance of the of Kawaihae Deep Draft Harbor across the end of the breakwater. The land in the area is relatively flat with ground elevation ranging from 6 to 12 feet above Mean Sea Level (MSL).

The bathymetry within the North Kawaihae Small Boat Harbor (NKSBH) basin ranges between a depth of two (2) and three (3) feet below MSL close to the breakwater and eight (8) to ten (10) feet below MSL in the middle of the basin (Figure 3-1). The shallow depth at the breakwater and boat ramp is due to sand migrating from the beach across and around the breakwater. The entrance of the small boat harbor opens to the deep draft harbor approach channel about 40 feet deep. The area outside the small boat harbor’s west breakwater is shallow and slopes off gradually into deeper

water. The beach, next to the breakwater, has a gradual slope of about 6 percent and appears to consist of medium to coarse coral and basalt.

*Potential Impacts and Mitigation Measures*

Construction work will be conducted on the ocean side of the landward toe of the existing breakwater. The modified breakwater has a slightly larger footprint than the existing structure. Displaced rocks from the existing breakwater will be used to repair and construct the modified breakwater. The proposed breakwater root extension and the modified breakwater has a combined footprint of approximately 20,000 square feet (sq. ft.), approximately, 17,000 sq. ft.in the water and 3,000 sq. ft. on land. The modification to topography and bathymetry does not change drainage patterns, drainage quantities or nearshore waves and currents. No significant adverse impacts are anticipated, and no mitigation measures are proposed.

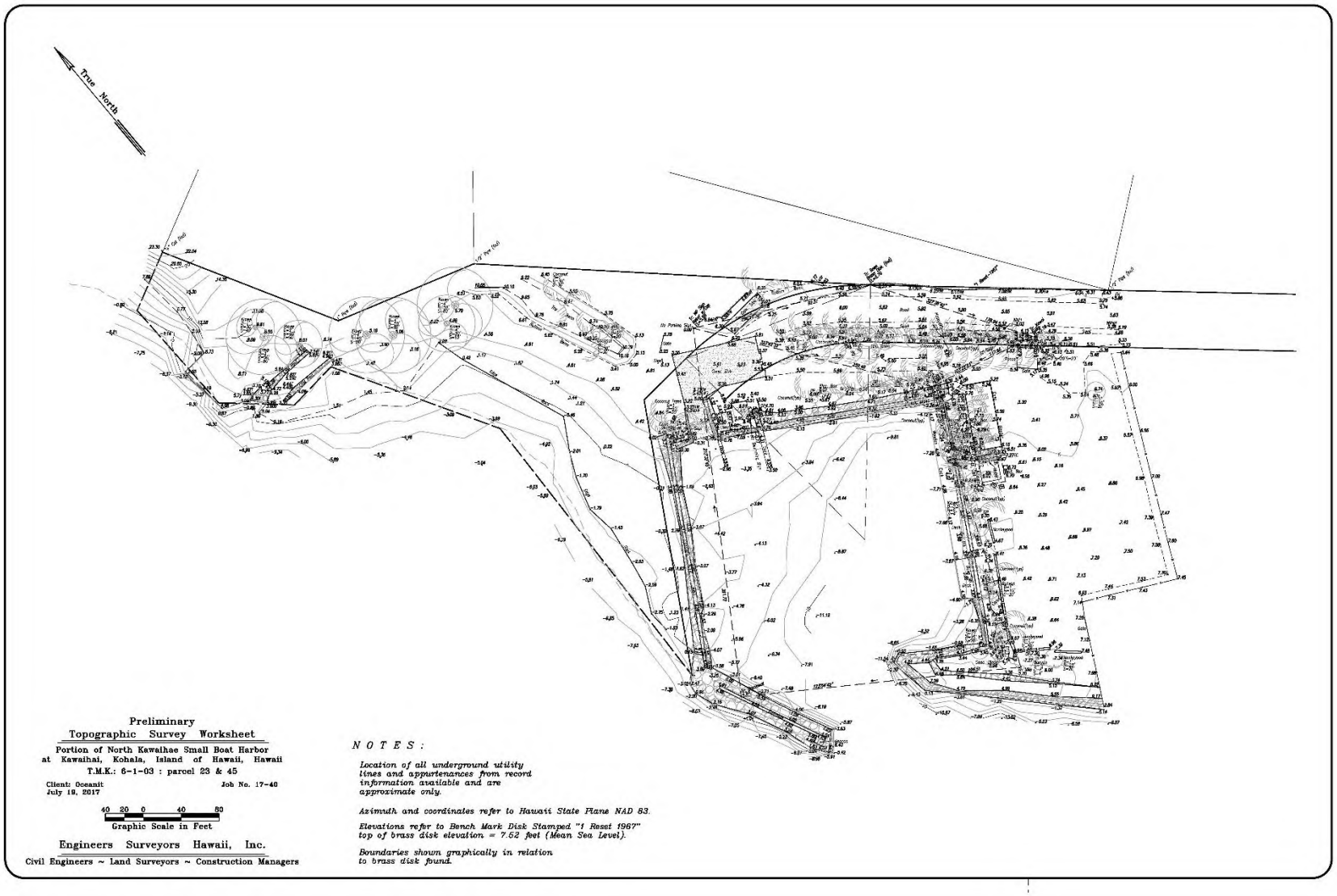



**Figure 3-1: Topographic Survey (ESH, 2017)**

### *3.1.3 Geology and Soils*

*Existing Conditions*

According to the United States Department of Agriculture (DOA) Natural Resources Conservation Service (NCRS), the terrestrial soil in the NKSBH is "Dump" or fill land, 0-3% slopes and well drained. The fill beneath the NKSBH is likely dredged coralline spoil material from construction of the deep draft harbor (NRCS, 2020).

The soil immediately mauka of the NKSBH fill land is Kawaihae Very Cobbly Very Fine Sandy Loam, 6-12% slopes. Kawaihae soils are formed from weathered basic volcanic ash fields on pahoehoe lava flows. The topsoil layers are underlain by lithic bedrock approximately 20-40 inches below the surface. These soils are well-drained and have low runoff (NRCS, 2020) (Figure 3-2).


**Figure 3-2: Soils Map (NRCS, 2020)**

*Potential Impacts and Mitigation Measures*

The proposed project does not require significant excavation except for moving some rocks embedded in sand underneath the existing breakwater to create the foundation or moving displaced rocks into the modified structure. Construction of the landward extension of the breakwater may also involve excavating at the backshore. No short- or long-term adverse impacts to the soils are

anticipated. Therefore, no mitigation is required. Soil erosion during construction will be prevented by using appropriate Best Management Practices (BMPs).

### *3.1.4 Oceanic and Coastal Environment*

*Existing Conditions*

Kawaihae Bay has a wave exposure window of approximately 210 degrees from the north to approximately 350 degrees. Wave data is available from the National Oceanit and Atmospheric Administration (NOAA) wave buoys 51026 and 51027. Waves and swells in this sector are driven by winter storms in the North Pacific that have heights up to 30 feet and periods in excess of 15 seconds. Waves partially intercepted by the main Kawaihae Harbor breakwater diffract before reaching the NKSBH breakwater and the adjacent shoreline with little attenuation. The large waves impact the NKSBH breakwater, overtop it, and penetrate into the harbor basin, when deep water wave heights exceed ten feet. High waves also overtop the beach berm immediately north of the harbor, resulting in backshore flooding and sediment flow into the harbor through the boat ramp.

Calm conditions at the NKSBH occur 46.6 percent of the time. In the winter months, high waves approach from the north and northeast at 225° to 255° and 270° to 290°. Wave heights range from 0.5 feet to over 11 feet. Wave periods range from 6 seconds to over 19 seconds. Within the harbor basin, waves exceed the values considered safe for a small craft boat harbor. The intent of modifying the breakwater is to improve wave conditions in the harbor.

*Potential Impacts and Mitigation Measures*

The side slopes of the modified breakwater are designed be less steep than the existing slopes. Reducing the slope of the outer face from 1H:IV to 1,5H:1V will reduce wave reflection intensity. This results in a better wave climate in the entrance channel to the deep draft harbor. This makes it easier for small craft to make the sharp turn to enter the NKSBH.

No adverse impacts on the wave climate are anticipated from the proposed project. Therefore, no mitigation is required.

### *3.1.5 Currents and Circulation*

*Existing Conditions*

Currents along the Kawaihae shoreline are weak and dominated by the tides. Information on water circulation in Kawaihae Bay is available in the United States Geological Survey (USGS) report "Coastal Circulation and Sediment Dynamics in Pelekane and Kawaihae Bays, Hawaii" (Storlazzi et al, 2013). The measurements were made outside the deep harbor breakwater, far from the project site.

The study documents the following information. The mean current speeds in shallow water ranged from 1 cm. / sec to 6 cm. / sec. The mean current speeds in deeper water ranged from 1 cm. / sec.

to 4 cm. /sec. The near-surface currents in the shallow area were predominantly oriented offshore. The flood tidal currents at all of the instrument sites were primarily to the south and onshore, and the ebb-tidal currents were generally more to the north and offshore.

*Potential Impacts and Mitigation Measures*

The project site is partially within the shelter of the deep draft harbor breakwater and abuts the shoreline. The currents are basically driven by the breaking waves. The main harbor basin filling and emptying currents are very weak and will not be adversely affected by the project. No impacts on the circulation in the area is anticipated. Therefore, no mitigation measures are required.

### *3.1.6 Marine Water Quality*

*Existing Conditions*

Kawaihae Bay is classified as Class A marine waters. The Hawai'i Administrative Rules (HAR), Title 11 Chapter 54-Water Quality Standards defines Class A waters as those to be protected for recreational purposes and aesthetic enjoyment, propagation of fish, shellfish, and wildlife. These waters are not to receive any discharges that have not received the highest degree of treatment or control compatible with the criteria established for this class. Kawaihae harbor is currently listed on the State's Final 2004 *List of Impaired Waters in Hawaii* prepared under the Clean Water Act §303 (d) for turbidity.

No water quality data is available for the project site. However, limited data are available from a water quality buoy moored in Pelekane Bay by PacIOOS. According to the data plots, water temperature varies between 82 and 84.5 degrees Fahrenheit, salinity is around 32.6 parts per thousand (PPT), turbidity varies from 0.1 to 3.5 Nephelometric Turbidity Units (NTU), average chlorophyll concentration is about 560 micro grams /liter (µg/l), and dissolved oxygen (DO) concentration varies from 76 to 110 percent saturation.

*Potential Impacts and Mitigation Measures*

Construction activities to be performed are described in Section 2.3 of this EA. The construction activities will temporarily affect the water quality in the nearshore area adjacent to the breakwater and the neighboring beach to the west. Removal of scattered materials from the existing breakwater, excavation at the footprint of the modified structure and rock placement below water level will increase the turbidity in the area.

The turbidity levels will revert to pre-construction levels once the construction work is completed. To prevent or minimize degradation of water quality, the construction contractor is required to install appropriate Best Management Practices (BMPs), such as full-depth silt curtains around the in-water work area and biosocks, silt fences, and covering material stockpiles on the land side to satisfy Department of Health administered Clean Water Act requirements. The contractor will employ appropriate construction methods to minimize pollutant generation and use adequate

BMPs to prevent contamination of water adjacent to the project site. Fill materials stored onshore will be covered with suitable material to prevent dispersion by wind and rainfall.

Fill materials discharged in water will be limited to those suitable to be placed in ocean water such as clean filter materials, rocks and boulders that will be used in breakwater construction. Materials excavated to prepare the base of the breakwater will be disposed as required by Federal, State and County regulations.

The size of the construction site is less than one acre (20,000 square feet). Therefore, a National Pollution Discharge Elimination System (NPDES) permit for Discharge of Storm Water Associated with Construction Activities is not required. However, storm water runoff from construction site will be controlled using appropriate BMPs and construction methods.

The portion of the project activities in State and Federal waters may require a Department of Army Section 404 permit and a State of Hawai‘i Department of Health Section 401 Water Quality Permit. Contractor will use mitigative measures and procedures to prevent any potential negative impacts to waters of the United States.

### *3.1.7 Water Resources*

*Existing Conditions*

The project area lies within the Mahukona aquifer system. The project will not extract or recharge water into the aquifer. Water is supplied for harbor use by the County of Hawai‘i Department of Water Supply. No change in water use is anticipated resulting from project implementation.

*Potential Impacts and Mitigation Measures*

No direct or cumulative impacts on water resources are anticipated due to the project. Hence, no mitigative measures are required.

### *3.1.8 Marine Biota*

A marine biological survey was conducted by AECOS, Inc in May 2023 to access the biological composition of the nearshore waters that may be affected by the Proposed Action. The study is included as Appendix B. Findings regarding marine biota are hereafter summarized.

*Existing Conditions*

Scattered corals (*Porites* sp., *Pocillopora damicornis* and *Poc. meandrina*, *Leptastrea* spp., *Pavona varians*) were observed on the breakwater section near the shore and the surrounding loose boulders. Urchins (*Echinometra mathaei*, *E. oblonga*, *Echinothrix calamaris, Heterocentrotus mammilatus*, and *Tripneustes gratilla*) are common on the breakwater. In the area at the breach of the breakwater (approximately 256 ft from the shore), boulders and broken slabs of concrete and other breakwater material are scattered on the seafloor. Mostly small (<20 cm) corals occur on the

boulders and debris in this area, and a school of yellowfin goatfish was observed here. Seaward of the damaged breakwater location, corals are abundant on the breakwater and boulders surrounding the breakwater. Colonies of *Porites* spp., *Poc. meandrina*, *Pav. varians* encrust the breakwater and surrounding boulders. Cucumbers (*Actinopyga varians*) was also commonly observed surrounding the breakwater.

Fishes associated with the breakwater and surrounding area include surgeonfish, sergeants, butterflyfishes, and wrasses. One whitetip reef shark (*Triaenodon obesus*) was observed off the south end of the breakwater. A robust coral reef is present just seaward to the west of the breakwater.

Data on coral abundance and size-class distribution were collected through survey on predetermined transects surrounding the breakwater. Figure 3-3 shows the locations of the transect lines. Each transect is 82-ft long, and the corals 1 meter to either side of the transect line were counted.

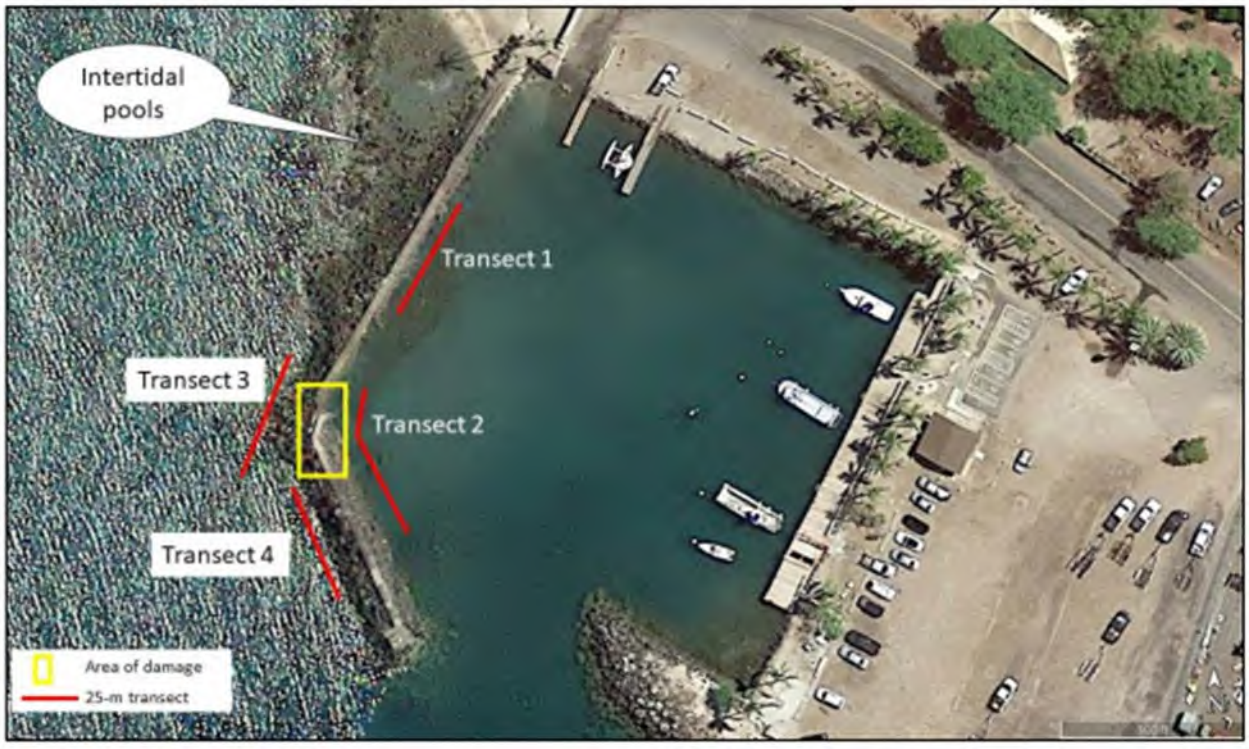



**Figure 3-3: Approximate Locations of Survey Transect Lines**

Table 3-1 presents coral abundance determined on each of the transects. Average density of corals on the breakwater and within approximately 2-m (7-ft) around the breakwater is 3.12 colonies/$m^2$, with greater density outside the breakwater (at 4.91 colonies/$m^2$) than inside the breakwater (at 1.32 colonies/$m^2$).

**Table 3-1: Total Number of Coral Colonies and Coral Colony Abundance (mean colonies per m²) Counted on Four Transects**

| Transect | Survey area (m2) | Coral count (colonies) | Coral abundance (no./m2) |
|---|---|---|---|
| 1 | 50 | 30 | 0.6 |
| 2 | 50 | 102 | 2.04 |
| 3 | 50 | 174 | 3.48 |
| 4 | 50 | 317 | 6.34 |
| **Total** | **200** | **623** | **3.12** |

Results of the coral size class survey are presented in Table 3-2. A total of 623 coral colonies, representing at least eight coral taxa (*Leptastrea bewickensis*, *L. purpurea*, *Lobactis scutaria*, *Montipora patula*, *Pocillopora damicornis*, and *Porites evermanni*, and *Porites* sp.) were recorded. The most common species was *Porites* sp. at 71% of the total. The two most common colony sizes were the 1- to 5-cm class (36.3% of the total) and 6- to 10-cm class (28.7% of the total). The 11- to 20 and 21- to 40-cm size classes were nearly equally represented at 16% of the total. Large (41- to 80-cm) colonies were less common rare (one *Porites* sp. colony). No colonies greater than 80 cm were recorded.

**Table 3-2: Number of Coral Colonies in Each Size Class by Species**

| Taxa | Size class (cm) | | | | | | Percent of total |
|---|---|---|---|---|---|---|---|
| | 1 to 5 | 6 to 10 | 11 to 20 | 21 to 40 | 41 to 80 | Total | |
| *Leptastrea bewickensis* | 13 | 1 | 3 | | | 17 | 2.7% |
| *Leptastrea purpurea* | 4 | 1 | | | | 5 | 0.8% |
| *Lobactis scutaria* | | 1 | | | | 1 | 0.2% |
| *Montipora patula* | | 1 | 1 | 3 | | 5 | 0.8% |
| *Pavona varians* | 1 | | | 1 | 2 | 4 | 0.6% |
| *Pocillopora meandrina* | 94 | 29 | 15 | 12 | | 150 | 24.1% |
| *Porites evermanni* | | | | 1 | | 1 | 0.2% |
| *Porites sp.* | 114 | 146 | 86 | 82 | 12 | 440 | 70.6% |
| **Total** | **226** | **179** | **105** | **99** | **14** | **623** | |
| Percent of total | 36.3% | 28.7% | 16.9% | 15.9% | 2.2% | | |

State- and federally-listed marine species—green sea turtle, hawksbill sea turtle and monk seal—were not encountered during the survey. However, they may occur in the general vicinity of the project area, considering the distribution of these species and their occurrences throughout the Hawaiian Islands. The waters in and around NKSBH are designated as Essential Fish Habitat (EFH). Of the thousands of species which are federally managed, at least 50 juvenile and adult life stages are known to occur in waters in the project vicinity.

*Potential Impacts and Mitigation Measures*

It is anticipated that all corals occurring on the breakwater structure and the surrounding area would be directly impacted. Impacts to corals could be minimized by relocating suitable coral

heads that occur in the project area. Before the start of the project, a coral response and rescue team will be formed to remove corals, as practicable, from the project area and transplant them to another site. Based on the survey data, approximately 15% of the coral colonies in the project area are suitable candidates for relocation. These colonies include mounding *Porites* spp. and *Pocillopora meandrina* colonies at 40 cm and greater. Additionally, different macroinvertebrates are potential candidates for relocation, including urchins and sea cucumbers. The project will likely result in damage to the corals that do not meet criteria for relocation. For the corals that are not suitable candidates for relocation, their loss may be mitigated by taking a sample of these corals to the DLNR Division of Aquatic Resources' Coral Nursery, propagating them into larger corals, and transplanting them back onto the new breakwater structure.

It is anticipated, however, that the new breakwater structure will provide a larger and better habitat for corals to grow. Therefore, in long-term view, the Proposed Action will provide increased habitat area and positive impacts to the resources of biological assemblage at the project area.

Potential indirect impacts to coral reef ecosystems from construction activity of the Project may occur from degradation of water quality. Project construction may temporarily increase the amount of suspended sediment in the water column. Appropriate construction BMPs will be designed and implemented to minimize the impacts of water quality associated with project activities.

The Project includes work in and above marine waters where ESA-listed species, such as sea turtles, may be directly exposed to Project activities. Because sea turtles and marine mammals typically avoid human activity, the expected effect of this interaction would be an avoidance behavior leading to an exposed animal leaving the Project area without injury. The likelihood of interaction will be reduced through a BMP of watching for and avoiding protected marine life before commencing work and by postponing certain activities when protected species are within 50 yds of that activity. The Project is expected to have no long-term effect on the foraging characteristics or upon the quality or quantity of monk seal prey.

In terms of mitigation, NMFS provided the following conservation recommendations for NKSBH Repairs:

1. Conservation Recommendations for Physical Impacts to Benthic Communities

    - Equipment, anchors, structures, or fill shall not be deployed in project areas containing live corals, seagrass beds, or visible benthic organisms. Perform pre-deployment reconnaissance (e.g., divers, drop cameras, etc.) to ensure these resources are avoided.

    - Minimize direct impact (direct or indirect contact causing damage) by divers and construction related tools, equipment, and materials with benthic organisms, regardless of size, especially corals and seagrass.

    - Prevent trash and debris from entering the marine environment during the project.

- Maintain all structures, gear, instrumentation, mooring lines, and equipment to prevent failures.
- Select work platforms based on the following preferential hierarchy:
    - Conduct all work from land or an existing structure;
    - Use a barge with auto-positioning systems where thrusters will not cause increased turbidity;
    - Anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; and, (3) anchors or spuds on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).
- Mooring systems (e.g., buoys, chains, ropes) must:
    - Be kept taut to the minimum length necessary.
    - Employ the minimum line length necessary to account for expected fluctuations in water depth due to tides or waves.
    - Use a mid-line floats or other buoyancy devices to prevent contact with the ocean floor.
    - Be properly maintained.
    - All temporary structures must be removed at the completion of construction and this timeframe will be defined as aligned with General Condition #30 of the Nationwide Permit Program.

2. Conservation Recommendations for Increase in Sedimentation and/or Turbidity

- Appropriate silt containment devices must be properly installed, monitored and maintained.
- Debris and sediment that is removed from the water shall be disposed of at an appropriate upland location. Sediment and debris must be contained while in transit or on the shore.
- Project operations must cease under unusual conditions, such as large tidal events, storms, and high surf conditions.
- Conduct intertidal work at low and/or slack tide to the greatest extent feasible.
- To minimize impacts to coral larvae, you shall avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees shall coordinate with local NMFS Habitat Conservation Division representatives to determine the exact period when coral spawning would occur for the given year at the project site.
- Utilize environmental clamshell buckets for mechanical dredging.

3. Conservation Recommendations for Increase in Nutrients, Pesticides and Herbicides and Contaminants

    - Conduct work during the dry season when possible; stop work during storms or heavy rains.
    - Prevent discharges into the water.
    - Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work must be stopped until leaks are repaired, and equipment is cleaned. Equipment should always be stored in appropriate staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling.
    - Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface.

4. Conservation Recommendations for Increase in Acoustic Impacts

    - Use a vibratory hammer to install piles when possible. Under conditions where impact hammers are required, when possible, drive as deep a possible with a vibratory hammer prior to the use of an impact hammer.
    - Implement measures to attenuate the sound or minimize impacts to aquatic resources during pile installation. Methods to mitigate sound impacts include, but are not limited to, the following: surround the pile with a dewatered cofferdam and/or air bubble curtain system.

5. Conservation Recommendations for Increase in Invasive Species

    - Prior to in-water work, sanitize equipment or dive gear that has been previously used in an area known to contain invasive species.
        - Small boats that have been deployed in the field will be cleaned and inspected daily for organic material, including any algal fragments or other organisms. Organic material, if found, will be physically removed and disposed of according to the ship's solid waste disposal protocol or in approved secure holding systems.
        - The internal and external surfaces of vessels will be rinsed daily with freshwater and always rinsed and be allowed to dry before redeployment.
    - Vegetated areas impacted during construction must be revegetated with appropriate native species.

These recommended mitigation measures, in addition to the aforementioned mitigation measures regarding coral impacts, will be incorporated in BMPs during project implementation.

### *3.1.9 Floods and Tsunamis*

*Existing Conditions*

Coastal flooding at the project site can occur from storms in the watershed, tsunamis generated by subsurface earthquakes, or storm surges generated by passing hurricanes. Community panel number 1551660165F, dated September 29, 2017, of the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA) shows that the project site is located in Zone VE (Figure 3-4). Zone VE identifies coastal high flood hazard areas inundated by the 1 percent-annual-chance flood event with additional hazards due to storm-induced water velocity from waves. These areas are subject to high velocity waters including coastal inundation from storm surges, tides and tsunamis. In these areas, Base Flood Elevations are determined from modeling.


**Figure 3-4: Flood Zone Map (FEMA, 2020)**

*Potential Impacts and Mitigation Measures*

The proposed breakwater repair and modification for preventing siltation of the boat ramp will not change the flood zone or elevation and will be designed to make the small boat harbor more resilient to flood events. The increased height and footprint of the modified breakwater is designed to reduce wave action into the harbor and wave overtopping, which will decrease flooding in the

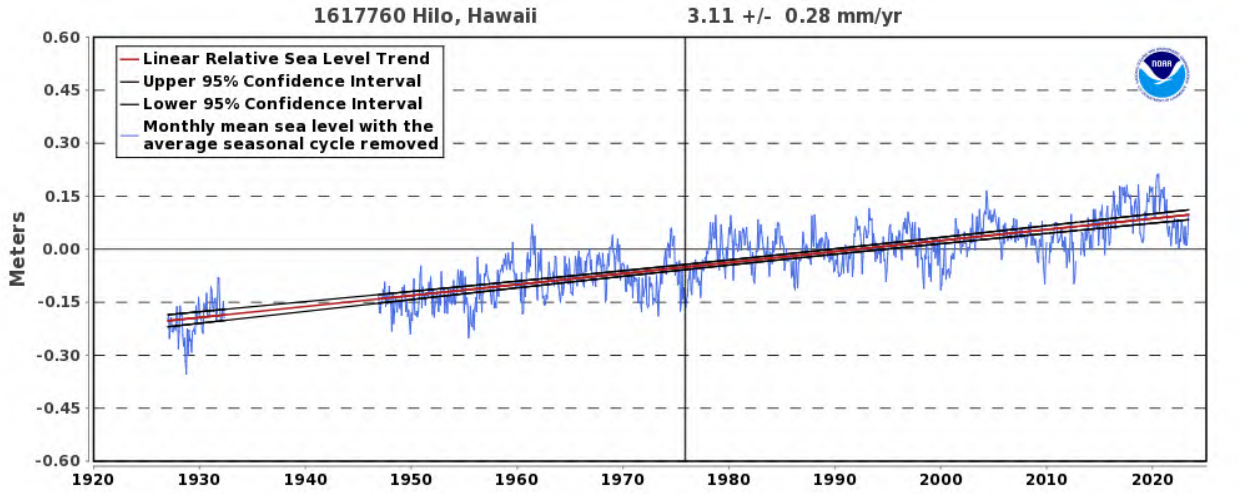
parking lot area during high wave storm events. Once in place, the breakwater extension will redirect uprush from the backshore from flowing down and depositing sediment in the concrete boat ramp so that it can be kept unobstructed with less maintenance for continued use. The project will not incur any adverse impacts on the flood zone, and therefore no mitigation is required.

### *3.1.10 Climate Change and Sea Level Rise*

*Existing Conditions*

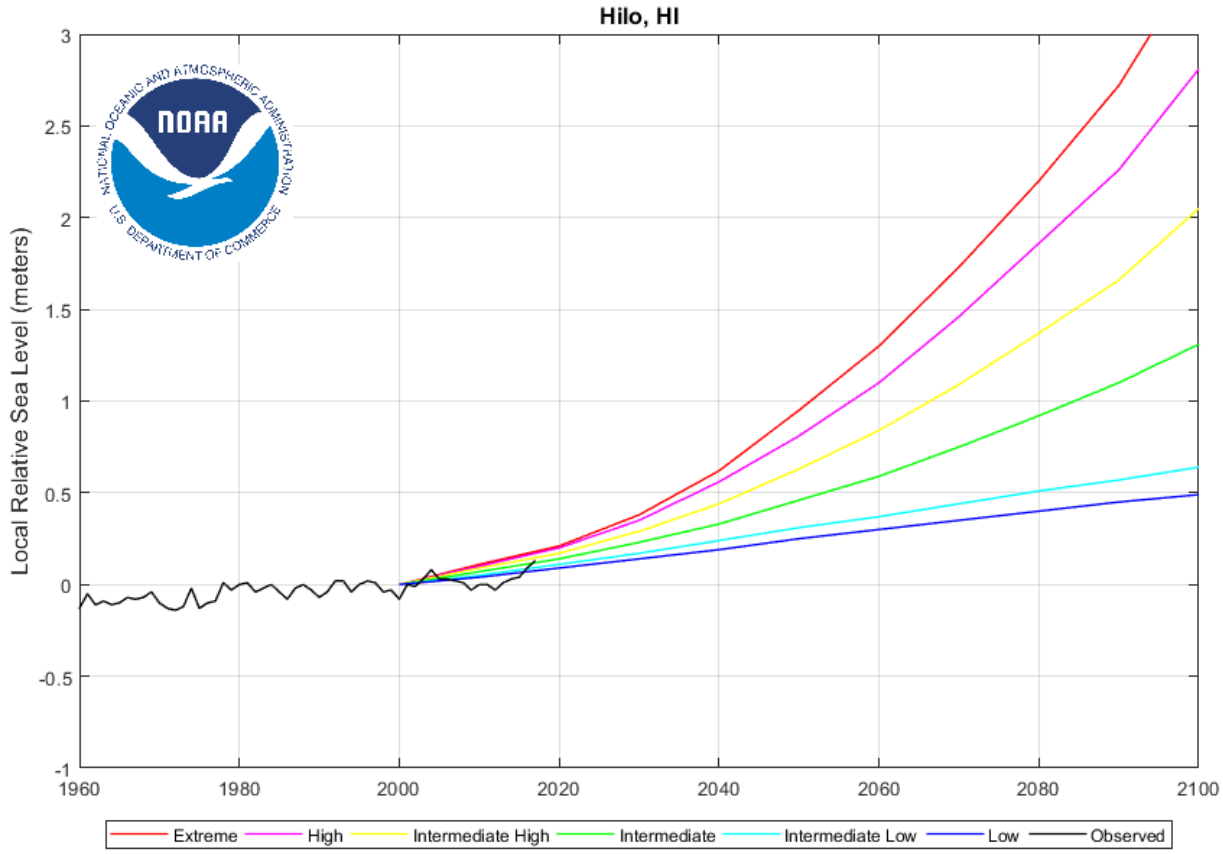
The Intergovernmental Panel on Climate Change (IPCC) predicts that the worldwide sea level could rise 1.5 ft or more by the year 2100 and has outlined numerous impacts from this rise on coastal communities including beach erosion, inundation of land, increased flood and storm damage, saltwater intrusion into the freshwater lens aquifer, changes in precipitation, increased levels of land-based pollutants to coastal waters including sediments, nutrients and contaminants, and more frequent, longer, and more powerful El Niño and La Niña events (IPCC, 2014). Similarly, the Hawaii Climate Change Adaptation Commission has recommended a planning target of 3.2 feet of sea level rise (Hawaii Climate Change Adaptation Commission, 2017).

The average global mean SLR rose over two inches between 1993 and 2011, at a rate of approximately 3.2mm/year (0.12 inches per year). However, this rate is not uniform across the globe with some areas experiencing more accelerated rates than others. Tide gauge measurements provide a historic record of the ocean's water level. There are no predicted sea level trends for NOAA Station 1617433 in Kawaihae; however, in Hilo (Station 1617760), the sea level rise rate is approximately 3.11 mm/year based on monthly mean sea level data from 1927 to 2022 (Figure 3-5). This trend is primarily caused by the thermal expansion of seawater and well as land-based ice melt as temperatures increase. UH climate researchers predict that rising sea levels caused by climate change will affect coastal locations around the State of Hawai‘i. UH SOEST provides a SLR scenario for Honolulu projecting a one-foot increase in sea level by mid-century, and between 2.5 to 6.2 feet by the end of the century (SOEST, 2018). The footprint of passive flooding, annual high wave flooding, and coastal erosion are captured in the 3.2 ft SLR exposure area (SLR-XA) (Figure 3-7). The main breakwater is completely within the SLR-XA footprint in this scenario, indicating that it will face higher wave forces predicted for future SLR.




*Source:* *NOAA, 2023*

**Figure 3-5: Mean sea level trend from recorded water levels by the NOAA tide gauge 1617760 in Hilo**




*Source:* *NOAA, 2020*

**Figure 3-6: Mean local relative SLR projections until 2100 at NOAA tide gauge 1617760 in Hilo with six SLR scenarios plotted relative to a 1991-2009 baseline period**


**Figure 3-7: 3.2 ft Sea Level Rise Exposure Area (SLR-XA)**

*Source: PacIOOS SLR Viewer (PacIOOS, 2018)*

*Potential Impacts and Mitigation Measures*

The proposed action will be designed to withstand predicted future climatic conditions, including Sea Level Rise. Repairs will help to buffer the effects of known SLR by helping to protect the structures within the NKSBH as well as backshore development.

## 3.2 Human Environment

### *3.2.1 Air Quality*

*Existing Conditions*

The EPA has national ambient air quality standards (NAAQS) for ozone ($O_3$), nitrogen dioxide ($NO_2$), carbon monoxide (CO), sulfur dioxide ($SO_2$), 2.5-micron and 10-micron particulate matter (PM) ($PM_{2.5}$ and $PM_{10}$), and airborne lead (Pb). These ambient air quality standards establish the maximum concentrations of pollution considered acceptable for public health and welfare. The State of Hawai‘i also has ambient air quality standards for some pollutants. At present, the State has set standards for six criteria pollutants (excluding $PM_{2.5}$) and hydrogen sulfide ($H_2S$), which is not included in NAAQS (HDOH, 2022).

The project site is located in EPA attainment zones for CO, $NO_2$, $O_3$, $PM_{2.5}$, $PM_{10}$, $SO_2$, and Pb (EPA, 2023). In 2021, Hawai‘i was in attainment of all NAAQS based upon data collected from 20 air quality stations, including six on O‘ahu, two on Maui, eleven on the Island of Hawai‘i, and one on Kaua‘i, that represent the State of Hawai‘i (HDOH, 2022). The air quality station closest to the project site is located approximately eight miles to the south of the project site near Waikōloa. The station is located within a fenced area that contains a County of Hawai‘i water tank and pump house (TMK [3] 6-8-002:019) and was established in July 2021. The station measures $PM_{2.5}$ and primarily monitors for volcanic emissions. Because the station was established in the middle of the 2021 year, only 4$^{th}$ quarter data (October through December) was evaluated for that year. Based on this subset of data, the annual average of $PM_{2.5}$ levels in ambient air recorded from this air quality station in 2021 was well below its Federal (40 Code of Federal Regulations [CFR] Part 50) Standards (HDOH, 2022). There are no current Hawai‘i State Standards for $PM_{2.5}$.

During winter months, when trade winds are absent and “Kona” winds blow from the southeast, vog from the Island of Hawai‘i can bring increased levels of $SO_2$ and $PM_{2.5}$. Hawai‘i’s advisories for volcanic $SO_2$ and $PM_{2.5}$ have been customized for local conditions. Air monitoring stations in communities near Kīlauea Volcano on the Island of Hawai‘i often exceed the NAAQS for $SO_2$ and occasionally the NAAQS for $PM_{2.5}$. The EPA considers activities from the volcano a natural, uncontrollable event, and therefore the state requests exclusion from these NAAQS exceedances for attainment/non-attainment determination (HDOH, 2016). Shorter exposure time intervals have also been adopted due to variable wind conditions, which can cause volcanic gas concentrations to change rapidly.

HDOH regulates fugitive dust, which can be released during earth-moving activities including removal of earth, excavation and fill, debris clearing, and vegetation grubbing.

*Potential Impacts and Mitigation Measures*

The potential air pollutant is dust that may arise from movement of equipment, land clearing activities and excavation in the backshore area for the landward breakwater extension. Soil in the area is sandy and the potential for pollution is low. These impacts are short term and watering and other dust-minimizing Best Management Practices (BMPs) will be used during construction. No long-term impacts are anticipated.

A temporary increase in exhaust emissions from the heavy machinery and other construction vehicles is anticipated in the project area during construction. No adverse impacts on air quality are anticipated due to the short-term construction activity. Therefore, no long-term mitigation is required.

### *3.2.2 Noise*

*Existing Conditions*

Existing ambient noise levels include vehicle traffic, passing aircrafts, surf, boats, and wind. In the vicinity of significant construction activity, noise levels can intermittently reach 80 decibels (dBA). The HDOH regulates noise per HAR §11-46, "Community Noise Control" which establishes maximum permissible sound levels (Table 3-3). The rules provide for the prevention, control, and abatement of noise pollution from stationary noise sources and from equipment related to agricultural, construction, and industrial activities. The standards are intended to protect public health and welfare and to prevent the significant degradation of the environment and quality of life. HDOH establishes acceptable levels of noise based on the ambient conditions (Class A-C) that would be anticipated in differing land uses situations (i.e., Zoning Districts) ranging from residential, business / resort, to industrial conditions. There are no residences near the NKSBH project area.

The project site is zoned as "General Industrial" and therefore in a Class C zoning district, as defined by HAR §11-46. The maximum permissible sound levels for Class C Zoning Districts is 70 decibels (dB). HAR §11-46-7 grants the Director of the HDOH the authority to issue permits to operate a noise source which emits sound in excess of the maximum permissible levels specified in Table 3-3 if it is in the public interest and subject to any reasonable conditions. Those conditions can include requirements to employ the best available noise control technology.

**Table 3-3: Maximum Permissible Sound Levels in dBA**

| Zoning Districts | Daytime (7am – 10pm) | Nighttime (10pm-7am) |
|---|---|---|
| Class A | 55 | 45 |
| Class B | 60 | 50 |
| Class C | 70 | 70 |

Notes:

1) Class A zoning districts include all areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.
2) Class B zoning districts include all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.
3) Class C zoning districts include all areas equivalent to lands zoned agriculture, country, industrial, or similar type.
4) The maximum permissible sound levels apply to any excessive noise source emanating within the specified zoning district, and at any point at or beyond (past) the property line of the premises. Noise levels may exceed the limit up to 10% of the time within any 20-minute period. Higher noise levels are allowed only by permit or variance issued under HAR §11-46-7 and §11-46-8.
5) For mixed zoning districts, the primary land use designation is used to determine the applicable zoning district class and the maximum permissible sound level.
6) The maximum permissible sound level for impulsive noise is 10 dBA (as measured by the "Fast" meter response) above the maximum permissible sound levels shown.

*Potential Impacts and Mitigation Measures*

During project construction, noise levels will increase in the short term from construction related vehicles and equipment. Typical construction equipment will include cranes, backhoes, loaders and rock transportation trucks. The noise generated will be minor and will occur only during the construction phase. Noise generated by equipment during construction will be compliant with levels established by the State Department of Health and no additional mitigation measures are needed. To mitigate noise emissions and community effects of noise emissions from construction activities, BMPs such as the following will be employed:

- Equipment operation on the shoreline will be limited between 7:00 AM and 7:00 PM;
- Broadband noise backup alarms in lieu of higher frequency beepers will be required for construction vehicle equipment; and
- Equipment substitution will be used to ensure that the quietest locally available equipment is used (e.g., high insertion loss mufflers, fully enclosed engines, and rubber-tired equipment if possible).

In the long term, no increase in harbor traffic or ambient noise levels are anticipated after construction. No mitigation measures are required.

### *3.2.3 Socioeconomic Environment*

*Existing Conditions*

The Proposed Action in located in the North Kohala District of Hawai'i Island County In terms of population, North Kohala was one of smallest districts, comprising only three percent of the County population. Table 3-4 contains population counts for Hawai'i County for 1990, 2000, 2010 and 2020.

**Table 3-4: Population for Hawai'i County and Districts, 1990-2020**

| | 1990 | 2000 | % Change | 2010 | % Change | 2020 | % Change | 1990 - 2020 % Change |
|---|---|---|---|---|---|---|---|---|
| State of Hawaii | 1,108,229 | 1,211,537 | 9% | 1,360,301 | 12% | 1,455,271 | 7% | 31% |
| **Hawaii County** | **120,317** | **148,777** | **24%** | **185,079** | **24%** | **200,629** | **8%** | **67%** |
| Puna | 20,781 | 31,335 | 51% | 45,326 | 45% | 71,704 | 58% | 245% |
| South Hilo | 44,639 | 47,386 | 6% | 50,927 | 7% | 51,551 | 1% | 15% |
| North Hilo | 1,541 | 1,720 | 12% | 2,041 | 19% | 2,114 | 4% | 37% |
| Hamakua | 5,545 | 6,108 | 10% | 6,513 | 7% | 6,890 | 6% | 24% |
| **North Kohala** | **4,291** | **6,038** | **41%** | **6,322** | **5%** | **6,979** | **10%** | **63%** |
| South Kohala | 9,140 | 13,131 | 44% | 17,627 | 34% | 19,310 | 10% | 111% |
| North Kona | 22,284 | 28,542 | 28% | 37,875 | 33% | 43,313 | 14% | 94% |
| South Kona | 7,658 | 8,589 | 12% | 9,997 | 16% | 9,789 | -2% | 28% |
| Kau | 4,438 | 5,827 | 31% | 8,451 | 45% | 8,970 | 6% | 102% |

*Source: Table 1.11—Resident Population of Counties and Judicial Districts 1990 TO 2020,* ***2021 The State of Hawaii Data Book: A Statistical Abstract****.*

In terms of median household income, Hawai'i County's median income has been consistently lower than that of the State of Hawai'i , as depicted in Table 3-5.

**Table 3-5: Median Household Income for Hawaii County, 2018-2020**

| | Median Household Income | | |
|---|---|---|---|
| | **2018** | **2019** | **2020** |
| State of Hawaii | $80,527 | $83,734 | $86,878 |
| Hawaii County | $56,383 | $64,929 | $70,313 |
| Hawaii County comparison to the State | 70% | 78% | 81% |

*Source: Table 13.23 Estimated Median Household Income and Poverty Status by County: 2018 to 2020,.****2021 The State of Hawaii Data Book: A Statistical Abstract.***

*Potential Impacts and Mitigation Measures*

The Proposed Action will not significantly impact socioeconomic conditions. Temporary jobs related to construction will have a short-term positive impact on the economy. No mitigation measures are required.

### *3.2.4 Historic and Archaeological Resources*

*Existing Conditions*

There are no known historic properties within the proposed project area. Pacific (PCSI) has prepared an archaeological literature review (ALR) that details the legendary, historical, and archaeological history near the project area. The report is contained in Appendix C and the following is a summary of this report.

Kawaihae has been subject to numerous archaeological investigations. Beginning in the early 1900s, Pu'ukoholā and Mailekini heiau complex in Kawaihae 2 were recorded by Thomas Thrum and John F. Stokes, followed by Bishop Museum studies in the 1960s and 1970s. Additional work

in the park also included the historic period homestead of John Young. This area was designated the Pu‘ukoholā Heiau National Historic Site (PUHE) in 1972 and comprises Pu‘ukoholā Heiau, Hale O Kapuni (known as the shark heiau, which is submerged in the water south of the harbor in Pelekāne Bay), Mailekini Heiau, the upper and lower (Pahukanilua) John Young Homestead, Pelekane (the King’s Residence, which was the royal compound), and the Stone Leaning Post (Leaning Rock of Alapa‘i, Alapai‘i’s Chair, Kamehameha’s Chair).

Archaeological work has also documented additional traditional Hawaiian sites, including cobble stone cultural deposits, walls, enclosures, shell scatters, and terraces; historic period sites; and military period site complexes. The PUHE boundary abuts the south side of Kawaihae Harbor and is over one kilometer southeast of the proposed undertaking. A majority of previous archaeological work was over 1.5 km from the current undertaking.

From the 1970s to the present, archaeological investigations have been conducted near the current project area in support of roadway, harbor, and utilities developments. The inland, or east side of the highway, is less developed and numerous traditional Hawaiian and historic period archaeological sites have been recorded. On the seaward, or west side, of the highway, construction of Kawaihae Harbor removed surficial evidence of archaeological sites and no subsurface historic properties have been encountered. The current project area is at the far north end of the harbor. The land north of the project area is undeveloped with the exception of the lighthouse.

Previously recorded archaeological sites inland of Kawaihae Harbor include traditional Hawaiian and/or historic site complexes, including human burials; these sites were recorded during archaeological inventory surveys for potential road corridors between Waimea and Kawaihae. The archaeological inventory surveys for the road corridor overlap with several other archaeological surveys for the Department of Hawaiian Home Lands in Kawaihae 1. North of the Coast Guard Reservation and project area, known archaeological sites were relocated during multiple archaeological assessments.

Seaward of the highway and north of the NKSBH, historic period sites have been documented, including the Kawaihae Lighthouse, historic period walls, concrete piers, concrete walls, and a concrete building foundation.

*Potential Impacts and Mitigation Measures*

Previous archaeological investigations conducted on the harbor property south of the NKSBH encountered fill during subsurface testing, and no historic properties have been recorded at Kawaihae Harbor. Less than 100 meters north of the NKSBH, subsurface testing did not encounter any intact cultural deposits and the surface survey noted the area was previously disturbed by storms and modern rubbish was present. Additionally, the current project area is seaward of the former coastline and underlain by up to 13.0 ft of fill, which is material dredged from the bay during construction of the harbor facility in the late 1950s. Consequently, it is extremely unlikely that any traditional Hawaiian cultural deposits, human burials, or buried post contact historic

properties are present in the project area. Further, in that there were no human skeletal remains identified within the project area, human burials are not anticipated.

The recommended effect determination for the project, pursuant to HRS Chapter 6E and its implementing regulations at HAR §13-275-7(1), is "no historic properties affected" as the construction work will not affect any historic properties. No further work is recommended.

### *3.2.5 Cultural Resources*

In accordance with the provisions of Hawai'i Revised Statutes (HRS), Chapter 343 and its implementing regulations contained in Hawai'i Administrative Rules (HAR), Title 11, Chapter 200.1, the Cultural Impact Assessment (CIA) provides a detailed analysis of how the Proposed Action could impact cultural practices, resources, and beliefs. The disclosure of this information is intended to promote transparent and responsible decision-making in accordance with Articles IX and XII of the *Constitution of the State of Hawai'i*, other state laws, and the courts of the state, which all mandate government agencies to endeavor to promote and preserve the cultural practices and resources of Native Hawaiians and other ethnicities.

In addition to the content requirements of HRS §343 and HAR §11-200.1, on November 19, 1997, the State of Hawai'i's Environmental Council issued its *Guidelines for Assessing Cultural Impacts*. The Guidelines provide methodological and content protocol for projects/actions that may have the potential to affect cultural resources, stipulating specific matters that should be addressed in all CIAs. Appendix D contains the Cultural Impact Analysis report.

#### *3.2.5.1 Cultural Consultation*

As part of the CIA, several entities and individuals were contacted to solicit information about historic properties, cultural resources, traditional cultural properties, and traditional and customary practices potentially within the current project area (Table 3-6).

**Table 3-6: List of Entities/Individuals Contacted for CIA**

| Name/Affiliation | Sent Via | Response | Summary Comment |
|---|---|---|---|
| Dawn N. S. Chang<br>SHPO and Chairperson, DLNR | email | None to Date (NTD) | |
| Alan Downer Administrator, SHPD; Deputy State Historic Preservation Officer | email | NTD | |
| Hailama Farden, President<br>Association of Hawaiian Civic Clubs | email | NTD | |
| Curt Cottrell, Administrator<br>Division of State Parks, DLNR | email | NTD | |
| Dennis Ragsdale, Advocate General<br>Order of Kamehameha I | email | NTD | |
| Kamakana C. Ferreira, Lead Compliance Specialist, OHA | email | NTD | |
| Vincent Hinano Rodrigues, JD, Branch Chief History and Culture, SHPD | email | NTD | |

| Name/Affiliation | Sent Via | Response | Summary Comment |
|---|---|---|---|
| Jordan Calpito, Burial Sites Specialist (Hawai‘i) SHPD | email | NTD | |
| Sean Naleimaile, Hawai‘i Lead Archaeologist, SHPD | email | NTD | |
| Walter Ritte, Executive Director ‘Āina Momoa | email | NTD | |
| Linda Kaleo Paik, Secretary Ala Kahakai Trail Assoc. | email | NTD | |
| Hailama Farden, President Association of Hawaiian Civic Clubs | email | NTD | |
| Maydean K. Bowman, Representative Charles Pelenui Mahi Ohana | USPS | NTD | |
| E. Kalani Flores Flores-Case Ohana | email | Requested ALR | ALR sent; no further response |
| Dennis W. Ragsdale, Advocate General Kingdom of Hawai‘i and Order of Kamehameha I | email | NTD | |
| Hanalei Fergerstrom, Spokesperson Na Kupuna Moku O Keawe | email | NTD | |
| L. La‘akea Suganuma Royal Hawaiian Academy of Traditional Arts and The Mary Kawena Pūku‘i Cultural Preservation Society | email | NTD | |
| Melvin Soong, President The I Mua Group | email | NTD | |
| Kawaihae Canoe Club (KCC) | Email / phone | Requested ALR; discussed KCC as TCP | KCC may be eligible for TCP |

To date, PCSI has received two responses regarding cultural resources or historic properties within the project area:

- Mr. Flores requested a copy of the draft ALR to understand the project more. No further commentswere provided by Mr. Flores.
- Ms. Willette Kalāokahaku Akima-Akau of the Kawaihae Canoe Club (KCC) expressed a desire to have the club considered as a historic site or traditional cultural property (TCP). KCC occupies a property adjacent to the NKSBH and has used NKSBH consistently for more than 50 years to conduct canoeing and community-related events. KCC was founded in 1972. Additional meetings between PCSI and KCC are planned to gather information to assist in evaluating the potential for KCC to be considered a TCP.

#### *3.2.5.2 Ka Pa‘akai Analysis*

An alternative analytical framework—the Ka Pa‘akai assessment—that can be used for addressing the preservation and protection of cultural practices specific to Native Hawaiian communities resulted from a 2000 Hawai‘i Supreme Court ruling (*Ka Pa‘akai O Ka‘Aina versus Land Use Commission*). In its decision, the court established the following three-part analytical approach:

Part 1, identify whether any valued cultural, historical, or natural resources are present; and identify the extent to which any traditional and customary Native Hawaiian rights are exercised;

Part 2, identify the extent to which those resources and rights will be affected or impaired; and

Part 3, specify any measures to be taken to reasonably protect Native Hawaiian rights if they are found to exist.

As discussed in Section 3.2.4, an ALR that addresses historical, cultural, and archaeological background was conducted to evaluate any potential effect on historic properties in the project area, and to recommend mitigation of any adverse effect, if warranted. This work was carried out in accordance with Hawai‘i Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS).

Previous archaeological investigations conducted on the harbor property south of the NKSBH encountered fill during subsurface testing, and no historic properties have been recorded at Kawaihae Harbor. Less the 100 meters north of the NKSBH, subsurface testing did not encounter any intact cultural deposits and the surface survey noted the area was previously disturbed by storms and modern rubbish was present. Additionally, the current project area is seaward of the former coastline and underlain by up to 13.0 feet of fill, which is material dredged from the bay during construction of the harbor facility in the late 1950s. Consequently, it is extremely unlikely that any traditional Hawaiian cultural deposits, human burials, or buried post contact historic properties.

The Ka Pa‘akai three-part assessment, based primarily on archival research, is summarized. Additional consultation may occur.

1) *The identity and scope of valued cultural, historical, or natural resources, including the extent to which traditional and customary native Hawaiian rights are exercised.*
    a. No known cultural resources or historic properties have been identified within the project area.

2) *The extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action.*
    a. No known cultural resources or historic properties will be affected or impaired by the proposed action.

3) *The feasible action, if any, to be taken by the agency to reasonably protect native Hawaiian rights if they are found to exist:*
    a. No known cultural resources or historic properties have been identified within the project area. If historic properties are discovered during the proposed project, they will be evaluated in accordance with HRS 6E and its associated Administrative Rules.
    b. If traditional and customary native Hawaiian resources or practices are identified, appropriate mitigation or preservation measures will be implemented.

### *3.2.6 Visual Environment*

*Existing Conditions*

The project site is in a relatively undeveloped area across the end of the main breakwater of the Kawaihae Deep Draft Harbor. The entire harbor is constructed on fill land from dredging spoils and therefore is man-made. From the shoreline looking seaward, the Deep Draft Harbor breakwater is visible to the left beyond the stub breakwater, while the main breakwater for the NKSBH wraps from the right to left. The crest of the existing main breakwater is at a 6 ft elevation. All breakwaters and revetments in the area are man-made and armored with large basalt armor stones.

*Potential Impacts and Mitigation Measures*

During construction, the visual environment will be altered temporarily as staging areas and construction equipment will be present. This visual impact will end when construction activities are completed.

The crest elevation of the modified breakwater will be raised four (4) feet from six (6) feet to ten (10) feet MLLW, which will be a height increase when viewed from the shore. The crest elevation of the modified breakwater is still lower than that of the Kawaihae Deep Draft Harbor's breakwater. Therefore, the view plane of a land-based observer is not adversely affected by the modified structure. Further, the view plane from the ocean will not change because the main harbor breakwater crest elevation is higher than the crest of the modified breakwater. The visible armor stones on the sides of the modified breakwater will be similar to those that are armor the existing breakwater and Deep Draft Harbor breakwater.

The proposed crest of the artificial berm is at 10-foot elevation and is anticipated to have only a minor impact on the view plane from a very limited area behind the boat ramp. The overall visual impact from land will be very small and is limited to the area just behind the boat ramp.

In consultation meetings with the adjacent Kawaihae Canoe Club, there was discussion of improving the breakwater with a 12-foot height. Canoe paddlers were concerned that a higher breakfall may impede visual access between the shoreline and paddlers practicing in the entrance

to the Kawaihae Deep Draft Harbor, thereby interrupting coaching. They felt that a 10-foot breakwater height would allow more sight access and project design was thus updated. Boaters that use the harbor have also indicated that a 12-foot breakwater height would impair their sight lines outside the harbor and agreed that a 10-foot breakwater height would be more manageable.

## 3.3 Public Services and Facilities

### *3.3.1 Recreation Facilities, Resources and Public Access*

*Existing Conditions*

The existing NKSBH is currently used by light recreational boats, local fishermen and canoe operators. The harbor provides limited parking, shower facilities, boat washing facility, and moorings for recreational/commercial boats. The construction of the Kawaihae South Boat Harbor has diverted some of the recreational and commercial boats from NKSBH.

In addition to the breakwater and the stub breakwater demarcating the harbor entrance and providing protection from waves, the harbor infrastructure consists of an approach road, a paved parking area for harbor users, potable water to supply crafts toilets and wastewater disposal systems, and drainage facilities.

The Kawaihae Canoe Club operates adjacent to the harbor premises to store, repair and launch canoes. Currently, canoes are launched from the boat ramp next to the existing breakwater or from the beach adjacent to the breakwater to the north. Public access to the beach is currently available through the harbor property. The shoreline adjacent to the beach is rocky and is not frequently used for lateral access along the beach.

Existing condition of the breakwater is partially damaged and does not provide adequate protection for vessels moored in the harbor basin. The main purpose of the proposed action is to repair and modify the existing breakwater to current standards.

During winter swells, waves overtop the beach berm and flood the area between the harbor basin and the canoe storage.

The boat ramp is functional and used by visiting fishermen and recreational boaters for launching their boats. During rough seas, waves overtop the beach berm and move large amounts of beach sand into the boat ramp and the harbor.

The wooden wharf constructed for mooring mid-size vessels (mostly commercial operators) experiences frequent damage from large waves that penetrate into the harbor by overtopping the breakwater. The wharf was severely damaged by a storm event between December 31, 2019, and January 1, 2020. DLNR condemned the structure in January 2020 and subsequently removed it in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial

operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The harbor property elevation is relatively low and during heavy storms the runoff sheet flows and causes temporary flooding and overwhelms the existing drainage facilities. This problem may become exacerbated with projected sea level rise.

*Potential Impacts and Mitigation Measures*

Constrction related to the Proposed Action may impact harbor users, including boat operations and canoe paddlers activities. It is recommended that DOBOR and the construction contractor maintain ongoing communication with harbor users to inform them of the construction schedule and activities that may affect users.

In the long-term time frame, the Proposed Action will improve the coastal infrastructure to make the harbor more resilient to wave action and future SLR conditions. The proposed landward extension of the breakwater will decrease maintenance needed to clear the concrete boat ramp from sediment accumulation and the repaired main breakwater will decrease damage to the wooden wharf, boats, and harbor.

Although, modification to the breakwater will improve the wave conditions within the harbor, no increase in fishing, commercial or recreational boat traffic is anticipated.

The project design includes extending the breakwater approximately 80 ft landward to prevent up rush from storm waves and high swells from pushing large amounts of beach sand into the boat ramp. The proposed extension of the breakwater will not pose a significant obstruction to pedestrians.

This Proposed Action is not anticipated to result in significant adverse impacts to recreational uses and public access. Therefore, no mitigation measures are required.

### *3.3.2 Police and Fire Protection*

*Existing Conditions*

The project area is within Hawai‘i Police Department South Kohala District. The nearest police station is the Waimea Police Station, located approximately 12.2 miles from the project site at 67-5185 Kamamalu Street.

The nearest Hawai‘i Fire Department fire station is the South Kohala Fire Station providing fire protection and Emergency Medical Services (EMS) services. It is located at 68-4550 Queen Ka‘ahumanu Highway, approximately 7.2 miles from the project site.

*Potential Impacts and Mitigation Measures*

The Proposed Action will not impact Hawai'i Police Department and Hawai'i Fire Department services during construction. Adequate notification will be made to the public and businesses in the event any road closures are required.

Once constructed, the Proposed Action is not anticipated to significantly impact police and fire services and no mitigation is recommended.

### *3.3.3 Roadways and Public Transportation*

*Existing Conditions*

The approach road, Kawaihae-Mahukona Harbor Road, branches from Akoni Pule Highway to provide vehicular access to the harbor. The road continues into the harbor parking lot and traverses around the basin to provide access to the breakwater, boat ramp and other facilities. Most of the traffic within the harbor consists of trucks using the boat ramp, canoe activities and vehicles associated with recreational tour boats servicing tourists. Currently, there are no plans to expand the roadway system.

*Potential Impacts and Mitigation Measures*

The proposed project is away from the roads and utilities and will have some impact on road use from the transport of rock and construction equipment during the construction phase. There are no public facilities near the construction area. The private canoe club is situated adjacent to the harbor and construction activities are not anticipated to adversely affect their operations. No long-term impacts on the infrastructure and utilities after project construction are anticipated. Therefore, no mitigation measures required.

There will be a temporary impact to traffic during the construction due to trucks transporting rocks and other materials. A traffic control plan will be developed to mitigate any adverse impacts during construction. No long-term changes to traffic are anticipated and therefore no mitigation measures are required.

### *3.3.4 Solid Waste Treatment and Disposal*

*Existing Conditions*

Solid waste is collected and disposed offsite by a private contractor on a regular schedule.

*Potential Impacts and Mitigation Measures*

No adverse impacts on solid waste treatment and disposal are anticipated and mitigation measures are not needed.

### *3.3.5 Water and Wastewater Systems and Services*

*Existing Conditions*

Fresh, potable water is provided to the project site by County of Hawai‘i, Department of Water Supply. Wastewater from harbor activities is treated on-site. There is an individual wastewater system located directly adjacent to the comfort station.

*Potential Impacts and Mitigation Measures*

No adverse impact is expected on water and wastewater systems and services.

### *3.3.6 Electrical and Telephone*

*Existing Conditions*

Electrical service is provided on Hawai‘i Island by the Hawaii Electric Light Company (HELCO). Telephone services is provided by Hawaiian Telcom. Telephone and electrical power lines are located within the access road to the harbor. No additional power lines or telephone lines are included in the project.

*Potential Impacts and Mitigation Measures*

No adverse impact is expected on electrical or telephone service.

# 4. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

This section identifies Federal (Section 4.1), State (Section 4.2) and the County of Hawai'i (Section 4.3) land use plans, policies and controls that are relevant to the Proposed Action. Section 4.4 provides a list of required approvals and permits.

## 4.1 Federal Government

The project will require various permits and approvals from regulatory agencies at the federal, state, and local levels. Regulatory agencies are tasked with ensuring that the project is compliant with statutes, rules, policies, and plans that they are responsible to uphold. Each permit or approval that may be needed for this project is briefly described in this section followed by a discussion on how the Proposed Action relates and complies with permit/approval policies in a manner that either avoids or minimizes any negative impacts. Construction work within waters of the United States may require a United States Army Corps of Engineers (USACE) permit in accordance with the Section 10 of the Rivers and Harbor Act of 1899 and federal Clean Water Act (CWA) Section 404, the DOH Section 401 WQC, CZMA, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Fish and Wildlife Coordination Act, and other applicable laws and regulations.

The U.S. Army Corps of Engineers' (USACE) Regulatory Program involves the regulating of discharges of dredged or fill material into waters of the United States and structures or work in navigable waters of the United States, under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The USACE issues both Nationwide and Individual Permits. Nationwide Permits (NWPs) are designed to streamline the USACE permitting process of minor projects that will have minimal impact on the nation's aquatic environment (e.g., in-kind and in-place maintenance, survey activities, minor dredging in certain locations). Individual Permits require more in-depth agency reviews and mitigation measures.

The National Flood Insurance Program (NFIP) was established by the National Flood Insurance Act of 1968 (NFIA, 42 U.S.C. §4001 et seq.) to offer primary flood insurance to properties with significant flood risk and to reduce flood risk through the adoption of floodplain management standards. The NFIP offers two types of coverage – building coverage and contents coverage, neither of which are involved in the Proposed Action.

The Proposed Action does not require a National Environmental Policy Act (NEPA) environmental documentation because no federal funds are used for the project.

### *4.1.1 Clean Water Act Section 404*

Section 404 of the CWA establishes a program to regulate the discharge of pollutants (i.e., dredged or fill material) into waters of the United States, which include navigable waters seaward of the

high tide line, lakes, ponds, streams, ditches and adjacent wetlands. Regulated activities include fill for water resource projects, infrastructure development and mining projects. Section 404 requires a permit from the USACE before dredged or fill material may be discharged into any waters of the United States, including wetlands.

*Relationship to the Proposed Action*

The Proposed Action includes some excavation and deposition of rock fill below water level to repair a breakwater within the Pacific Ocean. The State is consulting with USACE to determine if the proposed project will qualify for coverage under an NWP or Individual Permit.

During construction of the Proposed Action, short-term impacts on the nearshore reef environments, water quality, and marine resources will be mitigated by effective BMPs to control areas of impact.

#### *4.1.2 Rivers and Harbors Act of 1899, Section 10*

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C 401 et seq.) requires authorization from the USACE for the construction of any structure in or over navigable waters of the United States, the excavation and dredging or deposition of material, or any obstruction or alteration to a navigable water. Note that the USACE's general definition of navigable water are those "waters subject to the ebb and flow of the tide […] and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce."

*Relationship to the Proposed Action*

The Proposed Action involves the repair of a breakwater in the Pacific Ocean, the waters of which are tidal and navigable. A permit from the USACE will be required in accordance with Section 10 of the Rivers and Harbors Act. However, the project is not expected to affect waterbody navigation.

#### *4.1.3 Magnuson-Stevens Fishery Conservation and Management Act (50 CFR 600.920)*

Consultation with the NMFS is required when a federal agency directly conducts work, funds work, or permits work in an area that will adversely affect EFH (Section 305(b)(2), as described by 50 CFR 600.920). The EFH consultation process entails contacting NMFS and providing an EFH Assessment (EFHA), which contains a description of the Proposed Action, a determination from the federal agency as to how the action will affect EFH, an assessment of those adverse effects, and proposed ways to mitigate for the adverse effects, if applicable. An adverse effect to EFH is anything that reduces the quality and/or quantity of EFH. It may include direct, indirect, and site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of an action. NMFS will review the EFHA and may provide conservation recommendations to avoid, minimize, offset for, or otherwise mitigate, expected adverse effects.

In the main Hawaiian Islands, EFH has been designated in the marine water column from the surface to a depth of 1,000 m, from the shoreline to the outer boundary of the Exclusive Economic Zone (370 kilometers/200 nautical miles/230 miles), and the seafloor from the shoreline out to a depth of 700 m. These waters and submerged lands support various life stages for the management unit species (MUS) identified under the Western Pacific Regional Fishery Management Council's, Pelagic and Hawai'i Archipelago Fishery Ecosystem Plan (FEP), hereafter referred to as Hawai'i FEP. The Management Unit Species (MUS) and life stages found in these waters include eggs, larvae, juveniles, and adults of bottom fish MUS, crustacean MUS, and pelagic MUS. Specific types of habitat considered as EFH include coral reefs, patch reefs, hard substrate, seagrass beds, soft substrate, artificial or man-made structures, mangrove, lagoon, estuarine, surge zone, deep-slope terraces, and pelagic/open ocean.

The EFH guidelines contained in 50 CFR 600.920(f) enable federal action agencies to use existing consultation or environmental review procedures to satisfy the MSA consultation requirements if the procedures meet the following criteria: 1) the existing process must provide NMFS with timely notification of actions that may adversely affect EFH; 2) notification must include an assessment of the Proposed Action's impacts on EFH that meet the requirements for EFHA discussed in Section 600.920(e); and 3) NMFS must have made a finding pursuant to Section 600.920(f)(3) that the existing process satisfies the requirements of Section 305(b)(2) of the MSA. For the purposes of this DEA, the EFHA was integrated with the Fish and Wildlife Coordination Act (FWCA) coordination process.

*Relationship to the Proposed Action*

Early consultation with NMFS Pacific Islands Regional Office (PIRO) for the project began prior to the preparation of the Draft EA. The Habitat Conservation Division (HCD) at PIRO is responsible for implementing Magnuson-Stevens Fishery Conservation and Management Act (MSA) regulatory requirements, including the EFH provisions described by Federal regulations (50 CFR 600.920). Compliance with the EFH provisions of the MSA can also be achieved through pursuance of the Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. 661-666c). Information required for an EFH study has been incorporated in Section 3.1.8, Marine Biota, and is presented in the marine resource assessment survey included as Appendix B.

### *4.1.4 Fish and Wildlife Coordination Act (16 United States Code [U.S.C.] 661-666c)*

The Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-666c) mandates that wildlife, including fish, should receive equal consideration as other aspects of water resource development. This is accomplished through consultation with NMFS, the USFWS, and appropriate state agencies whenever any body of water is proposed to be modified in any way and a federal permit or license is required. These agencies determine the possible harm to fish and wildlife resources, the measures needed to both prevent the damage to, and loss of, these resources, and the measures needed to develop and improve the resources, in connection with water resource development. NMFS, the USFWS, and state agencies submit comments to federal licensing and permitting

agencies on the potential harm to living marine resources caused by the proposed water development project, as well as recommendations to prevent harm (NMFS, 2004). In all, the FWCA compliance process includes the following four steps: consultation (notice of initiation); reporting (e.g., field surveys and summary reports) and recommendations to protect, mitigate, and restore natural resources; action agency consideration of recommendations; and action agency implementation of recommendations.

*Relationship to the Proposed Action*

Early consultation with NMFS PIRO and USFWS Pacific Islands Office for the project began prior to the preparation of the Draft EA. Consultation included consideration for specific endangered or threatened aquatic species protected under Section 10 of the Endangered Species Act (ESA) (16 U.S.C. 1536(A) (2) and (4)). In the short-term, temporary impacts to fish and wildlife resources will be minimized to the maximum extent practicable by following NMFS and USFWS recommendations and using construction BMPs (e.g., the avoidance of reef and sensitive habitat in the vicinity during construction activities, observers for rare, threatened, and endangered (RTE) species, water quality monitoring, turbidity curtains). In the long-term, the repaired structure will provide additional habitat for fish, marine crustaceans and other organisms, which will be a positive project impact over time.

## 4.2 State of Hawai‘i

### *4.2.1 State Land Use*

Conservation districts include areas necessary for protecting watersheds and water sources. Within the conservation district, there are five progressively more restrictive subzones: general, limited, protected, resource and special. All areas located makai of the state-certified shoreline and all submerged lands within the State of Hawai‘i are within the resource subzone of the conservation district, although some areas may have stricter subzone designations. Decision-making and approvals within the conservation district range from simple Site Plan Approvals from OCCL, to Departmental and Board Permits that require Conservation District Use Permits and public hearings.

*Relationship to the Proposed Action*

The project area is designated Urban (non-submerged lands) and Conservation (submerged lands), as shown in Figure 4-1. Areas within the conservation district fall under the jurisdiction of the State of Hawai‘i Department of Land and Natural Resources Office of Conservation and Coastal Lands (DLNR OCCL), where County zoning is superseded per HRS 205-5. The conservation district is regulated pursuant to HRS-183C, and the rules are detailed in HAR §13-5.


**Figure 4-1: State Land Use Districts**

The repair of existing structures and grading or alteration of topographic features are permissible activities within the urban district per state land use restrictions and designations. These activities are also permissible activities within the conservation district resource subzone.

HAR §13-5-22 regulates land uses and activities, such as repair of existing structures and the associated permit requirements, in the protected subzone. Under HAR §13-5-22 Section P-9, Existing Structures, C-2, the Proposed Action may require a Conservation District Use Permit (CDUP) approved by the Department of Land and Natural Resources (DLNR). Land Use C-2, which requires a Departmental Permit, is described as follows:

> *"Operations, repair, maintenance, or renovation of existing structures, facilities, equipment, or topographical features which are different from the original permit or which are different from the department-approved construction plans, where applicable. When county permit(s) are required, the department shall approve the associated plan(s). Note: for nonconforming uses, see §13-5-37."*

The requirements listed for the protected subzone also apply to the less restrictive resource subzone. HAR §13-5-24 describes more intensive development activities, such as marine construction in the resource subzone, that also require a CDUP approved by the Board of Land and Natural Resources (BLNR).

Conservation District Use Applications (CDUAs) are reviewed by the BLNR in public hearings that are accessible via in-person or videoconferencing. Prior to the BLNR public hearing, a public meeting is usually held on the Island of Hawai‘i to solicit comments and input from the public. Upon acceptance of the EA, DOBOR may submit a CDUA.

#### *4.2.2 Hawai‘i State Plan, HRS Chapter 266*

The Hawai‘i State Plan, codified in HRS Chapter 226, serves as a guide for the future long-range development of the State. The Plan identifies goals, objectives, policies, and priorities and provides a basis for priority determination and resource allocation involving public funds, services, human resources, land, energy, water, and other resources. The State Plan is intended to improve coordination of federal, state and county plans, policies, programs, projects, and regulatory activities. It outlines a system for integration of all major state and county activities.

The Plan is divided into three parts. Part I contains the overall theme, goals, objectives, and policies. The State's objectives and policies focus on population, economy, physical environment, facility systems, and socio-cultural advancement. Part II provides the framework in planning coordination and implementation. It establishes a statewide planning system to coordinate and guide all major state and county activities and to implement the overall theme, goals, objectives, policies, and priority guidelines. Part III identifies priority guidelines.

Table 4-1 presents the relationship of the No Action and Proposed Action to relevant sections of Part I of the Hawai‘i State Plan. Table 4-2 presents the relationship of the Proposed Action to relevant sections of Part III of the Hawai‘i State Plan. Part II concerns internal agency coordination and is not relevant to this analysis.

**Table 4-1: Relationship to the Hawai‘i State Plan Part I**

| § 226-4 State Goals | No Action | Proposed Action |
|---|---|---|
| § 226-4 (2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people. | Not supportive | Supportive |
| Discussion: Hawai‘i's shoreline and ocean resources are integral to the physical and socio-economic well-being for individuals and families. The No-Action Alternative does not support this goal, because it will maintain existing conditions, including ongoing damage of the breakwater and overtopping in severe storms, which in turn, will result in damage to coastal infrastructure (e.g., wooden wharf, boats) within the harbor that supports in-water recreational activities.<br>The Proposed Action supports this goal by repairing and improving the breakwater, thereby, providing protection for the harbor basin. | | |
| § 226-11 Objectives and policies for the physical environment – land-based, shoreline, and marine resources.<br>§ 226-11 Objective (1) Prudent use of Hawai‘i's land-based, shoreline, and marine resources. | No change in existing conditions | Supportive |

| § 226-4 State Goals | No Action | Proposed Action |
|---|---|---|
| § 226-11 Objective (2) Effective protection of Hawai'i's unique and fragile environmental resources. | | |
| Discussion: The Proposed Action is intended to redesign and improve the damaged main breakwater to better withstand winter swells and larger wave forces as well as reduce wave intrusion into the harbor. It is anticipated that the Proposed Action and the new breakwater structure will provide a larger and better habitat for corals to grow and improved shelter for aquatic life in the long-term. | | |
| § 226-11 Policy (1) Exercise an overall conservation ethic in the use of Hawai'i's natural resources.<br>§ 226-11 Policy (2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.<br>§ 226-11 Policy (3) Take into account the physical attributes of areas when planning and designing activities and facilities.<br>§ 226-11 Policy (4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage. | No change in existing conditions | Supportive |
| Discussion: The Proposed Action combines supporting water-dependent uses (e.g., canoeing, boating, fishing) in coastal areas that are well-suited to their continued operation with trying to improve shelter and benthic habitat for marine life as well as the visual aesthetics of the harbor. The Contractor will employ appropriate construction methods to minimize pollutant generation and use adequate BMPs to prevent contamination of water adjacent to the project site during construction activities. Impacts will also be minimized by relocating suitable coral heads that occur in the project area before the start of the project. | | |
| § 226-11 Policy (6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.<br>§ 226-11 Policy (7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.<br>§ 226-11 Policy (8) Pursue compatible relationships among activities, facilities, and natural resources.<br>§ 226-11 Policy (9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes. | Not supportive | Supportive |
| Discussion: The No-Action Alternative will result in the continued degradation of the existing breakwater structure and subsequent damage to waterfront structures within the harbor basin. This will discourage recreational use of the harbor by the public and will reduce accessibility for boating and fishing activities.<br>The Proposed Action combines supporting water-dependent uses (e.g., canoeing, boating, fishing) in coastal areas that are well-suited to their continued operation with trying to improve shelter and benthic habitat for marine life as well as the visual aesthetics of the harbor. The Contractor will employ appropriate construction methods to minimize pollutant generation and use adequate BMPs to prevent contamination of water adjacent to the project site during construction activities.<br>The project includes work in and above marine waters where ESA-listed species, such as sea turtles, may be directly exposed to project activities. Because sea turtles and marine mammals typically avoid human activity, the expected effect of this interaction would be an avoidance behavior leading to an exposed animal | | |

| § 226-4 State Goals | No Action | Proposed Action |
|---|---|---|
| leaving the project area without injury. The likelihood of interaction will be reduced through a BMP of watching for and avoiding protected marine life before commencing work and by postponing certain activities when protected species are within 50 yds of that activity. | | |
| § 226-13 Objectives (b) To achieve land, air, water quality objectives, it shall be the policy of this State to:<br>§ 226-13 Policy (2) Promote the proper management of Hawai'i's land and water resources.<br>§ 226-13 Policy (5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters. | Not supportive | Supportive |
| Discussion: The historical and ongoing degradation of shoreline resources is a significant threat to coastal resources and adjacent properties. The No Action Alternative will not manage ongoing damage of the breakwater, harbor structures and vessels that use the harbor. The Proposed Action is designed to repair and strengthen the compromised breakwater that has been damaged by repeated wave action and extend the breakwater landward to prevent sand from accumulating in the boat ramp during high wave conditions, thereby protecting life and property by improving safety conditions within NKSBH, restoring its functionality and increasing its resilience to coastal hazards, such as SLR and storm events. | | |
| § 226-14 Objectives (b) Objectives and policies for facility systems – in general:<br>§ 226-14 Policy (1) Accommodate the needs of the Hawai'i's people through coordination of facility systems capital improvement priorities in consonance with state and county plans. | Not supportive | Supportive |
| Discussion: The Proposed Action supports continued operations at the existing NKSBH facility for recreational activities, while a No-Action Alternative discourages the use of the harbor. | | |
| § 226-23 Objectives and policies for socio-cultural advancement – leisure<br>§ 226-23 Policy (4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological or biological values while ensuring that their inherent values are preserved.<br>§ 226-23 Policy (10) Assure adequate access to significant natural and cultural resources in public ownership. | Not supportive | Supportive |
| Discussion: The No Action Alternative will maintain status quo and does not support these policies. The breakwater will continue to deteriorate, public accessibility into and along the perimeter of the harbor for recreational activities will continue to diminish, and scenic and open space resources will continue to degrade.<br>The Proposed Action is designed to repair the existing breakwater, thereby promoting continued and increased operation of harbor facilities. | | |

**Table 4-2: Relationship to the Hawai'i State Plan Part III Priority Guidelines**

| § 226-103 Economic priority guidelines | No Action | Proposed Action |
|---|---|---|
| § 226-103 (b) Priority guidelines to promote the economic health and quality of the visitor industry.<br><br>§ 226-103 (b) (2) Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provides for adequate shoreline setbacks and beach access.<br><br>§ 226-103 (b) (4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources. | Not supportive | Supportive |
| Discussion: Hawai'i's sandy beaches and ocean resources are significant attractions that are foundational to the success of the visitor industry. The preservation and protection of these coastal and ocean resources support a vibrant visitor industry, as well as contribute to resident quality of life. The Proposed Action would be supportive of efforts to enhance and maintain waterfront uses by repairing the existing breakwater and supporting fishing, commercial and recreational boat traffic.<br><br>In addition, the Proposed Action would help maintain the integrity of the harbor basin with appropriate and effective structures. The No Action Alternative would not support these economic policies in that it would allow continued breakwater and harbor degradation. | | |

### *4.2.3 Hawai'i State Recreation Functional Plan*

State Functional Plans are considered, in conjunction with County General Plans, primary guideposts for implementing the Hawai'i State Plan. The State Functional Plans, developed in 1991, outline specific strategies of policies and priority actions that need to be addressed in the short-term time frame. This section includes an analysis of the project's relationship to the State Recreation Functional Plan to evaluate relationship with fundamental State policies.

The State Recreation Functional Plan identifies six issue areas, including:

1. Ocean and shoreline recreation;
2. Mauka, urban, and other recreation opportunities;
3. Public access to shoreline and upland recreation areas;
4. Resource conservation and management;
5. Management of recreation programs, facilities, and areas; and
6. Wetlands protection and management.

*Issue Area 1: Ocean and shoreline recreation*

Specific issues include saturation of beach park capacity, water safety, user conflicts, and inadequate boating facilities. The existing NKSBH is currently used by light recreational boats, local fisherman and canoe paddlers. As it currently stands, waves within the harbor basin exceed the values considered safe for a small craft boat harbor. The intent of the Proposed Action is to modify the breakwater to improve wave conditions in the harbor for ocean and shoreline recreation purposes.

*Issue Area 2: Mauka, urban, and other recreation opportunities*

Specific issues include the need for activities and facilities in mauka and other areas, special recreation needs, and expanded urban and community recreation opportunities. Since the Proposed Action involves coastal infrastructure, it is not relevant to this Issue Area.

*Issue Area 3: Public access to shoreline and upland recreation areas*

Specific issues include loss of public access due to development, landowner liability as a barrier to public access, restricted access to State Forest Reserve lands, and acquisition and management of accessways. In terms of the Proposed Action, public access to the subject shoreline and harbor perimeter is not restricted due to development and landowner liability has not been a factor in restricting public access. Further, a public beach access area is located in the adjacent shoreline property, thereby allowing mauka to makai access to the shoreline. Hence, the Proposed Action is not relevant to this Issue Area.

*Issue Area 4: Resource conservation and management*

Specific issues include environmental degradation and enforcement. Though the Proposed Action will likely result in damage to existing corals that do not meet criteria for relocation during construction activities in the short-term, it is anticipated that the new breakwater structure will provide a larger and better habitat for corals to grow and improved shelter for aquatic life in the long-term. To the extent that the Proposed Action will encourage an abundance and variety of marine species within the harbor, it is proactively addressing this issue.

*Issue Area 5: Management of recreation programs, facilities, and areas*

Specific issues include interagency cooperation and coordination, alternative funding, aquisition, and management strategies, and the maintenance of existing facilities. NKSBH is managed, operated, and maintained by DOBOR to service local fishers and commercial and recreational users. The main purpose of the Proposed Action is to repair and modify the existing breakwater to provide protection from waves for vessels moored in the harbor basin. Because maintenance of the existing facility will be less intensive and harbor operations will become less hazardous, the Proposed Action supports this Issue Area.

*Issue Area 6: Wetlands protection and management*

Specific issues include recreation access and opportunities, improved wetlands information base, and protection of the most valuable wetlands. The Proposed Action will not impact any wetlands, so this Issue Area does not apply.

### *4.2.4 Department of Health Section 401, Water Quality Certification*

A Section 401 Water Quality Certification (WQC) is required when the action needs a federal permit, license, certificate, approval, registration, or statutory exemption, and may result in any discharge of a pollutant into State waters.

*Relationship to the Proposed Action*

The Proposed Action includes repairing and modifying an existing breakwater structure within the Pacific Ocean including the placement of fill material into State waters. After the State consults with USACE and determines whether a NWP or Individual Permit is required, a determination on whether an individual Section 401 WQC is required will be made. Several NWPs do not require an individual Section 401 WQC, but must comply with the conditions of the DOH's Blanket 401 WQC for NWPs.

The State will either comply with the conditions of an individual Section 401 WQC or with the conditions of DOH's Blanket 401 WQC, as required.

### *4.2.5 Hawai'i Coastal Zone Management*

Coastal Zone Management (CZM), as codified under Chapter 205A, HRS, is a public initiative that integrates resource, ecosystem and place-based management of coastal resources. CZM also balances the needs of economic development and conservation of resources in a sustainable manner. The Federal CZM Program was created through passage of the CZM Act of 1972. Hawai'i's CZM program was enacted in 1977 and amended in 2019 (HRS Chapter 205A).

In Hawai'i, the State Office of Planning (OP) Coastal Zone Management (CZM) Program is responsible for making CZM consistency determinations. When the CZM consistency application is determined to be complete by OP, a public notice will be published in The Environmental Notice distributed by the OPSD ERP and the public will be provided the opportunity to review and comment on the proposal. A CZM consistency determination application would be submitted to the State CZM Program at OP after completion of the required permits, supporting documents, including an environmental review.

Hawai'i's CZM Program is the State's resource management policy umbrella and guiding perspective for the design and implementation of allowable land and water uses and activities. The CZM Program focuses its work on the complex resource management problems of coastal areas in the part of the State that are under the highest stress. Within a framework of cooperation among federal, state, and local levels, the Hawai'i CZM Program employs a wide variety of regulatory

and non-regulatory techniques to address coastal issues and uphold environmental law. These techniques include stewardship, planning, permitting, education and outreach, technical assistance to local governments and permit applicants, policy development and implementation, and identification of emerging issues and exploration of solutions. Table 4-3 presents the relationship between the Hawai‘i CZM Program and the Proposed Action.

**Table 4-3: Relationship to Hawai‘i CZM**

| CZM Objectives and Policies | No Action | Proposed Action |
|---|---|---|
| § 205A-2 (b) Objectives (1) Recreational resources (A) Provide coastal recreational opportunities accessible to the public. | Not Supportive | Supportive |
| Discussion: The No Action Alternative would allow continued degradation of the existing breakwater structure and subsequent damage to waterfront structures within the harbor basin. This will reduce recreational opportunities. The Proposed Action would help to increase and maintain coastal recreational opportunities by repairing the existing breakwater and improving harbor protection from waves and overtopping. | | |
| § 205A-2 (b) Objectives (3) Scenic and open space resources (A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources. | Not Supportive | Supportive |
| The No Action Alternative would allow continued degradation of the existing breakwater structure and subsequent damage to waterfront structures within the harbor basin. This will negatively impact coastal scenic and open space resources. By protecting damage to harbor structures, vessels, facilities and other infrastructure, the Proposed Action helps to protect, preserve, and restore coastal scenic and open space resources. | | |
| § 205A-2 (b) Objectives (4) Coastal ecosystems (A) Protect valuable coastal ecosystems, including reefs, *beaches, and coastal dunes,* from disruption and minimize adverse impacts on all coastal resources. [1] | No change in existing conditions | Supportive |

[1] *Italicized portions are amendments to §205A as enacted in Act 016 on September 15, 2020.*

| CZM Objectives and Policies | No Action | Proposed Action |
|---|---|---|
| Discussion: Potential short-term Proposed Action impacts on marine resources may include an increase in turbidity levels during the repair and landward extension of the breakwater. Appropriate construction BMPs will be designed and implemented to minimize the impacts of water quality associated with project activities. In addition, it is anticipated that all corals occurring on the breakwater structure and the surrounding area would be directly impacted. Impacts to corals could be minimized by relocating suitable coral heads that occur in the project area. Before the start of project, a coral response and rescue team will be formed to remove corals, as practicable, from the project area and transplant them to another site.<br><br>However, it is anticipated the new breakwater structure will provide a larger and better habitat for corals to grow. Therefore, in long-term view, the project will provide positive impacts to the resources of biological assemblage at the project area.<br><br>A beach sits adjacent to the project site, with access currently available through the harbor property. No impacts to the beach are expected. No impacts to dunes are expected, as there are no coastal dunes in the vicinity of the project area. | | |
| § 205A-2 (b) Objectives (5) Economic uses (A) Provide public or private facilities and improvements important to the State's economy in suitable locations. | Not Supportive | Supportive |
| Discussion: The Proposed Action supports continued operations at the existing NKSBH facility for recreational and commercial activities, while a No Action Alternative discourages the use of the harbor. | | |
| §205A-2 (b) Objectives (6) Coastal hazards (A) Reduce hazard to life and property from *coastal hazards*. [2] | Not Supportive | Supportive |
| Discussion: The purpose of the Proposed Action is to improve safety conditions within NKSBH, restore its functionality and increase its resilience to coastal hazards such as sea level rise (SLR) and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor. A No Action Alternative would allow continued hazardous conditions inside of the harbor. | | |
| §205A-2 (b) Objectives (8) Public participation (C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts. | No change in existing conditions | Supportive |
| Discussion: A community pre-consultation meeting was held on March 31, 2023, at NKSBH, where participants were asked to comment on the concept designs for breakwater repair and extension. Based on the community meeting, many alternatives were not further considered, and the Proposed Action was revised and finalized. | | |
| §205A-2 (c) Policies (10) Marine and Coastal Resources (B) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sounds and economically beneficial. | Not Supportive | Supportive |

| CZM Objectives and Policies | No Action | Proposed Action |
|---|---|---|
| Discussion: The Proposed Action combines supporting water-dependent uses (e.g., canoeing, boating, fishing) in coastal areas that are well-suited to their continued operation with trying to improve shelter and benthic habitat for marine life as well as the visual aesthetics of the harbor. The Contractor will employ appropriate construction methods to minimize pollutant generation and use adequate BMPs to prevent contamination of water adjacent to the project site during construction activities. Impacts will also be minimized by relocating suitable coral heads that occur in the project area before the start of the project.<br><br>On the other hand, a No Action approach negatively affects the economy by discouraging commercial activities and uses at the harbor. | | |

An application for a CZM Federal Consistency Review determination will be filed for the Proposed Action.

## 4.3 Hawai‘i County

### *4.3.1 General Plan*

Within the County of Hawai'i planning framework, the General Plan supports the Hawai‘i State Plan and is consistent with State Functional Plans. The County of Hawai'i General Plan (February 2005, as amended) dictates the County's goals and policies for future development. It includes Land Use Pattern Allocation Guide (LUPAG) maps. The LUPAG map estimates the future acreage allocation for a particular land use and is meant to serve as a land use guide for the County. Generally, future developments must be consistent with the LUPAG map. The County LUPAG map designates Kawaihae Harbor as an "Open Area" closest to the shoreline, with industrial areas further inland. An area of Medium Density Urban land is also shown in the more inland area of the Coral Flats closest to Pelekāne Bay.

### *4.3.2 Hawai‘i County Zoning*

The majority of Kawaihae Harbor is zoned MG-1a (General Industrial – one-acre minimum lot size) (Figure 4-2). The only exception is the breakwater which is zoned O ("Open District") by the County of Hawai'i.


**Figure 4-2: Hawai‘i County Zoning Designations**

*Relationship to Proposed Action*

The Proposed Action is consistent with the General Industrial and Open District zonings at the site.

### *4.3.3 Special Management Area*

Chapter 205A-21, HRS, defines SMA as lands extending inland from the shoreline as delineated in maps filed with the Authority, in this case the Hawai‘i County Planning Department, as of June 8, 1977 or as amended pursuant to §205A-23. Each authority is tasked with reviewing developments with the SMA. Among other actions, “development” includes:

- Grading, removing, dredging, mining or extraction of any materials; and
- Construction, reconstruction, demolition, or alteration of the size of any structure.

*Relationship to Proposed Action*

The project area lies adjacent to the SMA. Per consultation with the Hawai‘i County Planning Department, the Proposed Action is exempt from an SMA permit under HRS 171-6(19).

### *4.3.4 Shoreline Certifications - Hawai'i Administrative Rules Chapter 13-222*

HAR Chapter 13-222 standardizes the application for shoreline certifications for purposes of implementing the shoreline setback law and other related laws. The shoreline delineates the highest wash of the waves from the highest tide of the year, excluding named storms such as hurricanes or tsunamis. The shoreline can be evidenced by the vegetation or debris lines and excludes artificially induced vegetation. A survey completed by a licensed surveyor is submitted to the DLNR and verified with a site visit by DLNR staff. A notice of the survey and its purpose is published in the ERP The Environmental Notice and offers the public an opportunity to comment. The Department of Accounting and General Services (DAGS) also posts pictures and copies of the survey on their website for review and comment. Based on public comments, physical geomorphology of the site, and evidence from coastal processes, including historical evidence, the State Surveyor and the DLNR OCCL make a recommendation to the BLNR.

The shoreline is certified by the BLNR during a public meeting on the matter, and its certification is valid for one calendar year. Typically, a state-certified shoreline survey is conducted prior to initiation of project permitting. Since the certification expires after 12 months, a state-certified shoreline would likely need to be repeatedly certified for a complex project that has to obtain both discretionary (e.g., SMA, Shoreline Certification, CDUP) and ministerial permits (e.g., building, grading or flood) permits.

The certification process ensures that any encroachments onto the public domain are resolved, determines what jurisdictions are involved, what permits may be necessary, and serves as the basis from which the County shoreline setback line is measured. An easement may be required for any sand retaining structures, or portion thereof, that extend seaward of the certified shoreline. Decisions on easement requests would be made by the BLNR during public hearings and can require a real estate appraisal, a survey delineating the encroachment, its dimensions, and a metes and bounds description.

*Relationship to Proposed Action*

The estimated location of the shoreline is shown on permit drawings. Per consultation with the Hawai'i County Planning Department, the Proposed Action is also exempt from shoreline certification. As no SMA permit or shoreline certification is needed, no shoreline setback variance is required.

## 4.4 List of Required Permits and Approvals

A summary of potential federal, state, and county requirements and government approvals that may be required for the Proposed Action is listed below.

*Federal*

Section 10, Work in Navigable Waters of the U.S. (USACE)

Section 404, Clean Water Act, for Fill in Waters of the U.S. (USACE)

Other Federal laws that may affect the project, including:

- Archaeological and Historic Preservation Act (16 United States Code [USC] §469(A) (1))
- National Historic Preservation Act (NHPA) of 1966 (Section 106) (16 USC §470(F))
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC §3001)
- Clean Air Act (42 USC §7506(C))
- Clean Water Act (33 USC §1251-1387)
- Coastal Zone Management Act (16 USC §1456(C) (1))
- Endangered Species Act (16 USC §1536(A) (2) and (4))
- EO 13089, Coral Reef Protection (63 FR 32701)
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (16 USC §703-711 (66 FR 3853))
- EO 12898, Environmental Justice
- Fish and Wildlife Coordination Act (FWCA) of 1934, as amended (16 USC §661-666(C) et seq.)
- Magnuson-Stevens Fishery Conservation and Management Act (16 USC §1801 et seq.)
- Marine Mammal Protection Act (MMPA) of 1972, as amended (16 USC §1361-1421(H) et seq.)
- Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC §703-712 et seq.)
- Rivers and Harbors Act (33 USC §403)

*State of Hawai'i*

- Conservation District Use Permit (CDUP) (DLNR-OCCL)
- Easement and Right-of-Entry (ROE) Applications and associated Revocable Permits (DLNR Land Division)
- National Pollutant Discharge Elimination System (NPDES) (DOH-CWB)
- Section 401 Water Quality Certification (WQC) (DOH-CWB)
- Coastal Zone Management Federal Consistency Determination (OPSD)

# 5. CONSULTATION

## 5.1 Pre-Consultation

Forty-five requests for pre-consultation comments were sent regarding this Draft EA. Twenty responses were received. Table 5-1 lists agencies, organizations and individuals to whom pre-consultation requests were sent, and indicates who submitted comments. Appendix H contains pre-consultation comments and responses.

**Table 5-1: List of Pre-Consultation Agencies, Organizations and Individuals and Comments Received**

| Agency / Organization / Individual | Submitted Comment | Meetings |
|---|---|---|
| **Federal** | | |
| Fish and Wildlife Service<br>Pacific Islands Office | X | |
| National Marine Fisheries Services<br>Pacific Islands Regional Office | X | |
| Army Corps of Engineers<br>Honolulu District, Regulatory Office | X | 8/9/2023 |
| U.S. Environmental Protection Agency Pacific Southwest, Region 9 | | |
| **State** | | |
| Department of Accounting and General Services<br>Office of the Comptroller | | |
| Department of Business, and Economic Development and Tourism | | |
| Office of Planning and Sustainable Development<br>Coastal Zone Management Program | X | |
| Department of Health<br>Environmental Management Division, Clean Water Branch | | |
| Department of Health<br>Clean Water Branch | | |
| Department of Health<br>Safe Drinking Water Branch | | |
| Department of Health<br>Environmental Health Administration | | |
| Department of Health<br>Indoor and Radiological Health Branch | | |
| Department of Land & Natural Resources<br>State Historic Preservation District | | |

| Agency / Organization / Individual | Submitted Comment | Meetings |
|---|---|---|
| Department of Land & Natural Resources<br>Division of Boating and Ocean Recreation | | |
| Department of Land & Natural Resources<br>Division of Aquatic Resources | | |
| Department of Land & Natural Resources<br>Engineering Division | X | |
| Department of Land & Natural Resources<br>Office of Conservation & Coastal Lands | X | |
| Department of Land & Natural Resources<br>Land Division | | |
| Department of Transportation | | |
| Department of Transportation<br>Highways Division | | |
| Department of Transportation<br>Harbors Division | | |
| Department of Transportation<br>Airports Division | | |
| Office of Hawaiian Affairs | | |
| University of Hawai‘i at Mānoa<br>Water Resources Research Center | | |
| Department of Agriculture<br>Office of the Chairperson | | |
| **County** | | |
| Department of Water Supply | X | |
| Civil Defense Agency | | |
| Department of Environmental Management | | |
| Department of Public Works<br>Building Division | | |
| Department of Public Works<br>Traffic Division | | |
| Planning Department<br>West Hawai‘i (Kona) | X | |
| Department of Parks and Recreation | | |
| Hawai‘i Fire Department | | |
| Hawai‘i Police Department | X | |
| **Other** | | |

| Agency / Organization / Individual | Submitted Comment | Meetings |
|---|---|---|
| U.S. Representative Ed Case | | |
| U.S. Senator Brian Schatz | | |
| U.S. Senator Mazie Hirono | | |
| State Representative David Tarnas | | 3/14/2023 |
| State Senator Herbert M. "Tim: Richards III | | |
| Councilmember Cynthia "Cindy" Evans | X | |
| Hawaii Electric Light Company | | |
| Hawaiian Telecom | | |
| South Kohala Community Development Plan Action Committee | | |
| Hawaii Harbors User Group | | |
| Young Brothers, Ltd. | | |
| Matson Navigation Co. | | |
| Par Hawaii, Inc (formerly Mid Pacific Petroleum) | | |
| Hawaii Pilots Association | | |
| Kawaihae Canoe Club | X | |
| Kohala Divers | X | |
| Kawaihae Local Resource Council / Hawaii 24/7 | | |
| Kohala Trollers | X (2) | |
| Willette Kalaokahaha Akima Akau; | | 3/31<br>8/9 |
| Pete Hendricks | X | 4/1<br>8/9 |
| Alton Oye | | 3/31 |

Additional written comments were also received from the following individuals:

- Jojo Tanimoto
- Steve Kaiser
- Catherine Crewe
- Katie Fendel

## 5.2 Community Meetings

On March 31 and April 1, 2023, the project team held three meetings with the community, as hereafter described.

The first meeting on March 31 was an onsite visit with members of DOBOR and Oceanit, Manny Viencient, president of the Kawaihae Canoe Club and long-time coach and Willette Akau. Uncle Manny generously shared his manaʻo for almost two hours and commented on proposed harbor improvements.

A community meeting was later held at the Kawaihae Canoe Club hale. It is estimated that approximately thirty people attended, and the following people signed in:

| | | |
|---|---|---|
| Barbara Schaefer | John Kahiapo | Alton Oye |
| Hal Burchard | Bill (?) | George Fry |
| Sue Dela Cruz | Justin (?) | Debra Marcovitch |
| Sam Peck | Gunner M. Ench | Greg Kaufmann |
| Kanoe Peck | Tracey Gilmore | Rebekah Kaufmann |
| Jeff Hoot | Roger Harris | Nalu Akau |
| Gary E. Grosshuesch | H Betancourt | Willette Akima-Akau |
| Pat Allbee | Katie Fendel | |
| Dave Allbee | Janice Thomas | |

Participants were provided an agenda and project information, including a narrative, project maps and existing and options site plans. A project presentation was provided, followed by clarifying questions and pre-consultation comments.

Topics of the clarifying questions were related to:

- Project dimensions and methodology
- Whether the budget includes periodic maintenance
- Construction methodology
- Access to harbor during construction
- Possibility to add overflow parking which is not part of this project
- Mitigation to protect coral on the rocks with footprint of the project

Pre-consultation comments shared during this meeting are as follows.

- Seems like we will have a wider beautiful sandy beach at west of the breakwater as the Ocean/nature will do its work after the construction of the breakwater. I am pretty happy about that.

- DOT took away the parking space on the east. Now the community doesn't have enough parking space to use. It was noted at the meeting that this issue is separate from the Proposed Action.

- The drainage over the parking lot is a big issue. The two dry wells don't drain water to ocean as the intended design.

On April 1, 2023, Oceanit met onsite with Pete Hendricks, a Kawaihae harbor user since 1967, including charter boat captain, sail & power, and Kawaihae Canoe Club member and paddler. Harbor conditions and impacts on boats were discussed.

As noted in several sections of this EA, these community discussions resulted in design modifications to accommodate community input.

# 6. FINDINGS AND REASONS SUPPORTING ANTICIPATED DETERMINATION

## 6.1 Anticipated **Finding** of No Significant Impact (AFONSI)

In accordance with the provisions set forth in Chapter 343, HRS, this Draft EA has preliminarily determined that the project will not have significant adverse impacts on the environment. As such, a Finding of No Significant Impact (FONSI) is anticipated.

## 6.2 Reason Supporting the Anticipated **Decision**

HAR §11-200-11.2 establishes procedures for determining if an EIS should be prepared or if a FONSI is warranted and lists the following criteria to be used in making that determination. In most instances, an action shall be determined to have a significant effect on the environment if it:

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource*

   The Proposed Action would not cause the loss or destruction of natural, historic, or cultural resource. Archeological monitoring will be conducted during all dredging and ground disturbing activities. Although unlikely, if human osteological remains or any potential culturally significant features are accidentally unearthed during dredging, site work would cease and SHPD would be contacted in compliance with HRS Chapter 6E. Processes outlined in existing State regulations, specifically HAR Title 13, Chapter 300 (Section 33 and Section 40), would be employed following discovery. Construction BMPs will be in place to monitor and avoid impacts on natural resources.

2. *Curtails the range of beneficial uses of the environment*

   In the long-term time frame, the Proposed Action will provide larger and better habitat for corals to grow. Further, utilizing BMPs during construction will help reduce short-term impacts on marine life in this area. Hence, in long-term view, the Proposed Action will provide increased habitat area and positive impacts to the resources of biological assemblage at the project area and will not curtail the range of beneficial uses of the environment.

3. *Conflicts with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders*

   The Proposed Action conforms with and is consistent with Chapter 344, HRS State Environmental Policy, to conserve the natural resources and enhance the quality of life. Construction activities proposed under the Proposed Action are not expected to have adverse impacts to the surrounding natural resources and would be planned to minimize any short-term impacts. Long term project impacts will have a beneficial effect on the ocean environment and human use and interaction.

4. *Substantially adversely affects the economic or social welfare of the community or State*

   The Proposed Action would generate short-term economic vitality for the community by providing temporary construction opportunities for the duration of project construction. No significant impacts on the economic or social welfare of the community or the State are anticipated under the Proposed Action.

5. *Substantially adversely affects public health*

   The Proposed Action would have no significant adverse effects on public health.

6. *Involves substantial secondary impacts, such as population changes or effects on public facilities*

   The Proposed Action will not induce secondary impacts or negatively impact public facilities.

7. *Involves a substantial degradation of environmental quality*

   The Proposed Action is intended to improve the breakwater and help to stabilize surrounding benthic habitat conditions.

8. *Is individually limited but cumulatively has considerable effect on the environment or involves a commitment for larger actions*

   The Proposed Action is related to the repair of a portion of an existing breakwater and is not anticipated to result in cumulative effects; therefore, it would not involve a commitment to larger actions.

9. *Substantially adversely affects rare, threatened, or endangered species, or its habitat*

   The Proposed Action is not anticipated to have substantial effects on a rare, threatened, or endangered species, or any critical habitat. No threatened or endangered plant or animal or marine species nor candidate species were found during the marine survey of the project site. Regarding the possibility of proximity to critical habitat, construction BMPs and coordination with public agencies will minimize the possibility of potential impacts to the biological resources within the project site during the construction period.

10. *Substantially adversely affect air or water quality or ambient noise levels*

    No significant impacts on the area's long-term air or water quality or ambient noise levels are anticipated to result from the Proposed Action. BMPs will be implemented to minimize temporary impacts during construction activities. Dust abatement measures will be used to reduce potential impact to air quality. In addition, construction noise that exceeds DOH guidelines will be mitigated to reduce the potential of noise levels exceedances.

11. *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters*

The Proposed Action would not negatively impact coastal waters and does not include construction of new structures that would be prone to damage by being located in an environmentally sensitive area. The Proposed Action is to repair and improve an existing structure.

12. *Substantially affects scenic vistas and view planes identified in county or state plans or studies*

The Proposed Action would not adversely affect the visual aesthetics of the areas identified in County or State plans and studies. Temporary construction-related visual impacts are expected; however, and all visual disturbances will be restored to pre-construction conditions at the end of the construction phase.

*13. Requires substantial energy consumption*

The Proposed Action will not require substantial energy consumption.

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# *Appendix A:*

***Wave Investigation Report***

# Wave Investigation Report

# North Kawaihae Small Boat Harbor

**Prepared for:**

**State of Hawai'i**
**Department of Land and Natural Resources**
**Division of Boating and Ocean Recreation**
**4 Sand Island Access Road**
**Honolulu, HI 96819**

**Prepared by:**

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**June 2023**

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# ATTACHMENT

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ASCE | American Society of Civil Engineers |
| DLNR | Department of Land and Natural Resources |
| DOBOR | Division of Boating and Ocean Recreation |
| MHHW | Mean Higher High Water |
| MLLW | Mean Lower Low Water |
| NKSBH | North Kawaihae Small Boat Harbor |
| No. | Number |
| QA | Quality Assurance |
| USACE | United States Army Corps of Engineers |

# EXECUTIVE SUMMARY

North Kawaihae Small Boat Harbor (NKSBH) is located on the northwest coast of the Island of Hawai'i, near the Kawaihae Deep Draft Harbor (KDDH). NKSBH is susceptible to strong northern winter wave swells, which overtop the breakwater and hit the underside of the marginal wooden pier, damaging the structure and creating hazardous conditions for people and property. Due to repeated high wave events and damage, improvements to NKSBH are needed. The purpose of this report is to describe wave patterns inside of the harbor and to provide recommendations for improvements that will mitigate high wave event effects on harbor structures.

A water level logger sensor was installed on one of the pilings supporting the wooden pier in NKSBH for a period of 11-1/2 months between December 2017 and November 2018. Results of water level data showed that wave conditions inside the harbor do not meet American Society of Civil Engineers (ASCE) criteria for "good" conditions (ASCE, 2012). High waves reflect off the breakwater and are amplified under the wooden pier, causing waves to hit the underside of the pier. Based on analyses of the wave data, the following recommendations are suggested to create safer conditions within NKSBH.

- Modify the pier to a floating structure held in place by vertical piles or flexible anchoring to prevent waves from battering the underside, while maintaining an elevation above the water suitable for safe boat operations;
- Raise the height of the breakwater to 10 feet (from 6 feet above MLLW) to reduce overtopping.

If implemented, all improvements and modifications would need to be coordinated with KDDH improvements proposed by the United States Army Corps of Engineers (USACE).

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# 1 BACKGROUND

## 1.1 INTRODUCTION

North Kawaihae Small Boat Harbor (NKSBH) is located on the northwest coast of the Island of Hawaii, at the northeast side of the Kawaihae Deep Draft Harbor (KDDH) entrance. See Figure 1-1. NKSBH consists of a breakwater and rock revetment on its southern *makai* side, a concrete boat ramp in the northwest corner, and a marginal wooden pier on the eastern side (Figure 1-2). NKSBH shares a similar wave climate to the much larger KDDH.

During high wave conditions, a significant amount of wave energy penetrates the NKSBH basin and overtops the harbor breakwater causing extensive damage to the marginal wooden pier. At its lowest point the wooden pier is only about 1 foot 8 inches above the mean higher high water (MHHW) line. The pier height above the water level is critical for the safety of the structure and for boat operations. Damage to the pier seems to be directly related to wave impacts from underneath. Large swells and storm events have damaged the marginal wooden pier several times, creating dangerous and hazardous conditions for boat users and pedestrians. Additionally, large swells break on the pocket beach immediately north of the breakwater (Figure 1-2), flooding the backshore from the uprush. Some of this water flows back into the harbor through the boat ramp, causing sand accumulation at the base of the concrete ramp and limiting its use. Due to NKSBH's susceptibility to large swells, the Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) wants to implement improvements to the harbor. The purpose of this report is to describe wave patterns inside of the harbor and to provide recommendations for improvements to the NKSBH that will mitigate destructive high wave effects on the structures.

To assess the amount of wave penetration and the reasons for frequent damage to the wood pier, Oceanit installed a wave gauge sensor attached to a pier support piling to collect water level and wave data for a period of about 11-1/2 months (Figure 1-2). Phase 1 of the measurements covered the period between December 21, 2017 and May 03, 2018, while Phase 2 spanned between May 03, 2018 and November 07, 2018. All data was statistically analyzed, and trends and results for both phases are summarized below.

## 1.2 WAVE DATA COVERAGE

An RBR Solo Third Generation water level logger was installed in NKSBH at the location shown in Figure 1-2 on one of the pilings of the wooden pier. The gauge measured the depth of the water column above it using a pressure sensor.

Data collection commenced at 16:00 on December 21, 2017 and ended at 04:00 on November 07, 2018. Data bursts were recorded at six-hour intervals, during which approximately 34 minutes of water level data were recorded every second. The wave gauge was serviced in May 2018 at the end of the first phase and redeployed for the second data collection phase.


**Figure 1-1: Project Location Map**


**Figure 1-2: Aerial Photograph Showing Features of the North Kawaihae Small Boat Harbor**

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# 2 DATA ANALYSIS

Each of the 1,280 data bursts taken every six hours were scanned for quality assurance (QA). Data collection was very successful, with only three data sets rejected during the QA scan. The analysis focused on water level variations and the extent of long and short wave penetration into the harbor basin.

## 2.1 WATER LEVEL ANALYSIS

The wave gauge monitored the depth of water above the sensor and recorded the water depth at one second intervals. Raw data showed that the variation of long-term water level fluctuations included the tide and other intermediate period basin oscillations. Data statistics such as the maximum, average, and minimum water levels were calculated to reflect the effect of the astronomical tide.

Water levels were measured relative to the depth at which the wave gauge was mounted. Preliminary data analysis consisted of determining the frequency distribution of the water level to assess the available freeboard of the marginal wooden pier. The depth of immersion of the wave gauge was used with existing tidal data to relate measured data to the pier elevation.

A moving average for each data burst was used to identify presence of water level variations with periods greater than 30 seconds that may be attributed to local phenomena generated by the small harbor geometry and possible interaction with the main harbor basin.

## 2.2 WAVE ANALYSIS

Data was collected in approximately 34-minute bursts, at six-hour intervals to facilitate Fourier Transformation Analyses. Each data burst consisted of 2,048 data points sampled at one-second intervals. A one-second sampling rate will show the presence of waves with periods greater than four seconds. This data sampling rate was selected to increase the sample length and conserve memory. Since waves are stochastic, they vary rather slowly. The data length was selected to facilitate spectral analysis.

Wave data was further analyzed using a spectral approach. Inspection of data showed the possible presence of a water level fluctuation with a period of about 130 seconds. This is generally in the range of wave group periods and is also referred to as a surf beat. Waves propagate in groups, and each group may consist of about eight to ten waves. The first waves in the group start with a smaller wave height, gradually increase to a maximum, and then reduce gradually toward the end of the wave set. The wave height variation within a group produces a varying wave set up at the beach when the waves break, which is related to the wave height of the incoming wave group. This varying wave set up causes a nearshore oscillation or a surf beat, which can sometimes force long period oscillations in adjacent small basins.

To assess the significance of the long period oscillation, data sets were filtered with a low pass digital filter. Low and high passed data was analyzed separately to assess significant wave heights. All data bursts showed the presence of short and long wave components.

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# 3 RESULTS

Data was reviewed and analyzed to obtain the basic water level and wave statistics and determine probable presence of longer period oscillations. Results of the analyses are shown below.

## 3.1 WATER LEVEL ANALYSIS

Water level data was collected at one-second intervals for approximately 34 minutes for each wave data set or burst. Data sets were collected at six-hour intervals for the duration of measurements. A typical 34-minute data burst is shown in Figure 3-1.

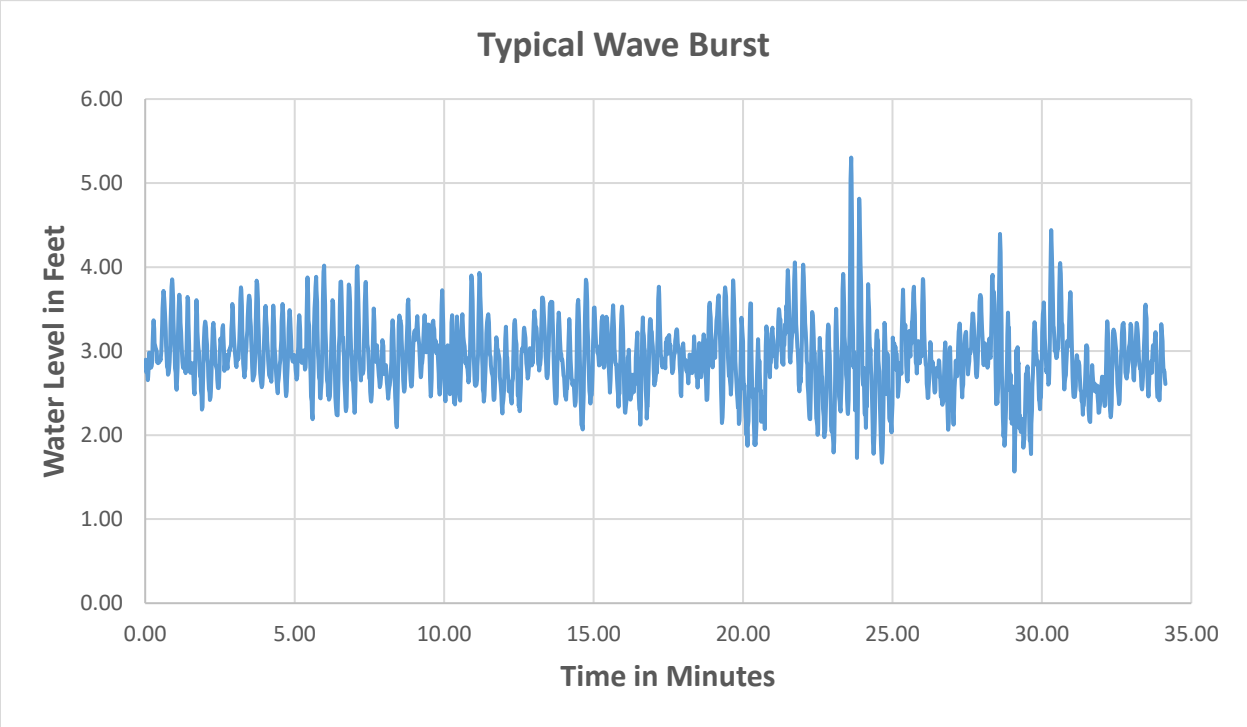


**Figure 3-1: Water Level Elevation Above Wave Gauge (Typical Data Set)**

Visual inspection of the plotted data indicated that there was a long-wave oscillation in the harbor basin that appeared every approximately 130 seconds, distinct from the usual short period waves that penetrate into the harbor. To detect this long period wave, a moving average with a 30-second period was applied to the data. The resulting long period oscillation for the data set shown in Figure 3-1 is shown in Figure 3-2. This may be an oscillation generated by a surf beat or an interaction with water level variations in the larger Kawaihae Deep Draft Harbor.

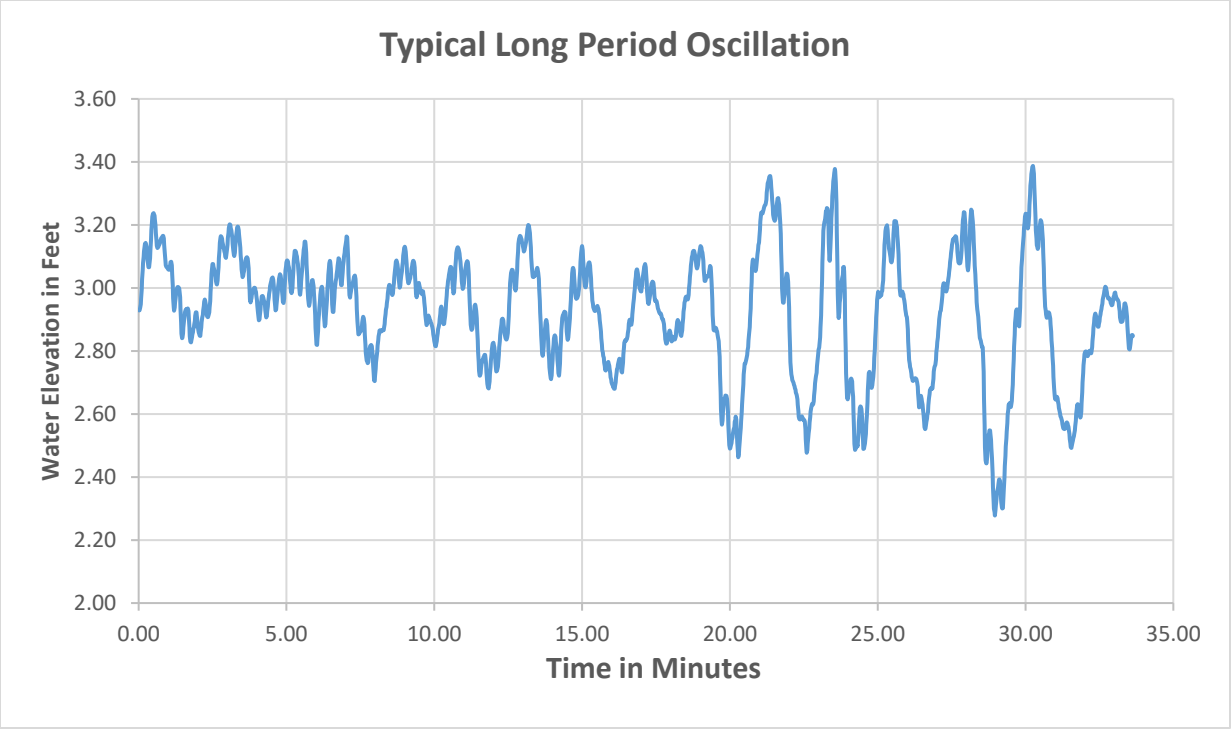


**Figure 3-2: Long Period Wave Present in the Data Burst**

The dominant water level fluctuations in the harbor are mainly attributed to changes in astronomical tides; however, the long and short waves that enter the harbor through the entrance may accentuate the tidal variation. Observations from beneath the pier deck showed that most of the damage to the marginal wooden pier is attributed to waves that impact it from underneath the structure. The frequency distribution of the water level elevation above the gauge for all data collected is shown in Figure 3-3.

The water level elevation above the gauge exceeds three feet about 14 percent of the time, which poses a significant risk to the wooden pier since the bottom of the pier deck is only about 1 foot 8 inches above the MHHW line. Raising the deck by one foot would lower the frequency of the water's interaction with the deck to approximately 3 percent of the time. Although raising the wooden pier deck would increase the structure's safety from wave action, the deck height needed to maintain normal boating operations and offloading would need to be considered to determine a practical recommendation.

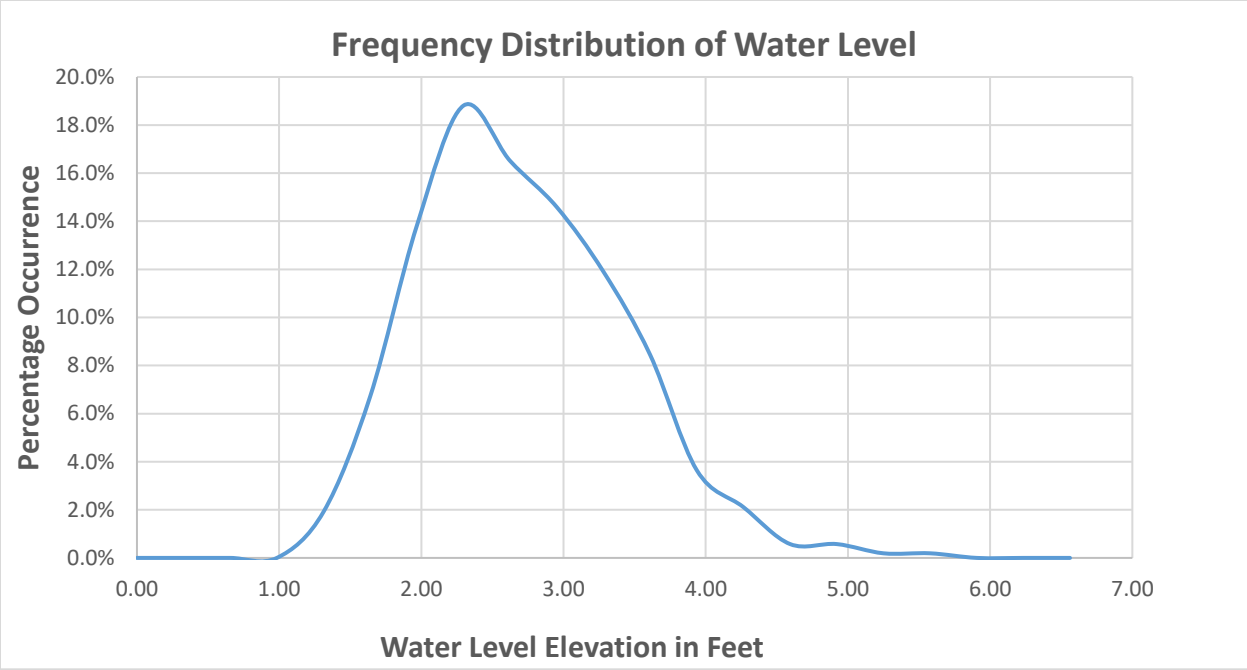


**Figure 3-3: Frequency Distribution of Water Level Elevation Above Wave Gauge**

## 3.2 WAVE DATA ANALYSIS

The total wave data set consisted of 1,280 data bursts sampled at one-second intervals for approximately 34 minutes. Initial data review indicated that the data records contain two distinct wave sets. One set consists of long waves, which correspond with wave group or surf beat periods. The other set consists of shorter waves, which reflect the ocean swells that penetrate the harbor basin. The trend and the average of the data was removed before further analysis.

Each data set was filtered to separate the long and short waves. The filter produced a short wave data set with periods less than 30 seconds and a long wave data set with wave periods longer than 30 seconds. The long waves that enter the harbor basin have a 130 second period and are depicted in Figure 3-4. The short waves have an average period of about 14 seconds and are shown in Figure 3-5.

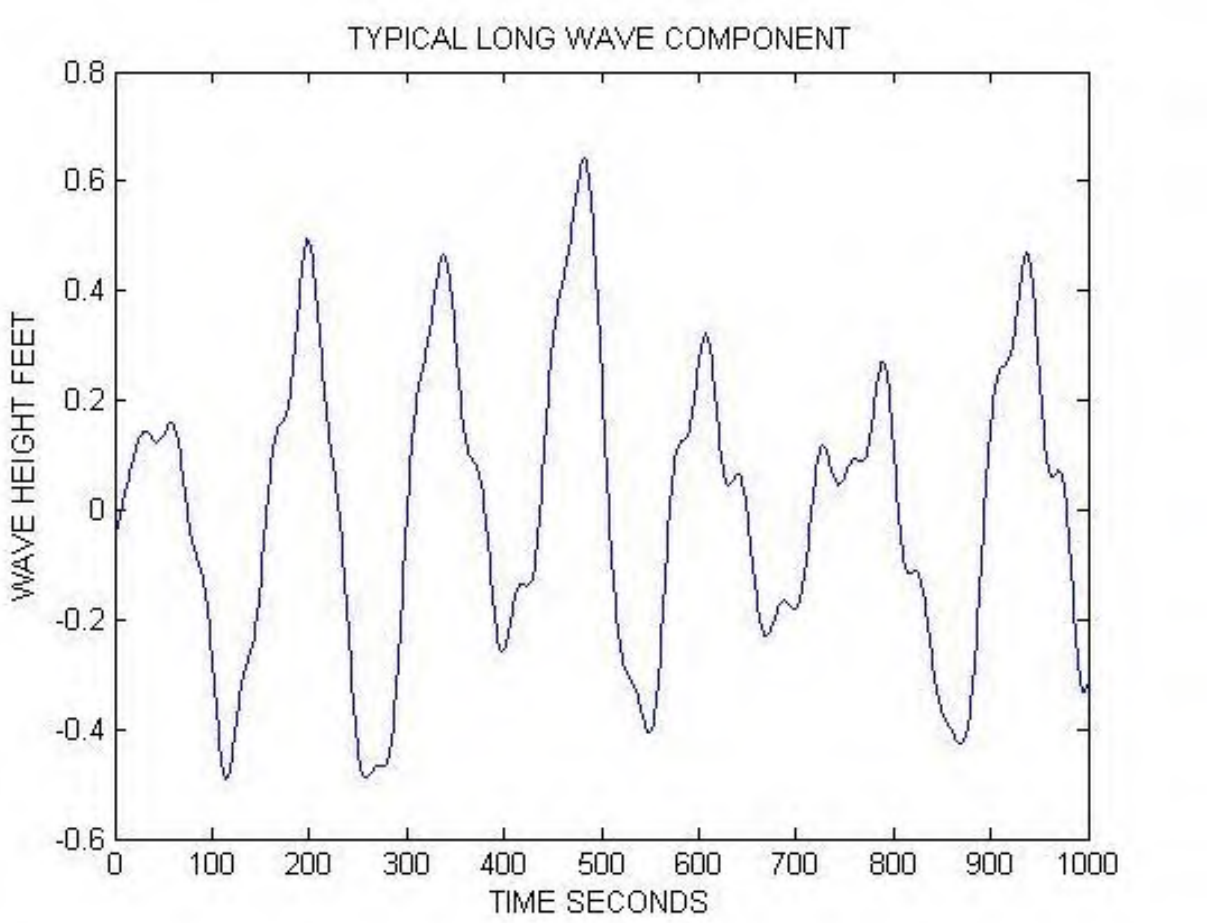


**Figure 3-4: Typical Long Wave Component in Data Set (Period ~ 130 seconds)**

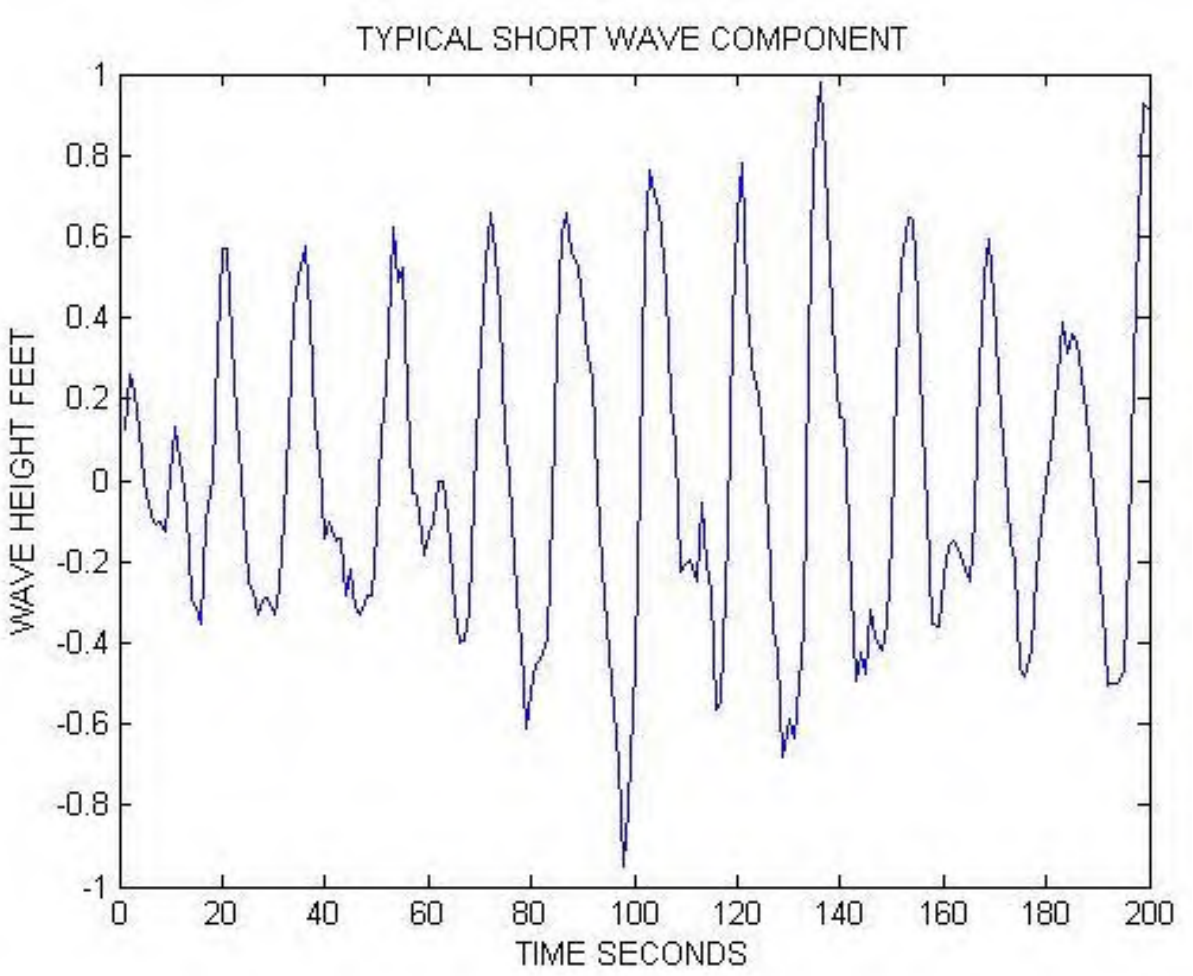


**Figure 3-5: Typical Short Wave Component in a Data Set (Period ~ 14 seconds)**

To assess the risk of wave action to harbor structures, the long and short wave occurrence frequencies were examined. Frequency distributions of the long and short wave components in a typical data set are shown in Figures 3-6 and 3-7, respectively.

The height distribution of waves with a period less than 30 seconds shows that wave penetration into the harbor basin is less than a foot for over 95 percent of the time. Wave height in the harbor exceeds a foot only during severe wave conditions. The damage these waves can cause by themselves is not significant under normal conditions. However, a combination of the two wave types can elevate the water level in the basin and cause damage to harbor structures. Raising the elevation of the breakwater could be a solution to reduce high wave occurrences inside of NKSBH.

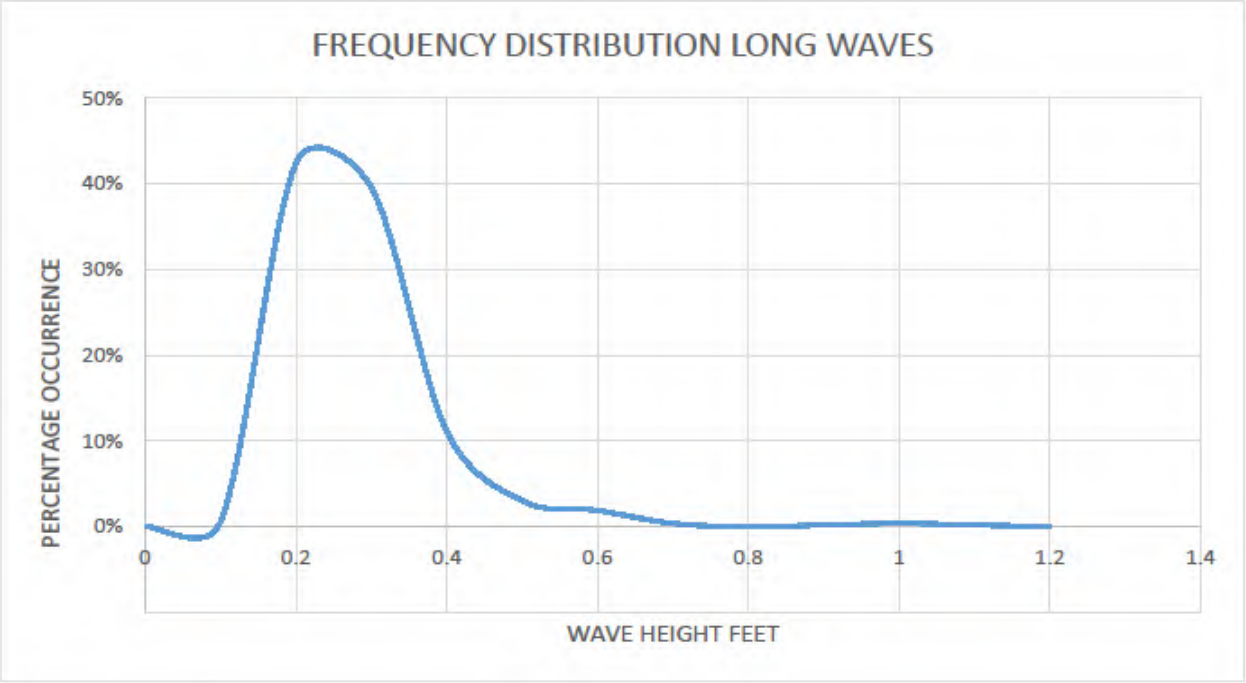


**Figure 3-6: Frequency Distribution of Long Wave Heights**

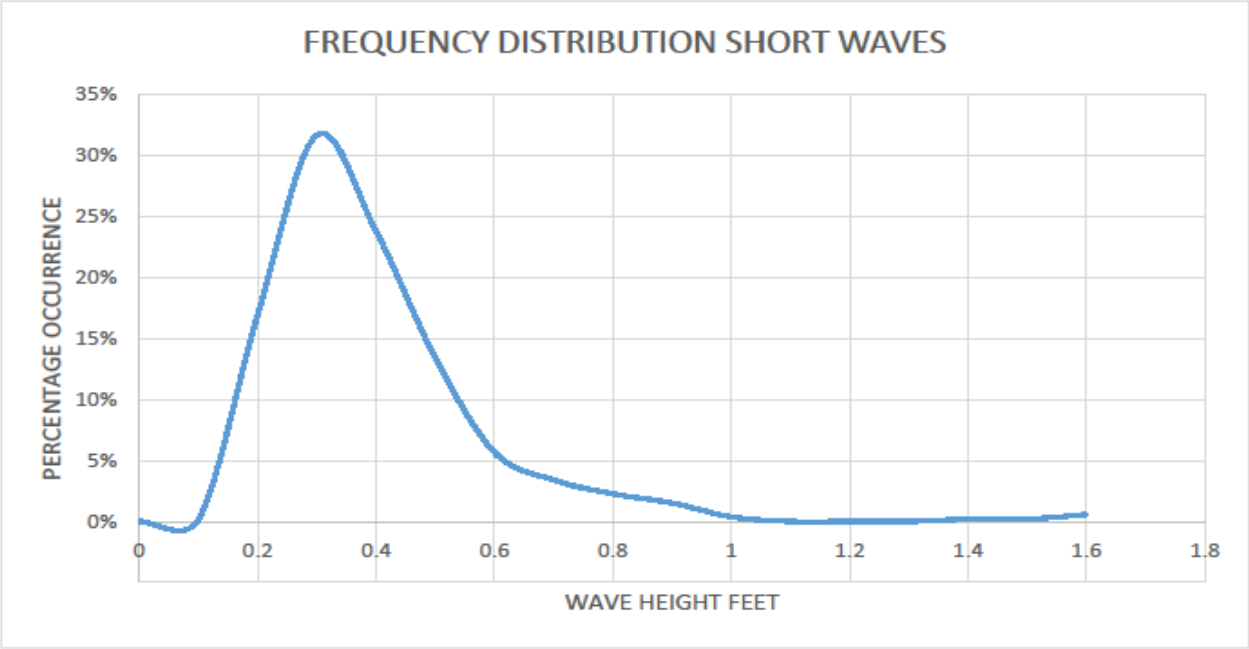


**Figure 3-7: Frequency Distribution of Short Wave Heights**

The height distribution of longer waves shows that wave heights exceed 0.8 feet less than 1 percent of the time (Figure 3-6). However, these waves have a period of about 130 seconds and therefore, the elevated water levels with each wave occur for a longer time span. The scatter diagram of heights of short and long waves show a distinct relationship, indicating that higher short waves are associated with higher long waves (Figure 3-8). Damage to the marginal wooden pier occur when the crests of the long and short waves combine within the harbor basin. When this happens, wave crests will batter the pier from its underside.

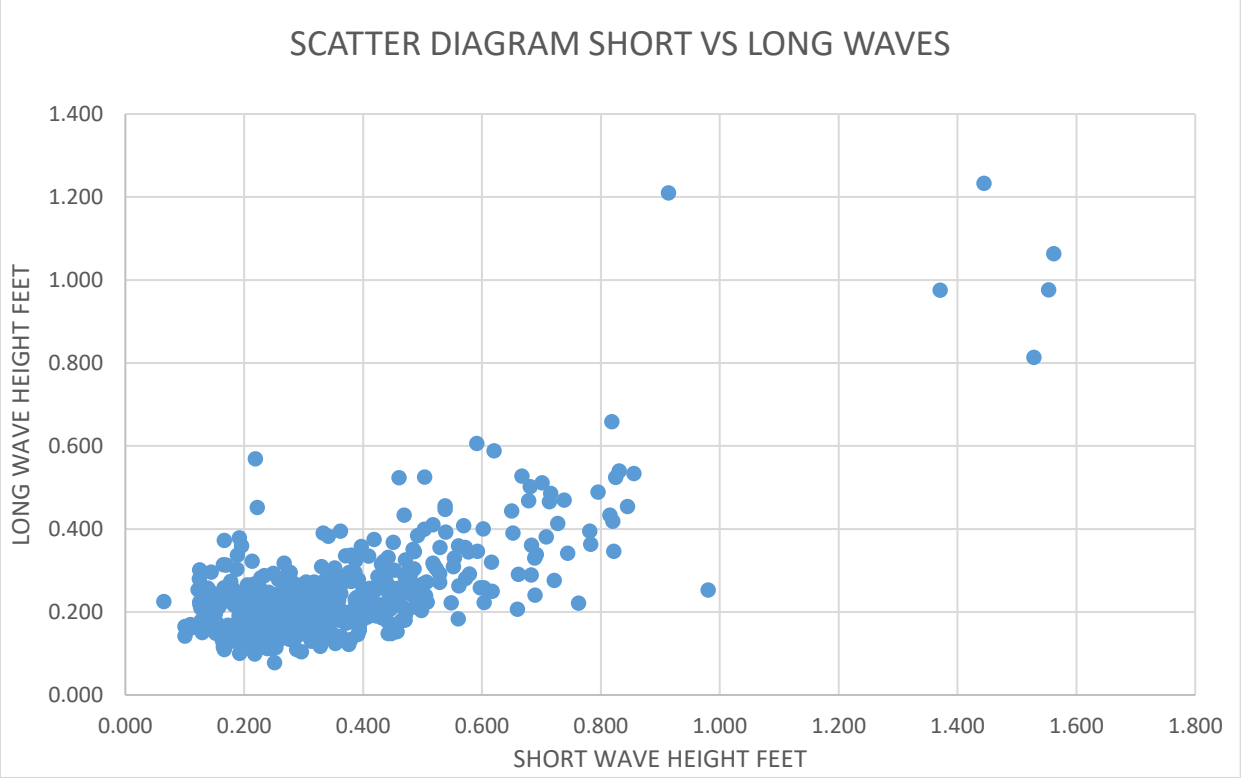


**Figure 3-8: Scatter Diagram Showing Relationship between Short and Long Wave Components of Data for February 2018**

Monthly Averaged Wave Spectra, which shows water level variations and Daily Spectral Distribution, which shows the extent of long and short wave penetration are shown in Table 3-1.

Figures of Wave Spectra and Daily Spectral Distribution for each month of data collection are shown in the figures in Appendix A.

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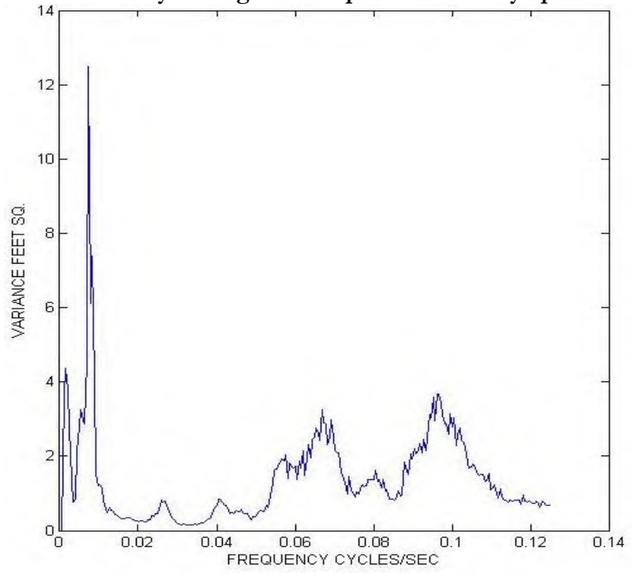
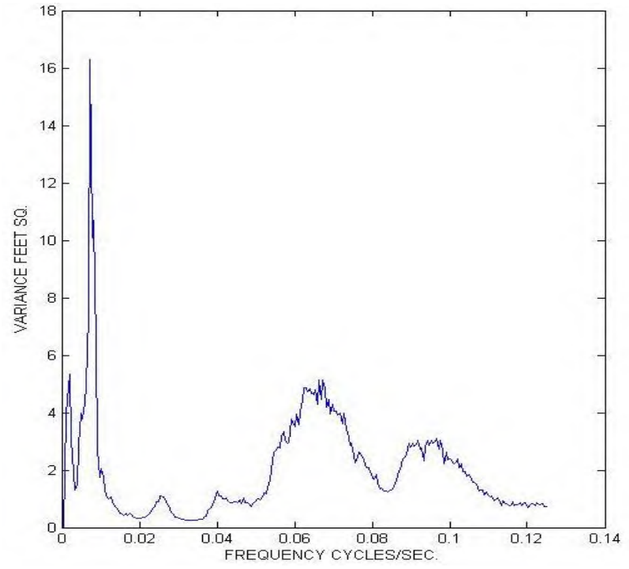
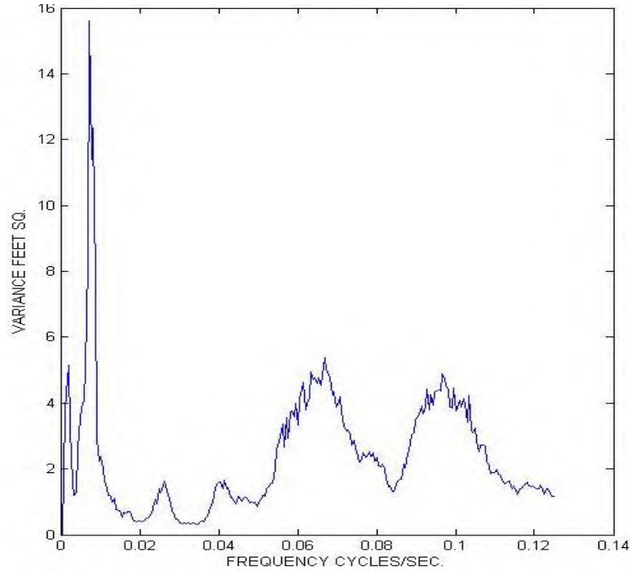
**Table 3-1: Monthly Average Wave Spectra and Daily Spectral Distribution**



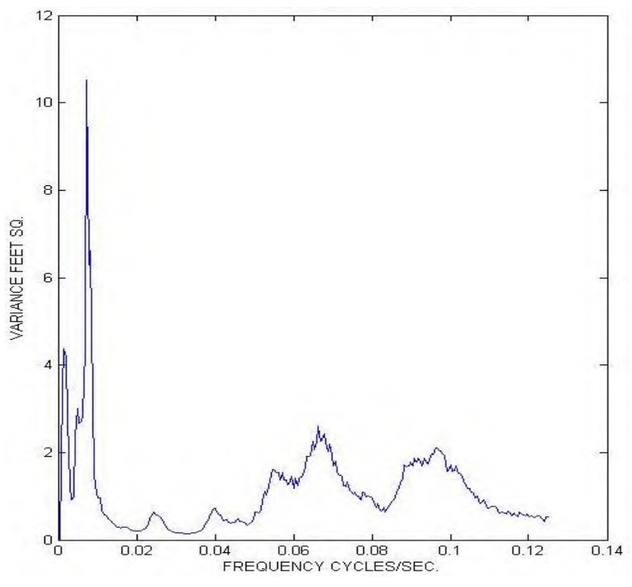

December 2017 – Average Wave Spectra



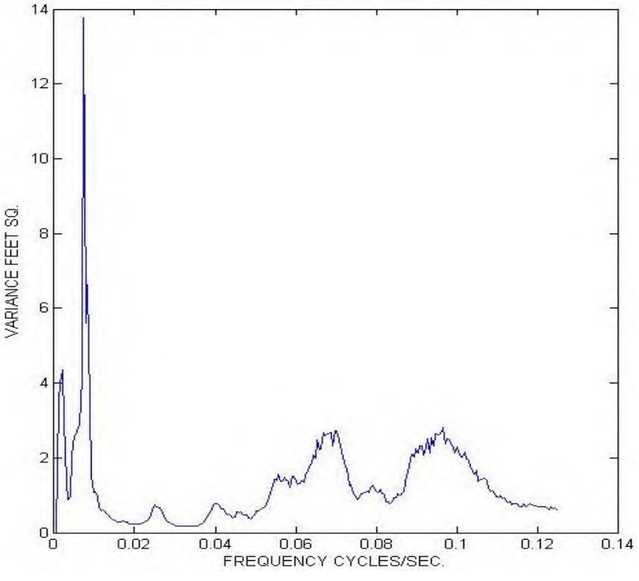

January 2018 – Average Wave Spectra



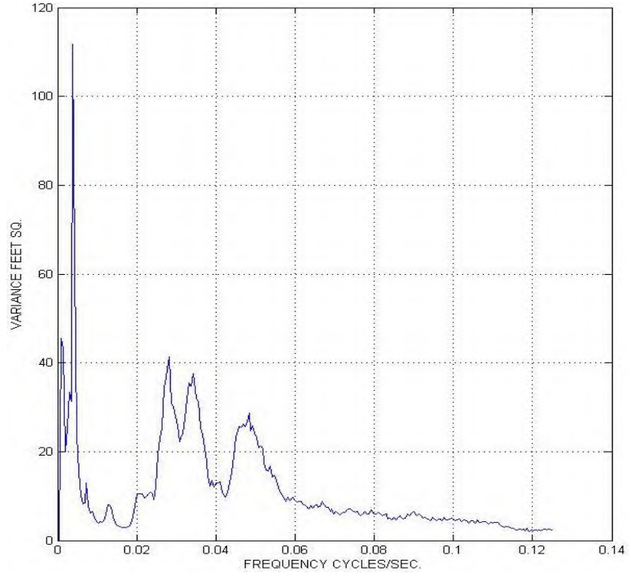

February 2018 – Average Wave Spectra



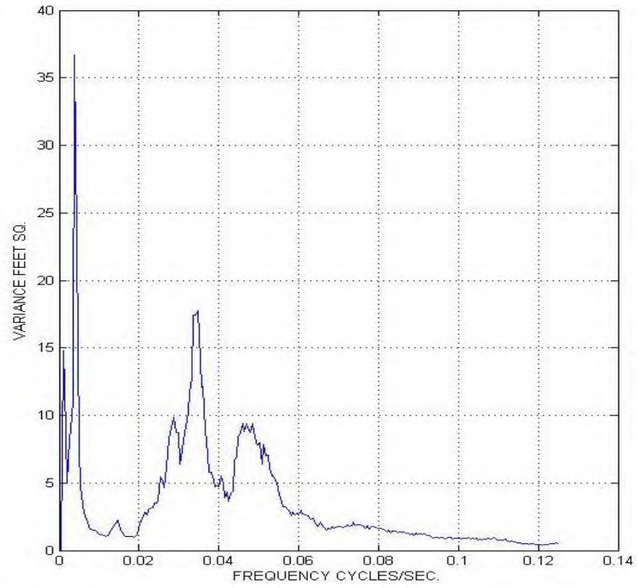

March 2018 – Average Wave Spectra



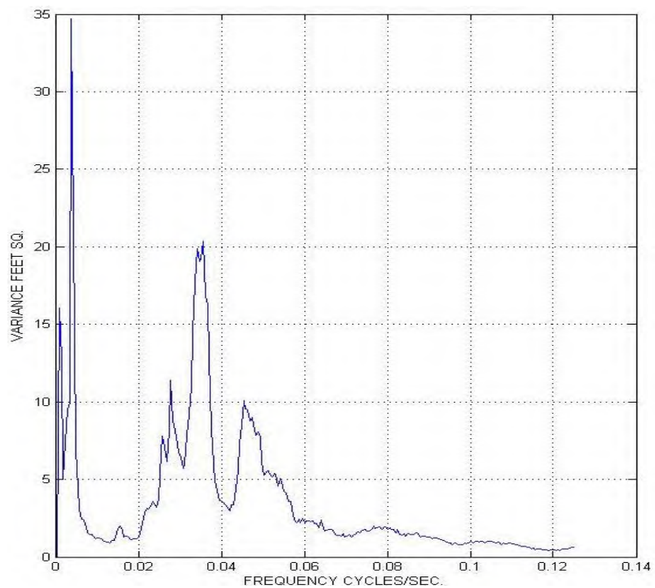

April 2018 – Average Wave Spectra



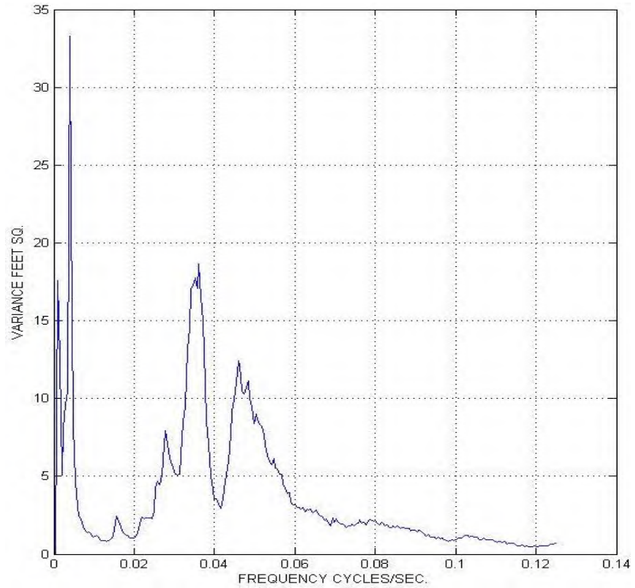

May 2018 – Average Wave Spectra



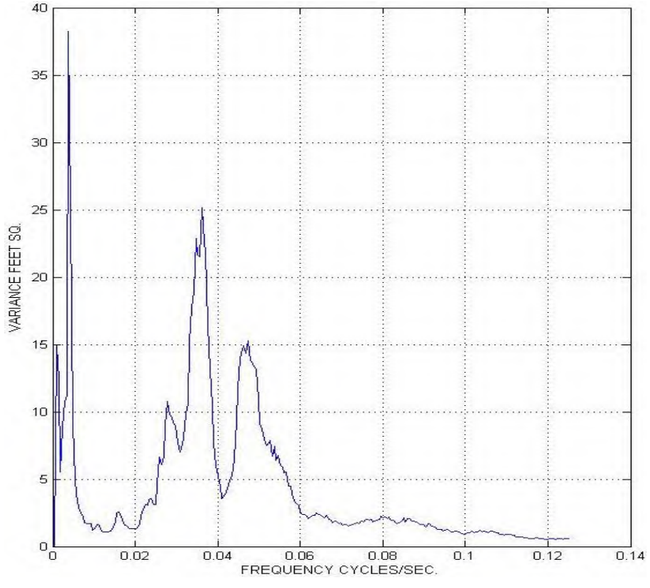

June 2018 – Average Wave Spectra



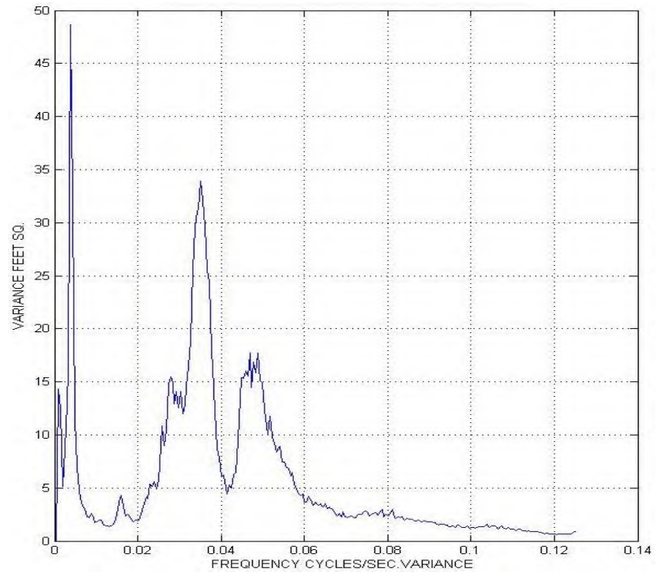

July 2018 – Average Wave Spectra



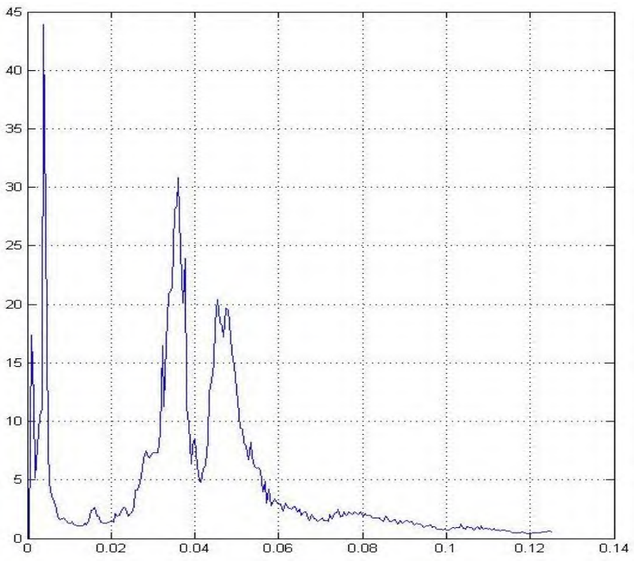

August 2018 – Average Wave Spectra



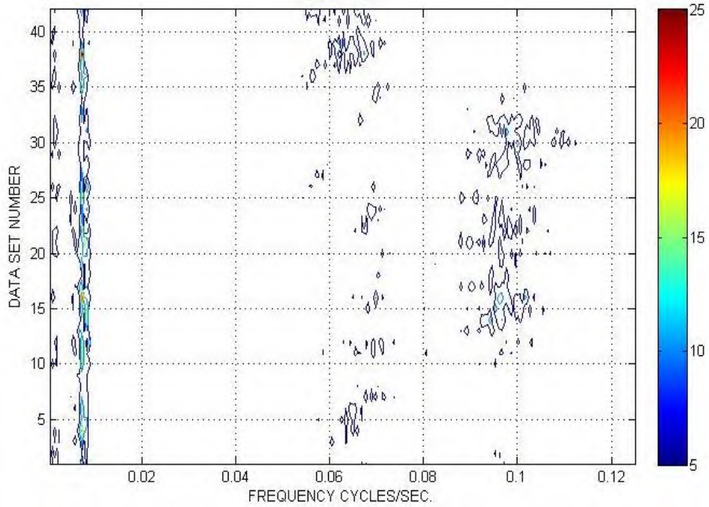

September 2018 – Average Wave Spectra



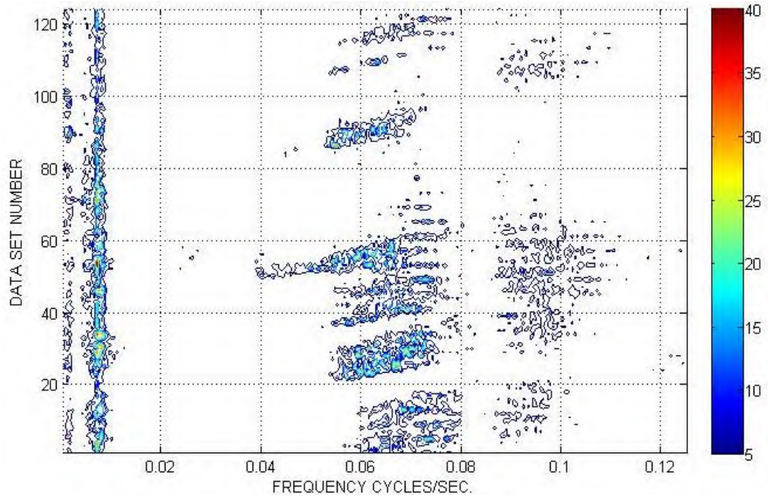

October 2018 – Average Wave Spectra



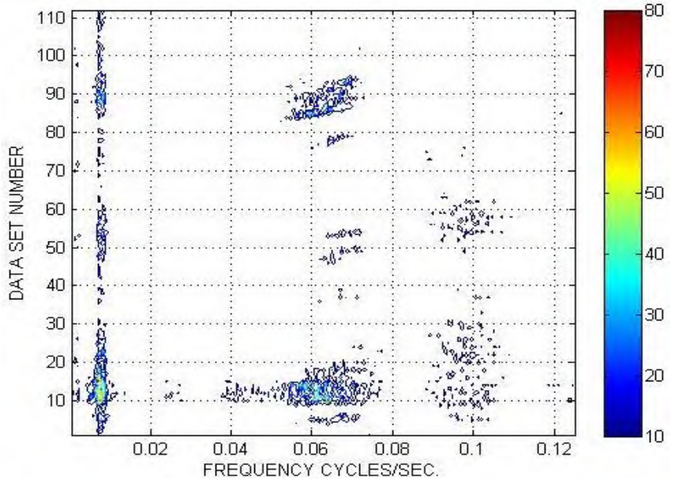

November 2018 – Average Wave Spectra



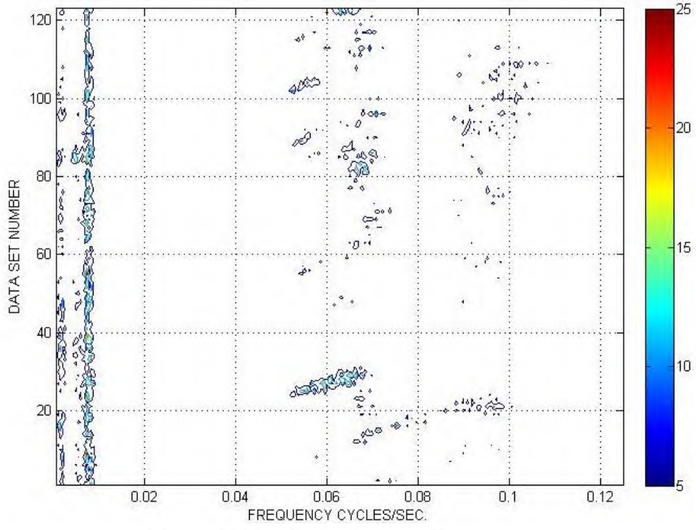

December 2017 – Daily Spectral Distribution



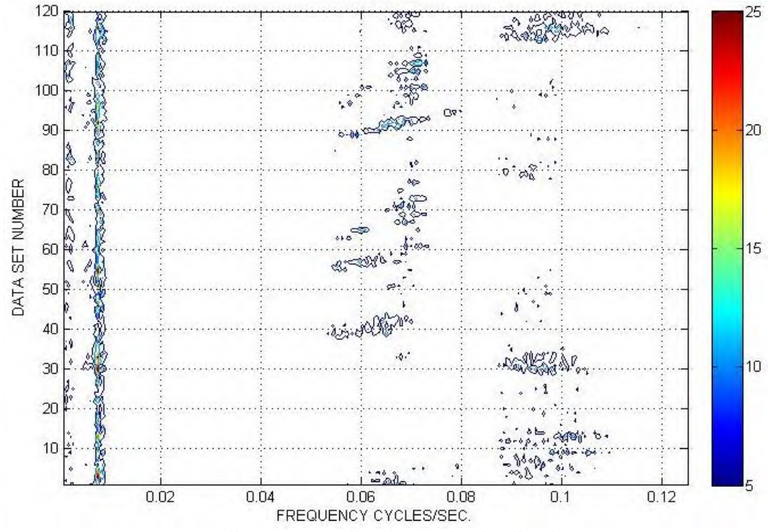

January 2018 – Daily Spectral Distribution



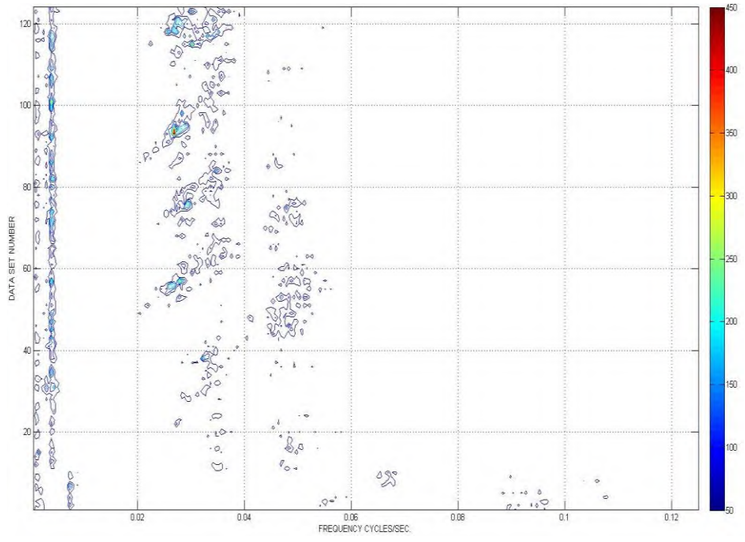

February 2018 – Daily Spectral Distribution



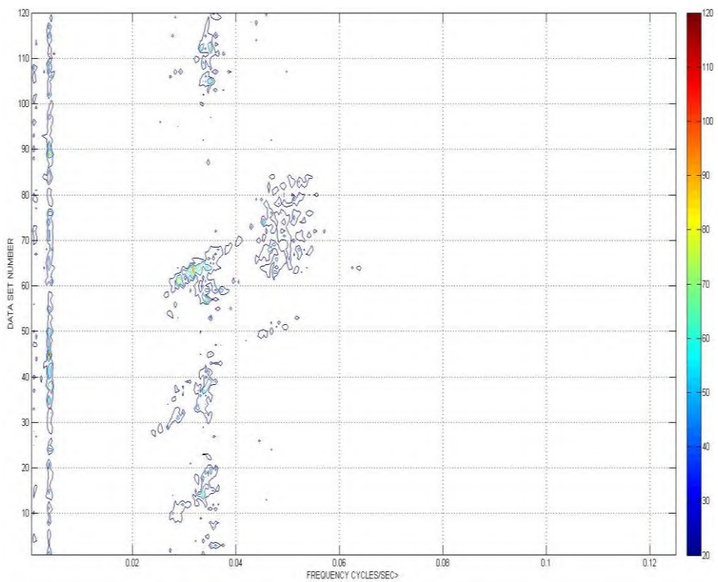

March 2018 – Daily Spectral Distribution



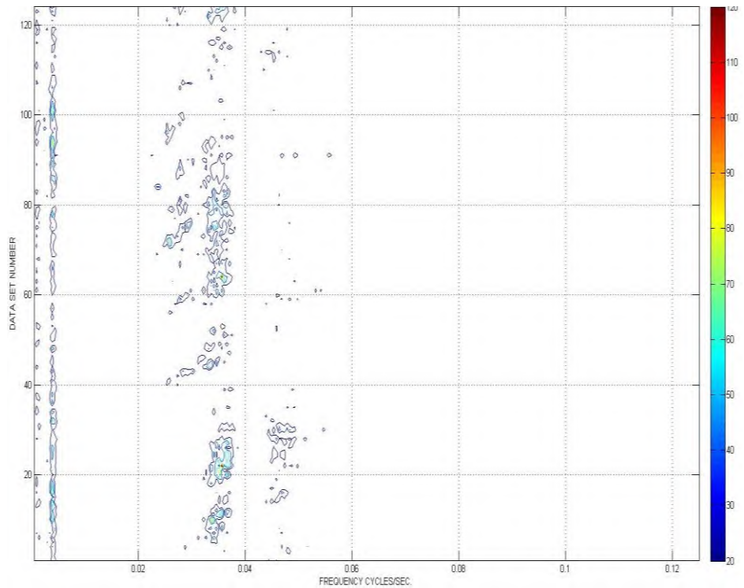

April 2018 – Daily Spectral Distribution



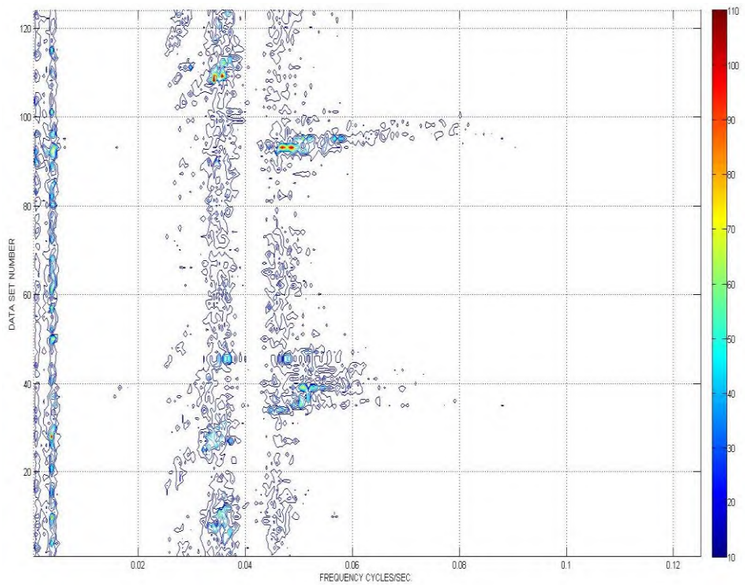

May 2018 – Daily Spectral Distribution



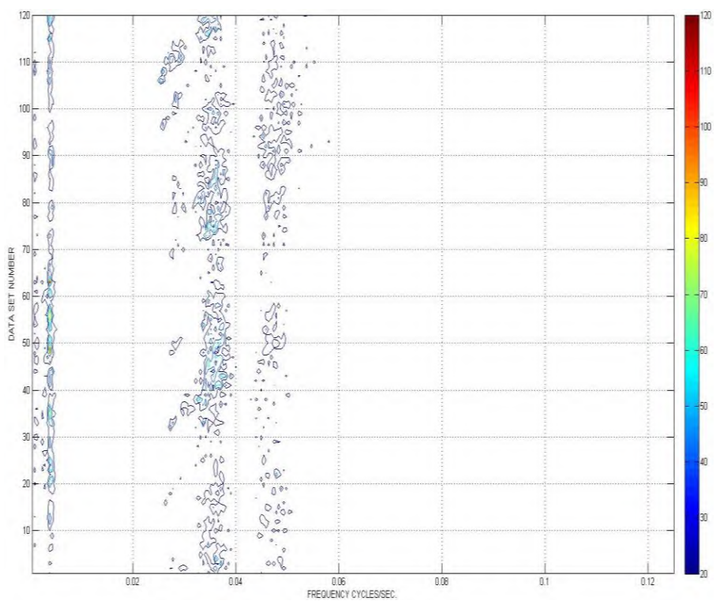

June 2018 – Daily Spectral Distribution



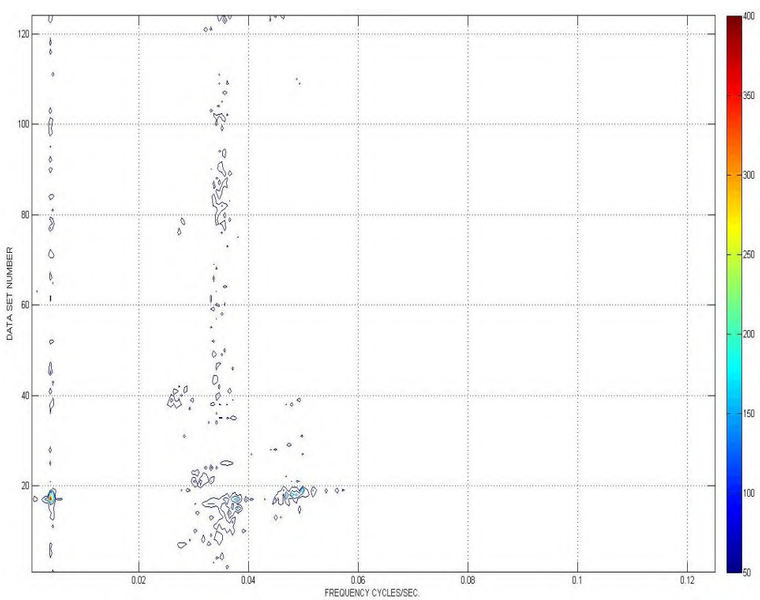

July 2018 – Daily Spectral Distribution



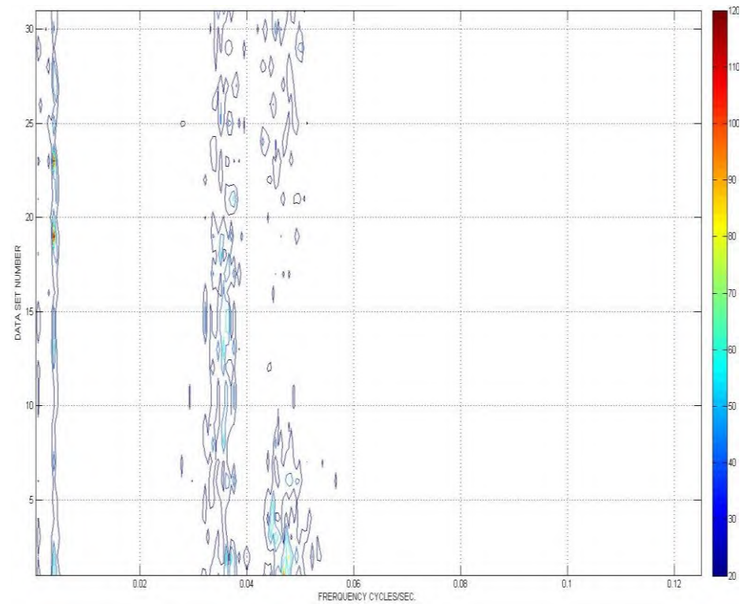

August 2018 – Daily Spectral Distribution




September 2018 – Daily Spectral Distribution




October 2018 – Daily Spectral Distribution




November 2018 – Daily Spectral Distribution

# 4 DISCUSSION AND CONCLUSIONS

Plotted data in Table 3-1 show two distinct types of waves. The shorter wave has a period of approximately 14 seconds, while the longer wave has a period of approximately 130 seconds. The short wave observed is typical for this part of the ocean and enters the harbor basin through the entrance between the breakwater and the rock revetment (Figure 1-2). The longer wave probably is related to a wave which carries the short waves, or a local wave oscillation between the NKSBH and the Deep Draft Harbor. However, a wave study of the Deep Draft Harbor would be needed to confirm this phenomenon. It should be noted that Deep Draft Harbor oscillations modelled in 2006 identified a high resonant amplification factor at 130.5 seconds (United States Army Corps of Engineers [USACE], 2006).

This phenomenon is confirmed by the frequency distribution of the water surface elevation measured at the wave gauge. Water level variation in the harbor exceeds three feet about 14 percent of the time. This condition may affect the safety of the marginal wooden pier because it is at an elevation of about five feet above mean lower low water (MLLW). In NKSBH, the difference between the MLLW and the MHHW is 2.2 feet, which puts the marginal wooden pier deck only about three feet above the MHHW line with no waves. The deck boards are 4 inches thick and are supported by 10-inch deep timber beams. These beams are connected to the pile structure. The lowest point of the underside of the deck is roughly about +3 feet 10 inches MLLW. The bottom of the deck structure is only about 1 foot 8 inches above MHHW. This elevation is not sufficient to prevent waves at high tides from reaching the deck from below. In addition, a wave or wind setup can easily raise the nearshore water level by another foot and compound the problem.

Waves with heights over one foot can reach the underside of the pier when the tide is high. This is a serious problem that causes intermittent damage to the pier deck and disruption to harbor operations. Raising the deck elevation could reduce the frequency of damage to the pier. However, safety in embarking and disembarking from small rafts would be an issue if the boat deck and pier elevations differ significantly. The pier may have to be changed to a floating type to prevent frequent damage from the long period oscillations coupled with short wave penetration into the harbor basin and maintain a similar elevation for the safety of the deck users.

Wave heights measured in the harbor basin varied from 0.18 feet (2 inches) to 1.91 feet (23 inches). The average wave height for the measurement period is 0.45 feet (5.4 inches). The wave heights exceeded 0.5 feet about 40 percent of the time, and one foot about five percent of the time. Data show that the harbor in its present configuration does not provide the ASCE-recommended level of protection for a small boat harbor. Safety can be improved by raising the top elevation to approximately 10 feet. Improvements to the main breakwater would reduce wave conditions in the harbor basin significantly.

Maximum significant wave heights for various types of vessels are discussed in the ASCE *Manuals and Reports; Engineering Practice Number (No.) 129 (1)* (ASCE, 2014). The limiting wave heights for small craft marinas and fishing boats are shown in Table 6.4 of the manual and are one foot and 1.3 feet, respectively. Criteria for "good" wave conditions in small craft harbors are shown in Table 2.5 of *ASCE Manuals and Reports; Engineering Practice No. 50 (2)* (ASCE, 2012). This table is reproduced as Table 4-1 for reference.

**Table 4-1: Criteria for Good Wave Conditions in Small Craft Harbors**

| Wave Period and Craft Heading | Significant Wave Height, $H_s$ | |
|---|---|---|
| | 50 – Year Wave Event | Yearly Maximum Wave Event |
| Less than 2 seconds in head seas | - | Less than 0.3 m wave height |
| Greater than 2 seconds in head seas | Less than 0.6 m wave height | Less than 0.3 m wave height |
| Less than 2 seconds in beam seas | - | Less than 0.3 m wave height |
| Greater than 2 seconds in beam seas | Less than 0.25 m wave height | Less than 0.15 m wave height |

*Source: ASCE, 2012.*
*Note: Criteria for an 'excellent' wave climate, multiply heights by 0.75 and for 'moderate' wave climate multiply by 1.25.*

Redesigning the breakwater to reduce wave penetration and converting the existing fixed marginal pier to a floating pier would reduce operation and maintenance costs and improve the usability of the harbor.

## 4.1 CONCLUSIONS

Improvements are needed in the NKSBH to mitigate damage to the wooden pier deck and reduce safety hazards. Based on the results of the wave study, the following recommendations for the NKSBH have been made:

- Modify the pier to a floating structure held in place by vertical piles or flexible anchoring to prevent waves from battering the underside, while maintaining an elevation above the water suitable for safe boat operations;
- Raise the breakwater to 10 feet to reduce wave overtopping and wave intrusion into the harbor basin.

# 5 REFERENCES

ASCE, 2012. ASCE Manual of Practice, No. 50. Edition 3. Planning and Design Guidelines for Small Craft Harbors (MOP 50). 15 October.

ASCE, 2014. ASCE Manual of Practice, No. 129. Edition 1. Mooring of Ships to Piers and Wharve (MOP 129). Gaythwaite, John W. 17 December.

USACE, 2006. Wave and Climate Response, Kawaihae Deep Draft Harbor, Island of Hawai'i, Hawai'i. Page 72.

# *Attachment A:*

# *Figures*

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## List of Figures included in Appendix A

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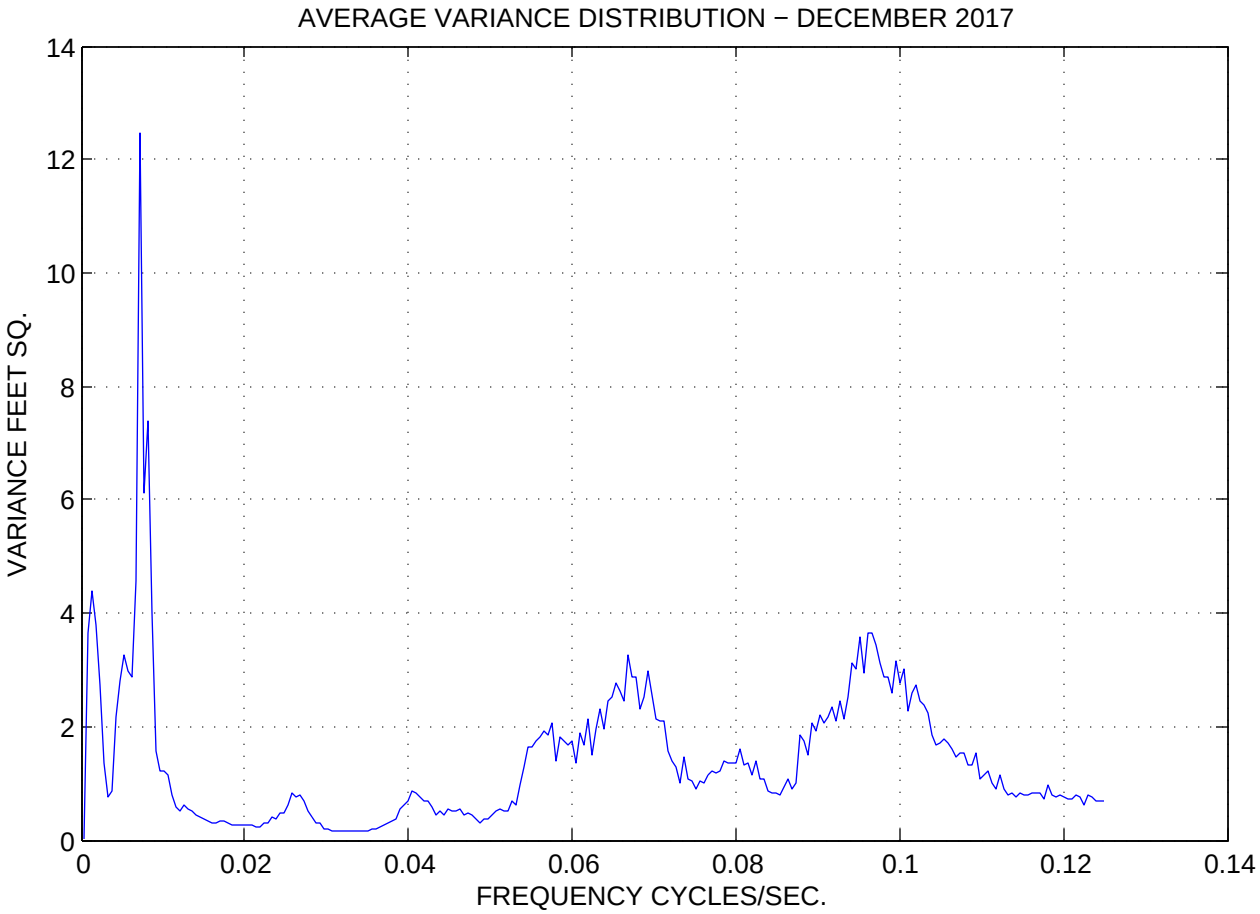
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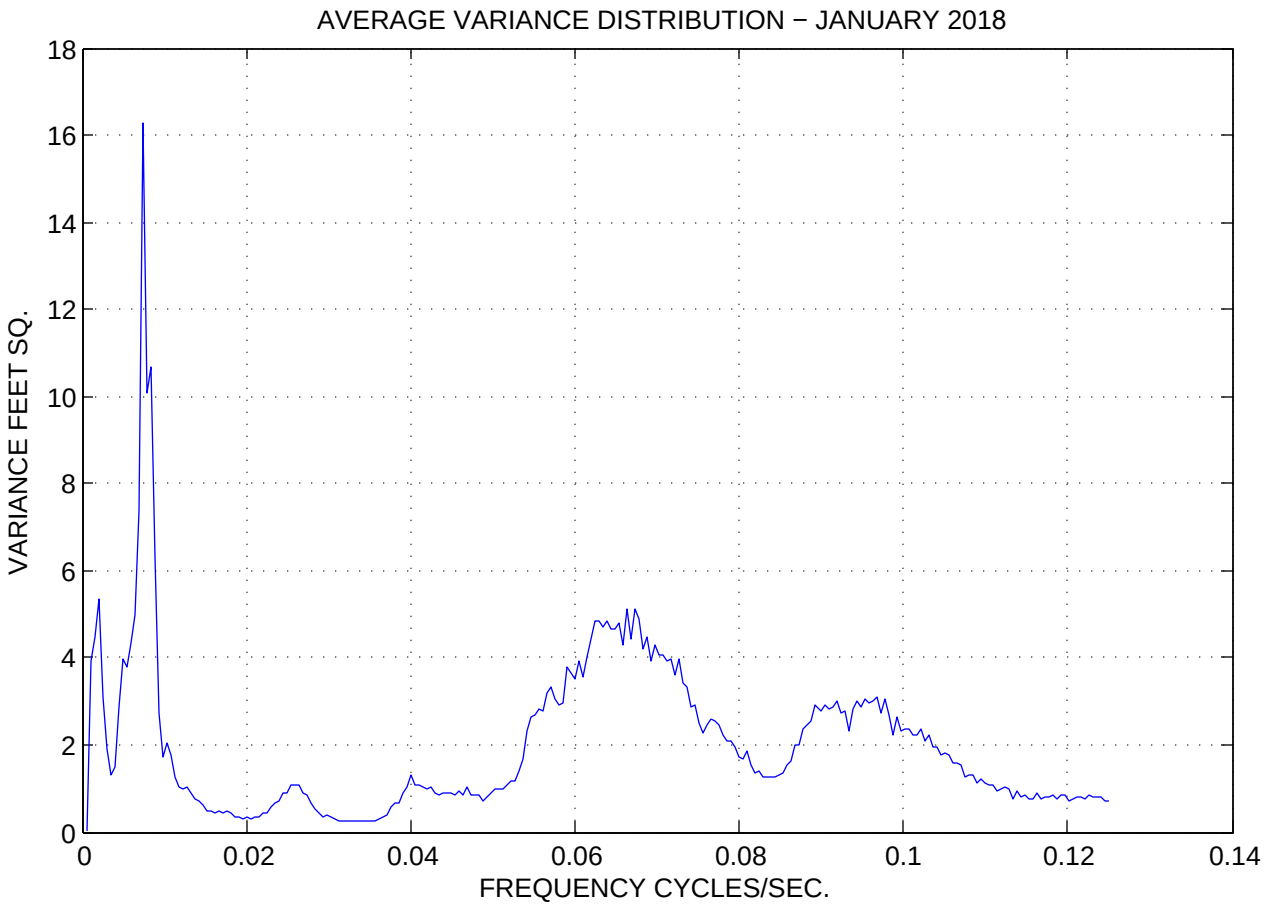
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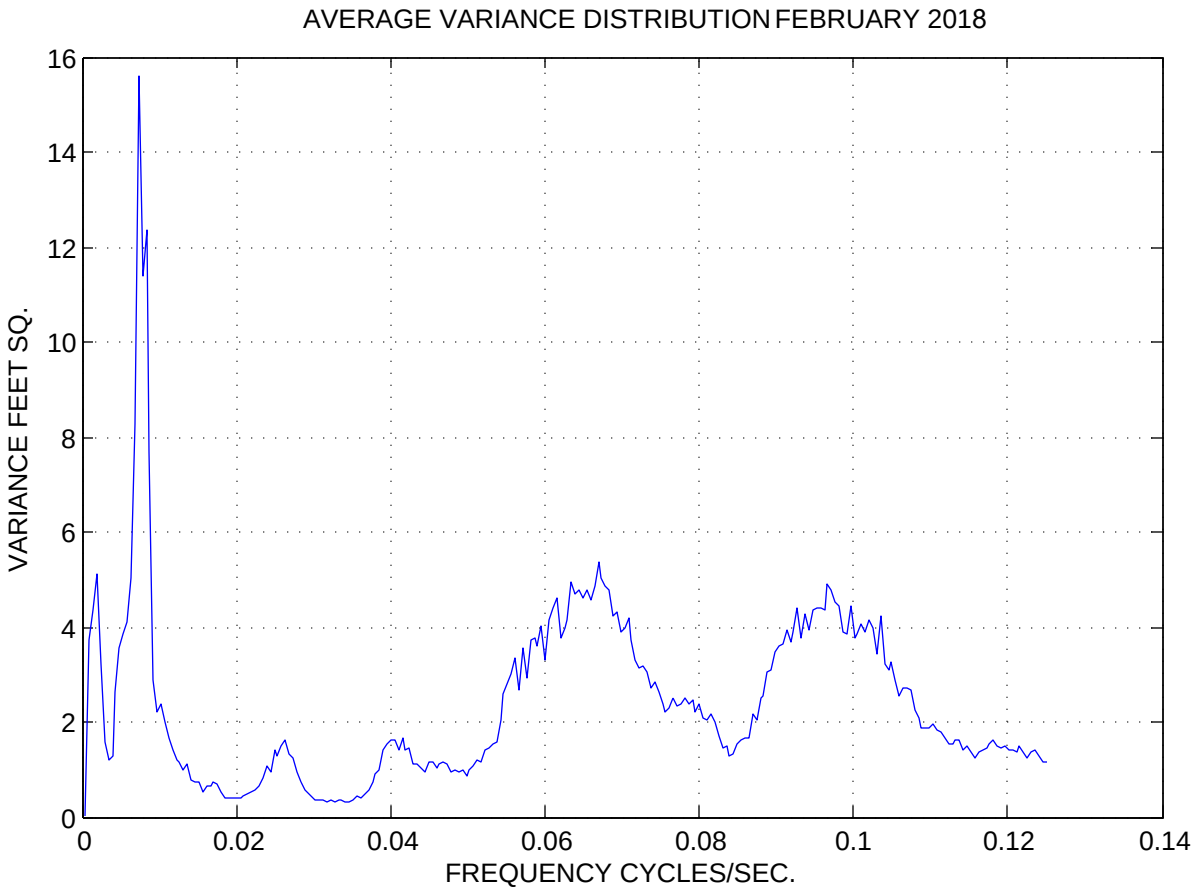
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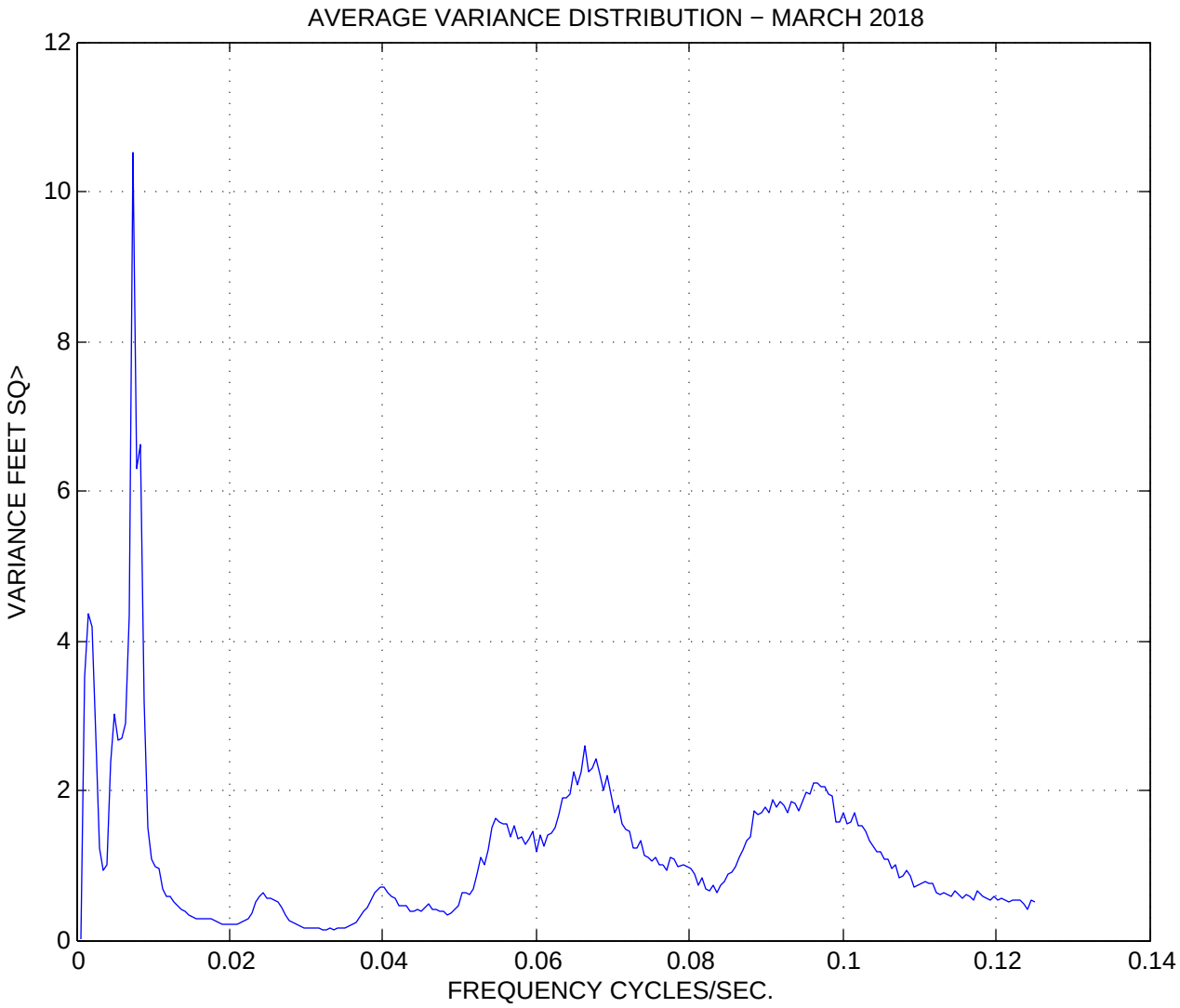
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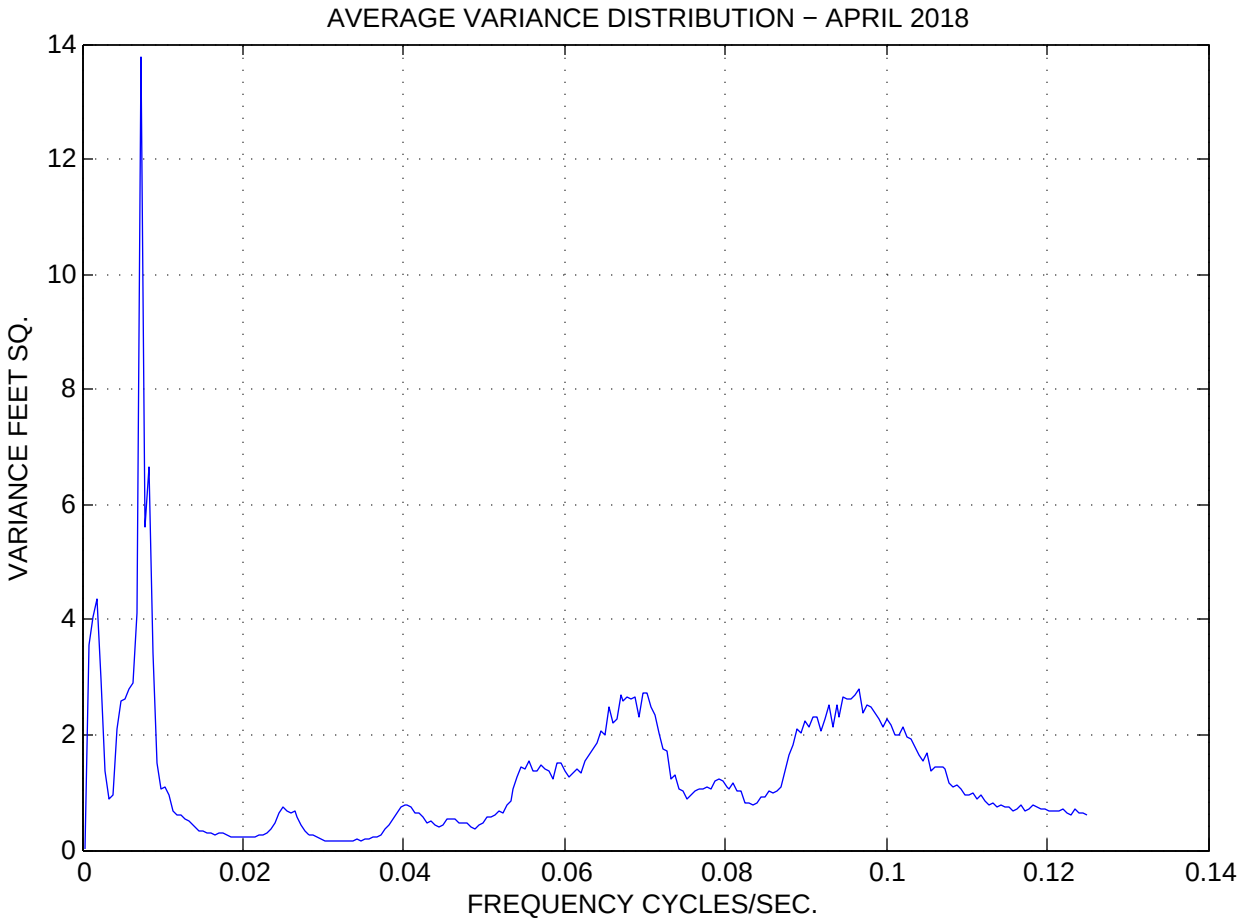
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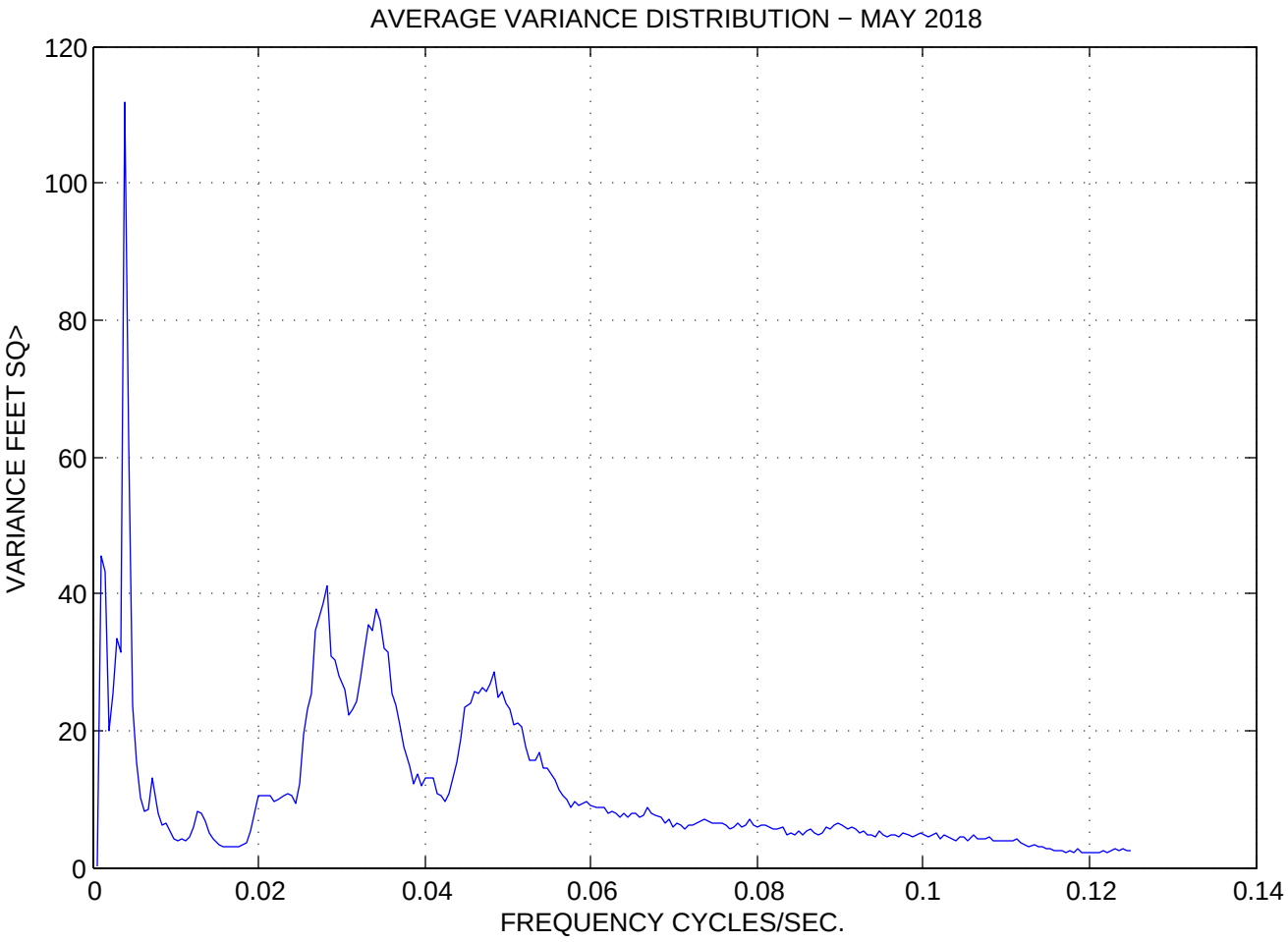
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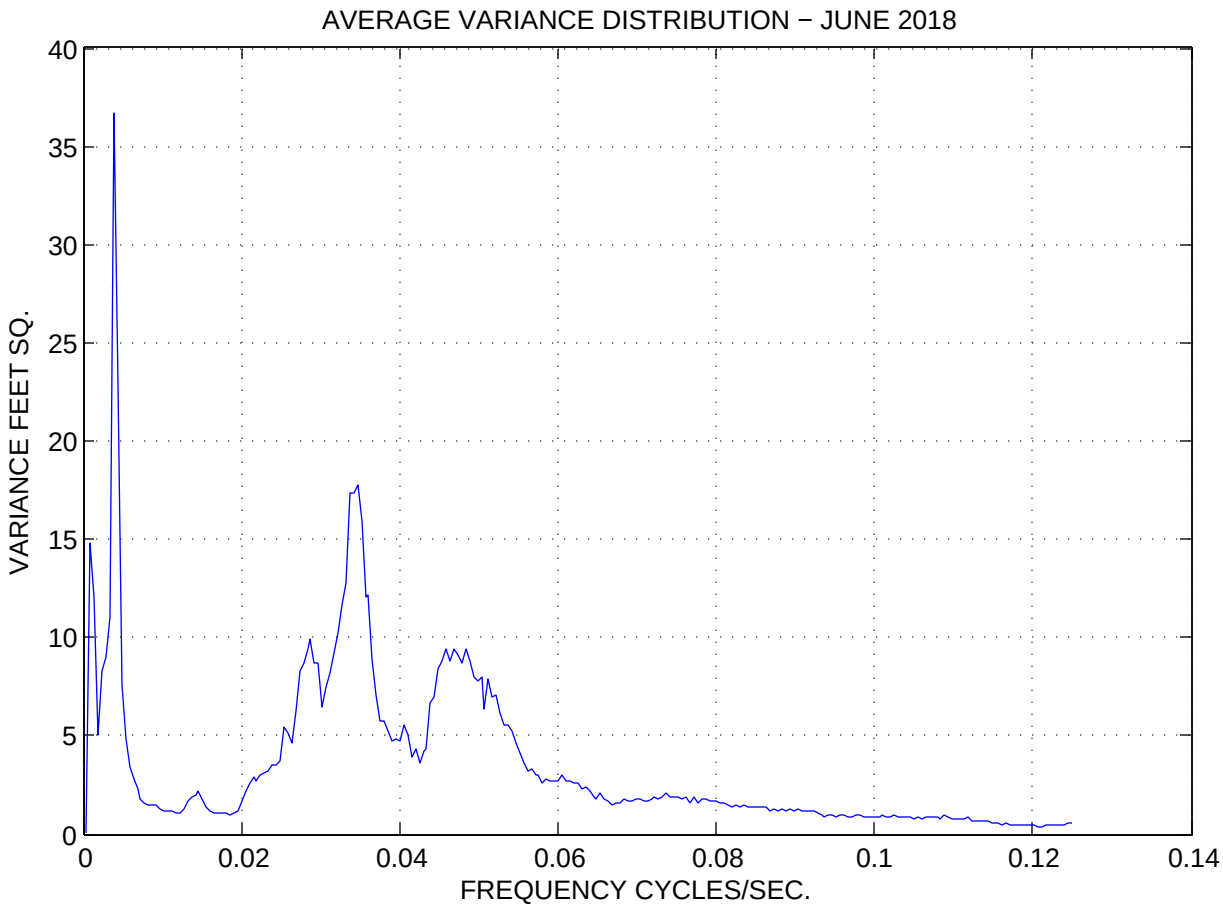
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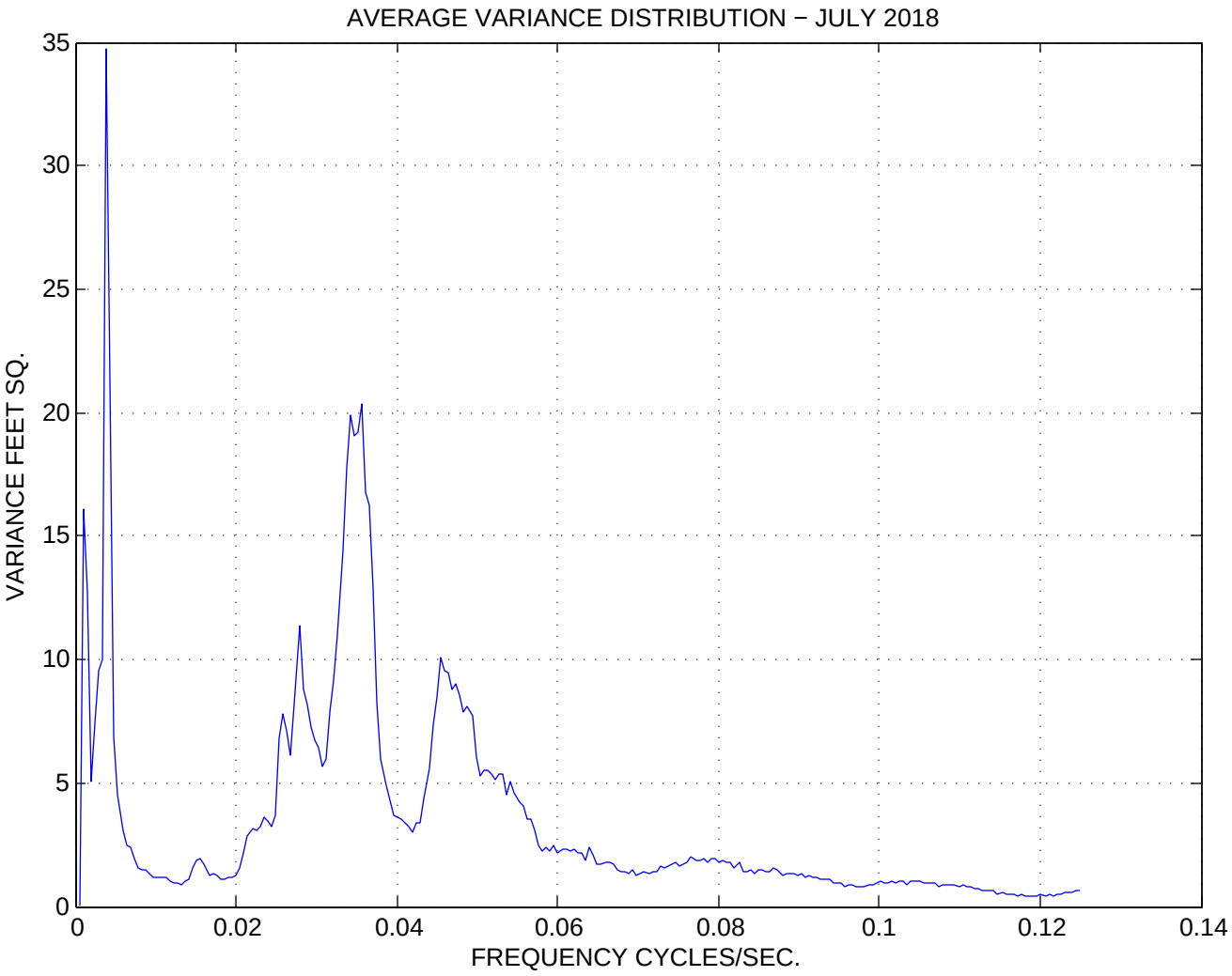
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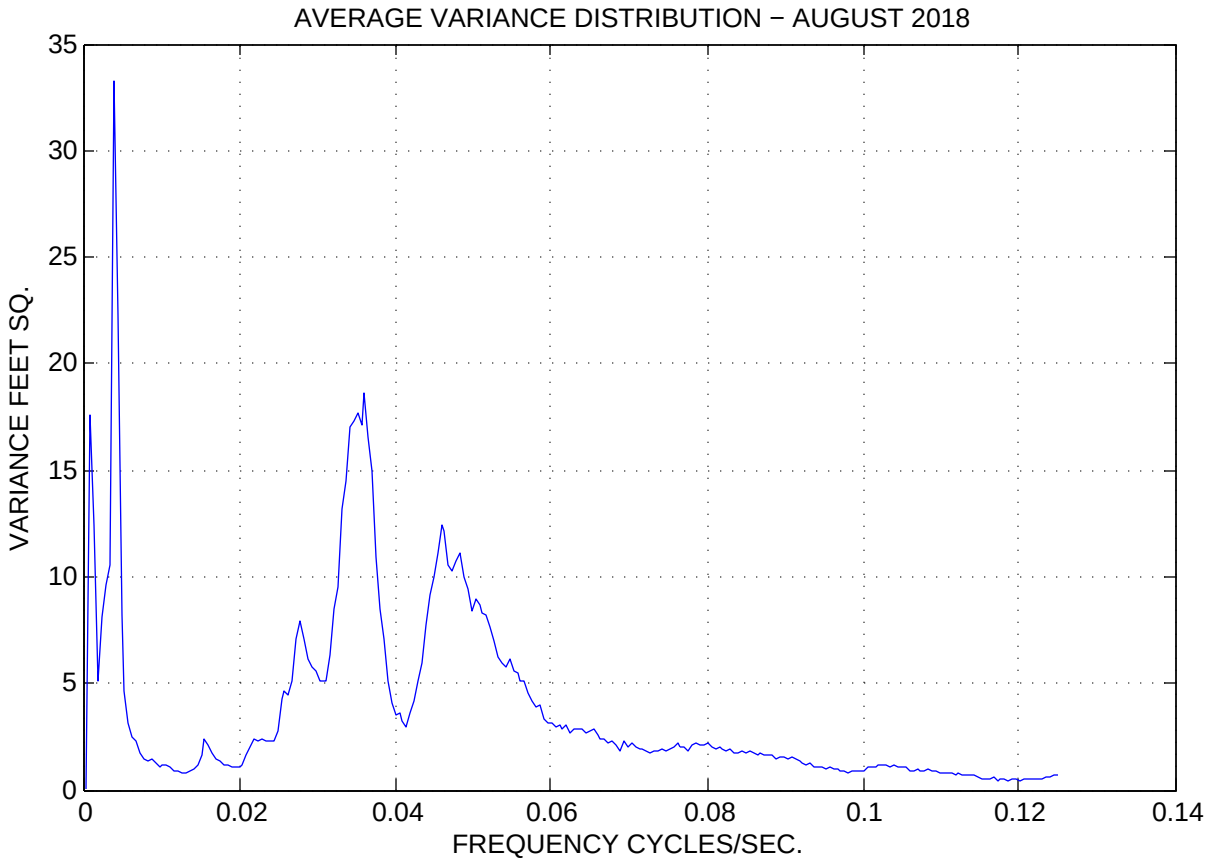
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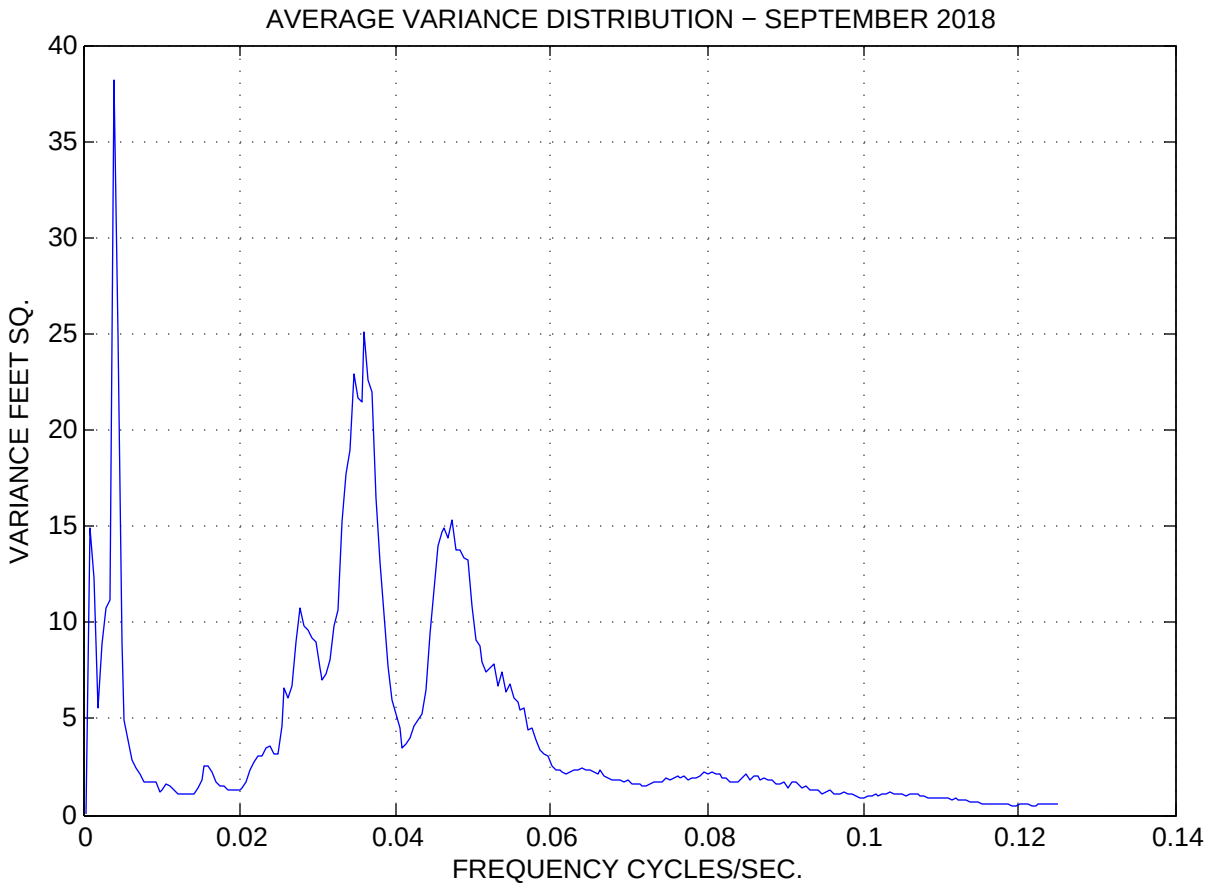
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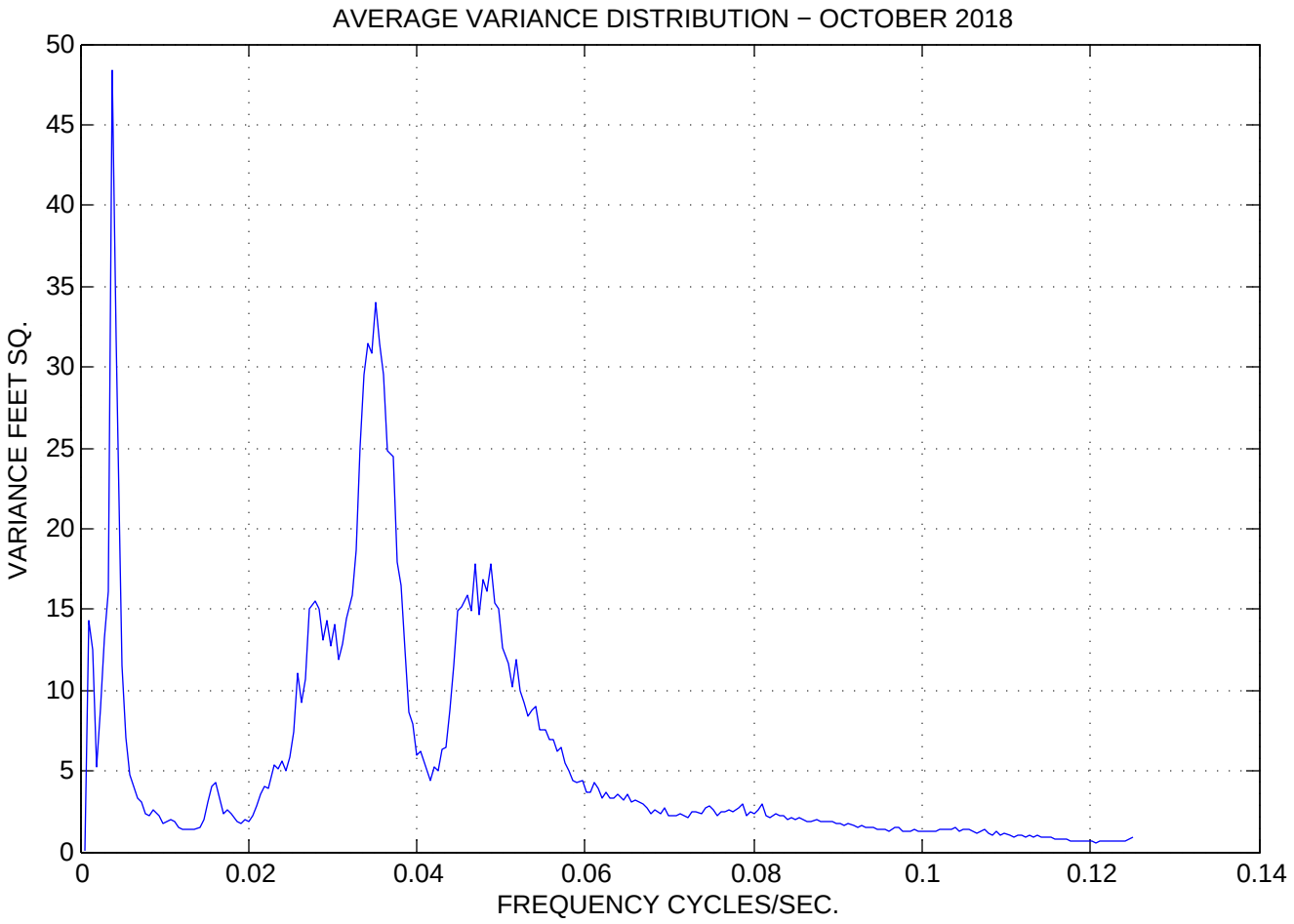
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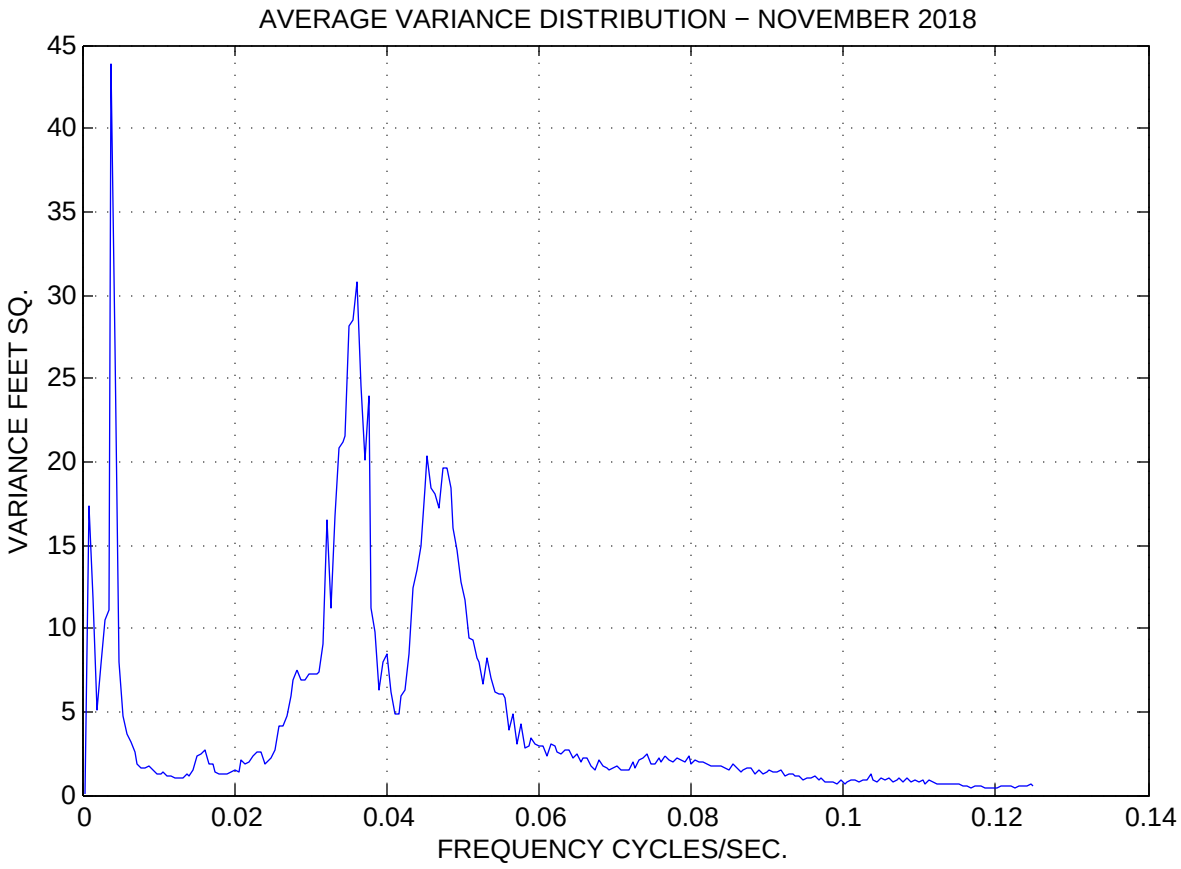
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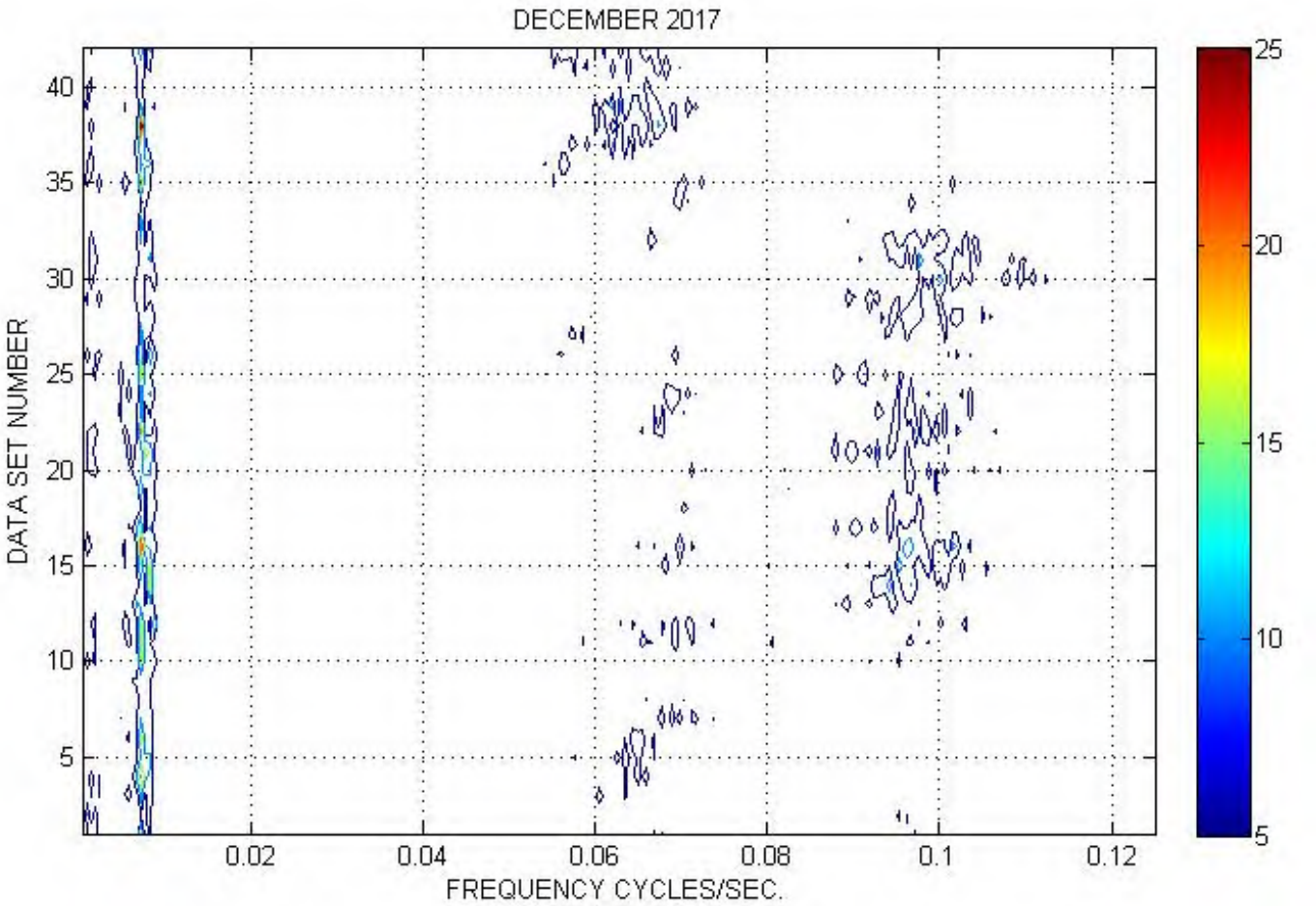
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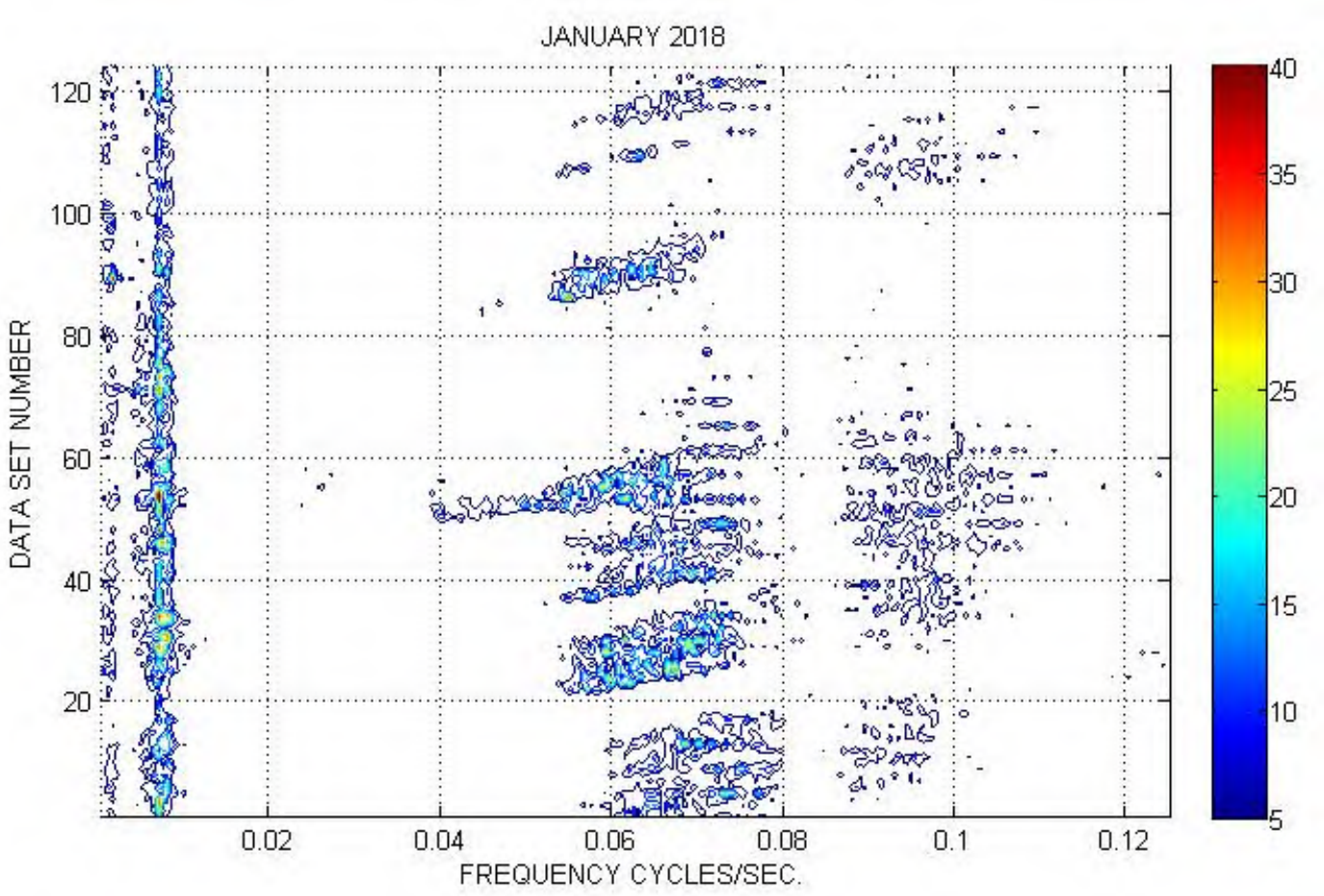
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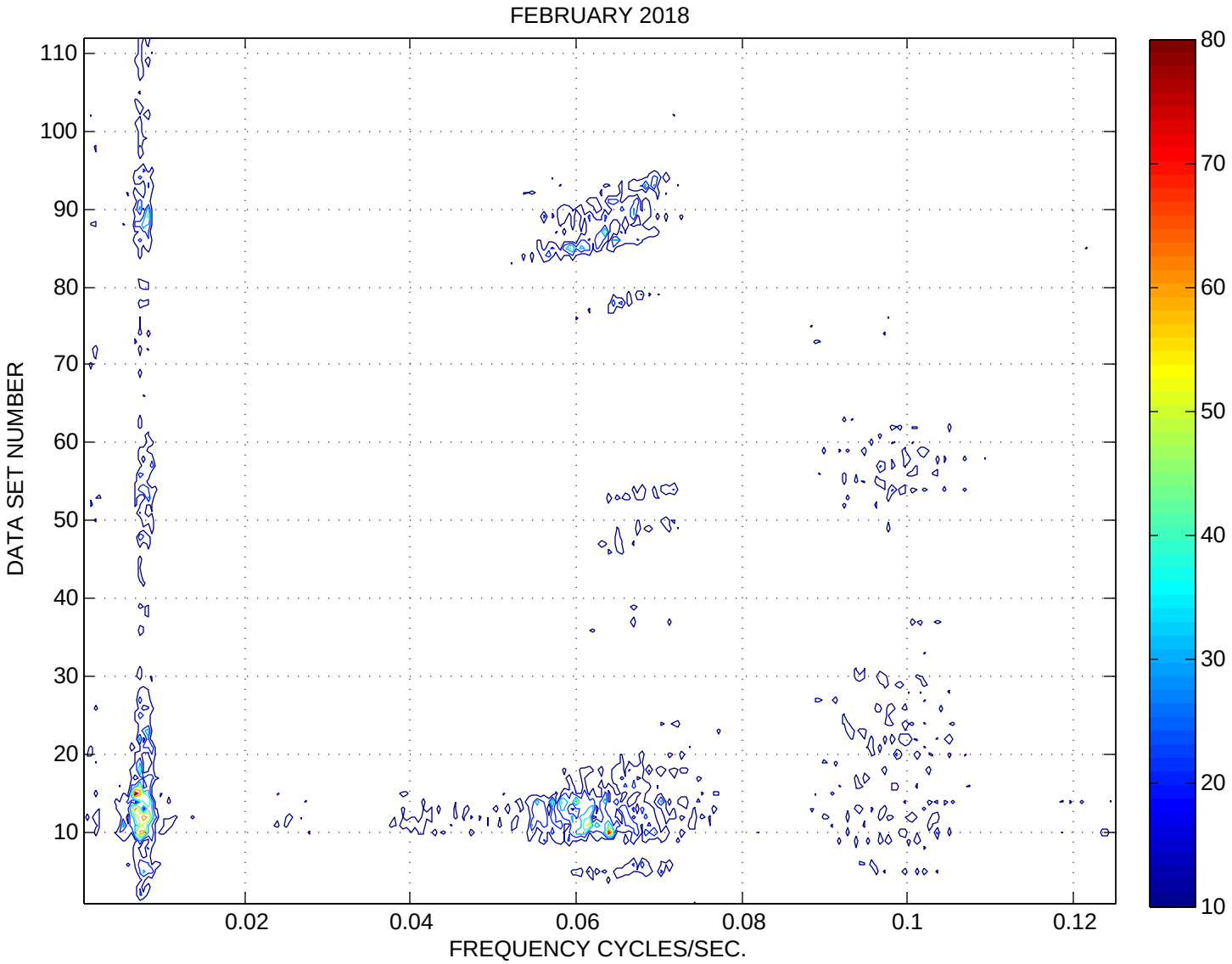
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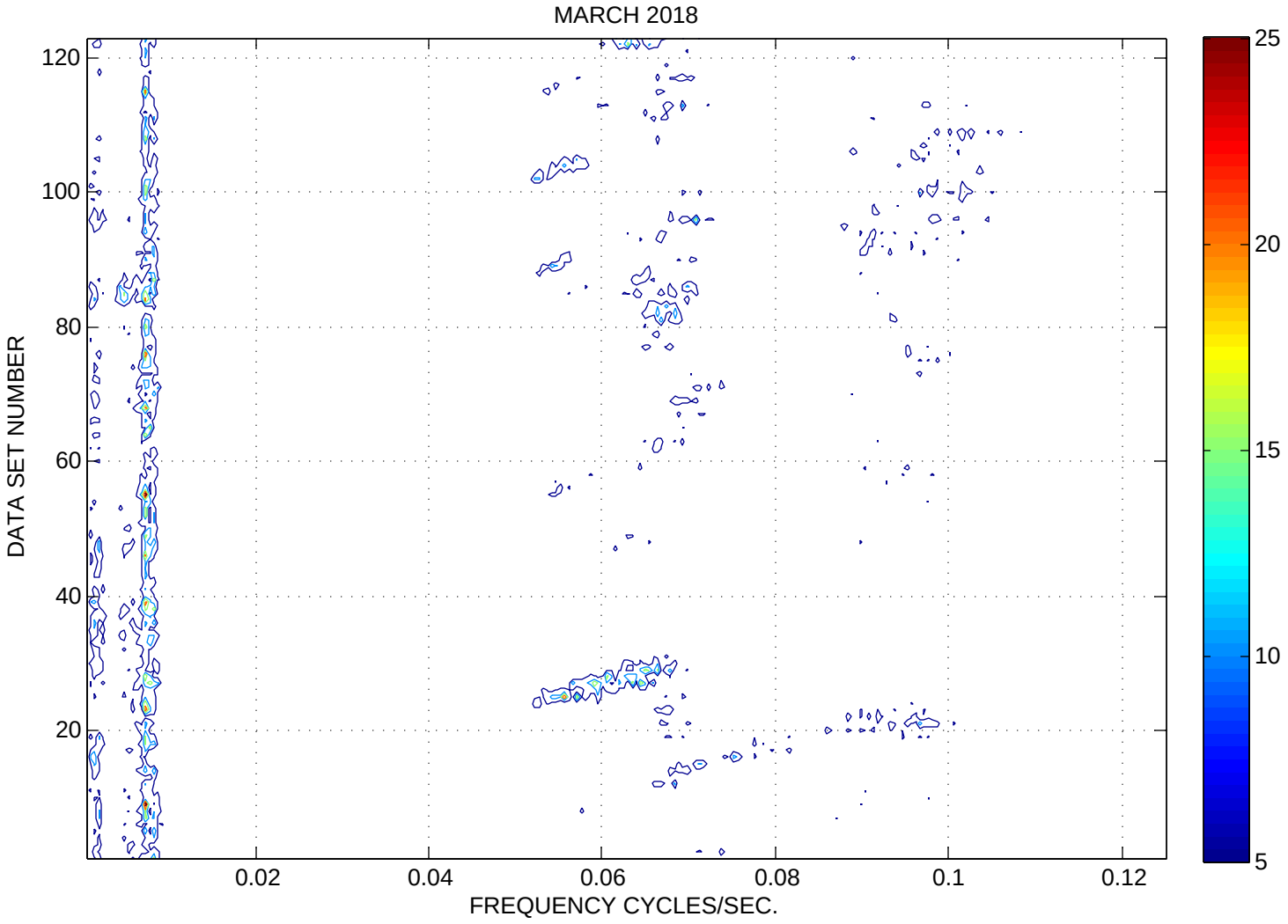
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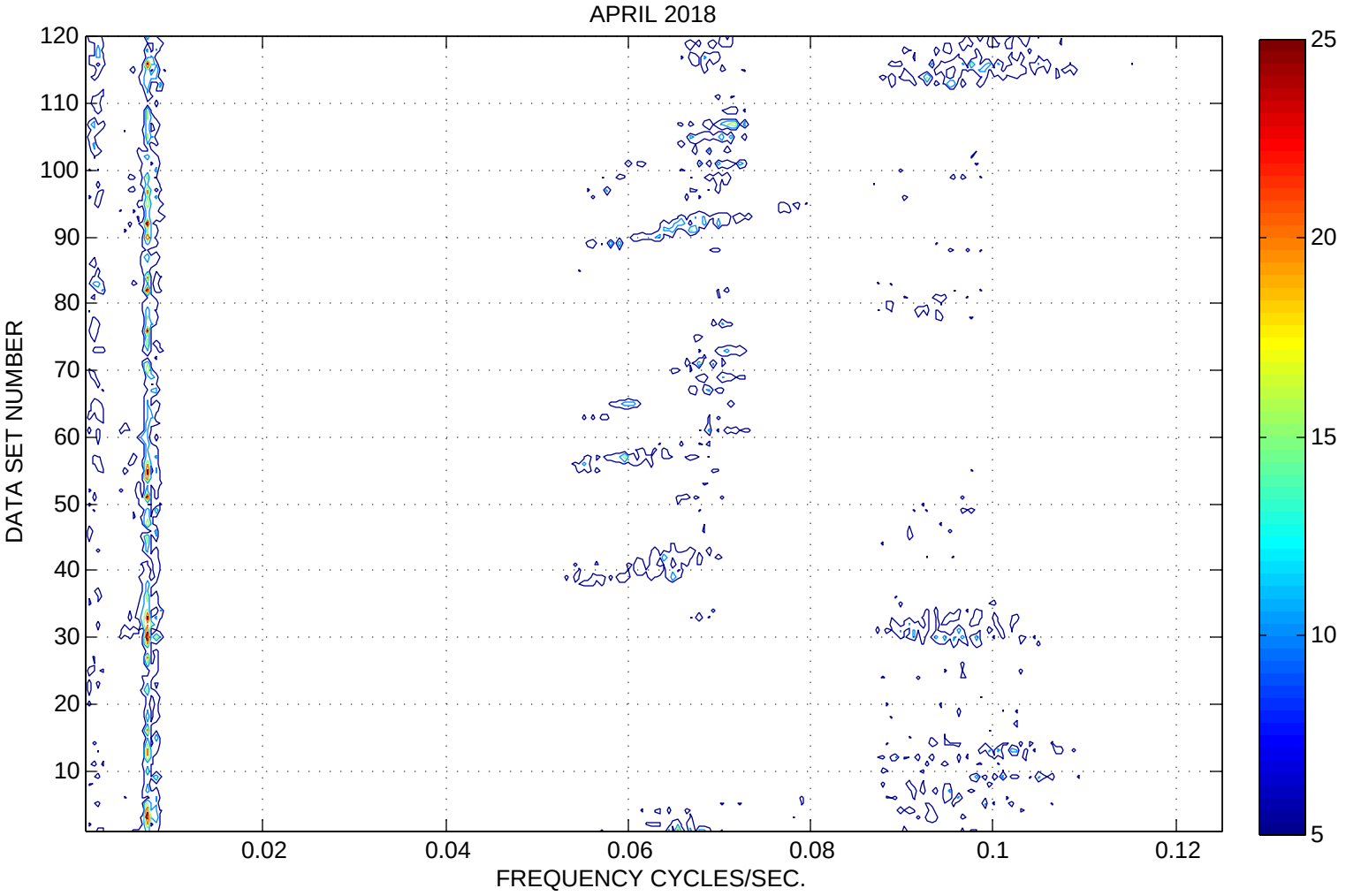
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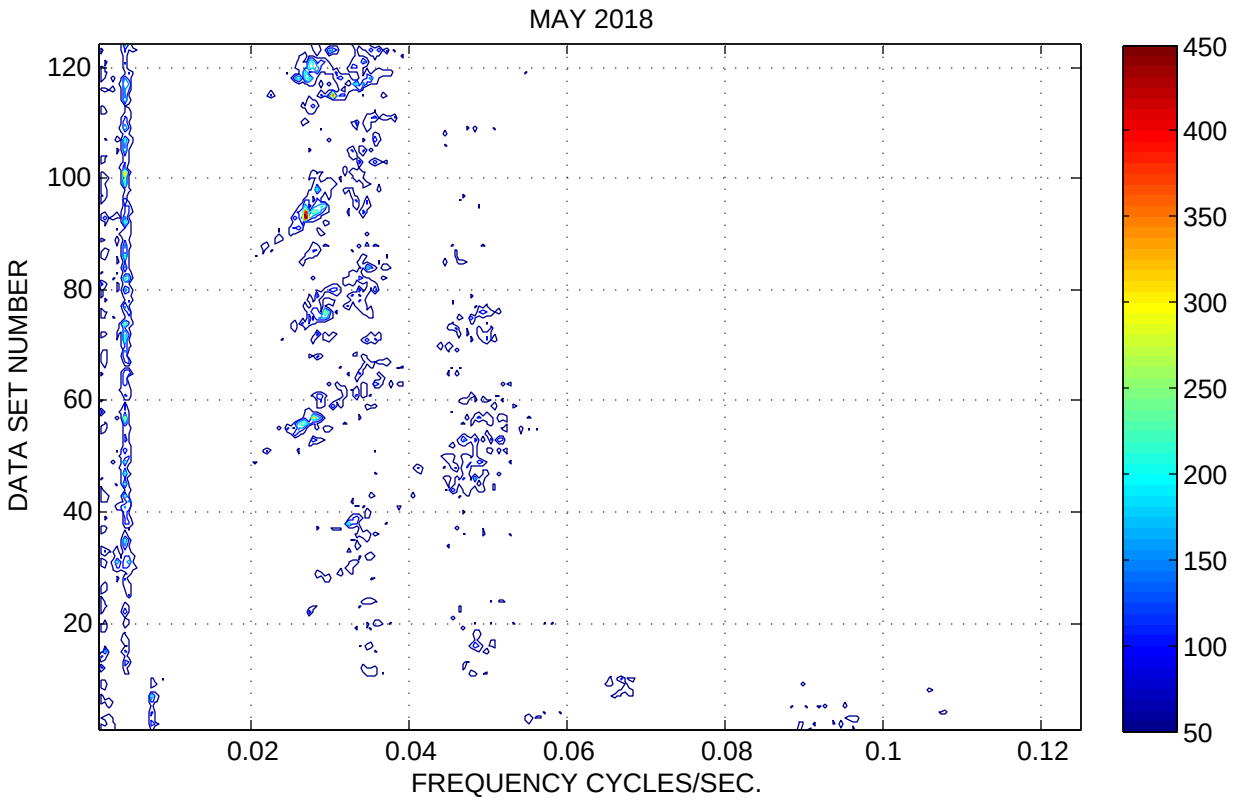
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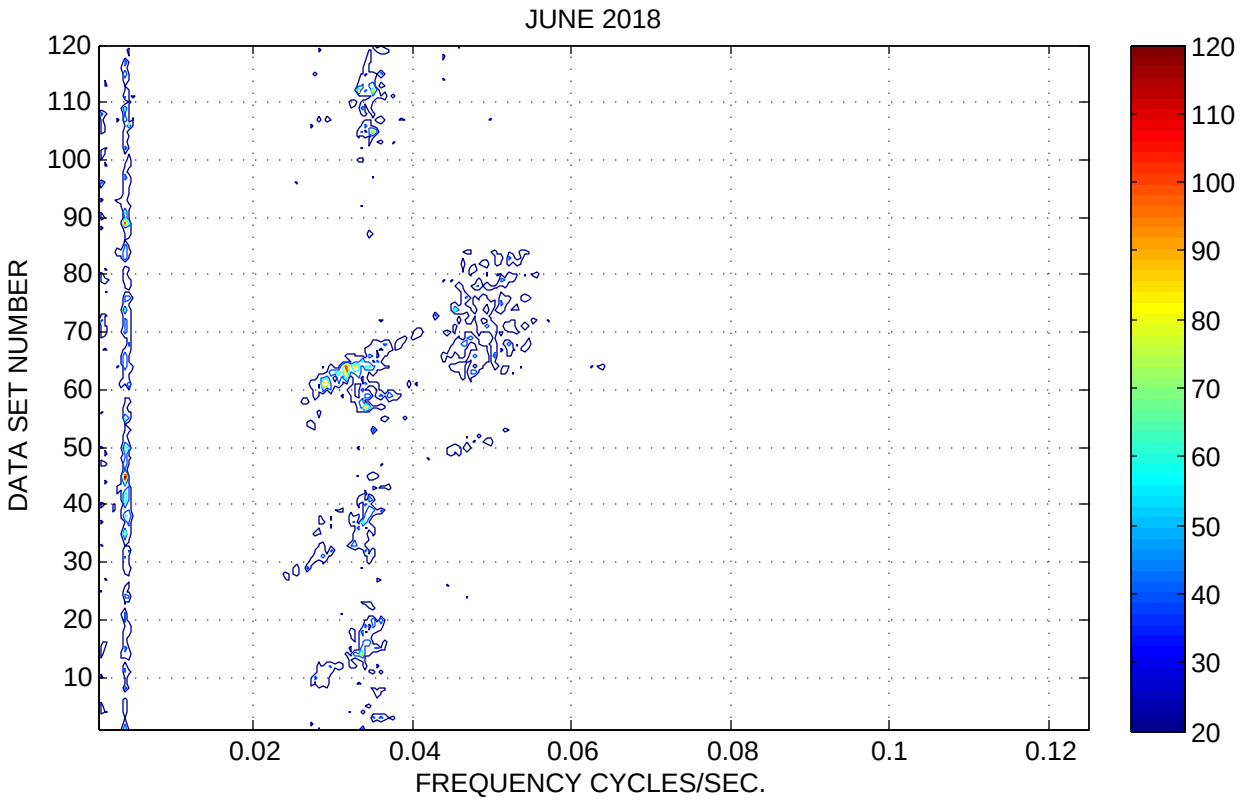
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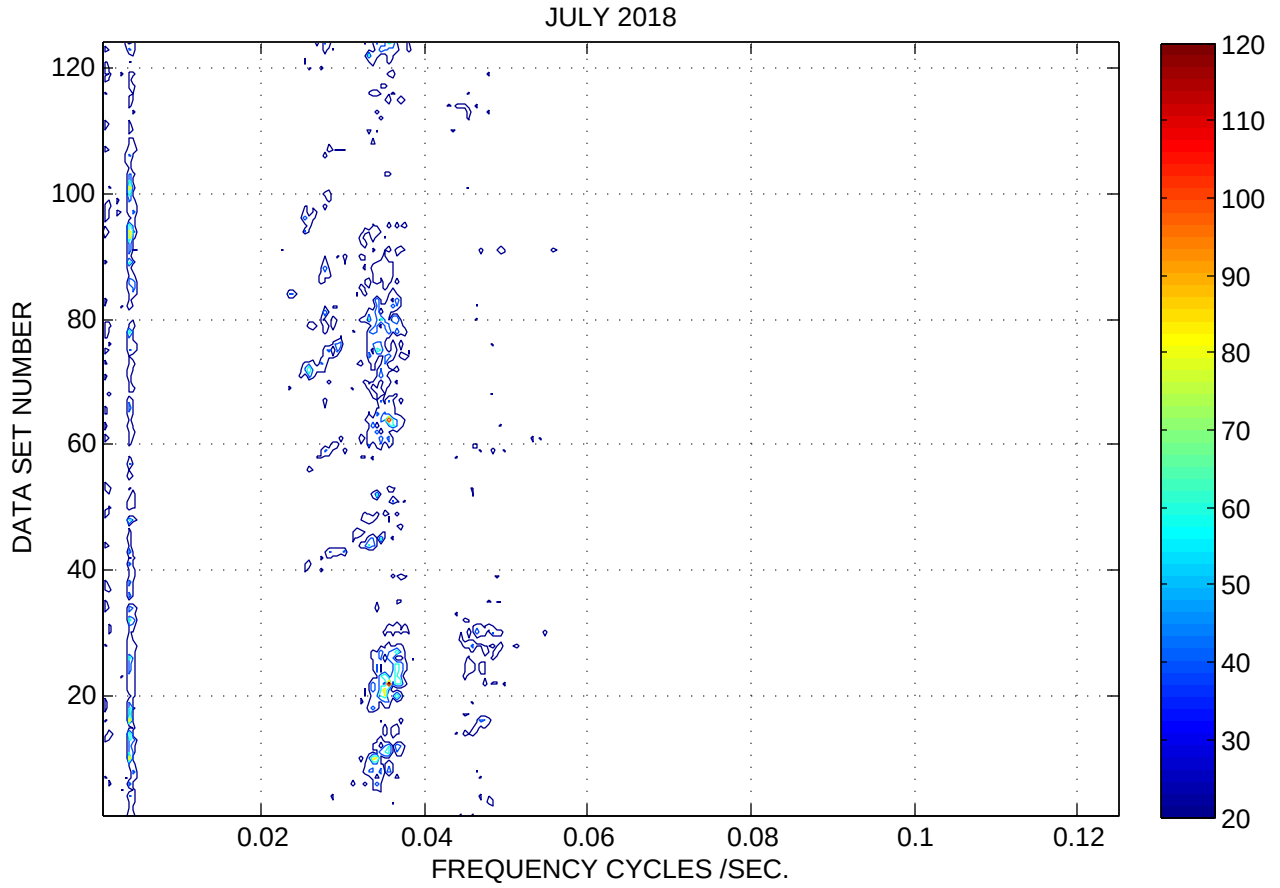
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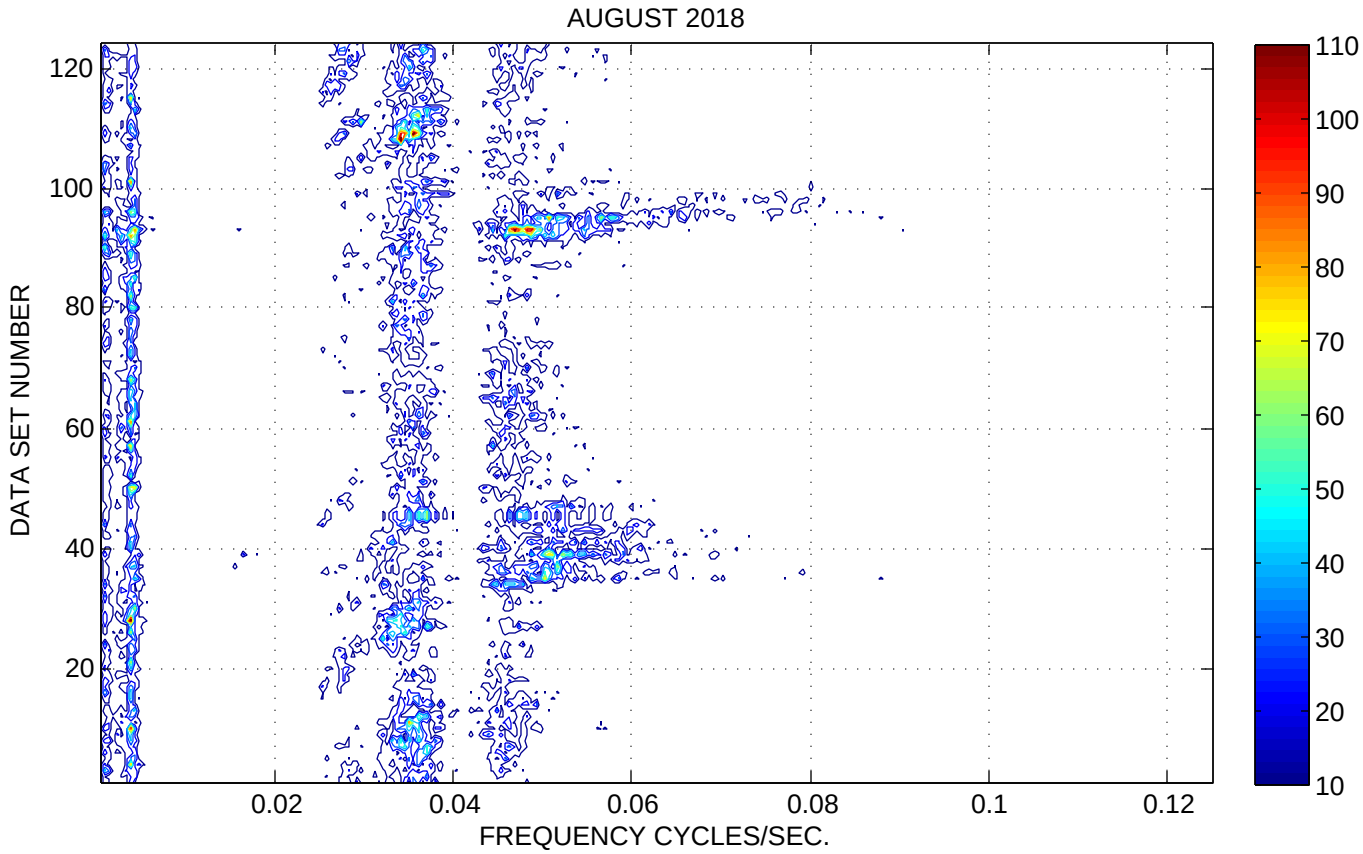
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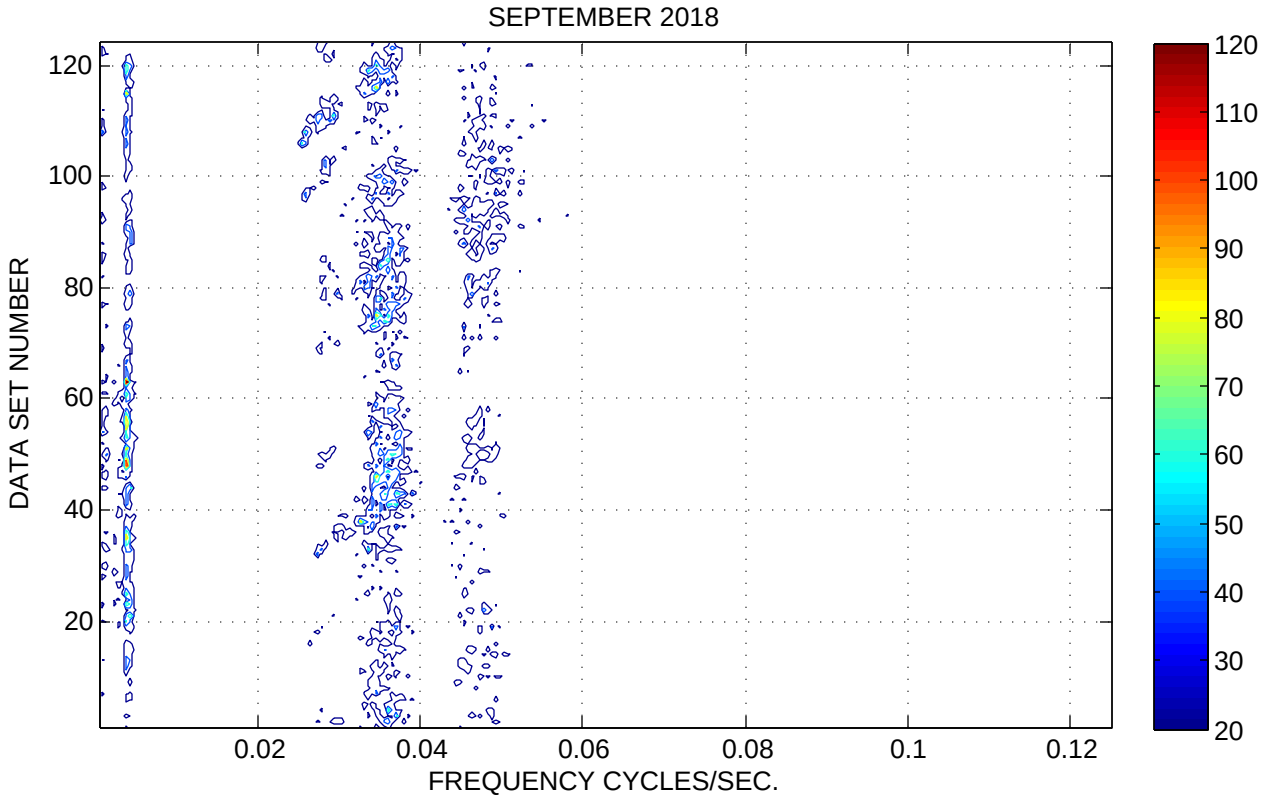
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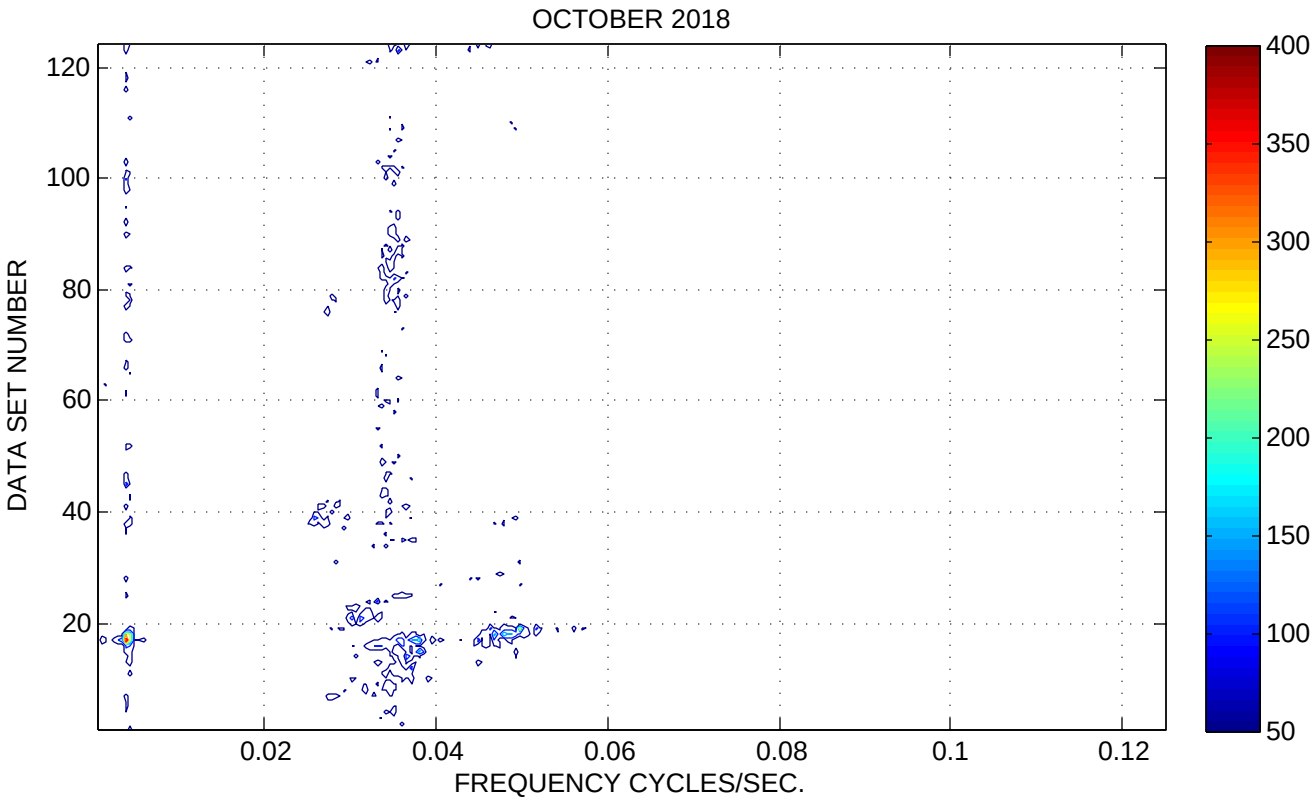
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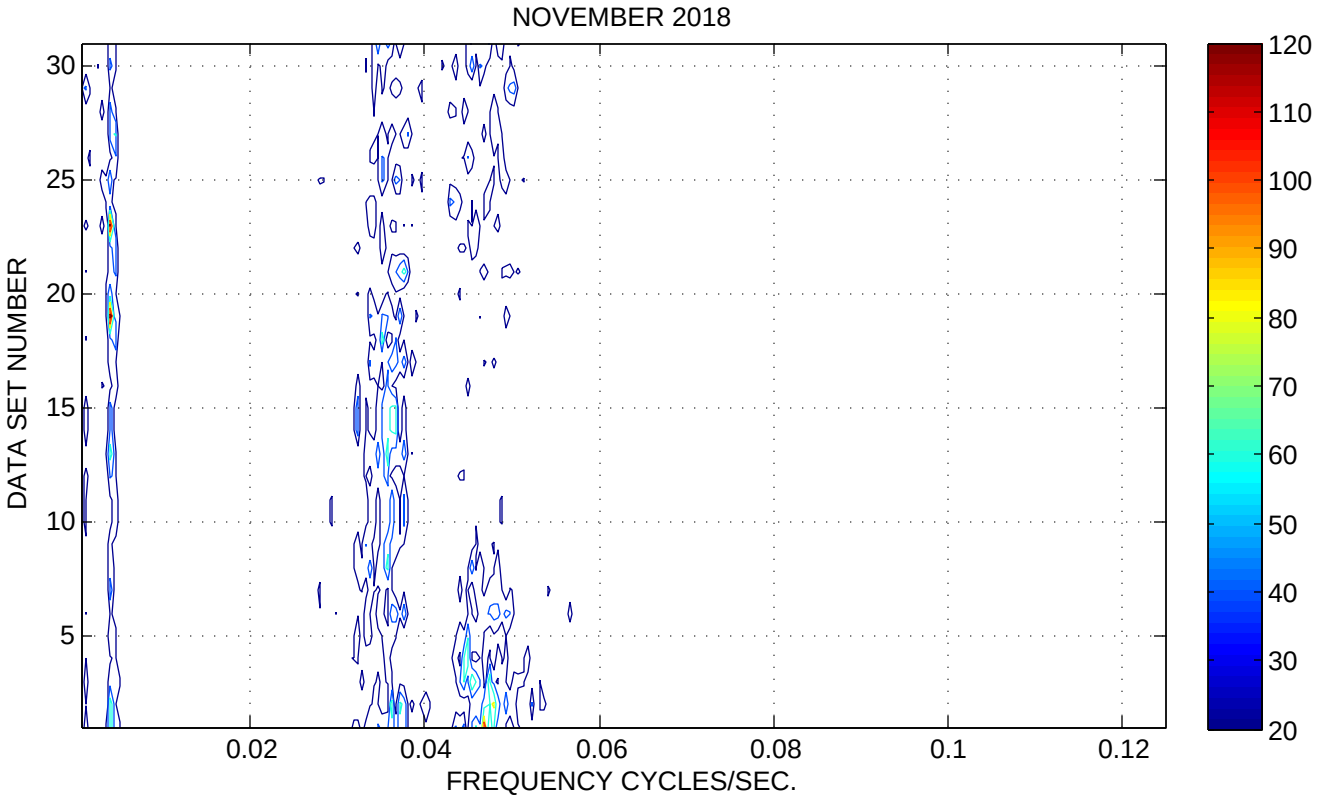
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# *Appendix B:*

***Marine biological survery at North Kawaihae Small Boat Harbor***

***Kawaihae, Hawai‘i***

*AECOS* No. 1776

# Marine biological survey at North Kawaihae Small Boat Harbor Kawaihae, Hawai‘i

*AECOS,* Inc.
45-939 Kamehameha Hwy, Suite 104
Kāne‘ohe, Hawai‘i 96744-3221

June 26, 2023

# Marine biological survey at Kawaihae Small Boat Harbor Kawaihae, Hawai‘i [1]

June 26, 2023 *AECOS* No. 1776

**Stacey Kilarski**
*AECOS* Inc.
Kamehameha Highway, Kāneʻohe, Hawai‘i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: stacey@aecos.com

## Table of Contents



[1] Report prepared for Oceanit for use in the preparation of the Environmental Assessment to be included as part of the permitting process.

# Introduction

The State of Hawai'I, Department of Land and Natural Resources (DLNR), Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the main breakwater in the North Kawaihae Small Boat Harbor (SBH), Kawaihae, on the Island of Hawai'i (Figure 1). The North Kawaihae SBH Improvements Project (the "Project") is intended to repair and strengthen the compromised breakwater damaged from repeated wave action and improve safety for harbor users. An Environmental Assessment (EA) is being prepared to support the permitting process of the Project. *AECOS*, Inc. was tasked by Oceanit to perform a marine biological survey and prepare this report of findings for use in the EA.

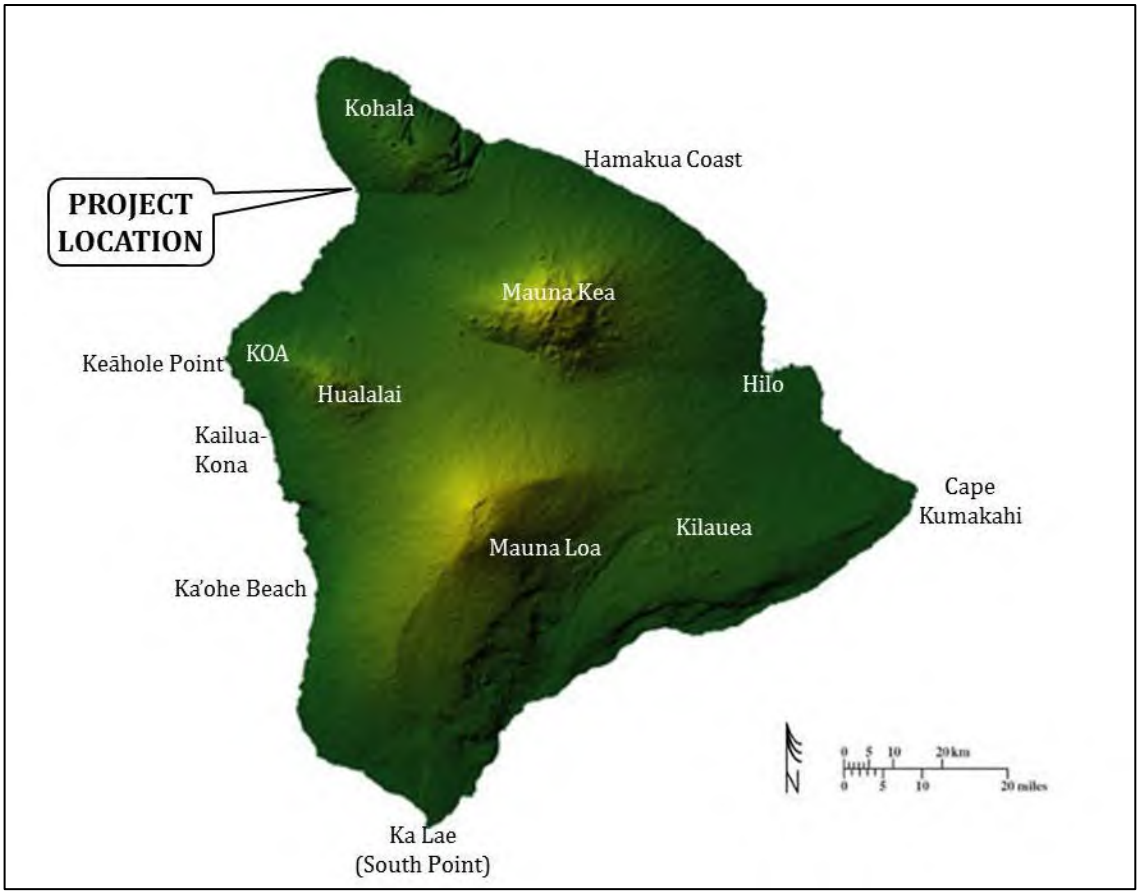


**Figure 1. North Kawaihae SBH location on the Island of Hawai'i**

## Site Description

North Kawaihae SBH is located at the northwest corner of the Kawaihae Deep Draft Commercial Harbor on the leeward coast of the Island of Hawai'i (Figure 2).

It lies at the shore on the southwestern flank of Kohala Mountain about 35 miles north of Kailua–Kona. This area is close to the point of overlap of Mauna Kea volcanics against the older Kohala volcano. A fringing coral reef lies off the shore, portions of which were blasted and dredged between 1957 and 1959 to create the commercial harbor and turning basin (Helber, Hastert & Fee, 2009). The SBH consists of a 1.6-ac basin protected by an approximate 68-m (390-ft) long main breakwater that runs along the north and northwest boundary and by a stub groin on the east side of the entrance. The breakwater is constructed with a mixed rock core covered with armor stones and topped with a concrete crest.


**Figure 2. North Kawaihae SBH location (in yellow box) on the Island of Hawai'i.**

## Project Description

The Project scope entails redesigning the damaged North Kawaihae SBH breakwater and constructing a new larger breakwater to better withstand storm swells. The following improvements are proposed:

- Repair and modify the existing main breakwater with a new design to withstand waves;

- Raise the height of the existing main breakwater from 1.8 m to 3 m (6 ft to 10 ft) above mean lower low water level (MLLW) to prevent overtopping; and
- Extend the existing breakwater 24 m (80 ft) inland.

The bottom width of the structure will be below the waterline and vary from about 12 to 18 m (40 to 60 ft). The modified breakwater will be designed to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. The breakwater structure will be extended approximately 24 m (80 ft) landward from the existing end of the breakwater to prevent siltation of the boat ramp during high wave conditions. To repair the main breakwater, demolition of the existing structure will be needed prior to placing the foundation bedding layer.

# Methods

## Survey Areas and Transect Placement

On May 10, 2023, *AECOS* biologists used snorkel gear to inventory marine assemblages on and around the breakwater. Biologists collected data on coral abundance and size-class distribution, as described below. A total of four 25-m (82-ft) transects were laid on the seafloor surrounding the breakwater. as shown in Figure 3. Appendix A provides photos that are representative of each transect in the survey area.

## Coral Abundance and Size Class Distribution

A two-meter belt survey of coral colonies was conducted on each transect. All corals 1 m to either side of the transect line were counted. Coral abundance was determined as the number of individuals observed for each transect normalized to number of individuals per $m^2$. Coral heads were identified to species and assigned to a size class (1- to 5-cm; 6- to 10-cm; 11- to 20-cm; 21- to 40-cm; 41- to 80-cm; 81- to 160-cm; or >160-cm) based on the largest horizontal dimension of the colony. Coral size-class distribution was determined for each coral species recorded. Percent morbidity (amount of coral colony not alive) and any signs of disease were also recorded.

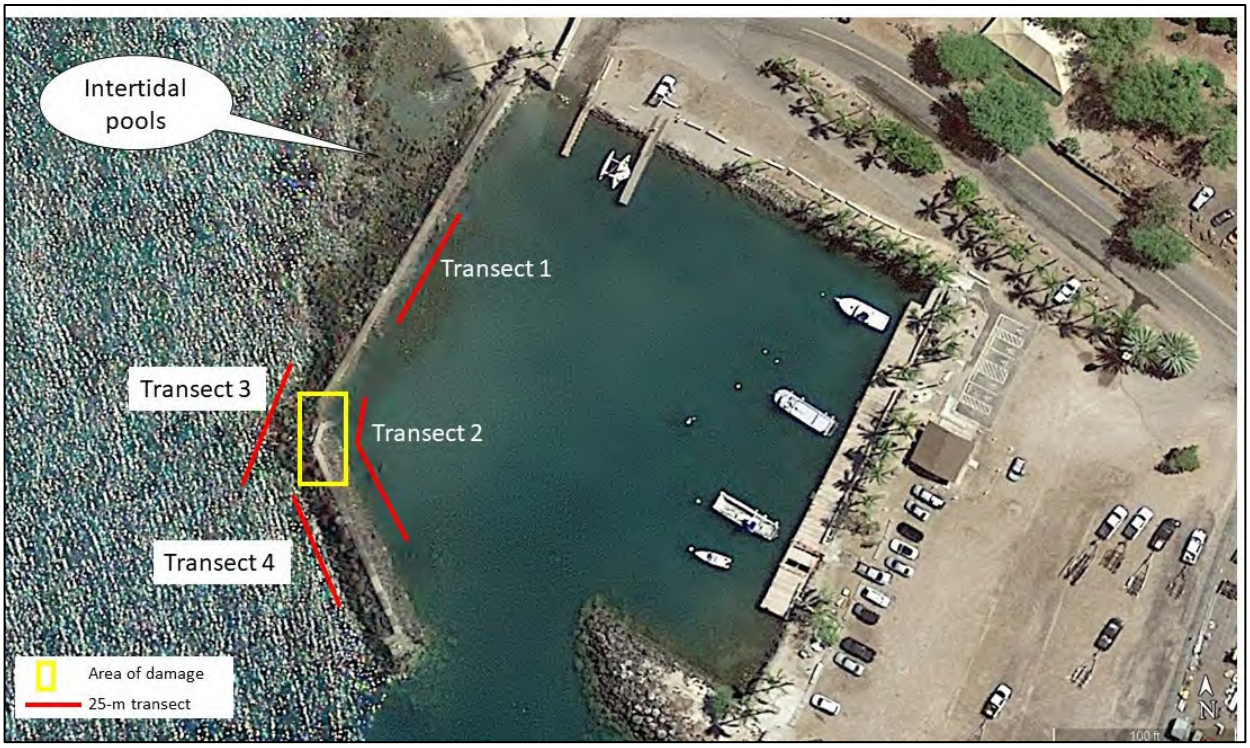


**Figure 3. Approximate locations of May 2023 North Kawaihae SBH transect locations.**

# Results

Appendix B lists the marine algae and marine animals identified and their relative abundances encountered during the survey. Qualitative abundance ratings are provided for all species found within the survey area.

## General Observations

### *Inside breakwater*

The dominant substratum of the harbor on the landward end of the breakwater is sand. The sand bottom extends approximately 30 m (98 ft) seaward, where large boulders occur on the seafloor adjacent to the breakwater. Scattered corals (*Porites* sp., *Pocillopora damicornis* and *Poc. meandrina*, *Leptastrea* spp., *Pavona varians*) occur on the boulders and breakwater in this area. Urchins (*Echinometra mathaei*, *E. oblonga*, *Echinothrix calamaris, Heterocentrotus mammilatus*, and *Tripneustes gratilla*) are common on the breakwater.

In the area of the damage in the breakwater (approximately 76 m or 256 ft from shore), boulders and broken slabs of concrete and other breakwater material are

scattered on the seafloor. Mostly small (<20 cm) corals (*Pavona varians*, *Porites* spp., *Poc. meandrina*, and *Poc. damicornis*) occur on the boulders and debris in this area, and a school of yellowfin goatfish (*Mulloidichthys vanicolensis*) was observed here. Along Transect 2, and seaward of the damaged breakwater location, corals are abundant on the breakwater and boulders surrounding the breakwater. Colonies of *Porites* spp., *Poc. meandrina*, *Pav. varians* encrust the breakwater and surrounding boulders. Fishes observed here include: Hawaiian sergeant (*Abudefduf abdominalis*), Hawaiian dascyllus (*Dascyllus albisella*), and convict tang (*Acanthurus triostegus*). Representative photos of the breakwater and surrounding seafloor inside the breakwater are displayed in Figure 4.


**Figure 4. Inside the breakwater (within the yellow box in Fig. 3), broken pieces from the damaged structure occur on the seafloor; school of yellowfin goatfish (*M. vanicolensis*) are present (left). Corals (*Porites* sp., and *Poc. meandrina*) and urchins are abundant on the breakwater structure (right).**

***Outside breakwater***

Tide pools occur off the northwest face of breakwater (see Fig. 3, above). At the time of our survey, water depth in the pools was approximately 1 m (3 ft). No corals were observed in our visual observations of the pools. Seaward of the tidepools and at the area of damage to the breakwater, boulders occur on the seafloor and these are encrusted with corals, mostly *Porites* spp. and *Poc. meandrina*. *Porites* spp. colonies appeared affected by a trematode infection. Bright pink spots or lines appearing on the surface of *Porites* are attributed to mechanical disturbances and subsequent recovery (Schuhmacher, 1992; van Woesik, 1998). So-called "pink-spot disease" (Aeby, 1993) is an infection of *Porites* by trematode larvae manifesting as pinkish, swollen nodules (see Figure 5).

Other commonly observed biota include urchins (*Diadema paucispinum, E. mathaei*, *E. oblonga*, *Echinothrix calamaris, H. mammilatus*, and *T. gratilla*), and cucumbers (*Actinopyga varians*). Fishes associated with the breakwater and surrounding area include: surgeonfish (*Acanthurus nigrofuscus, A. triostegus, A. blochii*), sergeants (*Abudefduf hybrid, A. blochii*), butterflyfishes (*Chaetodon quadrimaculatus*, *C. miliaris*, *C. Auriga*), and wrasses (*Thalassoma duperrey*). One whitetip reef shark (*Triaenodon obesus*) was observed off the south end of the breakwater. A robust coral reef is present just seaward to the west of the breakwater and Transect 4. Representative photos of the breakwater and surrounding seafloor outside the breakwater are displayed in Figure 5.

### *Coral Abundance and Size Class Distribution*

Coral abundance determined on each of the transects is presented in Table 1. A total of 632 colonies were counted on the four transects. Average density of corals on the breakwater and within approximately 2-m (7-ft) around the breakwater is 3.12 colonies/$m^2$, with greater density outside the breakwater (at 4.91 colonies/$m^2$ than inside the breakwater (at 1.32 colonies/$m^2$).

**Table 1. Total number of coral colonies and coral colony abundance (mean colonies per $m^2$) counted on four transects.**

| Transect | Survey area ($m^2$) | Coral count (colonies) | Coral abundance (no./$m^2$) |
|---|---|---|---|
| 1 | 50 | 30 | 0.6 |
| 2 | 50 | 102 | 2.04 |
| 3 | 50 | 174 | 3.48 |
| 4 | 50 | 317 | 6.34 |
| **Total** | **200** | **623** | **3.12** |

Results of the coral size class survey are presented in Table 2. A total of 623 coral colonies, representing at least eight coral taxa (*Leptastrea bewickensis, L. purpurea*, *Lobactis scutaria, Montipora patula, Pocillopora damicornis*, and *Porites evermanni*, and *Porites* sp.) were recorded. The most common species was *Porites* sp. at 71% of the total. The two most common colony sizes were the 1- to 5-cm class (36.3% of the total) and 6- to 10 cm class (28.7% of the total). The 11-to 20 and 21- to 40 cm size classes were nearly equally represented at 16.9% and 15.9% of the total, respectively. Large (41- to 80- cm) colonies were less common rare (one *Porites* sp. colony). No colonies greater than 80 cm were recorded.

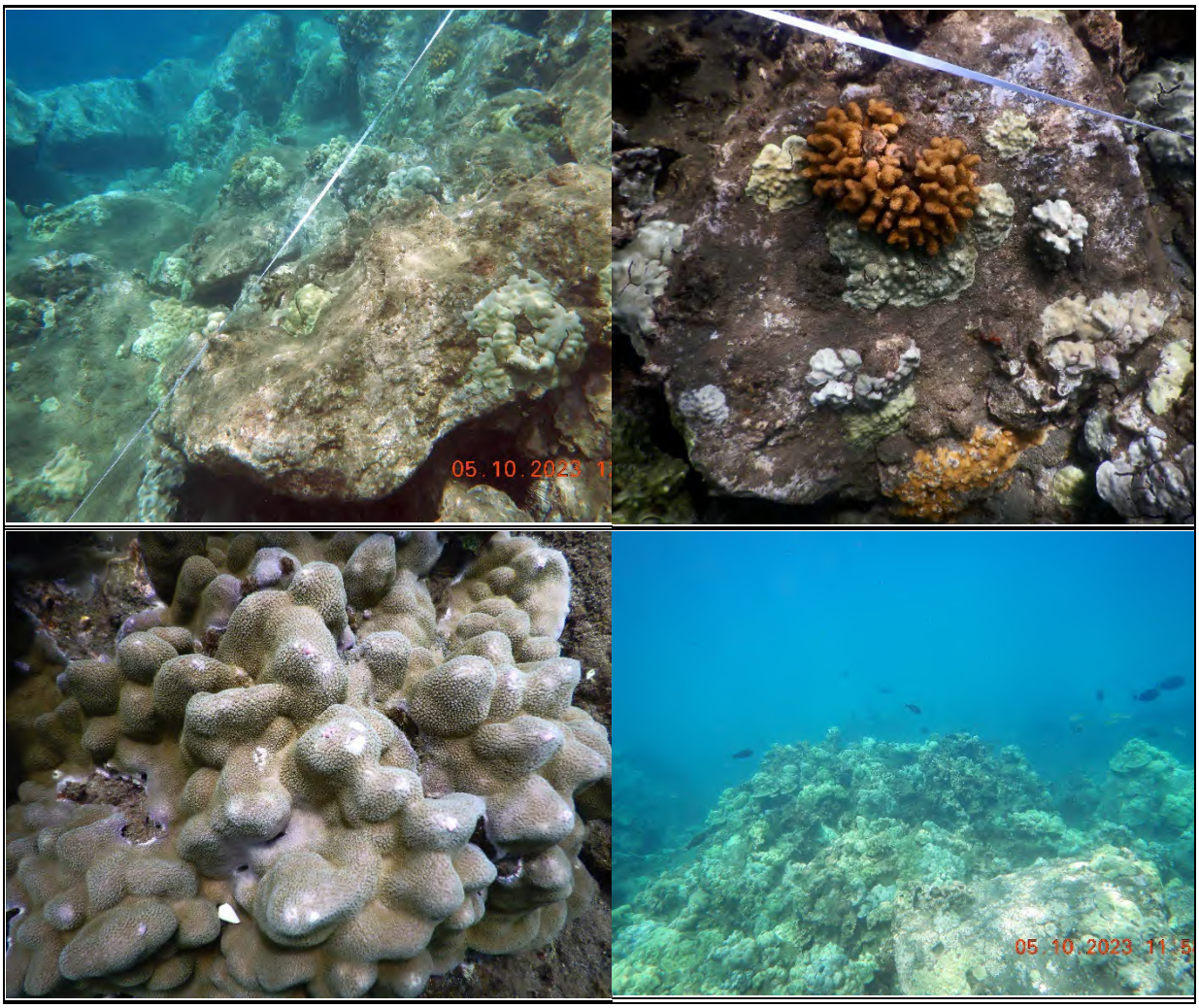


**Figure 5. The seaward face of the breakwater hosts corals, mostly *Porites* spp. and *Poc. meandrina* colonies (top left and right). Several of the *Porites* colonies display signs stress (pink spot disease; bottom left). A coral reef occurs off the west side of the exterior of the breakwater (bottom right).**

# Discussion and Recommendations

## Listed and Protected Species

No state- and federally-listed (endangered or threatened; USFWS and NOAA-NMFS, 2016; HDLNR, 2015; USFWS, undated) marine species were encountered in our survey. State- and federally-listed marine species—green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricata*) and monk seal (*Neomonachus schauinslandi*)—may occur in the general vicinity of the Project, considering the distribution of these species and their occurrences throughout the Islands as discussed below.

**Table 2. Number of coral colonies in each size class by species at North Kawaihae SBH breakwater.**

| Taxa | Size class (cm) | | | | | | *Percent of total* |
|---|---|---|---|---|---|---|---|
| | **1 to 5** | **6 to 10** | **11 to 20** | **21 to 40** | **41 to 80** | **Total** | |
| *Leptastrea bewickensis* | 13 | 1 | 3 | | | 17 | ***2.7%*** |
| *Leptastrea purpurea* | 4 | 1 | | | | 5 | ***0.8%*** |
| *Lobactis scutaria* | | 1 | | | | 1 | ***0.2%*** |
| *Montipora patula* | | 1 | 1 | 3 | | 5 | ***0.8%*** |
| *Pavona varians* | 1 | | | 1 | 2 | 4 | ***0.6%*** |
| *Pocillopora meandrina* | 94 | 29 | 15 | 12 | | 150 | ***24.1%*** |
| *Porites evermanni* | | | | 1 | | 1 | ***0.2%*** |
| Porites sp. | 114 | 146 | 86 | 82 | 12 | 440 | ***70.6%*** |
| **Total** | **226** | **179** | **105** | **99** | **14** | **623** | |
| *Percent of total* | *36.3%* | *28.7%* | *16.9%* | *15.9%* | *2.2%* | | |

### *Invertebrates*

Coral species are protected by Hawai'i State regulations that prohibit damage to "any stony coral by any intentional or negligent activity causing the introduction of sediment, biological contaminants, or pollution into state waters" (HDLNR, 2014). On August 27, 2014, NOAA issued a final rule for listing 20 coral species as threatened under the Endangered Species Act (ESA; NOAA-NMFS, 2014), but none of these listed coral species occurs in Hawai'i. As discussed above, a total of 632 coral colonies were observed in our survey areas of the breakwater. Colonies occur on the breakwater structure and the surrounding areas of the breakwater.

Hawai'i Department of Land and Natural Resources (HDLNR) regulates shellfishes such as pearl oysters (*Pinctada margaritifera;* HDLNR, 1987) and '*opihi* (HDLNR, 1989). Neither species was observed in our survey of the Project area.

### *Sea turtles*

The distinct population segment (DPS) of green sea turtle that occurs in Hawai'i is federally-listed as a threatened species (USFWS and NOAA-NMFS, 2016; UFWS, 2018) and as a threatened species under State of Hawai'i regulations (DLNR, 2014).

Threats to the green sea turtle in Hawaiʻi include: disease and parasites, accidental fishing take, boat collisions, entanglement in marine debris, loss of foraging habitat to development, and ingestion of marine debris. Throughout the global range of green sea turtle, nesting and foraging habitats are being altered and destroyed by coastal development, beach armoring, beachfront lighting, vehicular/pedestrian traffic, invasive species, and pollution from discharges and runoff (NOAA & USFWS, 2007a, 2007b). Adult green sea turtles forage in shallow nearshore areas and on coral reefs. Contamination from effluent discharges and runoff has degraded these environments, and invasive species may reduce algae preferred by green sea turtles or could exacerbate susceptibility to, or development of disease (NOAA-NMFS and USFWS, 2007a). Fibropapillomatosis, a disease characterized by the presence of internal and/or external tumors that may grow large enough to hamper swimming, vision, feeding, and potential escape from predators continues to be a major threat to green sea turtles. Extremely high incidence has been reported in Hawaiʻi, where affliction rates peaked at 47-69% in some turtle foraging areas (Murakawa et al., 2000).

Hawksbill sea turtle is distributed across the Pacific, Indian, and Atlantic oceans. Hawksbill sea turtle is much less common in the Hawaiian Islands than green sea turtle and is known to nest only in the southern reaches of the state (NOAA-PIFSC, 2010). Hawksbill sea turtle is federally-listed as endangered (USFWS, nd) and is also listed as an endangered subspecies (*Eretmochelys imbricata bissa*) under State of Hawaiʻi regulations (HDLNR, 2014). Hawksbill sea turtle faces many of the same threats as described above affecting green sea turtle (NOAA & USFWS, 2007b).

### *Monk Seal*

The endangered Hawaiian monk seal (*Monachus schauinslandi*) is known to occur in the Project vicinity. The Hawaiian monk seal was first listed as an endangered species pursuant to the ESA on November 23, 1976 (41 FR 51612) and remains listed as endangered. In that same year, the Hawaiian monk seal population was designated as "depleted" under the Marine Mammal Protection Act (MMPA). Critical habitat for Hawaiian monk seals has been designated (NOAA-NMFS, 2015) and includes the seafloor and marine environment to 10 m above the seafloor from the 200 m depth contour, through the shoreline and extending onto the land 5 m inland from the shoreline between identified boundary points. These terrestrial boundary points define preferred pupping areas and significant haul-out areas. North Kawaihae SBH does not fall within assigned boundary points. Additionally, the breakwater at North Kawaihae SBH is a “manmade shoreline and structure in existence” which does not meet the definition of critical habitat and is therefore excluded from designated monk seal critical habitat (NOAA-NMFS, 2015).

## Essential Fish Habitat

The 1996 Sustainable Fishery Act amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and subsequent Essential Fish Habitat (EFH) Regulatory Guidelines (NOAA, 2002) describe provisions to identify and protect habitats of federally-managed marine and anadromous fish species. Under the various provisions, federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to consult with the National Marine Fisheries Service (NMFS).

Congress defines EFH as "those waters and substrate necessary to fish[es] for spawning, breeding, feeding, or growth to maturity" (MSFCMA, 1996; NOAA, 2002). EFH provisions in MSFCMA designate that species harvested in sufficient quantities to require fisheries management are to be subdivided into similar Management Unit Species (MUS). Five MUS groups are currently managed in Hawaiian waters: bottomfishes, pelagics, precious corals, crustaceans, and coral reef ecosystem (see Table 3). In the waters surrounding the Hawaiian Islands, EFH for coral reef ecosystem MUS as defined by the Final Coral Reef Ecosystem Fishery Management Plan (WPRFMC, 2001) and subsequent Fishery Ecosystem Plan for the Hawaiian Archipelago (WPRFMC, 2009a, 2009b, 2016) "includes all waters and habitat at depths from the sea surface to 50 fathoms extending from the shoreline (including state and territorial land and waters) to the outer boundary of the Exclusive Economic Zone (EEZ)."

The Western Pacific Regional Fishery Management Council (WPRFMC) has restructured its management framework from species-based fishery management plans (FMPs) to place-based fishery ecosystem plans (FEPs). The Hawaiian Archipelago FEP establishes the framework under which the WPRFMC will manage fishery resources and begin the integration and implementation of ecosystem approaches to management in the Hawaiian Archipelago. This FEP does not establish any new fishery management regulations, but rather consolidates existing fishery regulations for demersal species. Specifically, this FEP identifies as MUS those species known to be present in waters around the Hawaiian Archipelago and incorporates all of the management provisions of the Bottomfish and Seamount Groundfish FMP, the Crustaceans FMP, the Precious Corals FMP, and the Coral Reef Ecosystems FMP that are applicable to the area.

In February 2019, NMFS published a final rule to reclassify certain management unit species in the Pacific Islands as ecosystem component species (ECS; NOAA-NMFS, 2019, 84 FR 2767). An ECS means a stock that a Council or the Secretary has determined does not require conservation and management but is identified in an FEP to achieve ecosystem management objectives. The intent is to focus management efforts on species that are in need of conservation and management

**Table 3. EFH Designations for Hawaiian Archipelago FEP Management Unit.**

| Management Unit | Species Complex | EFH |
|---|---|---|
| Pelagic | Temperate species, Tropical species, Sharks, Squid | **Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 650 ft (200 m).<br><br>**Juvenile/adults:** the water column extending from the shoreline to a depth of 3,280 ft (1,000 m). |
| Bottomfish and Seamount Groundfish | Shallow-water species (0 to 50 fm) | **Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 1,310 ft (400 m).<br><br>**Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 1,310 ft (400 m). |
| Bottomfish and Seamount Groundfish | Deep-water species (50 to 200 fm) | **Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 1,310 ft (400 m).<br><br>**Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 1,310 ft (400 m). |
| Crustacean | Spiny and slipper lobster complex, Kona crab | **Eggs and larvae:** the water column from the shoreline to the outer limit of the EEZ down to a depth of 490 ft (150 m).<br><br>**Juvenile/adults:** all of the bottom habitat from the shoreline to a depth of 330 ft (100 m). |
| Coral Reef Ecosystem | All Currently Harvested Coral Reef Taxa<br><br>All Potentially Harvested Coral Reef Taxa | EFH for the Coral Reef Ecosystem MUS includes the water column and all benthic substrate to a depth of 330 ft (100 m) from the shoreline to the outer limit of the EEZ for eggs, larvae, juveniles and adults. |

and improve efficiency of fishery management in the region. The rule reduces the number of MUS from 173 species or families to 20 in the Hawai'i FEP (NMFS-NOAA, 2019).

The waters in and around North Kawaihae SBH are designated as EFH (including water column and all bottom areas) for coral reef ecosystem, bottomfish, pelagic and crustacean MUS. Of the thousands of species which are federally managed under the coral reef FMP, at least 50 juvenile and adult life stages (MRC, 2005, *AECOS*, 2016) are known to occur in waters in the vicinity. It is anticipated that the fishes that occur in the Project vicinity will actively avoid direct impacts from Project activities. Some impairment of ability of EFH managed species to find prey items could occur, but this effect should be temporary and spatially limited to the immediate vicinity of construction activities. The repaired structures will maintain fish habitat and foraging resources in the Project area.

## Impact Assessment

The proposed improvements to the breakwater include the demolition of the existing structure, which will result in a permanent loss of marine resources. These biological assemblages are dominated by corals (average density of 3.1 colonies/$m^2$, as well as other macroinvertebrates (urchins and sea cucumbers). It is anticipated that all corals occurring on the structure and in the surrounding area (a total of 632) would be directly impacted. These corals provide ecological services to the coral reef ecosystem: shelter, reef consolidation, food for corallivores, or coral gametes. Impacts to corals could be minimized by relocating suitable coral heads that occur in the Project area.

## Mitigation

Mitigating impacts to marine resources is a sequential process of avoiding impacts, minimizing impacts, and then compensating for unavoidable adverse impacts. The first step is to avoid impacts through project design. The second step, after avoidance measures have been incorporated, is to minimize remaining impacts. If unavoidable impacts still exist after avoidance and minimization, then replacement of lost ecosystem functions and values is appropriate. This last step is called compensatory mitigation (Bentivoglio, 2003). Project design decisions should incorporate measures to avoid and minimize impacts to marine communities associated with beach stabilization to the extent possible.

The United States Coral Reef Task Force (USCRTF) has identified a portfolio of compensatory mitigation and restoration options (USCRTF, 2016) and a list of Best Management Practices (BMPs) that could be implemented to offset adverse impacts on coral reef communities from development projects. The USCRTF list was reviewed and screened for appropriateness to anticipated Project impacts, ability to successfully implement, and impacts already minimized by project specific BMPs. Possible avoidance and minimization measures that could be taken to offset adverse impacts are listed below.

Water quality improvements:
- Storm water BMPs

Coral response and rescue team:
- Movement of at-risk corals from a project area

Offsite placement of structures to enhance substrate:
- Placement of material that mimics natural coral reef structure
- Deposition of boulders or other artificial material
- Placement of artificial reef modules

Nuisance species removal:
- Removal of nuisance or invasive algae species
- Super sucker removal of invasive algae

***Coral and Macroinvertebrate Relocation***

To avoid and minimize impacts to selected marine resources that occur in the Project area, any coral colonies and other macroinvertebrates (e.g., sea urchins, sea cucumbers) that occur within the direct impact area of the Project could be relocated, as practicable. Removing corals from the Project area and transplanting them to another site could avoid and minimize impacts to the coral assemblage. Coral relocation has been used as an offset measure for projects throughout Hawai'i, with varying levels of success. Criteria for coral relocation include corals that are expected to provide the greatest ecological value (larger size classes, like >40 cm), branching and mounding morphologies, and corals that have the greatest potential for survival. Approximately half of colonies in the Project area are <40 cm (55.5% of the total), and thus not meeting the criteria for relocation. Additionally, many of the colonies, in all size classes, are encrusting, also not meeting a criteria for relocation. Based on our survey, we estimated approximately 15% of the coral colonies in the Project area (100 of the 632 colonies) are suitable candidates for relocation. These colonies include mounding *Porites* spp. and *Pocillopora meandrina* colonies at 40cm and greater. Additionally, different macroinvertebrates are potential candidates for relocation, including urchins and sea cucumbers.

## Indirect Impacts

Potential indirect impacts to coral reef ecosystems from construction activity of the Project may occur from degradation of water quality. Project construction may temporarily increase the amount of suspended sediment in the water column. Impacts to water quality associated with project activities will be short-term and temporary and can be minimized using appropriate construction BMPs.

The Project has the potential to interact directly or indirectly with ESA-listed species, such as sea turtles, through the following stressors:

- behavioral changes in response to human activity and equipment operation;
- exposure to wastes and discharges;
- effects on monk seal critical habitat.

***Disturbance from human activity and equipment operation***

The Project includes work in and above marine waters where ESA-listed species may be directly exposed to Project activities. These animals may experience a startle reaction and stress if they encounter ongoing in-water work. Reactions could range from one extreme when an animal approaches to investigate the activity, to an opposite extreme of panicked flight resulting in injury in the attempt to flee. Because sea turtles and marine mammals typically avoid human activity, the expected effect of this interaction would be an avoidance behavior leading to an exposed animal leaving the Project area without injury. The likelihood of interaction will be reduced through a BMP of watching for and avoiding protected marine life before commencing work and by postponing certain activities when protected species are within 50 yds of that activity.

***Exposure to wastes and discharges***

The proposed action may involve machinery and equipment on and near the water. Machinery and equipment can leak fuel, petroleum lubricants, and other hydrocarbon-based pollutants into marine waters. Local and federal regulations prohibit the intentional discharge of toxic wastes and plastics into the marine environment. Exposure to accidental wastes and discharges that may result from the proposed action are not expected to result in significant adverse effects to ESA-listed sea turtles or monk seals.

***Effects on Hawaiian Monk Seal Critical Habitat***

Marine waters in the depth range of 0 to 500 m are the only essential feature of monk seal critical habitat that may be impacted by the planned work. The proposed Project is expected to have no long-term effect on the foraging characteristics or upon the quality or quantity of monk seal prey.

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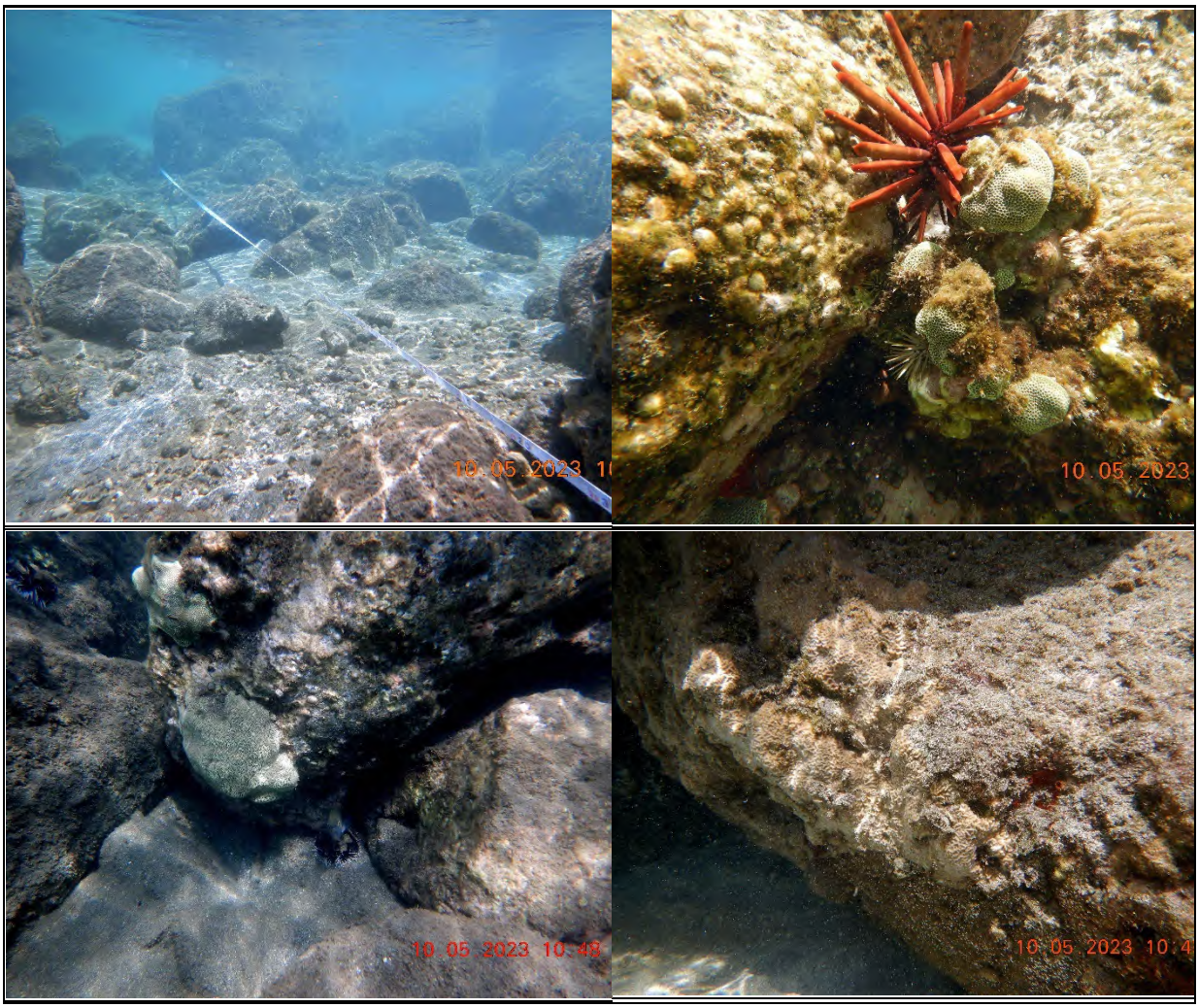
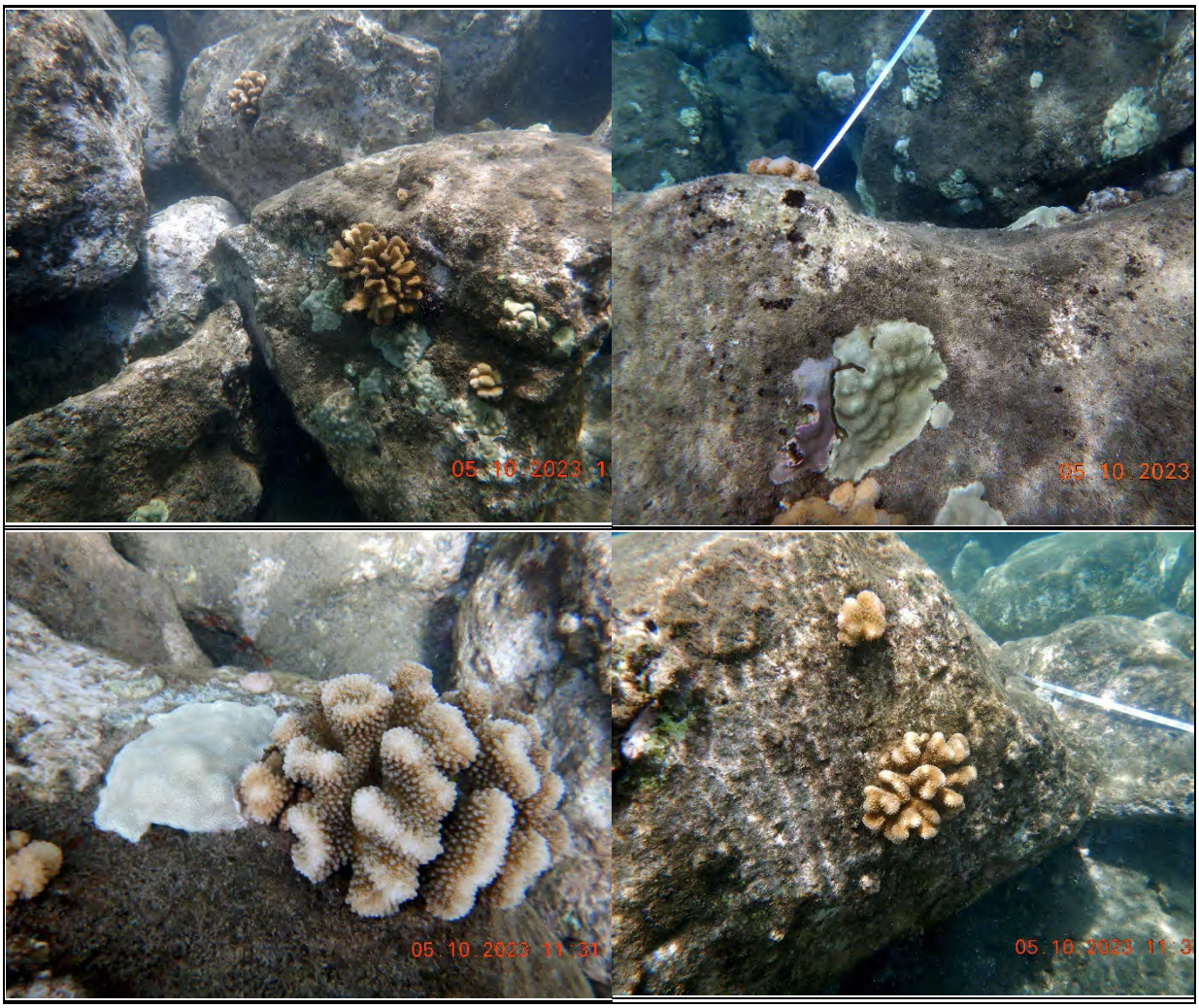
# Appendix A

Representative photos of each transect surveyed in the Kawaihae Harbor Project area and vicinity, Kawaihae, Kauaʻi, September 22, 2015.

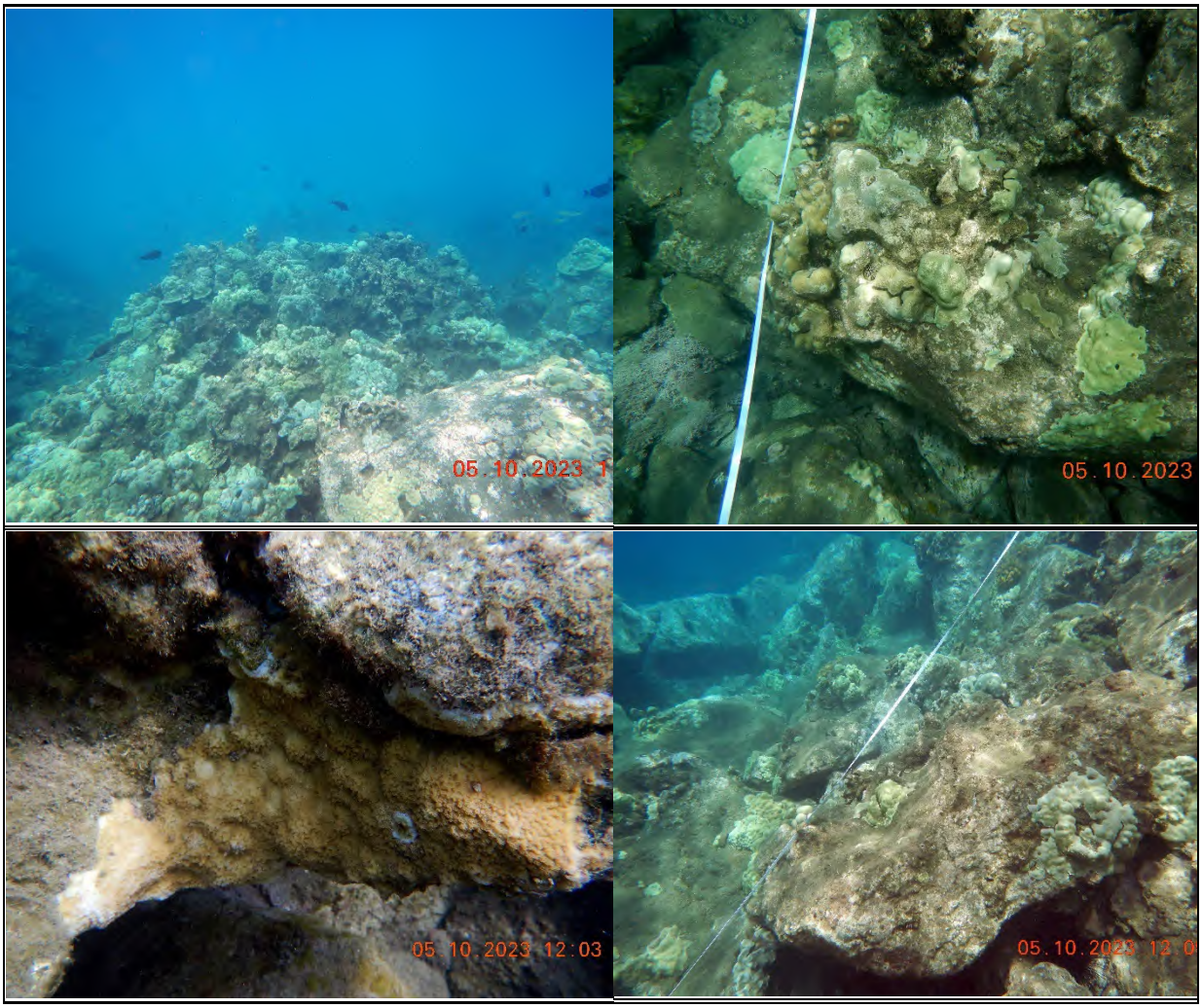



**Transect 1 location with boulders and sand on the seafloor (top left). Urchins and scattered corals encrust the boulders of the breakwater along Transect 1, including *Porites* spp. colonies (top right, bottom left) and *Pavona varians* (bottom right).**


**Corals are abundant on the breakwater boulders and seafloor off the breakwater along Transect 2.**




**Scattered encrusting colonies (mostly *Poc. meandrina* and *Porites* spp.) occur on the boulders of the breakwater along Transect 3. Several of the *Poc. meandrina* colonies observed on Transect 3 are potential candidates for transplantation (top left, bottom left and right).**




**Seaward of Transect 4 is a robust coral reef, with high coral abundance (top left). Encrusting corals (*Porites* sp., top right) and *Montipora patula* (bottom left) occur on the boulders of the breakwater along Transect 4.**

# Appendix B

Inventory of marine biota observed in the North Kawaihae Small Boat Harbor Project area and vicinity, Kawaihae, Kauaʻi, May 10, 2023.

| **PHYLUM, CLASS, ORDER, FAMILY** *Genus species* | Common name | Status | Abundance |
|---|---|---|---|
| | **ALGAE** | | |
| **RHODOPHYTA** | RED ALGAE | | |
| *Hydrolithon onkodes* | | Ind. | C |
| *Hydrolithon reinboldii* | | Ind. | C |
| | | Nat. | C |
| **OCHROPHYTA** | BROWN ALGAE | | |
| *Lobophora variegata* | | Ind. | R |
| *Padina* sp. | | Ind. | R |
| **CYANOBACTERIA** | BLUE-GREEN ALGAE | | |
| *Lyngbya crosbyana* | | Ind. | |
| | **INVERTEBRATES** | | |
| **PORIFERA, DEMOSPONGIAE, HYMEDESMIIDAE** | SPONGES | | |
| *Phorbas* sp. | red phorbas | Ind. | O |
| **CNIDARIA, HYDROZOA, ANTHOATHECATA** | HYDROIDS | | |
| *Pennaria disticha* | Christmas tree hydroid | Nat. | O |
| **CNIDARIA, ANTHOZOA, ZOANTHINARIA, ZOANITHIDAE** | ZOANTHIDS | | |
| *Zoanthus* sp. | zoanthid | Ind. | R |
| *Palythoa caesia* | *blue-gray zoanthid* | Ind. | U |
| **SCLERACTINIA** | | | |
| **FAVIIDAE** | | | |
| *Leptastrea bewickensis* | Bewick's coral | Ind. | C |
| *Leptastrea purpurea* | crust coral | Ind. | C |
| **ACROPORIDAE** | | | |
| *Montipora capitata* | rice coral | Ind. | C |
| *Montipora patula* | spreading rice coral | End. | R |
| **POCILLOPORIDAE** | | | |
| *Pocillopora damicornis* | lace coral | Ind. | O |
| *Pocillopora meandrina* | cauliflower coral | Ind. | A |
| **PORITIDAE** | | | |
| *Porites lobata* | lobe coral, *pōhaku puna* | Ind. | A |

| PHYLUM, CLASS, ORDER, FAMILY<br>*Genus species* | Common name | Status | Abundance |
|---|---|---|---|
| *Porites evermanni* | finger coral, *pōhaku puna* | Ind. | O |
| **FUNGIIDAE** | | | |
| *Lobactis scutaria* | mushroom coral | Ind. | R |
| **AGARICIIDAE** | | | |
| *Pavona varians* | false brain coral | Ind. | U |
| **ANNELIDA, POLYCHAETA** | WORMS | | |
| **AMPHINOMIDAE** | | | |
| *Pherecardia striata* | lined fireworm, *ʻaha buluhulu* | Ind. | R |
| **SABELLIDAE** | | | |
| *Sabellastarte spectabilis* | feather duster worm | Ind. | C |
| **CHAETOPTERIDAE** | | | |
| *Chaetopterus* sp. | parchment worm | Ind. | O |
| **TEREBELLIDAE** | | | |
| *Loimia medusa* | medusa spaghetti worm | Ind. | O |
| **MOLLUSCA, GASTROPODA, LITTORINIMORPHA** | | | |
| **LITTORINIDAE** | | | |
| *Littoraria pintado* | dotted periwinkle | Ind. | O |
| **MOLLUSCA, GASTROPODA** | | | |
| **PATELLIDAE** | | | |
| *Siphonaria normalis* | false ʻopihi, *ʻopihi-ʻawa* | Ind. | A |
| **HIPPONICIDAE** | | | |
| *Hipponix imbricatus* | shingly hoof shell | Ind. | O |
| **MOLLUSCA, BIVALVIA** | | | |
| **MYTILIDAE** | | | |
| *Brachidontes crebristriatus* | Hawaiian mussel, *nahawele liʻI liʻI* | End. | O |
| **ISOGNOMONIDAE** | | | |
| *Isognomon californicum* | black purse shell, *nahawele* | End. | O |
| **ARTHROPODA, MALACOSTRACA, DECAPODA** | | | |
| **STENOPODIDAE** | | | |
| *Stenopus hispidus* | banded coral shrimp | Ind. | R |
| **GRAPSIDAE** | | | |
| *Grapsus tenuicrustatus* | thin shelled rock crab;*ʻaʻama* | Ind. | O |
| **MAXILLOPODA, SESSILIA,** | BARNACLES | | |
| **CHTHAMALIDAE** | | | |
| *Nesochthamalus intertextus* | purple rock barnacle | End. | O |
| **ECHINODERMATA,** | SEA URCHINS | | |
| **ECHINOIDAE** | | | |
| **DIADEMATIDAE** | | | |

| PHYLUM, CLASS, ORDER, FAMILY<br>*Genus species* | Common name | Status | Abundance |
|---|---|---|---|
| *Echinothrix diadema* | blue black urchin, *wana* | Ind | O |
| *Echinothrix calamaris* | banded urchin, *wana* | End | R |
| *Diadema paucispinum* | Long-spined urchin, *wana kālula* | Ind | R |
| **ECHINOMETRIDAE** | | | |
| *Echinometra mathaei* | rock-boring urchin, *ʻina kea* | Ind | C |
| *Echinometra oblonga* | oblong urchin, *ʻina* | Ind | C |
| *Heterocentrotus mammillatus* | red pencil urchin, *hāʻukeʻukeʻulaʻula* | Ind. | C |
| **TOXOPNEUSTIDAE** | | | |
| *Tripneustus gratilla* | Collector urchin, *hāwaʻe maoli* | Ind | O |
| **VERTEBRATA, ACTINOPTERYGII** | BONY FISHES | | |
| **ACANTHURIDAE** | SURGEONFISH | | |
| *Acanthurus nigrofuscus* | brown surgeonfish, *māʻiʻiʻi* | Ind. | C |
| *Acanthurus triostegus* | convict tang; *manini* | Ind. | O |
| *Ctenochaetus strigosus* | goldring surgeonfish, *kole* | End. | R |
| *Naso unicornis* | bluespine unicornfish, *kala* | Ind. | O |
| *Acanthurus blochii* | ringtail surgeonfish, *pualu* | Ind. | R |
| *Naso* sp. | unicornfish | Ind. | |
| **CARANGIDAE** | | | |
| *Caranx melampygus* | bluefin trevally, *ʻōmilu* | Ind. | R |
| **OSTRACIIDAE** | BOXFISH | | |
| *Ostracion meleagris* | spotted boxfish; *moa* | Ind. | O |
| **CHAETODONTIDAE** | | | |
| *Chaetodon auriga* | threadfin butterflyfish; *kīkākapu* | Ind. | C |
| *Chaetodon ornatissimus* | ornate butterflyfish, *kīkākapu* | Ind. | R |
| *Forcipiger flavissimus* | common longnose butterflyfish, *lauwiliwili nukunuku ʻoiʻoi* | Ind. | O |
| **ZANCLIDAE** | | | |
| *Zanclus cornutus* | moorish idol; *kihikihi* | | O |
| **DIODONTIDAE** | | | |

| PHYLUM, CLASS, ORDER, FAMILY<br>*Genus species* | Common name | Status | Abundance |
|---|---|---|---|
| *Diodon holocanthus* | longspine porcupinefish, *kōkala* | Ind. | |
| **POMACENTRIDAE** | | | |
| *Abudefduf abdominalis* | Hawaiian sergeant, *mamo* | End. | C |
| *Abudefduf vaigienensis* | Indo-Pacific sergeant | Ind. | C |
| *Abudefduf sordidus* | blackspot sergeant, *kūpīpī* | Ind. | O |
| *Dascullus albisella* | Hawaiian dascyllus, *āloʻiloʻi* | End. | O |
| **LABRIDAE** | | | |
| *Thalassoma duperrey* | saddle wrasse, *hīnālea lauwili* | End. | C |
| *Gomphosus varius* | bird wrasse, *hīnālea* | Ind. | O |
| *Stethojulis balteata* | belted wrasse, *ʻomaka* | End. | C |
| **CHAETODONTIDAE** | BUTTERFLYFISH | | |
| *Chaetodon auriga* | threadfin butterflyfish; *kīkākapu* | Ind. | O |
| *Chaetodon lunula* | raccoon butterflyfish; *kīkākapu* | Ind. | O |
| *Chaetodon lunulatus* | Oval butterflyfish, *kapuhili* | Ind. | O |
| *Chaetodon multicinctus* | multiband butterflyfish | Ind. | O |
| *Chaetodon ornatissimus* | ornate butterflyfish, *kīkākapu* | Ind. | O |
| *Chaetodon quadrimaculatus* | fourspot butterflyfish, *lauhau* | Ind. | O |
| **BELONIDAE** | | | |
| *Platybelone argalus platyura* | keeltail needlefish | Ind. | O |
| **TERTAODONTIDAE** | | | |
| *Canthigaster jactator* | whitespotted toby | End. | R |
| **MULLIDAE** | | | |
| *Mulloidichthys flavolineatus* | square spot goatfish, *weke ʻa*, ʻ*oama* | Ind. | O |
| *Parupeneus multifasciatus* | many bar goatfish, *moano* | Ind. | O |
| **MUGILIDAE** | | | |
| *Mugil cephalus* | *striped mullet, `ama`ama* | | |
| **CHORDATA, CHONDRICHTHYES, CARCHARHINIFORMES CARCHARHINIDAE** | SHARK | | |

| **PHYLUM, CLASS, ORDER, FAMILY** *Genus species* | Common name | Status | Abundance |
|---|---|---|---|
| *Triaenodon obesus* | whitetip reef shark; *manō* | Ind. | R |

KEY TO SYMBOLS USED:

Abundance categories:

R – Rare – only one or two individuals observed.
U – Uncommon – several to a dozen individuals observed.
O – Occasional – seen irregularly in small numbers,
C – Common – observed everywhere, although generally not in large numbers.
A – Abundant – observed in large numbers and widely distributed.

Status categories:

End. – Endemic – species native only in Hawaii.
Ind. – Indigenous – species native in Hawaii and elsewhere in the Pacific.
Nat. – Naturalized – species introduced to Hawaii intentionally or accidentally.

# *Appendix C:*

***Archaeological Literature Review in Support of North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements, Kawaihae, Kawaihae 1 Ahupua‘a, Kohala District, Hawai‘i Island***

# DRAFT REPORT

# Archaeological Literature Review in Support of the North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements Project, Kawaihae, Kawaihae 1 Ahupua‘a, Kohala District, Hawai‘i Island

TMKs: (3) 6-1-003: pors. 023 and 041

*Prepared for:*
**Oceanit Laboratories, Inc.**
828 Fort Street, Suite 600
Honolulu, Hawaii 96813

September 2023

PACIFIC CONSULTING SERVICES, INCORPORATED
1130 N. NIMITZ HWY, SUITE C-300, HONOLULU HAWAII 96817

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DRAFT REPORT

# Archaeological Literature Review in Support of the North Kawaihae Small Boat Harbor (NKSBH) Breakwater Project

TMKs: (3) 6-1-003: pors. 023 and 041

By
Nicole I. Vernon, M.A.

Prepared For:
Oceanit Laboratories, Inc.
828 Fort Street, Suite 600
Honolulu, Hawaii 96813

Prepared By:
Pacific Consulting Services, Inc.
1130 N. Nimitz Hwy, Suite C-300
Honolulu, Hawaii 96817

September 2023

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## MANAGEMENT SUMMARY

| | |
|---|---|
| **Document Title:** | Archaeological Literature Review in Support of the North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements Project, Kawaihae, Kawaihae 1 Ahupuaʻa, Kohala District, Hawaiʻi Island |
| **Date/Revised Date:** | July 2023 |
| **Archaeological Permit #:** | SHPD Permit No. 23-08 |
| **Project Location:** | North Kawaihae Small Boat Harbor (at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway) |
| **Project TMKs:** | (3) 6-1-003: pors. 023 and 041 |
| **Land Owner:** | State of Hawaii |
| **Project Proponents:** | State of Hawaii |
| **Project Tasks:** | Archaeological Literature Review |
| **Project Acreage:** | 1.6 acres |
| **Principal Investigator:** | Dennis Gosser, M.A. |
| **Regulatory Oversight:** | Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS) |
| **Project Background:** | The purpose of the Proposed Action is to improve safety conditions within NKSBH, restore its functionality and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor. |
| **SIHP #:** | None |
| **Findings:** | Previous archaeological investigations conducted on the harbor property south of the NKSBH encountered fill during subsurface testing, and no historic properties have been recorded at Kawaihae Harbor. Less the 100 meters north of the NKSBH, subsurface testing did not encounter any intact cultural deposits and the surface survey noted the area was previously disturbed by storms and modern rubbish was present. Additionally, the current project area is seaward of the former coastline and underlain by up to 13.0 ft of fill, which is material dredged from the bay during construction of the harbor facility in the late 1950s. Consequently, it is extremely unlikely that any traditional Hawaiian cultural deposits, human burials, or buried post-Contact historic properties are present in the project area. |
| **Human Skeletal Remains:** | None identified within the project area; human burials are not anticipated. |
| **Recommended Project Effect:** | The recommended effect determination for the project, pursuant to HRS Chapter 6E and its implementing regulations at HAR §13-275-7(1), is "no historic properties affected" as the construction work will not affect any historic properties. |
| **Archaeological Recommendations:** | No further work is recommended. |

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# INTRODUCTION

Under contract to Oceanit Laboratories, Inc., Pacific Consulting Services, Inc. (PCSI) has prepared this Archaeological Literature Review (ALR) in support of the North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements Project at Kawaihae, Kawaihae 1 Ahupua‘a, Kohala District, Hawai‘i[1]. The project proponent and landowner are the State of Hawaii. The extent of the proposed project is shown in Figure 1. The Proposed Action includes repair and modification of the existing main breakwater design to provide current and future protection against wave action for NKSBH. In addition, the breakwater will be extended approximately 80 feet landward to reduce beach sediments from accreting onto the concrete boat ramp.

A historical, cultural, and archaeological background study was conducted in order to evaluate any potential effect on historic properties and to recommend mitigation of any adverse effect, if warranted. This work was conducted in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS).

## PROJECT LOCATION

NKSBH is located at the northwest corner of the Kawaihae Deep Draft Harbor (KDDH) and at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway. It consists of a 1.6-acre basin protected by a 390.0 feet (ft) long main breakwater that runs along the north and northwest boundary, and by a stub groin on the east side of the NKSBH entrance. The current project area totals 5.22 acres (ac), or 2.11 hectares (ha). The tax map key (TMK) parcels for the project area are (3) 6-1-003:023 (portion) and 041 (portion), as shown in Figure 2.

Two 30-ft-long wooden marginal wharfs, which were rebuilt after the damage of the original 200-ft-long wharf by a storm event in January 2020, run along the eastern edge of the harbor, and a 45-ft fiberglass dock, 30-ft wood dock, and a concrete boat ramp are located on the northeast side of the harbor (Figure 3). Vessels entering NKSBH use the deep draft harbor entrance for the initial approach, and then make a left turn to enter the harbor basin. Only a few boats have been moored at the NKSBH due to limited berthing space after the damage of the original wharf. Onshore, the NKSBH property includes a parking lot and restroom and water facilities along the south side of the harbor.

## PROPOSED ACTION

The purpose of the proposed action is to improve safety conditions within NKSBH, restore its functionality, and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor.

Repairing and modifying the existing west main breakwater will reduce wave action inside the harbor basin and extending the breakwater inland will prevent sand intrusion into the boat ramp. Based on the assessment of the harbor and wave analysis, the following improvements at the NKSBH are recommended:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;

[1] PCSI follows the latest edition of the Society for American Archaeology (SAA) Style Guide (2021) regarding textual elements (e.g., numbers, dates, statistical copy, italicization, capitalization, hyphenation, and accents and diacritical marks). The authority for English spelling is the most recent edition of Merriam-Webster’s Collegiate Dictionary. Unless noted, the authorities for Hawaiian spelling and geographic place names are the Hawaiian Dictionary (Pukui and Elbert 1986), the most recent listing of the Hawai‘i Board on Geographic Names (HBGN), and Place Names of Hawaii (Pukui et al. 1976).


Figure 1. Project Area Location on 7.5-Minute Series USGS Kawaihae Topographical Quadrangle (2017).

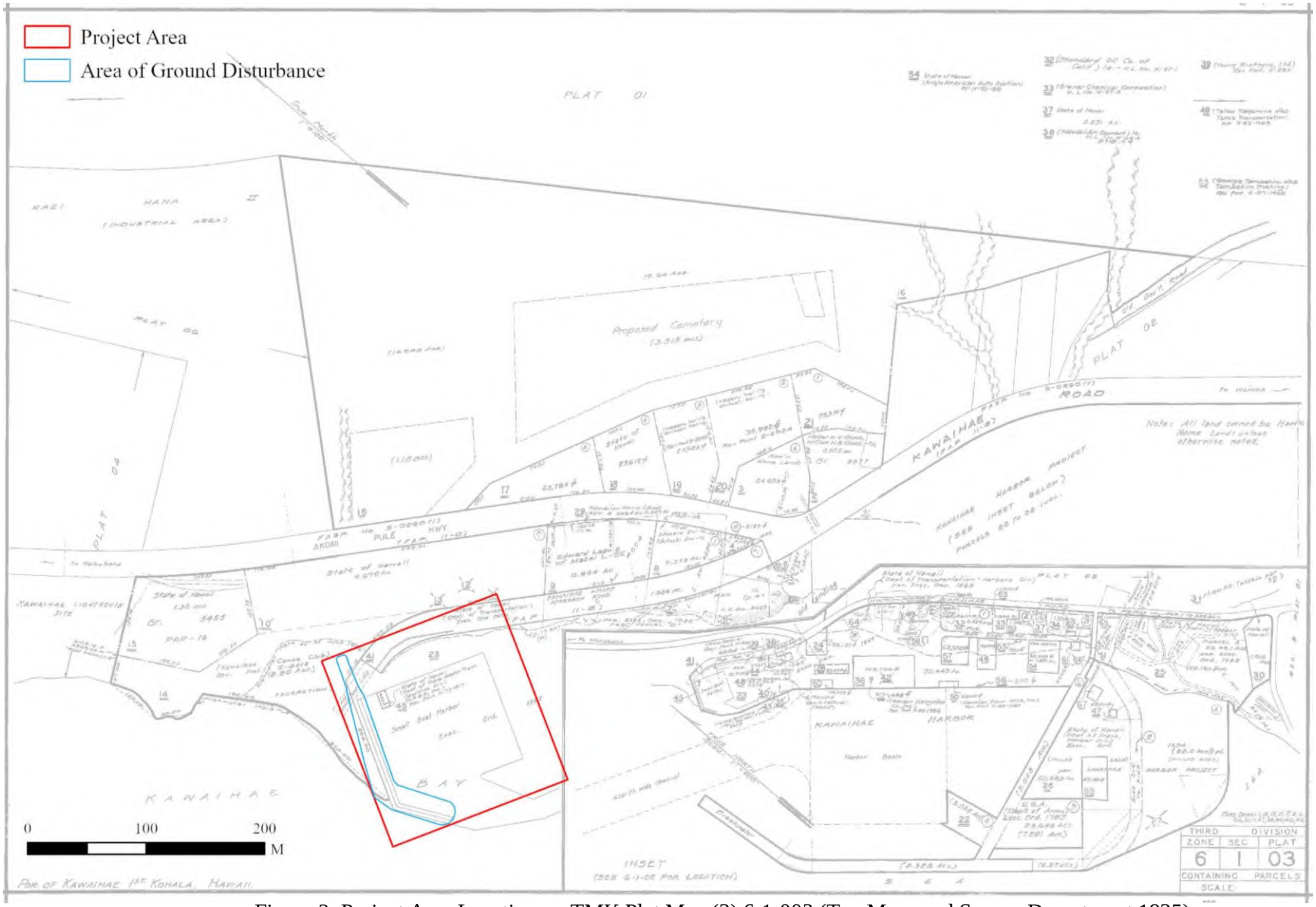


Figure 2. Project Area Location on TMK Plat Map (3) 6-1-003 (Tax Maps and Survey Department 1935).


Figure 3. Map of Existing Conditions (Google Earth 2021).

- Raise the height of the existing main breakwater from 6 ft to 10 ft above the mean lower low water level (MLLW) to prevent overtopping; and
- Extend the existing breakwater by 80 ft inland.

The proposed improvements are located at the main breakwater and the backshore area adjacent to the harbor. The proposed site plan is depicted in Figure 4 and typical sections are shown in Figure 5. To repair the main breakwater, demolition of the existing structure will be needed prior to placing the foundation bedding layer. The breakwater consists of a trapezoidal underlayer overlaid by two layers of armor rocks. Some of the material from the existing breakwater will be used to supplement imported materials. The final modified breakwater will have a crest elevation of 10.0 ft above the MLLW and 1.5H:1V side slopes. The increased height will make the structure more resilient to wave actions from storm events. The design crest width is 10.0 ft to accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

The breakwater will be extended approximately 80 ft landwards past the top of the boat ramp to prevent sand intrusion onto the boat ramp. The extended portion of the breakwater will have the same dimensions as the main breakwater as shown in Figure 5.

## ENVIRONMENTAL SETTING

Kawaihae Ahupua‘a 1 is on the northwest coast of Hawai‘i Island. The land unit extends for the coastline to approximately 1,500 m above mean sea level (AMSL). The land is underlain by Kohala Volcano lava flows of the Pololu Volcanic Series dating to about 0.33–0.45 million years ago. Kohala is the oldest major shield volcano on the island of Hawai‘i (McDougall and Swanson 1972).

### TOPOGRAPHY AND SOILS

The NKSBH is at the north end of Kawaihae Harbor. The surrounding area was filled and leveled for development of the harbor in the late 1950s. The soils are described as dumps, fill land (Figure 6), consisting of coral fill dredged from the Kawaihae Harbor (Soil Survey Staff, NRCS, USDA 2023). Both inland (or east) and north along the coast—beyond the harbor’s fill land boundary—is Kawaihae very cobbly very fine sandy loam with 6 to 12 percent slopes. The former coastline relative to the project area can be seen on a harbor site plan map from 1953 in Figure 7.

Ground elevations at the harbor range from approximately 9 ft to 15 ft amsl, and fill was previously documented from 8.0 to 13.0 feet below the existing ground surface during boring tests (GeoLabs 1999). The fills consist of dense sandy coral gravel and coral gravelly sands with some loose pockets. The fills are underlain by lagoonal deposits consisting of loose to dense silty sands and soft clayey deposits extending to at least 21.5 feet below the existing ground surface, which was the maximum depth of the borings of about (Geolabs 1999; R.M.Towill 2001:3-4). Additional boring test (two on-shore, two off-shore) in November 2007 confirmed the findings of the 2001 geotechnical study (M and E Pacific, Inc. 2008:36).

### HYDROLOGY, VEGETATION, AND BUILT ENVIRONMENT

Kawaihae is very arid, with slightly more rain falling in the winter months, between November and January (Giambelluca et al. 2013). Mean annual rainfall near the coast is 253.5 millimeters (mm), or 9.98 inches (in). Intermittent streams in the vicinity include Honokoa Gulch to the north and Makahuna Gulch to the south.

The project area vegetation is primarily coconut trees planted linearly around the harbor between paved areas. Other trees in the vicinity include milo, kiawe, and palms. The ground surface is compacted fill and pavement.

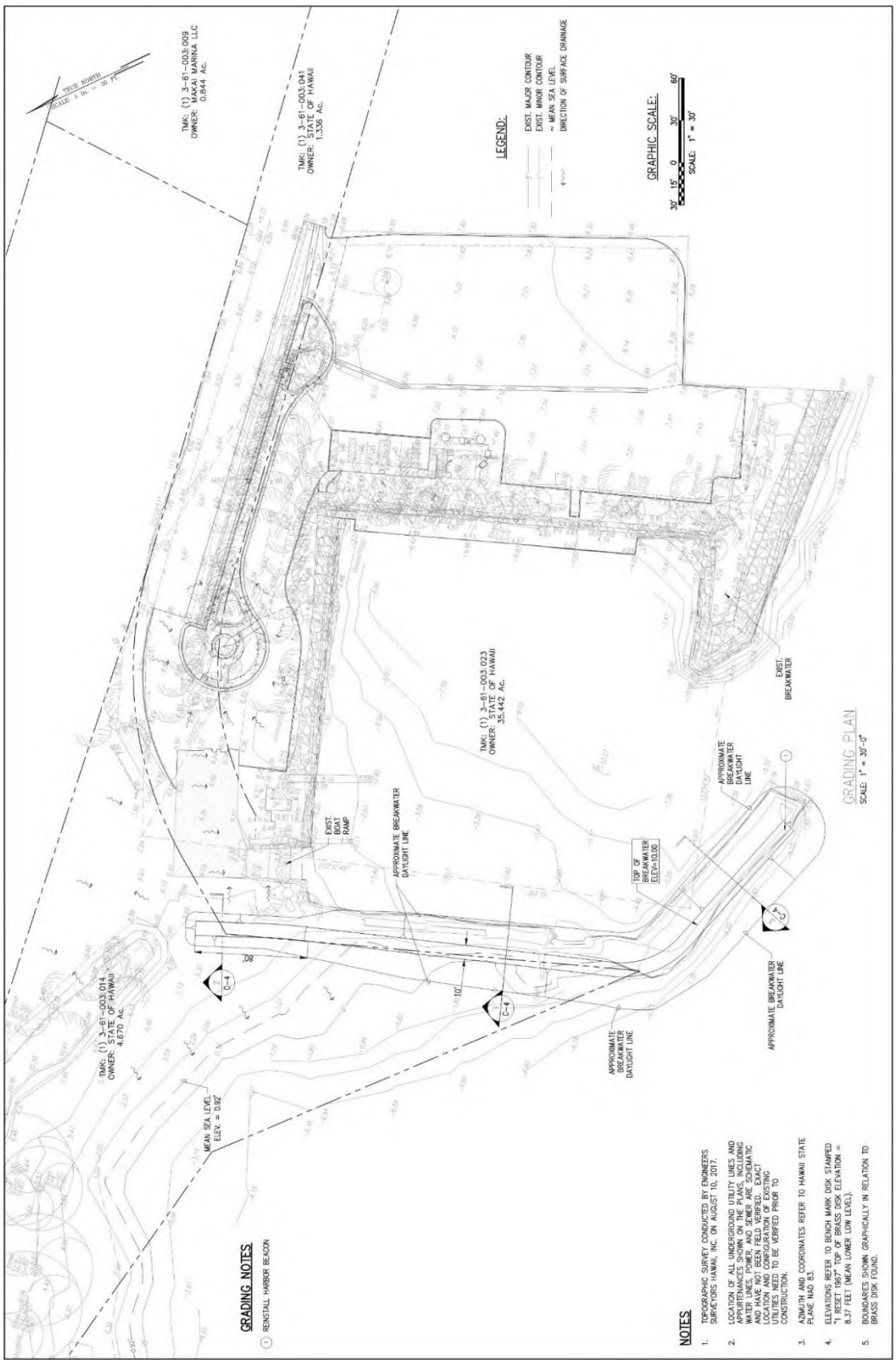


Figure 4. Grading Plan for Proposed Action; TMK Numbers are Incorrect.

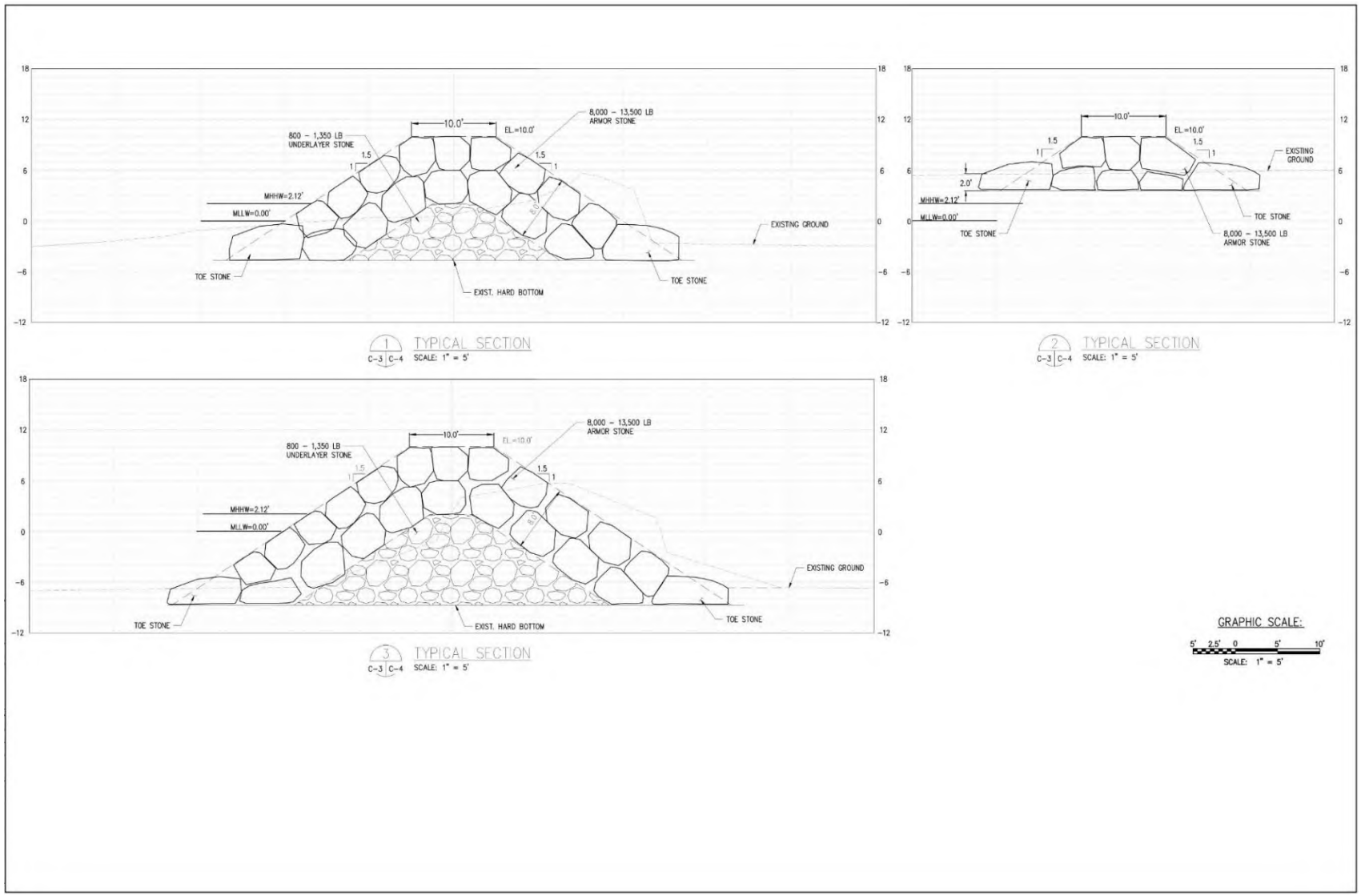


Figure 5. Typical Cross Section Details for Modified Breakwater in Proposed Action.

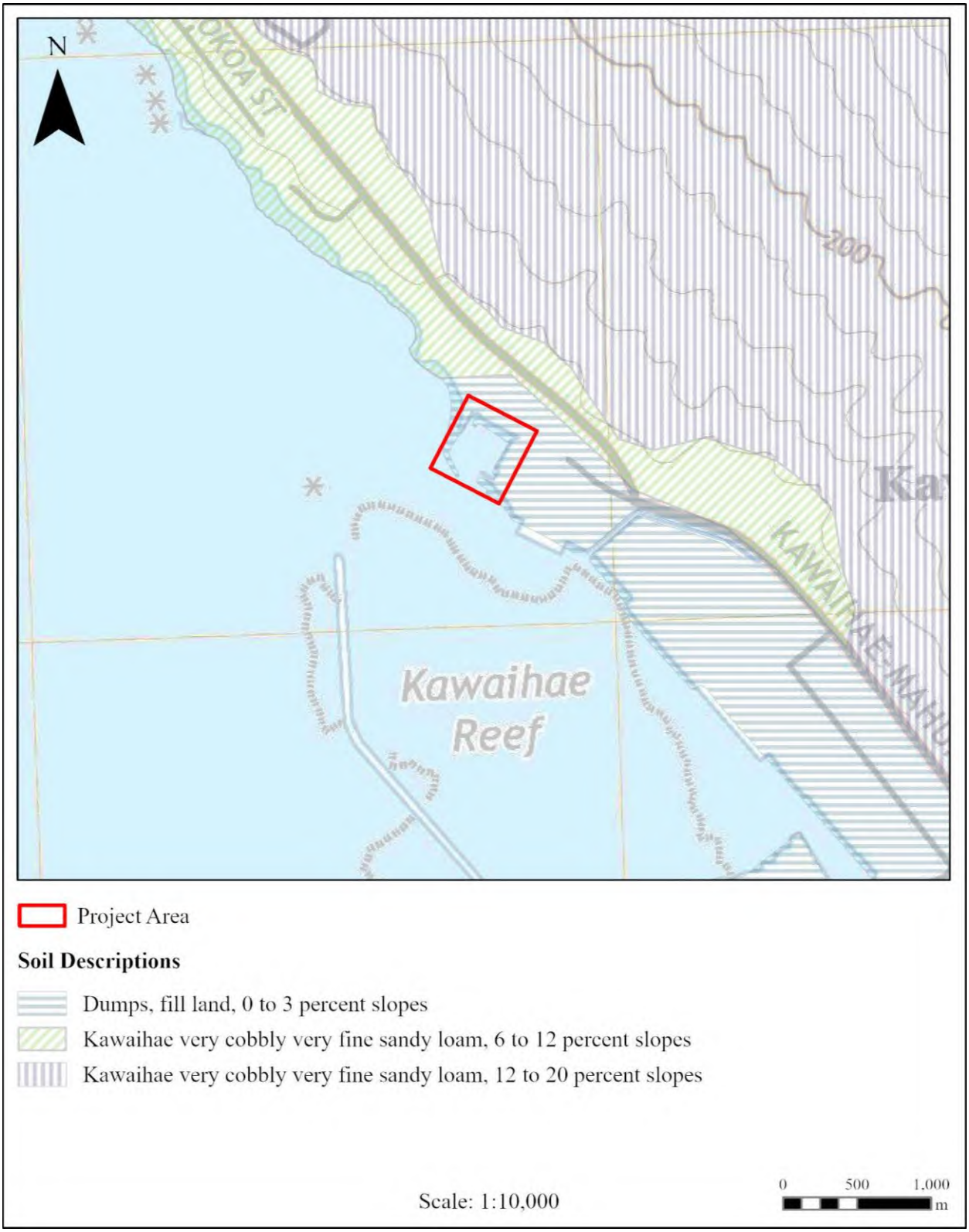


Figure 6. Soil Units Near the Project Area (Soil Survey Staff NRCS/USDA).

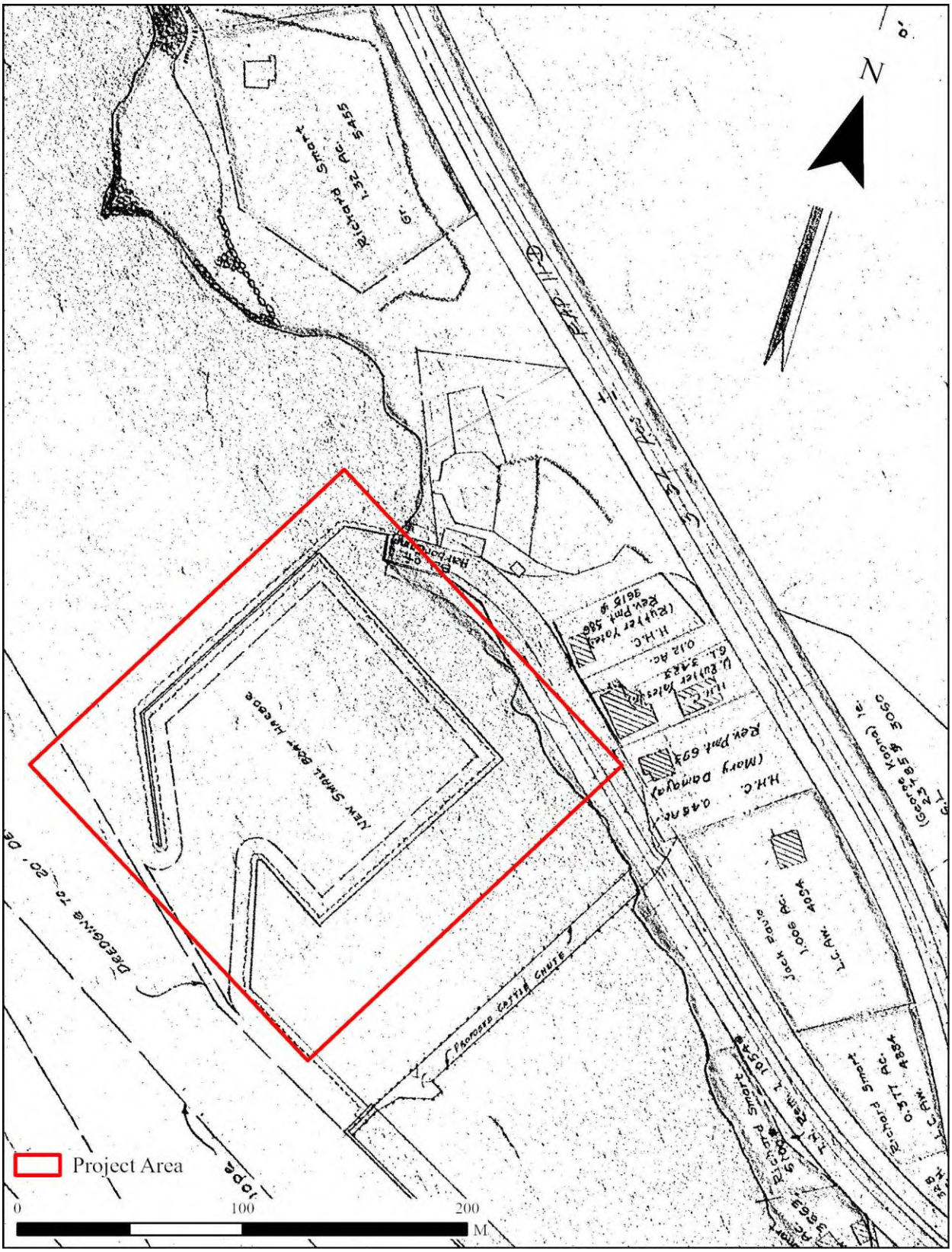


Figure 7. Portion of Kawaihae Bay Waterfront Map Dated 1953 (Board of Harbor Commissioners 1953).

The NKSBH is across from the entrance channel of KDDH (Figure 8). There are two small wooden wharves on the east side, which are adjacent to a large parking lot. On the north side of the NKSBH is a revetment, one fiber glass pier, one wooden pier, and a concrete boat ramp with a loading dock. A beach berm slopes down to the boat ramp. The west side of the harbor is the main breakwater. Along the south side is the entrance, which is between the stub groin and breakwater.

## HISTORICAL BACKGROUND

The reader is referred to the 2011 Archaeological Literature Review and Field Inspection report for the Kawaihae Harbor Project (Wilkinson et al. 2011) and the 2014 Archaeological Assessment for Kawaihae Small Boat Harbor (SBH) Improvements (Wheeler et al. 2014) for a detailed pre-Contact and post-Contact background review of Kawaihae. This section presents a summary of the ethno-historical background, with additional information not previously included in archaeological reports, including historical photographs and maps, and an up-to-date archaeological background for the project area.

### TRADITIONAL LAND USE

Traditionally, Kohala was a single *moku* (district), which is today divided into North Kohala and South Kohala. A *moku* (district) such as Kohala was divided into *ʻokana* or *kalana* (land divisions smaller than *moku*), which in turn were divided into smaller political units, *ahupuaʻa* and *ʻili* (Maly and Maly 2004:6). The current project area is in the *ahupuaʻa* of Kawaihae 1 (Kawaihae Komohana), which borders Kawaihae 2 (Kawaihae Hikina) to the south. Prior to the 1800s, the two land units were a single *ahupuaʻa* (Cordy 1990:346). Prior to Kamehameha I unifying Hawaiʻi, there were six chiefdoms on the island–Kohala, Kona, Puna, Kau, Hamakua, and Hilo–which became *moku* under his rule. The southern portion of Kohala comprised Kawaihae and Waimea, which Rieth and Morrison (2010:15) note "were traditionally places associated with *aliʻi* (chiefs), and because of their complementary resource bases likely participated in a long history of exchange and interaction."

Archaeological evidence shows the earliest settlement of the Hawaiian Islands occurred no earlier than AD 1000 (Kirch 2011). This is grounded in AMS 14C dating and paleoenvironmental evidence. Based on traditional history and the availability of resources that an area could provide, the windward, or *koʻolau*, coast was a place of early settlement on the island, while the leeward, or *kona*, side was likely settled after AD 1200. An assessment of radiocarbon dates from Hawaiʻi Island determined that the most reliable dates indicate settlement between AD 1220 and 1261 (Rieth et al. 2011:2748). It is worth noting that 70 percent of the radiocarbon dates determined to be reliable were from the leeward side of the island, which has been subject to much more archaeological research than the windward side. Specifically, of the 303 analyzed, there were 86 from Kona, 74 from Kohala, and 51 from Kaʻū. Of these, 14 of the 16 most reliable samples were from Kohala (Rieth et al. 2011:2744).

Radiocarbon dates from Kawaihae 1 and 2 indicate recurrent short-term habitation of the area beginning in the mid-thirteenth century, likely associated with marine resource procurement (Carson 2006; Rieth and Morrison 2010:34). The toponym Kawaihae translates literally as "the water [of] wrath (people are said to have fought for water from a pool in this arid area)" (Pukui et al. 1974:97). The arid environment and lack of freshwater would have constrained permanent coastal settlements to places with access to fresh water, such as fresh water springs or ponds at Kawaihae Bay, Puakō-Lālāmilo, and Kalāhuipuaʻa-ʻAnaehoʻomalu (Maly and Maly 2003:3). Likewise, the scarcity of fresh water placed a heavy reliance on marine resources.

Passing through Kawaihae Village was the *ala kahakai*, a traditional trail by the sea that connected to other population centers. Additionally, there were trails that reached inland and facilitated trade of coastal resources with upland populations (Doyle 1945:84–85; Maly and Maly 2003:20), where taro and sweet potatoes were cultivated and natural resources were available, such as medicinal plants, timber, birds, and fiber plants.

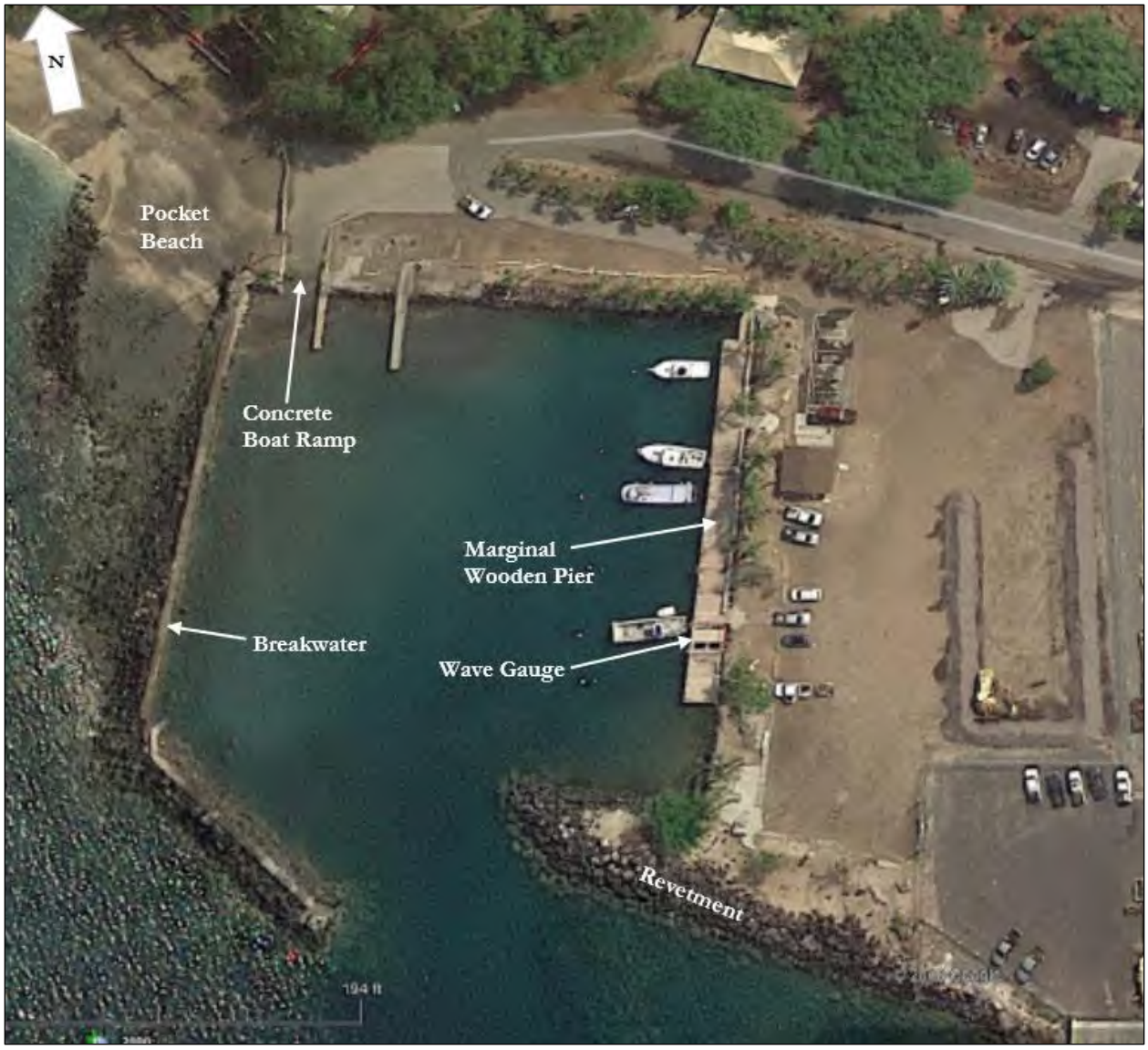


Figure 8. Aerial Overview of the NKSBH Provided by Oceanit Laboratories.

The following is a description of Kawaihae from Handy and Handy (1972):

> Kawaihae is the broad shallow bay on the west coast of Kohala which is and was the district's chief seaport. The terrain immediately around it is dry and barren but formerly much dry taro was grown beyond in the lower forest zone, which formerly extended from the Kohala Mountains much farther to seaward over what is now open pasture land. Wet taro was grown also in small pockets of land wherever streams, even intermittent ones, flowed down from the mountains in the wet season.
>
> For 1.4 miles along the southern base of Puʻu Hokuʻula, terraces are visible under pasture and house sites, presumable formerly watered by a ditch from Waikoloa Stream. These evidently used to be more or less continuous down to and below Waiaka Stream where the road now crosses. Here in 1935 a Hawaiian planter still cultivated taro in a few terraces irrigated from Waiaka Stream flowing out of the Kohala Mountains. On the Kawaihae side of the road numerous old terrace lines could be seen. There are places in the pasture south of the road that may be traces of old terraces, lines of old walls, or ridges surviving from the era of experimental planting of cane at Waimea [Handy and Handy 1972:531].

Prior to land filling for the harbor in the twentieth century, there were salt pans on the coast in Kawaihae, south of the project area (Figure 9). The following is a description of the salt harvesting from Lucy Kaopaulu Peabody, the great granddaughter of Isaac Davis, from "Excerpts from a Compilation by Ethel Damon of Stories told [to] Kalani Henriques by Lucy Peabody":

> Near the Kawaihae beach-proving as interesting to the Lyons children in their day as they had once been to Vancouver-were the famous salt ponds, a series of four. The overflow of high tide would fill the first, and there evaporation would begin. Just before the next high tide, natives with gourd calabashes would laboriously bale into the adjoining pond, which was on slightly higher ground. This process was repeated until in the last and smallest pond the salt was so concentrated that crystals formed, and sank to the bottom. These were daily raked and spread on a clean rock surface to dry. The salt was finally wrapped in ti leaf bundles, which were hung on *auamo** [Poles for carrying bundles] and borne away on sturdy shoulders. Thus was Kawaihae salt transported, even to far off Waipio, whence came the poi that was so gladly received by folk of the barren beach region [Doyle 1945:272].

## KAMEHAMEHA I

As of the 1400s there were two concentrations of power on the island: the "Kona" chiefs of Kohala, Kona, and Kaʻū, and the "I" chiefs of Hamakua, Hilo, and Puna (Cordy 2000:205–207). When ʻUmi-a-Liloa came to power, sometime between the early 1400s and early 1600s, he united the island and chose Kona as the seat of power. Population density in the Kona region probably increased during the time of Umi-a-Liloa's rule (Fornander 1919:313). Based on royal oral traditions it is thought that from 1500 to the mid-1700s many attempts were made to overthrow the lineage. This tumultuous period ended under Kamehameha I, a direct descendant of ʻUmi-a-Liloa, who unified the Hawaiian Islands (less Kauaʻi) at the end of the eighteenth century (Cordy 2000:205–208).

Though there is uncertainty about the exact dates of events (Stokes 1933), and the events themselves, Hawaiian historian Samuel Kamakau wrote that Kamehameha I, named at birth Paiʻea, was born at a time of war among the Hawaiʻi chiefs (Kamakau 1992:66). Keaweʻīkekahialiʻiokamoku, *aliʻi nui* of Hawaiʻi, had died and his sons Keʻeaumoku and Kalaninuiʻamamao, district chiefs of the Kona and Hilo sides of the island, began clashing. At the time, Chief Alapaʻi was on Maui and heard of the fighting. He took the opportunity to attack the island and won, becoming ruler of Hawaiʻi Island.

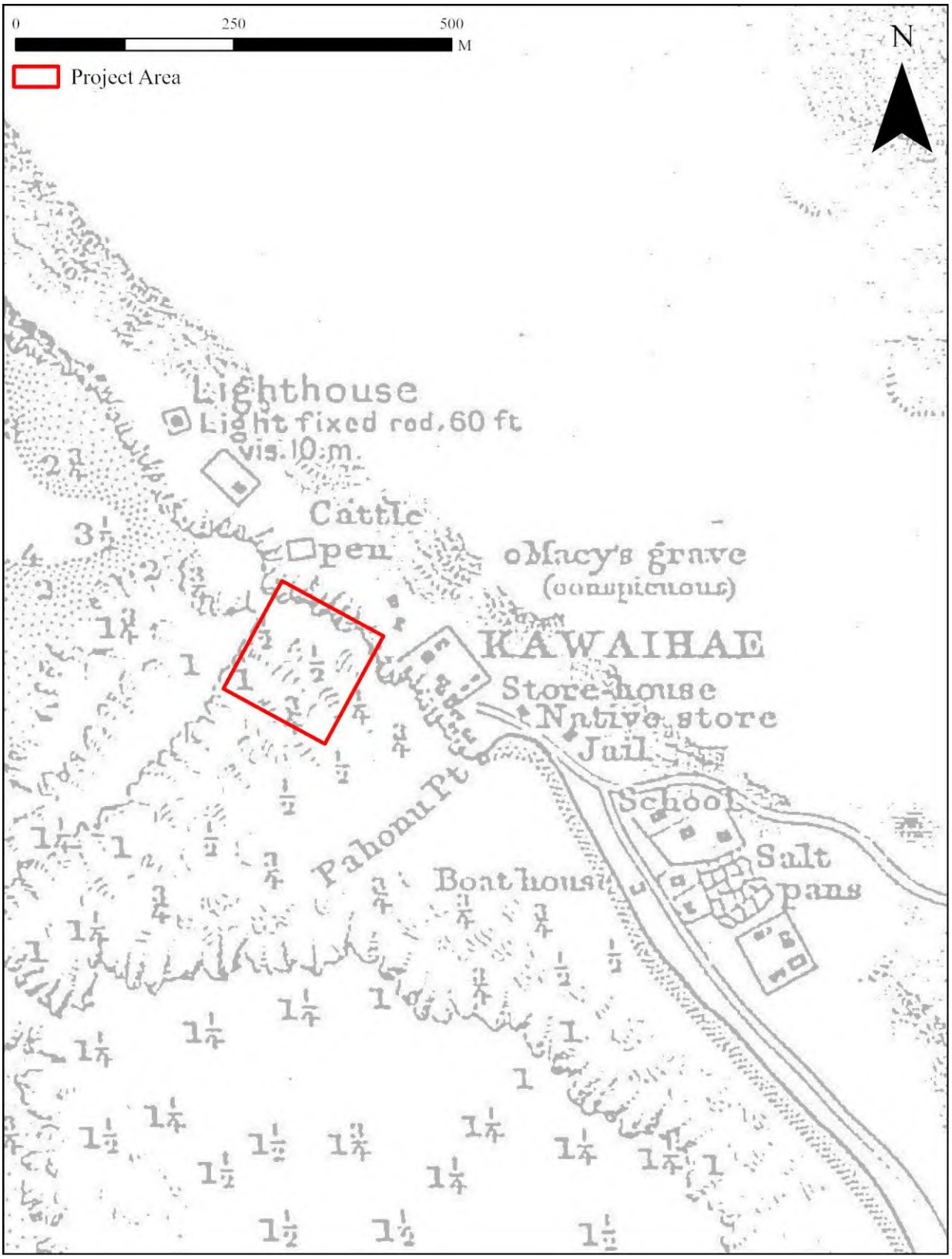


Figure 9. Map of Kawaihae Bay from 1883–1885 Hawaiian Government Survey Showing Project Area (McDonald 1891).

As pointed out in a newspaper article from 1911 about Kamehameha's birth (Imaikalanani 1911), Hawaiian *moʻōlelo* and *mele* (chants, songs, or poems) are not always literal. For example, it was not to a literal cave that the infant Kamehameha was taken to as some say, but the door of Kahaʻōpūlani's house (Imaikalanani 1911). Several versions of the birth say that before Kamehameha was born to Alapaʻi's niece Kekuʻiapoiwa II, a priest warned him of Kamehameha's future power and Alapaʻi planned to have the child killed (Stillman 1911). Another version tells of a North Kohala chief Nāihe who heard rumors in the court of plans to kill the child and secretly took the infant to raise in safety (Desha 2000:26). According to Kamakau (1992:67), the Kohala chief Naeʻole swiped the child from Kekuʻiapoiwa II at Kokoiki while she was delivering the afterbirth unaccompanied on a stormy night, and his motive was to become the *kahu* (guardian) of the chief's child. And then there is other version stating that Kekuʻiapoiwa II and Keōua knew of Alapaʻi's plot and made plans to have a skilled runner carry the infant from ʻĀinakea (not Kokoiki) to ʻĀwini, where Kahaʻōpūlani lived (Stillman 1911).

When Kamehameha was five years old he was taken to be raised in Alapaʻi's court, where Keawe's two sons, Keōua and Kalaniʻōpuʻu (who were half-brothers), were captains of his army. In 1752, Keōua became ill and died while at the court of Alapaʻi in Hilo. According to one source, Kalaniʻōpuʻu heard of the illness and travel from Kaʻū to Keōua. Before Keōua died, he told his half-brother that Apalapʻi had poisoned him, and to take his son, Kamahameha, and care for him. In other versions Kalaniʻōpuʻu heard rumors of poison or prayer by Alapaʻi that caused Keōua's death, decided to take Kamehameha away from Alapaʻi's court (Desha 2000:27, 28; Silverman 1972). Either way, this was the beginning of the struggle for Hawaiʻi by Kalaniʻōpuʻu against Alapaʻi. Kamakau wrote:

> Ka-lani-ʻopuʻu and Keoua were the hereditary heirs to the land of Hawaii, for it had belonged to their father, Ka-lani-nui-ʻi-a-mamao, and [his brother] Ka-lani-keʻe-au-moku; but Alapaʻi had seized it through force of arms and had slain the inheritors. Alapaʻi was a chief of high rank. Ka-lani-kau-lele-ia-iwi was his mother as well as the mother of Ka-lani-keʻe-au-moku. His father was Ka-uaua-a-Mahi, whose father, Mahi-ʻololi′, was executive officer (*Kuhina kaua nui*) for the chiefess Keakea-lani while she held the government of Hawaii [Kamakau 1992:76].

There was a battle at Mahinaakaka between Kalaniʻōpuʻu and Alapaʻi, during which Alapaʻi defeated Kalaniʻōpuʻu's army. Kalaniʻōpuʻu ruled over Kaʻū "the birth sands of his ancestors" and Puna (Kamakau 1992:77). Alapaʻi stayed at Hilo for a year and then moved to Waipiʻo, then Waimea, and finally Lanimaomao, where he became ill. He then moved to Kikiakoʻi in Kawaihae where he grew close to death, so he appointed his son Keaweʻōpala as his successor.

Alapaʻi died around 1754, and then there was then an uprising led by Kalaniʻōpuʻu that resulted in Keaweʻōpala's death (Kamakau 1992:78). Kalaniʻōpuʻu became *aliʻi nui* of Hawaiʻi. His reign was spent attempting to conquer Maui. He managed to take Hāna and then held the fortress Kaʻuiki for 20 years. Young Kamehameha spent time at Kalaniʻōpuʻu's court in Kaʻū where he trained in warfare with the famous warrior Kekūhaupiʻo (Desha 2000; Kamakau 1992:86).

When Captain Cook arrived in the Hawaiian Islands, Kalaniʻōpuʻu was on Maui. He returned to meet Cook in January of 1779 and they exchanged gifts (Kuykendall 1947:16). Kalaniʻōpuʻu became ill in the following years and before his death he bequeathed Kīwalaʻō his land and Kamehameha his god Kukaʻilimoku (Fornander 1919:464; Kamakau 1992:108,110). Fearing for Kamehameha's safety when he died, he sent him to live in Kohala. Kalaniʻōpuʻu died at Waiʻoahukini in Kaʻū in 1782. Soon after Kalaniʻōpuʻu's death, fighting broke out between the districts and Kīwalaʻō was killed. After a famous battle called Mokuʻohai, Kamehameha then became chief of the districts of Kona, Kohala, and half of Hāmākua, while Keōua, the brother of Kiwalaʻo, controlled Kaʻū and half of Puna, and Keawemaʻuhili declared himself independent of both in Hilo and controlled half of Puna and Hāmākua (Kalākaua 1888:122, 363).

In the following years there was constant fighting between the districts controlled by Keōua, Keawemaʻuhili, and Kamehameha. Leading up to Kamehameha's rule of the entire island, Keōua killed Keawemaʻuhili out of fear that he and Kamehameha would join forces against him (Kamakau 1992:151). Kamehameha was on Molokaʻi with the Englishmen John Young and Isaac Davis when he heard that Keawemaʻuhili was killed and that Kohala had been attacked. Young and Davis were advisors to Kamehameha and facilitated the use of western weapons and warfare (Cordy 2000). Kamehameha left for Hawaiʻi and took with him muskets, gunpowder, and the canon called Lopaka (Kamakau 1992:152). The battle between Kamehameha and Keōua was a draw, and Keōua and his chiefs divided up Hilo for themselves.

Around 1790, Kamehameha held Keōua's army in the north and sent fighters to attack Kaʻū. On their way back to defend Kaʻū, Keōua's army was caught in an eruption of Kīlauea and was devastated, but Kaʻū still resisted Kamehameha's control. Kamehameha decided to feign a peace offering and invited Keōua to the dedication of Puʻukohola Heiau in Kawaihae in 1791. Kamakau claims that Keōua knew his fate when he agreed to travel to Kawaihae (Kamakau 1992:156). When Keōua and his men arrived, they were killed in their canoe, and Keōua's body was offered as the sacrifice at the dedication of the *heiau* (Kamakau 1992:157–158).

In 1783, Kahekili II, *aliʻi nui* of Maui, defeated Kahahana, *aliʻi nui* of Oʻahu (Kamakau 1992:136). Ten years later, Kahekili II died and his half-brother Kaʻeokulani inherited Maui, Molokaʻi, and Lanaʻi, while his son Kalanikūpule inherited Oʻahu. In 1793, Kaʻeokulani made plans to visit his home island of Kauaʻi, which made Kalanikūpule suspicious. They went to war with one another and several days of fighting occurred. After a brief period of peace, the fighting resumed, but this time Kalanikūpule employed the help of Captain William Brown and his three vessels, known as the Butterworth Squadron. Kalanikūpule was successful and defeated Kaʻeokulani, killing him and his wives, chiefs, and warriors, in a battle called Kukiʻiahu in ʻEwa (Kamakau 1992:169).

Kalanikūpule's next target was Kamahameha on Hawaiʻi. Due to a disagreement, Kalanikūpule had Captain Brown killed, and the other foreigners were taken prisoner. In January of 1795, Kalanikūpule, his warriors, and the prisoners attempted to set sail for Hawaiʻi Island, but were delayed. The prisoners managed to sneak off with the ships and ammunition and left to warn Kamahameha of Kalanikūpule's plans. Upon receiving the news, Kamehameha then set to make war upon Kalanikūpule.

> In February, 1795, Kamehameha's fleet of war canoes landed at Lahaina, covering the sands along the coast from Launiupoko to Mala. All that part of Lahaina given over to food patches and cane fields was at that time overrun by the men from Hawaii. At Molokai, again, the whole coast from Kawela to Kalamaʻula was covered by canoes [Kamakau 1992:171].

Next, they sailed to Oʻahu. The war culminated in the Battle of Nuʻuanu where Kamehameha was victorious.

## EARLY POST CONTACT LAND DESCRIPTIONS

In the late 1700s and early 1800s, descriptions of Kawaihae were recorded in the journals of Captain James Cook, Captain George Vancouver, and French Navy officer Louis Claude de Saulces de Freycinet. They described Kawaihae as dry and denuded of trees, and mentioned the village at Kawaihae, salt making, and the *heiau*. In the 1820s, English missionary William Ellis arrive in Hawaiʻi and traveled the Kohala Coast. He described Kawaihae as a "considerable village" and a potential mission site (Ellis 1827:12). He also described the landscape:

> At four o'clock p.m. a light air sprung up from the southward, and carried us slowly on towards [K]awaihae, a district in the division of Kohala, about four miles long, containing a spacious bay, and good anchorage… The north side of the bay affords much the best

> anchorage for shipping, especially for those that wish to lie near the shore. It is the best holding ground, and is also screened by the kuhive (high land) of Kohala from those sudden and violent gusts of wind, called by the natives mumuku, which come down between the mountains with almost irresistible fury, on the southern part of [K]owaihae, and the adjacent districts [Ellis 1827:70–71].

During another trip to Kawaihae, Ellis noted the harvesting of sandalwood:

> Before daylight on the 22d we were roused by vast multitudes of people passing through the district from Waimea with sandal wood, which had been cut in the adjacent mountains for Karaimoku, by the people of Waimea, and which the people of Kohala, as far as the north point, had been ordered to bring down to his store house on the beach, for the purpose of its being shipped to Oahu.
>
> There were between two and three thousand men, carrying each from one to six pieces of sandal wood, according to their size and weight. It was generally tied on their backs by bands made of ti leaves, passed over the shoulders and under the arms, and fastened across their breast. When they had deposited the wood at the store house, they departed to their respective homes [Ellis 1827:298–299].

Lorenzo Lyons, also known as Makua Laiana, arrived in Kohala in 1832 as a member of the American Board of Commissioners for Foreign Missions. Living in Waimea until his death, Lyons described of the fickle environment of Kawaihae in a journal he kept from 1839 to 1846:

> Not infrequently at Kawaihae and Puako there is no food to be had. The people live without food for days, except a little fish which prevents starvation. Nor is this to be had everyday, the ocean being so rough they cannot fish, or a government working day interferes, when the sailing of a canoe is tabu — unless the owner chooses to pay a fine. The water too at these places is such that I cannot drink it. I would as soon drink a dose of Epsom salts. (Doyle 1945:108–109).

## CATTLE IN KOHALA IN THE EIGHTEENTH AND NINETEENTH CENTURY

In 1793, Captain George Vancouver gifted cattle, sheep, and goats to Kamehameha I at Kawaihae (and later at Kealakekua) (Fornander 1996:336; Judd 1978:16; Kamakau 1991:164; Maly and Wilcox 2000:21). A ten-year *kapu* (taboo, in this case restricting hunting) was placed on the herds in order for them to reproduce, and consequently, much of the Waimea Plain became grazing land. This proved detrimental to agricultural fields (Burtchard and Tomonari-Tuggle 2005:29–30). Walls were built to limit the range of the wild animals: "before Kamehameha I died in 1819, the animals were so bold and numerous that the people needed protection from them. Under the direction of the old king, long stone walls, called *pa aina*, were built to exclude the cattle from the cultivated areas at the foot of the Kohala Mountains" (Judd 1978:16).

In 1815, John Palmer Parker (founder of Parker Ranch) and other foreigners were commissioned to hunt the cattle in order to sell beef, tallow, hides, and other products to western ships (Judd 1878:16; Ellis 1917:301, 303; Rieth and Morrison 2010:21). The hunting was tightly controlled and the *kapu* was not lifted until 1830 (Clark 1983:48).

The cattle population declined by the 1840s due to hunting and a *kapu* was once again instituted. The population or the herd climbed again, and it was noted by Lyons in 1846 that two-thirds of the Waimea area was converted into government pastureland causing many people to leave the area (Clark 1983:49). Beginning in the 1850s, Waimea and surrounding lands were consolidated as Parker Ranch.

## THE MAHELE

Traditional land divisions of the fifteenth and sixteenth centuries persisted until the 1848 Mahele, which introduced private property into Hawaiian society (Kamakau 1991:54). During the Mahele, the Land Commission required the Hawaiian chiefs and *konohiki* (land agent for the *ali'i*) to present their claims to the Land Commission. In return they were granted Land Commission Awards (LCAs) for the land quit-claimed to them by Kamehameha III. Land was divided into Crown Lands, Government Lands, and Konohiki Lands. The remaining unclaimed land was then sold publicly, "subject to the rights of the native tenants" (Chinen 1958:29).

In the case of land claims made for Konohiki lands, approval by the Land Commissioners was required before the award was made. If approved, then the awardee obtained a Royal Patent (RP) from the Minister of the Interior, which indicated that the government's interest in the land had been settled with a commutation fee. This fee was typically no more than one-third of the value of the unimproved land. This fee was paid either in cash, or, more commonly, the return of one-third of the awardee's lands (or total value of the lands awarded) (King 1945).

Following the Mahele of 1848, two acts were passed in 1850 that changed land ownership in Hawai'i. On 10 July 1850, the Alien Land Ownership Act was adopted, which allowed foreigners to own land. On 6 August 1850, the Kuleana Act of 1850 was adopted, which allowed *hoa'āina* (common people of the land, native tenants) to make claims to the Land Commission. The new western system of ownership resulted in many losing their land. Often *kuleana* (property) claims would be made for discontiguous cultivated plots with varying crops, but only one parcel would be awarded.

The Crown Lands became Government Lands when the Hawaiian Government was overthrown in 1895, making them public domain for sale by fee simple (Alexander 1920). Patents were the certificates issued for the sale of such lands. Beginning in 1900, when Hawai'i became a U.S. territory, the certificates were called Land Patents, or Land Patent Grants (Alexander 1920).

At the Mahele, Kawaihae 1 was one of many *ahupua'a* and *'ili* awarded as crown lands to Chieftess Anna Keahikuni (Miriam) Kekau'onohi as part of LCA 11216. Her father was Kaho'anoku Kina'u, who was a son of Kamehameha. She became a member of Kamehameha III's House of Nobles and was appointed Governess of Kaua'i (Kamakau 1992:280, 397). As for *kuleana* awards, nine parcels were awarded in Kawaihae 1, none of which are in the current project area. Several of the awards were immediately south of the current project area on the shoreline (Figure 10), which included LCAs 3669, 4884, and 4094. LCA 3669 in Pahonu 'Ili was granted to Makahi, which contained two houses. Immediately north of this lot was LCA 4884 in Pahonu 'Ili awarded to William French, which contained a warehouse, and LCA 4094 in Kaelepuhi 'Ili granted to Kepaimaka, which contained one house. William French was an American who had become a successful merchant in Hawaii. In 1835, French established a ranch at Waimea and employed John Parker as a bookkeeper and cattle hunter. In 1838, French opened a store at Kawaihae on property given to him by Governor Kuakini on the condition that he build a pier, which he did. By the 1840s, French was shipping live cattle from Kawaihae to Honolulu. However, French experience financial woes from businesses outside Hawaii and his operations in Kohala ended. John Parker had become an independent rancher by then, and he, along with other ranchers in the area, continued to ship cattle from Kawaihae. Historical photographs of cattle be shipped from Kawaihae are shown in Figures 11 and 12. Figure 11 is a postcard with a photograph of cattle at Kawaihae Bay ready for shipping, and Figure 12 is photograph of swimming cattle to shipping vessels off shore. Both images are undated, but likely date to the early to mid-1900s.

In the early 1850s, Kawaihae suffered droughts and the arrival of smallpox, followed by a decline in cattle business in the 1860s due to the collapse of the whaling industry, the primary purchaser of Hawai'i cattle. Charles de Varigny, the secretary of the French Consulate in Honolulu, visited Kawaiahe in 1861 and recorded the following description of the area:

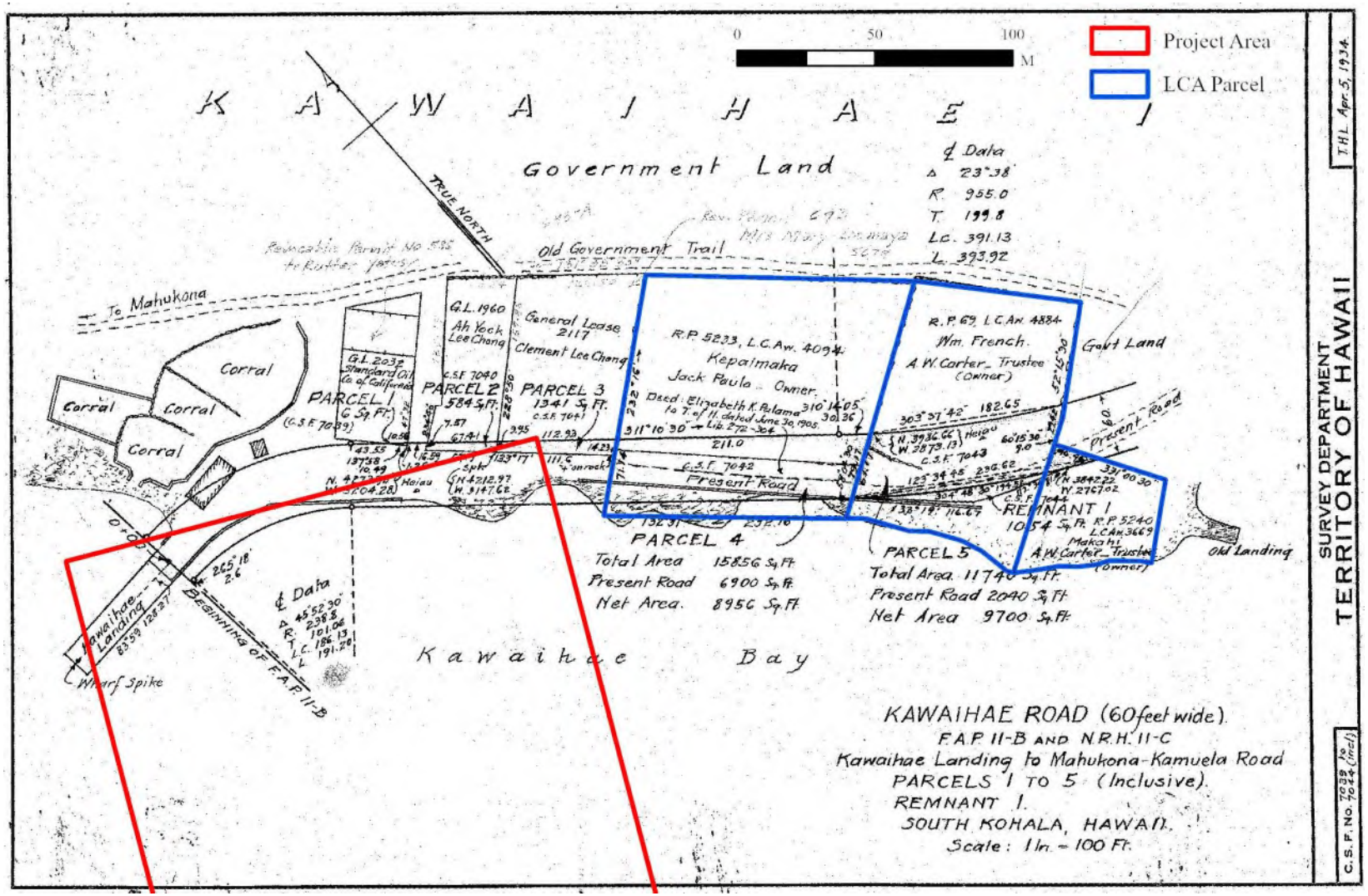


Figure 10. Map of Proposed New Raod At Kawaihae Dated 1934 (Copp 1934).


Figure 11. Loading Cattle at Kawaihae in the Early to Mid-1900s (HSA 2023a).

Figure 12. Swimming Cattle at Kawaihae in the Early to Mid-1900s (HAS 2023b).

> The village consists chiefly of a single large wooden structure which serves as a country store and warehouse for the products of the district. Around the shop are clustered several makeshift buildings providing annexes for further storage. Scattered along the seashore are a few kanaka grass houses, about twenty. The setting is desolate: not a blade of grass, not a tree, except for the infrequent coconut palms, nor a stream. Enormous volcanic rocks, jagged and cinder-black, lie strewn across the ground, and a fine dusty sand covers the beach. A small wharf serves for the departure and landing of travelers. At a short distance from shore floats an old stripped-down vessel, its melancholy hull balancing at anchor and providing storage for products arriving from Honolulu. It was difficult for me to imagine a more arid and barren setting [Varigny 1981:72].

**LATE HISTORIC PERIOD**

Historical maps from the late 1800s (see Figure 6) and early 1900s show gradual change in Kawaihae Village near the current project area. Figure 6, above, depicts the harbor in 1885, with a cattle pen and a few structures near the project area. Figure 13 is a photograph of Kawaihae Landing ca 1882, which somewhat matches the description from Varigny above.

Forty years later, in 1925, there are shipping corrals in the same location, and a new landing and post office (Figure 14). In 1934, a new road to the Kawaihae landing was planned. A new warehouse, hotel, oil tanks, and other buildings appear along the coast on map dated 1935 (Figure 15), and in a photograph dated 1935 (Figure 16). In a letter to her cousins in 1939, Emma Lyons Doyle, granddaughter of Lorenzo Lyons, described her visit to the *heiau* at Kawaihae and the new landing and park at the harbor:

> Easter came. Time was precious, so I took my run to Kawaihae before the church service. I had never before seen the heiau, and I spent some time there-awed; marvelling at the achievement of such a structure in such an age; the regularity of its construction, the conception and planning that could bring it into being; the choice of a situation. From that height, over kiawe trees, I gazed out at the glassy water, the hot barren beach. The new Kawaihae, I had no wish to see. There is a government park there, bath house, picnic tables, stoves. I am glad for the people who can enjoy them. I am more than glad - deeply thankful that there is a new landing, from which the cattle, unless the weather is too rough, may be driven more mercifully to the fate man demands of them; that they are not now subjected to the handling that was called necessary, and that onlookers could find “picturesque” [Doyle 1945:263].

Doyle mentions the new cattle landing, which utilized a chute for loading the cattle for shipping instead of having them swim offshore for loading. The chute was constructed north of the lighthouse and project area. The Board of Harbor Commissioners noted the new wharf in a 1939 report:

> CATTLE PIER AT KAWAIHAE
>
> The approach which was damaged by a severe storm during the previous fiscal year has been repaired and business resumed. In the shipment of cattle this wharf has proven its worth. We are told that the time required for loading cattle by this method has been reduced to a very small fraction of that required in the old method of swimming [Board of Harbor Commisioners 1939:12].

In 1946, a tsunami destroyed the older wharf at Kawaihae and impacted the commercial fishing operation. The landing constructed in 1937 was also deemed insufficient during high seas. This led to the Kawaihae Deep Draft Harbor project in the 1950s. The harbor excavation involved removing coral reef and redepositing the material as landfill. This fill covered the coastline of Kawaihae Village, including the previously mentioned LCA parcels, up to thirteen feet in depth. A portion of a map dated 1953 of the harbor project depicts the new small boat harbor, which is the current project area, seaward of the former coastline

Figure 13. Photograph of Kawaihae Landing ca 1882 (HAS 2023c).

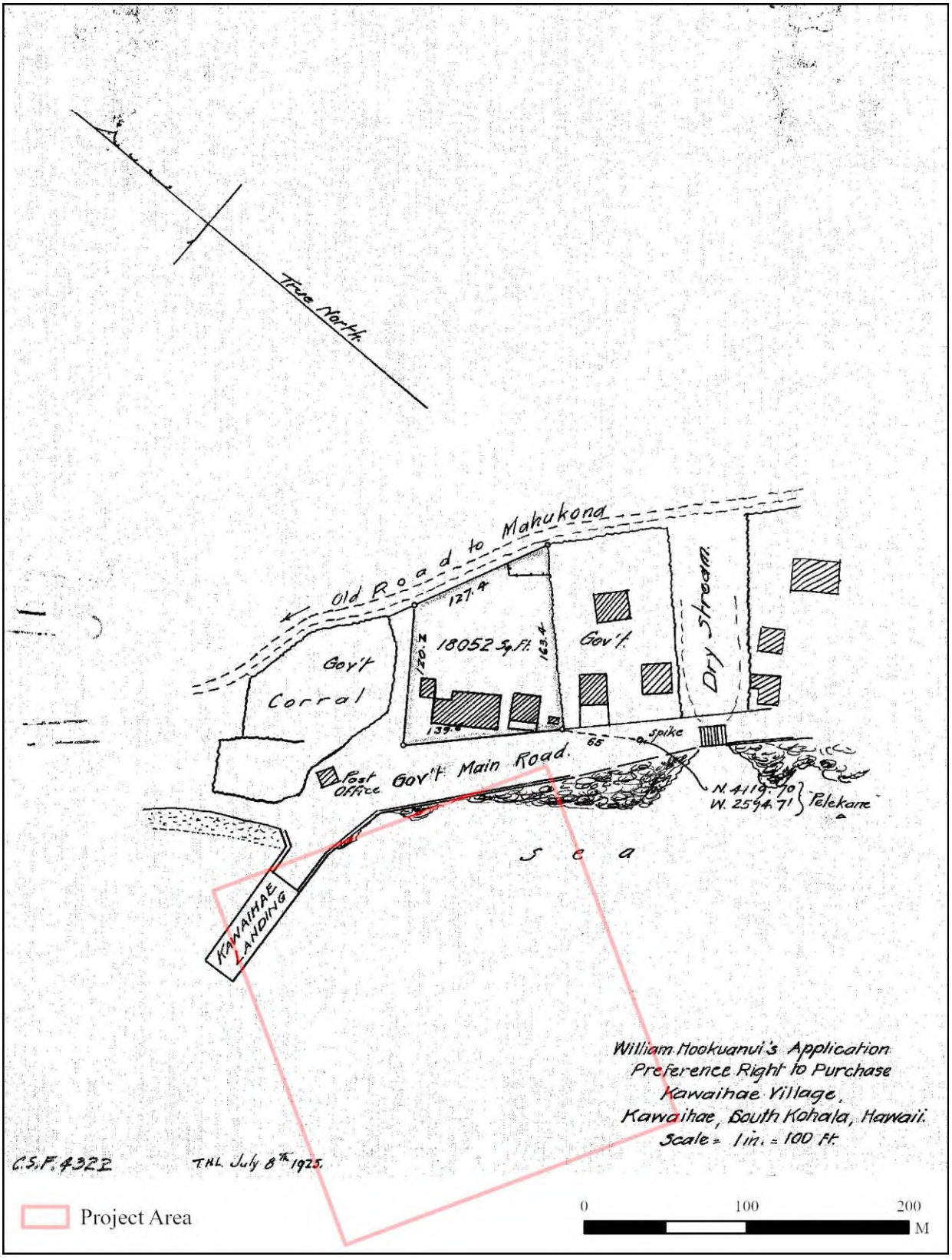


Figure 14. 1925 Map of Kawaihae Landing (Wright 1925).

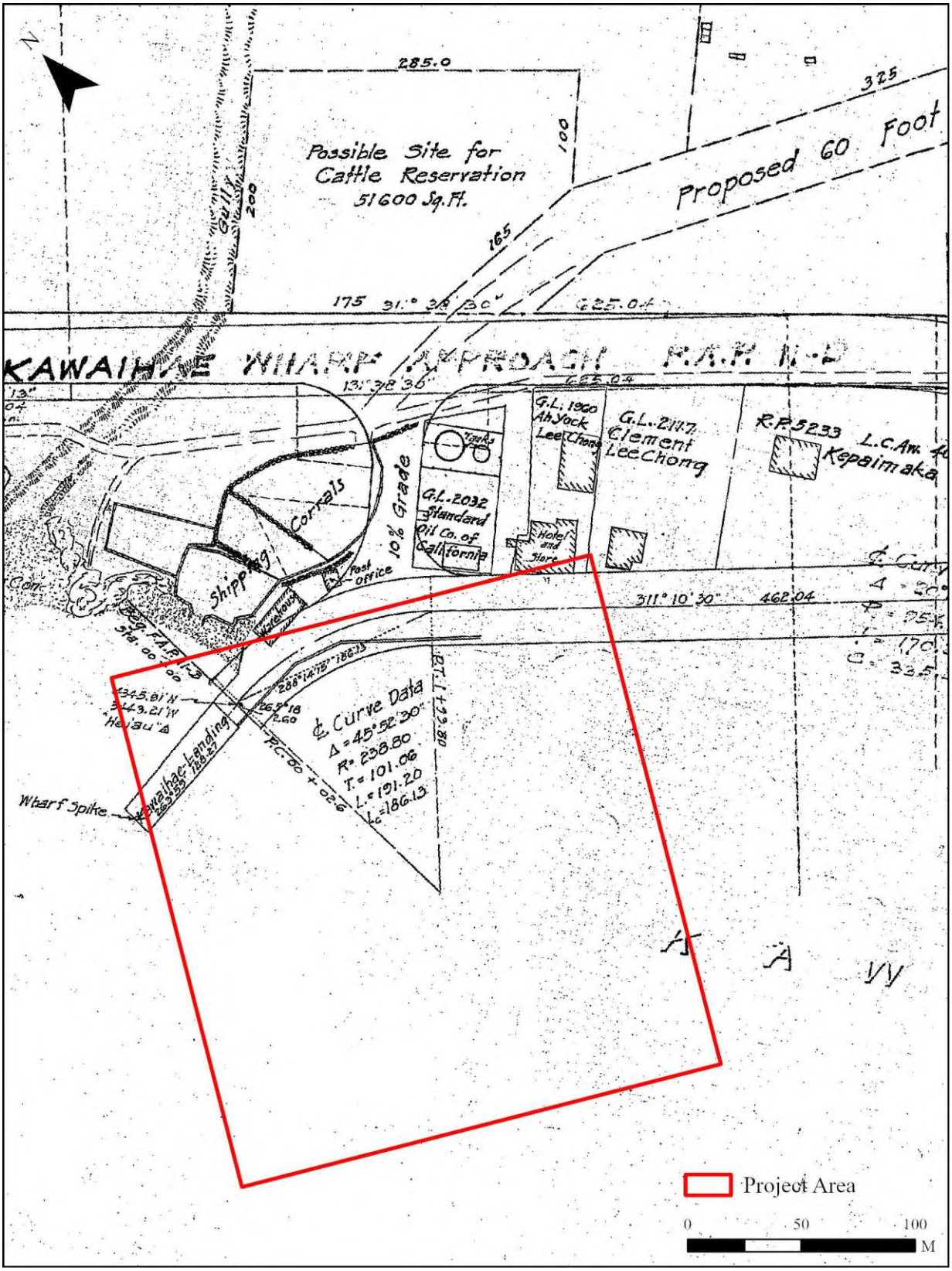


Figure 15. Portion of Map of Kawaihae for Subdivision of a Portion of Hawaiian Home Land in 1935 (Copp 1935).


Figure 16. Photograph of Kawaihae Landing ca 1934 (HAS 2023d).

(see Figure 7). The construction was completed in 1959, and the harbor was further expanded in the 1960s (USACOE 1965) and again in the 1980s. In 1992, a bridge was built to connect the terminals, and the overseas pier and marginal wharf were extended (SSFM International 2013:1-13).

## PREVIOUS ARCHAEOLOGY

Kawaihae has been subject to numerous archaeological investigations. Beginning in the early 1900s, Pu‘ukoholā and Mailekini *heiau* complex in Kawaihae 2 were recorded by Thomas Thrum (1907a, 1907b, 1938) and John F. Stokes (Stokes and Dye 1991), followed by Bishop Museum studies in the 1960and 1970 (Cluff et al. 1969; Soehren 1964, 1980). Additional work in the park also included the historic period homestead of John Young (Apple 1978; Colby and Barrow 1997; Dougherty et al. 2003; Durst 2001; Ladd 1986; Nelson 2001; Rosendahl and Carter 1988; Schuster 1992). This area was designated the Pu‘ukoholā Heiau National Historic Site (PUHE) in 1972. And comprises Pu‘ukoholā Heiau, Hale O Kapuni (known as the shark *heiau*) which is submerged in the water south of the harbor in Pelekāne Bay; Mailekini Heiau; the upper and lower (Pahukanilua) John Young Homestead; Pelekane (the King’s Residence), which was the royal compound; and the Stone Leaning Post (Leaning Rock of Alapa‘i, Alapai‘i’s Chair, Kamehameha’s Chair).

Archaeological work has also documented additional traditional Hawaiian sites, including cobble stone cultural deposits, walls, enclosures, shell scatters, and terraces; historic period sites; and military period site complexes (see Carson 2005, 2006; Dougherty et al. 2003; Shapiro et al. 2002). The PUHE boundary abuts the south side of Kawaihae Harbor and is over one kilometer southeast of the current undertaking. A majority of previous archaeological work was over 1.5 km from the current undertaking.

From the 1970s to the present, archaeological investigations have been conducted near the current project area in support of roadway, harbor, and utilities developments (Figure 17). The the inland, or east side of the highway, is less developed and numerous traditional Hawaiian and historic period archaeological sites have been recorded (Table 1 and 2; Figure 18). On the seaward, or west side, of the highway, construction of Kawaihae Harbor removed surficial evidence of archaeological sites and no subsurface historic properties have been encountered. The current project area is at the far north end of the harbor. The land north of the project area is undeveloped with the exception of the lighthouse.

Previously recorded archaeological sites inland of Kawaihae Harbor include traditional Hawaiian and/or historic site complexes, including human burials (see Table 1 and 2; Figure 18). These sites were recorded during archaeological inventory surveys for potential road corridors between Waimea and Kawaihae (Adams and Athens; Barrera and Kelly 1974; Clark 1983; Rieth and Morrison 2010). The archaeological inventory surveys for the road corridor overlap with several other archaeological surveys for the Department of Hawaiian Home Lands in Kawaihae 1 (Allen 1987; Conte and Cordy 1995; Hammatt et al. 1991). North of the Coast Guard Reservation and project area, known archaeological sites were relocated during multiple archaeological assessments (Borthwick et al. 2000; Borthwick and Hammatt 2002; Ketner and Rechtman 2008).

Seaward of the highway and north of the NKSBH, historic period sites have been documented (see Table 2). These include the Kawaihae Lighthouse (Ladd 1981; no SIHP listing), historic period walls, concrete piers, concrete walls, and a concrete building foundation (Haun et al. 2003, 2004).

The archaeological inventory survey report by Haun et al. (2004) is nearest to the current project area. A substantial amount of disturbance was noted:

> The seaward portions of the parcel have been disturbed by storm surf and/or high winds. Many of the kiawe trees in this area have been blown down and a large amount of modem debris is present. The rusted frame of a truck is present in the north-central portion of the parcel (see Figure 10). The adjacent State Conservation Land easement, located along the seaward portion of the parcel also shows evidence of disturbance. This bare lava area contains

**Table 1. Previous Archaeological Studies in Lower Kawaihae 1. All Site Numbers Follow SIHP 50-10-05-. See Table 2 for Site List by SIHP Designation.**

| Reference | TMK(s) (3)/ Location | Nature of Study | Newly Identified Sites Near APE | Summary Results |
|---|---|---|---|---|
| Barrera and Kelly 1974 | Waimea to Akoni Pule Hwy Corridor | Phase 1 Archaeological Survey and Historical Survey | 05986–06513, 06515, 06516, 06521, 06522 | Phase 1 archaeological survey was conducted for the Waimea-Kawaihae Road, which consisted of a 2000-wide highway corridor. Thousands of features were identified. |
| Luscomb 1974 | Kawaihae and Kukuipahu Power Plant Areas | Archaeological Walk-through Survey | None | Reidentified three sites recorded by Barrera and Kelly (1974). |
| Ladd 1981 | 6-10-004/ Kawaihae Lighthouse | Archaeological Field Survey | None | Kawaihae Lighthouse; atone obelisk plastered with coral cement, likely a base for the previous lighthouse; stone wall, likely *kuleana* boundary |
| Clark and Kirch 1983 | Mudlane-Waimea-Kawaihae Road | Phase 3 Archaeological Survey | None | Phase 2 archaeological survey for the Mudlane-Waimea-Kawaihae Road archaeological survey was a follow up to Barrera and Kelly (1974). |
| Allen 1987 | Hawaiian Home Lands, Kawaihae 1 | Archaeological Inventory Survey | 13717, 13718, 13725, 13727, 13728, 13761, 13762, 13770, 13775 | Archaeological inventory survey of 213 acres of Hawaiian Homelands identified 108 sites with over 345 features. |
| Hammatt and Shideler 1991a | Kawaihae 1 | Reconnaissance and Archaeological Assessment | None | Project associated with the Kawaihae Master Plan. No new sites in lower Kawaihae 1. |
| Hammatt et al. 1991; Hammatt and Shideler 1991b | Department of Hawaiian Home Lands lots in Kawaihae 1 | Archaeological Inventory Survey | 13908 | Archaeological inventory survey and testing was conducted in a 2600-acre parcel. A total of 147 newly identified sites were recorded with 480 features. Eleven new features were recorded in previously identified sites |

| Reference | TMK(s) (3)/ Location | Nature of Study | Newly Identified Sites Near APE | Summary Results |
|---|---|---|---|---|
| Conte and Cordy 1995 | 6-1-001:001–006/ Central Portion of DHHL Kawaihae Lots | Archaeological Data Recovery | 13700, 13813 | *In February of 1992, data recovery excavations were undertaken at three previously identified sites within the central portion of the Department of Hawaiian Home Lands Kawaihae Homestead Lots (TMK 6-1-01:1-6). As grading for infrastructure was primarily focused within this area of the planned subdivision, two significant (13811 and 13813) and one potentially significant (13700) sites were selected for the initial phase of data recovery work* [Conte and Cordy 1995:3]. |
| Borthwick et al. 2000 | 6-1-006:pors. 002, 003, 007; 6-1-001:por. 003/ Waterline Corridor and Reservoir Site in Kawaihae 1 | Archaeological Assessment | None | *The sites identified during field inspection included 50-10-05-5998; 50-10-05-13725; 50-10-05-13726; and 50-10-05-13913. Additionally, previously unrecorded features in the immediate vicinity of these four sites were also observed* [Borthwick et al. 2000:9]. |
| Borthwick and Hammatt 2002 | 6-1-006:pors. 002, 003, 007; 6-1-001:por. 003/ Waterline Corridor and Reservoir Site in Kawaihae 1 | Archaeological Assessment | None | *Based on the absence of sites, no further archaeological research appears warranted for the proposed corridor associated with the Kawaihae 1 Mg water reservoir project* [Borthwick et al. 2002:6]. |
| Adams and Athens 2002 | Kawaihae Road Bypass, Waimea to Kawaihae | Phase I Archaeological Resources Inventory | None | A Phase I investigation of archaeological and historical sites within a broadly defined project area for the Kawaihae Road Bypass, Waimea to Kawaihae, on Hawai‘i Island. Included data quality review. |
| Haun et al. 2003 | 6-1-004:020/ North side of USCG Reservation | Archaeological Inventory Survey | 23857–23860 | Identified historic structural remains that primarily date to the late 1930s. Sites were not recommended for preservation or further archaeological work. |
| Haun et al. 2004 | 6-1-003:015/ South side of USCG Reservation | Archaeological Inventory Survey | 24180 | *Test excavations identified a mixed deposit covering portions of the project area containing portable remains from at least three temporal periods. The marine shell and volcanic glass flakes were probably deposited during prehistoric to early historic times. The square nail, and potentially some of the glass, probably was deposited during the I 800s to early I 900s. The flat iron on the wall south of the project area probably also dates to this period* [Haun et al. 2004:37]. |

| Reference | TMK(s) (3)/ Location | Nature of Study | Newly Identified Sites Near APE | Summary Results |
|---|---|---|---|---|
| Robins et al. 2007 | 6-7-001:003/ PTA Trail Easement From Kawaihae Harbor to US Army PTA | Intensive Phase II Archaeological Survey | 24395 | Due to SIHP 24395, realignment of the PTE south of the proposed course was recommended. |
| Dye and Macak 2008 | 6-1-003:034/ Kawaihae Harbor | Historic Properties Assessment | None | Determined the project would have no direct or visual effects on historic properties. |
| Bautista and Ketner 2008 | 6-1-002–004/ Kawaihae Marine Landing | Archaeological Monitoring for Sandwich Isles Communications | None | Although the sensitivity rating for the study area was "Low," the historical significance of the Kawaihae Harbor and Town area warranted archaeological monitoring on an "on-site" basis. |
| Ketner and Rechtman 2008 | 6-1-006:007/ Kaei Hana Industrial Subdivision | Archaeological Inventory Survey | None | The project area was previously subject to archaeological inventory surveys by Allen (1987) and Hammatt et al. (1991). |
| Rieth and Morrison 2010 | Kawaihae 1 and 2, ʻŌuli, Lālāmilo, and Waikoloa Ahupuaʻa | Archaeological Inventory Survey | 27838 | Recorded 1,350 features comprising 157 previously identified and 234 newly recorded sites; majority are late pre-Contact/early post-Contact traditional Hawaiian temporary habitation and agricultural sites. |
| Wilkinson et al. 2011 | 6-1-003:pors. 022, 025, 026; 055, 047, 067; 6-1-002:078, 079/ Kawaihae Harbor | Archaeological Literature Review and Field Inspection | None | Despite extensive disturbance, the authors stated there was potential (however unlikely) for the exposure of historic features or artifacts during subsurface construction activities. |
| Liston 2014 | 6-1-003:032/ Kawaihae Bulk Storage Terminal | Historic Properties Literature Review | None | Author concluded that it is unlikely that undisturbed cultural deposits remain buried beneath the fill material. |
| Wheeler et al. 2014 | 6-1-003:pors. 025, 026/ Kawaihae Small Boat Harbor (SBH) Water Line and Access Road Improvements | Pedestrian Survey and Subsurface Testing | None | Subsurface excavation encountered fill sediments and occasional layers of surface sedimentation; there were existing buried utility and water lines, as well as massive basalt boulders presumably used to fortify the exterior edge of the coral landfill. |

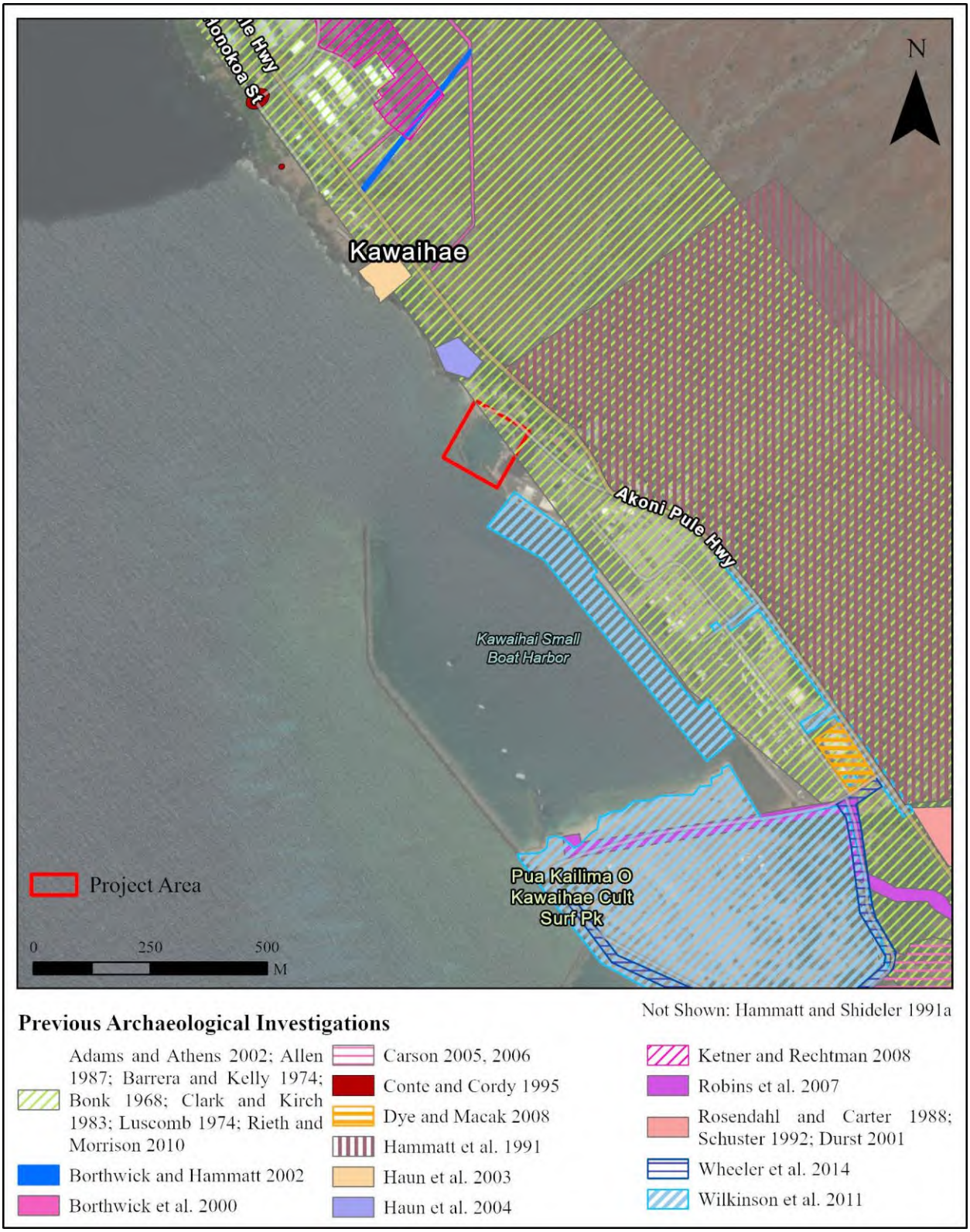


Figure 17. Previously Archaeological Investigations Near the Project Area.


Figure 18. Previously Documented Historic Properties Near the Project Area.

**Table 2. Previously Recorded Archaeological Sites Near the Project Area.**

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 05986 | Complex | Undetermined | Undetermined | Three mounds (Barrera and Kelly 1974) |
| 05987 | Terrace | Undetermined | Undetermined | One terrace (Barrera and Kelly 1974) |
| 05988 | Complex | Undetermined | Undetermined | Mound and shelter (Barrera and Kelly 1974) |
| 05989 | Complex | Undetermined | Undetermined | Originally described one serpentine feature and 9 shelters (Barrera and Kelly 1974); later determined to consist of 7 features (Luscomb 1974). |
| 05990 | Complex | Undetermined | Undetermined | Mound and four shelters, midden (Barrera and Kelly 1974) |
| 05991 | Complex | Undetermined | Undetermined | No description provided by Barrera 1974; later described as 6 features (Luscomb 1974). |
| 05992 | Complex | Undetermined | Undetermined | Mound, five shelters, firepit, artifacts (Barrera and Kelly 1974) |
| 05993/13726 | Complex | Habitation/Agricultural | Traditional Hawaiian | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13726 as 50-10-05-5993, which consisted of eight shelters and a midden scatter. Allen's (1987:100-101; recorded as A-52) subsequent survey documented eight features within this site: four C/U-shaped enclosures (Features B, C, D, and H), three enclosures (Features A, F, and G), and one pit with a partial wall (Feature E). A more recent survey by Hammatt et al. (1991) resulted in the current site designation 50-10-05-13726. The site was identified as a traditional Hawaiian habitation and agricultural complex* [Rieth and Morrison 2010:377–378]. |
| 05994 | Complex | Habitation | Traditional Hawaiian | *Barrera and Kelly (1974:74) recorded eight shelter features and a midden scatter as 50-10-05-5994. These features represent traditional Hawaiian temporary habitation and possibly horticultural activities.*<br>*During the current investigations two C-shaped enclosures were documented. These shelters are constructed with stacked and piled basalt cobbles and boulders. The western feature measures 5.8 m in total length, 2.0 m in total width, and 0.3-0.4 m in height. The eastern feature measures 3.4 m total length, 3.1 m in total width, and 0.3-0.5 m in height* [Rieth and Morrison 2010:362]. |
| 05995 | Complex | Undetermined | Undetermined | No description, only mapped in Barrera and Kelly (1974) |
| 05996 | Complex | Undetermined | Undetermined | Shelter, two serpentine features (Barrera and Kelly 1974) |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 05997 | Complex | Habitation | Traditional Hawaiian | *Barrera and Kelly (1974:74) recorded five shelters and a surface scatter of marine shell as 50-10-05-5997. During the recent investigations the five shelters and a newly identified alignment were documented. The site represents traditional Hawaiian temporary habitation.*<br>*The C-shaped enclosures are constructed with stacked and piled basalt cobbles and small boulders. . . . A previously unrecorded alignment constructed with basalt cobbles and boulders was identified between the central and southern enclosures. The feature measures 3.3 m in length and 0.4 m in height. The alignment appears to be a traditional Hawaiian construction, but its function is unclear* [Rieth and Morrison 2010:362]. |
| 05998 | Complex | Habitation and Mortuary | Traditional Hawaiian and Historic | *Site 50-10-05-5998 was originally recorded by Barrera and Kelly (1974:32, 74) and subsequently investigated by Clark (1983b:66-69). Clark (1983b:66-67) identified nine features: four burial platforms (Features B, C, D, and I), one mound (Feature H), one oval enclosure (Feature A), a rectangular enclosure (Feature G), a boulder alignment (Feature E), and an artifact scatter (Feature F). Excavation results indicated traditional Hawaiian residential activities, followed by the construction of historical burial features* [Rieth and Morrison 2010:363]. |
| 05999 | Complex | Undetermined | Undetermined | Six shelters (Barrera and Kelly 1974) |
| 06500 | Complex | Habitation/Agricultural | Traditional Hawaiian | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13777 as 50-10-05-6500, documenting 16 shelter features, one hearth, and an artifact scatter. Allen (1987:143-144; recorded as B-48) conducted additional work at this site, and identified 11 circular enclosures and five C-shaped enclosures (Features A-P). However, she noted that dense grass cover and limited time did not allow a full survey of this complex (Allen 1987:144). Hammatt et al. (1991) provide the new state site number, however, they did not conduct additional investigations at this site. The site is a traditional Hawaiian shelter, and possibly agricultural, complex.*<br>*During the current investigations nine features were recorded: eight C-shaped enclosures and one circular enclosure. … All of the enclosures are constructed with stacked and piled basalt cobbles and/or small boulders* [Rieth and Morrison 2010:383]. |
| 06501 | Complex | Undetermined | Undetermined | Nine shelters, storage feature, midden, artifacts (Barrerra and Kelly 1974) |
| 06502 | Complex | Habitation (single use) | Undetermined | Shelter, midden area (Barrerra and Kelly 1974)<br>U-shape; terrace; two midden/artifact scatter activity areas (Hammatt et al. 1995) |
| 06503 | Complex | Undetermined | Undetermined | Terrace, high round feature (Barrerra and Kelly 1974) |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 06504 | Complex | Undetermined | Undetermined | Mound, three shelters, animal enclosure (Barrerra and Kelly 1974) |
| 06505 | Shelter | Undetermined | Undetermined | Shelter (Barrerra and Kelly 1974) |
| 06506 | Complex | Undetermined | Undetermined | Six shelters, midden, historic artifacts (Barrerra and Kelly 1974) |
| 06507 | Complex | Undetermined | Undetermined | Nine shelters, midden (Barrerra and Kelly 1974) |
| 06508 | Complex | Undetermined | Undetermined | Two shelters, midden (Barrerra and Kelly 1974) |
| 06509 | Complex | Undetermined | Undetermined | Three shelters, midden (Barrerra and Kelly 1974) |
| 06510 | Complex | Undetermined | Undetermined | High round feature (Barrerra and Kelly 1974) |
| 06511 | Complex | Undetermined | Undetermined | Shelter, midden (Barrerra and Kelly 1974) |
| 06512 | Complex | Undetermined | Undetermined | Two shelters, possible burial, wall, midden, artifacts (Barrerra and Kelly 1974) |
| 06515 | Complex | Undetermined | Undetermined | Three shelters, firepit, midden (Barrerra and Kelly 1974) |
| 06516 | Complex | Agricultural/ Burial/Habitation (single use) | Traditional Hawaiian | *Barrera and Kelly (1974:74) recorded an artifact scatter and three features as 50-10-05-6516: two shelters, and one possible burial platform. Clark (1983b:69) conducted additional work at the site, and identified a third shelter feature (Features A, B, and D are shelters). Clark (1983b:69) classified the burial platform as Feature C, and indicated that the structures were likely early historical or late prehistoric constructions. During the current investigations Features A and C were documented. Feature A is a C-shaped enclosure constructed with stacked basalt cobbles and boulders, measuring 4.6 m in total length, 3.8 m in total width, and 0.3-0.5 m in height. Feature C is a platform constructed with stacked and piled basalt cobbles and boulders, measuring 2.7 m in length, 2.5 m in width, and 0.35-0.5 m in height. Based on structural similarities with known burial features in the area Clark (1983b:69) designated this feature a burial monument.* [Rieth and Morrison 2010:363–364]. |
| 06521 | Complex | Burial | Historic Period | *Barrera and Kelly (1974:52, 74) recorded a cemetery as 50-10-05-6521. Clark's (1983b:79-80) subsequent investigations identified twelve burial features and two artifact scatters within the site. Clark (1983b:79) described the cemetery as follows*:<br>Nine of the burial monuments are quite similar in form—low, rectangular platforms with an outer edge of boulders and a mixed fill of soil, pebbles, and small cobbles. At the *makai* end of one of these features is an erect wooden post (4 in.2) serving as a grave marker. At the *makai* end of another feature is a concrete slab and vertical post with inscribed Chinese characters which give the name "Dai Liu."<br>Lying on and around most of these features are plastic flowers (some in tin cans), whole and broken bottles, and Oriental bowls and dishes. |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| | | | | Two of the monuments are low rectangular stone platforms that differ from the others in that the internal fill is composed of boulders and cobbles…The final burial feature is a multi-component stepped platform, composed of five distinct rectangular platforms.<br>*The present survey relocated the cemetery and determined that Clark's (1983b:79) feature descriptions were accurate* [Rieth and Morrison 2010:364–365]. |
| 06522 | Complex | Burial/Habitation | Traditional Hawaiian/Historic Period | *Barrera and Kelly (1974:37,74) recorded 20 burials and possible burials as Site 50-10-05-6522. Clark (1983b:69-79) completed additional investigations at the site, identifying over 43 features and excavating numerous burials. Clark (1983b:69) described the site as follows:*<br>Covering approximately 1.97 hectares, this site covers a greater area than any other in Section 1 [coastal Kawaihae 1 and 2]. Distributed throughout this area are more than 43 features and subfeatures. The vast majority of these are burial monuments, and three features are surface scatters of midden and lithic material. In short, this site is a large burial complex.<br>*During the present investigations 21 features were documented: six platforms (including Features E, G, H, and L), five mounds (including Feature F), four mounded latforms (including Features Ma, Mc, and N), three terraces, one L-shaped enclosure, one wall, and one alignment. All of the features except for the three modern mounds, the L-shaped enclosure, wall, and alignment are known or probable historical burial monuments. Discounting the modern features, the non-burial features are traditional Hawaiian and historical habitation structures* [Rieth and Morrison 2010:365–367]. |
| 13700 | Complex | Agricultural/Boundary | Traditional Hawaiian/Historic Period | *Originally identified in 1986 during an archaeological inventory survey by the Bishop Museum (Allen 1987), Site 50-10-05-13700 is comprised of a historic boundary wall and several mounds. Because the mounds near the wall were believed to be potential burial sites, mounds A and B (Fig. 6) were partially dismantled in order to determine significance. After removing a portion of each mound's interior fill to ground surface and finding an intact soil matrix and no other indication of human interment, it was determined that each mound was likely utilized for planting* [Conte and Cordy 1995:3]. |
| 13717 | Complex | Undetermined | Undetermined | Four mounds (Allen 1987:94). |
| 13718 | Enclosure | Encampment | World War II Era | "Possible military feature" consisting of "a rectangular enclosure" (Allen 1987:95). |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 13725 | Complex | Agricultural/Habitation | Traditional Hawaiian/Historic Period | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13725 as 50-10-05-5995, which consisted of 10 shelter features. Allen's (1987:99-100; recorded as B-51) subsequent survey recorded nine shelter features (Features A-H) and an artifact scatter (Feature I). Hammatt et al. (1991) provide the new state site number, however, they did not conduct additional investigations at this site. The site was identified as a traditional Hawaiian habitation and agricultural complex.*<br>*During the current survey two C/L-shaped enclosures were documented, but it is unclear if these are previously identified features* [Rieth and Morrison 2010: 377]. |
| 13727 | Mound | Undetermined | Undetermined | Possibly natural (Allen 1987) |
| 13761 | Complex | Animal Husbandry/ Habitation/Possible Burial | Traditional Hawaiian/Historic Period | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13761 as 50-10-05-6512, which consisted of two shelters, one possible burial, and one animal enclosure. Allen (1987:130) recorded the animal enclosure as B-32. Hammatt et al. (1991) provide the new state site number, however, they did not conduct additional investigations at this site.*<br>*The present investigations relocated the historical animal enclosure and confirmed Allen's (1987:130) description* [Rieth and Morrison 2010: 380]. |
| 13762 | Complex | Agricultural/Habitation | Traditional Hawaiian | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13762 as 50-10-05-6515, which consisted of three shelter features. Subsequent investigations by Allen (1987:130-131; recorded as B-33) recorded 16 features: nine enclosures (Features A, C, E, F, H/I, L, M, and P), five C/L/U-shaped enclosures (Features G, J, K, N, and O), one terrace (Feature B), and one cupboard (Feature D). Hammatt et al. (1991) obtained the new state site number, however, they did not conduct additional investigations at this site. The site was identified as a traditional Hawaiian temporary shelter and agricultural complex.*<br>*During the current investigations four C-shaped enclosures (Features H/I, J, K, O), one enclosure (Feature C), and one alignment (possibly Feature B) were documented. All of the structures are built with stacked and piled basalt cobbles and/or small boulders* [Rieth and Morrison 2010: 380–381]. |
| 13770 | Complex | Agricultural/Habitation | Traditional Hawaiian | *Allen (1987:135-136; recorded as B-41) documented twelve features within this site: nine Cshaped enclosures (Features A-G, I, J, and L), one wall (Feature E), one circular enclosure (Feature H), and one irregular enclosure (Feature K). Hammatt et al. (1991) obtained the state site number, however,* |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| | | | | *they did not conduct additional investigations at this site. The site represents a traditional Hawaiian shelter complex that may include horticultural features.*<br>*During the current investigations six C-shaped enclosures (including Features C, F, G, K, and L) and one wall (Feature E) were relocated. Additionally, four newly identified features were documented.*<br>*All of the features are built with stacked basalt cobbles and/or small boulders*<br>[Rieth and Morrison 2010: 381–382]. |
| 13775 | Complex | Agricultural/Burial/ Habitation | Traditional Hawaiian | *Allen (1987:140-141; recorded as B-46) documented seven features within this site: three enclosures (Features C, D, and E), two terraces (Features A and F), one platform (Feature B), and one artifact scatter (Feature G). Hammatt et al. (1991:VIII-150) obtained the permanent state site designation and conducted subsurface testing at Feature B where they encountered a burial. Based on these results they suggested that Feature A is also a burial monument. The site includes traditional Hawaiian residential features and burials.*<br>*During the current investigations two features were identified: one terrace (Feature F) and an artifact scatter (Feature G)* [Rieth and Morrison 2010:382]. |
| 13812 | Complex | Habitation | Traditional Hawaiian | Shelter/habitation complex (30 features) [Hammatt and Shidler 1991b] |
| 13813 | Complex | Habitation | Traditional Hawaiian | Supposedly first identified by a Bishop Museum survey of the same area but not listed in their report, this site was recorded by the 1989 CSH inventory survey as a Platform with a U-shape and believed to have been associated with permanent habitation activity.<br>In February of 1992, Site 13813 was again mapped (Fig. 14) and a single test unit was excavated along its makai (seaward) edge. At this time the site looked very little like the map shown in the CSH report.<br>Test Unit 1 revealed that Site 13813 may have been utilized in a religious capacity. In addition to a good amount of artifacts, manuports and shell midden … the most notable items recovered were an 'aumakua (family or personal god) made of coral which had been carved into the shape of a shark, and a small coral coffee bean sinker. … 94 post-contact artifacts (93 corroded metal fragments, 1 glass fragment) were recovered from throughout TU 1 [Conte and Cordy 1995:20, 22] |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 13908 | Enclosure | Encampment | World War II Era | *WWII fortification another probable WWII military era structure (i.e. U-shaped structure, Hammatt et al. 1991VIII:131)* [Hammatt and Shidler 1991b]. |
| 23857 | Wall | Transportation | Historic Period | Historic period concrete wall interpreted as possible bridge abutment probably pre-1937(Haun et al. 2003). |
| 23858 | Wall | Sanitation | Historic Period | Historic period concrete wall (likely built 1937) (Haun et al. 2003). |
| 23859 | Wall | Sanitation | Historic Period | Historic period concrete building foundation, former comfort station (built 1937) (Haun et al. 2003). |
| 23860 | Pier | Transportation | Historic Period | Historic period remnants of a concrete and mortared stone pier (built 1937) (Haun et al. 2003). |
| 24180 | Complex | Habitation/Transportation/ Encampment | Traditional Hawaiian/Historic Period/ World War II Era | One site with four features: a stone wall, a stone alignment and an adjacent configuration of metal posts or stakes, a low terrace, and a series of intact and displaced concrete piers. *Test excavations identified a mixed deposit covering portions of the project area containing portable remains from at least three temporal periods. The marine shell and volcanic glass flakes were probably deposited during prehistoric to early historic times. The square nail, and potentially some of the glass, probably was deposited during the 1800s to early 1900s. A flat iron on the wall south of the project area probably also dates to this period* [Haun et al. 2004:i]. |
| 24395 | Complex | Burial/Habitation/ Encampment | Traditional Hawaiian/Historic Period/ World War II Era | Residential pre/post-Contact site complex with 12 features (possible post-Contact burials; water source; military structure (Robins et al. 2007). |
| 27838 | Mound | Undetermined | Undetermined | Possibly natural (Rieth and Morrison 2010). |

1

> the remnants of a concrete boat launch and numerous waterworn basalt boulders are scattered over the surface. Debris present amidst the boulders included large fragments of concrete, milled lumber and metal [Haun et al. 2004:4].

A single historic property was recorded during the archaeological inventory survey. SIHP 50-10-05-24180 comprises four features: a stone wall (Feature A), a stone alignment and an adjacent configuration of metal posts or stakes (Feature B), a low terrace (Feature C), and a series of intact and displaced concrete piers (Feature D). All features were interpreted as dating to the late post-Contact period. The southern boundary of the site is roughly 70 m north of the current project area.

> Feature A is interpreted as an historic wall that functioned to enclose the remaining features of the site. Its historic interpretation is based on its appearance, on the presence of historic debris on and adjacent to the wall and its association with the other features of the site. Feature A is unaltered and in fair to good condition.
>
> Feature B is a stone alignment and a series of metal posts situated in the south-central portion of the project area, seaward of the Feature A wall… The main portion of the stone alignment is 24.2 m long (northwest by southeast), consisting of large cobbles and small boulders placed one course wide and one to two courses in height… The alignment turns to the northeast at the northwestern end, extending in this direction 4.85 m. The alignment is 0.3 to 0.6 m wide and 0.3 to 0.65 m in height. An exposed bedrock outcrop is located west of the northwest end of the alignment, measuring 5.9 m long (east-west), 0.4 to 0.7 m wide and 0.6 to 0.8 min height. Several cobbles are piled on top of the outcrop along its southern side.
>
> The metal posts or stakes are situated to the north and northeast of the stone alignment … A total of 12 posts were identified, placed in three linear alignments…
>
> Feature B is interpreted as the possible remnant of a World War II era encampment. The rectangular configuration of posts may have served as rents stakes with the stone alignment bordering the seaward side. Feature B is unaltered and in fair condition.
>
> Feature C is a low, crude enclosure…The terrace is roughly oval-shaped and is 6.6 m long (northwest by southeast) and 4.4 m wide… A retaining wall extends along the southwest, northwest and southeast sides that is 0.3 to 0.45 m in height and comprised of one to three courses of small boulders and cobbles… The northeast and east sides abut a bedrock outcrop. The surface is comprised of a level soil deposit with no cultural remains present.
>
> Feature C is interpreted as the foundation for an historic structure possibly associated with the World War II occupation of the site. This is based on the presence of the historic debris recovered from Layer I and its close proximity to Feature B. Feature C is unaltered and in fair condition.
>
> Feature D consists of an upright concrete pier and three fallen piers, located in the southwestern portion of the project area in a level soil area within a grove of kiawe trees. … No bolts or wooden boards are present. Large amounts of modem debris is scattered around Feature D, likely deposited by storm activity.
>
> Feature D is interpreted as the foundation for an historic structure of undetermined function. As only one of the four piers are intact, it is impossible to determine the original size and shape of the structure. It is possible that this feature may be associated with the abandoned boat launch situated outside the parcel to the west. Feature D is altered and in poor to fair condition [Haun et al. 2004: 27–35].

Five 50 cm diameter shovel tests (STs) were excavated within the parcel to determine if subsurface cultural deposits were present. Layer I in all excavation consisted of 23 to 67 cm of a dark brown silt with

from 30 to 80 percent gravel and pebble inclusions over bedrock. The shovel testing evidenced a mixed cultural deposit containing both traditional Hawaiian and post-Contact (1800s to 1900s) cultural remains. Details of the subsurface excavations are presented below.

- ST-1 was excavated 85 m northeast of the current project area. Recovered cultural materials included 48 fragments of marine shell, a small waterworn basalt cobble, a volcanic glass flake, two clumps of burned wood, 10 fragments of charcoal, and two fragments of rusted metal.
- ST-2 was excavated 20 m north-northwest of ST-1. Recovered cultural remains consisted of 230 fragments of recent charcoal, two fragments of *Cypraea* sp. shell, a volcanic glass flake, and two fragments of brown bottle glass.
- ST-3 was excavated 20 m north-northwest of ST-2 in an area of level grass; no cultural material was observed.
- ST-4 was excavated 20 m west-southwest of ST-2. Recovered cultural materials included five marine shell fragments, one fragment of sea urchin body, three waterworn coral pebbles, one large fragment of recent charcoal, a small metal grommet, one fragment of brown bottle glass, three fragments of clear windowpane glass, and a small, molded glass object.
- ST-5 was excavated 20 m north-northwest of ST-4 and 20 m west-southwest of ST-3. Recovered cultural materials consisted of nine marine shell fragments and a round headed nail with a square shaft.

Within the harbor area, no historic properties have been recorded. Although the harbor itself was constructed in 1959, there have been numerous improvements in the last half century, and it was previously not recommended eligible for the State Register of Historic Places (Wilkinson et al. 2011:103). Previous archaeological investigations in the harbor property have included archaeological inventory survey conducted for the PTA Trail Easement From Kawaihae Harbor to U.S. Army Pohakuloa Training Area (Robins et al. 2007); archaeological monitoring for Kawaihae Marine Landing and Terrestrial Section of the Sandwich Isles Communications (Bautista and Ketner 2008); Archaeological Literature Review and Field Inspection for the Kawaihae Harbor Project (Wilkinson et al. 2011); Historic Properties Literature Review for the Bulk Storage Terminal (Liston 2014); Historic Properties Assessment for a cell tower (Dye and Macak 2008); and an archaeological inventory survey for Kawaihae Small Boat Harbor (SBH) Water Line and Access Road Improvements (Wheeler et al. 2014).

Archaeological subsurface testing was conducted during the Kawaihae SBH Water Line and Access Road Improvements project (Wheeler et al. 2014), which is the small boat harbor at the south end of Kawaihae Harbor. Excavation Trench 2 (T-2) was located approximately 1.0 km south of the current project area along the southern shoulder of the existing SBH access roadway near the harbor entrance at Highway 270. Although quite distant, the test unit was excavated at a comparable location relative to the original coastline. Two stratigraphic layers were recorded. Layer I (0–5 cm below surface [cmbs]) consisted of very dark greyish brown silty loam interpreted as a fill layer associated with harbor construction. Layer II (5–72 cmbs) consisted of pale brown stony crushed coral, which was interpreted as a fill layer associated with harbor construction/utilities installation. The excavation was terminated at a maximum depth of 80 cmbs when an asphalt utilities jacket was exposed. No cultural materials were observed during the excavation.

### ANTICIPATED FINDS

Based on historical documentary evidence and previous archaeological work in the harbor area, traditional Hawaiian sites are unlikely to be extant in the project area. The project area has been drastically modified since the initial development of the harbor. Additionally, the NKSBH appears the have been

constructed seaward of the original shoreline based on historical maps, therefore, it is unlikely that the mid-twentieth century fill deposits overlay any buried cultural resources.

## SUMMARY AND ASSESSMENT

NKSBH is located at the northwest corner of the KDDH and at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway. It consists of a 1.6-acre basin protected by a 390.0 ft long main breakwater that runs along the north and northwest boundary and by a stub groin on the east side of the NKSBH entrance. The TMK parcels for the project area are (3) 6-1-003: pors. 023 and 041 (see Figure 2). The Proposed Action is to improve safety conditions within NKSBH, restore its functionality and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor. An archaeological literature review that addresses historical, cultural, and archaeological background was conducted in order to evaluate any potential effect on historic properties in the project area, and to recommend mitigation of any adverse effect, if warranted. This work was carried out in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (*Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*).

Previous archaeological investigations conducted on the harbor property south of the NKSBH encountered fill during subsurface testing, and no historic properties have been recorded at Kawaihae Harbor. Less the 100 meters north of the NKSBH, subsurface testing did not encounter any intact cultural deposits and the surface survey noted the area was previously disturbed by storms and modern rubbish was present. Additionally, the current project area is seaward of the former coastline and underlain by up to 13.0 ft of fill, which is material dredged from the bay during construction of the harbor facility in the late 1950s. Consequently, it is extremely unlikely that any traditional Hawaiian cultural deposits, human burials, or buried post-Contact historic properties are present in the project area.

## RECOMMENDATIONS

The recommended effect determination for the project, pursuant to HRS Chapter 6E-42 and its implementing regulations at HAR §13-275-7(1), is “no historic properties affected” as the construction work will not affect any historic properties. No further work is recommended.

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## GLOSSARY OF HAWAIIAN TERMS

*ahupua‘a*—land division and community

Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (*ahu*) of stones surmounted by an image of pig (*pua‘a*) or because a pig or other tribute was laid on the altar as tax to the chief. The landlord or owner of an *ahupua‘a* might be a *konohiki* (Pukui and Elbert 1986:9)

*ali‘i*—chief or chiefess

Chief, chiefess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander (Pukui and Elbert 1986:20); implies hereditary rank

*ali‘i nui*—High chief or chiefess

*heiau*—ceremonial structure or place

Pre-Christian place of worship, shrine (Pukui and Elbert 1986:64)

*hoa‘āina*—common people of the land, native tenants

Tenant, caretaker, as on a *kuleana* (Pukui and Elbert 1986:73)

*‘ili*–division of land smaller than an ahupua‘a

Land section, next in importance to *ahupua‘a* an usually a subdivision of an *ahupua‘a* (Pukui and Elbert 1986:97)

*kalana*— Land division smaller than a district

Division of land smaller than a *moku* or district (Pukui and Elbert 1986:121)

*kapu*—taboo

Taboo, prohibition; special privilege or exemption from ordinary taboo; sacredness; prohibited, forbidden; sacred, holy, consecrated; no trespassing, keep out. (Pukui and Elbert 1986:132)

*kona* —leeward side

Leeward sides of the Hawaiian Islands; leeward. (Pukui and Elbert 1986:165)

*konohiki*—land managers

Headman of an *ahupua‘a* land division under the chief; land or fishing rights under the control of the *konohiki* (Pukui and Elbert 1986:166)

*ko‘olau* —windward side

Windward sides of the Hawaiian Islands. *He au Ko‘olau aku ia*, that is the time of the Ko‘olau [trouble]. (Pukui and Elbert 1986:166)

*kuleana*—small piece of land under the responsibility of a tenant

Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province (Pukui and Elbert 1986:179)

*moku*—district

District, island, islet, section, forest, grove, clump, severed portion, fragment, cut, laceration, scene in a play (Pukui and Elbert 1986:252)

*‘okana*—sub-district

District or subdistrict, usually comprising several *ahupua‘a* (Pukui and Elbert 1986:281)

*pa aina (pā ‘āina)*—property boundary wall

1. “This word has been used by the parties as meaning a wall. It literally means fenced land.” State v. Midkiff, 49 Haw. 456, 467 n.6 (1966). 2. Fence; wall. State v. Midkiff, 49 Haw. 456, 466, 472 (1966). (Lucas 1995:84)

# *Appendix D:*

***Cultural Impact Assessment in Support of North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements, Kawaihae, Kawaihae 1 Ahupua‘a, Kohala Disrict, Hawai‘i Island***

# DRAFT

# Cultural Impact Assessment in Support of North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements, Kawaihae, Kawaihae 1 Ahupua‘a, Kohala District, Hawai‘i Island

TMKs: (3) 6-1-003: pors. 023 and 041

*Prepared for:*
**Oceanit Laboratories, Inc.**
828 Fort Street, Suite 600
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September 2023

PACIFIC CONSULTING SERVICES, INCORPORATED
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DRAFT

# Cultural Impact Assessment in Support of North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements

TMKs: (3) 6-1-003: pors. 023 and 041

Prepared For:
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## MANAGEMENT SUMMARY

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| **Document Title:** | Cultural Impact Assessment in Support of North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements, Kawaihae, Kawaihae 1 Ahupuaʻa, Kohala District, Hawaiʻi Island |
| **Date/Revised Date:** | September 2023 |
| **Archaeological Permit #:** | SHPD Permit No. 23-08 |
| **Project Location:** | North Kawaihae Small Boat Harbor (at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway) |
| **Project TMKs:** | (3) 6-1-003: pors. 023 and 041 |
| **Land Owner:** | State of Hawaii |
| **Project Proponents:** | State of Hawaii |
| **Project Tasks:** | Cultural Impact Assessment |
| **Project Acreage:** | 1.6 acres |
| **Principal Investigator:** | Dennis Gosser, M.A. |
| **Regulatory Oversight:** | Hawaii Revised Statute (HRS) Chapter 343 (Environmental Impact Statements). |
| **Project Background:** | The purpose of the Proposed Action is to improve safety conditions within NKSBH, restore its functionality and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor. |
| **SIHP #:** | None |
| **Findings:** | Previous archaeological investigations conducted on the harbor property south of the NKSBH encountered fill during subsurface testing, and no historic properties have been recorded at Kawaihae Harbor. Less the 100 meters north of the NKSBH, subsurface testing did not encounter any intact cultural deposits and the surface survey noted the area was previously disturbed by storms and modern rubbish was present. Additionally, the current project area is seaward of the former coastline and underlain by up to 13.0 ft of fill, which is material dredged from the bay during construction of the harbor facility in the late 1950s. Consequently, it is extremely unlikely that any traditional Hawaiian cultural deposits, human burials, or buried post-Contact historic properties are present in the project area.<br><br>During consultation, the Kawaihae Canoe Club (located adjacent to and user of the NKSBH) was identified as a potential traditional cultural property/traditional cultural practicioner |

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# INTRODUCTION

Under contract to Oceanit Laboratories, Inc., Pacific Consulting Services, Inc. (PCSI) has prepared this Cultural Impact Assessment (CIA) in support of the North Kawaihae Small Boat Harbor (NKSBH) Breakwater Improvements project at Kawaihae, Kawaihae 1 Ahupua'a, Kohala District, Hawai'i Island. The project proponent and landowner is the State of Hawaii. The extent of the proposed project is shown in Figure 1. The Proposed Action includes repair and modification of the existing main breakwater design to provide current and future protection against wave action for NKSBH. In addition, the breakwater will be extended approximately 80 feet landward to reduce beach sediments from accreting onto the concrete boat ramp.

## REGULATORY CONTEXT

In accordance with the provisions of Hawaii Revised Statutes (HRS), Chapter 343 and its implementing regulations contained in Hawaii Administrative Rules (HAR), Title 11, Chapter 200.1, the CIA provides a detailed analysis of how the Proposed Action could impact cultural practices, resources, and beliefs. The disclosure of this information is intended to promote transparent and responsible decision-making in accordance with Articles IX and XII of the Constitution of the State of Hawaii, other state laws, and the courts of the state, which all mandate government agencies to endeavor to promote and preserve the cultural practices and resources of Native Hawaiians and other ethnicities.

In addition to the content requirements of HRS §343 and HAR §11-200.1, on November 19, 1997, the State of Hawaii's Environmental Council issued its Guidelines for Assessing Cultural Impacts. The Guidelines provide methodological and content protocol for projects/actions that may have the potential to affect cultural resources, stipulating specific matters that should be addressed in all CIAs.

An alternative analytical framework—the Ka Pa'akai assessment—that can be used for addressing the preservation and protection of cultural practices specific to Native Hawaiian communities resulted from a 2000 Hawaii Supreme Court ruling (Ka Pa'akai O Ka'Aina versus Land Use Commission). In its decision, the court established the following three-part analytical approach:

- Part 1, identify whether any valued cultural, historical, or natural resources are present; and identify the extent to which any traditional and customary Native Hawaiian rights are exercised;
- Part 2, identify the extent to which those resources and rights will be affected or impaired; and
- Part 3, specify any measures to be taken to reasonably protect Native Hawaiian rights if they are found to exist.

In addition to the work undertaken as part of this CIA, a historical, cultural, and archaeological background study was also conducted in order to evaluate any potential effect on historic properties and to recommend mitigation of any adverse effect, if warranted. That work was conducted in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS).

## PROJECT LOCATION

NKSBH is located at the northwest corner of the Kawaihae Deep Draft Harbor (KDDH) and at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway. It consists of a 1.6-acre basin protected by a 390.0 feet (ft) long main breakwater that runs along the north and northwest boundary, and by a stub groin on the east side of the NKSBH entrance. The current project area totals 5.22 acres (ac), or 2.11 hectares (ha). The tax map key (TMK) parcels for the project area are (3) 6-1-003:023 (portion) and 041 (portion), as shown in Figure 2.


Figure 1. Project Area Location on 7.5-Minute Series USGS Kawaihae Topographical Quadrangle (2017).

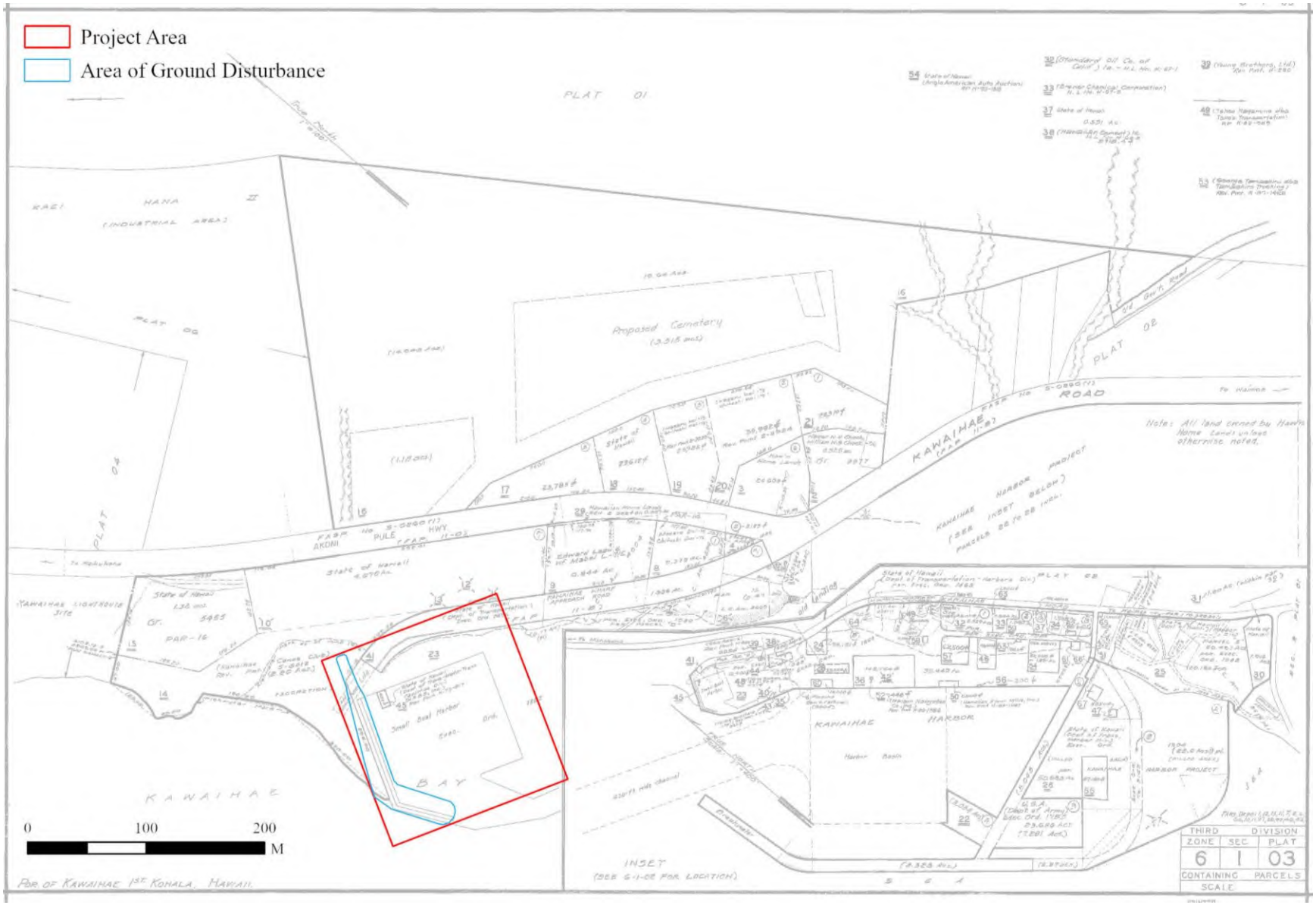


Figure 2. Project Area Location on TMK Plat Map (3) 6-1-003 (Tax Maps and Survey Department 1935).

Two 30-ft-long wooden marginal wharfs, which were rebuilt after the damage of the original 200-ft-long wharf by a storm event in January 2020, run along the eastern edge of the harbor, and a 45-ft fiberglass dock, 30-ft wood dock, and a concrete boat ramp are located on the northeast side of the harbor (Figure 3). Vessels entering NKSBH use the deep draft harbor entrance for the initial approach, and then make a left turn to enter the harbor basin. Only a few boats have been moored at the NKSBH due to limited berthing space after the damage of the original wharf. Onshore, the NKSBH property includes a parking lot and restroom and water facilities along the south side of the harbor.

### PROPOSED ACTION

The purpose of the proposed action is to improve safety conditions within NKSBH, restore its functionality, and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor.

Repairing and modifying the existing west main breakwater will reduce wave action inside the harbor basin and extending the breakwater inland will prevent sand intrusion into the boat ramp. Based on the assessment of the harbor and wave analysis, the following improvements at the NKSBH are recommended:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater from 6 ft to 10 ft above the mean lower low water level (MLLW) to prevent overtopping; and
- Extend the existing breakwater by 80 ft inland.

The proposed improvements are located at the main breakwater and the backshore area adjacent to the harbor. The proposed site plan is depicted in Figure 4 and typical sections are shown in Figure 5. To repair the main breakwater, demolition of the existing structure will be needed prior to placing the foundation bedding layer. The breakwater consists of a trapezoidal underlayer overlaid by two layers of armor rocks. Some of the material from the existing breakwater will be used to supplement imported materials. The final modified breakwater will have a crest elevation of 10.0 ft above the MLLW and 1.5H:1V side slopes. The increased height will make the structure more resilient to wave actions from storm events. The design crest width is 10.0 ft to accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

The breakwater will be extended approximately 80 ft landwards past the top of the boat ramp to prevent sand intrusion onto the boat ramp. The extended portion of the breakwater will have the same dimensions as the main breakwater as shown in Figure 5.

## ENVIRONMENTAL SETTING

Kawaihae Ahupua‘a 1 is on the northwest coast of Hawai‘i Island. The land unit extends for the coastline to approximately 1,500 m above mean sea level (AMSL). The land is underlain by Kohala Volcano lava flows of the Pololu Volcanic Series dating to about 0.33–0.45 million years ago. Kohala is the oldest major shield volcano on the island of Hawai‘i (McDougall and Swanson 1972).

### TOPOGRAPHY AND SOILS

The NKSBH is at the north end of Kawaihae Harbor. The surrounding area was filled and leveled for development of the harbor in the late 1950s. The soils are described as dumps, fill land (Figure 6), consisting of coral fill dredged from the Kawaihae Harbor (Soil Survey Staff, NRCS, USDA 2023). Both


Figure 3. Aerial Photograph of NKSMH Showing Existing Conditions (Google 2021).

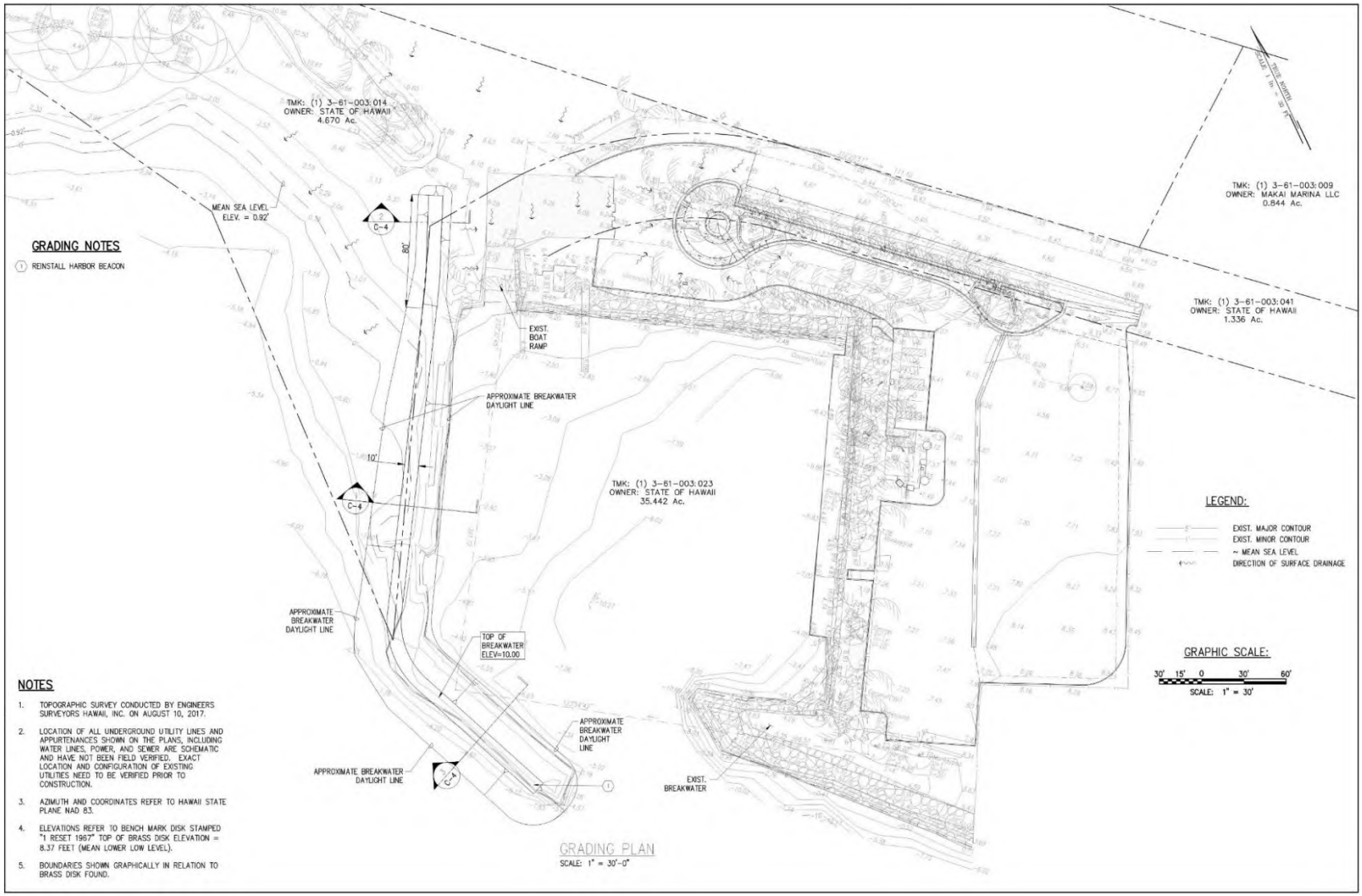


Figure 4. Grading Plan for Proposed Action; TMK Numbers are Incorrect.

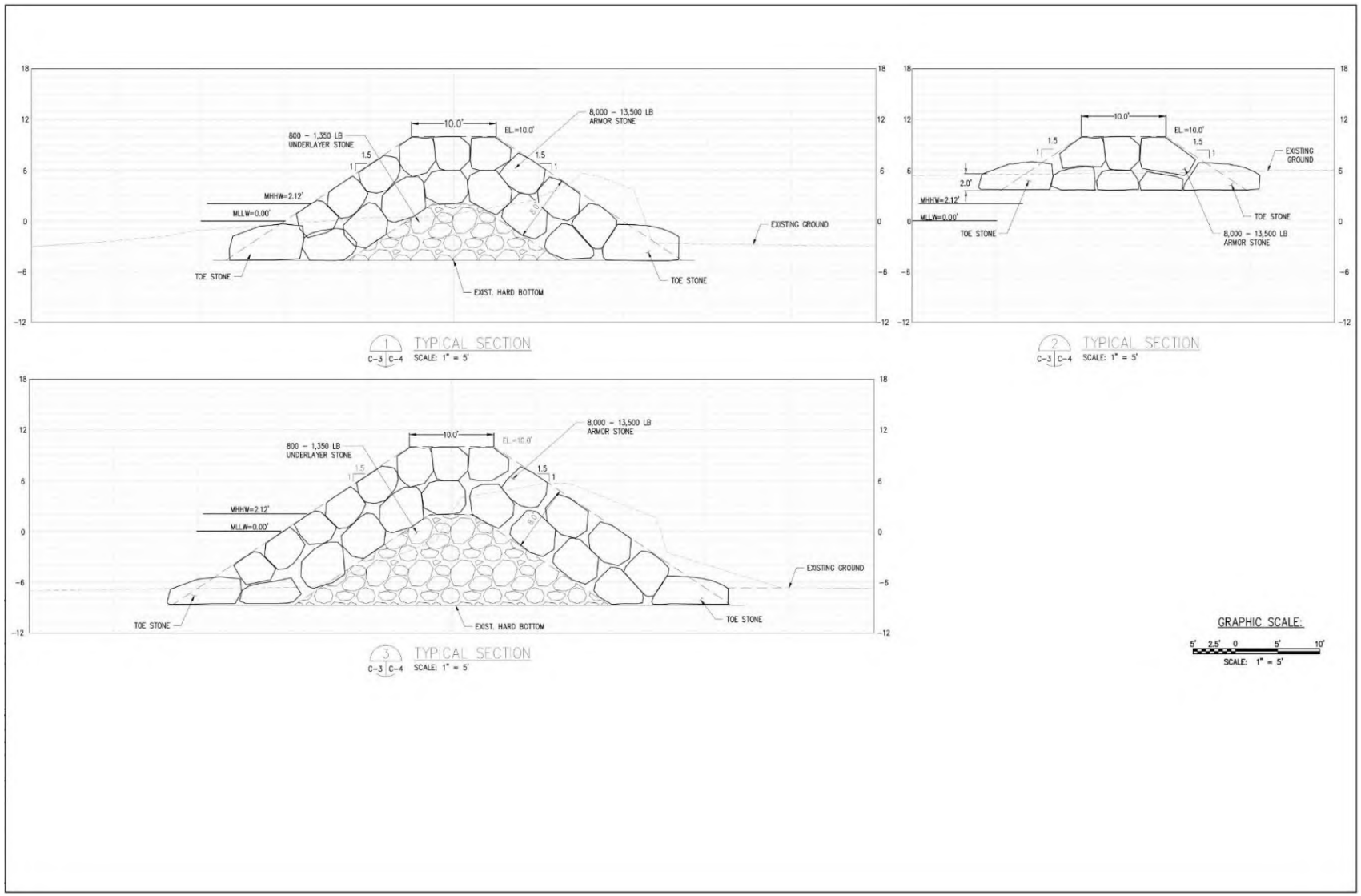


Figure 5. Typical Cross Section Details for Modified Breakwater in Proposed Action.

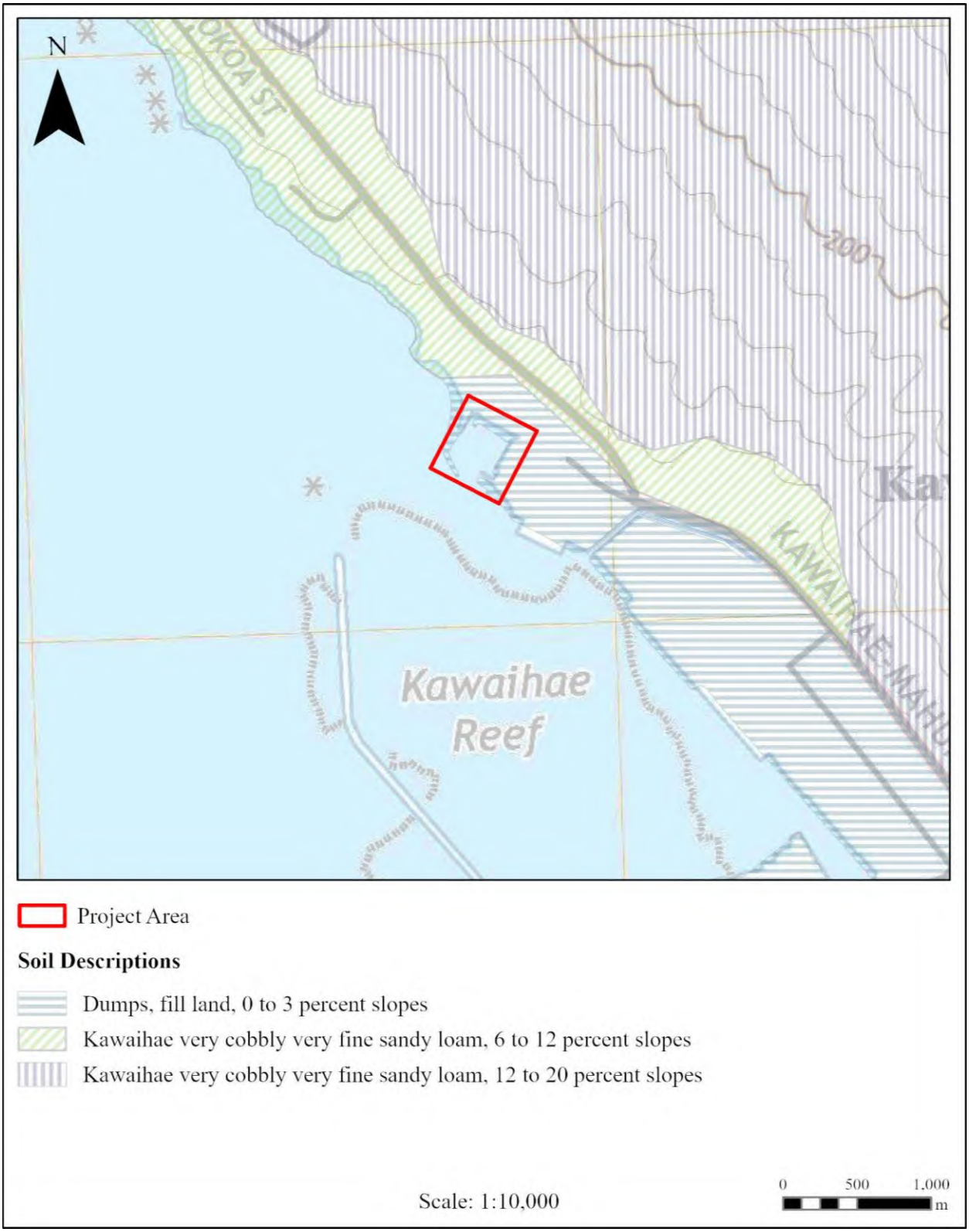


Figure 6. Soil Units Near the Project Area (Soil Survey Staff NRCS/USDA).

inland (or east) and north along the coast—beyond the harbor's fill land boundary—is Kawaihae very cobbly very fine sandy loam with 6 to 12 percent slopes. The former coastline relative to the project area can be seen on a harbor site plan map from 1953 in Figure 7.

Ground elevations at the harbor range from approximately 9 ft to 15 ft amsl, and fill was previously documented from 8.0 to 13.0 feet below the existing ground surface during boring tests (GeoLabs 1999). The fills consist of dense sandy coral gravel and coral gravelly sands with some loose pockets. The fills are underlain by lagoonal deposits consisting of loose to dense silty sands and soft clayey deposits extending to at least 21.5 feet below the existing ground surface, which was the maximum depth of the borings of about (Geolabs 1999; R.M.Towill 2001:3-4). Additional boring test (two on-shore, two off-shore) in November 2007 confirmed the findings of the 2001 geotechnical study (M and E Pacific, Inc. 2008:36).

### HYDROLOGY, VEGETATION, AND BUILT ENVIRONMENT

Kawaihae is very arid, with slightly more rain falling in the winter months, between November and January (Giambelluca et al. 2013). Mean annual rainfall near the coast is 253.5 millimeters (mm), or 9.98 inches (in). Intermittent streams in the vicinity include Honokoa Gulch to the north and Makahuna Gulch to the south.

The project area vegetation is primarily coconut trees planted linearly around the harbor between paved areas. Other trees in the vicinity include milo, kiawe, and palms. The ground surface is compacted fill and pavement.

The NKSBH is across from the entrance channel of KDDH (Figure 8). There are two small wooden wharves on the east side, which are adjacent to a large parking lot. On the north side of the NKSBH is a revetment, one fiber glass pier, one wooden pier, and a concrete boat ramp with a loading dock. A beach berm slopes down to the boat ramp. The west side of the harbor is the main breakwater. Along the south side is the entrance, which is between the stub groin and breakwater.

## HISTORICAL BACKGROUND

The reader referred to the 2011 Archaeological Literature Review and Field Inspection report for the Kawaihae Harbor Project (Wilkinson et al. 2011) and the 2014 Archaeological Assessment for Kawaihae Small Boat Harbor (SBH) Improvements (Wheeler et al. 2014) for a detailed pre-Contact and post-Contact background review of Kawaihae. This section presents a summary of the ethno-historical background, with additional information not previously included in archaeological reports, including historical photographs and maps, and an up-to-date archaeological background for the project area.

### TRADITIONAL LAND USE

Traditionally, Kohala was a single *moku* (district), which is today divided into North Kohala and South Kohala. A *moku* (district) such as Kohala was divided into *ʻokana* or *kalana* (land divisions smaller than *moku*), which in turn were divided into smaller political units, *ahupuaʻa* and *ʻili* (Maly and Maly 2004:6). The current project area is in the *ahupuaʻa* of Kawaihae 1 (Kawaihae Komohana), which borders Kawaihae 2 (Kawaihae Hikina) to the south. Prior to the 1800s, the two land units were a single *ahupuaʻa* (Cordy 1990:346). Prior to Kamehameha I unifying Hawaiʻi, there were six chiefdoms on the island–Kohala, Kona, Puna, Kau, Hamakua, and Hilo–which became *moku* under his rule. The southern portion of Kohala comprised Kawaihae and Waimea, which Rieth and Morrison (2010:15) note "were traditionally places associated with *aliʻi* (chiefs), and because of their complementary resource bases likely participated in a long history of exchange and interaction."

Archaeological evidence shows the earliest settlement of the Hawaiian Islands occurred no earlier than AD 1000 (Kirch 2011). This is grounded in AMS 14C dating and paleoenvironmental evidence. Based on traditional history and the availability of resources that an area could provide, the windward, or *koʻolau*,

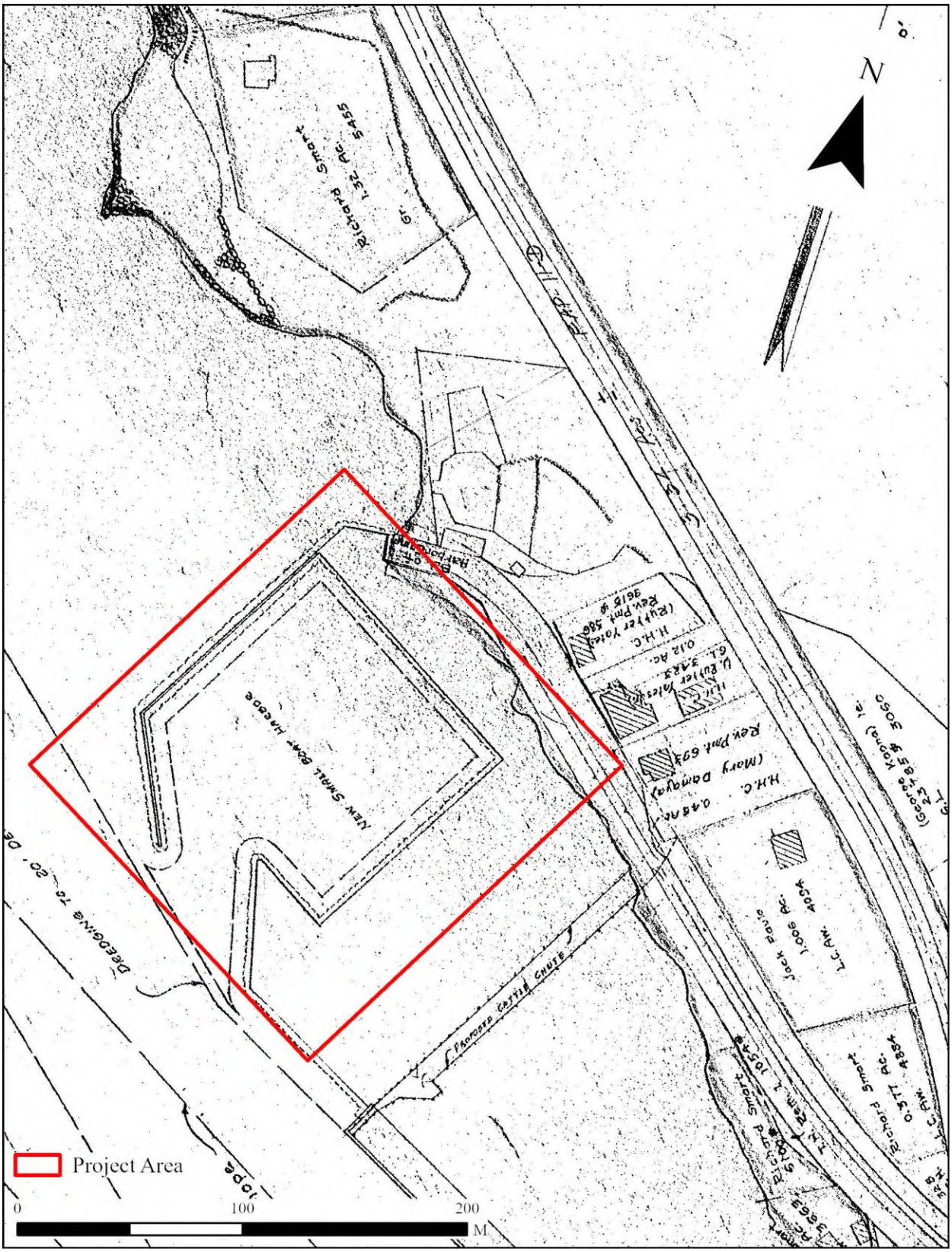


Figure 7. Portion of Kawaihae Bay Waterfront Map Dated 1953 (Board of Harbor Commissioners 1953).

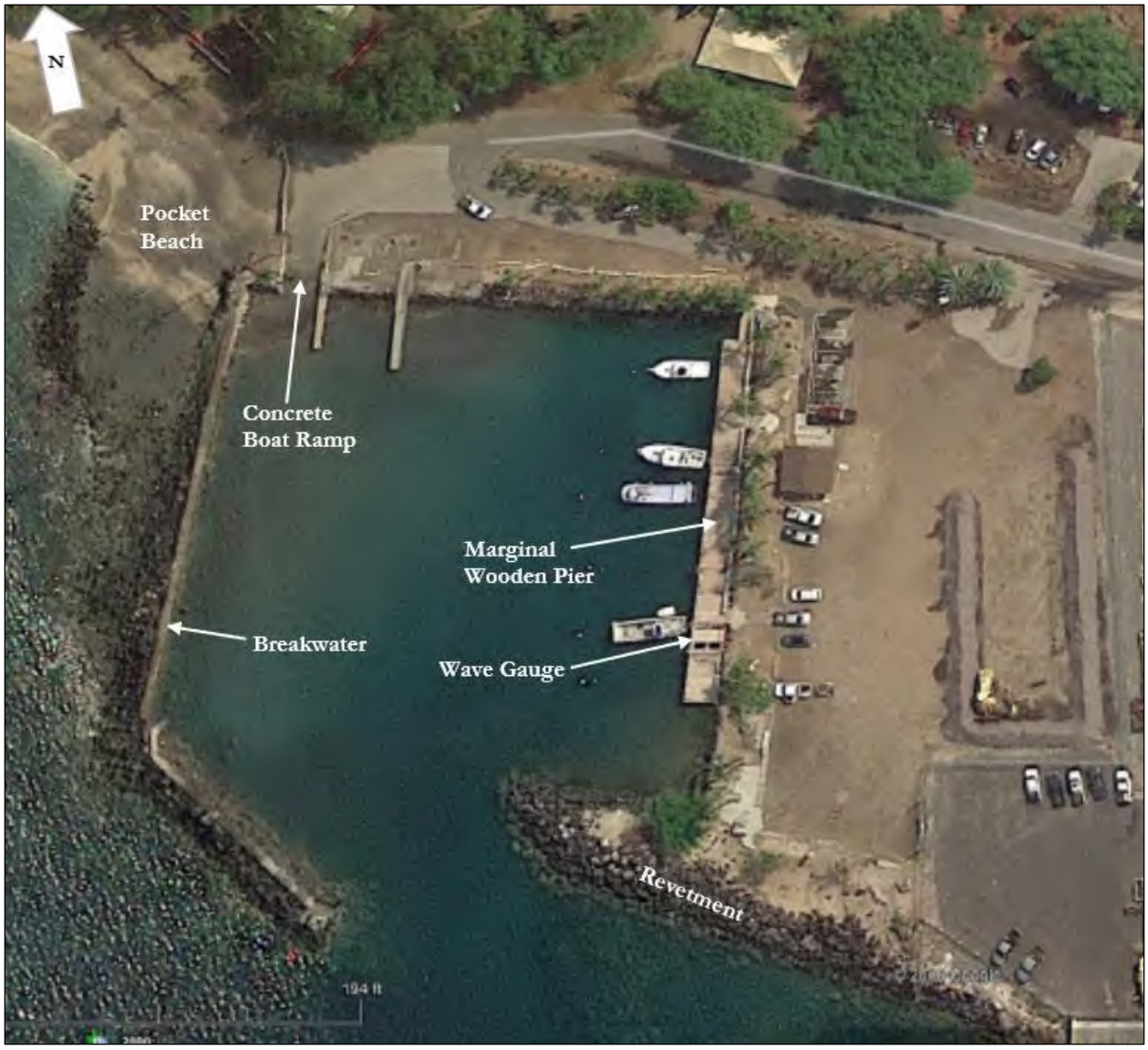


Figure 8. Aerial Overview of the NKSBH Provided by Oceanit Laboratories.

coast was a place of early settlement on the island, while the leeward, or *kona*, side was likely settled after AD 1200. An assessment of radiocarbon dates from Hawai‘i Island determined that the most reliable dates indicate settlement between AD 1220 and 1261 (Rieth et al. 2011:2748). It is worth noting that 70 percent of the radiocarbon dates determined to be reliable were from the leeward side of the island, which has been subject to much more archaeological research than the windward side. Specifically, of the 303 analyzed, there were 86 from Kona, 74 from Kohala, and 51 from Ka‘ū. Of these, 14 of the 16 most reliable samples were from Kohala (Rieth et al. 2011:2744).

Radiocarbon dates from Kawaihae 1 and 2 indicate recurrent short-term habitation of the area beginning in the mid-thirteenth century, likely associated with marine resource procurement (Carson 2006; Rieth and Morrison 2010:34). The toponym Kawaihae translates literally as “the water [of] wrath (people are said to have fought for water from a pool in this arid area)” (Pukui et al. 1974:97). The arid environment and lack of freshwater would have constrained permanent coastal settlements to places with access to fresh water, such as fresh water springs or ponds at Kawaihae Bay, Puakō-Lālāmilo, and Kalāhuipua‘a-‘Anaeho‘omalu (Maly and Maly 2003:3). Likewise, the scarcity of fresh water placed a heavy reliance on marine resources.

Passing through Kawaihae Village was the *ala kahakai*, a traditional trail by the sea that connected to other population centers. Additionally, there were trails that reached inland and facilitated trade of coastal resources with upland populations (Doyle 1945:84–85; Maly and Maly 2003:20), where taro and sweet potatoes were cultivated and natural resources were available, such as medicinal plants, timber, birds, and fiber plants.

The following is a description of Kawaihae from Handy and Handy (1972):

> Kawaihae is the broad shallow bay on the west coast of Kohala which is and was the district’s chief seaport. The terrain immediately around it is dry and barren but formerly much dry taro was grown beyond in the lower forest zone, which formerly extended from the Kohala Mountains much farther to seaward over what is now open pasture land. Wet taro was grown also in small pockets of land wherever streams, even intermittent ones, flowed down from the mountains in the wet season.
>
> For 1.4 miles along the southern base of Pu‘u Hoku‘ula, terraces are visible under pasture and house sites, presumable formerly watered by a ditch from Waikoloa Stream. These evidently used to be more or less continuous down to and below Waiaka Stream where the road now crosses. Here in 1935 a Hawaiian planter still cultivated taro in a few terraces irrigated from Waiaka Stream flowing out of the Kohala Mountains. On the Kawaihae side of the road numerous old terrace lines could be seen. There are places in the pasture south of the road that may be traces of old terraces, lines of old walls, or ridges surviving from the era of experimental planting of cane at Waimea [Handy and Handy 1972:531].

Prior to land filling for the harbor in the 20th century, there were salt pans on the coast in Kawaihae, south of the project area (Figure 9). The following is a description of the salt harvesting from Lucy Kaopaulu Peabody, the great granddaughter of Isaac Davis, from “Excerpts from a Compilation by Ethel Damon of Stories told [to] Kalani Henriques by Lucy Peabody”:

> Near the Kawaihae beach-proving as interesting to the Lyons children in their day as they had once been to Vancouver-were the famous salt ponds, a series of four. The overflow of high tide would fill the first, and there evaporation would begin. Just before the next high tide, natives with gourd calabashes would laboriously bale into the adjoining pond, which was on slightly higher ground. This process was repeated until in the last and smallest pond the salt was so concentrated that crystals formed, and sank to the bottom. These were daily raked and spread on a clean rock surface to dry. The salt was finally wrapped in ti leaf bundles, which were hung on *auamo** [Poles for carrying bundles] and borne away on

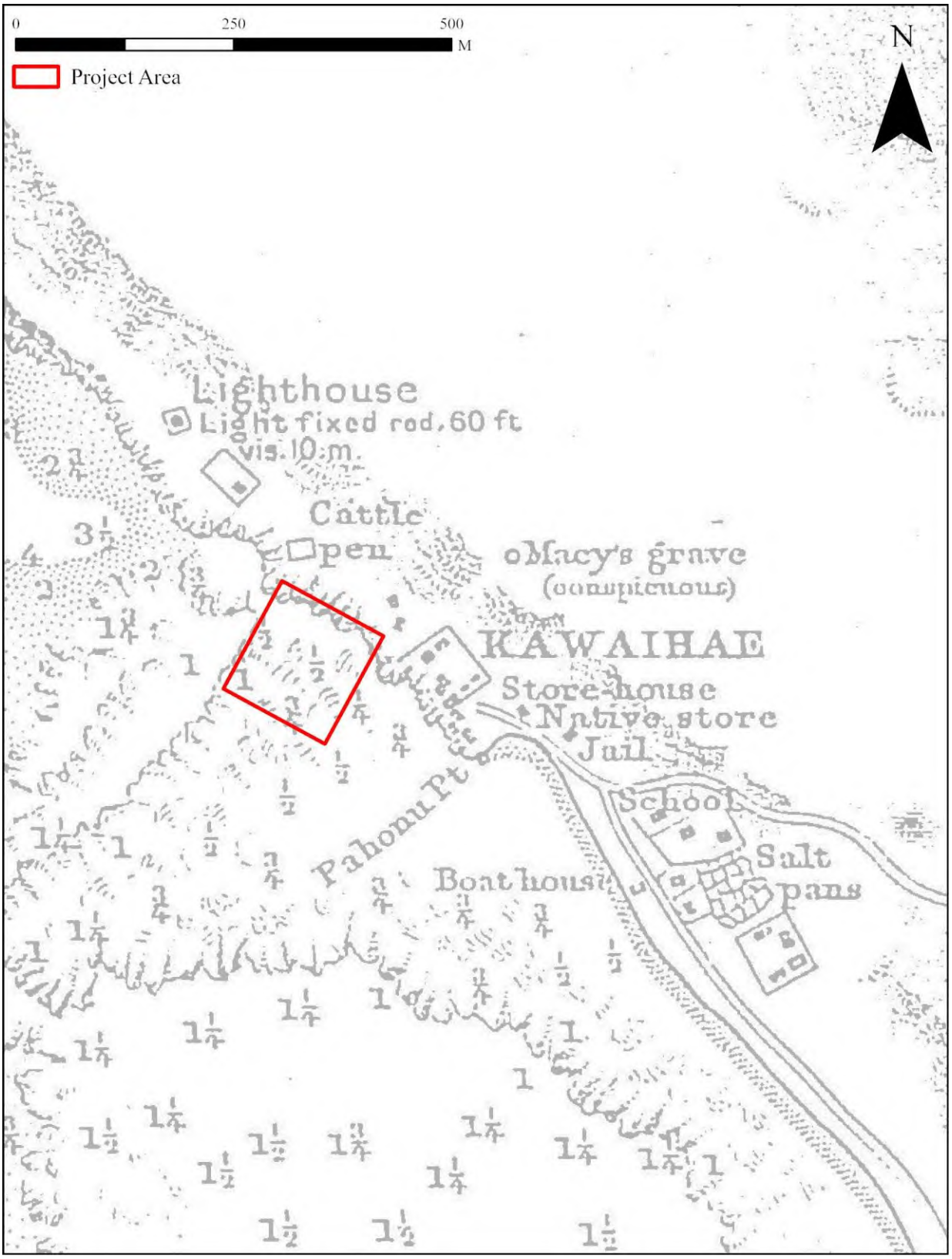


Figure 9. Map of Kawaihae Bay from 1883–1885 Hawaiian Government Survey Showing Project Area (McDonald 1891).

> sturdy shoulders. Thus was Kawaihae salt transported, even to far off Waipio, whence came the poi that was so gladly received by folk of the barren beach region [Doyle 1945:272].

## KAMEHAMEHA I

As of the 1400s there were two concentrations of power on the island: the "Kona" chiefs of Kohala, Kona, and Kaʻū, and the "I" chiefs of Hamakua, Hilo, and Puna (Cordy 2000:205–207). When ʻUmi-a-Liloa came to power, sometime between the early 1400s and early 1600s, he united the island and chose Kona as the seat of power. Population density in the Kona region probably increased during the time of Umi-a-Liloa's rule (Fornander 1919:313). Based on royal oral traditions it is thought that from 1500 to the mid-1700s many attempts were made to overthrow the lineage. This tumultuous period ended under Kamehameha I, a direct descendant of ʻUmi-a-Liloa, who unified the Hawaiian Islands (less Kauaʻi) at the end of the 18th century (Cordy 2000:205–208).

Though there is uncertainty about the exact dates of events (Stokes 1933), and the events themselves, Hawaiian historian Samuel Kamakau wrote that Kamehameha I, named at birth Paiʻea, was born at a time of war among the Hawaiʻi chiefs (Kamakau 1992:66). Keaweʻīkekahialiʻiokamoku, *aliʻi nui* of Hawaiʻi, had died and his sons Keʻeaumoku and Kalaninuiʻamamao, district chiefs of the Kona and Hilo sides of the island, began clashing. At the time, Chief Alapaʻi was on Maui and heard of the fighting. He took the opportunity to attack the island and won, becoming ruler of Hawaiʻi Island.

As pointed out in a newspaper article from 1911 about Kamehameha's birth (Imaikalanani 1911), Hawaiian *moʻōlelo* and *mele* (chants, songs, or poems) are not always literal. For example, it was not to a literal cave that the infant Kamehameha was taken to as some say, but the door of Kahaʻōpūlani's house (Imaikalanani 1911). Several versions of the birth say that before Kamehameha was born to Alapaʻi's niece Kekuʻiapoiwa II, a priest warned him of Kamehameha's future power and Alapaʻi planned to have the child killed (Stillman 1911). Another version tells of a North Kohala chief Nāihe who heard rumors in the court of plans to kill the child and secretly took the infant to raise in safety (Desha 2000:26). According to Kamakau (1992:67), the Kohala chief Naeʻole swiped the child from Kekuʻiapoiwa II at Kokoiki while she was delivering the afterbirth unaccompanied on a stormy night, and his motive was to become the *kahu* (guardian) of the chief's child. And then there is other version stating that Kekuʻiapoiwa II and Keōua knew of Alapaʻi's plot and made plans to have a skilled runner carry the infant from ʻĀinakea (not Kokoiki) to ʻĀwini, where Kahaʻōpūlani lived (Stillman 1911).

When Kamehameha was five years old he was taken to be raised in Alapaʻi's court, where Keawe's two sons, Keōua and Kalaniʻōpuʻu (who were half-brothers), were captains of his army. In 1752, Keōua became ill and died while at the court of Alapaʻi in Hilo. According to one source, Kalaniʻōpuʻu heard of the illness and travel from Kaʻū to Keōua. Before Keōua died, he told his half-brother that Apalapʻi had poisoned him, and to take his son, Kamahameha, and care for him. In other versions Kalaniʻōpuʻu heard rumors of poison or prayer by Alapaʻi that caused Keōua's death, decided to take Kamehameha away from Alapaʻi's court (Desha 2000:27, 28; Silverman 1972). Either way, this was the beginning of the struggle for Hawaiʻi by Kalaniʻōpuʻu against Alapaʻi. Kamakau wrote:

> Ka-lani-ʻopuʻu and Keoua were the hereditary heirs to the land of Hawaii, for it had belonged to their father, Ka-lani-nui-ʻi-a-mamao, and [his brother] Ka-lani-keʻe-au-moku; but Alapaʻi had seized it through force of arms and had slain the inheritors. Alapaʻi was a chief of high rank. Ka-lani-kau-lele-ia-iwi was his mother as well as the mother of Ka-lani-keʻe-au-moku. His father was Ka-uaua-a-Mahi, whose father, Mahi-ʻololi′, was executive officer (*Kuhina kaua nui*) for the chiefess Keakea-lani while she held the government of Hawaii [Kamakau 1992:76].

There was a battle at Mahinaakaka between Kalaniʻōpuʻu and Alapaʻi, during which Alapaʻi defeated Kalaniʻōpuʻu's army. Kalaniʻōpuʻu ruled over Kaʻū "the birth sands of his ancestors" and Puna

(Kamakau 1992:77). Alapaʻi stayed at Hilo for a year and then moved to Waipiʻo, then Waimea, and finally Lanimaomao, where he became ill. He then moved to Kikiakoʻi in Kawaihae where he grew close to death, so he appointed his son Keaweʻōpala as his successor.

Alapaʻi died around 1754, and then there was then an uprising led by Kalaniʻōpuʻu that resulted in Keaweʻōpala's death (Kamakau 1992:78). Kalaniʻōpuʻu became *aliʻi nui* of Hawaiʻi. His reign was spent attempting to conquer Maui. He managed to take Hāna and then held the fortress Kaʻuiki for 20 years. Young Kamehameha spent time at Kalaniʻōpuʻu's court in Kaʻū where he trained in warfare with the famous warrior Kekūhaupiʻo (Desha 2000; Kamakau 1992:86).

When Captain Cook arrived in the Hawaiian Islands, Kalaniʻōpuʻu was on Maui. He returned to meet Cook in January of 1779 and they exchanged gifts (Kuykendall 1947:16). Kalaniʻōpuʻu became ill in the following years and before his death he bequeathed Kīwalaʻō his land and Kamehameha his god Kukaʻilimoku (Fornander 1919:464; Kamakau 1992:108,110). Fearing for Kamehameha's safety when he died, he sent him to live in Kohala. Kalaniʻōpuʻu died at Waiʻoahukini in Kaʻū in 1782. Soon after Kalaniʻōpuʻu's death, fighting broke out between the districts and Kīwalaʻō was killed. After a famous battle called Mokuʻohai, Kamehameha then became chief of the districts of Kona, Kohala, and half of Hāmākua, while Keōua, the brother of Kiwalaʻo, controlled Kaʻū and half of Puna, and Keawemaʻuhili declared himself independent of both in Hilo and controlled half of Puna and Hāmākua (Kalākaua 1888:122, 363).

In the following years there was constant fighting between the districts controlled by Keōua, Keawemaʻuhili, and Kamehameha. Leading up to Kamehameha's rule of the entire island, Keōua killed Keawemaʻuhili out of fear that he and Kamehameha would join forces against him (Kamakau 1992:151). Kamehameha was on Molokaʻi with the Englishmen John Young and Isaac Davis when he heard that Keawemaʻuhili was killed and that Kohala had been attacked. Young and Davis were advisors to Kamehameha and facilitated the use of western weapons and warfare (Cordy 2000). Kamehameha left for Hawaiʻi and took with him muskets, gunpowder, and the canon called Lopaka (Kamakau 1992:152). The battle between Kamehameha and Keōua was a draw, and Keōua and his chiefs divided up Hilo for themselves.

Around 1790, Kamehameha held Keōua's army in the north and sent fighters to attack Kaʻū. On their way back to defend Kaʻū, Keōua's army was caught in an eruption of Kīlauea and was devastated, but Kaʻū still resisted Kamehameha's control. Kamehameha decided to feign a peace offering and invited Keōua to the dedication of Puʻukohola Heiau in Kawaihae in 1791. Kamakau claims that Keōua knew his fate when he agreed to travel to Kawaihae (Kamakau 1992:156). When Keōua and his men arrived, they were killed in their canoe, and Keōua's body was offered as the sacrifice at the dedication of the *heiau* (Kamakau 1992:157–158).

In 1783, Kahekili II, *aliʻi nui* of Maui, defeated Kahahana, *aliʻi nui* of Oʻahu (Kamakau 1992:136). Ten years later, Kahekili II died and his half-brother Kaʻeokulani inherited Maui, Molokaʻi, and Lanaʻi, while his son Kalanikūpule inherited Oʻahu. In 1793, Kaʻeokulani made plans to visit his home island of Kauaʻi, which made Kalanikūpule suspicious. They went to war with one another and several days of fighting occurred. After a brief period of peace, the fighting resumed, but this time Kalanikūpule employed the help of Captain William Brown and his three vessels, known as the Butterworth Squadron. Kalanikūpule was successful and defeated Kaʻeokulani, killing him and his wives, chiefs, and warriors, in a battle called Kukiʻiahu in ʻEwa (Kamakau 1992:169).

Kalanikūpule's next target was Kamahameha on Hawaiʻi. Due to a disagreement, Kalanikūpule had Captain Brown killed, and the other foreigners were taken prisoner. In January of 1795, Kalanikūpule, his warriors, and the prisoners attempted to set sail for Hawaiʻi Island, but were delayed. The prisoners managed to sneak off with the ships and ammunition and left to warn Kamahameha of Kalanikūpule's plans. Upon receiving the news, Kamehameha then set to make war upon Kalanikūpule.

> In February, 1795, Kamehameha's fleet of war canoes landed at Lahaina, covering the sands along the coast from Launiupoko to Mala. All that part of Lahaina given over to food patches and cane fields was at that time overrun by the men from Hawaii. At Molokai, again, the whole coast from Kawela to Kalama'ula was covered by canoes [Kamakau 1992:171].

Next, they sailed to O'ahu. The war culminated in the Battle of Nu'uanu where Kamehameha was victorious.

## EARLY POST CONTACT LAND DESCRIPTIONS

In the late 1700s and early 1800s, descriptions of Kawaihae were recorded in the journals of Captain James Cook, Captain George Vancouver, and French Navy officer Louis Claude de Saulces de Freycinet. They described Kawaihae as dry and denuded of trees, and mentioned the village at Kawaihae, salt making, and the *heiau*. In the 1820s, English missionary William Ellis arrive in Hawai'i and traveled the Kohala Coast. He described Kawaihae as a "considerable village" and a potential mission site (Ellis 1827:12). He also described the landscape:

> At four o'clock p.m. a light air sprung up from the southward, and carried us slowly on towards [K]awaihae, a district in the division of Kohala, about four miles long, containing a spacious bay, and good anchorage… The north side of the bay affords much the best anchorage for shipping, especially for those that wish to lie near the shore. It is the best holding ground, and is also screened by the kuhive (high land) of Kohala from those sudden and violent gusts of wind, called by the natives mumuku, which come down between the mountains with almost irresistible fury, on the southern part of [K]owaihae, and the adjacent districts [Ellis 1827:70–71].

During another trip to Kawaihae, Ellis noted the harvesting of sandalwood:

> Before daylight on the 22d we were roused by vast multitudes of people passing through the district from Waimea with sandal wood, which had been cut in the adjacent mountains for Karaimoku, by the people of Waimea, and which the people of Kohala, as far as the north point, had been ordered to bring down to his store house on the beach, for the purpose of its being shipped to Oahu.
>
> There were between two and three thousand men, carrying each from one to six pieces of sandal wood, according to their size and weight. It was generally tied on their backs by bands made of ti leaves, passed over the shoulders and under the arms, and fastened across their breast. When they had deposited the wood at the store house, they departed to their respective homes [Ellis 1827:298–299].

Lorenzo Lyons, also known as Makua Laiana, arrived in Kohala in 1832 as a member of the American Board of Commissioners for Foreign Missions. Living in Waimea until his death, Lyons described of the fickle environment of Kawaihae in a journal he kept from 1839 to 1846:

> Not infrequently at Kawaihae and Puako there is no food to be had. The people live without food for days, except a little fish which prevents starvation. Nor is this to be had everyday, the ocean being so rough they cannot fish, or a government working day interferes, when the sailing of a canoe is tabu — unless the owner chooses to pay a fine. The water too at these places is such that I cannot drink it. I would as soon drink a dose of Epsom salts. (Doyle 1945:108–109).

## CATTLE IN KOHALA IN THE 18TH AND 19TH CENTURY

In 1793, Captain George Vancouver gifted cattle, sheep, and goats to Kamehameha I at Kawaihae (and later at Kealakekua) (Fornander 1996:336; Judd 1978:16; Kamakau 1991:164; Maly and Wilcox

2000:21). A ten-year *kapu* (taboo, in this case restricting hunting) was placed on the herds in order for them to reproduce, and consequently, much of the Waimea Plain became grazing land. This proved detrimental to agricultural fields (Burtchard and Tomonari-Tuggle 2005:29–30). Walls were built to limit the range of the wild animals: "before Kamehameha I died in 1819, the animals were so bold and numerous that the people needed protection from them. Under the direction of the old king, long stone walls, called *pa aina*, were built to exclude the cattle from the cultivated areas at the foot of the Kohala Mountains" (Judd 1978:16).

In 1815, John Palmer Parker (founder of Parker Ranch) and other foreigners were commissioned to hunt the cattle in order to sell beef, tallow, hides, and other products to western ships (Judd 1878:16; Ellis 1917:301, 303; Rieth and Morrison 2010:21). The hunting was tightly controlled and the *kapu* was not lifted until 1830 (Clark 1983:48).

The cattle population declined by the 1840s due to hunting and a *kapu* was once again instituted. The population or the herd climbed again, and it was noted by Lyons in 1846 that two-thirds of the Waimea area was converted into government pastureland causing many people to leave the area (Clark 1983:49). Beginning in the 1850s, Waimea and surrounding lands were consolidated as Parker Ranch.

## THE MAHELE

Traditional land divisions of the fifteenth and sixteenth centuries persisted until the 1848 Mahele, which introduced private property into Hawaiian society (Kamakau 1991:54). During the Mahele, the Land Commission required the Hawaiian chiefs and *konohiki* (land agent for the *ali'i*) to present their claims to the Land Commission. In return they were granted Land Commission Awards (LCAs) for the land quit-claimed to them by Kamehameha III. Land was divided into Crown Lands, Government Lands, and Konohiki Lands. The remaining unclaimed land was then sold publicly, "subject to the rights of the native tenants" (Chinen 1958:29).

In the case of land claims made for Konohiki lands, approval by the Land Commissioners was required before the award was made. If approved, then the awardee obtained a Royal Patent (RP) from the Minister of the Interior, which indicated that the government's interest in the land had been settled with a commutation fee. This fee was typically no more than one-third of the value of the unimproved land. This fee was paid either in cash, or, more commonly, the return of one-third of the awardee's lands (or total value of the lands awarded) (King 1945).

Following the Mahele of 1848, two acts were passed in 1850 that changed land ownership in Hawai'i. On 10 July 1850, the Alien Land Ownership Act was adopted, which allowed foreigners to own land. On 6 August 1850, the Kuleana Act of 1850 was adopted, which allowed *hoa'āina* (common people of the land, native tenants) to make claims to the Land Commission. The new western system of ownership resulted in many losing their land. Often *kuleana* (property) claims would be made for discontiguous cultivated plots with varying crops, but only one parcel would be awarded.

The Crown Lands became Government Lands when the Hawaiian Government was overthrown in 1895, making them public domain for sale by fee simple (Alexander 1920). Patents were the certificates issued for the sale of such lands. Beginning in 1900, when Hawai'i became a U.S. territory, the certificates were called Land Patents, or Land Patent Grants (Alexander 1920).

At the Mahele, Kawaihae 1 was one of many *ahupua'a* and *'ili* awarded as crown lands to Chieftess Anna Keahikuni (Miriam) Kekau'onohi as part of LCA 11216. Her father was Kaho'anoku Kina'u, who was a son of Kamehameha. She became a member of Kamehameha III's House of Nobles and was appointed Governess of Kaua'i (Kamakau 1992:280, 397). As for *kuleana* awards, nine parcels were awarded in Kawaihae 1, none of which are in the current project area. Several of the awards were immediately south of the current project area on the shoreline (Figure 10), which included LCAs 3669, 4884, and 4094. LCA 3669 in Pahonu 'Ili was granted to Makahi, which contained two houses. Immediately

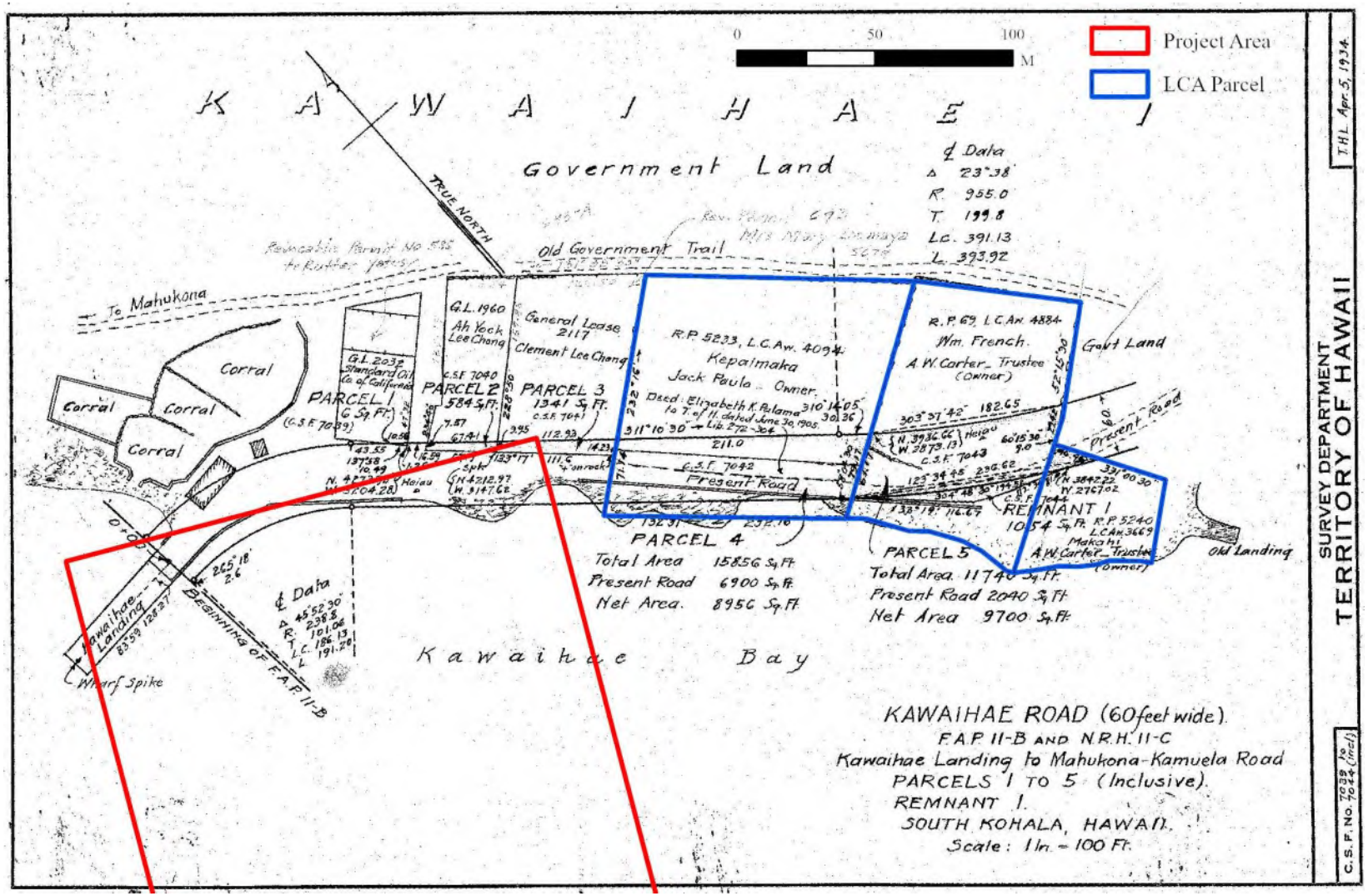


Figure 10. Map of Proposed New Raod At Kawaihae Dated 1934 (Copp 1934).


Figure 11. Loading Cattle at Kawaihae in the Early to Mid-1900s (HSA 2023a).

Figure 12. Swimming Cattle at Kawaihae in the Early to Mid-1900s (HAS 2023b).

north of this lot was LCA 4884 in Pahonu ʻIli awarded to William French, which contained a warehouse, and LCA 4094 in Kaelepuhi ʻIli granted to Kepaimaka, which contained one house. William French was an American who had become a successful merchant in Hawaii. In 1835, French established a ranch at Waimea and employed John Parker as a bookkeeper and cattle hunter. In 1838, French opened a store at Kawaihae on property given to him by Governor Kuakini on the condition that he build a pier, which he did. By the 1840s, French was shipping live cattle from Kawaihae to Honolulu. However, French experience financial woes from businesses outside Hawaii and his operations in Kohala ended. John Parker had become an independent rancher by then, and he, along with other ranchers in the area, continued to ship cattle from Kawaihae. Historical photographs of cattle be shipped from Kawaihae are shown in Figures 11 and 12. Figure 11 is a postcard with a photograph of cattle at Kawaihae Bay ready for shipping, and Figure 12 is photograph of swimming cattle to shipping vessels off shore. Both images are undated, but likely date to the early to mid-1900s.

In the early 1850s, Kawaihae suffered droughts and the arrival of smallpox, followed by a decline in cattle business in the 1860s due to the collapse of the whaling industry, the primary purchaser of Hawaiʻi cattle. Charles de Varigny, the secretary of the French Consulate in Honolulu, visited Kawaiahe in 1861 and recorded the following description of the area:

> The village consists chiefly of a single large wooden structure which serves as a country store and warehouse for the products of the district. Around the shop are clustered several makeshift buildings providing annexes for further storage. Scattered along the seashore are a few kanaka grass houses, about twenty. The setting is desolate: not a blade of grass, not a tree, except for the infrequent coconut palms, nor a stream. Enormous volcanic rocks, jagged and cinder-black, lie strewn across the ground, and a fine dusty sand covers the beach. A small wharf serves for the departure and landing of travelers. At a short distance from shore floats an old stripped-down vessel, its melancholy hull balancing at anchor and providing storage for products arriving from Honolulu. It was difficult for me to imagine a more arid and barren setting [Varigny 1981:72].

## LATE HISTORIC PERIOD

Historical maps from the late 1800s (see Figure 6) and early 1900s show gradual change in Kawaihae Village near the current project area. Figure 6, above, depicts the harbor in 1885, with a cattle pen and a few structures near the project area. Figure 13 is a photograph of Kawaihae Landing ca 1882, which somewhat matches the description from Varigny above.

Forty years later, in 1925, there are shipping corrals in the same location, and a new landing and post office (Figure 14). In 1934, a new road to the Kawaihae landing was planned. A new warehouse, hotel, oil tanks, and other buildings appear along the coast on map dated 1935 (Figure 15), and in a photograph dated 1935 (Figure 16). In a letter to her cousins in 1939, Emma Lyons Doyle, granddaughter of Lorenzo Lyons, described her visit to the *heiau* at Kawaihae and the new landing and park at the harbor:

> Easter came. Time was precious, so I took my run to Kawaihae before the church service. I had never before seen the heiau, and I spent some time there-awed; marvelling at the achievement of such a structure in such an age; the regularity of its construction, the conception and planning that could bring it into being; the choice of a situation. From that height, over kiawe trees, I gazed out at the glassy water, the hot barren beach. The new Kawaihae, I had no wish to see. There is a government park there, bath house, picnic tables, stoves. I am glad for the people who can enjoy them. I am more than glad - deeply thankful that there is a new landing, from which the cattle, unless the weather is too rough, may be driven more mercifully to the fate man demands of them; that they are not now subjected to the handling that was called necessary, and that onlookers could find "picturesque" [Doyle 1945:263].

Figure 13. Photograph of Kawaihae Landing ca 1882 (HAS 2023c).

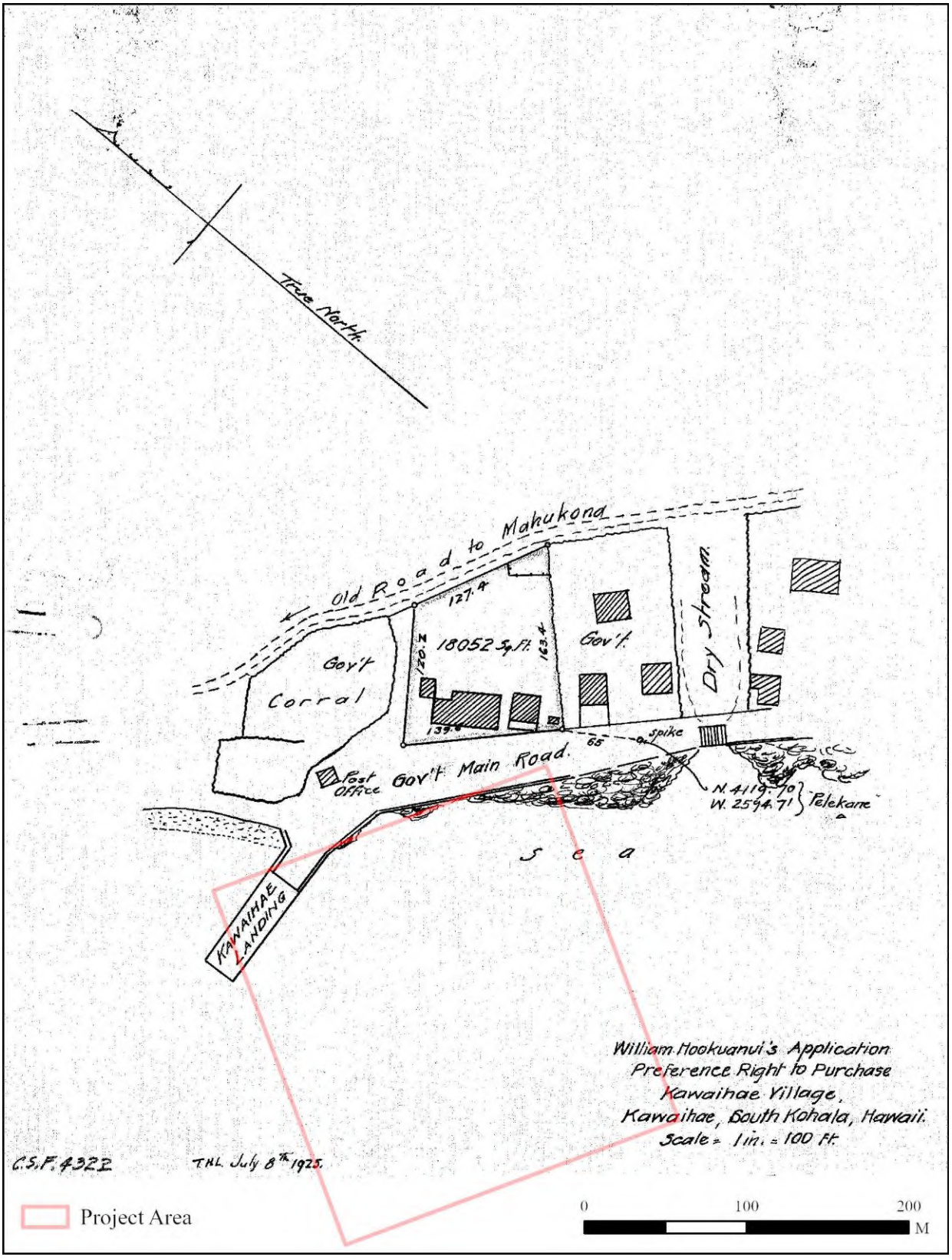


Figure 14. 1925 Map of Kawaihae Landing (Wright 1925).

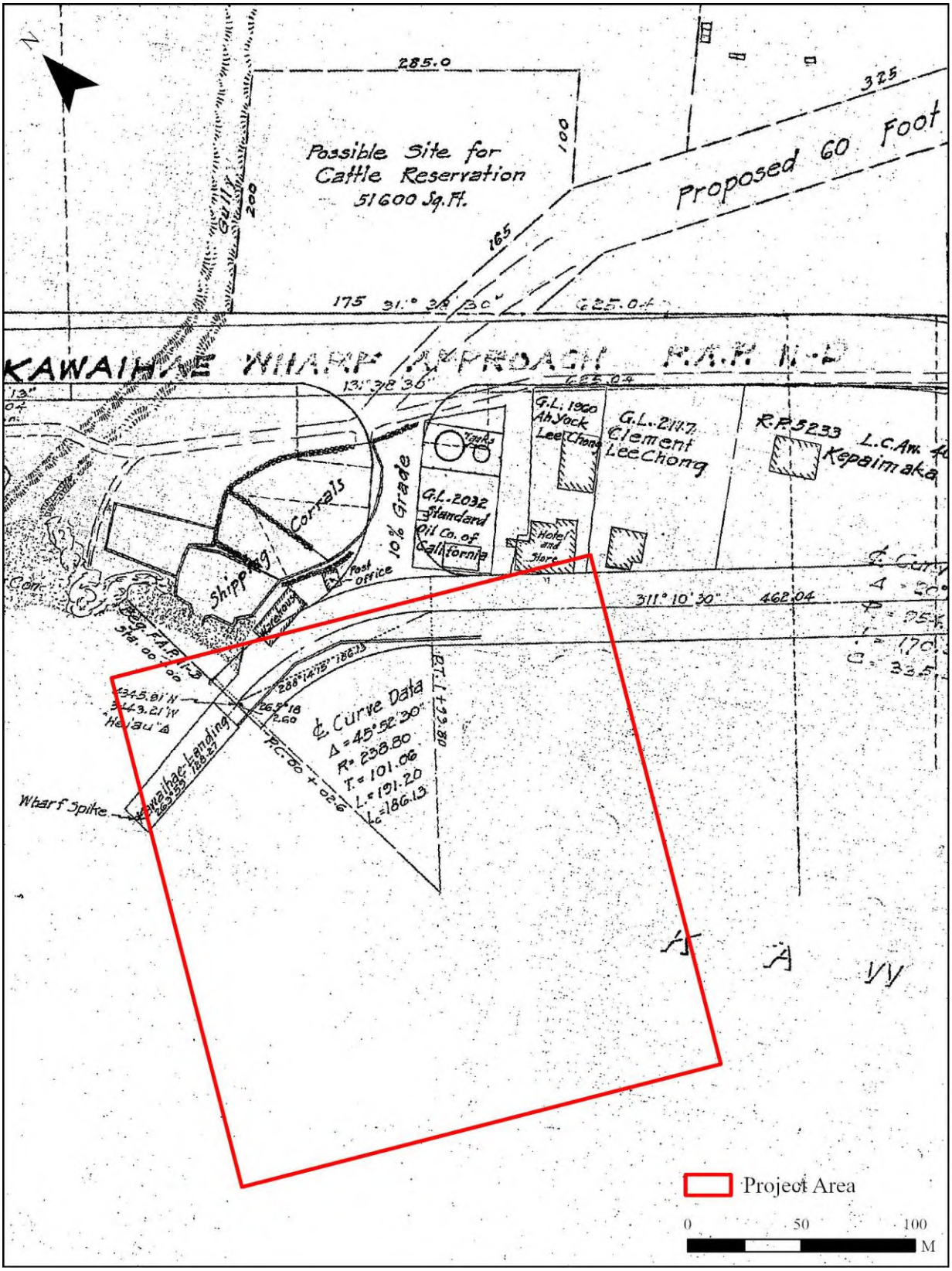


Figure 15. Portion of Map of Kawaihae for Subdivision of a Portion of Hawaiian Home Land in 1935 (Copp 1935).


Figure 16. Photograph of Kawaihae Landing ca 1934 (HAS 2023d).

Doyle mentions the new cattle landing, which utilized a chute for loading the cattle for shipping instead of having them swim offshore for loading. The chute was constructed north of the lighthouse and project area. The Board of Harbor Commissioners noted the new wharf in a 1939 report:

> CATTLE PIER AT KAWAIHAE
>
> The approach which was damaged by a severe storm during the previous fiscal year has been repaired and business resumed. In the shipment of cattle this wharf has proven its worth. We are told that the time required for loading cattle by this method has been reduced to a very small fraction of that required in the old method of swimming [Board of Harbor Commisioners 1939:12].

In 1946, a tsunami destroyed the older wharf at Kawaihae and impacted the commercial fishing operation. The landing constructed in 1937 was also deemed insufficient during high seas. This led to the Kawaihae Deep Draft Harbor project in the 1950s. The harbor excavation involved removing coral reef and redepositing the material as landfill. This fill covered the coastline of Kawaihae Village, including the previously mentioned LCA parcels, up to thirteen feet in depth. A portion of a map dated 1953 of the harbor project depicts the new small boat harbor, which is the current project area, seaward of the former coastline (see Figure 7). The construction was completed in 1959, and the harbor was further expanded in the 1960s (USACOE 1965) and again in the 1980s. In 1992, a bridge was built to connect the terminals, and the overseas pier and marginal wharf were extended (SSFM International 2013:1-13).

## PREVIOUS ARCHAEOLOGY

Kawaihae has been subject to numerous archaeological investigations. Beginning in the early 1900s, Pu‘ukoholā and Mailekini *heiau* complex in Kawaihae 2 were recorded by Thomas Thrum (1907a, 1907b, 1938) and John F. Stokes (Stokes and Dye 1991), followed by Bishop Museum studies in the 1960 and 1970 (Cluff et al. 1969; Soehren 1964, 1980). Additional work in the park also included the historic period homestead of John Young (Apple 1978; Colby and Barrow 1997; Dougherty et al. 2003; Durst 2001; Ladd 1986; Nelson 2001; Rosendahl and Carter 1988; Schuster 1992). This area was designated the Pu‘ukoholā Heiau National Historic Site (PUHE) in 1972. And comprises Pu‘ukoholā Heiau, Hale O Kapuni (known as the shark *heiau*) which is submerged in the water south of the harbor in Pelekāne Bay; Mailekini Heiau; the upper and lower (Pahukanilua) John Young Homestead; Pelekane (the King’s Residence), which was the royal compound; and the Stone Leaning Post (Leaning Rock of Alapa‘i, Alapai‘i’s Chair, Kamehameha’s Chair).

Archaeological work has also documented additional traditional Hawaiian sites, including cobble stone cultural deposits, walls, enclosures, shell scatters, and terraces; historic period sites; and military period site complexes (see Carson 2005, 2006; Dougherty et al. 2003; Shapiro et al. 2002). The PUHE boundary abuts the south side of Kawaihae Harbor and is over one kilometer southeast of the current undertaking. A majority of previous archaeological work was over 1.5 km from the current undertaking.

From the 1970s to the present, archaeological investigations have been conducted near the current project area in support of roadway, harbor, and utilities developments (Figure 17). The the inland, or east side of the highway, is less developed and numerous traditional Hawaiian and historic period archaeological sites have been recorded (Table 1 and 2; Figure 18). On the seaward, or west side, of the highway, construction of Kawaihae Harbor removed surficial evidence of archaeological sites and no subsurface historic properties have been encountered. The current project area is at the far north end of the harbor. The land north of the project area is undeveloped with the exception of the lighthouse.

Previously recorded archaeological sites inland of Kawaihae Harbor include traditional Hawaiian and/or historic site complexes, including human burials (see Table 1 and 2; Figure 18). These sites were recorded during archaeological inventory surveys for potential road corridors between Waimea and Kawaihae (Adams and Athens; Barrera and Kelly 1974; Clark 1983; Rieth and Morrison 2010). The

**Table 1. Previous Archaeological Studies in Lower Kawaihae 1. All Site Numbers Follow SIHP 50-10-05-. See Table 2 for Site List by SIHP Designation.**

| Reference | TMK(s) (3)/ Location | Nature of Study | Newly Identified Sites Near APE | Summary Results |
|---|---|---|---|---|
| Barrera and Kelly 1974 | Waimea to Akoni Pule Hwy Corridor | Phase 1 Archaeological Survey and Historical Survey | 05986–06513, 06515, 06516, 06521, 06522 | Phase 1 archaeological survey was conducted for the Waimea-Kawaihae Road, which consisted of a 2000-wide highway corridor. Thousands of features were identified. |
| Luscomb 1974 | Kawaihae and Kukuipahu Power Plant Areas | Archaeological Walk-through Survey | None | Reidentified three sites recorded by Barrera and Kelly (1974). |
| Ladd 1981 | 6-10-004/ Kawaihae Lighthouse | Archaeological Field Survey | None | Kawaihae Lighthouse; atone obelisk plastered with coral cement, likely a base for the previous lighthouse; stone wall, likely *kuleana* boundary |
| Clark and Kirch 1983 | Mudlane-Waimea-Kawaihae Road | Phase 3 Archaeological Survey | None | Phase 2 archaeological survey for the Mudlane-Waimea-Kawaihae Road archaeological survey was a follow up to Barrera and Kelly (1974). |
| Allen 1987 | Hawaiian Home Lands, Kawaihae 1 | Archaeological Inventory Survey | 13717, 13718, 13725, 13727, 13728, 13761, 13762, 13770, 13775 | Archaeological inventory survey of 213 acres of Hawaiian Homelands identified 108 sites with over 345 features. |
| Hammatt and Shideler 1991a | Kawaihae 1 | Reconnaissance and Archaeological Assessment | None | Project associated with the Kawaihae Master Plan. No new sites in lower Kawaihae 1. |
| Hammatt et al. 1991; Hammatt and Shideler 1991b | Department of Hawaiian Home Lands lots in Kawaihae 1 | Archaeological Inventory Survey | 13908 | Archaeological inventory survey and testing was conducted in a 2600-acre parcel. A total of 147 newly identified sites were recorded with 480 features. Eleven new features were recorded in previously identified sites |

| Reference | TMK(s) (3)/ Location | Nature of Study | Newly Identified Sites Near APE | Summary Results |
|---|---|---|---|---|
| Conte and Cordy 1995 | 6-1-001:001–006/ Central Portion of DHHL Kawaihae Lots | Archaeological Data Recovery | 13700, 13813 | *In February of 1992, data recovery excavations were undertaken at three previously identified sites within the central portion of the Department of Hawaiian Home Lands Kawaihae Homestead Lots (TMK 6-1-01:1-6). As grading for infrastructure was primarily focused within this area of the planned subdivision, two significant (13811 and 13813) and one potentially significant (13700) sites were selected for the initial phase of data recovery work* [Conte and Cordy 1995:3]. |
| Borthwick et al. 2000 | 6-1-006:pors. 002, 003, 007; 6-1-001:por. 003/ Waterline Corridor and Reservoir Site in Kawaihae 1 | Archaeological Assessment | None | *The sites identified during field inspection included 50-10-05-5998; 50-10-05-13725; 50-10-05-13726; and 50-10-05-13913. Additionally, previously unrecorded features in the immediate vicinity of these four sites were also observed* [Borthwick et al. 2000:9]. |
| Borthwick and Hammatt 2002 | 6-1-006:pors. 002, 003, 007; 6-1-001:por. 003/ Waterline Corridor and Reservoir Site in Kawaihae 1 | Archaeological Assessment | None | *Based on the absence of sites, no further archaeological research appears warranted for the proposed corridor associated with the Kawaihae 1 Mg water reservoir project* [Borthwick et al. 2002:6]. |
| Adams and Athens 2002 | Kawaihae Road Bypass, Waimea to Kawaihae | Phase I Archaeological Resources Inventory | None | A Phase I investigation of archaeological and historical sites within a broadly defined project area for the Kawaihae Road Bypass, Waimea to Kawaihae, on Hawai‘i Island. Included data quality review. |
| Haun et al. 2003 | 6-1-004:020/ North side of USCG Reservation | Archaeological Inventory Survey | 23857–23860 | Identified historic structural remains that primarily date to the late 1930s. Sites were not recommended for preservation or further archaeological work. |
| Haun et al. 2004 | 6-1-003:015/ South side of USCG Reservation | Archaeological Inventory Survey | 24180 | *Test excavations identified a mixed deposit covering portions of the project area containing portable remains from at least three temporal periods. The marine shell and volcanic glass flakes were probably deposited during prehistoric to early historic times. The square nail, and potentially some of the glass, probably was deposited during the I 800s to early I 900s. The flat iron on the wall south of the project area probably also dates to this period* [Haun et al. 2004:37]. |

| Reference | TMK(s) (3)/ Location | Nature of Study | Newly Identified Sites Near APE | Summary Results |
|---|---|---|---|---|
| Robins et al. 2007 | 6-7-001:003/ PTA Trail Easement From Kawaihae Harbor to US Army PTA | Intensive Phase II Archaeological Survey | 24395 | Due to SIHP 24395, realignment of the PTE south of the proposed course was recommended. |
| Dye and Macak 2008 | 6-1-003:034/ Kawaihae Harbor | Historic Properties Assessment | None | Determined the project would have no direct or visual effects on historic properties. |
| Bautista and Ketner 2008 | 6-1-002–004/ Kawaihae Marine Landing | Archaeological Monitoring for Sandwich Isles Communications | None | Although the sensitivity rating for the study area was "Low," the historical significance of the Kawaihae Harbor and Town area warranted archaeological monitoring on an "on-site" basis. |
| Ketner and Rechtman 2008 | 6-1-006:007/ Kaei Hana Industrial Subdivision | Archaeological Inventory Survey | None | The project area was previously subject to archaeological inventory surveys by Allen (1987) and Hammatt et al. (1991). |
| Rieth and Morrison 2010 | Kawaihae 1 and 2, ʻŌuli, Lālāmilo, and Waikoloa Ahupuaʻa | Archaeological Inventory Survey | 27838 | Recorded 1,350 features comprising 157 previously identified and 234 newly recorded sites; majority are late pre-Contact/early post-Contact traditional Hawaiian temporary habitation and agricultural sites. |
| Wilkinson et al. 2011 | 6-1-003:pors. 022, 025, 026; 055, 047, 067; 6-1-002:078, 079/ Kawaihae Harbor | Archaeological Literature Review and Field Inspection | None | Despite extensive disturbance, the authors stated there was potential (however unlikely) for the exposure of historic features or artifacts during subsurface construction activities. |
| Liston 2014 | 6-1-003:032/ Kawaihae Bulk Storage Terminal | Historic Properties Literature Review | None | Author concluded that it is unlikely that undisturbed cultural deposits remain buried beneath the fill material. |
| Wheeler et al. 2014 | 6-1-003:pors. 025, 026/ Kawaihae Small Boat Harbor (SBH) Water Line and Access Road Improvements | Pedestrian Survey and Subsurface Testing | None | Subsurface excavation encountered fill sediments and occasional layers of surface sedimentation; there were existing buried utility and water lines, as well as massive basalt boulders presumably used to fortify the exterior edge of the coral landfill. |

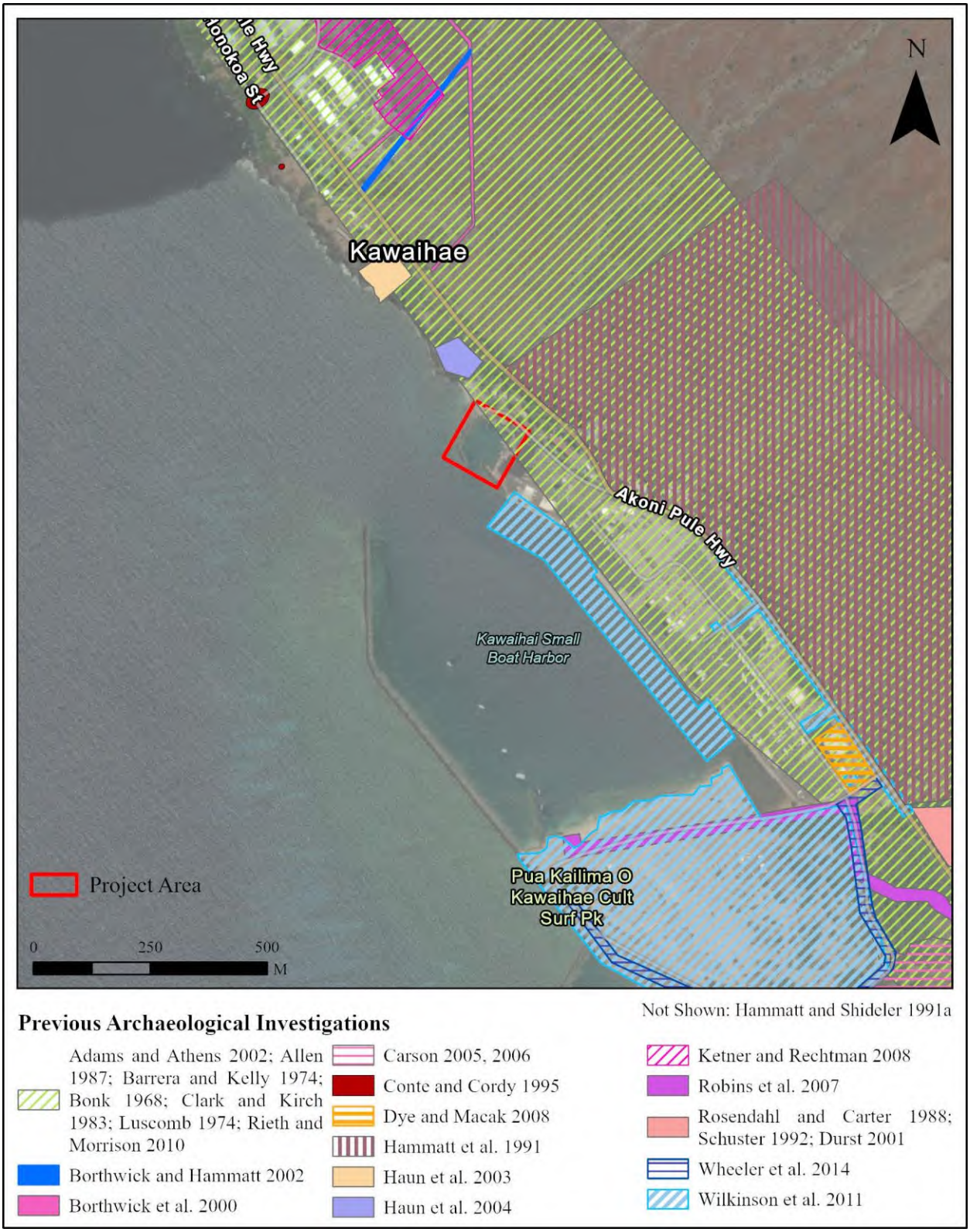


Figure 17. Previously Archaeological Investigations Near the Project Area.


Figure 18. Previously Documented Historic Properties Near the Project Area.

**Table 2. Previously Recorded Archaeological Sites Near the Project Area.**

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 05986 | Complex | Undetermined | Undetermined | Three mounds (Barrera and Kelly 1974) |
| 05987 | Terrace | Undetermined | Undetermined | One terrace (Barrera and Kelly 1974) |
| 05988 | Complex | Undetermined | Undetermined | Mound and shelter (Barrera and Kelly 1974) |
| 05989 | Complex | Undetermined | Undetermined | Originally described one serpentine feature and 9 shelters (Barrera and Kelly 1974); later determined to consist of 7 features (Luscomb 1974). |
| 05990 | Complex | Undetermined | Undetermined | Mound and four shelters, midden (Barrera and Kelly 1974) |
| 05991 | Complex | Undetermined | Undetermined | No description provided by Barrera 1974; later described as 6 features (Luscomb 1974). |
| 05992 | Complex | Undetermined | Undetermined | Mound, five shelters, firepit, artifacts (Barrera and Kelly 1974) |
| 05993/13726 | Complex | Habitation/Agricultural | Traditional Hawaiian | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13726 as 50-10-05-5993, which consisted of eight shelters and a midden scatter. Allen's (1987:100-101; recorded as A-52) subsequent survey documented eight features within this site: four C/U-shaped enclosures (Features B, C, D, and H), three enclosures (Features A, F, and G), and one pit with a partial wall (Feature E). A more recent survey by Hammatt et al. (1991) resulted in the current site designation 50-10-05-13726. The site was identified as a traditional Hawaiian habitation and agricultural complex* [Rieth and Morrison 2010:377–378]. |
| 05994 | Complex | Habitation | Traditional Hawaiian | *Barrera and Kelly (1974:74) recorded eight shelter features and a midden scatter as 50-10-05-5994. These features represent traditional Hawaiian temporary habitation and possibly horticultural activities.*<br>*During the current investigations two C-shaped enclosures were documented. These shelters are constructed with stacked and piled basalt cobbles and boulders. The western feature measures 5.8 m in total length, 2.0 m in total width, and 0.3-0.4 m in height. The eastern feature measures 3.4 m total length, 3.1 m in total width, and 0.3-0.5 m in height* [Rieth and Morrison 2010:362]. |
| 05995 | Complex | Undetermined | Undetermined | No description, only mapped in Barrera and Kelly (1974) |
| 05996 | Complex | Undetermined | Undetermined | Shelter, two serpentine features (Barrera and Kelly 1974) |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 05997 | Complex | Habitation | Traditional Hawaiian | *Barrera and Kelly (1974:74) recorded five shelters and a surface scatter of marine shell as 50-10-05-5997. During the recent investigations the five shelters and a newly identified alignment were documented. The site represents traditional Hawaiian temporary habitation.*<br>*The C-shaped enclosures are constructed with stacked and piled basalt cobbles and small boulders. . . . A previously unrecorded alignment constructed with basalt cobbles and boulders was identified between the central and southern enclosures. The feature measures 3.3 m in length and 0.4 m in height. The alignment appears to be a traditional Hawaiian construction, but its function is unclear* [Rieth and Morrison 2010:362]. |
| 05998 | Complex | Habitation and Mortuary | Traditional Hawaiian and Historic | *Site 50-10-05-5998 was originally recorded by Barrera and Kelly (1974:32, 74) and subsequently investigated by Clark (1983b:66-69). Clark (1983b:66-67) identified nine features: four burial platforms (Features B, C, D, and I), one mound (Feature H), one oval enclosure (Feature A), a rectangular enclosure (Feature G), a boulder alignment (Feature E), and an artifact scatter (Feature F). Excavation results indicated traditional Hawaiian residential activities, followed by the construction of historical burial features* [Rieth and Morrison 2010:363]. |
| 05999 | Complex | Undetermined | Undetermined | Six shelters (Barrera and Kelly 1974) |
| 06500 | Complex | Habitation/Agricultural | Traditional Hawaiian | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13777 as 50-10-05-6500, documenting 16 shelter features, one hearth, and an artifact scatter. Allen (1987:143-144; recorded as B-48) conducted additional work at this site, and identified 11 circular enclosures and five C-shaped enclosures (Features A-P). However, she noted that dense grass cover and limited time did not allow a full survey of this complex (Allen 1987:144). Hammatt et al. (1991) provide the new state site number, however, they did not conduct additional investigations at this site. The site is a traditional Hawaiian shelter, and possibly agricultural, complex.*<br>*During the current investigations nine features were recorded: eight C-shaped enclosures and one circular enclosure. … All of the enclosures are constructed with stacked and piled basalt cobbles and/or small boulders* [Rieth and Morrison 2010:383]. |
| 06501 | Complex | Undetermined | Undetermined | Nine shelters, storage feature, midden, artifacts (Barrerra and Kelly 1974) |
| 06502 | Complex | Habitation (single use) | Undetermined | Shelter, midden area (Barrerra and Kelly 1974)<br>U-shape; terrace; two midden/artifact scatter activity areas (Hammatt et al. 1995) |
| 06503 | Complex | Undetermined | Undetermined | Terrace, high round feature (Barrerra and Kelly 1974) |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 06504 | Complex | Undetermined | Undetermined | Mound, three shelters, animal enclosure (Barrerra and Kelly 1974) |
| 06505 | Shelter | Undetermined | Undetermined | Shelter (Barrerra and Kelly 1974) |
| 06506 | Complex | Undetermined | Undetermined | Six shelters, midden, historic artifacts (Barrerra and Kelly 1974) |
| 06507 | Complex | Undetermined | Undetermined | Nine shelters, midden (Barrerra and Kelly 1974) |
| 06508 | Complex | Undetermined | Undetermined | Two shelters, midden (Barrerra and Kelly 1974) |
| 06509 | Complex | Undetermined | Undetermined | Three shelters, midden (Barrerra and Kelly 1974) |
| 06510 | Complex | Undetermined | Undetermined | High round feature (Barrerra and Kelly 1974) |
| 06511 | Complex | Undetermined | Undetermined | Shelter, midden (Barrerra and Kelly 1974) |
| 06512 | Complex | Undetermined | Undetermined | Two shelters, possible burial, wall, midden, artifacts (Barrerra and Kelly 1974) |
| 06515 | Complex | Undetermined | Undetermined | Three shelters, firepit, midden (Barrerra and Kelly 1974) |
| 06516 | Complex | Agricultural/ Burial/Habitation (single use) | Traditional Hawaiian | *Barrera and Kelly (1974:74) recorded an artifact scatter and three features as 50-10-05-6516: two shelters, and one possible burial platform. Clark (1983b:69) conducted additional work at the site, and identified a third shelter feature (Features A, B, and D are shelters). Clark (1983b:69) classified the burial platform as Feature C, and indicated that the structures were likely early historical or late prehistoric constructions. During the current investigations Features A and C were documented. Feature A is a C-shaped enclosure constructed with stacked basalt cobbles and boulders, measuring 4.6 m in total length, 3.8 m in total width, and 0.3-0.5 m in height. Feature C is a platform constructed with stacked and piled basalt cobbles and boulders, measuring 2.7 m in length, 2.5 m in width, and 0.35-0.5 m in height. Based on structural similarities with known burial features in the area Clark (1983b:69) designated this feature a burial monument.* [Rieth and Morrison 2010:363–364]. |
| 06521 | Complex | Burial | Historic Period | *Barrera and Kelly (1974:52, 74) recorded a cemetery as 50-10-05-6521. Clark's (1983b:79-80) subsequent investigations identified twelve burial features and two artifact scatters within the site. Clark (1983b:79) described the cemetery as follows*:<br>Nine of the burial monuments are quite similar in form—low, rectangular platforms with an outer edge of boulders and a mixed fill of soil, pebbles, and small cobbles. At the *makai* end of one of these features is an erect wooden post (4 in.2) serving as a grave marker. At the *makai* end of another feature is a concrete slab and vertical post with inscribed Chinese characters which give the name "Dai Liu."<br>Lying on and around most of these features are plastic flowers (some in tin cans), whole and broken bottles, and Oriental bowls and dishes. |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| | | | | Two of the monuments are low rectangular stone platforms that differ from the others in that the internal fill is composed of boulders and cobbles…The final burial feature is a multi-component stepped platform, composed of five distinct rectangular platforms.<br>*The present survey relocated the cemetery and determined that Clark's (1983b:79) feature descriptions were accurate* [Rieth and Morrison 2010:364–365]. |
| 06522 | Complex | Burial/Habitation | Traditional Hawaiian/Historic Period | *Barrera and Kelly (1974:37,74) recorded 20 burials and possible burials as Site 50-10-05-6522. Clark (1983b:69-79) completed additional investigations at the site, identifying over 43 features and excavating numerous burials. Clark (1983b:69) described the site as follows:*<br>Covering approximately 1.97 hectares, this site covers a greater area than any other in Section 1 [coastal Kawaihae 1 and 2]. Distributed throughout this area are more than 43 features and subfeatures. The vast majority of these are burial monuments, and three features are surface scatters of midden and lithic material. In short, this site is a large burial complex.<br>*During the present investigations 21 features were documented: six platforms (including Features E, G, H, and L), five mounds (including Feature F), four mounded latforms (including Features Ma, Mc, and N), three terraces, one L-shaped enclosure, one wall, and one alignment. All of the features except for the three modern mounds, the L-shaped enclosure, wall, and alignment are known or probable historical burial monuments. Discounting the modern features, the non-burial features are traditional Hawaiian and historical habitation structures* [Rieth and Morrison 2010:365–367]. |
| 13700 | Complex | Agricultural/Boundary | Traditional Hawaiian/Historic Period | *Originally identified in 1986 during an archaeological inventory survey by the Bishop Museum (Allen 1987), Site 50-10-05-13700 is comprised of a historic boundary wall and several mounds. Because the mounds near the wall were believed to be potential burial sites, mounds A and B (Fig. 6) were partially dismantled in order to determine significance. After removing a portion of each mound's interior fill to ground surface and finding an intact soil matrix and no other indication of human interment, it was determined that each mound was likely utilized for planting* [Conte and Cordy 1995:3]. |
| 13717 | Complex | Undetermined | Undetermined | Four mounds (Allen 1987:94). |
| 13718 | Enclosure | Encampment | World War II Era | "Possible military feature" consisting of "a rectangular enclosure" (Allen 1987:95). |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 13725 | Complex | Agricultural/Habitation | Traditional Hawaiian/Historic Period | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13725 as 50-10-05-5995, which consisted of 10 shelter features. Allen's (1987:99-100; recorded as B-51) subsequent survey recorded nine shelter features (Features A-H) and an artifact scatter (Feature I). Hammatt et al. (1991) provide the new state site number, however, they did not conduct additional investigations at this site. The site was identified as a traditional Hawaiian habitation and agricultural complex.*<br>*During the current survey two C/L-shaped enclosures were documented, but it is unclear if these are previously identified features* [Rieth and Morrison 2010: 377]. |
| 13727 | Mound | Undetermined | Undetermined | Possibly natural (Allen 1987) |
| 13761 | Complex | Animal Husbandry/ Habitation/Possible Burial | Traditional Hawaiian/Historic Period | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13761 as 50-10-05-6512, which consisted of two shelters, one possible burial, and one animal enclosure. Allen (1987:130) recorded the animal enclosure as B-32. Hammatt et al. (1991) provide the new state site number, however, they did not conduct additional investigations at this site.*<br>*The present investigations relocated the historical animal enclosure and confirmed Allen's (1987:130) description* [Rieth and Morrison 2010: 380]. |
| 13762 | Complex | Agricultural/Habitation | Traditional Hawaiian | *Barrera and Kelly (1974:74) originally recorded Site 50-10-05-13762 as 50-10-05-6515, which consisted of three shelter features. Subsequent investigations by Allen (1987:130-131; recorded as B-33) recorded 16 features: nine enclosures (Features A, C, E, F, H/I, L, M, and P), five C/L/U-shaped enclosures (Features G, J, K, N, and O), one terrace (Feature B), and one cupboard (Feature D). Hammatt et al. (1991) obtained the new state site number, however, they did not conduct additional investigations at this site. The site was identified as a traditional Hawaiian temporary shelter and agricultural complex.*<br>*During the current investigations four C-shaped enclosures (Features H/I, J, K, O), one enclosure (Feature C), and one alignment (possibly Feature B) were documented. All of the structures are built with stacked and piled basalt cobbles and/or small boulders* [Rieth and Morrison 2010: 380–381]. |
| 13770 | Complex | Agricultural/Habitation | Traditional Hawaiian | *Allen (1987:135-136; recorded as B-41) documented twelve features within this site: nine Cshaped enclosures (Features A-G, I, J, and L), one wall (Feature E), one circular enclosure (Feature H), and one irregular enclosure (Feature K). Hammatt et al. (1991) obtained the state site number, however,* |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| | | | | *they did not conduct additional investigations at this site. The site represents a traditional Hawaiian shelter complex that may include horticultural features.*<br>*During the current investigations six C-shaped enclosures (including Features C, F, G, K, and L) and one wall (Feature E) were relocated. Additionally, four newly identified features were documented.*<br>*All of the features are built with stacked basalt cobbles and/or small boulders*<br>[Rieth and Morrison 2010: 381–382]. |
| 13775 | Complex | Agricultural/Burial/ Habitation | Traditional Hawaiian | *Allen (1987:140-141; recorded as B-46) documented seven features within this site: three enclosures (Features C, D, and E), two terraces (Features A and F), one platform (Feature B), and one artifact scatter (Feature G). Hammatt et al. (1991:VIII-150) obtained the permanent state site designation and conducted subsurface testing at Feature B where they encountered a burial. Based on these results they suggested that Feature A is also a burial monument. The site includes traditional Hawaiian residential features and burials.*<br>*During the current investigations two features were identified: one terrace (Feature F) and an artifact scatter (Feature G)* [Rieth and Morrison 2010:382]. |
| 13812 | Complex | Habitation | Traditional Hawaiian | Shelter/habitation complex (30 features) [Hammatt and Shidler 1991b] |
| 13813 | Complex | Habitation | Traditional Hawaiian | Supposedly first identified by a Bishop Museum survey of the same area but not listed in their report, this site was recorded by the 1989 CSH inventory survey as a Platform with a U-shape and believed to have been associated with permanent habitation activity.<br>In February of 1992, Site 13813 was again mapped (Fig. 14) and a single test unit was excavated along its makai (seaward) edge. At this time the site looked very little like the map shown in the CSH report.<br>Test Unit 1 revealed that Site 13813 may have been utilized in a religious capacity. In addition to a good amount of artifacts, manuports and shell midden … the most notable items recovered were an 'aumakua (family or personal god) made of coral which had been carved into the shape of a shark, and a small coral coffee bean sinker. … 94 post-contact artifacts (93 corroded metal fragments, 1 glass fragment) were recovered from throughout TU 1 [Conte and Cordy 1995:20, 22] |

| SIHP Site 50-10-05- | Type | Function | Age | Status When Last Recorded |
|---|---|---|---|---|
| 13908 | Enclosure | Encampment | World War II Era | *WWII fortification another probable WWII military era structure (i.e. U-shaped structure, Hammatt et al. 1991VIII:131)* [Hammatt and Shidler 1991b]. |
| 23857 | Wall | Transportation | Historic Period | Historic period concrete wall interpreted as possible bridge abutment probably pre-1937(Haun et al. 2003). |
| 23858 | Wall | Sanitation | Historic Period | Historic period concrete wall (likely built 1937) (Haun et al. 2003). |
| 23859 | Wall | Sanitation | Historic Period | Historic period concrete building foundation, former comfort station (built 1937) (Haun et al. 2003). |
| 23860 | Pier | Transportation | Historic Period | Historic period remnants of a concrete and mortared stone pier (built 1937) (Haun et al. 2003). |
| 24180 | Complex | Habitation/Transportation/ Encampment | Traditional Hawaiian/Historic Period/ World War II Era | One site with four features: a stone wall, a stone alignment and an adjacent configuration of metal posts or stakes, a low terrace, and a series of intact and displaced concrete piers. *Test excavations identified a mixed deposit covering portions of the project area containing portable remains from at least three temporal periods. The marine shell and volcanic glass flakes were probably deposited during prehistoric to early historic times. The square nail, and potentially some of the glass, probably was deposited during the 1800s to early 1900s. A flat iron on the wall south of the project area probably also dates to this period* [Haun et al. 2004:i]. |
| 24395 | Complex | Burial/Habitation/ Encampment | Traditional Hawaiian/Historic Period/ World War II Era | Residential pre/post-Contact site complex with 12 features (possible post-Contact burials; water source; military structure (Robins et al. 2007). |
| 27838 | Mound | Undetermined | Undetermined | Possibly natural (Rieth and Morrison 2010). |

1

archaeological inventory surveys for the road corridor overlap with several other archaeological surveys for the Department of Hawaiian Home Lands in Kawaihae 1 (Allen 1987; Conte and Cordy 1995; Hammatt et al. 1991). North of the Coast Guard Reservation and project area, known archaeological sites were relocated during multiple archaeological assessments (Borthwick et al. 2000; Borthwick and Hammatt 2002; Ketner and Rechtman 2008).

Seaward of the highway and north of the NKSBH, historic period sites have been documented (see Table 2). These include the Kawaihae Lighthouse (Ladd 1981; no SIHP listing), historic period walls, concrete piers, concrete walls, and a concrete building foundation (Haun et al. 2003, 2004).

The archaeological inventory survey report by Haun et al. (2004) is nearest to the current project area. A substantial amount of disturbance was noted:

> The seaward portions of the parcel have been disturbed by storm surf and/or high winds. Many of the kiawe trees in this area have been blown down and a large amount of modem debris is present. The rusted frame of a truck is present in the north-central portion of the parcel (see Figure 10). The adjacent State Conservation Land easement, located along the seaward portion of the parcel also shows evidence of disturbance. This bare lava area
>
> contains the remnants of a concrete boat launch and numerous waterworn basalt boulders are scattered over the surface. Debris present amidst the boulders included large fragments of concrete, milled lumber and metal [Haun et al. 2004:4].

A single historic property was recorded during the archaeological inventory survey. SIHP 50-10-05-24180 comprises four features: a stone wall (Feature A), a stone alignment and an adjacent configuration of metal posts or stakes (Feature B), a low terrace (Feature C), and a series of intact and displaced concrete piers (Feature D). All features were interpreted as dating to the late post-Contact period. The southern boundary of the site is roughly 70.0 m north of the current project area.

> Feature A is interpreted as an historic wall that functioned to enclose the remaining features of the site. Its historic interpretation is based on its appearance, on the presence of historic debris on and adjacent to the wall and its association with the other features of the site. Feature A is unaltered and in fair to good condition.
>
> Feature B is a stone alignment and a series of metal posts situated in the south-central portion of the project area, seaward of the Feature A wall… The main portion of the stone alignment is 24.2 m long (northwest by southeast), consisting of large cobbles and small boulders placed one course wide and one to two courses in height… The alignment turns to the northeast at the northwestern end, extending in this direction 4.85 m. The alignment is 0.3 to 0.6 m wide and 0.3 to 0.65 m in height. An exposed bedrock outcrop is located west of the northwest end of the alignment, measuring 5.9 m long (east-west), 0.4 to 0.7 m wide and 0.6 to 0.8 min height. Several cobbles are piled on top of the outcrop along its southern side.
>
> The metal posts or stakes are situated to the north and northeast of the stone alignment … A total of 12 posts were identified, placed in three linear alignments…
>
> Feature B is interpreted as the possible remnant of a World War II era encampment. The rectangular configuration of posts may have served as rents stakes with the stone alignment bordering the seaward side. Feature B is unaltered and in fair condition.
>
> Feature C is a low, crude enclosure…The terrace is roughly oval-shaped and is 6.6 m long (northwest by southeast) and 4.4 m wide… A retaining wall extends along the southwest, northwest and southeast sides that is 0.3 to 0.45 m in height and comprised of one to three courses of small boulders and cobbles… The northeast and east sides abut a bedrock outcrop. The surface is comprised of a level soil deposit with no cultural remains present.

> Feature C is interpreted as the foundation for an historic structure possibly associated with the World War II occupation of the site. This is based on the presence of the historic debris recovered from Layer I and its close proximity to Feature B. Feature C is unaltered and in fair condition.
>
> Feature D consists of an upright concrete pier and three fallen piers, located in the southwestern portion of the project area in a level soil area within a grove of kiawe trees. … No bolts or wooden boards are present. Large amounts of modem debris is scattered around Feature D, likely deposited by storm activity.
>
> Feature D is interpreted as the foundation for an historic structure of undetermined function. As only one of the four piers are intact, it is impossible to determine the original size and shape of the structure. It is possible that this feature may be associated with the abandoned boat launch situated outside the parcel to the west. Feature D is altered and in poor to fair condition [Haun et al. 2004: 27–35].

Five 50 cm diameter shovel tests (STs) were excavated within the parcel to determine if subsurface cultural deposits were present. Layer I in all excavation consisted of 23 to 67 cm of a dark brown silt with from 30 to 80 percent gravel and pebble inclusions over bedrock. The shovel testing evidenced a mixed cultural deposit containing both traditional Hawaiian and post-Contact (1800s to 1900s) cultural remains. Details of the subsurface excavations are presented below.

- ST-1 was excavated 85 m northeast of the current project area. Recovered cultural materials included 48 fragments of marine shell, a small waterworn basalt cobble, a volcanic glass flake, two clumps of burned wood, 10 fragments of charcoal, and two fragments of rusted metal.
- ST-2 was excavated 20 m north-northwest of ST-1. Recovered cultural remains consisted of 230 fragments of recent charcoal, two fragments of *Cypraea* sp. shell, a volcanic glass flake, and two fragments of brown bottle glass.
- ST-3 was excavated 20 m north-northwest of ST-2 in an area of level grass; no cultural material was observed.
- ST-4 was excavated 20 m west-southwest of ST-2. Recovered cultural materials included five marine shell fragments, one fragment of sea urchin body, three waterworn coral pebbles, one large fragment of recent charcoal, a small metal grommet, one fragment of brown bottle glass, three fragments of clear windowpane glass, and a small, molded glass object.
- ST-5 was excavated 20 m north-northwest of ST-4 and 20 m west-southwest of ST-3. Recovered cultural materials consisted of nine marine shell fragments and a round headed nail with a square shaft.

Within the harbor area, no historic properties have been recorded. Although the harbor itself was constructed in 1959, there have been numerous improvements in the last half century, and it was previously not recommended eligible for the State Register of Historic Places (Wilkinson et al. 2011:103). Previous archaeological investigations in the harbor property have included archaeological inventory survey conducted for the PTA Trail Easement From Kawaihae Harbor to U.S. Army Pohakuloa Training Area (Robins et al. 2007); archaeological monitoring for Kawaihae Marine Landing and Terrestrial Section of the Sandwich Isles Communications (Bautista and Ketner 2008); Archaeological Literature Review and Field Inspection for the Kawaihae Harbor Project (Wilkinson et al. 2011); Historic Properties Literature Review for the Bulk Storage Terminal (Liston 2014); Historic Properties Assessment for a cell tower (Dye and Macak 2008); and an archaeological inventory survey for Kawaihae Small Boat Harbor (SBH) Water Line and Access Road Improvements (Wheeler et al. 2014).

Archaeological subsurface testing was conducted during the Kawaihae SBH Water Line and Access Road Improvements project (Wheeler et al. 2014), which is the small boat harbor at the south end of Kawaihae Harbor. Excavation Trench 2 (T-2) was located approximately 1.0 km south of the current project area along the southern shoulder of the existing SBH access roadway near the harbor entrance at Highway 270. Although quite distant, the test unit was excavated at a comparable location relative to the original coastline. Two stratigraphic layers were recorded. Layer I (0–5 cm below surface [cmbs]) consisted of very dark greyish brown silty loam interpreted as a fill layer associated with harbor construction. Layer II (5–72 cmbs) consisted of pale brown stony crushed coral, which was interpreted as a fill layer associated with harbor construction/utilities installation. The excavation was terminated at a maximum depth of 80 cmbs when an asphalt utilities jacket was exposed. No cultural materials were observed during the excavation.

## CULTURAL CONSULTATION

As part of the CIA, PCSI contacted entities and individuals to solicit information about historic properties, cultural resources, traditional cultural properties, and traditional and customary practices potentially within the current project area (Table 3). A sample of the letter is included as Appendix A.

**Table 3: List of Entities/Individuals Contacted**

| Name/Affiliation | Sent Via | Response | Summary Comment |
|---|---|---|---|
| Dawn N. S. Chang<br>SHPO and Chairperson, DLNR | email | None to Date (NTD) | |
| Alan Downer Administrator, SHPD; Deputy State Historic Preservation Officer | email | NTD | |
| Hailama Farden, President<br>Association of Hawaiian Civic Clubs | email | NTD | |
| Curt Cottrell, Administrator<br>Division of State Parks, DLNR | email | NTD | |
| Dennis Ragsdale, Advocate General<br>Order of Kamehameha I | email | NTD | |
| Kamakana C. Ferreira, Lead Compliance Specialist, OHA | email | NTD | |
| Vincent Hinano Rodrigues, JD, Branch Chief History and Culture, SHPD | email | NTD | |
| Jordan Calpito, Burial Sites Specialist (Hawai‘i) SHPD | email | NTD | |
| Sean Naleimaile, Hawai‘i Lead Archaeologist, SHPD | email | NTD | |
| Walter Ritte, Executive Director<br>‘Āina Momoa | email | NTD | |
| Linda Kaleo Paik, Secretary<br>Ala Kahakai Trail Assoc. | email | NTD | |
| Hailama Farden, President<br>Association of Hawaiian Civic Clubs | email | NTD | |
| Maydean K. Bowman, Representative<br>Charles Pelenui Mahi Ohana | USPS | NTD | |
| E. Kalani Flores<br>Flores-Case Ohana | email | Requested ALR | ALR sent, no further response |
| Dennis W. Ragsdale, Advocate General<br>Kingdom of Hawai‘i and Order of Kamehameha I | email | NTD | |
| Hanalei Fergerstrom, Spokesperson | email | NTD | |

**Table 3: List of Entities/Individuals Contacted**

| Name/Affiliation | Sent Via | Response | Summary Comment |
|---|---|---|---|
| Na Kupuna Moku O Keawe | | | |
| L. Laʻakea Suganuma<br>Royal Hawaiian Academy of Traditional Arts and The Mary Kawena Pūkuʻi Cultural Preservation Society | email | NTD | |
| Melvin Soong, President<br>The I Mua Group | email | NTD | |
| Kawaihae Canoe Club (KCC)<br>Willette Kalāokahaku Akima-Akau | Email/phone | Requested ALR; discussed KCC as TCP | KCC may be eligible as TCP |

To date, PCSI has received two responses regarding cultural resources or historic properties within the project area:

Mr. Flores requested a copy of the draft ALR to understand the project more. No further comments were provided by Mr. Flores

Ms. Willette Kalāokahaku Akima-Akau of the Kawaihae Canoe Club (KCC) expressed a desire to have the club considered as a historic site or traditional cultural property (TCP). KCC occupies a property adjacent to the NKSBH and has used NKSBH consistently for more than 50 years (KCC was founded in 1972) to conduct canoeing and community-related events. Additional meetings between PCSI and KCC are planned to gather information to assist in evaluating the potential for KCC to be considered a TCP.

## SUMMARY AND ASSESSMENT

KSBH is located at the northwest corner of the KDDH and at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway. It consists of a 1.6-acre basin protected by a 390 ft long main breakwater that runs along the north and northwest boundary and by a stub groin on the east side of the NKSBH entrance. The TMK parcels for the project area are (3) 6-1-003: pors. 023 and 041 (see Figure 2).

The Proposed Action is to improve safety conditions within NKSBH, restore its functionality and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor. An archaeological literature review that addresses historical, cultural, and archaeological background was conducted in order to evaluate any potential effect on historic properties in the project area, and to recommend mitigation of any adverse effect, if warranted. This work was carried out in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS).

Previous archaeological investigations conducted on the harbor property south of the NKSBH encountered fill during subsurface testing, and no historic properties have been recorded at Kawaihae Harbor. Less the 100 meters north of the NKSBH, subsurface testing did not encounter any intact cultural deposits and the surface survey noted the area was previously disturbed by storms and modern rubbish was present. Additionally, the current project area is seaward of the former coastline and underlain by up to 13.0 ft of fill, which is material dredged from the bay during construction of the harbor facility in the late 1950s.

## KA PA‘AKAI ANALYSIS

A further analytical framework for addressing the preservation and protection of cultural practices specific to Native Hawaiian communities resulted from a 2000 Hawaii Supreme Court ruling (in Ka Pa‘akai O Ka‘Aina vs Land Use Com’n. 94 Hawaii 31 (2001). In its decision, the court established a three-part analytical approach to identify, assess impacts, and mitigate impacts to traditional and customary native Hawaiian rights associated with a proposed action. The three-part analysis, based primarily on archival research, is tentatively summarized below (additional consultation is expected):

1. *The identity and scope of valued cultural, historical, or natural resources, including the extent to which traditional and customary native Hawaiian rights are exercised.*
    a. No historic properties have been identified within the project area. The KCC uses the NKSBH for canoe-related activities that may qualify as traditional cultural practices.
2. *The extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action.*
    a. No known historic properties will be affected or impaired by the proposed action. Activities associated with KCC may be temporarily impacted during the project; no long-term impacts are anticipated.
3. *The feasible action, if any, to be taken by the agency to reasonably protect native Hawaiian rights if they are found to exist:*
    a. No known historic properties have been identified within the project area. If historic properties are discovered during the proposed project, they will be evaluated in accordance with HRS 6E and its associated Administrative Rules. Care should be taken to minimize impacts to KCC operations during the project.

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## GLOSSARY OF HAWAIIAN TERMS

*ahupua‘a*—land division and community

Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (*ahu*) of stones surmounted by an image of pig (*pua‘a*) or because a pig or other tribute was laid on the altar as tax to the chief. The landlord or owner of an *ahupua‘a* might be a *konohiki* (Pukui and Elbert 1986:9)

*ali‘i*—chief or chiefess

Chief, chiefess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander (Pukui and Elbert 1986:20); implies hereditary rank

*ali‘i nui*—High chief or chiefess

*heiau*—ceremonial structure or place

Pre-Christian place of worship, shrine (Pukui and Elbert 1986:64)

*hoa‘āina*—common people of the land, native tenants

Tenant, caretaker, as on a *kuleana* (Pukui and Elbert 1986:73)

*‘ili*–division of land smaller than an ahupua‘a

Land section, next in importance to *ahupua‘a* an usually a subdivision of an *ahupua‘a* (Pukui and Elbert 1986:97)

*kalana*— Land division smaller than a district

Division of land smaller than a *moku* or district (Pukui and Elbert 1986:121)

*kapu*—taboo

Taboo, prohibition; special privilege or exemption from ordinary taboo; sacredness; prohibited, forbidden; sacred, holy, consecrated; no trespassing, keep out. (Pukui and Elbert 1986:132)

*kona* —leeward side

Leeward sides of the Hawaiian Islands; leeward. (Pukui and Elbert 1986:165)

*konohiki*—land managers

Headman of an *ahupua‘a* land division under the chief; land or fishing rights under the control of the *konohiki* (Pukui and Elbert 1986:166)

*ko‘olau* —windward side

Windward sides of the Hawaiian Islands. *He au Ko‘olau aku ia*, that is the time of the Ko‘olau [trouble]. (Pukui and Elbert 1986:166)

*kuleana*—small piece of land under the responsibility of a tenant

Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province (Pukui and Elbert 1986:179)

*moku*—district

District, island, islet, section, forest, grove, clump, severed portion, fragment, cut, laceration, scene in a play (Pukui and Elbert 1986:252)

*‘okana*—sub-district

District or subdistrict, usually comprising several *ahupua‘a* (Pukui and Elbert 1986:281)

*pa aina (pā ‘āina)*—property boundary wall

1. “This word has been used by the parties as meaning a wall. It literally means fenced land.” State v. Midkiff, 49 Haw. 456, 467 n.6 (1966). 2. Fence; wall. State v. Midkiff, 49 Haw. 456, 466, 472 (1966). (Lucas 1995:84)

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# APPENDIX A

## Sample Consultation Letter

Date

****
Organization
Address 1
Address 2
E-mail

*SUBJECT: Community Consultation regarding historical and cultural information related to the* State of Hawaii *proposed project at the North Kawaihae Small Boat Harbor (NKSBH) at Kawaihae, Kawaihae 1 Ahupua'a, Kohala District, Hawai'i Island: Tax Map Keys (3) 6-1-003: 023 (por.) and 041 (por.)*

Dear **:

On behalf of Oceanit, the State of Hawaii Division of Boating and Ocean Recreation (DOBOR), Pacific Consulting Services, Inc. (PCSI) is compiling a Cultural Impact Assessment (CIA) and Ka Pa'akai assessment in support of the North Kawaihae Small Boat Harbor (NKSBH) Improvements project at Kawaihae, Kawaihae 1 Ahupua'a, Kohala District, Hawai'i Island (Tax Map Keys: [3] 6-1-003: 023 [por.] and 041 [por.]). Oceanit is preparing an Environmental Assessment on behalf of the State of Hawaii Division of Boating and Ocean Recreation (DOBOR). **PCSI is seeking community input concerning historic properties, and cultural, traditional, and customary practices within or near the proposed project area. Any assistance you can provide would be greatly appreciated.** A map is attached showing the proposed project area.

**REGULATORY CONTEXT**

In accordance with the provisions of Hawaii Revised Statutes (HRS), Chapter 343 and its implementing regulations contained in Hawaii Administrative Rules (HAR), Title 11, Chapter 200.1, the CIA provides a detailed analysis of how the Proposed Action could impact cultural practices, resources, and beliefs. The disclosure of this information is intended to promote transparent and responsible decision-making in accordance with Articles IX and XII of the *Constitution of the State of Hawaii*, other state laws, and the courts of the state, which all mandate government agencies to endeavor to promote and preserve the cultural practices and resources of Native Hawaiians and other ethnicities.

In addition to the content requirements of HRS §343 and HAR §11-200.1, on November 19, 1997, the State of Hawaii's Environmental Council issued its *Guidelines for Assessing Cultural Impacts*. The Guidelines provide methodological and content protocol for projects/actions that may have the potential to affect cultural resources, stipulating specific matters that should be addressed in all CIAs.

An alternative analytical framework—the Ka Pa'akai assessment—that can be used for addressing the preservation and protection of cultural practices specific to Native Hawaiian communities resulted from a 2000 Hawaii Supreme Court ruling (*Ka Pa'akai O Ka'Aina versus Land Use Commission*). In its decision, the court established the following three-part analytical approach:

- Part 1, identify whether any valued cultural, historical, or natural resources are present; and identify the extent to which any traditional and customary Native Hawaiian rights are exercised;
- Part 2, identify the extent to which those resources and rights will be affected or impaired; and

- Part 3, specify any measures to be taken to reasonably protect Native Hawaiian rights if they are found to exist.

**PROPOSED PROJECT BACKGROUND**

NKSBH is located at the northwest corner of the Kawaihae Deep Draft Harbor (KDDH) and at the end of Kawaihae-Mahukona Harbor Road off Akoni Pule Highway. It consists of a 1.6-acre basin protected by a 390.0 feet (ft) long main breakwater that runs along the north and northwest boundary, and by a stub groin on the east side of the NKSBH entrance. The current project area totals 5.22 acres (ac), or 2.11 hectares (ha).

Two 30-ft-long wooden marginal wharfs, which were rebuilt after the damage of the original 200-ft-long wharf by a storm event in January 2020, run along the eastern edge of the harbor, and a 45-ft fiberglass dock, 30-ft wood dock, and a concrete boat ramp are located on the northeast side of the harbor. Vessels entering NKSBH use the deep draft harbor entrance for the initial approach, and then make a left turn to enter the harbor basin. Only a few boats have been moored at the NKSBH due to limited berthing space after the damage of the original wharf. Onshore, the NKSBH property includes a parking lot and restroom and water facilities along the south side of the harbor.

**PROPOSED ACTION**

The purpose of the proposed action is to improve safety conditions within NKSBH, restore its functionality, and increase its resilience to coastal hazards such as sea level rise and storm events. The existing breakwater has undergone repeated damage from heavy north and northwest winter swells, which have resulted in extensive and repeated repairs to the breakwater and internal harbor facilities, thereby creating hazardous conditions inside of the harbor.

Repairing and modifying the existing west main breakwater will reduce wave action inside the harbor basin and extending the breakwater inland will prevent sand intrusion into the boat ramp. Based on the assessment of the harbor and wave analysis, DOBOR is recommending the following improvements at the NKSBH:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater from 6 ft to 10 ft above the mean lower low water level (MLLW) to prevent overtopping; and
- Extend the existing breakwater by 80 ft inland.

The proposed improvements are located at the main breakwater and the backshore area adjacent to the harbor. To repair the main breakwater, demolition of the existing structure will be needed prior to placing the foundation bedding layer. The breakwater consists of a trapezoidal underlayer overlaid by two layers of armor rocks. Some of the material from the existing breakwater will be used to supplement imported materials. The final modified breakwater will have a crest elevation of 10 ft above the MLLW and 1.5H:1V side slopes. The increased height will make the structure more resilient to wave actions from storm events. The design crest width is 10 ft to accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

The breakwater will be extended approximately 80 ft landwards past the top of the boat ramp to prevent sand intrusion onto the boat ramp.

**HISTORIC PROPERTIES WITHIN THE PROJECT AREA**

There are no known historic properties within the proposed project area. PCSI has prepared an archaeological literature review (ALR) that details the legendary, historical, and archaeological history near the project area; the following is a summary of this report (copies of the draft report are available on request).

Kawaihae has been subject to numerous archaeological investigations. Beginning in the early 1900s, Pu‘ukoholā and Mailekini heiau complex in Kawaihae 2 were recorded by Thomas Thrum and John F. Stokes, followed by Bishop Museum studies in the 1960s and 1970s. Additional work in the park also included the historic period homestead of John Young. This area was designated the Pu‘ukoholā Heiau National Historic Site (PUHE) in 1972 and comprises Pu‘ukoholā Heiau, Hale O Kapuni (known as the shark heiau, which is submerged in the water south of the harbor in Pelekāne Bay), Mailekini Heiau, the upper and lower (Pahukanilua) John Young Homestead, Pelekane (the King’s Residence, which was the royal compound), and the Stone Leaning Post (Leaning Rock of Alapa‘i, Alapai‘i’s Chair, Kamehameha’s Chair).

Archaeological work has also documented additional traditional Hawaiian sites, including cobble stone cultural deposits, walls, enclosures, shell scatters, and terraces; historic period sites; and military period site complexes. The PUHE boundary abuts the south side of Kawaihae Harbor and is over one kilometer southeast of the proposed undertaking. A majority of previous archaeological work was over 1.5 km from the current undertaking.

From the 1970s to the present, archaeological investigations have been conducted near the current project area in support of roadway, harbor, and utilities developments. The inland, or east side of the highway, is less developed and numerous traditional Hawaiian and historic period archaeological sites have been recorded. On the seaward, or west side, of the highway, construction of Kawaihae Harbor removed surficial evidence of archaeological sites and no subsurface historic properties have been encountered. The current project area is at the far north end of the harbor. The land north of the project area is undeveloped with the exception of the lighthouse.

Previously recorded archaeological sites inland of Kawaihae Harbor include traditional Hawaiian and/or historic site complexes, including human burials; these sites were recorded during archaeological inventory surveys for potential road corridors between Waimea and Kawaihae. The archaeological inventory surveys for the road corridor overlap with several other archaeological surveys for the Department of Hawaiian Home Lands in Kawaihae 1. North of the Coast Guard Reservation and project area, known archaeological sites were relocated during multiple archaeological assessments.

Seaward of the highway and north of the NKSBH, historic period sites have been documented, including the Kawaihae Lighthouse, historic period walls, concrete piers, concrete walls, and a concrete building foundation.

**REQUEST FOR INFORMATION**

In an effort to more completely understand the cultural and historical background within and around the project area and bring as much information as possible on the decision-making process for this project, PCSI is seeking community input. We are especially interested in any information you may be willing to provide about historic sites located in or near the project area, as well as cultural traditions, legends, and traditional cultural places and practices pertaining to this area. If we can provide you with more information concerning our research, please feel free to contact us. If you would like to share information with us, you can contact us in several ways:

Pacific Consulting Services, Inc.
1130 North Nimitz Hwy, Suite C-300
Honolulu, HI 96817

- Email: info@pcsihawaii.com
- Phone: 808.546.5557, ext. 212

PCSI would greatly appreciate your response within 30 days of receiving this request. Thank you very much in advance for your timely response, and we look forward to hearing from you.

Sincerely,

Dennis Gosser


Island of Hawai'i
Ahupua'a of Kawaihae 1
Project Area
Moku of Kohala
TRADITIONAL HAWAIIAN LAND DIVISIONS
Honokoa Gulch
Puu Kamalii
HONOKOA ST
Kawaihae
KAWAIHAE-MAHUKONA RD
Kawaihae Reef
FIC OCEAN
Pu'ukohola
Ohaiula Beach
Waikui
Waikui Beach
Kukui Point
Esri, NASA, NGA, USGS
Project Area
Scale: 1:24,000
0
500
1,000
m

# *Appendix E:*

***Draft EA Pre-Consultation Correspondence***

**Berna Senelly**

**From:** NKSBH
**Sent:** Monday, March 6, 2023 10:33 AM
**To:** McCall, Finn D
**Subject:** Pre-Consultation on the North Kawaihae Small Boat Harbor
**Attachments:** NKSBH Consultation Project Description.March 2023.pdf

Aloha Mr. McCall,

The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

  Berna Senelly
  Oceanit
  828 Fort Street Mall, Suite 600
  Honolulu, Hawai'i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely,

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**
828 Fort Street Mall Suite 600 | Honolulu, HI 96813
Email: bsenelly@oceanit.com
Office: 808.531.3017 ext. 221
Direct: 808.954.4221
Mobile: 817.422.1372
Fax: 808.531.3177

▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**

# North Kawaihae Small Boat Harbor

# Breakwater and Shore Berm Improvements

## PRE-CONSULTATION ON THE ENVIRONMENTAL ASSESSMENT

**Waimea, Hawai'i**



**Project Applicant**

Division of Boating and Ocean Recreation (DOBOR)
State of Hawai'i Department of Land and Natural Resources (DLNR)
4 Sand Island Access Road
Honolulu, HI 96813
Mr. Edward Underwood, Administrator

**Project Consultant**

Oceanit
828 Fort Street Mall, Suite 600
Honolulu, HI 96813
Dayananda Vithanage, Ph.D., P.E., Director of Engineering

**Project Need**

The North Kawaihae Small Boat Harbor (NKSBH) is located at the northwest corner of the Kawaihae Deep Draft Harbor and at the end of Kawaihae-Mahukona Road (Figure 1). The existing site plan is depicted in Figure 2.

NKSBH is exposed to large waves and swells during fall and winter months. The small boat harbor is located across the entrance channel of Kawaihae Deep Draft Harbor and only gets partial protection from heavy winter swells. High waves frequently overtop the main breakwater and slam the underside of the wooden wharf, thereby damaging the wharf and creating unsafe conditions for harbor users. Waves also overtop the adjacent beach berm and flood the parking areas and the approach to the boat launching ramp (Figure 3).

Large swells from a storm event between December 31, 2019, and January 1, 2020, repeatedly overtopped NKSBH's main breakwater causing an approximately 40-foot breach in the breakwater structure (Figures 3b).

The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 due to damage caused by waves overtopping the breakwater and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial

operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

**Proposed Project**

DOBOR proposes to redesign and construct the damaged NKSBH breakwater to better withstand winter swells. The existing breakwater elevation will be raised from six feet above mean lower low water (MLLW) to 10 feet MLLW. The breakwater section will be 10 feet wide at its crest to accommodate maintenance equipment and have 1.5H:1V side slopes. The bottom width of the structure will be below the waterline and vary from about 40 to 60 feet. The new breakwater will be designed to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. Figures 4 to 6 show the concepts of the proposed breakwater and shore berm improvements.

**Additive/Future Project**

Wave studies show that the existing configuration of harbor entrance allows for wave penetration into the harbor, which had caused damage to the piers in the past and will continue to pose risks to harbor structures and vessels. Additional modifications for harbor entrance are therefore being considered to further improve harbor condition and improve safety (Figures 4, 5 and 7).

- Option 1 involves extending the revetment at the east end of the entrance into the harbor (Figure 4), which serves as a barrier to help dissipate wave energy.

- Alternatively, the extension of revetment can be replaced by a concrete pile structure (Figures 5 and 7), shown as Option 2. The pile structure requires a much smaller footprint than the revetment while also functioning as wave barrier.

Both options provide similar enhanced protection for the harbor. DOBOR would like to discuss these two options with community and harbor users to determine a preferred alternative.

**Consultation Request**

DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR).

DOBOR is conducting a two-part consultation process, as follows:

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  Berna Senelly
  Oceanit
  828 Fort Street Mall, Suite 600
  Honolulu, Hawai'i 98813

- Part 2: A community meeting will be held on March 31, 2023, at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation \ comments and provide input on the project.

All consultation comments and responses will be included in the Draft Environmental Assessment.




**Figure 1: Project Location Map**




**Figure 2: Existing Site Plan**

(a) May 2018. Concrete boat ramp with accreted sand.

(b) January 2020. Breached section of main breakwater

(c) January 2020. Incoming waves hit underside of marginal wooden wharf and damaged structure. Wharf was condemned.

(d) January 2015. Parking lot during storm conditions. Waves can be seen overtopping main breakwater, resulting in flooding of parking lot
(*Photo credit: Jeff Newton)*.

**Figure 3: Photographs showing damaged or compromised areas and flooding of NKSBH**

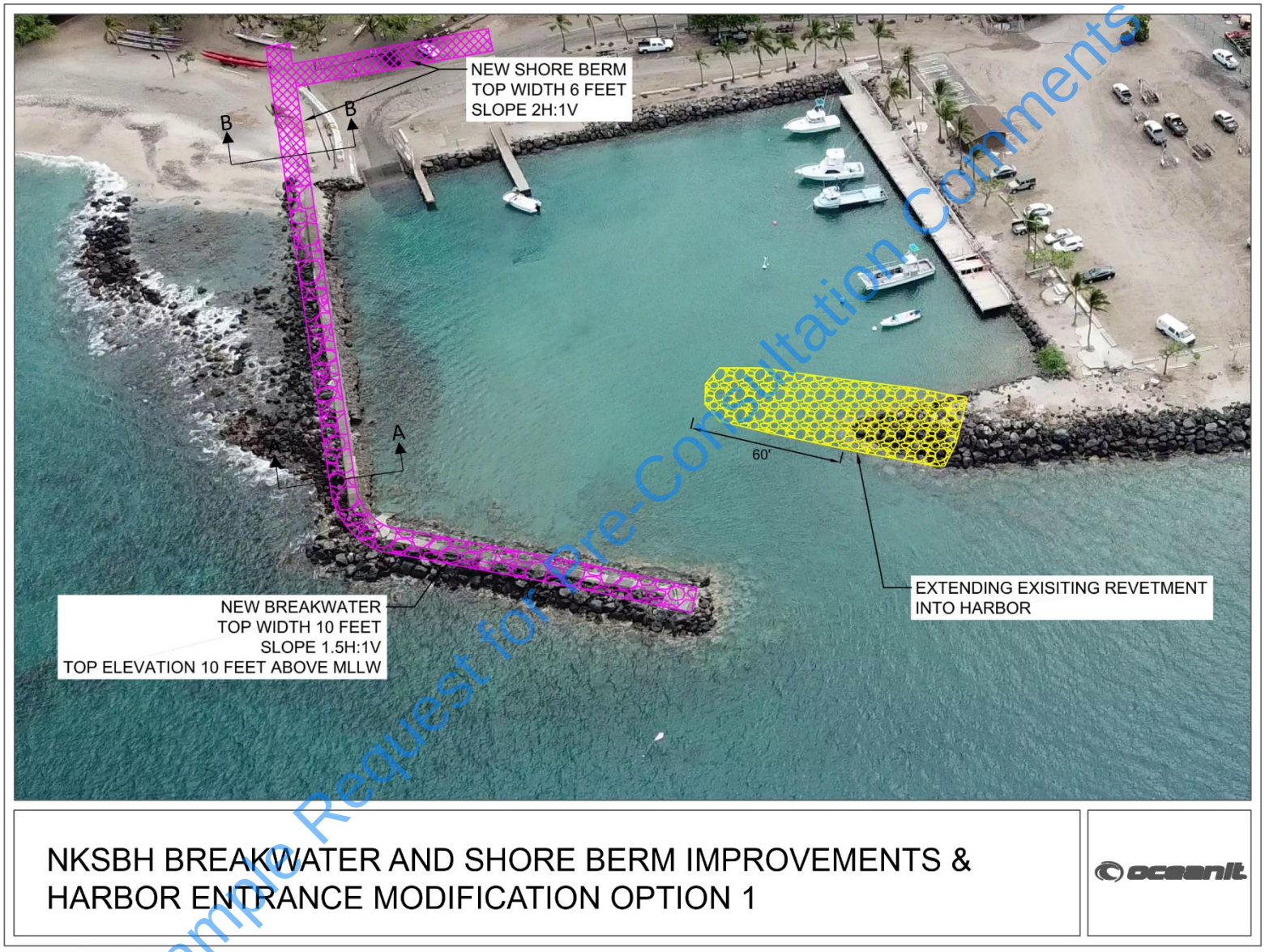




**Figure 4: NKSBH breakwater and shore berm improvements & harbor entrance modification option 1**

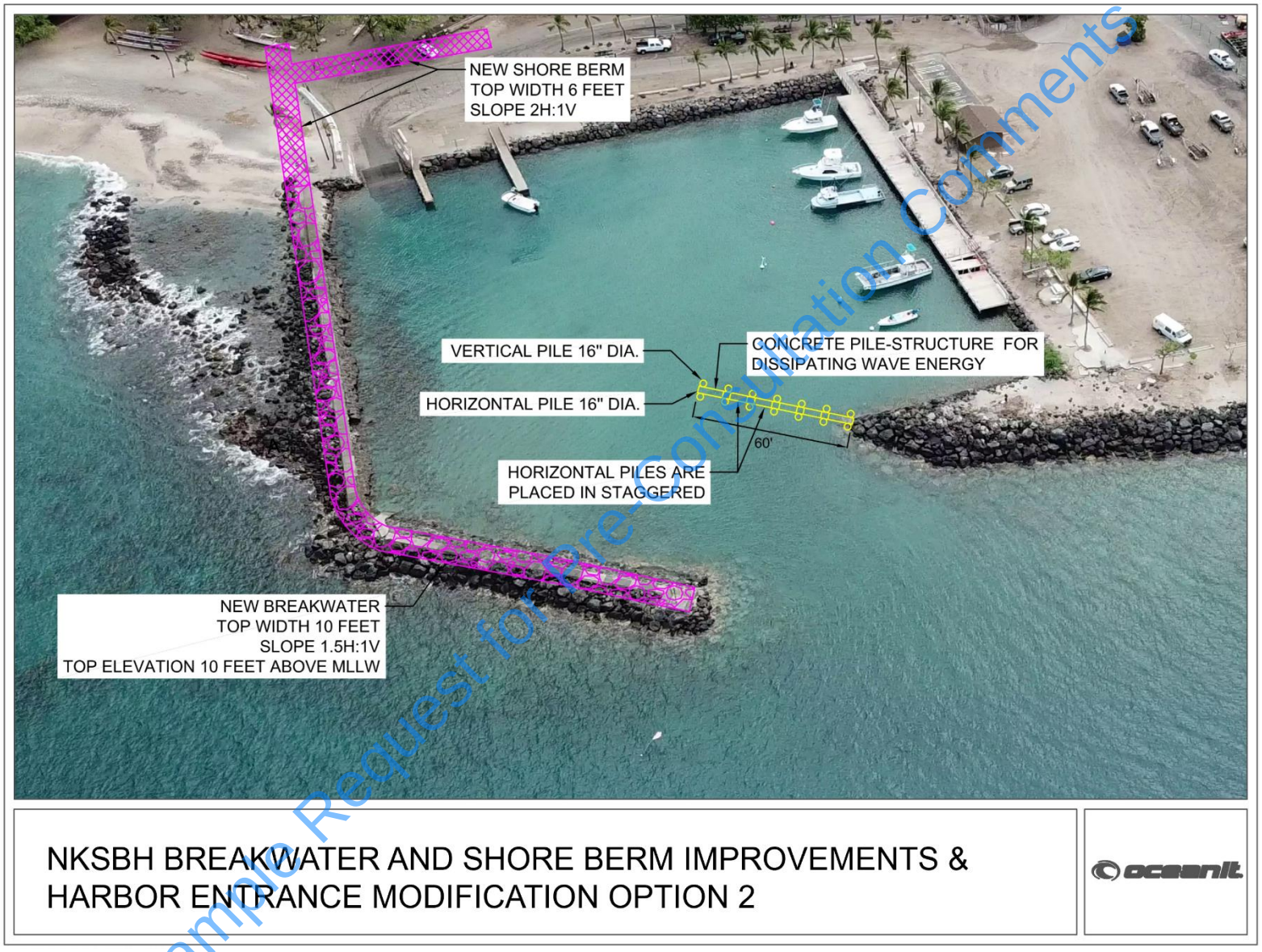




**Figure 5: NKSBH breakwater and shore berm improvements & harbor entrance modification option 2**

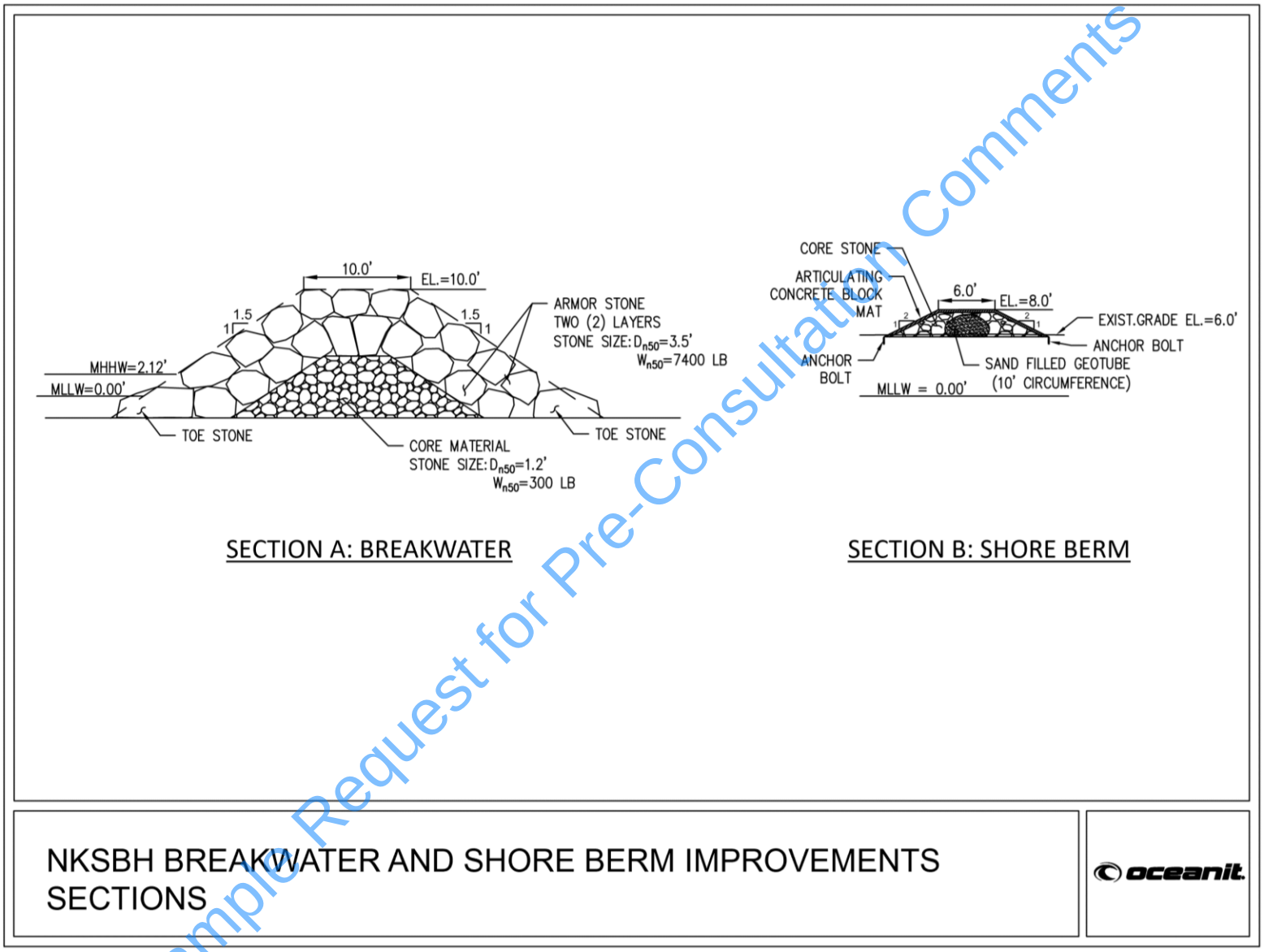




**Figure 6: NKSBH breakwater and shore berm improvements sections**

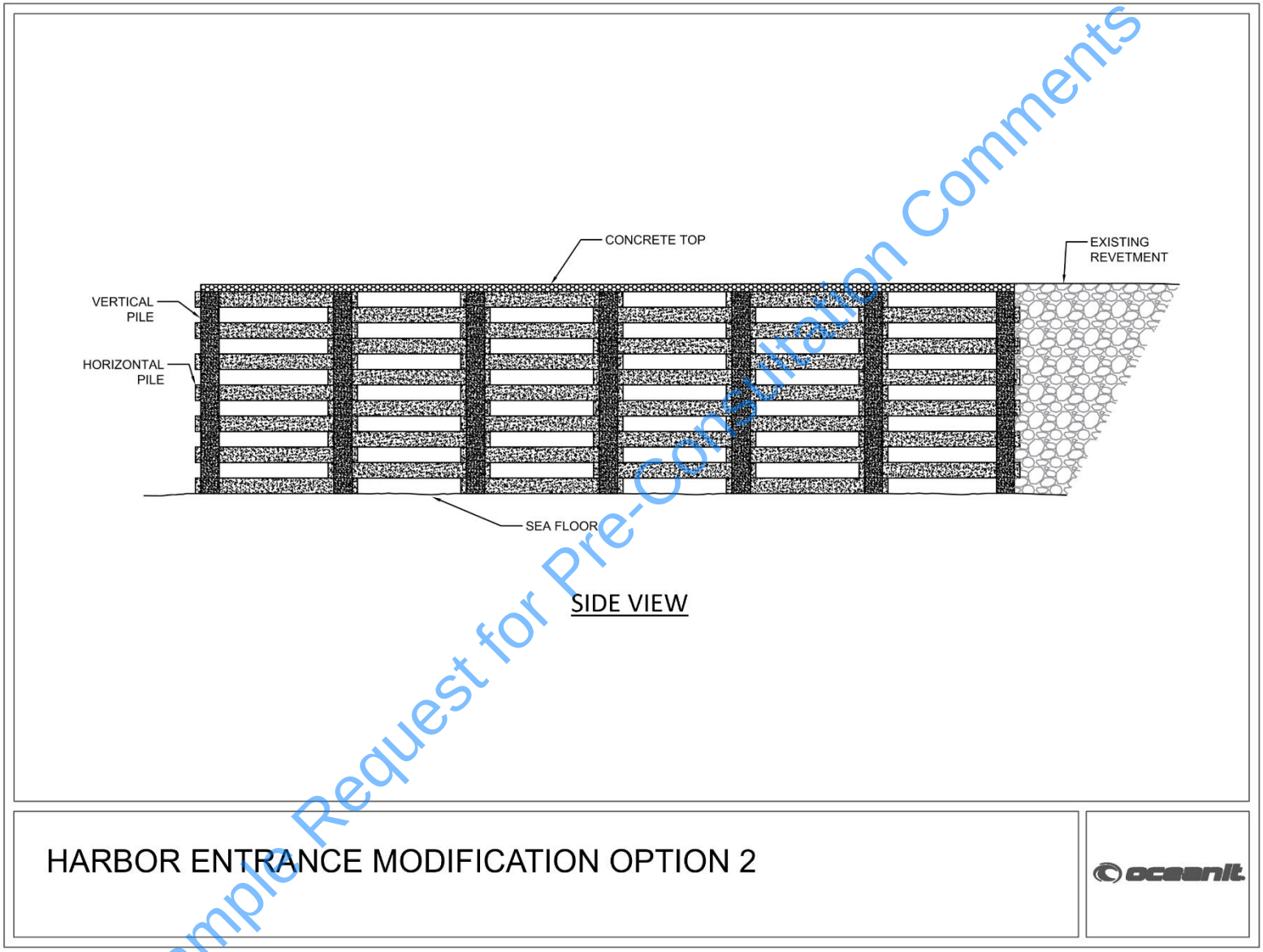




**Figure 7: Harbor entrance modification option 2 side view**

## Dale Uno

**From:** Gary North <garyjnorth@gmail.com>
**Sent:** Monday, March 6, 2023 10:09 AM
**To:** NKSBH
**Cc:** Dreanalee (Dre) Kalili; Jay Ana; Nelisa Asato; Michael Caswell; Blaine Gemeno; Randy Grune; Len/Fai (Faiona) Isotoff; Gary J. North; Kuuhaku Park; Sandi Weir; Eric Wright
**Subject:** [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor

Thank you for the information but HHUG does not get involved in small boat harbor issues...

**Mahalo & Aloha**

**Gary**

**Gary J North**
**Executive Director**
**Hawaii Harbors Users Group**

On Mar 6, 2023, at 6:48 AM, NKSBH <NKSBH@oceanit.com> wrote:

<NKSBH Consultation Project Description.March 2023.pdf>

oceanit
innovation through engineering & scientific excellence

October 23, 2023

Mr. Gary North, Executive Director
Hawaii Harbors User Group

TRANSMITTED VIA EMAIL TO garyjnorth@gmail.com

Aloha Mr. North:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your pre-consultation comment dated March 6, 2023, regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. We understand that the Hawaii Harbors Users Group does not get involved in small boat harbor issues.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** W. Kalaokahaku Akima <kalaokahaku61@yahoo.com>
**Sent:** Tuesday, March 7, 2023 8:29 AM
**To:** NKSBH
**Subject:** [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor

**Follow Up Flag:** Follow up
**Flag Status:** Completed

Aloha nui,

Mahalo, I appreciate you emailing me and informing me on what is ahead . I would love to chat before the meeting . I would also like to bring kūpuna in from the area and include them as for a few of them have lived in Kawaihae all of their life . Do you have a place to hold the meeting ? We can ask to use the canoe club . Please let me know .

Mahalo, Willette

Sent from my iPhone

> On Mar 7, 2023, at 6:53 AM, NKSBH <NKSBH@oceanit.com> wrote:
>
> Aloha Willette,
>
> Representative Tarnas graciously suggested that I talk to you about proposed improvements to the North Kawaihae Small Boat Harbor. As this email notes, we are asking for comments on the project and you can email comments and/or attend the meeting. If you want to talk story beforehand, that would be greatly appreciated. Please call me at 817.422.1372 if you wish to chat.
>
> The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.
>
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1. Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

   Berna Senelly
   Oceanit
   828 Fort Street Mall, Suite 600
   Honolulu, Hawai'i 98813

2. Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely,

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**
828 Fort Street Mall Suite 600 | Honolulu, HI 96813
Email: bsenelly@oceanit.com
Office: 808.531.3017 ext. 221
Direct: 808.954.4221
Mobile: 817.422.1372
Fax: 808.531.3177
▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**
<image002.png>



<NKSBH Consultation Project Description.March 2023.pdf>

## Dale Uno

**From:** W. Kalaokahaku Akima <kalaokahaku61@yahoo.com>
**Sent:** Wednesday, March 8, 2023 6:36 PM
**To:** NKSBH
**Subject:** Re: [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Aloha kāua ,

I can meet through Zoom anytime next week I will be in Vegas for the spring break . I will invite kūpuna and those from Kawaihae . What time on the 31st.? Let Finn know that I am a member and will see if the club is available . Let me know when you would like to meet .

Mahalo a nui,

Willette

Sent from my iPhone

> On Mar 8, 2023, at 7:01 AM, NKSBH <NKSBH@oceanit.com> wrote:
>
> Aloha e Willette
>
> Finn McCall from the Division of Boating and Ocean Recreation is contacting the canoe club to see if we can use their building.
>
> When would you like to talk story? Please bring kūpuna. We would like to connect with people as much as possible, and those who have lived their lives in Kawaihae would have much to share.
>
> Berna
>
> <image001.png>
>
> **From:** W. Kalaokahaku Akima <kalaokahaku61@yahoo.com>
> **Sent:** Tuesday, March 7, 2023 12:29 PM
> **To:** NKSBH <NKSBH@oceanit.com>
> **Subject:** [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor

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   Berna Senelly
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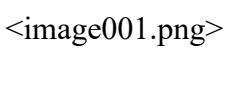

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**
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Direct: 808.954.4221
Mobile: 817.422.1372
Fax: 808.531.3177
▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**


Please consider the environment before printing this message.



<NKSBH Consultation Project Description.March 2023.pdf>

## Dale Uno

**From:** W. Kalaokahaku Akima <kalaokahaku61@yahoo.com>
**Sent:** Friday, March 10, 2023 9:39 AM
**To:** NKSBH
**Subject:** Re: [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor

Aloha Berna,

We can meet on Monday , you tell me the time . I also have yeh club for the 31st please tell me what time the meeting will take place .

Mahalo, Willette

Sent from my iPhone

> On Mar 9, 2023, at 8:12 AM, NKSBH <NKSBH@oceanit.com> wrote:
>
> Good morning, Willette. Zoom next week will be great! I am in Texas, so there'll be just a couple of hours difference between here and Vegas. Please let me know when is good for you and I'll set it up.
>
> Berna
>
> <image001.png>
>
> ---
>
> **From:** W. Kalaokahaku Akima <kalaokahaku61@yahoo.com>
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Berna

<image001.png>

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Berna Cabacungan Senelly

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<image002.png>



<NKSBH Consultation Project Description.March 2023.pdf>

oceanit
innovation through engineering & scientific excellence

October 23, 2023

Willette Akima

Kawaihae Canoe Club

TRANSMITTED VIA EMAIL TO kalaokahaku61@yahoo.com

Aloha Ms. Akau:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Mahalo for reaching out to us on March 7, 9, and 10, 2023, during our pre-consultation period regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. I very much appreciate your participation in this process and helping us connect with the community.

We will include a copy of your emails and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawaii, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Ron Dean - NOAA Federal <ron.dean@noaa.gov>
**Sent:** Tuesday, March 7, 2023 2:22 PM
**To:** Celeste Hanley - NOAA Federal
**Cc:** _NMFS PIR ESHESA; _NMFS PIR NEPA EMAIL; Stefanie Gutierrez - NOAA Federal; NKSBH
**Subject:** [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor



Hi:

Under the Endangered Species Act (ESA), NOAA Fisheries consults with other federal agencies on any activities that may affect ESA-listed species.

It is likely this project will require a permit from the US Army Corps of Engineers. We will coordinate with the appropriate federal agency at that time for ESA concerns.

Thank you for notifying us of this project.

-Ron

On Mon, Mar 6, 2023 at 8:18 AM Celeste Hanley - NOAA Federal <celeste.hanley@noaa.gov> wrote:

> EFH, ESA, NEPA teams,
>
> This came in via piro.info.
>
> -Celeste
>
> ---------- Forwarded message ---------
> From: **NKSBH** <NKSBH@oceanit.com>
> Date: Mon, Mar 6, 2023 at 6:15 AM
> Subject: Pre-Consultation on the North Kawaihae Small Boat Harbor
> To: piro.info@noaa.gov <piro.info@noaa.gov>
>
> Aloha!
>
> The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.
>
> The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

  Berna Senelly

  Oceanit

  828 Fort Street Mall, Suite 600

  Honolulu, Hawai‘i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**

828 Fort Street Mall Suite 600 | Honolulu, HI 96813

Email: bsenelly@oceanit.com

Office: 808.531.3017 ext. 221

Direct: 808.954.4221

Mobile: 817.422.1372

Fax: 808.531.3177

▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**

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October 12, 2023

Mr. Ron Dean
Pacific Island Regional Office
National Oceanic and Atmospheric Administration (NOAA) Fisheries

TRANSMITTED VIA EMAIL TO ron.dean@noaa.gov

Aloha Mr. Dean:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your pre-consultation comment dated March 7, 2023, regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. We note your comment that NOAA Fisheries consults with other federal agencies on any activities that may affect species identified as required by the Endangered Species Act. We discuss ESA-related matters in Section 3.1.6, Marine Biota, of the Draft EA.

Regarding a permit from US Army Corps of Engineers (USACE), we are in consultation with US Army Corps of Engineers staff regarding the appropriate Department of Army permit and related approvals.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Greg and Rebekah Kaufmann <gnrkaufmann@yahoo.com>
**Sent:** Tuesday, March 7, 2023 11:41 AM
**To:** NKSBH; Chuck Jackson
**Subject:** [External] Re: Second email on Pre-Consultation on the North Kawaihae Small Boat Harbor

Aloha Berna

Thanks so much for reaching out we really appreciate the communication. I am copying in Chuck Jackson who is project lead for our company as we go through this revamp of Kawaihae. He is a captain working with us who has operated from this harbor for years and has good knowledge of the conditions and challenges year round. We will reach out to you on the phone # you provided to chat in the next few days. We would love to provide feedback before the meeting.

Mahalo
Rebekah Kaufmann
Kohala Divers
Siren Sportfishing

On Tuesday, March 7, 2023 at 08:39:55 AM HST, NKSBH <nksbh@oceanit.com> wrote:

Hi Greg and Rebekah,

I am resending this email because Representative Tarnas graciously suggested that I talk to you about proposed improvements to the North Kawaihae Small Boat Harbor. As this email notes, we are asking for comments on the project and you can email comments and/or attend the meeting. If you want to talk story beforehand, that would be greatly appreciated. Please call me at 817.422.1372 if you wish to chat.

The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

Berna Senelly

Oceanit

828 Fort Street Mall, Suite 600

Honolulu, Hawai‘i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely,

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**

828 Fort Street Mall Suite 600 | Honolulu, HI 96813

Email: bsenelly@oceanit.com

Office: 808.531.3017 ext. 221

Direct: 808.954.4221

Mobile: 817.422.1372

Fax: 808.531.3177

▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**

## Dale Uno

**From:** Chuck Jackson <cjackson1958@icloud.com>
**Sent:** Wednesday, March 8, 2023 4:07 PM
**To:** NKSBH
**Cc:** Rebekah Kaufmann; Rep. David A. Tarnas; Dayan Vithanage; Steve Wilson
**Subject:** [External] Concerns and Comments - Pre-Consultation on the North Kawaihae Small Boat Harbor

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



Aloha Berna,

Thank you for the information. We have reviewed the pre-consultation on the EA and have some concerns and questions. The shore berm and the modification to the breakwater will not have an impact on our operation after completion. The only operational concern is during the construction process; our ability to operate while the breakwater is being modified. Any input regarding the construction process is greatly appreciated.

Our main concern is the revetment extension proposed in options 1 and 2. Based upon size, the extension takes up about 10% of the navigable harbor area and is located in a critical approach to our mooring. The harbor is very small to start with and the intrusion of the revetment extension takes away an avenue of maneuver during gusty wind conditions. Prior to the breakwater damage, the swell and surge did not cause maneuvering issues while docking and un-docking the boat. The biggest challenge in the harbor is the gusty and quickly changing wind conditions. Wind direction and speed can change rapidly causing challenging docking conditions. Our boat is 46’ long and 16‘ wide, but only draws about 32 inches of water. This means the wind can have a dramatic and rapid effect on the boat’s position. The ability to quickly maneuver is crucial. There have been multiple times where the captain needed to quickly change an approach in changing wind conditions, maneuvering in the exact location of the proposed extension.

We typically start our mooring approach towards the outer third of the proposed extension to allow enough room for pivoting the boat before backing into the mooring. A line drawn from our mooring ball to the entrance intersects the revetment in the outer third. Please note our boat is not present in any of the photos, so the scale is not apparent. We moor in the large gap visible between the boats with our bow at the white mooring ball and our stern at the dock.

Another concern is the shallowness of the outside edge of the harbor and submerged rocks along breakwater. The revetment would require a fairly tight turn around it to clear the edge and rocks. An easterly, off the dock wind direction would make this very challenging.

Reviewing the overhead photo, the position of the deep harbor breakwater seems to protect the NKSBY entrance adequately. I’m not sure what risk assessment was conducted, but I would think the likelihood of a strong surge doing damage through the entrance is minimal. The prevailing surf and surge doesn’t enter the harbor through the entrance. There may be some surge, but not enough to cause damage or make it hazardous to operate and maneuver.

We propose two additional options for consideration.

Option 3: Do not add any extension the existing revetment

Option 4: If analysis shows a high probability of damaging surge through the harbor entrance, then if possible add the extension to the main breakwater. A slight downward angle from the end of the existing breakwater would be best versus just a straight extension. This preserves the maneuvering area of the harbor.

We would like to extend an invitation for a boat tour and a short boat ride to observe firsthand some of our issues and concerns.

Thank you for your consideration.

Mahalo,
Chuck Jackson
Kohala Divers Lead
808 785 9291

On Mar 7, 2023, at 11:40 AM, Greg and Rebekah Kaufmann <gnrkaufmann@yahoo.com> wrote:

Aloha Berna

Thanks so much for reaching out we really appreciate the communication. I am copying in Chuck Jackson who is project lead for our company as we go through this revamp of Kawaihae. He is a captain working with us who has operated from this harbor for years and has good knowledge of the conditions and challenges year round. We will reach out to you on the phone # you provided to chat in the next few days. We would love to provide feedback before the meeting.

Mahalo
Rebekah Kaufmann
Kohala Divers
Siren Sportfishing

On Tuesday, March 7, 2023 at 08:39:55 AM HST, NKSBH <nksbh@oceanit.com> wrote:

Hi Greg and Rebekah,

I am resending this email because Representative Tarnas graciously suggested that I talk to you about proposed improvements to the North Kawaihae Small Boat Harbor. As this email notes, we are asking for comments on the project and you can email comments and/or attend the meeting. If you want to talk story beforehand, that would be greatly appreciated. Please call me at 817.422.1372 if you wish to chat.

The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR)proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

Berna Senelly
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, Hawai‘i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

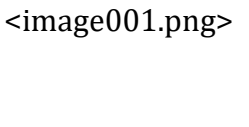
All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

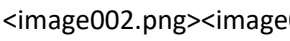
Sincerely,

Berna Cabacungan Senelly



**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**
828 Fort Street Mall Suite 600 | Honolulu, HI 96813
Email: bsenelly@oceanit.com
Office: 808.531.3017 ext. 221
Direct: 808.954.4221
Mobile: 817.422.1372
Fax: 808.531.3177
▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**
 Please consider the environment before printing this message.





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October 23, 2023

Mr. Chuck Jackson, Lead
Kohala Divers

TRANSMITTED VIA EMAIL TO cjackson1958@icloud.com and gnrkaufmann@yahoo.com

Aloha Mr. Jackson:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your pre-consultation comment dated March 8, 2023, regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. We also appreciate your participation in the March 31, 2023, meeting at the Kawaihae Canoe Club Hale and on-site meeting on April 1, 2023.

Regarding your operational concern during the construction process, it is recommended that harbor users be informed of construction schedule and activities that may affect your operations. In the Draft EA, this is discussed in Section 3.3.1, Recreation Facilities, Resources and Public Access.

We appreciate your concern regarding the revetment extension that was presented in pre-consultation material sent to agencies, organizations and individuals. Your comments regarding possible navigation impacts are well taken and others have shared your concern.

Please note that, as a result of the assessment of the harbor and wave analysis and public comments, the options to extend the revetment are no longer being considered for implementation. The current Proposed Action includes the following:

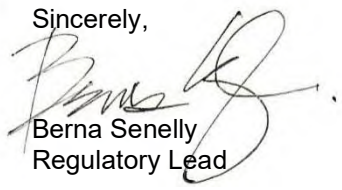
- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping; and
- Extend the existing breakwater by 80 feet inland.

The Draft EA Section 2.3 and 2.4 discuss, respectively, the Proposed Actions and Alternatives Considered.

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai‘i, Office of Planning and Sustainable Development.

Sincerely,



Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

## Dale Uno

**From:** pete hendricks <oldsaltp@yahoo.com>
**Sent:** Wednesday, March 8, 2023 7:49 PM
**To:** NKSBH
**Subject:** [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Berna, Thanks for the information on the proposed rebuild/improvements to the North Kawaihae Small Boat Harbor. I will definitely attend the 31 March meeting. Looking forward to chatting with you beforehand. Aloha...pete hendricks

On Tuesday, March 7, 2023 at 08:39:25 AM HST, NKSBH <nksbh@oceanit.com> wrote:

Aloha Pete,

Representative Tarnas graciously suggested that I talk to you about proposed improvements to the North Kawaihae Small Boat Harbor. As this email notes, we are asking for comments on the project and you can email comments and/or attend the meeting. If you want to talk story beforehand, that would be greatly appreciated. Please call me at 817.422.1372 if you wish to chat.

The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

Berna Senelly

Oceanit

828 Fort Street Mall, Suite 600

Honolulu, Hawai'i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely,

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**

828 Fort Street Mall Suite 600 | Honolulu, HI 96813

Email: bsenelly@oceanit.com

Office: 808.531.3017 ext. 221

Direct: 808.954.4221

Mobile: 817.422.1372

Fax: 808.531.3177

▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**

## Dale Uno

**From:** pete hendricks <oldsaltp@yahoo.com>
**Sent:** Tuesday, March 28, 2023 4:50 PM
**To:** NKSBH
**Subject:** [External] Re: March 31 Meeting on North Kawaihae Small Boat Harbor Proposed Improvements
**Attachments:** KwheFeb80.jpeg

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



Hi Berna,
I'm looking forward to the March 31 meeting at KCC. I have been a Kawaihae harbor user since 1967, including charter boat captain, sail & power, and KCC member/paddler. Attached are 2 snapshots I took after the "100 year storm" of January 1980, when waves were breaking across the main channel entrance. Sorry, the pics are only 3" x 4", but notice how much higher the outer rocks were above the breakwater cap than today.
Aloha...pete hendricks

On Sunday, March 26, 2023 at 04:05:27 PM HST, NKSBH <nksbh@oceanit.com> wrote:

Mahalo to everyone who submitted written comments on the proposed improvements to the North Kawaihae Small Boat Harbor (NKSBH). As we mentioned in our earlier email, we are holding a community meeting on March 31. The meeting will be held at 3:00 at the Kawaihae Canoe Club at NKSBH. I am attaching a flier for your use and circulation.

Thank you to the Kawaihae Canoe Club for letting us use your halau!!!

Please email or call me at 817.422.1372 if you have questions. I look forward to meeting with you!

Sincerely

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**

828 Fort Street Mall Suite 600 | Honolulu, HI 96813

Email: bsenelly@oceanit.com

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October 23, 2023

Mr. Pete Hendricks

TRANSMITTED VIA EMAIL TO oldsaltp@yahoo.com

Aloha Mr. Hendricks:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your pre-consultation emails dated March 8 and March 23, 2023, regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

Please note that, as a result of the assessment of the harbor and wave analysis and public comments, the project has been redesigned. The current Proposed Action includes the following:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping; and
- Extend the existing breakwater by 80 feet inland.

The Draft EA Section 2.3 and 2.4 discusses, respectively, the Proposed Actions and Alternatives Considered.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Steve Kaiser <steve.kaiser808@gmail.com>
**Sent:** Friday, March 10, 2023 11:30 AM
**To:** NKSBH
**Subject:** [External] Kawaihae North Harbor Comments



3 things

First with the rocks blown into the harbor from the breakwater be removed
Second how confident are you the only extending the inner groin and not the outer groin will slove the surge issue
How much higher will the breakwater be done

Please include me on the hearing

Mahalo

Steve Kaiser
Everything Fish Inc.
PO Box 190612
57-1820 Kohala Mtn. Rd.
Hawi, Hawaii 96719
Mobile +1808 895-9390

## Dale Uno

**From:** Steve Kaiser <steve.kaiser808@gmail.com>
**Sent:** Thursday, March 30, 2023 10:32 AM
**To:** NKSBH
**Subject:** [External] Kawaihae North Harbor

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



Unfortunately I won't be able to attend the meeting tomorrow as I will be in HNL for the confirmation hearing for the new Chairperson of DNLR

However seeing more information on the harbor plan I would like to comment on some off proposed aspects

First I want to make sure that part of the plan includes removing all of the large rocks blown into the harbor. Some of those rocks make launching and recovery of larger boats a real danger at the ramp. Also if the groin is extended the turn in and out could be problematic

I would not favor the plan of staggered piles. If you have ever seen how the water swirls in the harbor during large swells my worry would be that while dispersing the energy would help Im not sure that plan would reduce the energy enough to make the moorings safe for coming in an tying up or leaving. That surge is massive and makes mooring very very dangerous

Mahalo

Steve Kaiser
Everything Fish Inc.
PO Box 190612
57-1820 Kohala Mtn. Rd.
Hawi, Hawaii 96719
Mobile +1808 895-9390

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innovation through engineering & scientific excellence

October 23, 2023

Mr. Steve Kaiser
Everything Fish, Inc.

TRANSMITTED VIA EMAIL TO steve.kaiser808@gmail.com

Aloha Mr. Kaiser:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your pre-consultation comments in your emails dated March 10 and March 30, 2023, regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

Regarding your comment about the removal of breakwater rocks that were "blown into the harbor," construction activities will include removal of such rocks, and, to the extent practicable, may be reused to repair the breakwater.

Regarding extension of the breakwater, the Proposed Action includes extending the breakwater 80 feet inland. Based on the assessment of the harbor and waves analysis, as well as community input, other forms of extension are not being proposed.

In response to your question about breakwater height, the Proposed Action includes increasing the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping. There are no staggered piles.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

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www.oceanit.com

**Berna Senelly**

**From:** Jumalon, Jessie <Jessie.Jumalon@hawaiicounty.gov>
**Sent:** Friday, March 10, 2023 6:39 PM
**To:** NKSBH
**Cc:** Berna Senelly
**Subject:** [External] HPD Response
**Attachments:** 3-9-23 Response to Senelly re 22HQ0407.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Completed



Aloha,

Thank you for your email.

Please see attached response from Assistant Police Chief Chad Basque.

**Please contact Captain Jeremie Evangelista, Commander of the South Kohala District, at (808) 887-3080 or via email at jeremie.evangelista@hawaiicounty.gov, should you have any questions.**

Mahalo,

*Jessie A. Jumalon*
Secretary to Assistant Chief Chad Basque
and Major Sherry Bird
Area II Operations Bureau
Hawaii Police Department
74-611 Hale Maka'i Place
Kailua-Kona, Hawaii 96740
Phone No.: (808)326-4646, extension 283
jessie.jumalon@hawaiicounty.gov

**Mitchell D. Roth**
*Mayor*

**Benjamin T. Moszkowicz**
*Police Chief*

**County of Hawai`i**
**POLICE DEPARTMENT**
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389



March 9, 2023

Ms. Berna Cabacungan Senelly
Senior Regulatory and Community Lead
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, HI 96813
bsenelly@oceanit.com
NKSBH@oceanit.com

SUBJECT: NORTH KAWAIHAE SMALL BOAT HARBOR BREAKWATER AND SHORE BERM IMPROVEMENTS
PRE-CONSULTATION ON THE ENVIRONMENTAL ASSESSMENT

Dear Ms. Senelly:

This is in response to your email dated March 6, 2023 regarding Pre-Consultation on the North Kawaihae Small Boat Harbor, with the attachment titled *NKSBH Consultation Project Description.March 2023.*

Staff has reviewed the consultation project description and have no comments to offer at this time.

Should you have any questions or concerns, please contact Captain Jeremie Evangelista, Commander of our South Kohala District, via email at jeremie.evangelista@hawaiicounty.gov or at the South Kohala Police Station, at (808)887-3080.

Sincerely,

BENJAMIN T. MOSZKOWICZ
POLICE CHIEF

CHAD BASQUE
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

JE/jaj
21HQ0407

oceanit
innovation through engineering & scientific excellence

October 23, 2023

Assistant Chief Chad Basque
County of Hawai'i Police Department
349 Kapi'olani Street
Hilo, Hawai'i 96720-3998

TRANSMITTED VIA EMAIL TO Jessie.Jumalon@hawaiicounty.gov

Aloha Assistant Chief Basque:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 9, 2023 pre-consultation comments via email dated March 10, 2023, regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. We also appreciate transmittal of same via US Postal Service.

We understand that your department has no comment at this time.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Gary Grosshuesch <grossh@hawaii.rr.com>
**Sent:** Sunday, March 12, 2023 5:32 PM
**To:** NKSBH
**Subject:** [External] North Kawaihae Small Boat Harbor: Pre-Consultation on the Environmental Assesment

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



Aloha,

I am pleased to hear that there is movement on the repairs and improvement to Kawaihae North Small Boat Harbor. With the limited amount of harbor facilities on the Big Island and in the State It is important that we make the best use of the facilities that we have. For as much as the Ocean is a major part of the life in Hawaii, we don't seem to have enough marine facilities and improvements are slow in coming. There are many places in the world with better facilities.

I have noticed over the years that during the increased winter swell activity that the sand seams to move through the stones that make up the break wall. It then collects in the corner where the ramp is. This may be the natural collection spot given the shape of the basin? So even if the new break wall keeps the sand from passing through it may still collect there when the surf stirs up the sand and it is carried around in the water column. It gets to a point where it is too shallow for most larger boats to launch. Thus putting increased pressure on the other ramps Kawaihae South and Puako.

Repair and Improving the West break wall is a must. I would suggest that it be made wide enough so that an excavator could walk out on the top to make repairs. I've seen large jack like concrete structures. Laupahoehoe comes to mind. They seem to break up the force of the waves. These could be installed outside of the stone break wall to help protect it.

I also like the idea of extending the South side jetty a little. This would provide better protection for the boat slips.

I don't think the folks from Kawaihae Canoe club will be happy with the idea of building a berm between their boat storage and the ramp. I have never seen any water wash around from that side.

I think it is important to make improvements that are strong and work. However I caution that in our efforts to do that we don't spend too much time and excessive amounts of money in planning for the 50 year or 100 year storms. It could come next year and wash away our good efforts and take our budget with it! Better that we make something that is strong, reasonably cost effective and can be easily repaired at minimal cost. How simple would it have been to budget every year to have a simple dredge that could blow the sand back out to the other side of the break wall several times a winter. Rather than to let it build up until the ramp was no longer usable and took an act of congress, huge amounts of money and time to get it resolved. We probably could drop a few big boulders out were the breach is and get by for a few more years. We often spend the money it would take to repair things on design and then we are broke and nothing gets done

So, Make a good cost effective plan, do good work and get the job done in an efficient manner.

Thank you for the opportunity to comment!

Sincerely,

Gary E Grosshuesch
Citizen & Boater

oceanit
innovation through engineering & scientific excellence

October 23, 2023

Mr. Gary Grosshuesh

TRANSMITTED VIA EMAIL TO grossh@hawaii.rr.com

Aloha Mr. Grosshuesh:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 12, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We share your sense of urgency in repairing the west side of the breakwater. The Proposed Action includes:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping; and
- Extend the existing breakwater by 80 feet inland.

The final modified breakwater will have a crest elevation of 10 feet MLLW with 1.5H:1V side slopes. The increased height will make the structure more resilient to wave actions from storm events. The design crest width is 10 feet to accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

Extending the south side jetty is not part of the Proposed Action at this time. Regarding the initially proposed berm, you are correct about the Kawaihae Canoe Club preferences. The preferred no berm and the design was revised to eliminate the berm and extend the breakwater by 80 feet inland to prevent sand accumulation.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
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**Berna Senelly**

**From:** Richard Hall - NOAA Federal <richard.hall@noaa.gov>
**Sent:** Tuesday, March 14, 2023 12:37 PM
**To:** NKSBH
**Cc:** David Delaney - NOAA Federal; Sean Hanser - NOAA Federal
**Subject:** [External] NMFS PIRO Technical Assistance for North Kawaihae Small Boat Harbor
**Attachments:** NMFS Conservation Recommendations for North Kawaihae small boat harbor project.docx

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



On March 6, 2023, the National Marine Fisheries Service (NMFS), Pacific Islands Regional Office (PIRO) received a request for pre-consultation technical assistance from Oceanit (on behalf of the State of Hawaii, Division of Boating and Ocean recreation) for breakwater and shore berm repairs at the North Kawaihae small boat harbor. Below we provide technical assistance intended to help you integrate essential fish habitat (EFH) considerations into the National Environmental Policy Act (NEPA) for your Environmental Assessment (EA)). This technical assistance does not fulfill any federal responsibilities and does not constitute an EFH consultation.

The Habitat Conservation Division (HCD) at PIRO is responsible for implementing Magnuson-Stevens Fishery Conservation and Management Act (MSA) regulatory requirements, including the EFH provisions described by Federal regulations (50 CFR 600.920). Compliance with the EFH provisions of the MSA can also be achieved through pursuance of the Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. 661-666c; see below). Please contact us through the email address EFHESAconsult@noaa.gov for all future questions related to consultations with NMFS.

Section 305(b) of the MSA requires federal action agencies to consult with NMFS when proposed federal actions may adversely affect EFH designated for federally managed fish stocks (i.e., management unit species or MUS). EFH includes all types of aquatic habitat where fish spawn, breed, feed, or grow to maturity. The Pacific Islands Region has sensitive and hard-to-replace coral reefs and seagrass resources, often referred to as habitat forming EFH. Given the sensitivity of these habitat forming resources, their complicated relationship with wetlands and watersheds, and the challenges in mitigating and offsetting adverse effects that may result in the unavoidable loss of their ecosystem services, consultation should occur for projects that affect the water column and benthic resources, including invertebrate communities that are established on manmade structures. NMFS recommends direct coordination with PIRO for this project.

The marine water column from the surface to a depth of 1,000 m from shoreline to the outer boundary of the EEZ (200 nautical miles), and the seafloor from the shoreline out to a depth of 700 m around each of the Hawaiian Islands, have been designated as EFH. As such, the water column and bottom of the Pacific Ocean around Maui are designated as EFH, and support various life stages for the MUS identified under the Western Pacific Fishery Management Council's Pelagic and Hawai'i Archipelago Fishery Ecosystem Plans. The MUS and life stages found in these waters include eggs, larvae, juveniles, and adults of Bottomfish, Crustacean, and Pelagic MUS. Specific types of habitats considered as EFH include coral reef, patch reefs, hard substrates, artificial substrates, seagrass beds, soft substrates, lagoons, estuaries, surge zones, deep-slope terraces and pelagic/open oceans.

**EFH Consultations**

The EFH consultation process entails the federal action agency contacting NMFS and providing an Essential Fish Habitat Analysis (EFHA), which contains key mandatory information: a description of the proposed action, a determination from the federal agency as to how the action will affect EFH, an assessment of those adverse effects, and proposed ways to mitigate for the adverse effects, if applicable. An adverse effect to EFH is anything that reduces the quality and/or quantity of EFH. It may include direct, indirect, site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of an action. NMFS will then review the EFHA and may provide conservation recommendations to avoid, minimize, offset for, or otherwise mitigate expected adverse effects. Early coordination between PIRO and the action proponent prior to submission of the EFHA usually ensures consultations that meet project timelines, are less burdensome for action proponents, and adhere to legal mandates.

**EFHA Content**

Information and analysis of the marine resources in the nearshore environment proximate in location to the project footprint and the potential effects from the proposed action on those resources should be in the EA and an EFHA. The information between the two documents should be consistent. The EFHA may incorporate information in the EA by reference, but descriptions of the marine resources and analysis of the effects of project should be detailed enough in the EFHA to sufficiently quantify potential effects and losses to marine resources and to be able to plan measures that will avoid and minimize as many effects as possible and offset any damage or losses that cannot be avoided. Referenced documents must be provided to NMFS with the EFHA. Federal agencies may incorporate the EFHA into documents prepared for other purposes, such as the Biological Assessment for the Endangered Species Act Section 7 consultation, NEPA documents, or public notices. If an EFHA is contained in another document, it must still include all of the mandatory contents as per the EFH guidelines. It must also be clearly identified in the table of contents and text of the document as an EFHA.

Before you submit the EFH consultation, we recommend that you find existing sources of information on the marine resources in the nearshore environment by the project footprint. Specific information about the marine resources near your project area will allow you to accurately assess the potential effects of your action and determine the right ways to avoid or reduce impacts from the proposed action. Surveys would start with qualitative photos/videos, and if there is evidence of greater densities of corals and/or seagrass, quantitative surveys would be appropriate. We are happy to continue coordinating during this process. Conducting a preliminary benthic marine survey of the entire area would improve the accuracy of where potential benthic survey transects are laid. Completing survey work and including it in the Draft EA and EFHA would help reduce uncertainty and better inform EFH conservation recommendations and any potential offset determinations for unavoidable loss.

We recommend that you conduct quantitative benthic marine survey assessments of the nearshore area your project could affect within the littoral cell—hard and soft bottom and where sediment models predict deposition before an EFH consultation is initiated. The level of complexity of surveys should be scaled proportionally with the extent of habitat forming EFH resources (e.g., corals and submerged aquatic vegetation) that may suffer adverse effects (i.e., direct, indirect, and cumulative) from the proposed action. Survey sampling should be considered to accommodate analyses that require greater replication and higher statistical power in order to avoid the need to obtain higher resolution data.

Hard-bottom and areas with habitat forming EFH should be prioritized over soft bottom substrate, though it will be important to characterize the latter. While it will be important to gain a representation of NOAA trust resources and EFH, including seagrass, in unconsolidated sediment, prioritizing the quantitative assessment of hard-bottom coral reef habitat would reduce uncertainty and inform potential EFH offset determinations.

If your project will disturb the sediment or require removing sediment, consider conducting modelling to predict how the proposed activities will influence sediment transport and water motion before finalizing the marine survey. Models should include current dynamics and expected sediment size fractions and deposition sites. Sediment transport and water current modelling would improve the accuracy of where potential survey transects should be conducted. If there is a high probability that sediment deposition will occur over sensitive and hard-to-replace hard-bottom habitat, corals, and submerged aquatic vegetation, these areas should be prioritized survey areas both before and after construction. Completing a modelling effort and including it in the Draft EA and EFHA would help reduce uncertainty and better inform EFH conservation recommendations and any offset determinations. Testing soils you will disturb for contamination is also advised.

**Stressor Analysis**

The potential environmental stressors of concern include: physical damage to the benthos (e.g., corals and seagrass), sedimentation and turbidity, introduction of chemical contaminants, introduction of invasive species, and noise. There may also be cumulative impacts from expansion of the breakwater and shore berm improvements on the North Kawaihae small boat harbor. Below we cover the broad adverse effects to EFH due to potential activities and provide the best management practices (BMPs) and control measures to consider when developing the EA and EFHA.

*Physical damage to the benthos (e.g., corals and seagrass)*

Physical damage to corals may occur due to abrasion or breaking of colonies. Activities that may impart physical damage from the project action may include filling discharge (e.g., rocks, dirt, etc.), anchoring vessels/barges and deployment of silt curtains. Improperly deployed sediment and erosion control measures may result in the removal and/or degradation in the state of seagrasses, facilitating the recolonization of fast growing native and/or invasive algae that may outcompete native species (Short and Neckles 1999). Because of the way that seagrasses establish themselves in an area, the area where they have been removed may take years to recover (Williams 1990; van Tussenbroek 1994, Creed and Amado Filho 1999). Habitat conversion from physical

damage may lead to a reduction in biodiversity (Alvarez-Filip et al. 2009) and further reduction of the overall productivity of the marine ecosystem. Man-made structures in the marine environment typically recruit corals, algae, sponges, as well as other components of successional communities. Maintenance, repair, or removal of those structures may result in physical damage to corals, or impact corals through the introduction of sediment, nutrients, pesticides and/or metals into their environment.

*Sedimentation and Turbidity*

Increased sedimentation and turbidity can cause smothering of benthic species and block sunlight necessary for species that rely on photosynthesis. For corals, sedimentation has been shown to reduce species diversity, change growth patterns, and reduce growth and survival (Rogers 1990), while for seagrass beds, sedimentation can result in covering plants and eventually lead to their mortality. Coral reef organisms are easily smothered by sediment (Golbuu et al. 2003), and minimal rates of sediment can affect multiple life stages of coral. Sedimentation can reduce photosynthetic rates (Philipp and Fabricius 2003), disrupt polyp gas exchange, inhibit nutrient acquisition (Richmond 1996), cause tissue damage (Rogers, 1990), reduce recruitment success (Hodgson 1990; Gilmour 1999), and increase metabolic costs due to enhanced mucus production (Telesnicki and Goldberg 1995).

An increase in suspended sediments and turbidity will reduce the depth that sunlight can penetrate the water, which changes the wavelengths of light reaching benthic species. Corals are especially sensitive to the amount and wavelengths of sunlight they receive. Increase in sunlight energy has been linked to coral bleaching (Jones et al. 1998; Hoegh-Guldberg 1999); while its decrease has been shown to affect settlement of coral larvae (Mundy and Babcock 1998). Decrease in the amount of sunlight reaching corals has also been shown to reduce the amount of photosynthesis corals are able to carry out, resulting in lower calcification rates and impacting the thickness of tissue a coral can produce (Telesnicki and Goldberg 1995). Light levels have been shown to be a major factor in distribution and species composition of seagrass beds, with low light levels resulting in reduced plant biomass and altered growth rates (Dennison 1987, Abal and Dennison 1996, Campbell et al. 2007).

For fish, sedimentation is less likely to cause significant impacts because of their mobility, but some effects are still possible. Fish may be displaced from their normal home range which could result in negative intra- and interspecies interactions and impact fitness, leading to lower reproductive success, and making individuals less able to find prey or avoid predators (Kjelland et al. 2015).

*Introduction of Nutrients and Chemical Contaminants*

Increases in nutrients (i.e., from earthmoving, land use changes, and runoff), pollutants and contaminants (i.e., from earthmoving and equipment) to the marine environment can reduce fitness and cause mortality of exposed organisms. Increase of land-based runoffs and discharges can subject benthic communities to adverse exposures and potential degradation of condition and mortality. Water conditions around coral reefs are often oligotrophic, and introduction of nutrients can change water conditions away from a clear, nutrient limited baseline.

When not properly maintained, equipment could release contaminants (oil, fuel, etc.) into the marine environment. Accidental releases or spills due to unanticipated circumstances are also possible. Structures consisting of treated wood should exclude treatment using any chemicals and/or compounds that have been banned by the EPA, or local or state agency, for use in the US marine waters. For a list of chemicals that have been shown to negatively impact coral growth, mortality, reproduction, physiology, and behavior, see Nalley et al. (2021).

*Introduction of Invasive Species*

Introduced species are organisms that have been moved, intentionally or unintentionally, into areas where they do not naturally occur. Species can be introduced to new biogeographies, typically via transport on vessel hulls, in ballast waters, or on equipment. Nearly 500 introduced species have been identified in Hawaii (Randall 1987; Coles and Eldredge 2002; Carlton and Eldredge 2009). Invasive species can rapidly increase in abundance to the point that they come to dominate their new environment, creating adverse ecological effects to other species of the ecosystem and the functions and services it may provide. Invasive species can decrease species diversity, change trophic structure, and diminish physical structure, but adverse effects are highly variable and species-specific.

*Noise*

Noise has a broad range of potential effects, especially when it has high amplitude (Casper et al. 2016) or when it is less intense but long-lasting (Popper and Hastings 2009). For fish, intense, high amplitude sounds can cause immediate death or tissue damage that may ultimately result in mortality (McCauley et al. 2003). At the very least it may impact its fitness in sublethal ways (Casper et al. 2016). Alternatively, chronic noise will not likely result in mortality, but may mask biologically important sounds and alter the natural soundscape, cause hearing loss, and have adverse effects on an organism's stress levels and immune system; persistent

noise can also affect coral spawning (Minton 2017, Lecchini et al. 2018). Masking of normal reef sounds by artificial sounds may have an impact on species abundance and population numbers on coral reefs. Research has shown that larvae of several reef fish families preferentially select traps emitting high frequency sounds over traps emitting sounds similar in frequency to normal background frequencies (Simpson et al. 2008). Studies on an invertebrate species has shown that chronic exposure to noise may lead to increased metabolic rates, causing a reduction in growth and reproduction (Lagardère 1982).

**Mitigation**

Methods for reducing or eliminating the effects of the proposed action should be discussed in the EFHA. The content will include listing avoidance measures and BMPs in a comprehensive manner and determining how effective the measures will be at reducing the effects of the proposed action. For your consideration, attached is a list of NMFS suggested conservation recommendations which may be applicable to avoid or minimize impacts to EFH from the project activities. You can include those recommendations that apply to this project in your EFHA. If you determine there will be effects that cannot be mitigated and could result in unavoidable losses of EFH, offering offsets for the losses will give your agency greater control over the mitigation actions associated with the project. Offset projects for EFH can also be used to meet your obligations for compensatory mitigation under Section 404 of the Clean Water Act.

Coral Transplantation Minimization: If activities may result in adverse effects to corals and seagrass, transplantation minimization may be necessary. If this is the case, please ensure that a coral transplantation and post-relocation monitoring plan is provided for NMFS to review with the EFH consultation package. Coral transplantation should strive to achieve ≥70% survivorship after one year, with regular monitoring (e.g., 3, 6, 12, and 24 months) after relocation. NMFS is ready and willing to provide further support and coordination, as requested.

Offset: If loss of corals and seagrass is unavoidable and substantial, restoration activities to offset the loss of ecosystem services and function will need to be considered. We recommend coordinating with NMFS to hold further discussions prior to finalizing the EA and initiating any potential EFH consultation.

**Monitoring**

Including post-action monitoring plans in the EFHA would reduce uncertainty during potential EFH offset determinations. NMFS expects that offset actions will need to be monitored during and after execution to determine their effectiveness. Robust water quality monitoring (e.g., turbidity, sedimentation rates, nutrients, dissolved oxygen, etc.) would be helpful to assess conditions before (i.e., baseline), during, and after proposed activities. These activities should be informed by the sediment modeling and daily tide and current velocity predictions (https://www.pacioos.hawaii.edu/voyager/) to select sampling locations. Special attention and consideration should be placed on collecting turbidity and sedimentation rate information at areas where there are habitat forming EFH resources, including corals and submerged aquatic vegetation. NMFS would defer to the requirements of the Environmental Protection Agency delegated through the state of Hawai'i, Department of Health, Clean Water Branch's, 401 Water Quality Certification, Applicable Monitoring and Assessment Plans. Including water quality monitoring planning in the EA and EFHA would help reduce uncertainty and better inform EFH conservation recommendations and any offset determinations.

**Summary**

NMFS PIRO greatly appreciates your request for technical assistance and the opportunity to provide input and guidance. In summary, expansion of the breakwater and improvements to the shore berm at North Kawaihae small boat harbor may have adverse effects on nearshore EFH. Depending on the range of alternatives, results from the marine resource survey assessment, sediment modeling, sediment testing, and water quality monitoring, the preferred alternative may result in unavoidable loss of EFH, which would require offset considerations. The NEPA document and possible EFH consultation would be benefitted by including marine resources information, careful evaluation of potential stressor effects to EFH, marine resource plans, and quantification of the expected unavoidable loss of EFH resources. We are committed to providing continued cooperation and subject matter technical expertise that result in beneficial outcomes for NOAA trust resources and sufficiently comply with relevant mandates, all while achieving the project goals effectively and expeditiously. Please contact me at efhesaconsult@noaa.gov or (808) 725-5018 with any comments, questions, or to request further technical assistance.

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**Richard Hall**
*Fishery Policy Analyst, Pacific Islands Regional Office*
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**NMFS HCD List of Conservation Recommendations for the North Kawaihae Small Boat Harbor Repairs**

**Conservation Recommendations for Physical Impacts to Benthic Communities**

1. Equipment, anchors, structures, or fill shall not be deployed in project areas containing live corals, seagrass beds, or visible benthic organisms. Perform pre-deployment reconnaissance (e.g., divers, drop cameras, etc.) to ensure these resources are avoided.

2. Minimize direct impact (direct or indirect contact causing damage) by divers and construction related tools, equipment, and materials with benthic organisms, regardless of size, especially corals and seagrass.

3. Prevent trash and debris from entering the marine environment during the project.

4. Maintain all structures, gear, instrumentation, mooring lines, and equipment to prevent failures.

5. Select work platforms based on the following preferential hierarchy:

    a. conduct all work from land or an existing structure;

    b. use a barge with auto-positioning systems where thrusters will not cause increased turbidity;

    c. anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; and, (3) anchors or spuds on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).

6. Mooring systems (e.g., buoys, chains, ropes) must:

    a. be kept taut to the minimum length necessary.

    b. employ the minimum line length necessary to account for expected fluctuations in water depth due to tides or waves.

    c. use a mid-line floats or other buoyancy devices to prevent contact with the ocean floor.

    d. be properly maintained.

7. All temporary structures must be removed at the completion of construction and this timeframe will be defined as aligned with General Condition #30 of the Nationwide Permit Program.

**Conservation Recommendations for Increase in Sedimentation and/or Turbidity**

1. Appropriate silt containment devices must be properly installed, monitored and maintained.

2. Debris and sediment that is removed from the water shall be disposed of at an appropriate upland location. Sediment and debris must be contained while in transit or on the shore.

3. Project operations must cease under unusual conditions, such as large tidal events, storms, and high surf conditions.

4. Conduct intertidal work at low and/or slack tide to the greatest extent feasible.

5. To minimize impacts to coral larvae, you shall avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees shall coordinate with local NMFS Habitat Conservation

Division representatives to determine the exact period when coral spawning would occur for the given year at the project site.

6. Utilize environmental clamshell buckets for mechanical dredging.

**Conservation Recommendations for Increase in Nutrients, Pesticides and Herbicides and Contaminants**

1. Conduct work during the dry season when possible; stop work during storms or heavy rains.

2. Prevent discharges into the water.

3. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work must be stopped until leaks are repaired and equipment is cleaned. Equipment should always be stored in appropriate staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling.

4. Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface.

**Conservation Recommendations for Increase in Acoustic Impac**ts

1. Use a vibratory hammer to install piles when possible. Under conditions where impact hammers are required, when possible, drive as deep as possible with a vibratory hammer prior to the use of an impact hammer.

2. Implement measures to attenuate the sound or minimize impacts to aquatic resources during pile installation. Methods to mitigate sound impacts include, but are not limited to, the following: surround the pile with a dewatered cofferdam and/or air bubble curtain system.

**Conservation Recommendations for Increase in Invasive Species**

1. Prior to in-water work, sanitize equipment or dive gear that has been previously used in an area known to contain invasive species.

> a. Small boats that have been deployed in the field will be cleaned and inspected daily for organic material, including any algal fragments or other organisms. Organic material, if found, will be physically removed and disposed of according to the ship's solid waste disposal protocol or in approved secure holding systems.
>
> b. The internal and external surfaces of vessels will be rinsed daily with freshwater and always rinsed and be allowed to dry before redeployment.

2. Vegetated areas impacted during construction must be revegetated with appropriate native species.

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October 23, 2023

Mr. Richard Hall
Pacific Islands Regional Office (PIRO)
National Marine Fisheries (NMFS)

TRANSMITTED VIA EMAIL TO richard.hall@noaa.gov

Aloha Mr. Hall:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 14, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We appreciate your guidance regarding addressing Essential Fish Habitat Analysis (EFHA) consultation. We understand that we need to engage with the US Army Corps of Engineers (USACE) on coordination in obtaining a Department of Army permit to conduct activities in these waters. We received pre-consultation comments from USACE and are in ongoing discussions regarding the Proposed Action.

Please note that a quantitative benthic marine survey assessment was conducted by AECOS on the Proposed Action and includes information and analysis of marine resources in the nearshore environment in and around the project area. This study is included as Appendix B, Marine biological survey at North Kawaihae Small Boat Harbor Kawaihae, Hawai'i, and summarized in Section 3.1.8, Marine Biota of the Draft EA. Construction and implementation will incorporate recommendations from NMFS and PIRO, and are included in the Draft EA.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Evans, Cynthia F.W. <Cindy.Evans@hawaiicounty.gov>
**Sent:** Wednesday, March 15, 2023 2:37 AM
**To:** NKSBH
**Subject:** [External] Re: Pre-Consultation on the North Kawaihae Small Boat Harbor



Aloha,

I appreciate the opportunity to comment and have a couple for your consideration.

The pounding of the waves is intense and for that reason my gut tells me the extension of the revetment would last longer than the concrete piles to stop the waves damaging the pier.

Similarly when a swell is enhanced by waves and high winds, then sand goes onto the beach, around the current revetment and onto the ramp. Can a sand berm handle the constant beating of waves during a winter storm? Hopefully this design has been proven elsewhere.

So glad you are working on this. I know the US Corps of Engineers has modeled the wave action and its impact on the commercial harbor. They began the engineering to extend the outer revetment wall, which you are not looking at. The reason it stopped was a new policy requiring a cost/benefit analysis and threshold for approving projects.

THE COMMUNITY APPRECIATES THE EFFORT!

Cindy Evans
County Council Member
District 9

ofc. 808-961-8564

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**From:** NKSBH <NKSBH@oceanit.com>
**Sent:** Monday, March 6, 2023 6:47:09 AM
**To:** Evans, Cynthia F.W.
**Subject:** Pre-Consultation on the North Kawaihae Small Boat Harbor

Aloha Council Member Evans,

The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344,

Hawai‘i Revised Statutes (HRS) and Chapter 11-200.1, Hawai‘i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

  Berna Senelly
  Oceanit
  828 Fort Street Mall, Suite 600
  Honolulu, Hawai‘i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely,

Berna Cabacungan Senelly

**Berna Cabacungan Senelly** | **Senior Regulatory and Community Lead**
828 Fort Street Mall Suite 600 | Honolulu, HI 96813
Email: bsenelly@oceanit.com
Office: 808.531.3017 ext. 221
Direct: 808.954.4221
Mobile: 817.422.1372
Fax: 808.531.3177

▸ **Website** | **Facebook** | **Twitter** | **LinkedIn**

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innovation through engineering & scientific excellence

October 23, 2023

Ms. Cindy Evans, Council Member
Hawai'i Councy Council Member for District 9

TRANSMITTED VIA EMAIL TO Cindy.Evans@hawaiicounty.gov

Aloha Council Member Evans:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 15, 2023 pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We appreciate your comment that a revetment extension would last longer than concrete piles and the effectiveness of a sand berm during a winter storm. Please note that, as a result of the assessment of the harbor and wave analysis and public comments, the project has been redesigned. The Draft EA Section 2.3 and 2.4 discusses, respectively, the Proposed Actions and Alternatives Considered. The Proposed Action includes:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping; and
- Extend the existing breakwater by 80 feet inland. We note that the sand berm is no longer part of the Proposed Action due to community preferences expressed in a March 30, 2023, meeting held at the Kawaihae Canoe Club hale. Participants preferred no berm due to possible impacts on canoe paddling activities, and project engineers redesigned accordingly.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

**Berna Senelly**

---

**From:** Hekekia, Joshua K <joshua.k.hekekia@hawaii.gov>
**Sent:** Wednesday, March 15, 2023 8:00 PM
**To:** NKSBH
**Subject:** [External] Early Consultation - North Kawaihae Small Boat Harbor Breakwater and Shore
**Attachments:** JH 1603NA - Pre-Con - NKSBH Breakwater & Shore Beam Imp, Waimea, Hawaii (part 1) - signed.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Completed



Ms. Senelly,

Please see the attached response letter from our office regarding the agency early consultation request on the North Kawaihae Small Boat Harbor proposed repairs and improvements.

If you have any questions or concerns, please contact me via the information below.

OFFICE OF PLANNING & SUSTAINABLE DEVELOPMENT
STATE OF HAWAI'I

**Joshua K. Hekekia**
**Office of Planning & Sustainable Development**
Planner, Coastal Zone Management Program
235 S. Beretania Street, 6th Floor
Honolulu, Hawaii 96813
Ph.: (808) 587-2845
Joshua.k.hekekia@hawai.gov

# STATE OF HAWAI'I
# OFFICE OF PLANNING
# & SUSTAINABLE DEVELOPMENT

235 South Beretania Street, 6th Floor, Honolulu, Hawai'i 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawai'i 96804

JOSH GREEN, M.D.
GOVERNOR

SCOTT J. GLENN
DIRECTOR

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: https://planning.hawaii.gov/


Coastal Zone Management Program

Environmental Review Program

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented Development

Statewide Geographic Information System

Statewide Sustainability Branch

DTS 202303061603NA

March 15, 2023

Ms. Berna Cabacungan Senelly
Oceanit
Senior Regulatory and Community Lead
828 Fort Street Mall, Suite 600
Honolulu, Hawai'i 96813

Dear Ms. Cabacungan Senelly:

Subject: Pre-Assessment Consultation for an Environmental Assessment for the North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements, Waimea, Island of Hawai'i

Thank you for the opportunity to provide comments for the proposed North Kawaihae Small Boat Harbor (NKSBH) Breakwater and Shore Berm Improvements. The review material was sent to our office via email dated March 6, 2023.

It is our understanding that The State of Hawai'i Department of Land and Natural Resources (DLNR), Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater that was severely damaged by winter storm swells on New Year's Eve, December 2019. The proposed breakwater replacement will be better able to withstand larger wave forces and reduce wave intrusion into the harbor. Additionally, a sand berm barrier will be installed to keep the sand from accreting onto the boat ramp.

The existing breakwater elevation will be raised from six feet above mean lower low water (MLLW) to 10 feet MLLW. The breakwater section will be 10 feet wide at its crest to accommodate maintenance equipment. The bottom width of the structure will be below the waterline.

The Office of Planning and Sustainable Development (OPSD) has the following comments to offer:

1. Coastal Zone Management Act (CZMA), Federal Consistency
   We note that the proposed action may occur within submerged lands. The work within the breakwater inner harbor and restoration of the boat ramp may be subject to federal permits such as a Department of the Army Nationwide Permit. Please consult with the appropriate federal authorities, such as the U.S. Army Corps of Engineers, on applicable federal approvals and authorization. If it is deemed that federal permits are needed, then this project may be subject to CZMA federal consistency.

   OPSD is the lead state agency with the authority to conduct CZMA federal consistency reviews. We recommend that DLNR-DOBOR consult with our office on the applicability of CZMA federal consistency if federal permits are required.

2. Hawai'i Coastal Zone Management (CZM) Program
   The CZM area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" under Hawai'i Revised Statutes (HRS) § 205A-1.

   Pursuant to HRS § 205A-4, in implementing the objectives of the CZM program, agencies shall consider ecological, cultural, historic, esthetic, recreational, scenic, open space values, coastal hazards, and economic development. As the proposed action is being proposed by DLNR-DOBOR, the Draft EA should include a discussion on the project's consistency with the policies of the Hawai'i CZM Program, HRS § 205A-2, as amended.

   Furthermore, the objectives and supporting policies of the Hawai'i CZM Program serve as the foundation of the enforceable policies of the State of Hawai'i, as listed in HRS § 205A-2. Disclosure of impacts on CZM objectives and supporting policies, as it relates to HRS Chapter 343 requirements, will aid the State in determining impacts to the resources of the coastal zone, and mitigation measures on lands involved for this proposed action.

3. Special Management Area (SMA) Use Permit / Shoreline Setback Variance (SSV)
   Pursuant to HRS § 171-6, as amended, SMA use permits are not required for planning, design, construction, operation, and maintenance of any lands or facilities under the jurisdiction of the DLNR-DOBOR. However, we recommend that your agency consult with the County of Hawai'i Planning Department as to whether there are shoreline setback requirements that are applicable for this proposed project.

4. Climate Change Adaptation/Sea Level Rise (SLR)
   Based on the included maps from the review material the boat harbor and its support facilities may be vulnerable to SLR related natural hazards. Natural hazards associated with SLR that may impact NKSBH include storm surge, coastal erosion, intense wave action, high winds, and potentially hurricanes. These coastal areas threats may

negatively affect the long-term viability of this facility. To assess the potential environmental impacts and vulnerability of this facility, we suggest the Draft EA refer to the findings of the Hawai'i Sea Level Rise Vulnerability and Adaptation Report 2017, accepted by the Hawai'i Climate Change Mitigation and Adaptation Commission.

The Report, and Hawaii Sea Level Rise Viewer at https://www.pacioos.hawaii.edu /shoreline/slr-hawaii/ identifies a 3.2-foot SLR exposure area across the main Hawaiian Islands, as a starting evaluation point. The Draft EA should provide a map of 3.2-foot SLR exposure area in relation to the project area, and consider site-specific mitigation measures, including setbacks from the shoreline or relocation options further inland, increasing the height of the support facilities to accommodate higher water levels, or various climate change adaptation strategies to respond to impacts of 3.2-foot SLR or greater.

If you have any questions, please contact Joshua Hekekia on Environmental Assessment concerns as they relate to this OPSD response letter at (808) 587-2845; or Debra Mendes on CZMA federal consistency issues at (808) 587-2840.

Sincerely,

Justine Nihipali
Planning Program Manager
Coastal Zone Management Program

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October 23, 2023

Ms.Justine Nihipali, Planning Program Manager
Coastal Zone Management Program
State of Hawai'i Office of Planning & Sustainable Development
235 South Beretania Street, 6th Floor
Honolulu, Hawai'i 96813

TRANSMITTED VIA EMAIL TO joshua.k.hekekia@hawaii.gov

Aloha Ms Nihipali:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 15, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. The following responses correspond with numbered comments in your comment letter.

1. Coastal Zone Management Act (CZMA), Federal Consistency

   The Proposed Action is located within submerged lands, and is subject to federal permits, including the Department of Army Nationwide or Individual Permit. We are continuning discussions with the US Army Corps of Engineers as to the proper permits and approvals for the Proposed Action. Further, as noted in the Draft EA Section 4.2.5, Hawai'i Coastal Zone Management, an application for a CZM Federal Consistency Review determination will be submitted for the Proposed Action.

2. Hawai'i Coastal Zone Management (CZM) Program

   We appreciate your providing the legal framework for the CZM program and note that a full discussion of the relationship of the Proposed Action to CZM objectives and supporting policies is presented in Table 4 3, Relationship to Hawai'i CZM, in the Draft EA Section 4.2.5, Hawai'i Coastal Zone Management.

3. Special Management Area (SMA) Use Permit / Shoreline Setback Variance (SSV)

   In a pre-consultation comment letter dated March 21, 2023, from the County of Hawai'i Planning Department, the Planning Director indicated that no shoreline certification is required and the requirement of a shoreline certification for the Proposed Action is being waived. Further, under Hawai'i Planning Commission Rule 9, SMA "development" does not include "*Plan(ning), design(ing), construct(ion), and maintain(ance of) any lands or facilities under the jurisdiction of the division of Boating and Ocean Recreation of the State Department of Land and Natural Resources* (parenthical wording added)."

   In the aforementioned comment letter, it was further noted that, in accordance with Planning Department Rule 11 relating to the Shoreline Setback Area (SSA), the Proposed Action is considered "*Work being done consists of maintenance, repair, reconstruction, and minor additions to or alterations of legal, publicly-owned boating, maritime, or water sports*

*recreational facilities, which result in little or no interference with natural shoreline processes."* It was therefore stated that no SSV will be required for the proposed project.

4. Climate Change Adaptation/Sea Level Rise (SLR)

   Section 3.1.10, Climate Change and Sea Level Rise, of the Draft EA contains a discussion of the effects Climate Change and SLR and includes discussion and a map of the 3.2-foot SLR exposure area in relation to the project area. The height of the breakwater was increased to accommodate higher water levels.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

## Dale Uno

**From:** Bill-Hawi <skc001@hawaii.rr.com>
**Sent:** Thursday, March 16, 2023 8:23 PM
**To:** NKSBH
**Cc:** Dennis & Lehua; !Bill's Laptop
**Subject:** [External] RE: Pre-Consultation on the North Kawaihae Small Boat Harbor
**Attachments:** NEWSLETTER_05-0800b.pdf; NEWSLETTER_06-0800 w MAP.pdf; NEWSLETTER_07-0400.pdf; P&R 05-1212 Permission Rqst_Att.pdf; P&R 05-1212 Permission Rqst_Att.pdf; AO Fr 08-1202 North Basin 1960s.jpg

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



Aloha Berna:

Thank you for the timely email and background information. My apologies for my UNtimely response (I will refrain from trying to wiggle out of my tardiness with excuses).

I'll pore through the EA and provide a response/comments on it.

As background, I am the current (I think "holdover" might be a better descriptor) president of the Kohala Trollers boat fishing club. Although we have not been active in recent years organizing events (life has caught up to some of us), our officers and former members are (mostly) still alive and active in their use of the various boating facilities along the west side of the island, Kawaihae in particular. The Kawaihae north basin (NKSBH) has had issues for a very long time with wave action eroding/destroying the breakwall on the north side of the ramp with resultant sand accumulation in the ramp (and in the other corners of the basin as well).

As a club, we've tried to assist with dealing with the problems at NKSBH since 2005 (I've attached several of our old newletters for background). In person meetings with our political representation at that time (Reps Dwight Takamine and Cindy Evans), as well as assistance from our congressional delegation (Senator Akaka and Rep Case), local representation (Councilmen Pete Hoffman & Fred Hoshcuh as well as three mayoral adminstration: Yamashiro, Kim, Kenoi), DLNR-DOBOR, DOH, and meetings/discussion US Army Corp of Engineers (ACOE) did not produce immediate results. But it did (I hope) provide some impetus towards the current move to push this project forward.

I've also attached some other info (2005 letter to P&R and 1960's photo of the north basin) for your enjoyment.

Representing Kohala Trollers, I also participated from 2013 on WESPAC's Non-Commercial Fisheries Advisory Committee (NCFAC) until its reorganization in 2020, reviewing and advising on issues affecting the non-commercial fisheries community (which includes most of the users of NKSBH), including funding for improvements to infrastructure (like NKBH) important to the boating community.

I'll draft up my EA comments and get them out tonight. I would also appreciate a note on what time the meeting will be held on the 31st as I am curious how the current plan will be received. Hopefully current health issue won't prevent me (and perhaps others) from showing up.

Will there be pupu & beverages?

Mahalo!

Bill

**From:** NKSBH [mailto:NKSBH@oceanit.com]
**Sent:** Tuesday, March 7, 2023 8:38 AM
**To:** skc001@hawaii.rr.com
**Subject:** Pre-Consultation on the North Kawaihae Small Boat Harbor

Aloha Bill,

Representative Tarnas graciously suggested that I talk to you about proposed improvements to the North Kawaihae Small Boat Harbor. As this email notes, we are asking for comments on the project and you can email comments and/or attend the meeting. If you want to talk story beforehand, that would be greatly appreciated. Please call me at 817.422.1372 if you wish to chat.

The North Kawaihae Small Boat Harbor (NKSBH) has been severely damaged during a recent storm event between December 31, 2019 and January 1, 2020. The marginal wooden wharf was condemned by the Hawai'i DLNR in January 2020 and subsequently removed in April 2020. Two smaller sections of the wooden marginal wharf were rebuilt by commercial operators to allow them to continue to operate out of NKSBH. All other vessels berthed at NKSBH were relocated out of the harbor.

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) proposes to redesign and improve the damaged NKSBH breakwater to better accommodate winter swells. The new breakwater will be able to withstand larger wave forces and reduce wave intrusion into the harbor, thus minimizing damage to harbor structures and vessels that use the harbor. A sand berm barrier will be installed to keep the sand from accreting onto the boat ramp. DOBOR is preparing an Environmental Assessment based on Chapters 343 and 344, Hawai'i Revised Statutes (HRS) and Chapter 11-200.1, Hawai'i Administrative Rules (HAR). DOBOR is conducting a two-part consultation process, as follows:

- Part 1: Written consultation comments. Agencies, organizations, and individuals are invited to submit written comments by Friday, March 17, 2023. Consultation comments may be emailed to NKSBH@Oceanit.com or mailed to

  Berna Senelly
  Oceanit
  828 Fort Street Mall, Suite 600
  Honolulu, Hawai'i 98813

- Part 2: A community meeting will be held on March 31, 2023. at the North Kawaihae Small Boat Harbor to discuss the alternatives to protect the harbor. Agencies, organizations, and individuals are invited to attend this meeting to submit their consultation / comments and provide input on the project. We will inform you of the meeting time in a separate email.

All consultation comments and responses will be included in the Draft Environmental Assessment.

We are attaching a Pre-Consultation Information for your use.

Please let me know if you have any questions.

Sincerely,

Berna Cabacungan Senelly

AUGUST 2005

# ~KOHALA TROLLERS~
# Newsletter

## PRESIDENT'S REPORT

These past months running the club's affairs have been eye-opening to me; it's a "helluvalotta" work for no pay. But, hey, I like doing this since it helps us all out. The rest of the officers (VP, Alika Tavares, Treas., Dennis Matsuda, & Sec., Dawn Shontell) and I have been working towards the goal of building our membership in order to more effectively advocate on boating & fishing issues in North Hawaii. Towards that end, we've been working on the following initiatives:

1) Build Membership – By increasing the size of the prizes so that you can at least get back your expenses for the day, plus door prizes, we've made the tournaments much more attractive than they've been in years (see section on MEMBERSHIP). With more members, the agencies and politicians are more likely to listen to us. I've already noticed a difference when I call them up on things.

2) Signs Around Ramp – We've been working with DLNR-DBOR ("the State") to get the signs around the Kawaihae ramp (No Swimming, No Parking, etc.) fixed. After months of phone calls and digging post holes, the signs are pau. If you see people not obeying the signs don't call the police, call DLNR-DOCARE ("the Game Warden") at **887-6196**. It's their job to enforce the signage.

3) Repair Breakwall On North Side of Small Boat Basin – Because it involves "fixing" an existing wall, the permits and time (measured in years, not weeks) is much less (a few years vs. many years) than trying to build any kind of new structure (ramps, docks, etc.) at Kawaihae. Up through the early 80's the wall was about 6-8 feet higher than it is now (we have pictures!) and used to block the waves from washing into the basin. The goal is to work with DBOR to process the permits needed for the repairs and then solicit donations of equipment and material to re-stack the wall. Just hope that the enviro-mental-ists don't shoot things down.

4) South Basin Ramp & Pier – The legislature (**Rep. Cindy Evans**) has appropriated $2.4 million for the design, permitting, and construction of a ramp, loading dock, water, and maybe a toilet or two at the new South Basin. $2.4M doesn't buy much, but it's a start. The state's time frame is 2-3 years to start building. As they say, "the squeeky wheel gets the grease" so no shame call the big-boss at DBOR, **Richard Rice** at **587-1966** (or, call toll free: 974-4000, "listen to the instructions" then dial 7-1966#) to let him know we're tired of waiting!

5) Mahukona Ramp – Still working on a project started roughly 28 years ago: a new ramp at Mahukona. The Corp of Engineers this summer finished their "recon" study (first started in 1990!) and has determined that Mahukona qualifies for federal matching funds. Now they've asked congress for funding the "feasibility study" (a 4-5 year, $1.1 million study) and **Senator Dan Akaka** and **Rep. Ed Case** have been working hard on the congressional appropriation for next year while **Rep. Dwight Takamine** has been working on the state's portion. The Corp's estimated time frame is to start construction in 2013. Stay tuned....

Any other ideas? Let me know and we'll see if we can squeeze it into the day (no guarantees).

MAHALO!

Bill Shontell
President

KOHALA TROLLERS

## MEMBERSHIP

The following are members in good standing for 2005:

Joe & Jackson Cootey; Mike Harvey; Shannon Javillonar; Brandon Carvalho; Bill & Dawn Shontell; Dennis Matsuda; "Rock & Roll" Ventura; Carmelo Ventura; Wilbert Lee; Joseph, Vivian, and Michael Maria; Mike & Nicholas Camp; Lucky Puhi; Kwanji Fukuyama; Tyson Fukuyama; Nina Segovia; Ray Pineda; Mark & Matthew Janiec; Tootsie Timm; Andy Ho; Kim Mattos; Clifford, Cary, Ethen, Evander, & Orson Guerpo; Wes Murakane; Michael Alamida; Wilton Camara; Stan Lavine; Dick Medue; Ned Salvador; Clive Tanimoto; Tony Ross; "Bob"; Shawn Ancheta; Russel & Shirley Milhausen; Larry Ibana; Kyle H.; Shane C.; Teddy Bell; Keith Bell; Darrion Tyan-DeSilva; Brian Slocum; Nina Sirisom; Kawika Devine; Arnie Wolfe; Harry Ruddle; Eric Miranda; Keola Tavares; Alika Tavares; Sherwin Yamasaki; Torry Caravalho; Alan Coito, Jr.; Beau & Randall Cazimero; Kolby Caravalho; Chris Santiago; Lance & Weston Cazimero; Josia Hook; Don Johnson; Christian Hyatt; Max Cabulizan; "Edna"; Roger Ventura; E. Aquinaldo; Alton Oye; Roman & Kaulana Hao; Kinau Puhi; Eli Gadd; Marcus Johnson; Sky Harris; Jeff, Jeff Jr., & Ariel Medeiros. (83 names)

Our membership currently stands at 83, almost triple what it's been in the past. Your kōkua in building the membership is appreciated – the more members we have, the more influence we will have in getting improvements made to our boating facilities. **Also, we need more members and fee-paying teams to make the tournaments self-supporting** – otherwise, fees might have to go up later on to cover costs. We can't count on outside donations forever.

## SPRING TOURNAMENT

The Spring Tournament was held on May 7, 2005. We had a great turn-out with 26 teams participating. I am proud to say that no one walked away from this tournament empty-handed (MUCH Mahalo to **Ned Salvador** and "**Joe Boy" Cootey** for hustling-up so many of the door prizes – excellent job!).

The big winners in the fish categories were:

**Marlin**
1st – Team "Lanakoi" (**Alton Oye**, Capt.)
2nd – Team "Baja Princess" (**"Rock & Roll" Ventura**, Capt.)

**Ahi**
1st – Team "Triumph 210" (**Ray Pineda**, Capt.)

**Ono**
1st – Team "J. Crew" (**Joe Cootey**, Capt.)
2nd – Team "KahoopomaiKai" (**Shannon Javillonar**, Capt.)
3rd – Team "Boss Man" (**Cliff Guerpo**, Capt.)

**Mahimahi**
1st (TIE) – Team "Mikaela Kai" (**Mike Camp**, Capt.) & Team "Flow Master" (**Torry Caravalho**, Capt.)

2nd – Team "T-N-T" (**Kwanji Fukuyama**, Capt.)
3rd – Team "Piilani B." (**Tootsie Timm**, Capt.)

Thus far the 3 leaders for the ANNUAL GRAND CHAMP PRIZE are: **Cliff Guerpo** (72#), **Joe Cootey** (57-½#), and **Keola Tavares** (52-½#).

Special Thanks to **Alvin "Da Traffic Cop" Baptiste**, **Dennis Matsuda**, **Wil Shontell** and **Rob Baird** for busting their okoles helping to run the tournament.

CONGRATULATIONS to everyone!

## DONATIONS

We would like to acknowledge the many individuals and businesses that have been so generous in donating prizes and supporting our club. Please give them your kökua as they have been very generous to us:

Melton Fishing Tackle, Kona Coast Marine, Kona Marine Supply, Big Island Marine, Gaspro, Starwind Marine, Hilton Waikoloa Village, Mauna Kea Resort, Pono Holo Ranch, Hilo Engineering, ReMax Pacific, Mauna Lani Resort GC, Kohala Diner, Central Supply, Engineering Concepts, Surety Kohala Corp., Willocks Construction Corp., Hawaii Forest & Trail, ATV Outfitters, HPM, Flumin' Da Ditch/HMV Tours, Carlsmith Ball, S. Tokunaga Store, Goodfellow Brothers, Kona Fishing Tackle, Bill Shontell, Jr., JT Lures, Elizabeth Merk Investments, Waimea Express, Ace Hardware (Waimea), Cafe Pesto, Reel Pleasure Sport Fishing, George M. Oye, Inc., Strategic Alternatives International, LLC.

## NEXT TOURNAMENT

The Club's final tournament of the year, the FALL TOURNAMENT is coming up quickly on Saturday Sept. 10, 2005. Please get your entry forms in to **Bill Shontell** (889-6257) or **Alika Tavares** (882-7306) or mail to the club at **P.O. Box 23 Kapa'au, HI 96755** as soon as you can – it makes it much easier to plan out püpü and refreshments ahead of time. Forms can be found at **Naito Store**, **Nakahara Store**, **La'au Fishing** or from Bill or Alika.

## FINANCIAL REPORT

| | | |
|---|---|---|
| **Prev.Balance (2/05)**: | | **1,542.65** |
| | | |
| **Revenues:** | | |
| Mem.ship (80@ $5) | 400.00 | |
| Spring Trny Fees (26@$70) | 1,820.00 | |
| Donations/Subsidy | 4,833.30 | |
| Total Revenues | | **7,053.30** |
| | | |
| **Expenses:** | | |
| Spr.Trny Prizes | < 2,450.00> | |
| Trny Door Prizes | <650.00> | |
| Spr. Trny.Expenses | <464.74> | |
| O.head (insr, paper) | <617.79> | |
| Total Expenses | | **<4,182.53>** |
| | | |
| **New Balance (8/05):** | | **4,413.42** |

**PAU.**

AUGUST 2006

# ~KOHALA TROLLERS~
# Newsletter

## PRESIDENT'S REPORT

ALOHA! At this mid-point in the year, I'd like to take a look back at some of the recent accomplishments and issues.

1) Membership -- I want to express to you the need for each and every one of us to work hard on new membership. Without adequate dues-paying and tournament-entering membership, the club will not be able to continue as a viable organization. So, every effort that you can make to encourage others to participate in the tournaments benefits us all.

2) Weigh Master for Next Year – **I want to fish in the tournaments next year**, so if we want a nice, smoothly run tournament, **we need a volunteer(s) to set-up the scales and record weights during next year's tourneys.** I'll still do the "headache-stuff" like printing and distributing paperwork, chasing donations, insurance, permits, collecting entries in the early morning, tallying prizes afterwards and passing them out, etc. **Just need someone to set up a couple tables, make a scoreboard, help scale fish, accurately record weights, help tally up the weights, and help with passing out prizes**. What do you get out of it? The satisfaction of a job well done, plus your pick of any of the donated door prize items – maybe a Mauna Kea Buffet for two, anyone?

Wanna Kokua and have your wife/son/uncle/dad/nephew/whatever snag an easy prize? Contact me at 987-4119 (lv message) and we can work out the details.

3) No Parking Area Next to Canoe Club – The County has finalized it's lease with the canoe club for the 4.7 acres between the light house and the shopping center. The County kept jurisdiction over the parking area up against the canoe club (where we weigh fish – see the map on the last page), between the two "No Parking" signs. SO, if you pull up to the ramp with your trailer, and there's some jack *** parked between the two signs and blocking the way (this includes the canoe people, too), call **Police Dispatch (935-3311)** and tell them to come deal with it.

4) No Swimming In Ramp – Don't forget that kids swimming in the ramp area are a lawsuit waiting to happen. **Want to risk losing everything you own, along with injuring a little kid?** I hope not. If you're launching or recovering your boat, and the kids won't get out of the way, or their parents give you lip when you ask them to get their kids out of the way, call DOCARE ("the Game Warden") at **887-6196** and demand that they enforce the rules. **This is for our own protection (from getting sued) and to protect these kids from themselves**.

5) Sand/Busted-up Wharf – It's almost that time of the year when the Kawaihae ramp gets all screwed-up from the surf.

I know it's discouraging to have to deal with the same crap every year from the State, **but the only way to get this to change is to make a lot of noise to the politicians and agencies**. Grumbling amongst ourselves doesn't accomplish anything.

Call them up and let them know you are there! Call your county councilman (**Pete Hoffman (887-2069)** and **Fred Holschuh (961-8264)** and tell them to bug the state to fix the damages at the small boat harbor (remind them it's an election year). Call your state representatives (**Cindy Evans 974-4000, ext. 68510#**, and **Dwight Takamine 974-4000, ext. 66200#**) and tell them to bug DLNR-DOBOR on your behalf. Call the DLNR-DOBOR Small Boat Harbors

manager, **Nancy Murphy** at **329-4215** and give her the riot act.

**Don't just call once – call a lot (these are toll-free #'s) and demand action. Remember, the squeeky wheel gets da grease!**

6) Mahukona Ramp – The Army Corp of Engineers finished the first of 3 studies and has determined that a ramp at Mahukona qualifies for **federal** matching funds for the next study ("feasibility"). The Corp has asked congress to fund the second study. **Senator Akaka** has been working on the congressional appropriation for next year while **Dwight Takamine** has been working hard on the state's portion. Stay tuned....

That's all I can think of. Anyway, good luck and good fishing to all of you!

MAHALO.

Bill Shontell
President
**KOHALA TROLLERS**

## MEMBERSHIP

The following are members in good standing through August 2006:

Bill & Dawn Shontell; Dennis Matsuda; Guy Sasaki; Kwanji & Tyson Fukuyama; Nina Segovia; Tony Ross; Jeff Hammerand; Shawn Ancheta, Clifford, Cary, Ethen, Evander, & Orson Guerpo; Darroll & Ross Naungayan; Val Cornejo; Jie & Jackson Cootey; Mike Harvey; Wes & Alton Murakane; Wilton Camara; Lydell Cardoza; Stan Lavine; Boo Boo; Ned Salvador; Clive Tanimoto; Robert & Robert Jr., Medeiros; Guy Kamimi; Tyson Neves; Alika & Keola Tavares; Lucas Gomera; Rock & Roll; Robert Ventura, Jr.; Alex, P.J., Ares Visaya; Chris Jones; Nicci Gehwiller; Cheech Sarme; Walter & Conner Aniban; Mike & Nicholas Camp; David Hao; Lopaka Kualii; Wayne Cypriano; Troy Caravalho; Alton Oye; Roman Hao; Alvin Baptiste; Tom Oiye; Jacinth DeLuz; James Reynolds; Roger Ventura; Danny; Russel Milhausin; Cory Eubank; Symon Metson; Richard Prohorhoff; Teddy Akau; Kawika Devine; Arnie Wolff; Jeff & Jeff Jr. Medeiros; Chad Caravalho; Kulike Chong; Chad Caravalho (different one!); Sky Harris; Heather Dickson; Jim Dickson; Dan Jelks; Rubin; Rob; Robby; Ed, Tramaine, Destin Baquiring. (81 names)

Your kōkua in building the membership is appreciated – the more members, the more influence we will have in getting improvements made to our boating facilities, not to mention better prizes in the tournaments!

## SPRING 2006 TOURNAMENT RESULTS

The 2006 Spring Tournament was held on May 20, with 27 teams participating. Once again, I am proud to say that no one walked away empty-handed (MUCH Mahalo again to **Ned Salvador** and **Joe Cootey, Jr.** for helping to hustle door prizes).

The tournament winners were:

**Marlin**
1st – None caught.

**Ahi**
1st – Team "Kaimana II" (**Wes Murakane**, Capt.)

**Ono**
1st – Team "Kamakau" (**Keola Tavares**, Capt.)
2nd – Team "Makalei" (**Russel Milhausen**, Capt.)
3rd – Team "Baretta" (**Robert Medeiros**, Capt.)

**Mahimahi**
1st – Team "Uku Fish" (**Stan Levine**, Capt.)
2nd – Team "J. Crew" (**Joe Cootey**, Capt.)
3rd – Team "Laura Lee" (**Tony Ross**, Capt.)

**Ulua -** None caught

**Aku/Kawakawa**
Team "Melany" (**Roger Ventura**, Capt.)

**Ned's Smallest Ono Jackpot**
Ned Salvador (10# ono).

**Grand Champ**
Thus far the 3 leaders for the ANNUAL GRAND CHAMP PRIZE (this year, an 80 Penn International) are: **Stan Levine** (77.5#), **Wes Murakane** (65#), and **Keola Tavares** (60-½#).

Special Thanks to my sons **Wil & Ryan,** and wife **Dawn**, for helping with the tournament "aftermath."

CONGRATULATIONS & MAHALO to everyone!

## NEXT TOURNAMENT

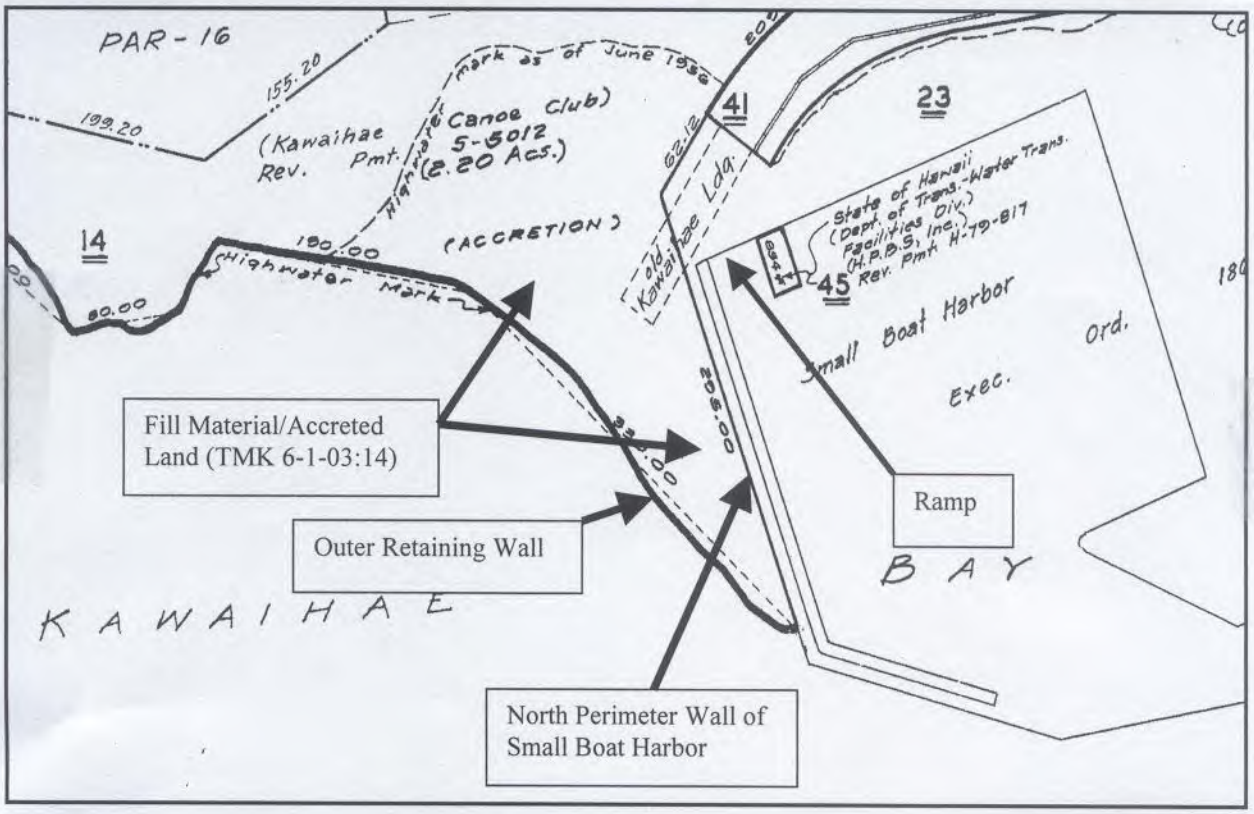
The Club's next tournament is the 2006 FALL TOURNAMENT which is coming up quickly on Saturday September 16. Please get your entry forms in EARLY to **Bill Shontell** (889-6257) or **Alika Tavares** (882-7306) or mail to the club at **P.O. Box 23 Kapa'au, HI 96755** as soon as you can – it makes it much easier to plan out pūpū and refreshments ahead of time. Entries will also be accepted by the Tournament Chairman (me, if my back doesn't act up again) at Kawaihae Ramp the morning of the tournament (see entry packets for rules). Packets can be found at **La'au Fishing, Naito Store**, **Nakahara Store**, **Arakaki Store** or from Bill or Alika.

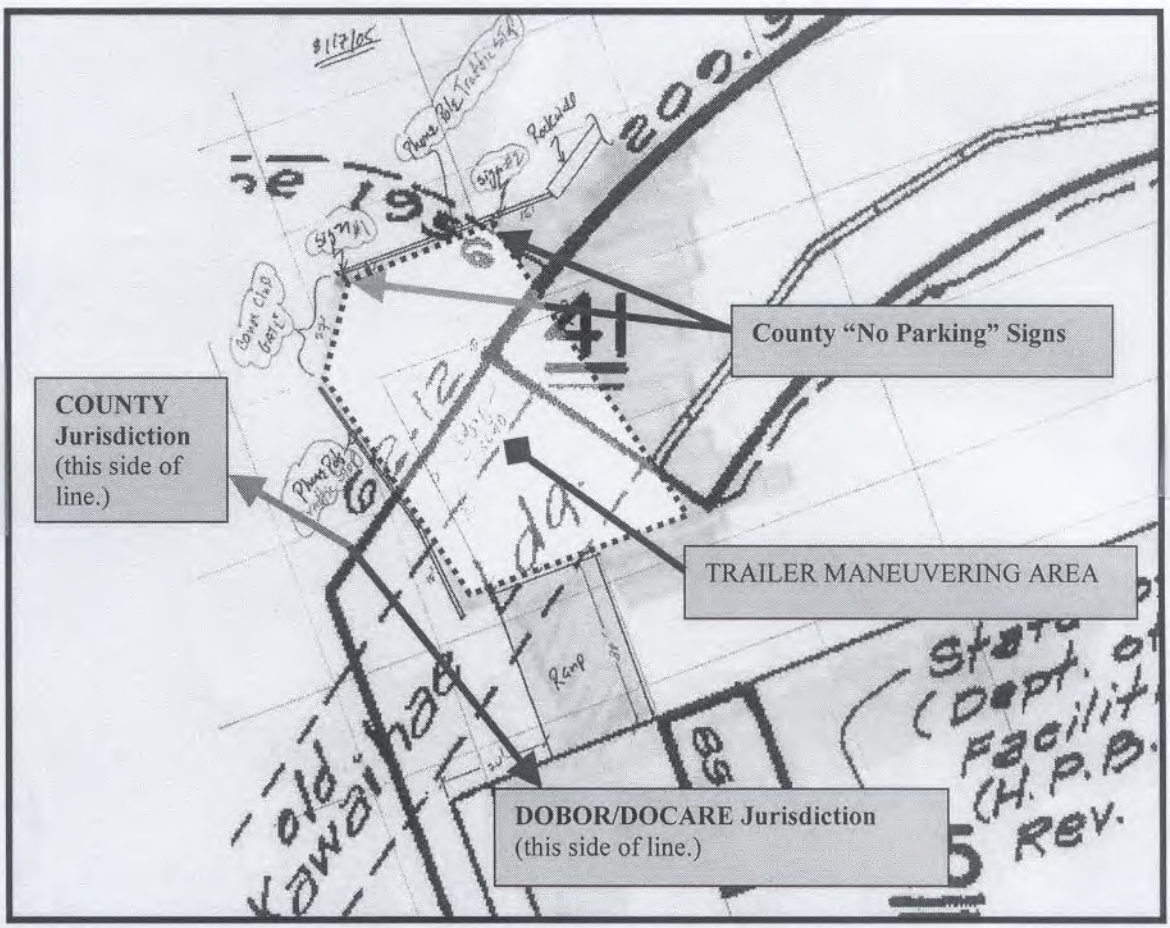
**Also, make sure you hang around for your door prizes!** If no one's there from your team to claim the prize, we will return it to the pool and raffle it off to someone else.

## FINANCIAL REPORT

| | | |
|---|---|---|
| **Prev.Balance (3/06)**: | | **3,302.22** |
| | | |
| Revenues (Spring): | | |
| Mem.ship (79@ $5) | 395.00 | |
| Trny Fees (27@$70) | 1,890.00 | |
| Cash Donations | 4,963.08 | |
| **Total Revenues** | | **7,248.08** |
| | | |
| Expenses: | | |
| Spring Trny Prizes | < 1,775.00> | |
| Door Prizes | <1,829.0> | |
| Fall Trny. Exp | <230> | |
| O.head (insr, paper) | <683.78> | |
| **Total Expenses** | | **<4,517.78>** |
| | | |
| **Current Bal. (8/06):** | | **6,032.52** |

# *PAU*




KAWAIHAE RAMP NO PARKING AREAS

APRIL 2007

# ~KOHALA TROLLERS~
# Newsletter

## PRESIDENT'S REPORT

Happy 2007! I finished last year's final newsletter with a statement on pushing for more membership/tournament participation. I'm going to start this year with the same rap: we need new dues-paying and tournament-entering members. I see a lot of new boats and faces at the ramp so please talk story with them, and get them involved!

Last year was another great year for the club – membership was up from 95 to 118. We need to get another 10 or so boats into the tournaments for the tournaments to be close to self -sustaining (i.e., fees-in = prizes out).

Couple of other things I'd like to mention:

1) Tournament Schedule – The tournament committee has met, and this year's two tournaments are the **Spring Tournament** on **May 19** and the **Fall Tournament** on **September 8**. If you don't receive an entry form in the mail, they'll be available at La'au Fishing, Naito Fishing, Arakaki Store, and Ace Hardware-Waimea. Prizes will be the same as last year, and hopefully the door prize donations are generous, too. I am hoping a donation will be made towards another gold reel for the grand champ. We'll just have to wait and see….

2) Weigh Master – **We need a volunteer to man the scales and record weights during this year's tourneys.** I'll do the up-front paperwork (printing/mailing forms, chasing donations, insurance, permits, collect entries in the early morning, tallying prizes afterwards and passing them out, etc.). **Just need someone to set up a couple tables, weigh fish, keep the scoreboard, and help with passing out prizes**. What do you get out of it? The satisfaction of a job well done, PLUS your pick of any ONE of the donated door prize items – maybe a Buffet for two, anyone?

Contact me at 987-4119 (lv. message) if you're interested. First come, first served!

3) Sand/Busted-up Wharf – If you haven't noticed, the ramp was dredged early and deep this year. This is a direct result of club members doing two things: **showing up at public meetings regarding Kawaihae** AND **calling up the public officials and (politely) bugging their okoles to do something!**

As I've said before: **the only way to get things changed is to make a lot of noise to the politicians and agencies**. Grumbling amongst ourselves (and at me) is a waste of air. Call the following people and let them know what you want:

DLNR-DOBOR: **Ed Underwood** (he is the main person to contact) at **1-808-587-1966.**

State Representatives: **Cindy Evans (974-4000 ext. 68510#)** and **Dwight Takamine (974-4000, ext. 66680#)**.

State Senators: **Paul Whalen (974-4000 ext. 69385#) and Lorraine Inouye (974-4000 ext. 67335#)**.

County Councilman: **Pete Hoffman (887-2069)** and **Dominic Yagong (961-8264)**

**Remember, the squeeky wheel gets da grease!**

4) Sand: EPISODE II – Now that the sand has finally been moved so it won't wash back into the ramp, **there are people starting to make noise to the county & state to put it back by the ramp. WE CANNOT ALLOW THAT TO HAPPEN!** So, call the politicians/agencies above and make plenty noise. You snooze, you loose!

5) Mahukona Ramp – The Army Corp of Engineers has finished a study that has determined that a ramp at Mahukona qualifies

for **federal** matching funds for the next-step study. The Corp has asked congress to fund the second study. **Senator Akaka** has been working on the congressional appropriation while **Dwight Takamine** has been working hard on the state's portion. This is a long term project so, stay tuned....

6) No Parking Area Next to Canoe Club –
As a reminder, the County finalized it's lease with the canoe club for the 4.7 acres between the light house and the shopping center, however, the County kept jurisdiction over the trailer maneuvering area up against the canoe club (where we weigh fish) between the two "No Parking" signs. SO, if you pull up to the ramp with your trailer, and there's some fool blocking the way (this includes the canoe people, too), call **Police Dispatch (935-3311)** and tell them to come deal with it.

7) No Swimming In Ramp – Don't forget that kids swimming in the ramp area are a lawsuit waiting to happen. **Want to risk losing everything you own, along with injuring a little kid?** If you're launching/recovering your boat, and the kids won't get out of the way, or their parents give you lip when you ask them to get their kids out of the way, call DOCARE ("the Game Warden") at **887-6196** and demand that they enforce the rules. **This is for your own protection (from getting sued) and to protect these kids from themselves**.

8) South Basin Ramp & Pier – The legislature has appropriated money for the design, permitting, and construction of a ramp at the new South Basin (past the coral flats). The state's time frame is now 2009 to start building the ramp. A paved road, water, toilets, etc. will follow "sometime" after that.

In the meantime, while we patiently wait for something to happen down there, there are existing repairs to the North Basin that require attention now. Same deal as always, if you want to see things change you have to step-up and speak-out.

That's all I can think of. Anyway, good luck and good fishing to you all!

MAHALO.

Bill Shontell
**KOHALA TROLLERS**

## MEMBERSHIP

The following are members in good standing through 2006:
Bill & Dawn Shontell; Dennis Matsuda; Guy Sasaki; Kwanji & Tyson Fukuyama; Nina & Tom Segovia; Tony Ross; Jeff & Peggy Hammerand; Shawn Ancheta, Clifford, Cary, Ethen, Evander, & Orson Guerpo; R.Madarany; Darroll & Ross Naungayan; Val Cornejo; Joe & Jackson Cootey; Ikaika Chong; Kilino; Mike Harvey; Wes & Alton Murakane; Wilton Camara; Lydell Cardoza; Stan Lavine; Boo Boo; Ned Salvador; Clive Tanimoto; Robert & Robert Jr. Medeiros; Guy Kamimi; Bill & Tyson Neves; Alika & Keola Tavares; Lucas Gomera; Rock & Roll; Robert Ventura Jr.; Alex, P.J., Ares Visaya; Devin; Chris Jones; Nicci Gehwiller; Cheech Sarme; Walter & Conner Aniban; Mike & Nicholas Camp; Bruce Nishino; Stephen Ames; David Hao; Lopaka Kualii; Wayne Cypriano; Troy Caravalho; Alton Oye; Roman Hao; Alvin Baptiste; Tom Oiye; Jacinth DeLuz; James Reynolds; Roger Ventura; Danny; Russel Milhausin; Cory & Aaron Eubank; Symon Metson; Richard Prohorhoff; Teddy Akau; Kawika Devine; Arnie Wolff; Jeff & Jeff Jr. Medeiros; Chad Caravalho; Kulike Chong; Chad Caravalho (different one!); Sky Harris; Heather Dickson; Jim Dickson; Dan Jelks; Rubin; Rob; Robby; Ed, Tramaine, Destin Baquiring; Shannon, Matt, Manuel Jr. Javillonar; David Glennie; Mano

Desilver; Lance, Ian, Weston Caszimero; Eric Miranda; Joseph Johansen; Sheldon Batin; Jonathon Salboro; Shon Van Zandt; Cy Malasig; Tootsie Timm; Andy Ho; Peter Pakela; Donna Mae Costa; Kim Mattos, Keala Horn; Cliff Mcdonald; Al Berdon Jr.; Stanley Mitchell; Rochelle Ishikawa; Kyle Hirayama; Kainoa Keawe. (should be 118 names).

## FALL 2006 TOURNAMENT RESULTS

The 2006 Fall Tournament was held on September 16, 2006, with 26 teams participating. Results were:

**Marlin** -- None

**Ahi** -- None

**Ono**
1st – Team "Uku Fish" (**Stan Levine**, Capt.)
2nd (TIE) – Team "Kelani Kaz" (**Lance Cazimero**, Capt.) AND "Imua III (**Butch Berdon**, Capt.)

**Mahimahi**
1st – Team "Kealani" (**Shon Van Zandt**, Capt.)
2nd – Team "Kamakau" (**Keola Tavares**, Capt.)
3rd – Team "Highlander" (**David Glennie**, Capt.)

**Ulua –** Team "Baretta" (**Robert Medeiros**, Capt.)

**Aku/Kawakawa** – None qualified.
**Ned's Smallest Ono Jackpot**
Tootsie Timm

**Joe's Biggest Ono OR Mahi Jackpot**
Shon Van Zandt

**GRAND CHAMP for 2006**, walking away with a Penn International 80W and bent-but rod, with the highest total weight of qualifying flag fish caught in both tournaments: Capt. **Keola Tavares** of **Team Kamakau.**

CONGRATULATIONS & MAHALO to everyone!

## SPECIAL MAHALOs

I'd like to acknowledge the hard work and various contributions of the following: **Joe Cootey, Ned Salvador, Alika Tavares, and "Rock & Roll" Ventura**. It's their hard work that brings in the donations, makes the tournaments successful, and gets the politicians to do their jobs. For the rest of us – don't stand around like statues; let's get involved and help ourselves, too.

## FINANCIAL REPORT

| | | |
|---|---|---|
| **Prev.Balance (7/31/06)**: | | **6,032.52** |
| | | |
| Revenues (Fall): | | |
| Mem.ship (36@ $5) | 180.00 | |
| Trny Fees (26@$70) | 1,820.00 | |
| Donations | 70 | |
| **Total Revenues** | | **2,070.00** |
| | | |
| Expenses: | | |
| Fall Trny Prizes | < 1,475.00> | |
| Door Prizes | <0> | |
| Fall Trny. Exp | <1,036.83> | |
| O.head (insr, paper) | <15.60> | |
| **Total Expenses** | | **<2,527.43>** |
| | | |
| **Current Bal. (2/28/07):** | | **5,575.09** |

***PAU***

*Kohala Trollers*
*P.O. Box 23*
*Kapa'au, Hawaii 96755*

January 4, 2005

Ms. Pat Engelhard, Director
County of Hawaii
Department of Parks & Recreation
101 Pauahi Street, Suite 6
Hilo, Hawaii 96720

**SUBJECT: County Land Adjacent to Kawaihae Small Boat Harbor (TMK 6-1-03:14)**
**REF: Permission to Repair Existing Structures**

Dear Ms. Engelhard:

First-off, on behalf of the members of the Kohala Trollers, I would like to thank you for your assistance in resolving the traffic congestion problems on the subject land (TMK 6-1-03:14) adjoining the boat ramp at Kawaihae.

With the imminent resolution of that issue, we would like to move on to resolving another chronic problem near the ramp.

There is a small (roughly 0.5 acre) portion of TMK 6-1-03:14 adjacent to the north side of the small boat harbor that is accreted land (i.e., land artificially created via filling-in a portion of the sea). This land was created during construction of the small boat basin in the early '60's and was intended as a protective barrier between high winter surf and the boat basin. This barrier was created via the construction of an outer retaining wall and filling the area between the retaining wall and the north wall of the small boat basin with coral and sand dredged during construction of the main commercial harbor.

Attachment “A” is a map of a portion of tax map 6-1-03 showing the accreted land and the various structures/features mentioned above. Also attached are photos with notes (Figures 1 & 2) of the affected area.

For the first couple of decades, the retaining wall and fill worked well protecting the small boat basin. However, by the early 1980’s two decades of erosion began to allow the highest winter surf to breach the barrier and begin depositing sand in the harbor. Over the following decades, the erosion has grown until the current situation was created: the fill material is nearly 100% gone and even moderate winter surf easily breaches the north wall of the small boat basin. In fact, the basin’s north wall has been perforated by the pounding surf and will eventually collapse thereby exposing the interior of the small boat harbor directly to the dangerous surf. Also, the sand deposited by winter surf shuts-down the small boat harbor for 3-5 months every year (until DLNR-DOBOR can issue a contract to dredge the ramp area after the winter surf season ends).

After years of fruitlessly pleading to various state and federal officials to repair the damaged structures, the Kohala Trollers Club has taken it upon itself to spearhead the repair of the protective barrier in order to prevent the eventual destruction of the small boat basin should the north perimeter wall of the basin be collapsed by high surf.

Towards that end, we have secured access to a source of large (5 to 20 ton size) boulders to replace the 3-5 ton boulders pulled out of the outer retaining wall by the surf. We also have access to crushed rock to replace the missing fill section. We also have commitments from several heavy-equipment contractors to place the boulders and fill material where it needs to be placed.

The final part of the puzzle is the permitting required for the work. I have spent the past year informally meeting with the Army Corp of Engineers, various Divisions of DLNR and DOH, and former County Planning staff to discuss the project and the permit requirements necessary for this “emergency repair.” Although highly sympathetic of our dilemma, they will still be requiring submittals for a variety of permits, including possible EA, CDUA, SMA, and Army Corp approvals.

This brings us to the purpose of this letter.

We would like to request the county's assistance, as the current owner of the subject property, in granting us permission to seek these permits and approvals. With this permission, we will intensify our program of meeting with relevant agency and political officials, obtain assistance with environmental studies and permit applications as necessary, and bird-dog the permit process in order to get the approvals needed to start the "easy part" of this project: actually fixing the structures.

So, we'll do the leg-work, but we need your concurrence in order to proceed further.

Time is of the essence, given the increasing damage to the north perimeter wall of the small boat harbor (the annual sand deposits have already shut-down the ramp). Therefore, we would appreciate your contacting us at your earliest convenience.

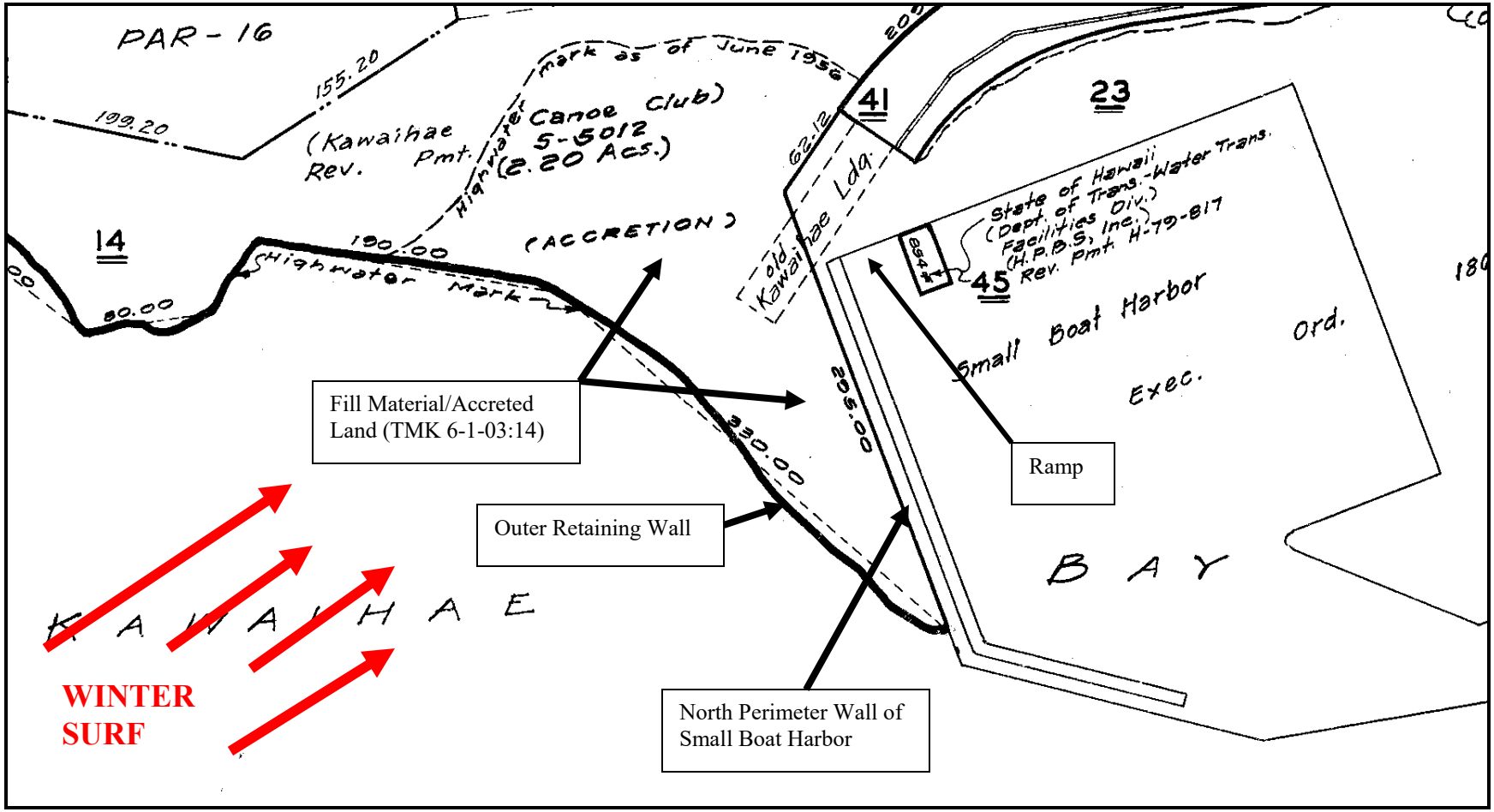
I can be reached via phone at my work place, 889-6257 or, via e-mail at: skc001@wave.bicv.net.

Mahalo Ä Nui,

Bill Shontell -- President
***Kohala Trollers***

Enc.

Cc: Ms. Nancy Murphy -- DLNR-DOBOR, Honokohau
Mr. Manny Veincent -- Kawaihae Canoe Club
Mr. Ian Birnie -- DOT-Harbors, Hawaii District
Ms. Cindy Evans – State Representative, 7th Legislative District




Attachment "A" – Map of Portion of TMK 6-1-03:14 Showing Wave Protection Structures at Kawaihae Small Boat Basin

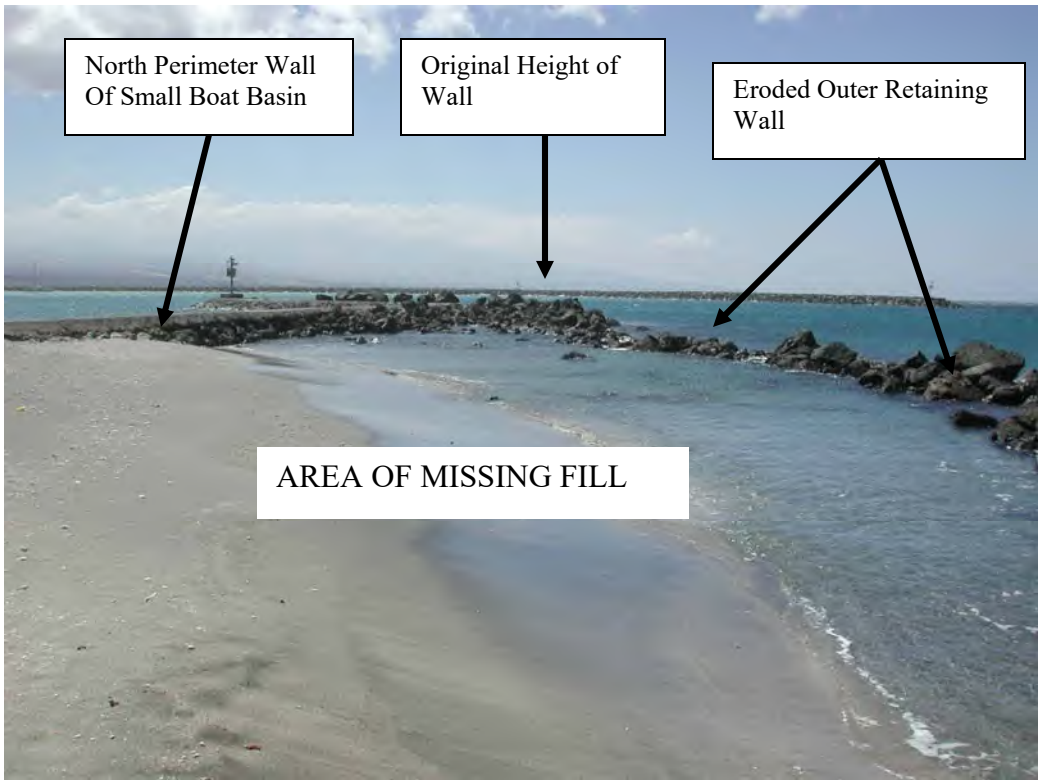



Fig. 1-Kawaihae Small Boat Basin – Photo Of Eroded Retaining Wall & Missing Fill

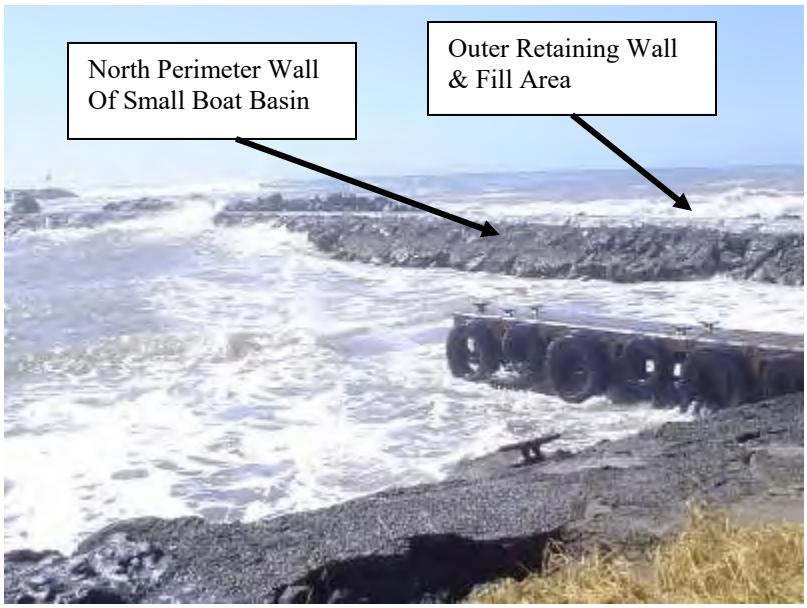



Fig. 2-Kawaihae Small Boat Basin – Waves Washing Into North Side of Boat Basin

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October 23, 2023

Mr. Bill Hawi
Kohala Trollers

TRANSMITTED VIA EMAIL TO skc001@hawaii.rr.com

Aloha Mr. Hawi:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 16, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements (NKSBH).

I appreciate your sharing your very impressive history and experience with the Kohala Trollers and the NKSBH. The attachments to your email are important guidance and information as we move forward in implementing proposed changes to the NKSBH.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

**Kohala Trollers**
P.O. Box 23
Kapa'au, Hawaii 96755

March 16, 2023

Berna Cabacungan Senelly
Senior Regulatory & Community Lead
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, Hawaii 96813

*(VIA EMAIL: NKSBH@oceanit.com)*

**SUBJECT: North Kawaihae Small Boat Harbor (NKSBH)**
**Breakwater & Shore Berm Improvements**
**Pre-Consultation on the Environmental Assessment**

**REF: NKSBH Project Description (Received March 7, 2023)**

Dear Berna:

Thank you for the opportunity to comment on the proposed project.

In general, the project appears adequate to provide some protection to the small boat basin. However, given that I am sure that many bright engineering minds have worked on the currently proposed plan, and I do not feel I have the ability to comment on the technical aspects of their recommendations. I would instead like to take the opportunity to point out some historical considerations.

There is a small (roughly 0.5 acre) portion of TMK (3) 6-1-03:14 adjacent to the north side of the NKSBH that is accreted land (i.e., land artificially created via filling-in a portion of the sea). This land was created during construction of the small boat basin in the early '60's and was intended, I believe, as a protective barrier between high winter surf and the NKSBH. This barrier was created via the construction of an outer retaining wall of very large boulders and filling the area between this retaining wall and the north interior wall of the NKSBH with coral and sand dredged from the construction of the main commercial harbor.

Attachment A is a map of the portion of tax map 6-1-03 showing the accreted land and the various structures/features mentioned above. Also, Attachment B is two photos,

with notes, of the affected area, and Attachment C is a scan of a photo of the NKSBH from the 1960's showing (in the background) the protective barrier noted above.

The boulder retaining wall and coral fill accomplished its purpose of protecting the small boat basin up through the early 1980's (my dad fished commercially out of NKSBH from the mid '70's and I was his constant fishing partner). Around this time, two decades of erosion of the retaining wall and loss of the fill material began to allow the highest winter surf to breach the small boat basin and begin depositing sand in the basin. Over the ensuing decades, the erosion has grown until the current situation was created: the exterior retaining wall of large boulders and coral fill is gone which has rendered the boat ramp useless for almost all boats and has created a sometimes intolerably dangerous situation with the remaining wharves.

It is my hope that your team will take the foregoing input from some "old timers" in mind and use it to improve the effectiveness and longevity of the proposed project. The accreted portion of TMK (3) 6-1-03:14 worked to protect the NKSBH for decades on its own. In combination with the proposed improvements, a refurbishment of the old barrier structures would likely protect the NKSBH for an even greater stretch of time.

As is always the case, "Time is of the Essence." Hopefully some of the older guys will live long enough to see this very long running, chronic, and frankly dangerous problem solved.

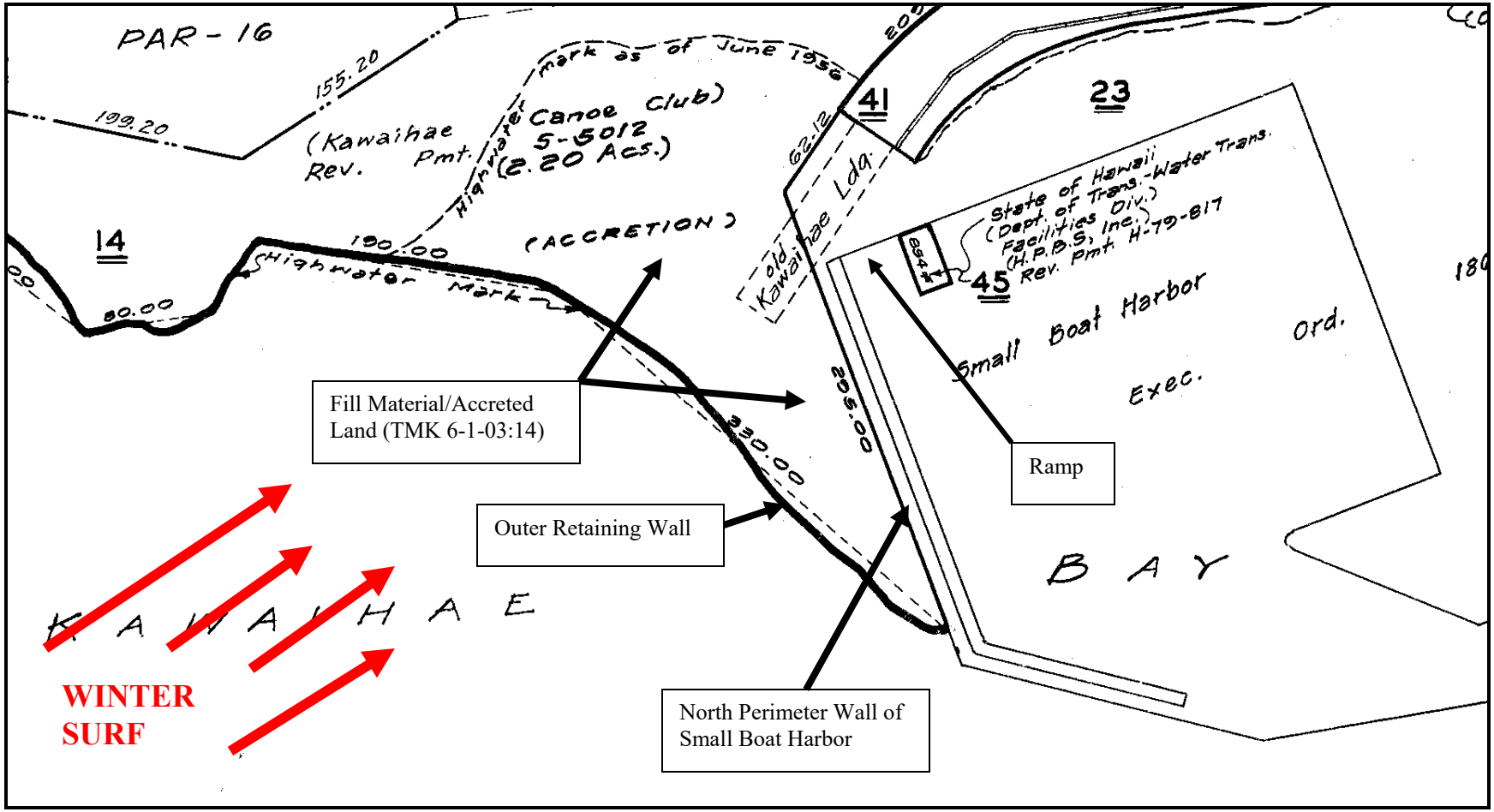
If you have any questions or comments, I prefer correspondence via email at: skc001@hawaii.rr.com. However, if you're in a rush, my cell is (808) 987-4119.

Mahalo Nui!

Bill

Bill Shontell
President
***Kohala Trollers***

bs
cc: D.Matsuda (email)
enc.




Attachment "A" – Map of Portion of TMK 6-1-03:14 Showing Wave Protection Structures at Kawaihae Small Boat Basin

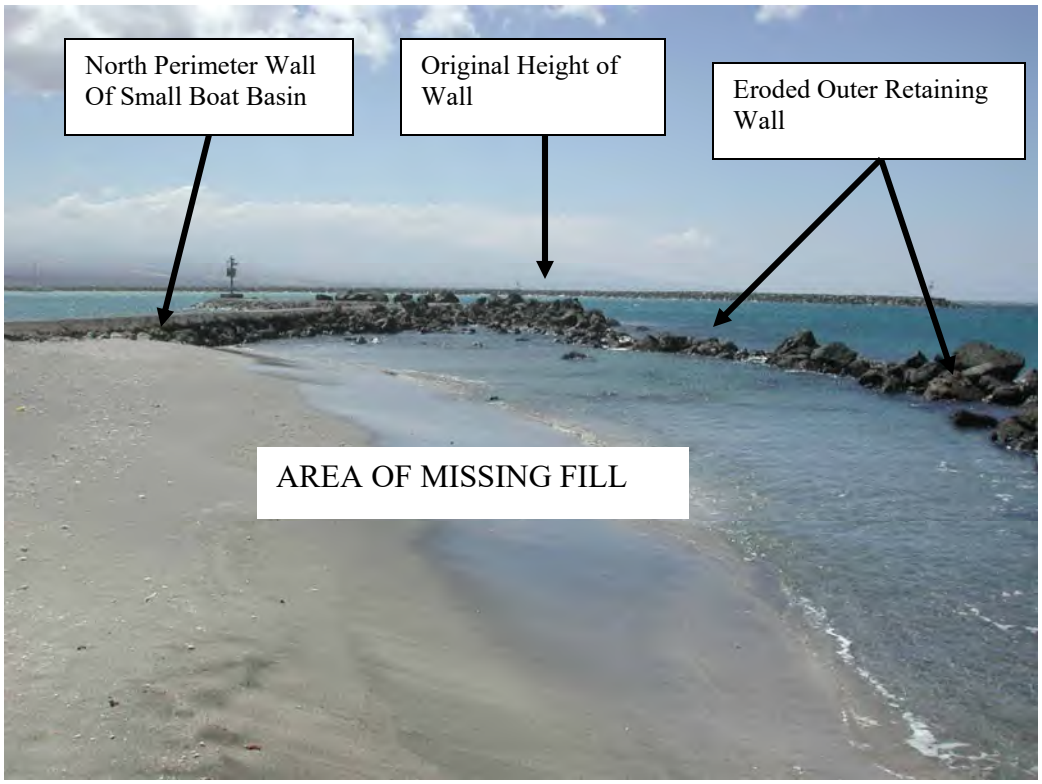



Fig. 1-Kawaihae Small Boat Basin – Photo Of Eroded Retaining Wall & Missing Fill

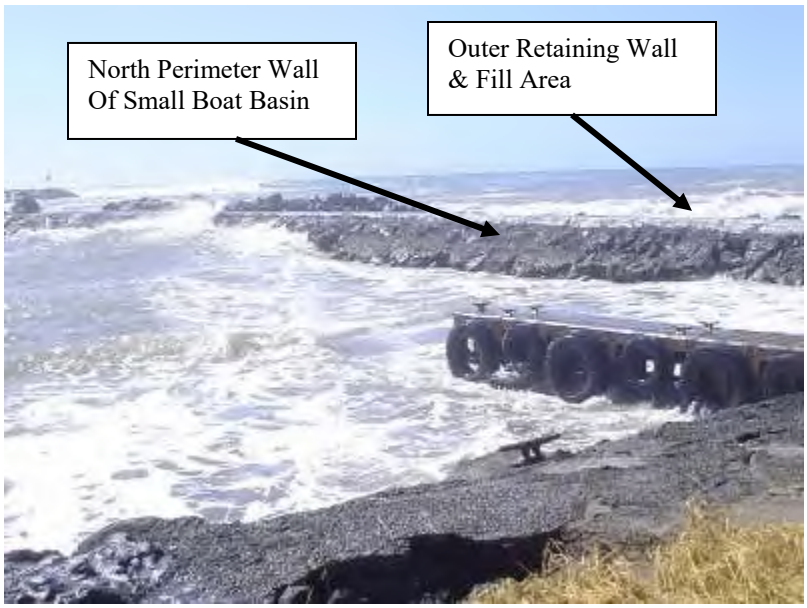



Fig. 2-Kawaihae Small Boat Basin – Waves Washing Into North Side of Boat Basin

Attachment C --
Kawaihae North Basin
Looking North (1960s)

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October 23, 2023

Mr. Bill Shontell, President
Kohala Trollers

TRANSMITTED VIA EMAIL TO skc001@hawaii.rr.com

Aloha Mr. Shontel:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 16, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We are fortunate to hear from people, such as yourself, who so generously share your extensive experiences and observations regarding the NKSBH. The Proposed Action has been redesigned, based on community input, an assessment of the harbor, and a wave analysis, and includes:

- Repair and modify the existing main breakwater with a new design that can withstand high waves;
- Raise the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above MLLW to prevent overtopping; and
- Extend the existing breakwater by 80 feet inland. This replaces the initially-proposed sand berm based on community input provided in pre-consultations and meetings with the community.

The final modified breakwater will have a crest elevation of 10 feet MLLW with 1.5H:1V side slopes. The increased height will make the structure more resilient to wave actions from storm events. The design crest width is 10 feet to accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

ENGINEERING DIVISION
P.O. BOX 373
HONOLULU, HAWAII 96809



Mar 17, 2023

**VIA E-MAIL (nksbh@oceanit.com)**

Ms. Berna Senelly
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, Hawaii 96813

Dear Ms. Senelly,

**North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements**
**Pre-consultation on the Environmental Assessment**

In response to your letter from March 6, 2023, we have no comments on the subject project at this time.

Should you have any questions, please contact Dani Yoo of my staff via email at dani.yoo@hawaii.gov.

Sincerely,

CARTY S. CHANG
Chief Engineer

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October 23, 2023

Mr. Carty Chang, Chief Engineer
Engineering Division
Department of Land and Engineering Division
P.O. BOX 373
HONOLULU, HAWAII 96809

TRANSMITTED VIA EMAIL TO dlnr.engr@hawaii.gov

Aloha Mr. Chang:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 17, 2023 pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We understand that your division has no comment at this time.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Katie Fendel <katiefendel@gmail.com>
**Sent:** Friday, March 17, 2023 3:01 PM
**To:** NKSBH
**Cc:** kalaokahaku61@yahoo.com; Katie Fendel
**Subject:** [External] Early Consultation Comments on North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements
**Attachments:** Kawaihae Canoe Club Initial Comments (March 17, 2023) pdf.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**Categories:** Red Category



The Kawaihae Canoe Club is submitting the attached comments for the Pre-Consultation on the Environmental Assessment for the North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements. We look forward to further discussion our questions and concerns at the March 31, 2023 meeting, and we may have additional comments to submit at that time. Mahalo for the opportunity to participate in the early consultation process.

**Kawaihae Canoe Club Initial Comments (March 17, 2023)**
**re: Agency Consultation for North Kawaihae Small Boat Harbor**

Thank you for the opportunity to participate in the early consultation process for the North Kawaihae Small Boat Harbor. We request that you bring with you the following information to the March 31st meeting, so we can more efficiently discuss the following Kawaihae Canoe Club concerns. These are areas where we need more information before the meeting. We will also have more comments at the meeting to submit.

1). We need to know how we will be able to continue to move our canoes from their storage locations to the boat ramp, with the proposed shore berm crossing our pathway. (See green-circled area, Figure 4, below)

The elevation drawing below (Section B: Shore Berm) shows the top of the shore berm will be about 2 feet above the current grade. Please be ready to discuss mitigation options to allow the movement of canoes up and over the berm. Any ramps will need to be designed such that our both our keiki and kupuna are able to move the canoes, and will need to be wide enough for a double canoe. The berms and ramps will also need to avoid important historical features, such as the existing rock walls.

2). We are concerned with the impacts of the project on the existing beach to the north of the breakwater. (See beach identified below with yellow arrow, enlarged from Figure 5)

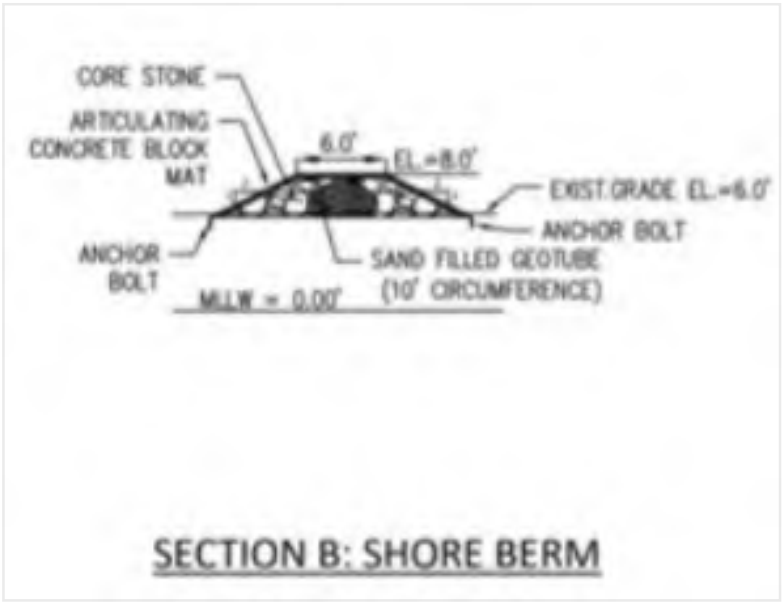
We are concerned with the potential for any project-induced erosion of the beach and the potential loss of the existing sand berm and palm trees, as well as impacts to our canoe storage areas. We would like to have you identify potential mitigation opportunities for any project-caused beach erosion impacts. Please be ready to share with us any results of your wave studies to date for the bay and beach north of the breakwater. We are also interested in the input assumptions that were used as inputs to the wave model, such as wave directions, seasons studied, and anticipated wave heights. The Kawaihae Canoe Club has been in this location for over 50 years. We have members and connections with others who are descendants of families that have lived in Kawaihae for the last 200 years. They have cared for the ʻāina for 6 or 7 generations, and have acquired significant historical knowledge regarding wave and wind impacts to this area. As we noted at our meeting with you on March 27, 2022, we would like the opportunity to share this knowledge with you prior to final design. We continue to urge you to set up a meeting to get their important input.

3). You requested our input on a preferred alternative for modifications to the existing revetment at the east end of the Small Harbor entrance. (See Figures 4, 5 and 7 below)

We need to understand what differences your wave studies/modeling showed between these two alternatives, under different seasonal and wave conditions, before we can provide the requested input.  Again, we we would like to meet with you to share our knowledge and understanding of the various wave conditions we and others have observed over the years in the harbor.

Mahalo.


**Figure 4: NKSBH breakwater and shore berm improvements & harbor entrance modification option 1**




SECTION B: SHORE BERM

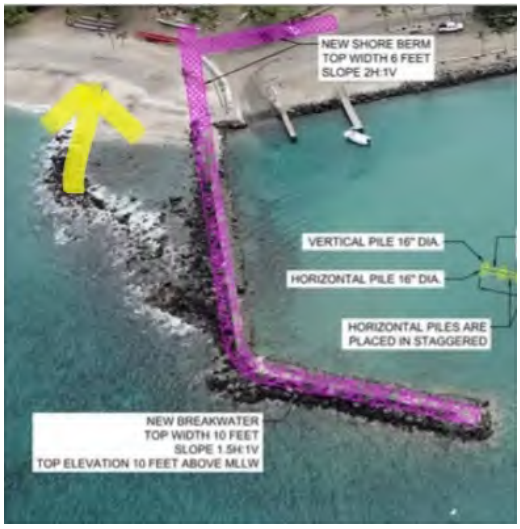



**Figure 4: NKSBH breakwater and shore berm improvements & harbor entrance modification option 1**


**Figure 5: NKSBH breakwater and shore berm improvements & harbor entrance modification option 2**

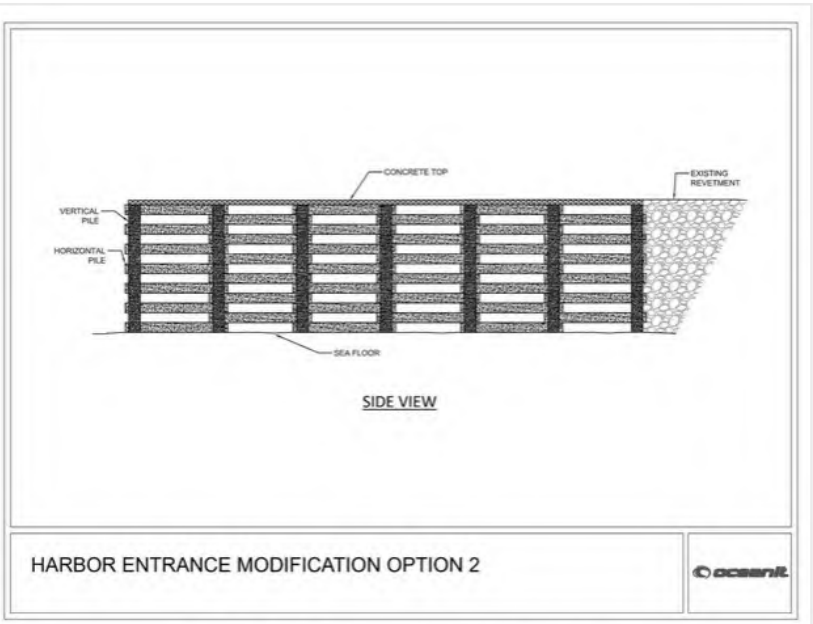



**Figure 7: Harbor entrance modification option 2 side view**

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October 23, 2023

Ms. Katie Fendel
Kawaihae Canoe Club

TRANSMITTED VIA EMAIL TO katiefendel@gmail.com

Aloha Ms. Fendel:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 17, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

Regarding your concern about how the proposed shore berm crossing will affect canoe club operations, including moving your canoes from storage locations to the boat ramp, please note that the shore berm is no longer part of the Proposed Action. Rather, based on a harbor assessment, a wave analysis and consultation with the community, including the Kawaihae Canoe Club, the breakwater will be extended 80 feet inland to prevent sand accumulation at the ramp.

Other components of the Proposed Action including repairing and modifying the existing main breakwater with a new design that can withstand high waves, and raising the height of the existing main breakwater by four (4) feet, from six (6) ft to ten (10) ft above Mean Lower Low Water (MLLW) to prevent overtopping. The Draft EA Section 2.2.4, Wave Analyses, summarizes the wave analysis, and the full report is contained in Appendix A.

Additionally, regarding your comment #3, no extensions on the makai portions of the main breakwater or the existing revetment are included in the project at this time.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Araujo, Jaclyn <Jaclyn.Araujo@hawaiicounty.gov>
**Sent:** Tuesday, March 21, 2023 11:55 AM
**To:** Berna Senelly; NKSBH
**Cc:** Roy, Alex; Dacayanan, Melissa
**Subject:** [External] Pre-Consult/Comments for DEA for Kawaihae Small Boat Harbor Repair Project (PL-INT-2023-004661)
**Attachments:** 2023-03-21 LTR TO BERNA SENELLY (PL-INT-2023-004661_Kawaihae_Pre_DEA_Comments).pdf

**Importance:** High



Aloha Kākou,

Please see attached for the County of Hawai'i Planning Department's Pre-DEA Comments on the Proposed Kawaihae Small Boat Harbor Repair Project on TMKs: (3) 6-1-003:014, 023 & 041. There will be no hardcopy to follow.

Should you have any questions, please feel free to contact Planner, Alex J. Roy (cc'd herein) at (808) 961-8140.

Have a great day & take care! 😊

Mahalo nui loa,

*Jaclyn Araujo*
TA to Land Use Plans Checker
Planning Commission Support Technician
County of Hawai'i - Planning Department
101 Pauahi Street, Suite 3
Hilo, HI 96720
Phone: (808) 961-8288

**County of Hawai'i**
**Zoning & Subdivision Code Update**
**Project Website: COHcodeupdate.com**

Mitchell D. Roth
*Mayor*

Lee E. Lord
*Managing Director*

West Hawai'i Office
74-5044 Ane Keohokālole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

# County of Hawai'i
**PLANNING DEPARTMENT**

Zendo Kern
*Director*

Jeffrey W. Darrow
*Deputy Director*

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

March 21, 2023

Berna Senelly
c/o Oceanit
828 Fort St. Mall, Ste. 600
Honolulu, HI 96813
bsenelly@oceanit.com

Dear Berna Senelly:

**SUBJECT: Determination of Special Management Area (SMA) Permitting (PL-INT-2023-004661)**

| | |
|---|---|
| **Landowner:** | **State of Hawai'i** |
| **Applicant:** | **State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR)** |
| **Request:** | **Pre-Consult for Draft Environmental Assessment (DEA) for the Kawaihae Small Boat Harbor Repair Project** |
| **Tax Map Key:** | **(3) 6-1-003:014; 023 & 041; South Kohala District, Island of Hawai'i** |

This is to acknowledge receipt on March 9, 2023, of your request for comments on the proposed reconstruction of the existing damaged breakwater at the North Kawaihae Small Boat Harbor (NKSBH) located on the subject parcels.

The subject parcels, which are located at the northern end of the Kawaihae Harbor complex are zoned General Industrial 1-acres (MG-1a) as well as within the State Land Use (SLU) Urban district. The General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the subject parcels as both Open (ope) and Industrial (ind). The subject parcels are located entirely within the Special Management Area (SMA) as well as within the shoreline area as defined by Hawai'i Revised Statutes (HRS) Chapter 205A-41.

Due to the project extending from the submerged lands of the State into the shoreline area, no shoreline certification is required as determination of the shoreline setback line is not required

for this proposed project. As such, the Director has waived the requirement of a shoreline certification for the proposed Kawaihae Small Boat Harbor Repair Project

**Proposed Project:**

The Applicant (DOBOR) is proposing to redesign and construct the damaged NKSBH breakwater to better withstand winter swells. The existing breakwater will be raised from six feet above mean lower low water (MLLW) to 10 feet MLLW. The breakwater section will be 10-feet wide at its crest to accommodate maintenance. The bottom width of the structure will be below the waterline and vary from 40 to 60 feet. A sand berm barrier (shore berm) will be installed to keep the sand from accreting onto the boat ramp.

**Special Management Area Determination:**

In accordance with Planning Commission Rule 9 relating to the Special Management Area (SMA), "development" does not include the following:

Rule 9-4(e)(2)(R): *Plan, design, construct, and maintain any lands or facilities under the jurisdiction of the division of Boating and Ocean Recreation of the State Department of Land and Natural Resources.*

Therefore, according to rule, no SMA approval or permitting is required for the proposed project as it is considered an exempt action.

**Shoreline Setback Area Determination:**

In accordance with Planning Department Rule 11 relating to the Shoreline Setback Area (SSA), the following structures or activities may be permitted within the shoreline setback area without the need for a shoreline setback variance (SSV).

Rule 11-7(a)(9): *Work being done consists of maintenance, repair, reconstruction, and minor additions to or alterations of legal, publicly-owned boating, maritime, or water sports recreational facilities, which result in little or no interference with natural shoreline processes.*

Since the proposed project is located at a well-developed small boat harbor and the proposed activities will aim to minimize accretion of sand on an existing boat ramp, staff believes the proposed project will have little impact on natural shoreline processes. Therefore, based on Rule 11-7(a)(9) no Shoreline Setback Variance (SSV) application will be required for the proposed project.

Please note that any substantive changes to the proposed project as represented by the applicant may require additional review under both the Special Management Area and Shoreline Setback Area rules and regulations.

If you have questions, please feel free to contact Alex Roy at (808) 961-8140 or via email at Alex.Roy@hawaiicounty.gov.

Sincerely,

Zendo Kern

Zendo Kern (Mar 21, 2023 10:03 HST)

ZENDO KERN
Planning Director

AJR:jaa
\\COH01\Planning\Public\Wpwin60\CZM\Letters\2023\PL-INT-2023-004661_Kawaihae_Pre_DEA_Comments.Doc

Cc (via email): NKSBH@oceanit.com

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innovation through engineering & scientific excellence

October 23, 2023

Mr. Zendo Kern, Director
Planning Department
County of Hawai'i
74-5044 Ane Keohokālole Hwy
Kailua-Kona, Hawai'i 96740
TRANSMITTED VIA EMAIL TO Jaclyn.Araujo@hawaiicounty.gov

Aloha Director Kern:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 21, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements. The following summarizes our understanding of your comments:

- A shoreline certification is not required and the requirement of a shoreline certification for the Proposed Action was waived.
- Under Hawai'i Planning Commission Rule 9, Special Management Area (SMA) "development" does not include "*Plan(ning), design(ing), construct(ion), and maintain(ance of) any lands or facilities under the jurisdiction of the division of Boating and Ocean Recreation of the State Department of Land and Natural Resources* (parenthical wording added). Hence, the Proposed Action is an exempt action in the context of SMAs.
- In accordance with Planning Department Rule 11 relating to the Shoreline Setback Area (SSA), the Proposed Action is considered "*Work being done consists of maintenance, repair, reconstruction, and minor additions to or alterations of legal, publicly-owned boating, maritime, or water sports recreational facilities, which result in little or no interference with natural shoreline processes.*" It was therefore stated that no SSV will be required for the proposed project.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

**Berna Senelly**

---

**From:** Amy Wirts <awirts@hawaii.edu>
**Sent:** Thursday, March 23, 2023 5:37 PM
**To:** NKSBH
**Subject:** [External] OCCL comments for PreConsultation
**Attachments:** North Kawaihae Small Boat Harbor Pre Consultation (part 1) - signed.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Completed



Berna,

OCCL's preconsultation comments for North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements are attached here.

Thank you,
Amy

--
**Amy Wirts (she/her)**
Extension Faculty,
University of Hawai'i Sea Grant College Program
Coastal Lands Program Coordinator, Hawaii Department of Land and Natural Resources, Office of Conservation and Coastal Lands

Email: awirts@hawaii.edu
Web: http://seagrant.soest.hawaii.edu/

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

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

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

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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

DLNR:OCCL:AW

Correspondence: HA-23-142

Mar 23, 2023

Berna Senelly
Senior Regulatory and Community Lead
Oceanit
828 Fort Street Mall Suite 600
Honolulu, HI 96813

SUBJECT: North Kawaihae Small Boat Harbor (NKSBH) Breakwater and Shore Berm Improvements, Pre-Consultation on Environmental Assessment; Tax Map Key (TMK) (3) 6-1-003:023

Dear Ms. Senelly:

The State of Hawai`i Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL) has received your March 06, 2023 request on behalf of the DLNR Division of Boating and Ocean Recreation (DOBOR) for pre-consultation comments regarding proposed breakwater and shore berm improvements at NKSBH.

The proposed project described in the pre-consultation documents indicates that DOBOR is considering raising the existing breakwater elevation from six feet above mean lower low water (MLLW) to ten feet above MLLW and installing a sand berm barrier to reduce sand accretion at the boat ramp. DOBOR is also considering modifications to the existing rock revetment at the east end of the harbor entrance to further dissipate wave energy.

The proposed project options are identified as a land use pursuant to the Hawai`i Administrative Rules (HAR) §13-5-24, R-5 MARINE CONSTRUCTION (D-1) Dredging, filling, or construction on submerged lands, including construction of harbors, piers, marinas, and artificial reefs. As a (D) land use, the proposed activities would require Conservation District Use Permit (CDUP) to be approved by the Board of Land and Natural Resources. A CDUP application can be found on the OCCL website at https://dlnr.hawaii.gov/occl/forms-2/.

OCCL encourages DOBOR to incorporate sea level rise projections into planning and assessment for this project by referencing the 2017 and 2022 Hawai`i State Sea Level Rise Vulnerability and Adaptation Reports and by utilizing the State of Hawai`i Sea Level Rise Viewer (https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/).

B. Senelly
Oceanit, Inc

Correspondence: HA-23-142

Please contact Amy Wirts, University of Hawaii Sea Grant Extension Agent and OCCL Coastal Lands Program Coordinator at (808) 798-7556 or by email at Amy.E.Wirts@hawaii.gov, should you have any questions regarding this matter.

Sincerely,

S Michael Cain

Michael Cain, ADMINISTRATOR
Office of Conservation and Coastal Lands

Cc: DOBOR

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October 23, 2023

Mr. Michael Cain, Administrator
Planning Department
County of Hawai'i
74-5044 Ane Keohokālole Hwy
Kailua-Kona, Hawai'i 96740

TRANSMITTED VIA US POSTAL SERVICE AND EMAIL TO awirts@hawaii.edu and sharleen.k.kuba@hawaii.gov

Aloha Mr. Cain:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 23, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We understand that the Proposed Action requires a Conservation District Use Permit (CDUP). The Draft EA discusses the Conservation District Use Permit in Section 4.2.1, State Land Use, and notes that a Conservation District Use Application CDUA) will be submitted.

Regarding your comment encouraging us to incorporate Sea Level Rise (SLR), please note that Section 3.1.10, Climate Change and Sea Level Rise, of the Draft EA contains a discussion of the effects includes discussion and a map of the 3.2-foot SLR exposure area in relation to the project area. The height of the breakwater was increased to accommodate higher water levels.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

**DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I**
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

March 17, 2023

Ms. Berna Senelly
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, HI 96813

Dear Ms. Senelly:

**Subject: Pre-Environmental Assessment Consultation**
**North Kawaihae Small Boat Harbor – Breakwater and Shore Berm Improvements**
**Tax Map Key (3) 6-1-003:023**

We have reviewed your Pre-Environmental Assessment consultation letter for the subject project and have no comments to offer at this time.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at (808) 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.
Manager-Chief Engineer

RQ:dfg

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October 23, 2023

Mr. Keith K. Okamoto, Manager – Chief Engineer
Department of Water Supply
County of Hawai‘i
349 Kapi‘olani Street
Hilo, Hawai‘i 96720-3998

TRANSMITTED VIA EMAIL TO dws@hawaiidws.org

Aloha Mr. Okamoto:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 17, 2023, pre-consultation regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements.

We understand that your department has no comment at this time.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai‘i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

**North Kawaihae Small Boat Harbor**
**Breakwater and Shore Berm Improvements**
**March 31, 2023**

# COMMENT SHEET

I am new here. I have only paddled for Kawaihae for 5 years. Uncle Manny has talked story with me many times. This place is in our hearts and souls. It is one of the last places within the Hawaiian Island that has the canoe club and land to have it on. It's a treasure. Seeing the lose of parking and the badly planned new parking and drainage is heart breaking. The drainage is basicly 2 cesspools that are exposed. No consultation happend with the people here.

Uncle Manny is a legend - not only here but also other clubs around the world.

I hope to see a wall that is 12 feet high and flat on top for Uncle to walk out on the coach. I believe 10 feet high will not be enough due to the intensity of the storms now due to global warming. This is not just here but world wide.

Please find the funds to build it 12 feet high and flat on top. Mahalo for coming and talking with us. Please complete this project asap and employ folks from this Island. Much Aloha to You

Catherine Creeve

| Name and Address | Date | Email Address |
|---|---|---|
| Catharine Creeve<br>Box 2366<br>Fernie, B.C.<br>Canada V0B1M0 | March 31-2023 | creevesboatworks@hotmail.com |

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October 23, 2023

Ms. Catherine Crewe
Box 2366
Fernie, B.C
Canada VOBIMO

TRANSMITTED VIA EMAIL TO crewesboatworks@hotmail.com

Aloha Ms. Crewe:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 31, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor (NKSBH) Improvements.

Regarding your comment on the loss of parking, please note that the Draft EA evaluates proposed improvements to the NKSBH breakwater, and does not address parking.

Similarly, the drainage issue is not the subject of the Draft EA, although the Department of Land and Natural Resources (DLNR) Division of Boating and Ocean Recreation (DOBOR) is undertaking a project to improving the drainage system to which you are referring.

We note your preference that the breakwater be improved to a height of twelve feet. Please note this height was considered as an alternative and is discussed in the Draft EA Section 2.4.1, Alternative A: Breakwater Crest Elevation of 12 ft Above MLLW. This alternative was not selected for the following reasons.

- In a community pre-consultation meeting held on March 31, 2023, at NKSBH, participants preferred the lower elevation because they were concerned that, while standing on the beach, the canoe paddling coach may not be able to maintain visual contact with the paddlers while canoes were in the Kawaihae Deep Draft Harbor channel.

- Larger boats need clear visual access of the NKSBH for safety reasons. Existing crest elevation of the breakwater is about 6 feet. Elevating the structure to 10 feet instead of 12 feet would have less impact on the visibility of the objects in the harbor basin to larger boats outside.

- As the high waves reach the shore, water flow will go around the breakwater and travel to the boat ramp of the harbor regardless because the land elevation is low (5 to 6 ft MLLW). Elevating the structure to 12 feet would significantly increase construction and maintenance costs without commensurate significance in benefits and therefore is not further considered. The Proposed Action modified breakwater will have a crest elevation of 10 feet MLLW with 1.5H:1V side slopes. The increased height will make the structure more resilient to wave actions from storm events. The design crest width is 10 feet to

accommodate construction and maintenance equipment. The modified structure is anticipated to significantly reduce wave overtopping and the risk of breakwater damage.

We also note your comment regarding hiring Hawai‘i Island residents for completed this project. The Proposed Action will have short-term economic benefits related to employment, although the residences of future employees is not determined at this time.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai‘i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

**DEPARTMENT OF THE ARMY**
**HONOLULU DISTRICT, U.S. ARMY CORPS OF ENGINEERS**
**FORT SHAFTER, HAWAII 96858-5440**

March 30, 2023

SUBJECT: Proposed North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements, Kawaihae, Island of Hawaii, HI Department of the Army File No. POH-2016-00017

Ms. Berna Senelly
Oceanit
828 Fort Street Mall, Suite 600
Honolulu, Hawaii 96813

Dear Ms. Senelly:

The Honolulu District, U.S. Army Corps of Engineers (Corps), Regulatory Branch received your letter dated March 6, 2023, requesting consultation comments for the proposed North Kawaihae Small Boat Harbor Breakwater and Shore Berm Improvements in Kawaihae, Island of Hawaii, HI. Your request has been assigned Department of the Army (DA) file number POH-2016-00017. Please reference this number in all future correspondence with our office relating to this action.

Based on the information provided in regard to your proposed project, the Corps provides the following comments.

The Corps authorities are based on two laws: Section 404 of the Clean Water Act (33 U.S.C. 1344; “Section 404”) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403; “Section 10”).

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Honolulu District.

DA authorization is required if you propose to place dredged and/or fill material into waters of the U.S., including wetlands and/or perform work in navigable waters of the U.S.

Thank you for your cooperation with the Honolulu District Regulatory Program. Should If you have any questions related to this determination, please contact me via e-mail at Cristian.J.Cayanan@usace.army.mil or via phone at 808-835-4107. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Office by accessing our web-based customer survey form at https://regulatory.ops.usace.army.mil/ords/f?p=136:4. For additional information about our Regulatory Program, please visit our web site at http://www.poh.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

CJ Cayanan
Biologist/Regulatory Specialist

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October 23, 2023

Ms. CJ Cayanan, Biologist / Regulatory Specialist
Honolulu District
U.S. Army Corps of Engineers
Fort Shafter, Hawai'i

TRANSMITTED VIA EMAIL TO Cristian.J.Cayanan@usace.army.mil

Aloha Ms. Cayanan:

SUBJECT: Department of the Army File No. POH-2016-00017
Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 30, 2023, pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor (NKSBH) Improvements.

We appreciate your guidance regarding Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Section 4.1.2 of the Draft EA contains a discussion of Section 404 of the Clean Water Act and notes that the Proposed Action includes some excavation and deposition of rock fill below water level to repair a breakwater within the Pacific Ocean. The State will continue discussion with USACE to determine if the proposed project will qualify for coverage under a Nationwide or Individual Permit.

Section 4.1.2 of the Draft EA contains a discussion Section 10 of the Rivers and Harbors Act. The Proposed Action includes some excavation and deposition of rock fill below water level to repair a breakwater within the Pacific Ocean. The Proposed Action involves the repair of a breakwater in the Pacific Ocean, the waters of which are tidal and navigable. A permit from the USACE will be required in accordance with Section 10 of the Rivers and Harbors Act. However, the project is not expected to affect waterbody navigation.

We will include a copy of your comments and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
www.oceanit.com

## Dale Uno

**From:** Jojo Tanimoto <guavaland622@gmail.com>
**Sent:** Wednesday, March 29, 2023 5:11 PM
**To:** Berna Senelly
**Subject:** [External] Kawaihae North SBH meeting

**Follow Up Flag:** Follow up
**Flag Status:** Flagged



Aloha
Thank you for the invitation to Friday's meeting. I do have a concern that will help our community; and in this area. That is overflow parking.
Since the last dredging of this ramp, I noticed half the boat parking area is fenced for the Commercial Harbor. Also, the population increased which we have problems with the public bus trying to pick up people. Cars are now parking on the Highway shoulders, which are wide enough.
Of course, the breakwater wall needs to be replaced and the height of the wall to block storm rocks and sand, is primary.
Mahalo
Sent from my iPhone

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October 23, 2023

Ms. Jojo Tanimoto

TRANSMITTED VIA EMAIL TO guavaland622@gmail.com

Aloha Ms. Tanimoto:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 29, 2023 pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor (NKSBH) Improvements.

We understand your concerns regarding the loss of boat parking area at the harbor, as well as the increased population related to public bus transportation. Please note that the Draft EA addresses proposed improvements to the NKSBH breakwater improvements and does not address parking or public bus transportation.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to

Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

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North Kawaihae Small Boat Harbor
Breakwater and Shore Berm Improvements
March 31, 2023

# COMMENT SHEET

The Environmental Assessment should evaluate indirect project impacts of the new breakwall on the beach area directly north of the breakwall including sand accretion (incorporating historical knowledge ~~from~~ from Uncle Manny and others) and sand erosion (as noted as a concern by other speakers), and identify potential mitigation options and/or modifications to address any significant adverse impacts.

* Makaha

| Name and Address | Date | Email Address |
|---|---|---|
| Katie Fendel<br>67-5053 Yutaka Pen Pl<br>Kamuela, HI 96743 | 3/31/2023 | katiefendel@gmail.com |

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October 23, 2023

Ms. Katie Fendel
67-5053 Yudaku Pen Place
Kamuela, Hawai'i 96793

TRANSMITTED VIA EMAIL TO katiefendel@gmail.com

Aloha Ms. Fendel:

SUBJECT: Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor Improvements
Response to Pre-Consultation Comments

Thank you for your March 31, 2023 pre-consultation comments regarding the Environmental Assessment (EA) for the North Kawaihae Small Boat Harbor (NKSBH) Improvements.

Regarding your comment on project impacts related to historic sand accretion and sand erosion, we met with kūpuna and others who have a long-term relationship with this area, including the beach area directly north of the breakwall. As a result of these consultations, the project design was revised. Initially, an 80-foot sand berm was proposed to extend approximately 80 ft from the end of the breakwater at the shore and then turn southeast perpendicular to the shore forming a L-shape.

Community preferences expressed during our March 31, 2023 public and individual meetings was to eliminate this berm as it would interfere with beach and boat ramp access. The berm was deleted and the Proposed Action includes extending the breakwater approximately 80 feet landwards past the top of the boat ramp to prevent sand intrusion onto the boat ramp.

We will include a copy of your comment and our response in the Draft EA. Further, we will notify you of its publication in *The Environmental Notice* published by the State of Hawai'i, Office of Planning and Sustainable Development.

Sincerely,

Berna Senelly
Regulatory Lead

Copies to
Finn McCall, Division of Boating and Ocean Recreation, State Department of Land and Natural Resources

Oceanit Center 828 Fort Street Mall, Suite 600 Honolulu, Hawaii 96813 Phone: 808.531.3017 Fax: 808.531.3177
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