



## HO'ALA LOKO I'A APPLICATION

FISHPOND NAME: Kuualii Fishpond

APPLICANT NAME: Waikoloa Beach Association

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Pond location: Anaehoomalu Bay, Waikoloa, South Kohala, Hawaii

Nearest Tax Map Key(s): (3) 6-9-007:011

Ahupua`a: Waikoloa

District: South Kohala

Island: Hawaii

Commencement Date: January 2016

Completion Date: June 2016

Wall length: 690 feet along the ocean (makai) side Pond surface area: 150,000 sqf

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### WORK SUMMARY

**Maintenance:** Invasive species removal (less than one acre), minor repair (less than 10% damage), landscaping with native species, operations only, research and data collection

**Tier 1**

- Invasive species removal (greater than one acre)
- Manual restoration of `auwai, mākāhā, etc.
- Accessory structures less than 600 square feet
- Emergency repair of breeches
- Dredging by non-mechanized means

**Tier 2**

- Dredging using mechanized equipment
- Major wall restoration
- Accessory structures greater than 600 square feet
- Moderate change (10% - 50%) in the dimensions of the original structure

**Tier 3**

- Activity might impact wetlands, protected species, critical habitat, or beach processes
-

DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
OFFICE OF CONSERVATION AND COASTAL LANDS  
POST OFFICE BOX 621  
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JEFFREY PEARSON, P.E.  
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AQUATIC RESOURCES  
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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

ref:OCCL:MC

File No: Loko I'a: HA-15-05

Scott Sullivan  
Sea Engineering, Inc.  
Makai Research Pier  
Waimanalo, HI 96795

DEC 3 0 2015

Dear Mr. Sullivan,

**SUBJECT: LOKO I'A PERMIT HA-15-05: KU'UALI'I FISHPOND**  
'Anaeho'omalu Bay, Waikoloa, South Kohala, Hawai'i  
TMK (3) 6-9-007:011

Dear Mr. Sullivan,

The Office of Conservation and Coastal Lands (OCCL) has reviewed the information you sent regarding restoration work at the four acre Ku'uali'i fishpond on the above subject parcel. The privately owned pond, along with the adjoining Kahapapa pond, is in the Resource Subzone of the State Land Use Conservation District.

The ponds are pu'uone-type loko i'i that are bounded on the makai side by a 1100-foot long sandy dune, and on the mauka side by a rocky basalt shoreline. A short channel connects the two ponds, and the smaller Kahapapa pond is connected to the ocean by an approximately fifty meter long channel. This channel provides the only outlet to the sea, and water circulation in the ponds is minimal. There is significant groundwater flow into the ponds from freshwater springs, which aid in flushing and water exchange.

A 690-foot long black rock wall was built by the neighboring resorts in the 1980s to separate the dune from the pond, replacing an earlier wall. The 2011 tsunami destroyed a 220 foot section of the wall, and displaced an estimated 9000 cubic yards of sand from the beach. Since the tsunami waves have continued to deposit sand in the pond through the gap in the wall. Restoration work on the dune has reduced the amount of sand entering the pond, although waves still crest the dune during periods of higher surf.

The beach repair plan consists of the replacement of approximately 690 linear feet of pond wall, the recovery of over 800 cubic yards of beach sand remaining in the pond, and the placement of up to 4,800 cubic yards of sand on the beach crest. Waikaloa Development Company has already secured a permit from DLNR for the sand nourishment, and is working with the Army Corps of Engineers to secure the necessary federal permits.

Reconstruction work would involve complete demolition, excavation and temporary removal of the existing cemented rock wall, including all underlying foundation and sand, according to the application. Reusable rock materials would be saved to use in the rock wall's reconstruction; new materials will be used only as needed.

The applicant is also proposing to dredge sand from within the 3- to 4-foot-deep fishpond with the intention of disposing the dredged material on-site in an upland area above the high tide line, according to the application. No hydraulic or suction equipment will be used, but, an excavator with a bucket will work from the fishpond's adjacent bank to dredge the pond. Turbidity barriers will be used around active work sites.

More sand has entered the pond since the original work plan was developed, and the applicant will prepare a final topographic survey before the project is put out to bid.

To protect the area's aquatic system, there will be a variety of best management practices in place including, but not limited to, no stockpiling of materials in waters, requiring any fueling of vehicles or equipment to occur away from the water, and daily inspections of silt fences and rubbish removal, according to the application. These are detailed in the Best Management Practices Plan prepared for Waikoloa Development Company by Sea Engineering.

There are no plans to stock the pond with introduced fish or to conduct any harvesting of marine resources. Any recruitment will be done naturally.

OCCL sought comments on the proposal and associated best management plan from DLNR's Land Division, Division of Aquatic Resources, Division of Forestry and Wildlife, and Historic Preservation; the Office of Hawaiian Affairs; Kua'āina Ulu 'Auamo, the Hawai'i County Planning Department; the U.S. Army Corps of Engineers; NOAA Fisheries Pacific Islands Regional Office; and the State Department of Health, Environmental Planning Office. None offered any objections to the project, or comments on the proposed best management practices.

After reviewing the application, OCCL finds that

1. The proposal to restore the Ku'uali'i Pond is consistent with Conservation District Use Permit (CDUP) ST-3703 for the Ho'āla Loko I'a program, as approved by the Board of Land and Natural Resources on June 27, 2014;
2. The activities described were covered in the Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI) for the Ho'āla Loko I'a program, which was published on October 23, 2013;
3. The proposal requires the need for a Tier 2 Loko I'a permit signed by the Chair of the Board of Land and Natural Resources;
4. The best management practices associated with the proposal comply with State water quality standards, and that a water quality certification will not be required pursuant to Act 230 (15) Relating to Hawaiian Fishponds, approved by the Governor of the State of Hawai'i on July 13, 2015;
5. The standard conditions found in Hawai'i Administrative Rules (HAR) §13-5-42 apply.

In addition to the standard conditions for loko i'a restoration, OCCL will ask the permittee to comply with two additional conditions: 1) to provide our office with a copy of the finalized

dredging and restoration plans once a contractor has been selected, and 2) to provide OCCL with a summary of the work once it is completed.

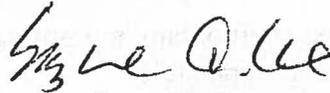
After careful review of the proposed project, the Department authorizes a Tier 2 Loko I'a permit for wall restoration and dredging at Ku'uuli'i Fishpond at 'Anaeho'omalua Bay, Waikoloa, South Kohala, Hawai'i, TMK (3) 6-9-007:011, subject to the following standard conditions:

1. The permittee shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of this chapter;
2. The permittee, its successors and assigns, shall indemnify and hold the State of Hawai'i harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;
3. The permittee shall obtain appropriate authorization from the department for the occupancy of state lands, if applicable;
4. The permittee shall comply with all applicable department of health administrative rules;
5. All representations relative to mitigation set forth in the application are incorporated as conditions of the permit;
6. The actions outlined in the best management plan submitted with the application are incorporated as conditions of the permit;
7. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;
8. In issuing the permit, the department and board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;
9. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;
10. The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawai'i, and by Hawai'i statutory and case law;
11. Should historic remains such as artifacts, burials or concentration of charcoal be encountered, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact HPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;

12. The permittee will provide OCCL with a copy of the finalized dredging and restoration plans once a contractor has been selected;
13. The permittee will provide OCCL with a summary of the work once it is completed;
14. Other terms and conditions as prescribed by the chairperson; and
15. Failure to comply with any of these conditions shall render a permit void under the chapter, as determined by the chairperson or board.

Please acknowledge receipt of this approval, with the above noted conditions, in the space provided below. Please sign two copies. Retain one and return the other within thirty days. Should you have any questions feel free to contact Michael Cain at 587-0048.

Sincerely,



Suzanne D. Case, Chairperson  
Board of Land and Natural Resources

Receipt acknowledged:

\_\_\_\_\_  
Permittee's Signature

\_\_\_\_\_  
Date

copy: Waikoloa Development Company (attn.: Scott Head); U.S. Army Corps of Engineers



## HO'ALA LOKO I'A APPLICATION

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### WORK SUMMARY

**Maintenance:** Invasive species removal (less than one acre), minor repair (less than 10% damage), landscaping with native species, operations only, research and data collection

**Tier 1**

- Invasive species removal (greater than one acre)
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**Tier 2**

- Dredging using mechanized equipment
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- Moderate change (10% - 50%) in the dimensions of the original structure

**Tier 3**

- Activity might impact wetlands, protected species, critical habitat, or beach processes
-

Major change (over 50%) in dimensions of original structure

We recommend that you consult with the U.S. Army Corps of Engineers on all Tier 2 and 3 projects.

## REQUIRED SIGNATURES

### Applicant

Name / Hui: Waikoloa Development Company

Street Address: 69-152 Waikoloa Beach Drive

Waikoloa, Hawaii 96738

Contact Person & Title: Scott Head, Vice President

Phone: (808) 866-1000

Email: shead@waikoloaland.com

Interest in Property: Managing entity for the beach and fishpond resources

Signature:



Date:

10/28/15

### Landowner (if different than the applicant)

Name: Same as the applicant

Title: Agency: DLNR

Mailing Address:

Phone:

Email:

Signature:

Date:

*For State-owned ponds, the government entity with management control over the parcel shall sign as landowner.*

### Agent

Agency: Sea Engineering, Inc.

Contact Person & Title: Scott Sullivan, Vice President

Mailing Address: Makai Research Pier

Waimanalo, HI 96795

Phone: 808.259.7966 x 22

Email: ssullivan@seaengineering.com

Signature:



Date: 10/28/2015

### For DLNR Managed Lands

#### State of Hawai'i

Chairperson, Board of Land and Natural Resources

Department of Land and Natural Resources

## **DESCRIPTION OF THE LOKO I'A**

**Please discuss the current physical and environmental conditions of the loko i'a. Please also note if any endangered or threatened species are found in the pond.**

Kuualii Fishpond, and the adjacent smaller Kahapapa pond, are located at the head of Anaehoomalu Bay, on the west coast of the island of Hawaii. The ponds lie behind a sand beach inner bay shoreline flanked by rocky lava basalt shorelines on both sides of the 1,100 foot long sand beach. Because of their relationship with the adjacent beach and dune, which form the makai protection for the ponds, Kuualii and Kahapapa fishponds classified as loko i'a pu'uone pond, or sand dune ponds. The protective beach was breached during the 2011 tsunami, and emergency repairs were made to close the breach and the beach subsequently partially recovered. The tsunami also pushed beach sand into Kuualii pond, and the stone pond boundary wall along the makai side was heavily damaged. Kuualii and Kahapapa ponds are connected by a narrow, stone walled channel, and a channel through the shore at the north end of Kahapapa pond connects both ponds to the sea and allows for some circulation and flushing of the pond waters. As Kuualii does not have a direct connection to the ocean, its only direct seawater circulation and exchange mechanism is through its connection with Kahapapa pond. However, there is a significant groundwater flow into the pond which aids in water exchange and pond flushing. Kuualii pond is approximately 4 acres in size, about 600 feet long north to south and 250 feet wide east to west. The water depth is typically 3 feet to 4 feet. The pond bottom is composed of fine sediment, typically about 2 feet thick, over firm substrate.

Please see sections 1 and 2 of the attached "Waikoloa Beach and Kuualii Fishpond Tsunami Damage Restoration" report (October 2013) for more detailed information on the condition and characteristics of Kuualii fishpond.

## **HISTORY OF THE LOKO I'A**

The pond and vicinity has been altered and modified over the years. This Loko I'a Pu'uone was left untouched for many decades until the 1980's when development at Waikoloa Resort began. Restoration and stabilization work on the pond has included maintenance of the pond shoreline, changes in backshore practices to improve pond water quality and construction of a rock wall on the makai side of the pond to form a backstop for the beach and prevent its migration into the pond abutting the beach.

Currently, Waikoloa Beach Association (WBA) is responsible for maintaining both Kuualii and Kahapapa fishponds. WBA works in partnership with the state and the USACE on execution of the approved pond management plan. This plan includes preservation of the pond borders, water quality, and environmental monitoring.

Waikoloa has one of the most comprehensive environmental monitoring programs on the West Hawaii coast, beginning in 1977 and continuing today. Quarterly water quality monitoring is conducted along all ponds in the Waikoloa resort as required by the state, and following State Department of Health (HAR, Chapter 11-54) water quality parameters.

On March 11, 2011, a tsunami generated by a massive earthquake in Japan struck the Hawaiian Islands. The tsunami severely eroded the beach fronting Kuualii pond, tearing a 200-foot wide gap through the beach and into the pond, and destroying about 220 linear feet of the makai rock fishpond wall and severely damaging the rest of the wall. Emergency repair work was

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accomplished in July 2011 as an intermediate step to protect the fishpond, including closing the breach through the beach and removal of some sand from the pond. Development of a permanent repair plan for the pond was a condition of both the State and Army Corps of Engineers approval of emergency repairs.

Approval and authorization for permanent fishpond repairs have been obtained from Army Corps of Engineers (Department of the Army Permit, Section and Section 404), State DLNR (approval for work in the Conservation District and a Small-Scale Beach Nourishment project permit) and State Coastal Zone Management Program consistency concurrence.

Please see sections 1 and 2 of the attached "Waikoloa Beach and Kuualii Fishpond Tsunami Damage Restoration" report (October 2013) for more detailed information on the history of of Kuualii fishpond.

## **PROPOSED WORK PLAN**

**Please provide a summary of the work that is being proposed under this permit. Please note any use of mechanized equipment.**

The beach repair plan consists of replacement of approximately 690 linear feet of pond wall, recovery of 800 cy of beach sand remaining in the pond, and placement of up to 4,800 cy of sand on the beach crest above the mhhw (+2.16 feet) elevation, at +2.3 feet and higher.

The wall would be of standard gravity wall design, and the first course of wall stone would be carefully placed to key it into the boulder foundation. The wall is designed to replicate the existing feature and tie in to the undamaged portions of the remaining pond walls.

The land based excavator will be positioned on the beach at the edge of the sand recovery sites, above the waterline, and will not enter the pond water. The excavator will reclaim beach sand, washed into the pond, during and after the 2011 tsunami. The excavator will scoop sand with the bucket and deposit it on the beach berm. The reclaimed sand will be moved along the wall using a front end loader, and deposited against the beach side of the wall, filling the depression between the wall and the beach berm.

A onetime addition of sand to the beach berm and dune, is intended to replace some of the subaerial sand lost to the marine environment as a direct result of the tsunami. Placement higher on the profile, to increase berm elevation and create a minor dune feature at the mauka edge of the beach, is intended to minimize future sand losses resulting from normal wave conditions.

The wall and beach act together to provide the necessary protection for the pond, the wall provides a fixed barrier for the beach to abut and to stop its landward migration, and the beach provides for wave energy dissipation to protect the wall. Restoration of both the wall and beach is necessary for maintenance and long-term stewardship of the pond resource.

Mechanized equipment to be used for the repair work include an excavator to remove sand from the pond and place wall foundation stone, a front end loader and small bulldozer to move and spread sand on the beach crest, and trucks to bring stone and sand to the project site. Please see section 3 of the attached "Waikoloa Beach and Kuualii Fishpond Tsunami Damage Restoration" report (October 2013) for more detailed information on the proposed permanent tsunami damage repair plan.

## **PROPOSED OPERATIONS PLAN**

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**Please discuss what species you intend to raise in the pond, and your proposed methods of stocking, raising, and harvesting these species.**

Kuualii fishpond is preserved and protected as an example of native fishponds that were prevalent in the region prior to contact. Kuualii fishpond is an archaeological site eligible for the National Register of Historic Places, and is an excellent example of a loko pu'uone, or sand dune pond. CDUP HA-315, issued in 1972 as part of the resort development, recognized the importance of the pond and permit condition #5 states that the permittee or any future successors to the project shall be responsible for the maintenance of the pond and beach areas. Department of the Army permits issued for resort improvements also require maintenance of the ponds.

Kuualii fishpond is adjacent to an ancient house and shrine that also preserved, and all three are part of the education program at the site. Waikoloa hosts various primary and secondary schools from around the State, as well providing self guided tours for tourists and residents alike. Group excursions to the ponds are periodically conducted, accompanied by the resort's environmental manager to explain the historical operation of the pond. In addition, numerous universities researching anchialine pond water quality and biota access and study Kuualii fishpond. These educational programs highlight the importance of traditional Hawaiian fishponds. Waikoloa's ongoing preservation and protection of Kuualii fishpond and adjacent cultural sights provides unique historical, cultural, archaeological, and educational services for the region.

#### PREVIOUS LANGUAGE -----

Kuualii fishpond is located in the middle of a destination resort area, and thus it is not practical to have a commercial or even subsistence fishpond operation. It's importance is the historical/archaeological value of the pond and it's value as an educational tool for residents and visitors. Kuualii fishpond is an archaeological site eligible for the National Register of Historic Places, and is an excellent example of a loko pu'uone, or sand dune pond. CDUP HA-315, issued in 1972 as part of the resort development, recognized the importance of the pond and permit condition #5 states that the permittee or any future successors to the project shall be responsible for the maintenance of the pond and beach areas. Department of the Army permits issued for resort improvements also require maintenance of the ponds.

Recognizing the educational value of the pond, the Waikoloa Resort maintains signage around the pond discussing/describing hawaiian fishponds, how they function, and their importance as a sustainable food source. Group excursions to the ponds are periodically conducted, accompanied by the resort's environmental manager to explain the historical operation of the pond.

ADD INFO FROM WAIKOLOA RESORT WHEN WE GET IT - ADDED ABOVE

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## CONSISTENCY WITH HO'ALA LOKO I'A PROGRAM

**Please discuss how this proposal is consistent with Conservation District Use Permit (CDUP) ST-3703 (available online at [dlnr.hawaii.gov/special-projects](http://dlnr.hawaii.gov/special-projects)) and which tier-level the project falls under.**

The proposed repair plan is consistent with the CTUP ST-3703, with the directive to maintain, restore, and protect pond while still allowing access to beach and submerged lands makai of the pond and shoreline. No new structures will be constructed. Work proposed will repair structure from damages incurred during the 2011 tsunami. Repairs will reconstruct the damaged wall, remove sand displaced into the pond by the tsunami, and replace sand on the dune/beach crest to provide improved natural protection and conservation of for pond. No unauthorized construction activities are proposed.

The CDUP ST-3703 categorizes fish ponds into six main types, with each being specific to a particular geographic area. Type II fish pond:

"Loko I'a Pu'uone: An isolated shore fishpond usually formed by the development of barrier beaches building a single, elongated sand ridge parallel to the coast and containing one or more ditches and sluice gates."

The fronting dune stretching across the Kuualii and Kahapapa fish ponds creates a barrier parallel to the ponds with a single ditch connecting the Kahapapa pond to the ocean. This regional and local setting categorizes the Kuualii pond as a Type II.

CDUP ST-3703 defines three (3) tiered permits for fish pond work based on severity of activity proposed. Work defined in this proposal is classified under Tier II, involving "fishpond repair, restoration, maintenance, and operation involving work that is in excess of 10 percent, but less than 50 percent of the original fishpond structure." This also includes "dredging with mechanized equipment" and "major wall restoration".

Please see sections 3.1, 3.2, and 3.3 in the attached "Waikoloa Beach and Kuualii Fishpond Tsunami Damage Restoration" project report for more detailed information on the fishpond repair plan.

Proposal activities are also authorized under the 'Final Programmatic Environmental Assessment and Finding of No Significant Impact (FPEA-FONSI) for a Statewide Programmatic General Permit and Programmatic Agreement that facilitates the restoration, repair, maintenance and reconstruction of traditional Hawaiian fishpond systems across Hawai'i, done by the Honua Consulting for the State of Hawaii DNLR.

Section 2.3.2 of the document mentions activities eligible for application under the program including "Reconstruction, restoration, repair and maintenance of fishpond walls and sluice gates", "Placement of temporary structures within fishponds, which are necessary to conduct restoration activities", and "Use of hand and/or mechanized equipment to conduct fishpond restoration activities". The proposal activities are within these approved activities as defined by the FPEA-FONSI.

Please see section 2.3 in the attached 'Final Programmatic Environmental Assessment and Finding of No Significant Impact (FPEA-FONSI)' for more detailed information.

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*Sea Engineering, Inc.*

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Makai Research Pier • 41-305 Kalaniana'ole Hwy • Waimanalo, Hawaii 96795-1820  
Phone: (808) 259-7966 • FAX (808) 259-8143 • E-mail: sei@seaengineering.com • Website: www.seaengineering.com

## **Best Management Practices Plan**

**Kuualii Fishpond and Waikoloa Beach Tsunami Damage Restoration**  
Anahoomalu Bay, Waikoloa, South Kohala, Hawaii

Prepared by

Sea Engineering, Inc.  
Makai Research Pier  
41-305 Kalaniana'ole Hwy  
Waimanalo, Hawaii 96795-1820

October 2015



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## **PART I – BEST MANAGEMENT PRACTICES**

### **I. Purpose**

The purpose of this Best Management Practices Plan (BMPP) is to ensure that adequate protective measures are in place during the Kuualii Fishpond and Waikoloa Beach Tsunami Damage Repair Project at Anaehoomalu Bay. The purpose of the project is to repair damages to the beach and Kuualii Fishpond resulting from the March 11, 2011 tsunami, which significantly impacted Anaehoomalu Bay, Waikoloa, Island of Hawaii. This plan is designed to prevent where possible, or minimize, adverse impacts to the environment. The project specifications will require the Construction Contractor to adhere to environmental protection measures, including, but not limited to, those included in this plan.

### **II. Site Characterization and Project Plan**

Kuualii Fishpond and Waikoloa Beach are located on the landward side of Anaehoomalu Bay on the west coast of the island of Hawaii, approximately 20 miles north of the Kona International Airport and the town of Kailua-Kona, and 10 miles south of Kawaihae Harbor. Location and vicinity maps are shown on Figure 1. Kuualii Fishpond and vicinity are TMK (3) 6-9-007:011, Anaehoomalu, Waikoloa, South Kohala, Hawaii.

The sand beach inner bay shoreline is flanked by rocky lava basalt shorelines on both sides with an arc length of just under 1,100 feet between the old masonry channel at the north end and the first, low, basalt outcrop to the south. The sand on the beach is a mixture of calcium carbonate (e.g. marine origin shell and reefal fragments) and basalt lava. The beach fronts two fishponds, Kuualii, the larger of the two ponds, and Kahapapa pond next to it to the north.

Because of their relationship with the adjacent beach and dune, these fishponds are classified as a loko puuone, or sand dune ponds. The pond area was described by Kikuchi and Belshe (1971) as “a very long, high sand dune fronts the pond, while the inland sides are bounded by an ancient pahoehoe flow”. Kuualii pond is approximately 4 acres in size, about 600 feet long north to south and 250 feet wide. The water depth is typically 3 feet to 4 feet. The pond bottom is composed of fine sediment, typically about 2 feet thick, over firm substrate. The pond and vicinity has been altered and modified over the years. At some point the beach was fortified by extensive planting of coconut trees, and a rock wall was constructed along the makai (ocean) side of the pond. The rock wall is reported to have been constructed in the 1980’s during resort development.

Kuualii and Kahapapa ponds are connected by a channel that is approximately 7 feet wide, and a channel through the shore, approximately 5 feet wide, at the north end of Kahapapa Pond connects both ponds to the sea and allows for some circulation and flushing of the pond waters. As Kuualii does not have a direct connection to the ocean, its only seawater circulation and exchange mechanism is through its connection with Kahapapa. However, there is a significant groundwater flow into the pond which aids in water exchange and pond flushing. Water quality, water and nutrient residence time, and sources for the fishponds are discussed at length in Dr. Richard



Brock's 1991 report, *Kuualii and Kahapapa Fishponds Anaehoomalu, Hawaii: A Proposed Program for the Improvement of Water Clarity*. The research conducted for this report indicates there is very low exchange rate of fishpond water with open ocean water, and that nearly all circulation is a product of wind driven currents within the individual fishponds.

The project site, located along the makai side of Kuualii Fishpond, is separated from the open ocean by the narrow channel connecting it to Kahapapa Fishpond and the narrow channel connecting Kahapapa Fishpond to the open ocean. Limited circulation within the ponds and low flow rates through these two channels significantly separates the project area from open ocean waters. In addition, a full depth silt curtain will be placed across the mouth of the channel connecting Kuualii Fishpond and Kahapapa Fishpond for the duration of work during each component of the project.

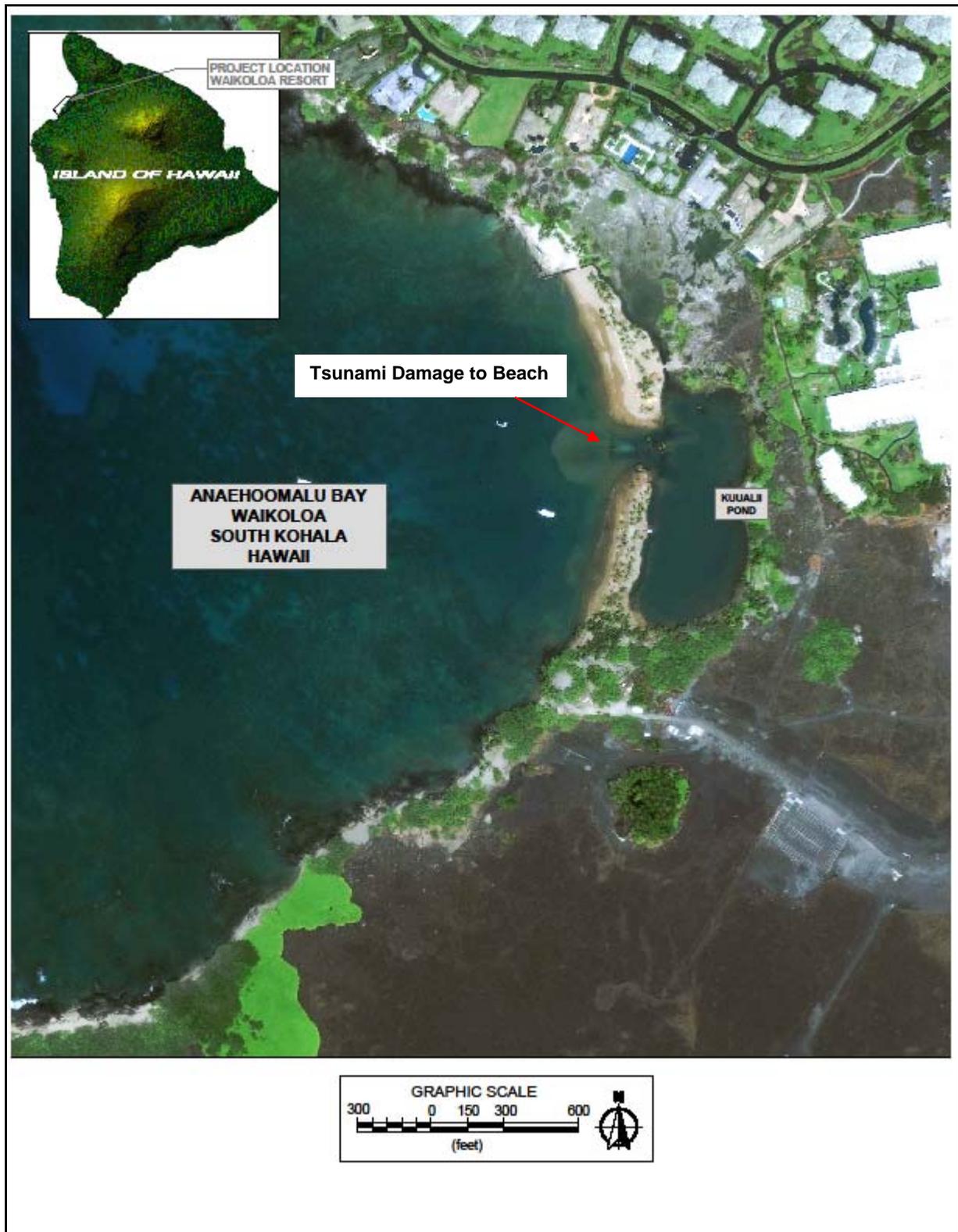
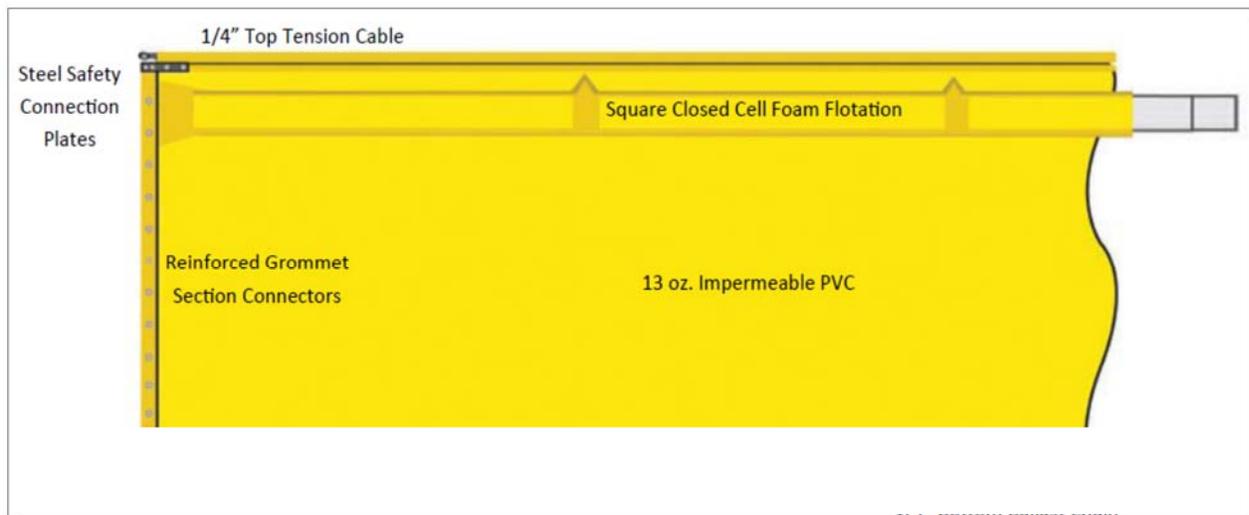


Figure 1. Project location map, showing March 11, 2011 tsunami damage

The Kuualii Fishpond and Waikoloa Beach Tsunami Damage Repair project includes four recovery components. The components include repair of the makai wall in Kuualii Fishpond, reclamation of 800 cy of tsunami deposit beach sand from Kuualii Fishpond, nourishment of the dry beach berm with up to 4,800 cy of beach quality sand, and retention of the emergency beach stabilization sand tubes.

### III. General Requirements

- All necessary permits and clearances shall be obtained prior to the start of any construction activities. The Contractor and his sub-contractors shall ensure that all construction work complies with all permit conditions and commitments made with environmental agencies.
- The Contractor shall perform the work in a manner that minimizes environmental pollution and damage as a result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of the construction period.
- The construction Contractor shall be required to comply with all the BMPP requirements including daily inspection of equipment for conditions that could cause spills or leaks; cleaning of equipment prior to operation near the water; proper location of storage, refueling, and servicing sites; and implementation of stormy weather preparation plans as detailed in Part II, adequate spill response procedures as detailed in Part III, and the use of full depth silt curtains and other containment devices.



**Figure 1. Silt Barrier drawing for minimum Type II silt curtain.**

- Minimum specifications for silt curtains will be the following:

Fabric	Float Size	Depth	Top Connector	Skirt Connector	Bottom Connector	Tension Cable	Bottom Chain
13 oz. PVC	4" Float	6 feet	Plate	Grommets	Corner Plates	¼ inch Cable	¼ inch Chain



- The Contractor shall confine all construction activities to areas defined by the drawings and specifications. No construction materials shall be stockpiled in the marine environment outside of the immediate area of construction.
- Construction work shall be conducted between the hours of 7:00 am to 6:00 pm.
- No construction equipment shall be parked within any road right-of-way in such a manner that the equipment will obstruct the normal movement and sight distance of driving motorist, except during actual working hours.
- The Contractor, for the duration of the contract, shall maintain all excavations, embankments, haul roads, permanent access roads, plant sites, waste disposal areas, borrow areas, and all other work areas within or without the project limits free from dust which would cause a hazard to the work or the operations of the other contractors, or to person or property, or cause airborne pollution.
- No contamination of the marine environment shall result from the permitted activities.
- Waste materials and waste water from construction activities shall not be allowed to leak, leach or otherwise enter fishpond waters.
- The project shall be completed in accordance with all applicable State and County health and safety regulations.
- Public safety best practices shall be implemented, possibly including posted signs, areas cordoned off, and on-site safety personnel.
- Public access along the shoreline during construction shall be maintained so far as practicable and within the limitations necessary to ensure safety.
- Mean higher high water (mhhw) will be marked along the shoreline prior to conducting berm restoration operations to ensure that neither equipment are operated nor fill is placed seaward of mhhw.
- Placement of sand in the design locations and profiles will prevent it from being washed into open coastal waters.
- Operational bounds on land will be marked with traffic cones and patrolled by project staff as needed to ensure that members of the public do not enter the project area.
- When construction operations are completed, the Contractor shall restore the area to its original state. The Contractor shall document pre-construction and post-construction conditions with time and date stamped photographs, and narrative descriptions.



#### **IV. Historic or Cultural Features**

- No adverse impacts to any historical or cultural feature are expected, since the project is located in areas impacted by the 2011 tsunami, including the overwash sand deposits, existing wall location, and existing berm location. No excavation will be conducted in the beach berm.
- Restoration of walls should, when possible, make use of stones from the existing walls and rubble, and that all imported materials should resemble these original stones. No stones should be collected from adjacent fishponds or other historic sites.
- Should any unanticipated archaeological site(s), such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of charcoal or shells be uncovered by the work activity, all work shall cease in the immediate area and the contractor shall notify the Hawaii Island State Historic Preservation Office at 808.692.8015. No work shall resume until the owner/contractor obtains clearance from the Historic Preservation Office.

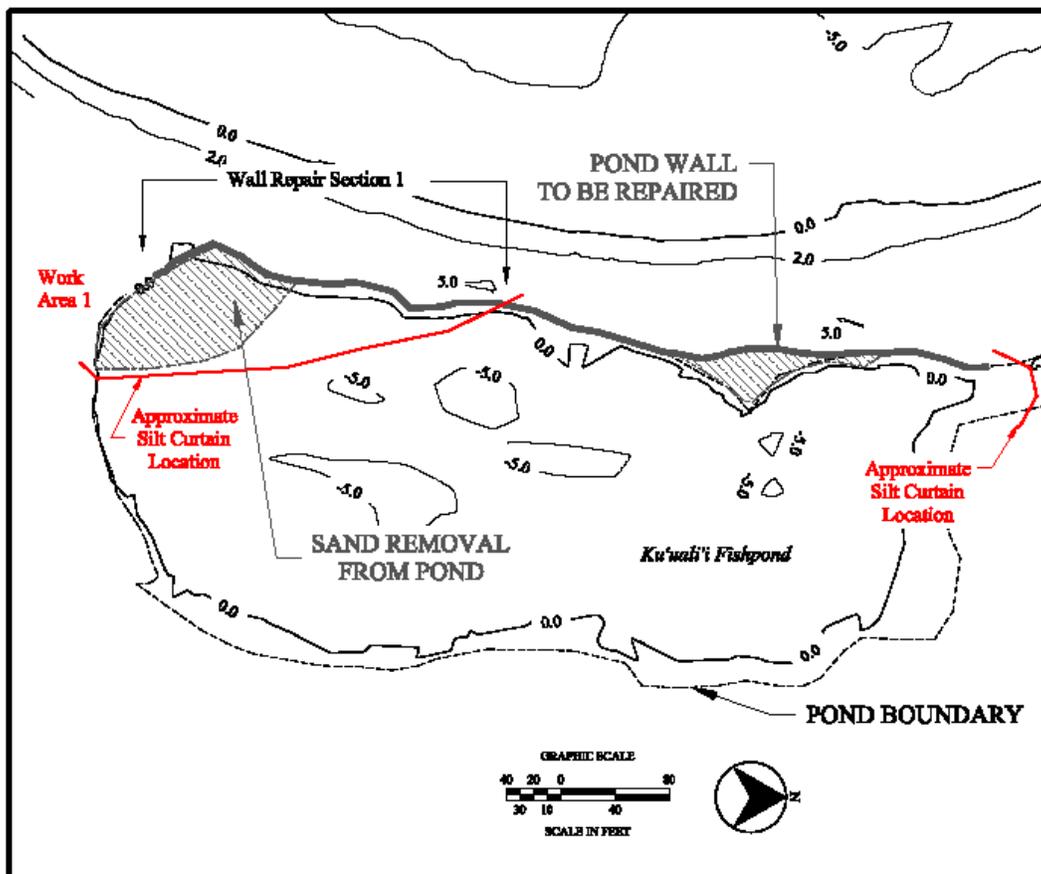
#### **V. Environmental Protection**

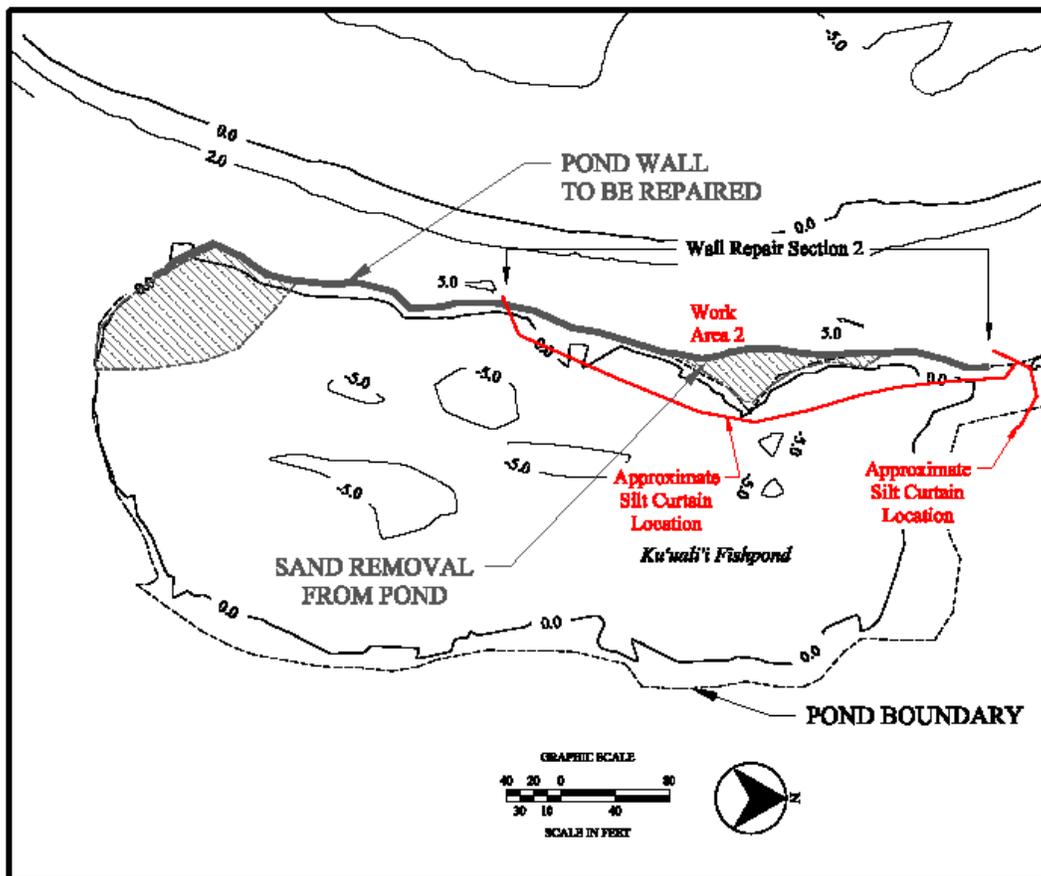
- All necessary permits and clearances shall be obtained prior to the start of any maintenance activities. The Contractor and his sub-contractors shall ensure that all construction work complies with all permit conditions and commitments made with environmental agencies.
- The Contractor shall perform the work in a manner that minimizes environmental pollution and damage as a result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of the maintenance activities.
- The contractor shall complete daily inspection of equipment for conditions that could cause spills or leaks; clean equipment prior to operation near the water; properly site storage, refueling, and servicing sites; and implement stormy weather preparation plans (Part II) and spill response procedures (Part III).
- The project shall be completed in accordance with all applicable State and County health and safety regulations.

#### **VI. Erosion Control and Silt Curtains**

- Due to the fine material on the soft sediment rich pond floor, only a single silt curtain will be deployed around project activities. Deployment and movement of the silt curtains is likely to be the most significant activity in terms of suspending native sediment. Limiting this activity by utilizing a single curtain will improve water quality for the duration of the project.

- Silt curtains will be emplaced in two deployments to minimize natural sediment displacement.
  - One large silt curtain will be deployed around the southern half of the pond during wall repair and sand reclamation work at Work Area 1. This curtain will encompass both the southern sand deposit and Wall Repair Section 1.
  - One large silt curtain will be deployed around the northern half of the pond during wall repair and sand reclamation work at Work Area 2. This curtain will encompass both the northern sand deposit and Wall Repair Section 2.
  - One small silt curtain will be deployed at the southern end of the channel in order to limit the exchange of water and any suspended sediment between the fishponds.
- Silt curtain installation plans for Work Area 1 and Work Area 2 are shown below:





- The Contractor will notify DLNR-OCCL within 7 calendar days before construction activities begin.
- Silt curtains will be staked to the pond floor with posts instead of anchoring and chain weights. This will minimize the amount of native sediment that is agitated during silt curtain movement and anchoring activities.
- Silt curtains will be carefully staked and regularly inspected during sand reclamation and wall repair operations. The work area will be inspected for marine life prior to placement of silt curtains.
- Silt curtains will be left in place each night following project operations. Coverage area will be minimized by placing the curtains within 10 feet of the toe of the wall or proposed dredge area, to include a minimum footprint around the work site for overnight placement. All stakes and curtains will be inspected prior to sunset.



- Silt curtains will not be moved until turbidity levels within the curtains have returned to normal. Conditions will be documented prior to moving the curtains with photographs and short descriptions including the time and date of the photographs and the activity.
- The Contractor shall construct temporary berms, sediment basins, and silt fences as necessary to control erosion. Construction plans and specifications shall be delivered to DLNR-OCCL at least 14 calendar days prior to construction.
- The Contractor will be the on-site party who is responsible for the proper handling, storage and/or disposal of all waste generated by maintenance activities.
- The Contractor shall confine all maintenance activities to areas defined by the drawings. No materials shall be stockpiled in the marine environment outside of the immediate area of the maintenance activity.
- The Contractor shall keep maintenance activities under surveillance, management and control to avoid pollution of surface or marine waters. Daily visual inspection of the project site and its environs will be conducted by a designated individual, or his representative, to verify that the permitted activities do not result in uncontrolled adverse environmental impacts.
- Visual inspections will include monitoring of the effectiveness of the silt curtains to ensure proper function.
- Visual inspections will be documented with photographs and written descriptions, if necessary.
- Sand recovery, wall repair, and berm restoration operations shall not be done during storms or periods of high surf.
- Visual monitoring will include ongoing inspections for turbidity outside of the confines of the silt curtains. In the event that turbidity is observed outside of the silt curtains, work shall stop and the silt curtains shall remain in place until the turbidity dissipates. Silt curtains and stakes shall be inspected after dissipation and prior to returning to construction operations. Silt curtains and stakes will be repaired and replaced as needed.
- Surface runoff shall be controlled in order to minimize silt entering the water. Should excessive siltation or turbidity result from the Contractor's method of operation, the Contractor shall install silt curtains or other silt contaminant devices as required to correct the problem.
- Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement.
- There shall be no waste water discharge into State waters without first obtaining an NPDES permit from DOH-CWB authorizing such a discharge.



## **VII. Noise**

- Best management practices shall be utilized to minimize adverse effects to air quality and noise levels, including the use of emission control devices and noise attenuating devices.
- Noise shall be kept within acceptable levels at all times in conformance with HAR Title 11 § 46 Community Noise Control, State Department of Health, Public Health Regulations.
- The Contractor shall obtain and pay for a Community Noise Permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.
- All internal combustion engine-powered equipment shall be equipped with mufflers to minimize noise and shall be kept properly maintained to reduce noise to acceptable levels.
- Starting up construction equipment meeting allowable noise limits shall not be done prior to 7:00 am without prior approval of the Waikoloa Resort. Equipment exceeding allowable noise levels shall not be started up prior to 7:30 am.

## **VIII. Dust**

- The Contractor shall keep the project and surrounding areas free from dust nuisances. The work shall be in conformance with the Air Pollution Control Rules of the State Department of Health, HAR Title 11 § 60.1 Fugitive Dust.
- The Contractor, for the duration of the contract, shall maintain all excavations, embankments, haul roads, permanent access roads, plant sites, waste disposal areas, borrow areas, and all other work areas within or without the project limits free from dust which would cause a hazard to the work, or the operations of other contractors, or to persons or property. Industry accepted methods of stabilization suitable for the area involved, such as sprinkling or similar methods, will be permitted. Chemicals or oil treating shall not be used.
- The Contractor will be responsible for providing an approved dust control plan, which shall be implemented. Windblown sand and dust shall be prevented from blowing offsite by watering when necessary.
- There shall be no discharge of dust control effluent into State waters without an NPDES permit issued by the DLNR-OCCL.

## **IX. Air Pollution Control**

- Emission: The Contractor shall not be allowed to operate equipment and vehicles that show excessive emissions of exhaust gases until corrective repairs or adjustments are made to the satisfaction of the Owner.



## **X. Oil and Spill Containment**

- The Contractor shall ensure that the Oil Spill Response Plan, detailed in Part III, is in place which shall detail procedures for managing the accidental release of petroleum products to the aquatic environment during construction. Fueling of project related vehicles and equipment should take place away from the water. Absorbent pads, containment booms and skimmers will be stored on site to facilitate the cleanup of petroleum spills.
- Any spills or other contaminations shall be immediately reported to the DOH Clean Water Branch (808-586-4309) and through email: [cleanwaterbranch@doh.hawaii.gov](mailto:cleanwaterbranch@doh.hawaii.gov).
- In the event that floating hydrocarbon (oil, gas) products are observed, the Contractor or his designated individual will be responsible for directing that in-water work be halted so that appropriate corrective measures are taken in accordance with the Oil Spill Response Plan. The responsible individual will document the event and the measures taken to correct the issue, and will report the incident (with photographs) as soon as is practicable. Work may continue only after the issue is no longer visible.

## **XI. Monitoring/Measures for Visually Detected Containment**

- The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface or marine waters. Daily visual inspection of the construction site and its environs will be conducted by a designated individual, or his representative, to verify that the permitted activities do not result in uncontrolled adverse environmental impacts. Visual inspections will be documented with photographs and written descriptions, if necessary.
  - a. Daily Inspection: The project site will be inspected daily to ensure BMPP's are maintained to confine and isolate potential pollutants from being discharged into surrounding areas. The site will be inspected to ensure:
    - i. All silt fences are functioning properly; and
    - ii. Materials are properly stored, rubbish is being collected and disposed of properly, etc.
  - b. Deficiencies identified by daily inspections shall be corrected immediately. Work activities will stop and remain stopped until the deficiencies have been corrected.
- Erosion control measures shall be in place before any work is started. Erosion control measure shall include silt fencing, as needed, around active work areas.
- The Contractor shall maintain and clear blockage and debris from the erosion control measures as necessary every day and after heavy rain events.
- Prior to delivery to the site, all construction material including sand shall be inspected to ensure they are free of contaminants of any kind including: excessive silt, sludge, anoxic or decaying organic matter, turbidity, temperature or abnormal water chemistry, clay, dirt, organic material, oil, floating debris, grease or foam or any other pollutant that would produce an undesirable condition to the beach or water quality.



- No contamination of the marine environment shall result from the permitted activities. Particular care must be taken to ensure that no petroleum products, trash or other debris enter near-shore and open ocean waters. When such material is found within the project area, the Contractor, or his designated construction agent, shall collect and dispose of this material at an approved upland disposal site.
- Waste materials and waste waters directly derived from construction activities shall not be allowed to leak, leach or otherwise enter marine waters.

## **XII. Water Quality Monitoring**

- Turbidity and sediment from project-related work, including work relating to system structures, must be minimized and contained to the immediate vicinity of the authorized activity through the appropriate use of effective sediment containment devices.
- Visual monitoring will be conducted ongoing throughout the construction and be documented with photographs and written descriptions, if necessary.
- To the extent practicable, the work must be conducted in the dry season or when any affected stream has minimal to no flow. The site must be stabilized to prevent erosion and runoff, and work must stop during flooding, intense rainfall, storm surge, or high surf conditions. To the extent practicable, work must be done during low tides.
- No project-related materials (fill, revetment rock, pipe, etc.) shall be stockpiled in the aquatic environment (intertidal zones, reef flats, stream channels, wetlands, etc.) or in close proximity such that materials could be carried into waters by wind, rain, or high surf.
- All debris and material removed from the marine/aquatic environment shall be disposed of at an approved upland or alternative disposal site.
- Silt fences, silt curtains, or other appropriate containment structures shall be installed to contain sediment and turbidity at the work site (a) parallel to, and within 10 feet of, the toe of any fill or exposed soil which may introduce sediment to an adjacent aquatic site; and (b) adjacent to any fill placed or soil exposed within an aquatic site. All silt fences, curtains, and other structures shall be installed properly and permanently stabilized, be self-sustaining, and remain in place until any turbidity levels elevated due to construction have returned to ambient levels.
- All silt fences, curtains, and other structures shall be installed properly and permanently stabilized, be self-sustaining, and remain in place until any turbidity levels elevated due to construction have returned to ambient levels.
- Erosion controls must be properly installed before any alteration of the area may take place.
- All disturbed areas must be immediately stabilized following cessation of activities for any break in work longer than 4 days.



### **XIII. Endangered Species Act Compliance**

- The project manager shall designate a competent observer to survey the marine areas adjacent to the proposed action for ESA-listed marine species. A safety zone shall be established extending 150 feet beyond the limits of the active work area that will be visually monitored for protected marine species.
- Visual surveys for ESA-listed marine species shall be made prior to the start of work each day, and prior to resumption of work following any break of more than one half hour, to ensure that no protected species are in the area (typically within 150 feet of the proposed work).
- All in-water work shall be postponed or halted When ESA-listed marine species are within 150 feet of the active work area, and shall only begin/resume after the animals have voluntarily departed the area (which may be considered to have occurred 30 minutes following the last sighting). If ESA-listed marine species are noticed after work has already begun, that work may continue only if there is no way for the activity to adversely affect the animal(s). The use of heavy machinery is not safe until the creature has departed the area.
- Any federally protected waterbird species appears within 100 feet (30.5 meters) of ongoing, in-water work, work activity shall be temporarily suspended until bird leaves the area of its own accord.
- Any construction related debris that may pose an entanglement hazard to marine protected species must be removed from the project site if not actively being used and/or at the conclusion of the construction work.
- Do not attempt to feed, touch, ride, or otherwise intentionally interact with any ESA-listed marine species.
- All on-site project personnel must be apprised of the status of any ESA-listed species potentially present in the project area and the protections afforded to those species under federal laws. A brochure explaining the laws and guidelines for ESA-listed species in Hawaii, American Samoa, and Guam may be downloaded from: [http://www.nmfs.noaa.gov/prot\\_res/MMWatch/Hawaii.htm](http://www.nmfs.noaa.gov/prot_res/MMWatch/Hawaii.htm)
- The Contractor shall keep a record of all turtle sightings, incidents of disturbance, or injury, and shall provide a report to the State and the National Marine Fisheries Service (NMFS), and will be the contact person for any issues involving green sea turtles during maintenance activities.
- The Contractor shall immediately report any incidental take of marine mammals. Incidents must be reported immediately to NOAA Fisheries' 24-hour hotline at 1-888-256-9840. In Hawaii, any injuries incidents of disturbance or injury to sea turtles must be immediately



reported, and must include the name and phone number of a point of contact, location of the incident, and nature of the take and/or injury. If the incident involves an ESA-listed marine species, it should be immediately reported to NMFS, the Corps of Engineers, and the Pacific Island Protected Species Program Manager, Southwest Region (Tel: 808-973-2987, fax: 808-973-2941).

#### **XIV. Materials and Waste**

- All fill sand, wall repair material, and equipment shall be free from any unpleasant or offensive sludge, oil, grease, scum, excessive silt, organic material or other floating material.
- The Contractor shall not dispose of any concrete, steel, wood, and any other debris into marine waters. Any debris that falls into the marine water shall be removed at the Contractor's own expense.
- No contamination (trash or debris disposal, alien species introductions, etc.) of the marine environment adjacent to the project site shall result from project related activities.
- The Contractor is responsible for the proper handling, storage and/or disposal of the all waste generated by this construction.
- The Contractor shall not dispose of any concrete, steel, wood, and any other debris into lagoon waters. Any debris that falls into the lagoon water shall be removed at the Contractor's own expense.
- Construction operations shall be conducted so as to prevent discharge or accidental spillage of pollutants, solid waste, debris, and other objectionable wastes in surface waters and underground water sources.
- Any spills or other contaminations shall be immediately reported to the DOH Clean Water Branch (808-586-4309) and through email: [cleanwaterbranch@doh.hawaii.gov](mailto:cleanwaterbranch@doh.hawaii.gov).

#### **XV. Project Schedule**

At this time, the estimated start of construction is Winter of 2015/2016 and will take an estimated three (3) months of work to complete. A detailed project schedule will be submitted to the DLNR-OCCL within seven (7) calendar days prior to start of construction.

Winter 2015/2016: Contractor Notice to Proceed and Mobilization

Winter 2015/2016: Material Acquisition for Project



Winter 2015/2016: Wall Repair, Sand Reclamation and Wall Stabilization, and Berm Restoration are estimated to last eight (8) weeks, two (2) weeks, and four (4) weeks, respectively. Wall Repair and Sand Reclamation will be conducted in series. Berm Restoration may be conducted as a standalone operation following completion of the other two (2) tasks.

## **XVI. Construction Duration, Sequence & Method**

The total construction duration is expected to take no more than fourteen (14) weeks of combined effort from start of wall repair to completion of the project. However, the fourteen weeks of effort may be discontinuous and scheduled such that the Wall Repair and Sand Reclamation tasks are completed in series as a single effort, while Berm Restoration is conducted as a standalone effort.

### Wall Repair and Sand Reclamation

- Environmental protection materials will be stationed on land and in the water. This will include placement and staking of the full depth silt curtain in the pond water and traffic cones around the inland perimeter of the work area.
- Mobilize equipment and supplies for wall repair work. The staging area will be located at the south end of the project site, on the dry beach berm.
- Wall repair will be conducted in two (2) sections, each approximately 300 feet in length.
- Damaged section of wall will be removed using the bucket of the excavator. Reusable material will be positioned on the dry beach berm for reuse during wall repair. Unusable material will be disposed of offsite, by dump truck, at the appropriate solid waste disposal facility.
- The excavator bucket will be used to test the foundation rocks. If the foundation needs repairs, the excavator will be used to prepare the subsurface for boulder placement.
- The excavator will place boulders along the section's length to stabilize the foundation.
- The CRM retaining wall will be built by hand, in the same fashion as the previous wall.
- Each section will be cleaned of excess construction materials including forms, excess concrete, and excess rock, prior to moving to the next section.
- Upon completion of the wall repair task, the entire project area will be cleaned of all excess wall materials and any project related waste materials.
- Sand will be reclaimed using the bucket of the excavator, and placed on the dry beach berm adjacent to the reclamation site. Sand will be delivered by front end loader, and placed against the beach side of the wall.
- Tsunami deposits, comprised of beach sand from Waikoloa Beach, are located in two discrete deposits at the southwest corner and near the north end of the western bank of the fishpond.
- Sand will be placed up to, but not higher than, the top of the wall at +6 feet mllw. The sand surface will be smoothed to grade it to the existing beach berm elevation.
- Following completion of sand reclamation in Work Area 1, the silt curtains will remain in place until any project related turbidity within the confined area has subsided. Conditions will be documented with photographs and notes, then the silt curtains will be moved to Work Area 2.



- Wall repairs and sand reclamation and placement will follow the same pattern as before.
- Upon completion of the sand reclamation task, the entire project area will be cleaned of all excess wall materials and any project related waste materials.
- Return the site of pre-project condition and demobilize.
- Remove the environmental protection materials.

#### Berm Restoration

- Environmental protection materials will be stationed on land and in the water. This will include placement and staking of a silt fence at +2.3 ft mllw on the makai edge of the beach face and traffic cones around the inland perimeter of the work area.
- Mobilize equipment and supplies for berm restoration work. The staging area will be located at the south end of the project area on the dry beach berm.
- Grade elevations will be marked by rebar stakes placed in the dry beach berm. Existing conditions will be surveyed prior to delivery of sand.
- Dump trucks will deliver beach quality sand to the project site, starting at the south end of the project area.
- All grading activity, conducted by bulldozer, will be done atop newly placed sand. No equipment will be operated, nor grading conducted upon the pre-existing beach berm surface.
- Upon completion of grading each day, the area completed during the day will be surveyed to confirm final grade and elevations, and to calculate placed volume. Grade stakes will be removed from the completed area.
- Upon completion of the berm restoration task, the entire project area will be cleaned of all excess wall materials and any project related waste materials. Traffic cones and silt fence will be removed from the project area.
- Return the site of pre-project condition and demobilize.
- Remove the environmental protection materials.

#### **XVII. Equipment List**

List includes possible equipment, some of which may not be required.

- Excavator
- Front end loader
- Bulldozer
- Dump trucks

#### **XVIII. Operational Controls**

- This plan will be reviewed with the project field staff prior to the start of work.
- Wall repair, sand reclamation, and berm restoration activities will not begin until appropriate BMPP's are properly installed.
- Construction will be immediately stopped, reduced or modified; and/or new or revised BMPP's will be immediately implemented as needed to stop or prevent polluted discharges to receiving waters.



## **XIX. Structure, Authority, and Responsibility**

The Project Manager/Superintendent/Project Engineer will ensure compliance with this plan.

The Project Manager/Superintendent/Project Engineer will appoint and train one (1) additional individual to properly install all BMPP's and to comply with all aspects of this plan.

## **XX. Training**

- Employees will be instructed in proper installation of the BMPP materials.
- BMPP's will be covered in the weekly toolbox safety meeting.
- BMPP's will be discussed, as applicable, for each new phase of work.

## **XXI. Inspection and Monitoring**

- The Project Manager/Superintendent/Project Engineer or the assigned trained individual will conduct a visual inspection of all BMPP's daily.
- All minor repairs and maintenance of the BMPP's will be completed within 48 hours of detection. Major repairs of BMPP's shall be completed as soon as practical, and in-water work shall be stopped until repairs are complete.
- If any BMPP is damaged, work will immediately be stopped and shall not resume until repairs to the BMPP have been completed.

## **XXII. Emergency Procedures**

- Natural disaster related pollutant discharge: See Part II, Contingency Plan
- Spill prevention and control: See Part III, Emergency Spill Response Plan.

## **XXIII. Communication**

- This plan and any changes that are incorporated will be transmitted to all subcontractors employed on this project for their compliance.
- The Project Manager/Superintendent/Project Engineer will immediately notify the County of Hawaii and the DOH Clean Water Branch of pollutant discharges.

## **XXIV. Record Keeping/Documentation**

- A copy of this plan will be kept on site.
- All BMP inspection reports will be kept on site.
- Records of inspection and repair of control measures will be retained in the project files for a minimum of five years.

## **XXV. Site-Specific Management Practices**

- a. Material Management
  - Only a minimum quantity of materials necessary for the work will be stored on site.



- All flammable and reactive liquids will be kept in sealed and clearly labeled original or compatible containers and stored under cover more than fifty (50) feet from the edge of the property and away from the nearest drain and receiving waters.
- Repair materials will be stored in storage containers or covered with polyethylene sheeting to avoid contact with storm waters.
- Storage area will be kept clean and well organized.
- Stored materials will be inspected weekly. The contents of any damaged or rusted containers will be transferred into a suitable container or in secondary containment.
- Materials will be used in strict accordance with the manufacturer's instructions.

b. Waste Management

- All waste will be collected and placed daily in the container located in the staging area.
- The Contractor will arrange for pick up and disposal of filled container as necessary.
- Portable toilets will not be used, as there is a public bathroom at the site.
- Cleanup of waste will be conducted through sweeping, shoveling, or vacuuming operations only.

c. Hazardous Waste Management

**Note:** No hazardous wastes are anticipated for this project. The following will apply should hazardous waste be encountered:

- Non-hazardous or less hazardous materials should be used whenever possible.
- Hazardous waste shall be placed in secondary containment.
- Hazardous waste shall not be mixed with other waste and repair debris placed in the dumpster.
- Flammable or reactive waste will be placed in a separate area more than 50 feet from the edge of the property, nearest drain inlet and the shoreline.

d. Vehicle and Equipment Management

- Fueling operations will be monitored to prevent spills, leaks and overflows. Equipment will be fueled away from any drain or edge of the harbor. A spill pan will be used to catch spill/leaks. Equipment will not be "topped off." Spill cleanup materials will be readily accessible.
- Vehicles and construction equipment (except small tools, generators, welders, etc.) shall be maintained off-site. If emergency repairs or maintenance on large equipment (i.e. crane) must be performed, drip pans or drop cloth will be placed under the vehicle or equipment to catch any spills/leaks.

e. Concrete Operations

- Fresh concrete shall be prevented from entering the water during all concrete work.
- Cement placed below the water line shall contain antiwashout admixtures to reduce the potential for impacts to water quality and marine life (e.g. V-MAR 3 from Grace Construction Products)



- Chemically treated wood shall not be used for forms. Forms shall be watertight and true to line and grade.
- All concrete work will be conducted above mllw.
- Excess concrete will be transported back to the concrete plant.
- Washout of concrete trucks, pumps and mixers will be performed in the concrete washout bin at a designated location at least 50 feet from the shoreline and any drain inlets. Washout water of concrete trucks shall not be allowed to discharge (directly or indirectly) into the storm drainage system or into nearshore waters.

f. Erosion and Sediment Control Measures

- Removed materials will be placed in a storage bin or stockpiled in a berm; the stockpiled materials shall be disposed of at the earliest date.
- Care shall be exercised in the removal and transporting of debris and rubbish for disposal.
- Any spillage on pavement and concrete surfaces will be cleaned up immediately.
- Loads will be covered when transported.

## **XXVI. Suspension of Work**

- Violations of any of the above requirements or any other pollution control requirements which may be specified in the Technical Specifications herein shall be cause for suspension of the work creating such violation. No additional compensation shall be due the Contractor for remedial measures to correct the offense. Also, no extension of time will be granted for delays caused by such suspensions.
- If no corrective action is taken by the Contractor within 72 hours after a suspension is ordered by the Owner, the Owner reserves the right to take whatever action is necessary to correct the situation and to deduct all cost incurred by the Owner in taking such action from monies due to the Contractor.
- The Owner may also suspend any operations which he feels are creating pollution problems although they may not be in violation of the above-mentioned requirements. In this instance, the work shall be done by force account.

## **XXVII. Conservation District Standard Conditions §13-5-42**

Any land use permitted within the conservation district is subject to the following standard conditions:

- The permittee shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of this chapter;
- The permittee, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its



successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;

- The permittee shall obtain appropriate authorization from the department for the occupancy of state lands, if applicable;  
The permittee shall comply with all applicable department of health administrative rules; Unless otherwise authorized, any work or construction to be done on the land shall be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and shall be completed within three years of the approval of such use. The permittee shall notify the department in writing when construction activity is initiated and when it is completed;
- All representations relative to mitigation set forth in the application are incorporated as conditions of the permit;
- The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;
- In issuing the permit, the department and board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;
- Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;
- Obstruction of public roads, trails, lateral shoreline access, and pathways shall be avoided or minimized. If obstruction is unavoidable, the permittee shall provide alternative roads, trails, lateral beach access, or pathways acceptable to the department;
- During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;
- Cleared areas shall be revegetated, in accordance with landscaping guidelines provided in this chapter, within thirty days unless otherwise provided for in a plan on file with and approved by the department;
- For all landscaped areas, landscaping and irrigation shall be contained and maintained within the property, and shall under no circumstances extend seaward of the shoreline as defined in section 205A-1, HRS;
- Artificial light from exterior lighting fixtures, including but not limited to floodlights, uplights, or spotlights used for decorative or aesthetic purposes, shall be prohibited if the light directly illuminates or is directed to project across property boundaries toward the shoreline and ocean waters, except as may be permitted pursuant to section 205A-71, HRS. All exterior lighting shall be shielded to protect the night sky;
- Where applicable, provisions for protection of beaches and the primary coastal dune shall be established by the permittee, to the satisfaction of the department, including but not limited to avoidance, relocation, or other best management practices;
- The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawaii, and by Hawaii statutory and case law;



- Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact HPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;
- Other terms and conditions as prescribed by the chairperson.
- Failure to comply with any of these conditions shall render a permit void under the chapter, as determined by the chairperson or board.



## **PART II – CONTINGENCY PLAN**

- I. The following plan will be implemented by the General Contractor to prevent/respond to polluted discharges resulting from a severe storm or natural disaster. It is the General Contractors responsibility to abide by the following plan as well as any other binding plan, agreement, regulation, rule, law, or ordinance applicable.
  
- II. All contactors associated with the following construction project, Kuualii Pond Tsunami Damage Restoration, will follow this plan when a severe storm is either forecast or anticipated. General contractors must:
  - a. Regularly monitor local weather reports for forecasted and/or anticipated severe storm events, advisories, watches, warnings or alerts. The contractor shall inspect and document the condition of all erosion control measures on that day prior, during, and after the event. The contractor shall prepare for forecasted and/or anticipated severe weather events to minimize the potential for polluted discharges.
  - b. Secure the construction site. Securing the site should generally include:
    - i. Removing or securing equipment, machinery, and maintenance materials.
    - ii. Cleaning up all maintenance debris.
    - iii. Implementing all Best Management Practices detailed in the Site's SSBMP Plan. This includes BMPs for materials management, spill prevention, and erosion and sediment control.
  - c. In the event of a severe weather advisory (hurricanes, tropical storms, natural disasters) or when deemed necessary, cease regular construction operations. Work crews must finalize securing the project site, and evacuate until the severe weather condition has passed.
  - d. Upon return to the Site, all BMPs shall be inspected, repaired and/or re-installed as needed. If repair is necessary, it shall be initiated immediately after the inspection and repairs or replacement will be complete within 48 hours. To facilitate repair or replacement, the contractor will be required to store surplus material on the project site if the site is located where replacement materials will not be readily available.
  - e. When there either has been a discharge which violates Hawaii Water Pollution rules and regulations OR there is an imminent threat of a discharge which violates Hawaii Water Pollution rules and regulations and/or endangers human and/or environmental health, the permittee shall at a minimum execute the following steps:
    - i. Assess whether construction needs to stop or if additional BMPs are needed to stop or prevent a violation.
    - ii. Take all reasonable measures to protect human and environmental health.
    - iii. Notify responsible parties listed below and immediately notify the DLNR of the incident. The notification shall also include the identity of the pollutant sources and the implemented control or mitigation measures.
      1. Mr. Scott Head – (808) 886-1000
      2. Operator/ Emergency Contact Number: TBD
      3. Department of Land and Natural Resources  
Office of Conservation and Coastal Lands (During regular working hours): 808-587-0331



- iv. Document corrective actions, take photographs of discharge and receiving waters.
- v. Revise Site Specific BMPs Plan to prevent future discharges of a similar nature.



## **PART III – EMERGENCY SPILL RESPONSE PLAN**

### **I. Pre-Emergency Planning**

- a. An initial and periodic assessment shall be made of the project site and potential hazardous spills that may be encountered during the normal course of work. This plan is not intended to address issues relating to materials such as PCB, Lead, Asbestos, etc. since these types of materials would have specific work plans already developed. This plan should be revised as necessary to correspond to the assessment.
- b. A Hazardous Materials inventory list and MSDS sheets, to include subcontractors' materials, will be filed in a binder and located in the Project Office. The inventory list and MSDS sheets will be updated and maintained by the Project Manager and site safety officer; as new materials are added.
- c. Personnel will consult the applicable MSDS sheet prior to its use.
- d. Personnel will handle hazardous materials safely and use personnel protective equipment (PPE), recommended/required by the MSDS, when handling hazardous materials.
- e. Personnel will receive "Hazard Communication" training within three (3) working days of arrival and "product specific" training prior to the initial use/exposure of a product. This training will be conducted by the Project Manager/Superintendent or site safety officer.
- f. All personnel will be trained on the contents of this plan within the first month of maintenance and at least annually thereafter. The training should include a rehearsal of this plan. An attendance sheet will be kept on file at the Project Office.
- g. Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved safety cans or DOT approved containers shall be used the handling and use of flammable liquids in quantities of five (5) gallons or less. For quantities of one (1) gallon or less, only the original container or approved metal safety can shall be used, for storage, use and handling of flammable liquids.
- h. Flammable or combustible liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

### **II. Personal Protective and Emergency Spill Response Equipment**

- a. ABC fire extinguishers will be located in the project field office and in each of the company vehicles. There will be at least one fire extinguisher, rated at not less than 10B, within 50 feet of any stockpile of 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas storage.

**NOTE: Fire extinguishers should not be located "directly" with hazardous materials, so as to endanger first responders.**

- b. Spill kits will be located at the project field office and/or within 50 feet of the hazardous material storage area. The spill kit contents shall be determined by the Project Manager/Superintendent based on the anticipated hazardous materials to be



stored and/or used on the project. The spill kits will be inventoried quarterly and appropriate logbook entries made.

- c. Emergency response personal protective equipment (PPE) consisting of:
  - i. Face shield
  - ii. Tyvex coveralls
  - iii. Rubber gloves
  - iv. Air-purifying respirators with HEPA and organic vapor combination cartridges will be issued to the Emergency Response Team members and maintained in the project office. Separate Respiratory Protection Equipment shall be designated and labeled as such; this equipment will be inspected at least every 30 calendar days and appropriate logbook entries made.

### III. Personnel Roles, Lines of Authority and Communication

- a. Emergency Response Coordinator (ERC)
  - i. The Project Superintendent is the designated ERC. If the Project Superintendent is not available, the safety officer is the designated ERC.
  - ii. The ERC will be in charge of and will coordinate the appropriate emergency response procedures in this plan.
- b. Emergency Response Team (ERT)
  - i. The ERT consists of Construction General Foreman, Labor Foreman, and a Laborer designated by the Project Superintendent.
  - ii. The ERT will appropriately respond to the emergency in accordance with this plan at direction of the ERC.

### IV. Emergency Alerting and Response Procedures

- a. Any person causing or discovering a known hazardous or unknown release or spill will:
  - i. Immediately alert nearby personnel who may be exposed to the effects of the release or spill.
  - ii. Report the release or spill immediately to the ERC and the ERT. All pertinent information regarding the release should be provided to the ERC, such as the amount and type of material released, location of the release, and other factors, which may affect the response operation.
  - iii. If the spill or release is a petroleum product or known non-toxic chemical, the person will take immediate and appropriate measures to stop or limit the rate of release, (i.e. close the spigot to the drum or form oil or curing compound) and or contain or stop the migration of the release (i.e. create a berm of dirt around the release) until the ERC and ERT arrive.
  - iv. If the spill release is a toxic, highly flammable, or unknown chemical, the person will first notify the ERC before approaching the spill area from upwind to determine the source, type, and quantity of the release. The person should monitor the spill until the ERC and ERT arrive.
  - v. The ERC will assess possible hazards to human health or the environment that may result from the release, fire, or explosion.



- vi. If the spill or release is less than 25 gallons of a known petroleum product or non-toxic chemical, the ERC will direct the ERT to contain and cleanup the spill or release.
- vii. If the spill or release is toxic or unknown, the ERC will immediately notify the County of Hawaii Fire Department and ask for assistance from the HAZMAT Response Team.
- viii. Immediately after the emergency, the ERC will arrange for disposing of the recovered waste, contaminated soil or any other material that results from the release, fire, or explosion at the project site in accordance with the County of Hawaii and State regulations and manufacturer's instructions (if source of spill or release is known).

#### V. Emergency Notification and Reporting Procedures

- a. In the event that a release enters the storm or sewer system, the ERC will immediately notify the Nation Response Center (NRC) at 1.800.424.8802, the Hawaii Department of Health, Hazard Evaluation and Emergency Response Office (HEER) at 808.586.4249 and LRPC at 808.935.2785.
- b. The ERC will immediately notify appropriate agencies and submit written follow-up notification in accordance with the Hazardous Substance Release Notification Guideline.

#### VI. Safe Distance Staging Area

- a. A staging area at safe distance up wind and higher than the location of the spill or release and its source will be immediately established.
- b. Access to the spill or release location will be cleared for emergency vehicles and equipment to be used to contain and clean up the spill or release.

#### VII. Site Security and Control

- a. If the spill or release is located on or near the roadway, stop all traffic until the release is cleaned up.
- b. If the spill or release is located away from vehicle or pedestrian traffic, install barricades/safety fencing around the affected area.
- c. If the spill or release occurs during night operations, provide adequate light and use ground guides to escort emergency vehicles to the affected area.

#### VIII. Evacuation Routes and Procedures

- a. Persons injured during the emergency condition will be evacuated to the staging area where they will be treated and or further evacuated to the nearest medical facility. The appropriate MSDS(s) will be provided to emergency service personnel and are intended to be delivered to the emergency room physicians.
- b. Persons working at the affected area and who are not needed in the response effort; will report the staging areas for accountability.



IX. Decontamination and Disposal Procedures

- a. Persons involved in the spill clean-up are required to perform personal hygiene, utilizing soap and fresh water prior to eating, drinking, or smoking.
- b. Contaminated PPE shall be appropriately cleaned and disinfected if possible. If this is not possible it shall be disposed per the same requirements of the contaminated substance.
- c. Sorbent pads/materials and the spilled substance will be placed in appropriate containers and disposed as specified by the appropriate MSDS.
- d. Contaminated soil will be placed in appropriate container(s) or on plastic sheeting. The ERC will arrange with an environmental services company to properly characterize, prepare the manifest, label the containers, transport, and dispose of the contaminated soil. The generator's copy of the manifest will be kept in the project files for a minimum of three (3) years.
- e. In the event of a substantial release (25 gallons or more) of a suspected or known toxic chemical, the Fire Department HAZMAT Response Team will be called to control/cleanup the release. They will establish and provide the decontamination operations as required.

X. Emergency Medical Treatment and First Aid

- a. First aid kits will be maintained at the project field office, all company vehicles, and gang boxes.
- b. Injured person(s) will be treated at the staging area by a certified first aid trained individual at the project site until the ambulance arrives or they are evacuated to the nearest medical facility.
- c. The appropriate MSDS(s) will be provided to emergency service personnel and are intended to be delivered to the emergency room physicians.

XI. After the Spill Procedures

- a. The ERC will review what happened and implement changes and/or corrections to prevent spill from occurring and to improve the spill response and clean-up procedures. This Plan will be revised to reflect those changes/corrections/improvements implemented.
- b. The ERC will prepare a record of the spill response and keep it in the project files for a minimum of three (3) years.
- c. The ERC will submit Follow-up Notification to HEER when required.
- d. Spill response kits shall be replenished directly after the emergency.

XII. Emergency Contacts

National Response Center (NRC)	1.800.424.8802
Coast Guard Operations Center, Honolulu	
(working hours)	1.808.522.8264
(after hours)	1.808.927.0830



Hawaii State Department of Health  
Hawaii Evaluation and Emergency Response (HEER) 1.808.586.4249

County of Hawaii Fire Department 911

In the event that a release enters the storm or sewer system, the ERC will immediately  
notify NRC, HEER, and LEPC 1.808.935.2785

*(name)*, Project Manager, *(company)* *Tel. No. - TBD*

*(name)*, Project Engineer, *(company)* *Tel. No. - TBD*

Scott Sullivan, Design Engineer, Sea Engineering, Inc. 1.808.259.7966



**Attachments:**

**BMPP Exhibit A**

**Inspection and Maintenance Report Form**



**Best Management Practice Plan (BMPP)**  
**Inspection and Maintenance Report Form**

Report No. \_\_\_\_\_ Weather: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Type of Report:  Weekly  Within 24 hours of a rainfall event of 0.5 inches or more

DUST CONTROL MEASURES:

	YES	NO	N/A
Are adequate dust control measures employed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are dust screens installed and maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the nearshore waters and travel ways kept clean of any demolished concrete?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the loads in the truck beds covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DUST CONTROL MEASURES REQUIRED:

Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

CONCRETE/PAVING OPERATIONS:

	YES	NO	N/A
Are joints of concrete forms sealed tight to minimize leakage in State waters?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are concrete trucks, pumps and mixers washed out 50' away from the shoreline or drains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are prime/tack coat applied and paving performed in accordance with applicable specifications?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CORRECTIVE MEASURES REQUIRED:

Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

IN-WATER CONFINEMENT MEASURES:

	YES	NO	N/A
Are silt curtains deployed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are stakes placed in correct locations and orientation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are joints between curtain segments securely connected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is turbidity apparent outside of the silt curtains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IN-WATER CONFINEMENT MEASURES REQUIRED:

Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

INLET PROTECTION:

	YES	NO	N/A
Are protective measures installed around all catch basins to prevent sediments from entering?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the accumulated sediments removed and properly disposed of as needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MAINTENANCE OF INLET PROTECTION REQUIRED:

Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_



PROTECTION AROUND CRITICAL AREAS: YES NO N/A  
 Are berms or dikes properly installed/maintained?     
 Are run-on/run-off controls installed to prevent discharge to surrounding waters?     
 PROTECTION OF CRITICAL AREAS REQUIRED:

-----  
 Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

HOUSEKEEPING: YES NO N/A  
 Are areas kept clean of rubbish, construction debris, spills, etc.?     
 Are sanding/painting operations enclosed and waste frequently vacuumed/cleaned?     
 HOUSEKEEPING REQUIRED:

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 Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

MATERIAL/WASTE MANAGEMENT: YES NO N/A  
 Are materials stored under shelter or covered and above ground?     
 Are flammable/reactive materials stored properly?     
 Are material containers in good condition (not rusted, damaged or leaking)?     
 Are all construction debris collected and placed daily in the covered dumpster?     
 CORRECTIVE MEASURES REQUIRED:

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 Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

VEHICLE AND EQUIPMENT MANAGEMENT: YES NO N/A  
 Are vehicles and equipment cleaned before being brought on-site     
 Is equipment fueled away from any drain or the shoreline?     
 Are spill cleanup materials readily accessible?     
 Is all equipment leak free or if leaking, a spill pan placed to catch the leaks?     
 CORRECTIVE MEASURES REQUIRED:

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 Performed by: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Inspected by: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_/\_\_/\_\_