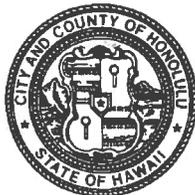


DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 768-6041  
DEPT. WEB SITE: [www.honolulu.gov](http://www.honolulu.gov) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

KIRK CALDWELL  
MAYOR



GEORGE I. ATTA, FAICP  
DIRECTOR

ARTHUR D. CHALLACOMBE  
DEPUTY DIRECTOR

2013/ED-9 (MS)

February 10, 2014

Mr. Herman Tuiolosega  
Office of Environmental Quality Control  
State of Hawaii  
235 South Beretania Street, Room 702  
Honolulu, Hawaii 96813

FILE COPY

FEB 23 2014

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

FEB 10 09:47

RECEIVED

Dear Director:

SUBJECT: Chapter 343, Hawaii Revised Statutes  
Final Environmental Assessment (EA)

Landowner/  
Applicant: Jason D. Seymour  
Agent: Janine K. Seymour  
Location: 61-357 Kamehameha Highway – Kawaihoa  
Tax Map Key: 6-1-12: 21  
Proposal: Final EA for a Shoreline Setback Variance (SSV) to allow (retain)  
a rock retaining wall, stairs, and landing within the 40-foot  
shoreline setback area.

Determination: Finding of No Significant Impact (FONSI)

Attached and incorporated by reference is the Final EA prepared by the Applicant for the project. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that the preparation of an Environmental Impact Statement is not required, and have issued a Finding of No Significant Impact. Please publish this in the **February 23, 2014**, issue of the Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed two hard copies of the Final EA, as well as a copy on compact disk. Also, we have attached a completed OEQC publication form and project summary, and will submit the same publication form via e-mail to your office. If you have any questions, please contact Malynne Simeon of our staff at 768-8023.

Very truly yours,

*for Steven A. [Signature]*  
George I. Atta, FAICP  
Director

GIA:nw

Encl.: FEA, two hard copies and one disk  
Publication Form in Word  
FONSI Letter

APPLICANT ACTIONS  
SECTION 343-5(C), HRS  
PUBLICATION FORM (JANUARY 2013 REVISION)

**Project Name:** Seymour Moss Rock Retaining Wall  
**Island:** Oahu  
**District:** Waialua  
**TMK:** 6-1-012:0021  
**Permits:** Building Permit, Shoreline Setback Variance,  
Shoreline Certification

**Applicant:** Jason Seymour  
1187 Coast Village Rd. #196  
Santa Barbara, CA 93108

**Approving Agency:** Department of Planning and Permitting  
City and County of Honolulu  
650 South King Street, 7th Floor  
Honolulu, Hawaii 96813  
Malyne Simeon, (808) 768-8023

**Consultant:** Janine K. Seymour MD  
P.O. Box 14001 #196  
Ketchum, ID 83340  
(805) 452-3121  
[j9md@hotmail.com](mailto:j9md@hotmail.com)

OFFICE OF PERMITTING  
ENVIRONMENTAL CONTROL  
14 FEB 10 AM 11  
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**Status (check one only):**

DEA-AFNSI

Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to [oeqchawaii@doh.hawaii.gov](mailto:oeqchawaii@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.

FEA-FONSI

Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to [oeqchawaii@doh.hawaii.gov](mailto:oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

FEA-EISPN

Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to [oeqchawaii@doh.hawaii.gov](mailto:oeqchawaii@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.

Act 172-12 EISPN

Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to [oeqchawaii@doh.hawaii.gov](mailto:oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.

DEIS

The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); a 45-day comment period ensues upon publication in the periodic bulletin.

FEIS

The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to [oeqc@doh.hawaii.gov](mailto:oeqc@doh.hawaii.gov)); no comment period ensues upon publication in the periodic bulletin.

Section 11-200-23  
Determination

The approving agency simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.

Statutory hammer  
Acceptance

The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.

\_\_\_Section 11-200-27  
Determination

The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

\_\_\_Withdrawal (explain)

## Summary

The Applicant is requesting the approval of an after-the-fact Shoreline Setback Variance to authorize the existing moss rock retaining wall, stairway and landing in the 40-foot shoreline setback area. No new development or physical change is proposed to the Applicant's residential property.

The existing moss rock retaining wall and landing protect an existing legal nonconforming house and deck. The stairs allow safe access from the property to the beach. The structures are located landward of the assumed 2013 shoreline. The retaining wall is within 13.9 feet and 14.9 feet of the foundation of the legal nonconforming house and is located directly below the makai (ocean) edge of the legal nonconforming deck in line with the original post and pier foundations of the deck. The dimensions of the retaining wall are 60 inches tall, 19.6 feet long, 16 inches wide and the base is 10 feet above mean sea level. The landing provides additional stability to the retaining wall and is 177 inches long, 34 inches wide, twelve inches tall, and nine feet above mean sea level at its base. There are six stairs that lead down to the landing composed of moss rock with a concrete cap. The stairs are 15 feet above sea level at the top and ten feet 4.5 inches above meal sea level at the lowest stair.

The property is located at 61-357 Kamehameha Hwy, Haleiwa, HI 96712, TMK: 6-1-012: 021 on the makai (ocean) side of Kamehameha Highway.

Final Environmental Assessment  
For a  
Shoreline Setback Variance Application for a  
Moss Rock Retaining Wall, CRM Stairs  
And Landing  
Haleiwa, Oahu, Hawaii  
6-1-012:021

Prepared By:

Dr. Janine K. Seymour  
Environmental Research  
P.O. Box 14001 - #196  
Ketchum, ID 83340

January 2014

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  - 1.2 Approving Agency
  - 1.3 Scoping and consultation
- 2.0 Description and Background of the Proposed Action
- 3.0 Description of the Environment
  - 3.1 General Description
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    - 12.2.3 2000 Certified Shoreline Survey
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- Figure 2. Scaled Architectural Site Plan showing all structures on the property along with the Shoreline Surveys as of 1996, 2000 and 2013
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**List of Abbreviations**

- CRM Concrete Rock Masonry
- DLNR Department of Land and Natural Resources
- DPP Department of Planning and Permitting
- EA Environmental Assessment
- HRS Hawaii Revised Statutes
- LUO Land Use Ordinance
- MLCD Marine Life Conservation District
- msl Mean Sea Level
- ROH Revised Ordinances of Honolulu
- SMA Special Management Area
- TMK Tax Map Key

## 1.0 Introduction

This Environmental Assessment has been prepared at the request of the Department of Planning and Permitting to be included with an application for a shoreline setback variance to conform to the requirements provided under Revised Ordinances of Honolulu (ROH) Chapter 23, Shoreline Setbacks, Hawaii Revised Statutes (HRS) §343-5 and §11-200 Hawaii Administrative Rules (HAR). Applicant is requesting “as is” approval for moss rock retaining wall, CRM stairs and landing within the shoreline setback.

### 1.1 General Information

**Project Location:** 61-357 Kamehameha Hwy, Haleiwa, HI 96712

**TMK, Applicant and Recorded Fee Owner:**

TMK:	6-1-012:021
Applicant/Owner:	Jason Seymour
Mailing Address:	1187 Coast Village Rd. #196, Santa Barbara, CA 93108
Local phone:	808-637-2732
Cell phone:	805-886-6688

**Lot Area:** 14590

**Parcel Information:**

Development Plan Areas:	North Shore
Historic Site Register:	none
Lot Restriction:	none
Neighborhood Boards:	27 North Shore
SMA:	In SMA
Shoreline:	Shoreline Setback
State Land Use:	Urban District
Street Setback:	None
Zoning (LUO):	R-5 Residential District

Subdivision:

Kawailoa Beach Lots Section D

Facility Code	Year Built	No. of Floors	Total Floor Area
01 - Detached Dwelling (detached from property line on all sides) (Last update in 2000)	1924	1	0
01 - Detached Dwelling (detached from property line on all sides) (Last update in 2000)	1970	1	0

**Prepared by:**

Janine K. Seymour, MD

Email: [j9md@hotmail.com](mailto:j9md@hotmail.com)

Phone: 805-452-3121

**Consultants:**

Dave Robichaux

North Shore Consultants, Environmental Planning and Permitting

Email: [robichaud001@hawaii.rr.com](mailto:robichaud001@hawaii.rr.com)

Phone: 808-637-2732

Joeffrey Cudiamat, S.E., P.E.,

Structural Hawaii Inc.; Structural Engineering

Email: [engineer@StructuralHawaii.com](mailto:engineer@StructuralHawaii.com)

Phone: 808-488-5000

**1.2 Approving Agency:** Department of Planning and Permitting (DPP)

**1.3 Scoping and Consultation**

During the preparation of the Environmental Assessment, the applicant has had several meetings with DPP initially in 2006-2007 and more recently with Jamie Pierson, Jiro Sumada, John “Mike” Friedel, Steven Cheung and Lester Hirano on November 1, 2012. Sam Lemmo, Office of Conservation and Coastal Lands was consulted by phone on November 28, 2012. The applicant has also consulted with Joeffrey Cudiamat, a licensed structural engineer and with Dave Robichaux as a consultant in environmental planning and permitting. Other agencies will be consulted as part of the EA process and preparation.

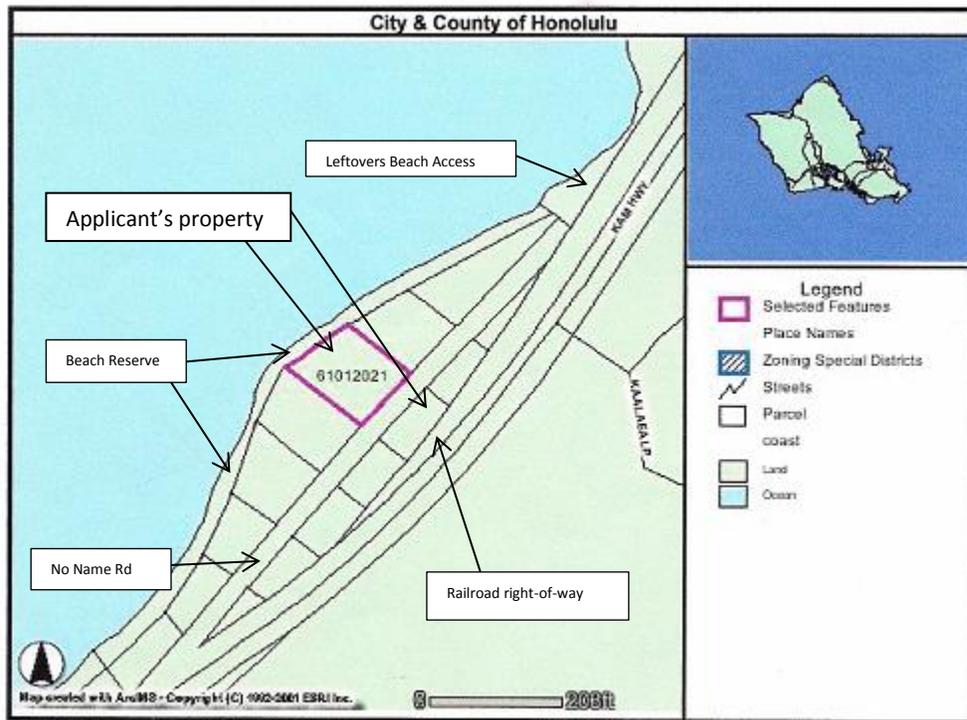
**2.0 Description and Background of the Proposed Action**

The property is located on the makai (ocean) side of Kamehameha Highway and is part of Kawailoa Beach lots, Section “D” lot number 6 and 6A. It is located down a small private road off the highway called “No Name Road” in a development of single family homes. The property is located approximately 450 feet south of the public beach access of Leftovers. In addition to lot number 6 and 6A, the applicant’s property includes a ½ undivided interest in 0.475 acre Beach Remnant Parcel (TMK:161-012-040)(labelled beach reserve) and a ½ undivided interest in the railroad right of way mauka of the property. (Figure 1)

The property was purchased by the applicant in June, 2004. At that time, the CRM stairs, landing and moss rock retaining wall were in place. It was not disclosed to the applicant that these structures were non-permitted. **The applicant did obtain upon purchase of the property, approved architectural plans,**

site plans and the certified 2000 shoreline survey (see Appendix B) that all include the moss rock retaining wall, CRM stairs and landing. On June 23, 2006, applicant received a notice of violation of moss rock retaining wall, CRM stairway and landing. On November 1, 2006 in a meeting with Steve Cheung and Art Challacomb, the owner was given a photograph dated November 18, 1996 showing wooden stairs from the deck. ( Appendix B) The moss rock retaining wall, CRM stairs and landing were thus constructed by the previous owner, Mr. George Suman sometime between 1996-2000. There are two small houses on the property.

**Figure 1: TMK Map of Applicant's Property**

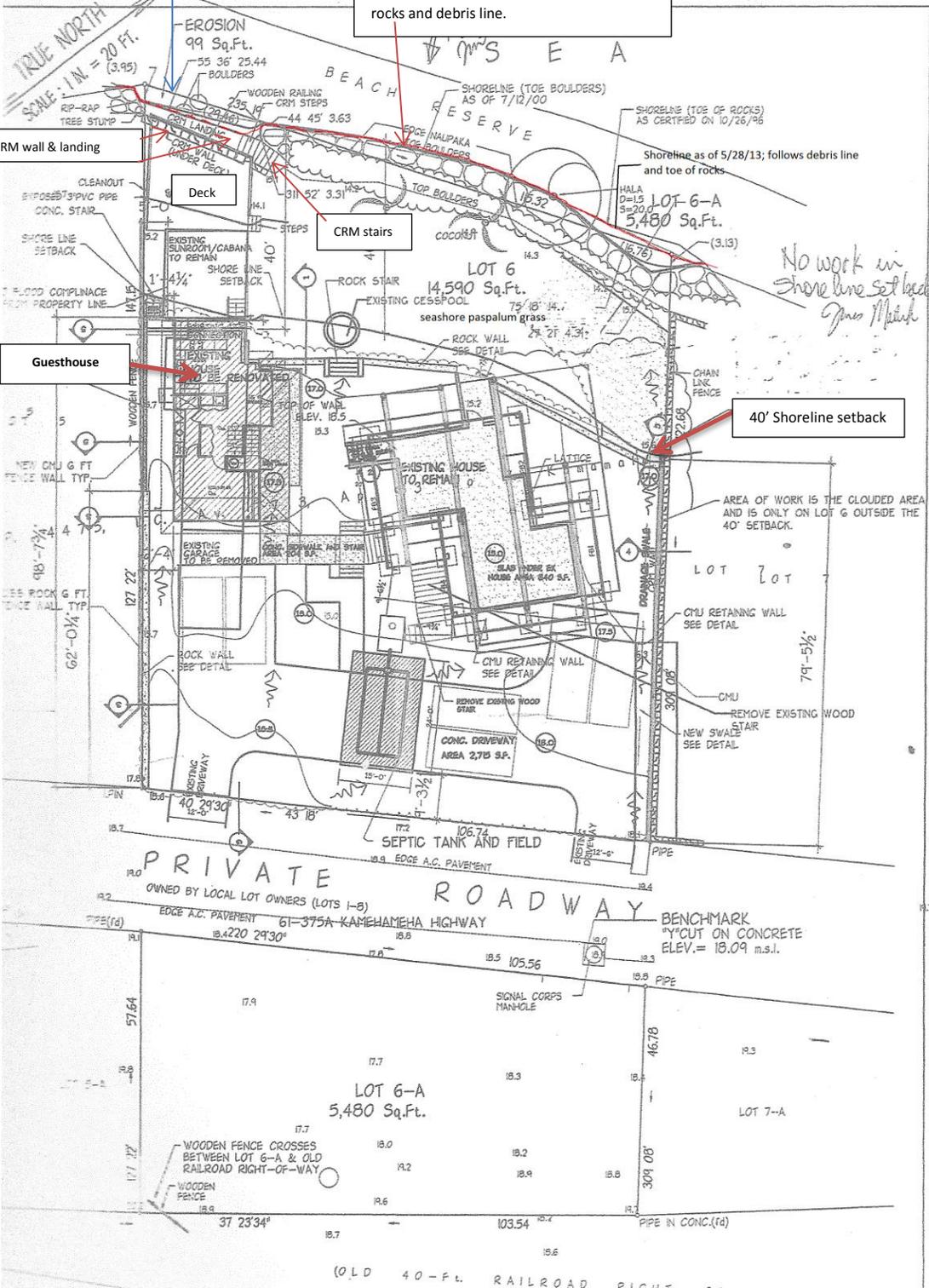


Source: <http://gis.hicentral.com/servlet/com.esri.esrimap>

**Figure 2: Scaled Architectural Site Plan showing all structures on the property along with the Shoreline Surveys as of 1996, 2000 and 2013**

Property line

Shoreline as of 5/28/13; Follows toe of rocks and debris line.



No work in shoreline setback zone

40' Shoreline setback

Scale: 1/16" = 1'0"

**SITE PLAN**  
 SCALE 1/16" = 1'-0"  
 61-357 KAMEHAMEHA HWY.

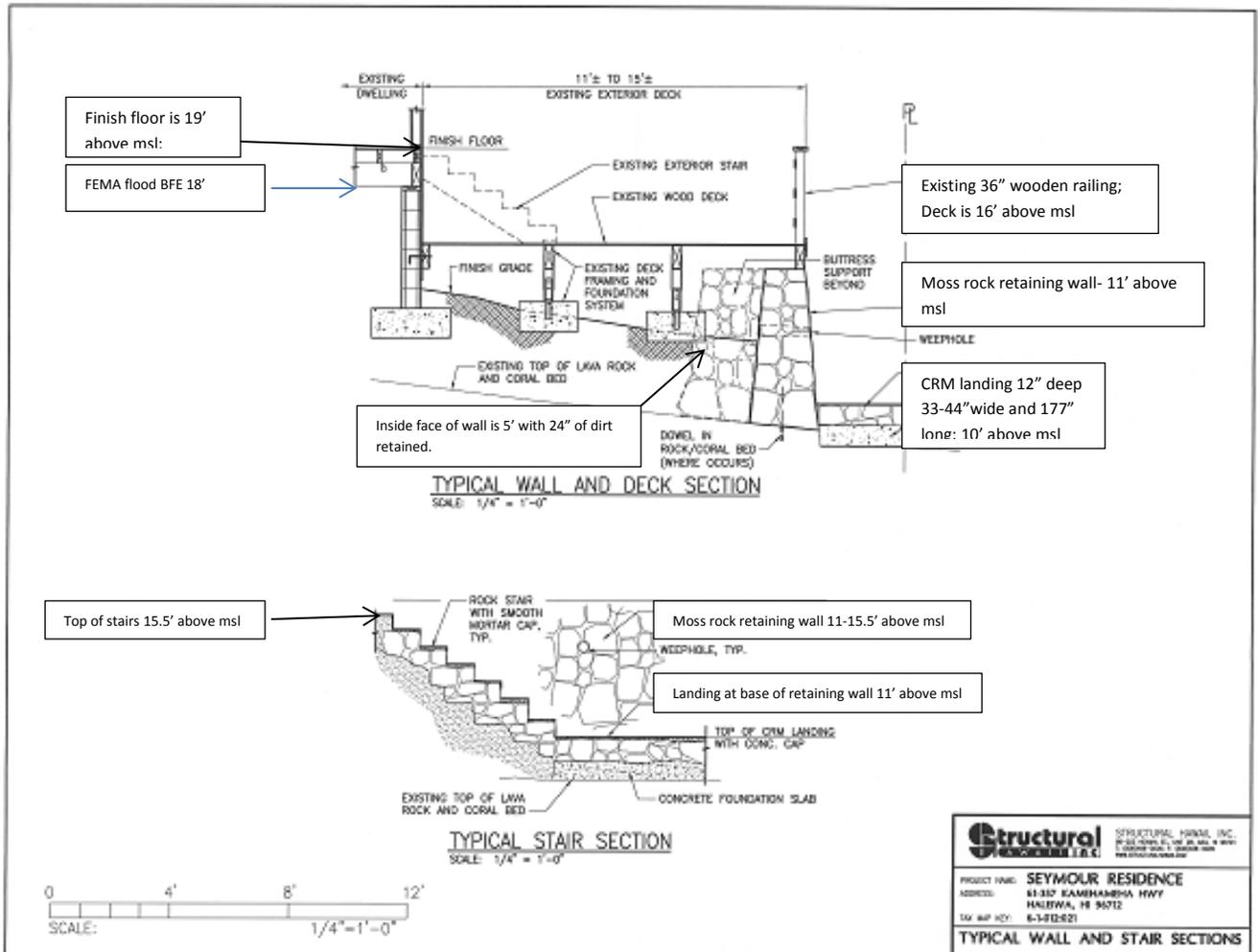
This work will be under supervision of the Architect as defined in the State of Hawaii. NOTE: Confirm all dimensions before proceeding.

BOURNE

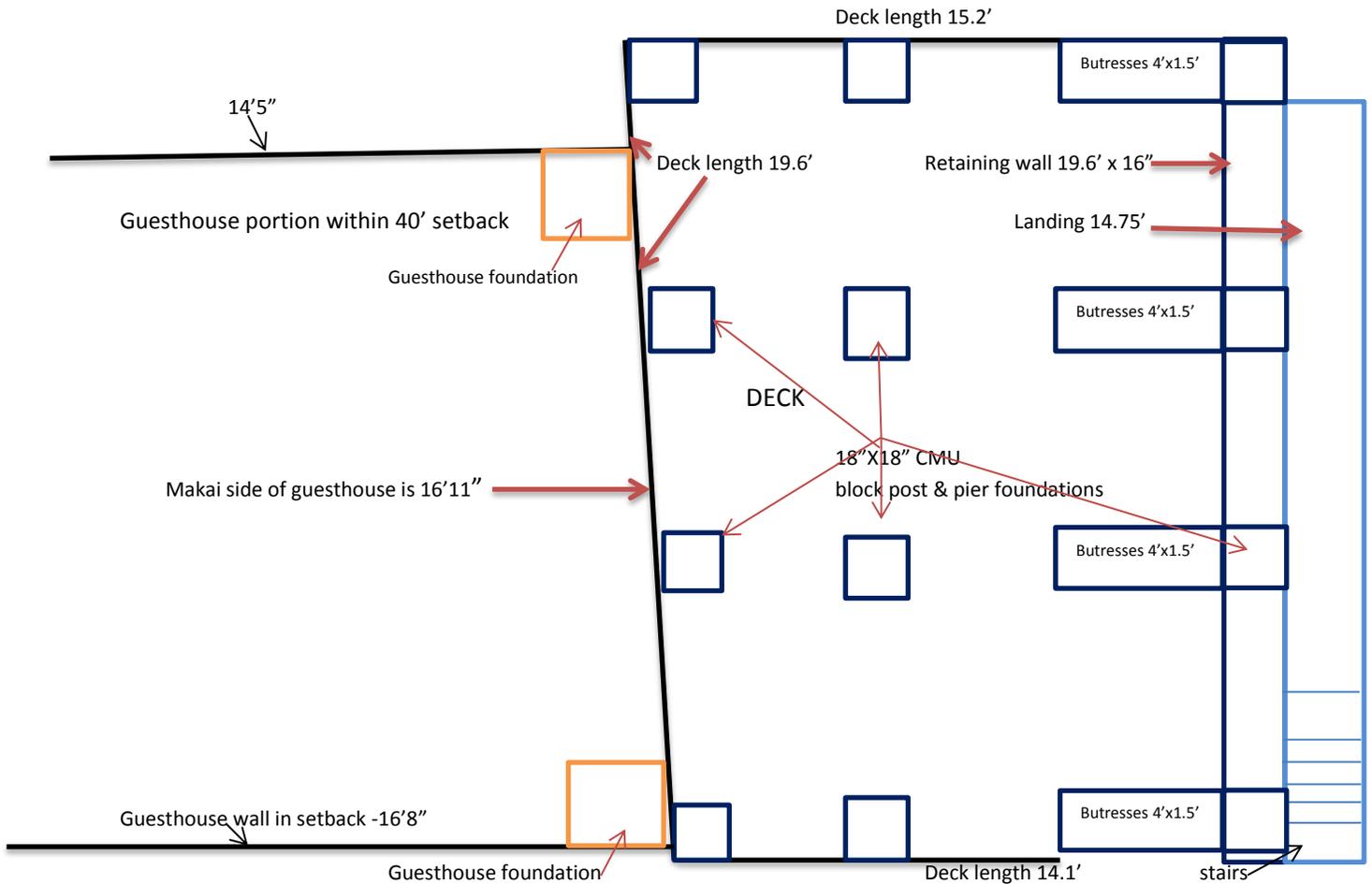


As stated previously, the property is part of Kawaiiloa Beach lots, Section "D" and is located 450 feet south of the public access, Leftovers and ½ mile north of Kawaiiloa Beach Park. The beach ranges 60-80 feet wide in front of the property and is made up of calcareous sand. The seaward edge of the shoreline is rocky, with a reef structure that is alternately submerged or exposed depending on the tide. Behind the reef lies a small area of protected water and sandy beach. Sand along this section has a seasonal cycle of accretion and removal. The two properties to the north and the two properties to the south of the subject property all have shoreline structures either in the form of rock revetment or CRM wall. (Figure 8) Underneath the sand is a layer of hard red clay (Waialua silty clay (WkA)). (USDA 1972) Under typical conditions this layer is covered with a layer of sand. The moss rock retaining wall and deck are anchored into the red clay with dowels and mortar. The retaining wall is made up of blue rock weighing about 25 - 150 pounds (median weight of 80) and is less than 6 feet in height all the way across. The specific height of the retaining wall ranges from 61 inches at the end closest to the stairs to a maximum of 63 inches at the opposing end as measured from the base of the CRM landing as requested by the Department of Planning and Permitting. The overall length of the retaining wall is 19.6 feet. The base of the retaining wall is 11 feet above mean sea level (msl). The CRM landing is made up of blue rock, mortar and rebar and serves as a toe for the seawall. Full height CRM buttresses (4' x1.5') spaced 5' on center behind the wall provide additional support from horizontal forces induced from high waves. (Figure: 4A) The retaining wall was built in line with the post and pier foundation of the legal nonconforming deck on the makai side of the deck. (Figure: 4A) There was minimal cut, only enough to place the 16 inch diameter rocks in place with the displaced dirt as the only fill behind it. The wall retains 24-33 inches of dirt which then the slopes up naturally to the foundation of the guesthouse. (Figure: 4) The height of the inside face of the wall is 60 inches with 27-33 inches open above the dirt that is retained. The retaining wall is there to protect the already existing footings of the legal nonconforming deck. No additional fill was added behind the wall the dirt follows the natural slope of the property. The 16"- wide moss rock wall supports the beach side edge of the legal non-conforming deck, while the remaining of the deck is supported on posts and piers at interior bays. The dimensions of the legal nonconforming deck are 19.6' by 15.2' by 19.6' by 14.1'. A 36 inch tall wood railing surrounds the legal nonconforming deck. The portion of the guesthouse within the forty foot setback includes the makai (ocean side) wall which is 16'11 ¾" and side walls of 14'5" and 16'8" respectively. The moss rock retaining wall protects the existing deck and house structure from tidal forces during periods of high wave action exceeding 30-40' in height, extreme storm surf and tsunamis. Weep holes are present in the retaining wall to allow any water collected behind the wall to be discharged to the beach. Figure 4 is a schematic technical drawing showing the moss rock retaining wall with the buttresses, footings, stairs and landing. Figure 4A is a horizontal schematic scaled drawing showing the post and pier foundation of the deck and alignment of the moss rock retaining wall with the existing footings of the deck.

Figure 4: Schematic drawing of the moss rock retaining wall, CRM stairs and landing



**Figure 4A: Cross Section Schematic of Retaining Wall with Post and Pier Foundation and Buttresses**



Scale: ¼ inch = 1.0 foot

Figures 5-7 are photographs of the CRM stairs, landing and retaining wall. The photographs were taken from the beach looking back at the property to show clearly the stairs, retaining wall and landing. The area included in the photos is the ocean side of the red box on the first diagram in Appendix B. At the toe of the retaining wall is the CRM landing which spans the length of the retaining wall and is 12 inches high, 33-44 inches wide, 177 inches long and is 9 feet above msl at its base. (Figure 6) The landing is connected to the stairs which are also constructed of rock and mortar. There are 6 stairs each with a rise of 7.75 inches. This includes the concrete cap. (Figure 5) The treads on stairs 1-5 are 12-15 inches and the tread on stair 6 is 29 inches. The stairs are 15.5 feet above mean sea level at their start and 11 feet 4.5 inches above mean sea level at the lowest stair. The stairs are 36 inches wide. The continuous horizontal landing provides additional sliding resistance at the base of the retaining wall and helps protect against possible damage to the wall due to scour and undercutting of the toe. Wave forces would be dissipated if they hit the raised rock landing. Because of the close proximity of the 'guesthouse' and deck to the shoreline, protection from erosion is essential. Undermining of the foundation of the guesthouse and damage to the deck by high surf events could create a potentially

dangerous situation unless these structures are adequately protected. Also, safe access to the beach is needed as the applicant is visually handicapped. The applicant is striving to minimize any potential erosion or damage to the neighboring property to the south and is keeping in consideration the impact of such structures on the environment, shoreline, beach and marine life. The applicant and preparers have taken under consideration information from the Oahu Shoreline Study Part 1 & 2, COEMAP and "North Shore Sustainable Communities Plan", Land Use Principle and Guidelines in making this report and will show how it meets the criteria for shoreline setback variance in Chapter 23, Revised Ordinances of Honolulu. A Finding of No Significant Impact (FONSI) is anticipated. Thus, the applicant requests "as is" approval for moss rock retaining wall, CRM stairs and landing for shoreline setback variance with after-the-fact building permits.

**Figure 5: Photo of CRM stairs**



**Figure 6: Photo of Retaining wall and CRM landing**



**Figure 7: Close up of Moss Rock Retaining Wall**



**Figure 8: Google Maps showing neighboring structures in relation to retaining wall**



**2.1 Shoreline Survey and Neighboring Shoreline Structures**

The current shoreline survey was recently completed July 23, 2013. A preliminary site visit was done on May 28, 2013 by Andrew Bohlander of the Department of Land and Natural Resources along with the surveyor. Mr. Bohlander marked the line of the shoreline as seen on first diagram in Appendix B and in Figure 2. The moss rock retaining wall, CRM stairs and landing are marked on the drawing and are landward of the current shoreline. Shoreline protection of neighboring properties to the north and south are shown in Figure 8 and in a table below. The properties without shore protection devices regularly have significant erosion and have to use emergency sandbags on a regular basis to protect their properties.

**Table 1 of Shoreline Protection Structures Adjacent to Applicant**

<b>TMK</b>	<b>SHORE PROTECTION</b>
61012025	Vertical CRM/rock seawall
61012023	Rock Revetment
61012021	Applicant's property
61012019	Vertical CRM/rock seawall
61012017	Vertical CRM/rock seawall
61012015	No seawall or revetment
61012013	No seawall or revetment
61012012	Vertical CRM/rock seawall
61008001	Vertical CRM/rock seawall

### **3.0 Description of the Existing Environment**

#### **3.1 General Description**

The northwest coast of O`ahu extends from Kahuku Pt. to Hale`iwa, and is characterized by massive winter surf, long sandy beaches, rocky points, and patches of exposed beach rock. The beach rock is particularly exposed in the winter, when foreshore slopes steepen and large quantities of sand are moved by high surf from the water's edge toward the back of the beach. Sand at the shoreline is mostly coarse grained and calcareous, a signature of the high energy waves that impact this coast in the winter. Winter wave heights can reach up to 10-15 meters. In contrast, summer conditions on these same beaches are placid, and the steep winter shorelines are replaced by flat wide beaches.

(<http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/oahu.html>)

The applicant's property is down a private road owned by eight property owners. All the homes on this road are single family residences and the property is zoned R5 residential. It is not in a special district and its state land use is urban district. Most of the houses on the road have either rock revetments or CRM seawalls to protect their properties against erosion. The two properties without shoreline protection have significant erosion each year and can lose 3-4 feet of their property.

The closest public access is "Leftovers", approximately 450 feet north of the property. One-half mile to the south is Kawaihoa Beach Park. Swimming access is to the north of the property at a large 'tide pool' and to front and south of the property in the sandy 'lagoon'. Beach rock and reef surround the 'tide pool' protecting it from the waves, and it is where many young children come to swim. (Figure 16) The 'lagoon' is bordered by the beach and exposed reef rim. (Figure 15) It has a circular current pattern where close to the reef, the current is flowing towards the beach then it turns after hitting the beach and flows parallel to shoreline until it reaches deeper water. With large surf, the currents can be quite strong.

The applicant's property is 15 feet above msl (mean sea level). Many of the properties along this stretch of Kawaihoa beach have shore protection devices on their property. Without this protection, there is significant erosion of property by typical north shore high surf events. The applicant's legal non-conforming house's foundation is 13 feet from the moss rock retaining wall on one side and 15 feet from the other. Without the present retaining wall, the applicant would be at significant risk for erosion, damage to the existing deck and to the foundation of the house. Damaging erosion occurs along Kawaihoa Beach when the surf reaches warning level heights, particularly at 30-40 foot wave heights (full face height). Given the configuration of the 3 reefs offshore, the waves at 30-40 feet, first break at the outer third reef about 300 yards offshore. The waves then continue to reform and break on the second reef and reef rim and become progressively smaller in size such that the size the wave reaching the shoreline is at most 1 to 1 ½ feet in size. The run-up and currents of the water on the shoreline are what cause the damage and erosion. These conditions have occurred December 6-8, 2006, twice in 2007 and once in December 2009. On January 29-30, 2007 and March 12-14, 2007 wave heights reached 40 feet or higher, and once in December 2009. There was significant erosion to neighboring properties that did not have shoreline protection.

#### **3.2 Climate:**

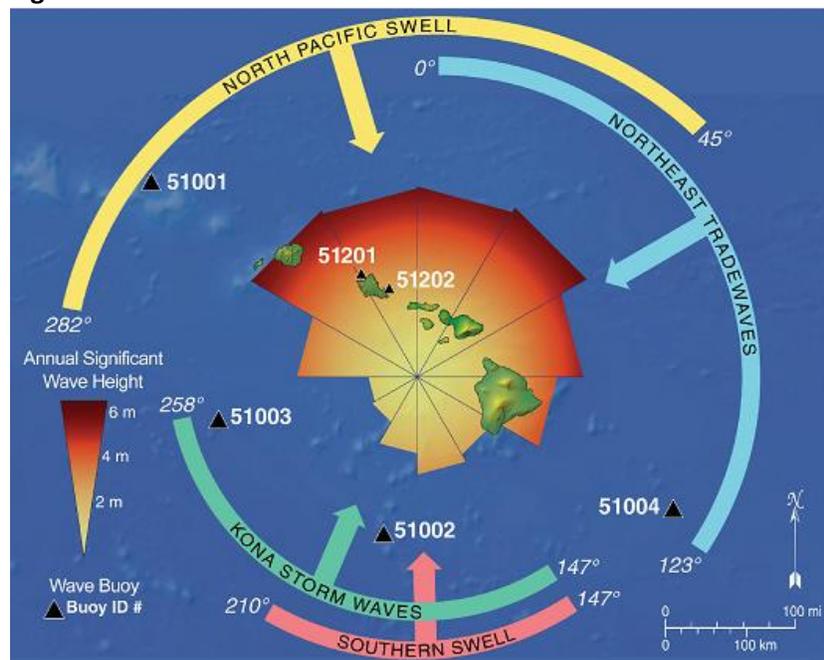
Hawaii's climate is known for its equable temperatures, moderate humidity, persistent breezes and abundant sunshine. The annual variation in mean monthly temperatures is only about 9°F. It is

recognized that there is generally only two seasons in Hawaii, *kau*, the warm season and *ho'oilō*, the cooler season. The warm season is characterized by the position of the sun directly overhead and the winds from the northeast. The cooler season is characterized by more variable winds and increased rainfall. (Juvik and Juvik 1998)

**Winds:** The winds in the Hawaiian Islands are the most important of all the weather elements because of their speed, their ability to form waves and their effect not only on shoreline processes but small craft and marine operations. (Fletcher 2012) Trade winds from the northeast (NE) account for 75% of the total winds year round and are generated by high pressure systems. Winds from the southwest, southeast and northwest occur 10% of the time each. Seasonally, the trade winds are more dominant in the summer occurring 80-90% of the time June through August due to anticyclonic flow around the North Pacific high. Winter time due to the increase in low pressure systems and the weakening North Pacific high, trade winds occur only 40-60% of the time with Kona winds (southerly and westerly winds) increasing in prevalence and occur approximately 17% of the time in the winter months. (Fletcher 2012; AECOS 1981) Kona winds can be light and variable to gale or hurricane strength.

**Waves:** Hawaii is known for its year round surfing. Waves are created by wind blowing across the water. Swells from all directions reach Hawaii's shores, but there are only four basic swell sources: east-northeast trade winds, North Pacific lows, South Pacific lows and Kona storm waves. (Haraguchi 1979; Fletcher 2012) (Figure 9) The most important waves for the applicant's property are the Northwesterly swells. These waves occur mainly in the winter season October through March. The waves are generated by North Pacific lows, storms or gales with very large, strong northwest winds. Swells generated in the 'fetch area' travel hundreds of miles before reaching Hawaii. The northern and western coastlines are affected by these waves, particularly Oahu's north shore. The applicant's property is less affected by waves generated by trade winds or Kona winds and is completely unaffected by waves generated from South Pacific lows that occur predominantly in the summer season.

**Figure 9 Wave Patterns in the Main Hawaii Islands**



Source: Vitousek 2008

Tides: Tides in Hawaii are mixed semi-diurnal with the most extreme ranges occurring near and following the solstices. The average tidal range is about 2 feet and the maximal tidal range is 3 feet in the spring when the gravitational pull of the sun combines with the pull of the moon to create higher tides.

General Tide data taken from EM 1110-2-1100 for this site is as follows, based on a mean lower low level (MLLW) datum:

Mean Higher High Water	1.90
Mean High Water	1.40
Mean Sea Level	0.80
Mean Tide Level	0.80
Mean Low Water	0.20
Mean Lower Low Water	0.00

Translating the data to values based on a mean sea level (MSL) datum:

Mean Higher High Water	1.10
Mean High Water	0.60
Mean Sea Level	0.00
Mean Tide Level	0.00
Mean Low Water	-0.60
Mean Lower Low Water	-0.80

Air quality:

The remoteness of the Hawaiian Islands from any large sources of industrial pollution keeps the surrounding air relatively clean. The volcanoes are the predominant source of air pollution at this time. Sulfur dioxide, carbon dioxide, carbon monoxide and other emissions from the volcanoes increased in 2008. The air quality at the applicant's property is not affected by the volcanic haze or "Vog" unless Kona winds are present. The only other source of pollution in the project vicinity area is car emissions from traffic on Kamehameha Highway.

**3.3 Geology:**

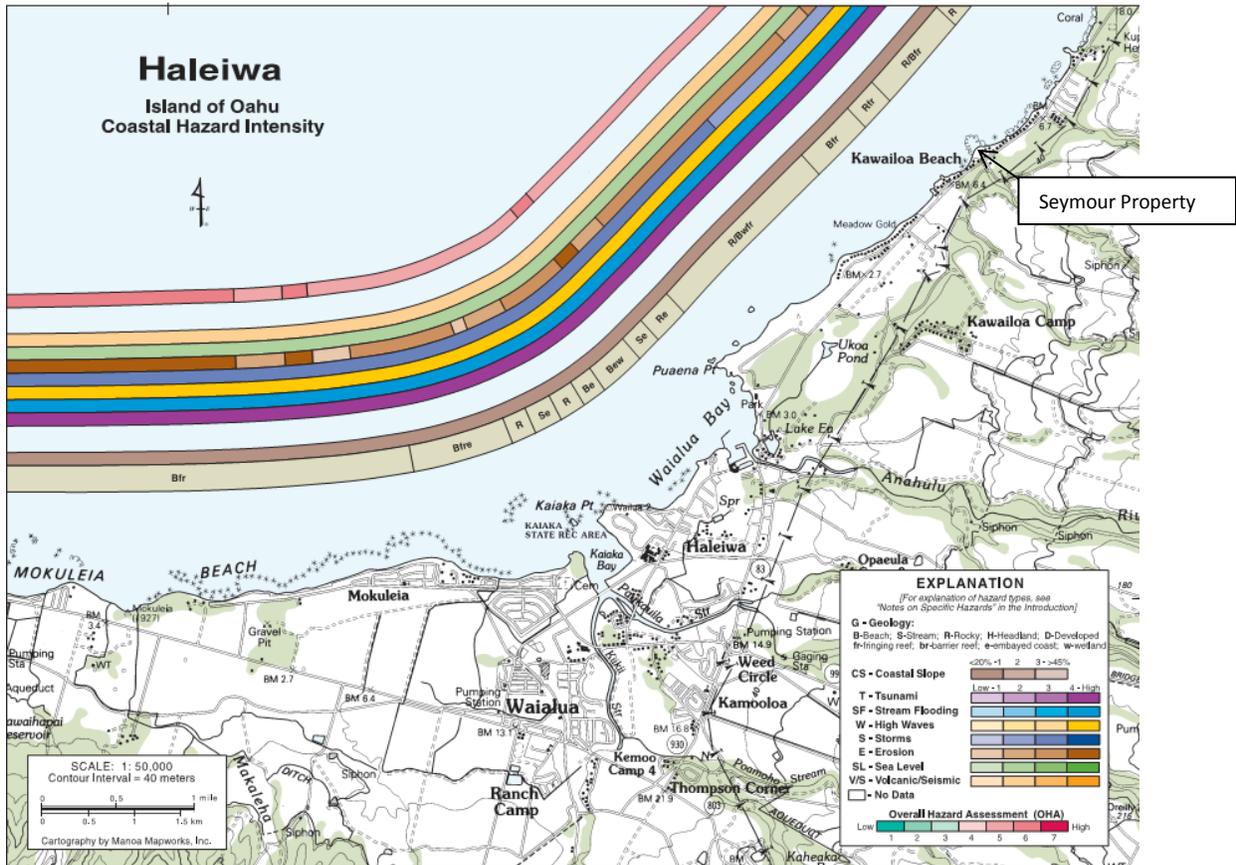
Oahu is made up of the eroded remnants of two extinct volcanoes, Ko'olau on the east and Wai'anae on the west. The island is divided into four main areas, the Waianae Range, the Koolau Range, the Schofield Plateau and the coastal plains. The coastal plains adjacent to the ocean formed from coral reefs and alluvial sediments. (USDA 1972; Fletcher 2012) From Puena Point to Waialeale the coastal plain is narrow 10 to 30 feet above sea level and composed largely of fossiliferous limestone and unconsolidated sand. (Fletcher 2012) Inland is a cliff a few hundred feet high, probably cut as an old sea cliff against the northwest flank of the Koolau Range during the higher sea level when the coastal plain was formed. (Moberly 1963) The area on the North Shore where the applicant's property is located was originally formed from lava flows from the Ko'olau Volcano. Silty clay and silty clay loam are the type of soils found in Haleiwa on the North Shore of Oahu, extending up to Sunset Beach and at Wahiawa. (USDA 1972) On the applicant's coastal property the top layer is sandy from its location just mauka of the shoreline. Below the sandy top soil is a layer of hard, red silty clay known as Waialua silty clay, which has a blocky structure. The anchors and footings of the retaining wall are in the red clay layer for stability.

See appendix A for engineering report.

### 3.4 Coastal Hazards

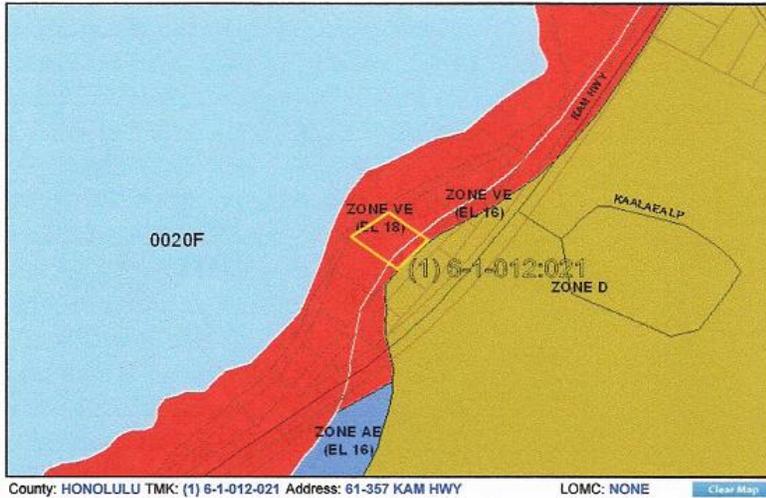
Coastal Hazards include floods, hurricanes, high waves, tsunamis and erosion. The coastline at Kawaiiloa Beach consists mostly of interspersed sand beaches and 3-6ft. rocky escarpments of basalt or limestone. This is a high wave-energy coastline that receives some of the largest breaking waves in the state. According to the USGS coastal hazard intensity, the coastline in front of the applicant's property has an Overall Hazard Assessment (OHA) of 5-moderately high. (Figure 10: Map of Coastal Hazard Intensity). The overall hazard assessment (OHA) is calculated using a mathematical formula which takes into account more dynamic hazards (volcanism, seismicity, coastal stream flooding, seasonal high waves, marine over wash, tsunami inundation and high winds) versus lesser hazards (sea level rise and beach erosion). The dynamic hazards constitute a greater risk and thus are given more weight in the formula. The result of the calculations is then used to assign a nominal overall hazard rank on a scale of 1-7 with 1 being very low overall hazard assessment (OHA) to 7 being a very high overall hazard assessment. The greatest risk to the applicant's property is from seasonal high waves and tsunami inundation. (USGS Oahu Atlas of Natural Hazards)

Figure 10: Coast Hazard Intensity Map



Source: USGS Oahu Atlas of Natural Hazards

### 3.4.1 Flood Zone:



**Figure 11: Flood Zone Map of the Seymour's Property**

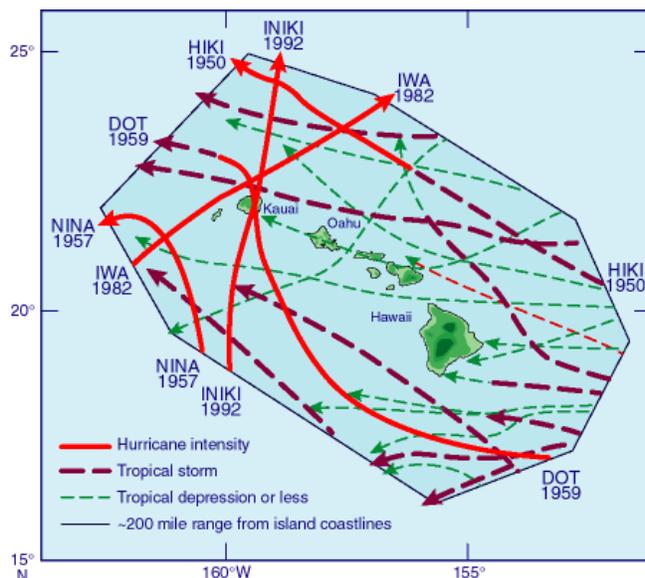
The applicant's property is zoned VE per FEMA flood designation. "Areas along coasts subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action."

(<https://msc.fema.gov>) The base flood elevation for zone VE is 18 feet above mean sea level. The floor of the legal nonconforming portion of the 'guesthouse' was raised to 19 feet above sea level when renovations were done in 2000 to conform to FEMA flood standards. The base of the moss rock retaining wall is 11 feet above msl and the base of the landing is 10 feet above msl. The stairs range from 11'1" above msl to 15'6" above msl. The applicants legal non-conforming deck is 16 feet above msl (mean sea level). (Figures 3,4) (<http://qis.hawaiiinfip.org/fhat/>) The permitted renovation of the legal non-conforming house conforms to the ordinance of Coastal high hazard district ROH Sec. 21-9.10-7. The legal non-conforming deck, retaining wall, stairs and landing are also constructed according to ROH Sec.21-9.10-7(b)(B) and (C), and are anchored in the Waiialua clay with dowels, mortar and rebar with reinforcing buttresses to resist flotation, collapse, and lateral movement due to water forces. In addition the existing retaining wall stairs and landing do not affect regulatory flood or aggravate existing flood-related erosion hazards. Please refer to Appendix A for the engineering report.

### 3.4.2 Hurricanes:

**Figure 12: Tropical Storms and Hurricanes from 1950 to present**

Source: USGS Oahu Atlas of Natural Hazards



Tropical storms and hurricanes are rare events in the Hawaiian Islands, and they are most likely to occur during periods of highest sea surface temperatures, between July and September. Figure 12 depicts the paths of tropical storms and hurricanes that have passed close to the Hawaiian Islands since 1950. Studies of Hawaiian hurricane records conclude that all of the main islands have been affected by

hurricanes, and no island is without risk. Hurricanes most often approach the islands from the east, south. In the last 50 years three hurricanes have contacted the Hawaiian Islands, all of them directly impacting Kauai. Hurricane Dot(1959), Iwa(1982), and Iniki(1992). Wind, storm surge and waves are the main threat. The applicant's property and structures are 19 and 23 feet above msl. However, without the retaining wall the surge and waves could be quite hazardous to the existing house, foundation and deck on the property.

**3.4.3 High Waves:**

As described above, Hawaii receives high waves from distant storms in the northern and southern hemispheres and from tropical cyclones passing in the vicinity of the island chain. Most important for the applicant’s property are high waves generated by storms in the northern hemisphere. Hazards associated with high waves include debris over wash, flooding, erosion, high wave energy, strong currents and turbulence in the near shore zone. The largest waves that reach the north shore of Oahu generally arrive in the winter as a result of intense storm activity in the North and Northwest Pacific. The high amplitude and long wavelength associated with these swells create very large waves with considerable energy. On the north shore of Oahu, the annual recurring near shore wave heights of 15-20 feet is commonly seen. Larger wave heights of 30-50 feet are less common, but occur regularly every few years. Wave heights of 50 feet have been reported in December 1969, January 1998 and December 2009. From a study done by Pat Caldwell, 2008 analyzing buoy data from 1981-2007 it was found that marginal run-up events which are represented by surf 9 meters (29.5 feet) in height and tides > than 1  $\sigma$  (standard deviation above the mean) have occurred on average 10 times a year since 1981. Significant episodes, represented by surf 12 meters (39 feet) in height and tides > 1.5  $\sigma$  have occurred on average once annually. Extreme high wash occurrences are related to surf 15 meters (49 feet) in height and tides > 2  $\sigma$  or surf > 18 meters (59 feet) and tides > 1  $\sigma$  have happened on average once every seven years.(Caldwell 2008) The strongest high seasonal wave inundation in the last 50 years occurred from back to back extreme episodes during December 1-4, 1969. There was significant damage to several of the properties along Kawailoa Beach from that storm including the applicant’s property. (Source: verbal report from neighbors)

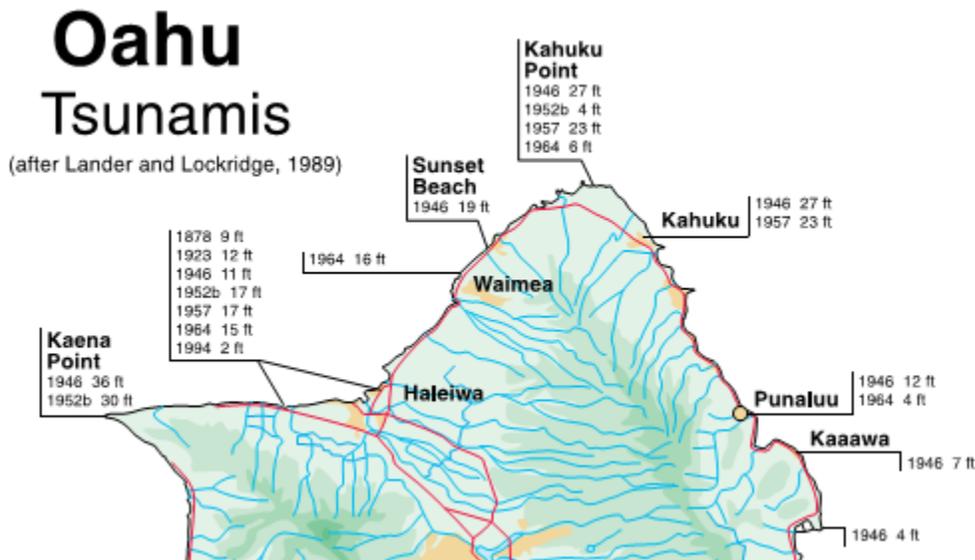
**Table 2: Large Wave Events on Oahu’s North Shore:**

1967 Nov.	30ft	
1969 Dec.	50ft	(Very damaging, some of the properties along Kawailoa Beach had severe erosion and property damage from this storm and high surf event; Hwang 1981)
1974 Nov.	30ft	
1978 Jan.	25ft	
1982 Nov.	Hurricane Iwa	
1985 Dec.	30ft	
1986 Jan.	25-35ft	
1989 Nov.	30ft	
1998 Jan.	25-40ft	
2007 Jan.	>30ft	
2007 Mar.	>30ft	
2009 Dec.	40-50ft	

### 3.4.4 Tsunamis

Tsunamis are a series of waves of very long wavelengths (100's km) and periods (10's minutes- 1 hour or more) that can travel up to 1000km/hr. in the open ocean. They are caused by disturbances that displace large volumes of water and are usually generated by seafloor displacement during earthquakes and submarine landslides. (Vitousek et al, 2009). Approximately 50 tsunamis have been reported in Hawai'i since the 1800s. Twenty-seven tsunamis with flood elevations greater than 3.3 feet (1m) have made landfall in the Hawaiian Islands during recorded history and 11 of these have had significant damaging effects on Oahu. The Tsunamis' of 1946, 1952 and 1957 generated flood levels of 14, 13 and 13 feet, respectively along the Haleiwa coast. (Loomis 1979, AECOS 1981) (Figure 13) The most recent significant tsunami to reach Oahu was in March, 2011 from the 9.0 earthquake in Japan. In Haleiwa Harbor, the water level with tide at first arrival was 7.06 feet and there was damage to boats and piers in the harbor. At the applicant's property, Mr. Seymour personally witnessed the water level as a result of the tsunami rise to the upper CRM stair level, a level of approximately 5 feet. There was no damage to the applicant's property from this tsunami, but the tsunami contacted the retaining wall and without its presence, there could have been potential damage to the deck and foundation of the house. The applicant's property is in the tsunami evacuation zone.

Figure 13: North Shore Recorded Tsunamis from 1878-2005



### 3.4.5 Erosion-

The shoreline at Kawailoa Beach is composed of carbonate sand, limestone, and basalt. Outcrops of beach rock are common. A historical perspective of erosion on Kawailoa Beach is given by Dennis Hwang, in his 1981, *Beach Changes on Oahu as Revealed by Aerial Photographs* which shows the varying

changes in vegetation, sand and erosion from 1949 to 1975. As the title would suggest, he used historic aerial photographs to chart this change. The applicant's property is in transect 10 within Kawaioloa Beach. (photomap 7, p.20 Hwang, 1981). Overall this area has shown accretion of vegetation +5 and sand +4, however in 1969 when there was a very large storm with waves in excess of 50 feet, there was "erosion of the vegetation and much structural damage on Kawaioloa Beach". (Table 2) In 1969, the guesthouse did sustain some damage due to the high surf, as there was no retaining wall at that time. Since that time, shoreline certification maps have shown pockets of erosion that occurred from 2000-2013, 91 square feet by the landing. (Figure 2)

**Table 3: Erosion Data for Kawaioloa Beach**

Observation Period	Transect Number										
	1	2	3	4	5	6	7	8	9	10	11
May 08, 1949 - Aug 24, 1962	*	+4	+6	*	+7	+5	*	+11	*	-3	+23
Aug 24, 1962 - Apr 22, 1967	0	+1	+1	-2	0	+5	+3	+3	+5	+7	+13
Apr 22, 1967 - Jan 23, 1971	-2	-1	-4	-3	-7	-12	-13	-7	-12	-2	-42
Jan 23, 1971 - Apr 11, 1975	-4	-4	-1	-4	+2	+3	+10	+2	0	+3	+10
Net Change - Vegetation Line	-6	0	+2	-9	+2	+1	0	+9	-7	+5	+4
Range - Vegetation Line	6	5	7	9	7	12	13	14	12	8	42
Net Change - Water Line	*	+2	+4	-57	+46	+41	-30	-1	+6	+4	+4
Range - Water Line	*	68	39	57	46	104	30	29	17	45	20

\* No data

Net change is the total change in the position of a beach index line between the earliest and most recent observation year.

Range is the difference between the observed extremes in the position of a beach index line.

Source: Hwang 1981

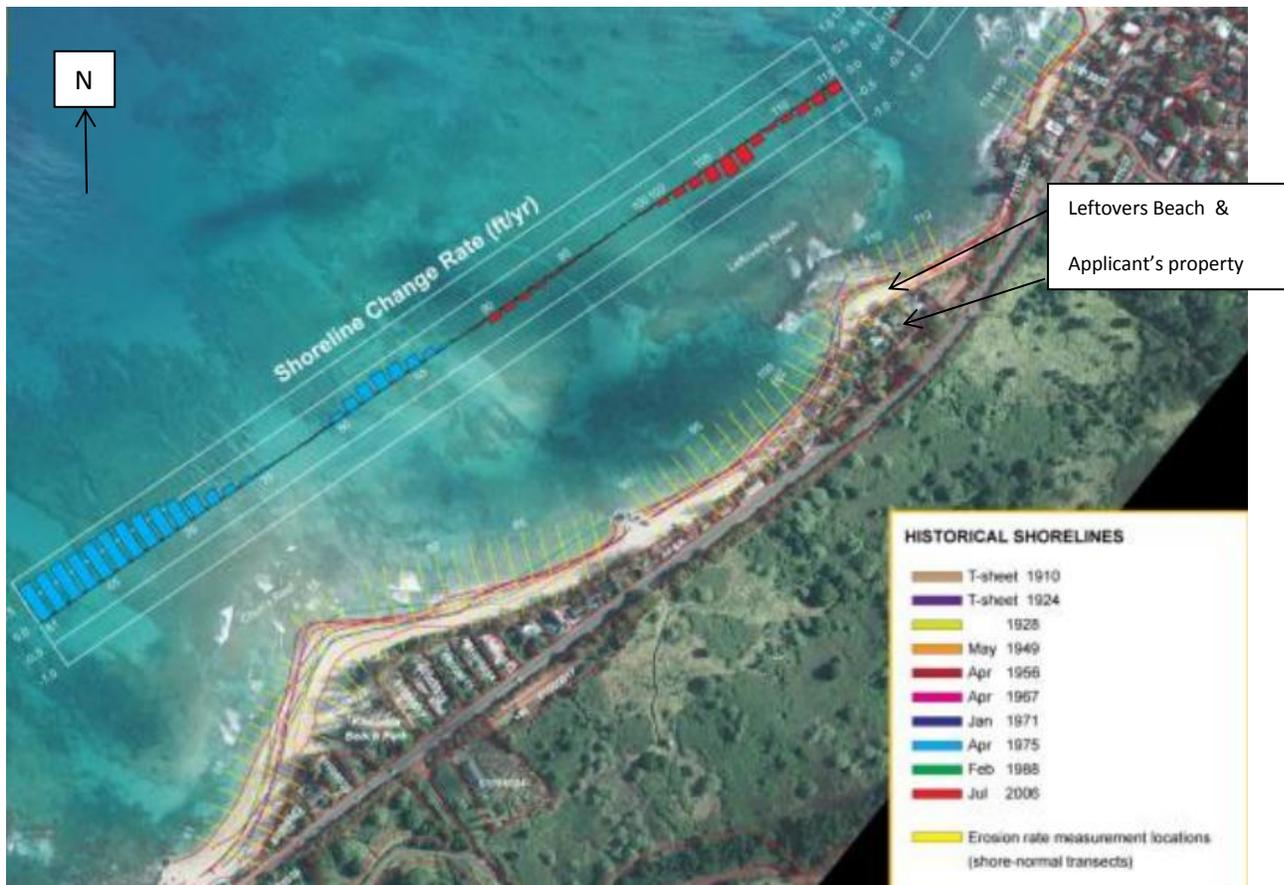
The most recent published long-term (1910-2006) shoreline change rates at Kawaioloa are low on average, less than 1 foot per year. (SOEST 2011) However rates at Kawaioloa have high uncertainty due to short-term (seasonal to daily) variations in shoreline position caused by large winter swells from the north and northwest and persistent tradewind waves year round. Though long term rates are low, short-term erosion is a significant hazard to beach-front homes especially in winter with run up from large waves. According to the most recent published data by SOEST, "Chun's and Leftovers Beaches (transects 61-113) have been approximately stable since 1910 at an average of 0.1ft/yr. Some long-term accretion may be occurring in the south of Chun's Beach (see transect 61) but uncertainty with these rates is high and may be influenced by seasonal accretion in the July 2006 shoreline." Also, "previous studies by Hwang(1981) and Sea Engineering (1988) found little net change in the vegetation line at Kawaioloa 1949-1988 but Hwang found the water line varied by over 100 feet." The shoreline in front of the applicant's property corresponds to between transects 108 and 109 in figure 14. The most recent map shows a slight loss of the shoreline -0.1 - 0.2 feet in front of the applicant's property.

(<http://soest.hawaii.edu/coastal/webftp/Oahu/posters/KawaioloaSTsmoothTMKPoster72.jpg>) (Figure 14)

The factor that has the most impact on seasonal shoreline change rates is high surf. The predominant direction of the swells either west or north determines the direction of sand movement. When the

swells are from a predominantly more westerly direction, then sand migrates to the north end of the beach. This occurred in 2012-2013. When the swells are more predominantly from the north, the sand migrates to the south end of the beach at Chun's as was the case in 2006. Overall, there have been no long term changes in Kawaiiloa Beach due to erosion since 1910, however, there can be quite dramatic short-term seasonal changes in sand movement and shoreline position caused by large winter swells. Short-term erosion can be a significant hazard to beach-front homes, especially in the winter with run-up from large waves. (<http://www.soest.hawaii.edu/coasts/erosion/oahu/index.php>)

**Figure 14: Erosion Map of Kawaiiloa Beach**



Source: <http://www.soest.hawaii.edu/coasts/erosion/oahu/index.php>

### 3.4.6 Seismic Activity/Sea Level Rise:

Both sea level rise and seismic activity are ranked moderately low throughout this area. (Oahu coastal hazard intensity)

Global sea level rise is the result of the change in the volume of water in the oceans due to changes in ocean temperature, melting and increased discharge of land-based ice (glaciers, ice caps, ice sheets), changes in run off and variation in large scale climate changes (ie: Pacific Decadal Oscillation, El Niño and La Niña). (NOAA2012) The rate of actual sea level rise (SLR) in Hawai'i (approximately 1.5 mm/yr at Honolulu and Nawiliwili) presently lags behind the global average (approximately 3.2 mm/yr) of the past

two decades. This rate has been consistent over the last century and possibly longer. (SOEST) However, the global climate has changed with increased greenhouse gases and melting of polar ice caps. Some research indicates that global mean sea level will rise by 1 ft by mid-century, however, there are significant unknowns in predicting future sea level and patterns of sea level rise are not consistent worldwide. (NOAA 2012, SOEST)

In fact, estimates of future SLR variability diverge on this point. According to the IPCC AR4 models of ocean density and circulation indicate that Hawai'i falls in a zone of slightly reduced sea level change relative to the global mean. However, IPCC modeling does not take into account the effects of changing ice mass on the main ice sheets Greenland and Antarctica. (SOEST) Some more recent modeling predicts Hawaii might fall in a zone of slightly higher sea level compared to the global mean when considering the worst case scenario of ice melt. NOAA released its technical paper, *Global Sea Level Rise Scenarios for the United States National Climate Assessment*, in 2012. In this paper, the authors reviewed all the studies and data regarding SLR and projections for sea level rise. One of their conclusions was no widely accepted method is currently available for producing probabilistic projections of sea level rise at actionable scales. (NOAA 2012) That is, there is not enough certainty in the present models to make concrete assumptions or conclusions on specific level of sea level rise for specific locations.

Other factors that influence sea level rise are the presence or absence of El Niño and La Niña patterns. Sea level rise is less when an El Niño pattern is in place due to decreased trade winds and more with a La Niña pattern when there are increased trade winds. Most recently in the Pacific, altimetry has shown an acceleration of trade winds which blow toward the western tropical Pacific (a La Niña pattern) raising sea level to the west of Hawaii. Another climate pattern that affects sea level rise is the Pacific Decadal Oscillation (PDO). (SOEST)

### **3.5 Beach/Marine Environment**

The applicant's property is at the north end of Kawailoa Beach, 450 feet south of Leftovers public beach access. The beach is bordered by Kawailoa Beach Park to the south and Leftovers public beach access to the north. The property is located where the beach comes to a small point. (Figure 8) The width of the beach makai of the applicant's property ranges from 60-80 feet in width. Beneath the sand is a red rock bench that extends mauka onto the applicant's property. The shoreline is composed of calcareous sand and exposed beach rock with a shallow, limestone rock reef that runs along the shoreline and out to border a place of ocean access. (Figure 15) The limestone rock reef which is exposed at low tide is 150 feet wide and extends 450 parallel to the shoreline creating a lagoon like area.

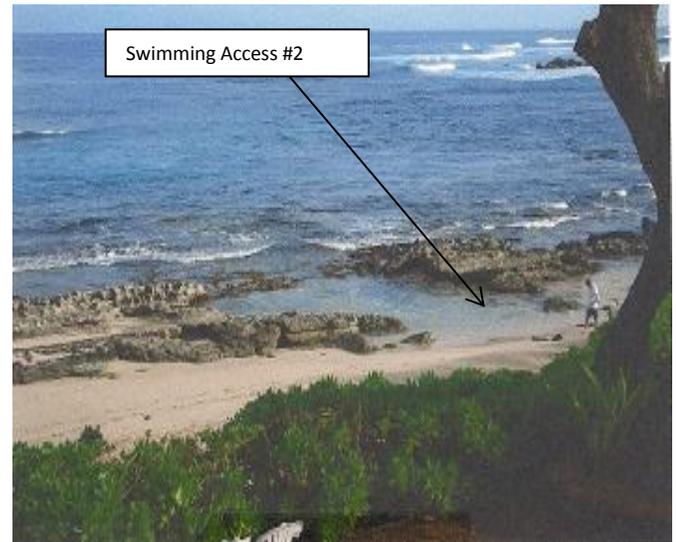
Beyond and attached to this reef, in 3 feet of water, is another flat, wide limestone rock reef approximately 200 feet wide and over 500 feet long that parallels all of Kawailoa Beach. Beyond this is a third reef that is located in deeper water approximately 900 feet offshore. The reef is mainly limestone with about 15% coral. There is one large sand channel off shore just to the north of the property, and several small surge channels in the limestone reef. Swimming access for the public is at two locations, first, a large 'lagoon' in front and to the south of the property and second, a large rock lined pool to the

north of the property .(Figure 15,16). Both areas are protected by the shallow, limestone, rock reef, and this beach has been nicknamed locally as 'baby beach' given the protection from waves and pounding shore break by the reef. The bottom of the lagoon is sand bottom with numerous scattered rock boulders. The shoreline is quite protected by this reef in this area except for high energy storm waves greater than 30 ft. which occur occasionally during the winter season. Towards the south of the property where the flat, limestone reef ends, the shoreline is much more exposed to breaking waves and erosion.

**Figure 15: Swimming Access #1 (lagoon) & Reef**



**Figure 16: Swimming Access #2**



Kawailoa Beach has predictable and stable shoreline sand movement. This movement occurs mostly in the winter season and is due to high energy storm waves. Directional sand movement is dependent on swell size and direction. During the high surf season, October through March, swells are predominantly from the north with either a more westerly component or easterly component. When the swell is predominantly from the west-northwest direction, waves and currents deposit sand at the northern end of the beach in front of the applicant's property. An exception to this is when the waves are 30-40 feet in height, and then sand is removed from the beach, exposing beach rock. The sand returns soon after the swell has decreased in size. When the swells have a more north-easterly component, the sand movement is to the south and accumulates at the south end of Kawailoa Beach at "Chun's Reef".

### **3.6 Water Quality**

The Hawaii Department of Health water quality regulations classify near shore waters as Class A open coastal water. After heavy rains there can be storm run-off that discolors the water with red sediment. (AECOS) The source of storm run-off is primarily from Waimea River.

### **3.7 Near shore Environment**

The near shore and offshore environment at the applicant’s property is not designated a critical habitat or part of a marine conservation district. The closest Marine Life Conservation District is Pupukea Marine Life Conservation District 1 mile to the north. Reefs on Oahu tend to be fringing with reef rim and reef flats. Because the water temperature is close to the lower limit for reef-building coral, their effects in building up reef is less than in other tropical zones. (Pollock 1971; Jokiel 2001). Off Kawaiiloa Beach, the reef is irregular with sand patches and a few small channels. The coral reef communities along Oahu’s north-facing shore are poorly developed due to the large swells that strike this coast during the winter months. Coral cover is relatively low approximately 15% and consists mainly of encrusting species that are wave resistant. The most common corals are *Porites lobata* and *Pocillopora meandrina*. Encrusting corals such as *Leptastrea purpurea*, *Pavona varians* and *Montipora flabellata* are found throughout the area. (Jokiel 2001) NOAA’s Center for Coastal Monitoring and Assessment has used digital benthic habitat maps to monitor existing Marine Life Conservation Districts (MLCDs) and adjacent habitats. The North Shore area on Oahu included in this study ranges from Sunset Beach south to Kawaiiloa Beach including Pupukea MLCD. Overall, the most abundant substrate type was turf algae followed by sand, coral, macro algae, coralline algae, macro invertebrates and sea grasses. The top 10 benthic taxa/substrate types by percent cover in the open access area which includes the benthic area at Kawaiiloa Beach are listed in the table below. (Friedlander 2006)

**Table 4: Top 10 Benthic Substrate Types**

Substrate Type	Open Access	
	Taxon	%
Turf algae		52.8
Sand		33.7
Coralline algae		3.7
Macroalgae	<i>Microdictyon sp.</i>	1.8
Coral	<i>Porites lobata</i>	1.3
Macroalgae	<i>Halimeda sp.</i>	0.9
Macroalgae	<i>Galaxaura sp.</i>	0.8
Coral	<i>Montipora capitata</i>	0.7
Macroalgae	<i>Acanthophora sp.</i>	0.7
Macroalgae	<i>Turbinaria sp.</i>	0.7

Source: Friedlander 2006

### 3.8 Nekton

There are 557 documented species of reef and shore fish in Hawaii of which 135 are endemic. Herbivores account for over 70% of the total reef fish biomass followed by invertebrate feeders (13%) and plankton feeders (9.7%). Surgeonfish are the dominant fish group and predators are rare, accounting for only 3.8% of reef fish biomass. (Brainard 2002) The highest number of fish and the greatest species diversity are found in locations with moderate to low wave exposure and greater habitat (reef) complexity to provide shelter from predation. (Jokiel 2001)

**Table 5: Top 10 Species of fish in the North Shore Oahu Open Area**

<b>Taxon Name</b>	<b>Common Name</b>	<b>Hawaiian Name</b>
<i>Thalassoma duperrey</i>	Saddle Wrasse	<i>hinala lauwili</i>
<i>Acanthurus nigrofuscus</i>	Brown Surgeonfish	<i>maiii</i>
<i>Acanthurus leucopareius</i>	Whitebar Surgeonfish	<i>maikoiko</i>
<i>Stegastes fasciolatus</i>	Pacific Gregory	
<i>Parupeneus multifasciatus</i>	Manybar Goatfish	<i>moano</i>
<i>Rhinecanthus rectangulus</i>	Reef Triggerfish	<i>humuhumunukunukuapuaa</i>
<i>Acanthurus triostegus</i>	Convict Tang	<i>Manini</i>
<i>Coris venusta</i>	Elegant Coris	
<i>Stethojulis balteata</i>	Belted Wrasse	<i>omaka</i>
<i>Acanthurus dussumieril</i>	Eye-stripe Surgeonfish	<i>palani</i>

Source: Friendlander 2006

### 3.9 Protected Marine Species:

Under federal law, all marine mammals are protected under the Marine Mammal Protection Act (MMPA). Some marine mammals, including humpback whales and Hawaiian monk seals, also are protected as endangered species under the federal Endangered Species Act (ESA). ESA protection extends as well to all species of marine turtles that occur in Hawaiian waters.

Humpback whales (*Megaptera novaeangliae*) congregate in Hawaiian waters during the winter months for mating and giving birth. Although frequently seen in waters off the Kona coast, Humpbacks seldom venture into waters shallower than 20m. Hawaiian Monk Seals, Ilio-holo-i-ka-uaua, (*Monachus shauinslandi*) are among the most critically endangered mammals, and they will haul out on beaches and rocky shores to rest. The Monk Seal population is highest in the Northwestern Hawaiian Islands, but a growing number of seals inhabit the Main Hawaiian Islands (MHI). (Baker 2011) Occasionally a Hawaiian monk seal will haul out on the beach near the ‘lagoon’ for a day, usually 2-3 times a year. The closest Hawaiian monk seal birthing location is north of Turtle Bay. The existing retaining wall and landing in no way hinder or impede the seals in any way.

Humpback whales can be seen in the distance in the offshore waters from the applicant’s property.

Green sea turtles (*Chelonia mydas*) which are protected by State and Federal laws are common in the near shore waters, but there are no local nesting sites near the applicant’s property. The retaining wall and landing in no way hinder or impede the turtles from hauling out onto the sand.

No nesting seabirds occur on or near the property, retaining wall, stairs or landing. Close to Kawaiiloa Beach Park, to the south, is a seabird nesting area.

### 3.10 Terrestrial Ecosystem:

The property has been a residence since 1924. Existing flora within the shoreline setback area are two coconut palms, *Cocos nucifera*, a grassy area of Seashore Paspalum (*Paspalum vaginatum*), beach naupaka, *Scaevola taccada* and two False Kamani, *Terminalia Catappa*, trees. The property is classified as rural residential. Animals commonly seen on the property include the Indian Mongoose (*Herpestes auropunctatus*), feral cats (*Felis catus*), common house mouse (*Mus musculus*) and the Polynesian rat (*Rattus exulans*). It is unlikely that there are any endangered species present on the applicant's property.

### **3.11 Socioeconomic Environment:**

The property is located in a fully developed residential neighborhood, Kawaihoa. The property is zoned R-5 residential in urban district. It is located within the North Shore Development plan area. The closest elementary school is Haleiwa Elementary and the high school, Waialua High School. The property is located in the Haleiwa CDP and in the 2010 census, the population was 3,970. Haleiwa is the largest commercial center on the North Shore of the island and is a popular destination for tourists and residents for surfing and diving.

### **3.12 Cultural Environment**

#### **3.12.1 Cultural History of the area:**

According to the models from Kirch (1985) and archival historical research from Kepā Maly (2000), the Hawaiian archipelago was thought to be first settled or colonized in A.D. 300-500 by ocean voyagers possibly from the Marquesa Islands. It wasn't until 1778 that James Cook 'discovered' the Hawaiian Islands by landing in Kauai, thus breaking the barrier between Hawaiian civilization and the outside world. Conservative estimates of the Hawaiian population at this time were 200,000. (Kirch, 1985). Pre-European contact, the Hawaiian economy was centered upon agriculture and fishing. Whole islands or parts of islands were divided into independent chiefdoms called "moku". The lands were divided into large radial sections called *ahupua'a* which extended from the ocean shoreline to the mountains or some other feature of geological significance (Maly 2000). Each of the *ahupua'a* was controlled by lesser chiefs (*ali'i'ai ahupua'a*) and stewards (*konohiki*) (Kirch 1985).

Oahu was one of the most fertile and densely populated islands and boasted far more extensive areas of taro pond field irrigation than either Maui or Hawaii. There were six large land divisions in ancient O'ahu, each having a source of fresh water for all the *ahupua'a* within a *moku*/district, and access to each area of resource, from reef to coast to midlands and mountains. The Waialua *moku* ranged from Kaena Point in the west to Kapaeloa at Waimea Bay. There were nine *ahupua'a(s)* within the *moku*. The *ahupua'a(s)* from west to east were Ka'ena, Keālia, Kawaihāpai, Mōkūle'i (or Hinakokea), Ka'ala (or Pu'uka'ala), Kamanui, Pa'ala'a, Kawaihoa, and Kāpaeloa. (Figure 17) Ancient Hawaiian communities thrived at both the Anahulu River Valley and Waimea Valley locations.

(<http://apdl.kcc.hawaii.edu/oahu/stories/waialua/index.htm>) The Anahulu Valley in the Waialua District was known for extensive taro fields and fishponds that provided food and goods used by the Ka'ahumanu Chiefs to support their establishments and to use for trade with the Europeans in the nineteenth century. (Kirch 1985) The Waimea Valley was the site of the High Priest of Oahu for over 600

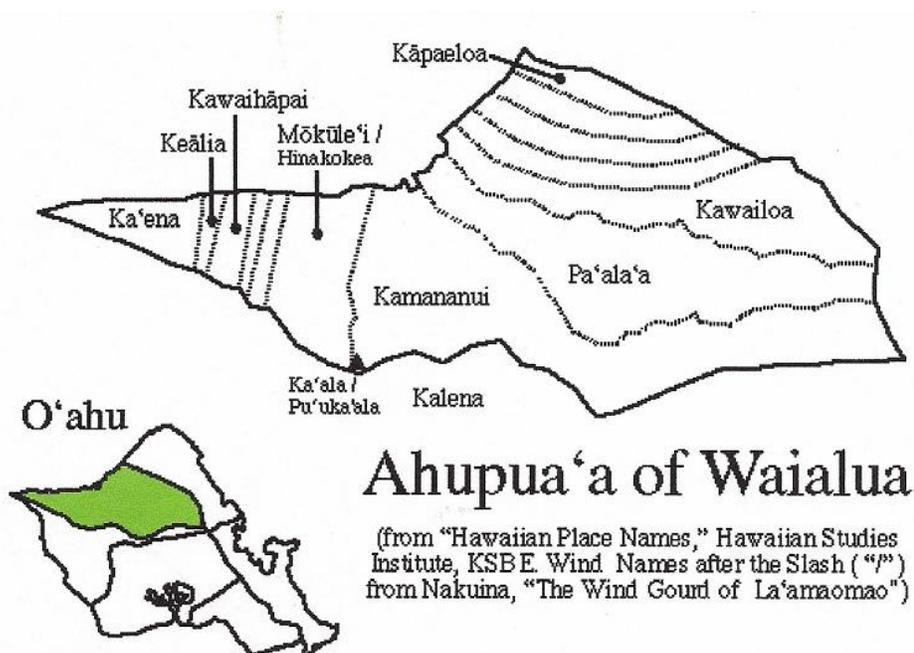
years. The last was Hewahewa, the Kahuna nui under the reign of Kamehameha I, whose bones remain at Waimea Valley.

In the mid-1800s, the ancient kahuna landsystem was overthrown in a great land division known as the “Great Mahele”. With private ownership came the sugar cane and pineapple plantations which dominated the economy for 100 years.

The applicant’s property is located in the Kawailoa *ahupua’a*. (Figure 17) The closest cultural and archaeological sites to the applicant’s property are Waimea Valley, 2 miles to the north and the fishpond, *Lokoea*, at the mouth of the Anahulu River 3 miles south.

The sea and its resources were of equal importance to the land to the Hawaiians. Most of Oahu’s reefs are fringing and the shore line or “littoral fringe” was heavily exploited by the Hawaiians for its invertebrates and seaweeds. The shore zone was also a source of edible sea urchins. Most Hawaiian fishes as well as lobster and octopus frequent the inshore zone of reef development within 30 meters. This area was commonly fished by Hawaiians who developed a range of gear and techniques suited to capturing inshore fish. (Kirch 1985) Hooks were shaped from bones either human, dog or bird, pearl or turtle shell, whale ivory or wood. Hawaiians favored net fishing over other methods as the nets allowed fishermen to catch many fish at once and they could be used from shore or from a canoe. (www.hawaiihistory.org) Beyond the reef, the benthic zone was less important although it is the habitat of some important food fish such as snapper (Lutjanidae). The open sea or pelagic zone is the home to the larger carnivorous fishes, *mahimahi* (Coryphaenidae), *ahi* and *aku* (Scombridae), and marlin (Istiophoridae) prized by the Hawaiians who used canoes to troll for them. (Kirch 1985)

Figure 17: Map of Ahupua’a of the Waialua District



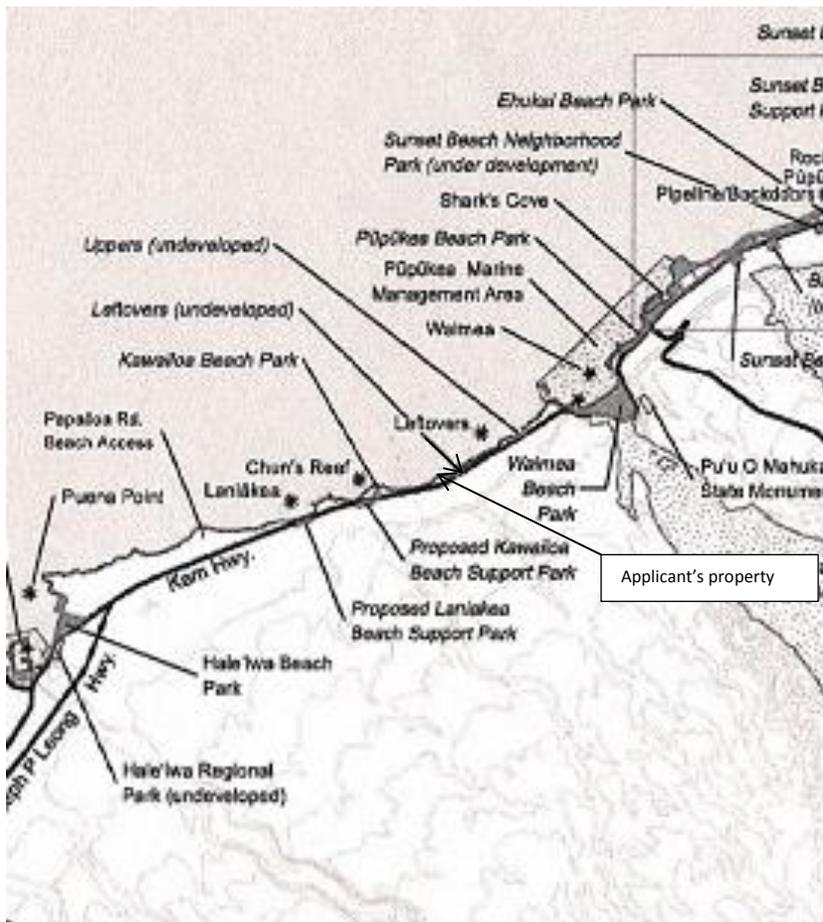
Source: <http://apdl.kcc.hawaii.edu/oahu/stories/waiailua/index.htm>

### 3.12.2 Public Shoreline Recreation:

Under the public trust doctrine and in accordance with legal case of King vs. Oahu Railway & Land Co., 1899, the Hawaii Supreme Court held that “lands under navigable waters in and around the territory of the Hawaiian Government are impressed with a trust for the public uses of commerce, navigation and fishing”.

Public beach access is 450 feet to the north of the applicant’s property at “Leftovers” beach access. This is marked with a red arrow on Figure 18. This is undeveloped beach access with parking and a path through the vegetation to the beach. Public access to the south is at “Chun’s Reef” or Kawaiioa Beach Park ½ mile south of the applicant’s property. (Figure 18) Lateral beach access is not impeded in any way. The ½ mile stretch of beach is always accessible unless high surf conditions make it unsafe. Beach activities include net fishing, pole and line fishing, spear fishing, surfing, snorkeling and swimming. There are no bathrooms, picnic tables, showers or other amenities at the Leftovers beach access.

**Figure 18: Public Beach Access on the North Shore of Oahu**





Source: North Shore Sustainable Communities Plan 2011

#### 4.0 Description of Impacts and Mitigation Measures:

##### 4.1 Impacts to Climate:

Legalizing the retaining wall, CRM stairs and landing will in no way impact the climate. However, removing the retaining wall could severely impact the applicant's house and deck.

**Mitigation:** Granting the shoreline setback, variance and after the fact building permits. There is no impact on climate, thus no mitigation measures are needed.

##### 4.2 Impacts/Mitigation to Geology:

Legalizing the retaining wall, CRM stairs and landing will have a positive impact on topography, geology and soils. No mitigation is needed for the project as proposed. However, if the retaining wall was removed, there could be significant impacts to topography and soil. Removal of the retaining wall would allow large waves, storm surf and extreme wave events to erode the soil. Debris sediment would be washed into the class A Marine Waters increasing turbidity. Mitigation of this erosion would be to keep the retaining wall.

##### 4.3 Impacts/Mitigation to Marine/Beach Environment:

The retaining wall, CRM stairs and landing have been present on the property for around 15 years. There has been no significant impact to the beach or marine environment. Legalizing these structures would not significantly impact the marine or beach environment. No green turtle nesting habitats are present on the beach. Monk seals are still able to haul out without disturbance. The only time the waters impact the retaining wall, landing and stairs are with high surf events greater than 30-40 feet or extreme storm surge or tsunamis. During those events, the retaining wall is essential in the protection of the legal deck and house to prevent erosion and undermining of the foundations that would result in destruction of these legal structures.

Removal of the retaining wall would lead to erosion and the resultant debris and soil being washed into the ocean. This would increase turbidity of the Class A waters and could potentially damage the existing benthos and nekton present in the near shore environment creating a significant impact.

Mitigation: Legalizing the retaining wall, CRM stairs and landing would not have a significant impact on the near shore or beach environment; however, removing the wall could create a dangerous environment as well as negative impacts to the near shore and beach environment. Thus, the best solution/mitigation is to legalize the existing retaining wall, CRM stairs and landing and allow them to remain in place.

#### **4.4 Impacts/Mitigation to Flora and Fauna:**

There are no significant impacts to the terrestrial flora and fauna from the legalization of the retaining wall, CRM stairs and landing. Removal of these structures would create an environment of erosion. The lack of flank protection provided by the retaining wall would lead to erosion not only of the applicant's property but also the neighboring property and his structures. Erosion of the applicant's property would cause loss of soil, dirt and plants in high surf events. Eventual undermining of the foundation of the deck and house structure would be inevitable leading to the loss of property and structures thus, creating a hardship for the applicant. Removal of the retaining wall would encourage growth of beach strand and naupaka; however, no threatened or endangered species commonly utilize the area and replacement of the beach strand would not create a significant new habitat. **There are no exterior lighting or lamp posts associated with the stairs, wall or landing. There are no lights that are not shielded or that direct light toward the beach thus to lessen the possibility of any bird strikes.**

Mitigation: Allowing the retaining wall, CRM stairs and landing to remain in place results in no loss of property, decreased erosion of both the applicant and neighbor properties, and allows the owner reasonable use of his property.

#### **4.5 Noise and Visual Impacts:**

No noise or visual impacts are present with the current retaining wall, CRM stairs and landing. No visual view planes are blocked. Removal of the retaining wall, stairs and landing would create a temporary increase in noise in the local environment.

Mitigation: No noise mitigation needed for legalization of the retaining wall, CRM stairs and landing.

#### **4.6 Air Quality Impacts:**

The current retaining wall, CRM stairs and landing have no significant impact to the air quality of the local environment. Removal of these structures would create dust and debris that would temporarily affect the local air quality.

Mitigation: No air quality mitigation is needed for the legalization of the retaining wall, CRM stairs and landing.

#### **4.7 Socioeconomic Impacts:**

No significant socioeconomic impacts occur if the retaining wall, CRM stairs and landing are allowed to remain in place. Significant financial and economic impacts to the applicant would occur if he were

forced to remove the retaining wall, stairs and landing. The retaining wall protects the legal structures on the property. Removal of the retaining wall would lead to significant erosion, undermining of the structures' foundations and ultimately the destruction of the legal structures. This would create significant financial and economic hardship for the applicant.

Mitigation: No socioeconomic mitigation is needed if the retaining wall, stairs and landing are legalized and after-the-fact building permits are issued.

#### **4.8 Cultural/Recreational Impacts:**

The retaining wall, CRM stairs and landing have not impacted or prevented any public use of the beach or cultural practices. Lateral access along the beach is not impeded. The structures are *mauka* of the shoreline and not on submerged lands. Legalizing these structures will not have any impact on the public use of the beach and near shore waters for recreation or cultural practices. No construction will be done so there will be adverse effect on any unidentified historically significant resources including human remains.

No cultural or recreational mitigation is needed.

#### **4.9 Land Use:**

The property is zoned R5 residential according to LUO of the City and County of Honolulu. The property is 14,590 square feet. The retaining wall ranges from 61 inches to 63 inches from the landing measured in accordance with DPP recommendations. The height of the retaining wall is less than 72 inches as mandated by Chapter 21-4.40 Land Use Ordinance of City and County of Honolulu. The safety railing on the deck is also less than 72 inches as mandated by section 21-4.40. No changes in land use will occur as a result of legalizing the retaining wall.

No mitigation for land use is required.

#### **4.10 Cumulative Impacts:**

A cumulative impact is one which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The proposed action is to obtain an after-the-fact shoreline setback variance and permits to legalize an existing moss rock retaining wall, CRM stairs and landing on the applicant's property that has been present for approximately 15 years. These structures were not constructed by the applicant and are located on private property; they have not caused any negative impacts to the environment, and are not part of a larger or continuing action.

The moss rock retaining wall is a protective structure to prevent erosion and undermining of existing legal structures of a deck and house by high surf events, extreme waves/tsunamis and storm surge.

There has been no minor or significant impact to the beach or near shore environment in the 15 years the structures have been present, so no cumulative impacts are anticipated. Long term erosion rates of the beach are stable. High surf events, tsunamis and storm surge, however will continually be present year after year. The protection provided by the retaining wall is essential to prevent the erosion and undermining of the foundation of the legal non-conforming structures that could lead to the destruction of those legal structures. This would cause significant financial hardship to the applicant.

The CRM stairs and landing provide safe access to the beach. Removal of these structures would deprive the applicant from reasonable safe use of his property. These structures have not resulted in significant, negative impacts to the environment in the last 15 years.

Thus, no cumulative impacts to the environment are associated with the proposed action.

## **5.0 Alternatives to the Proposed Action:**

### **5.1 No Action Alternative:**

The no action alternative is not an option. The applicant would continue to be in violation of the shoreline setback with the retaining wall, stairs and landing. Fines would accrue for the permit violation and this would result in an unreasonable financial burden for the applicant.

### **5.2 Removal of the Retaining Wall, Stairs and Landing:**

This alternative is not a practical or viable option. Removing the retaining wall would expose the applicant's deck and house to erosion from high surf events, storm surge and other extreme conditions. In addition, soil from under the deck and house would contribute to turbidity, decreased visibility and potential debris into the class A Marine Waters. Over time the erosion and undermining of the foundation of the deck and house would create a dangerous environment for the applicant and his family. Without the retaining wall, erosion would potentially undermine the neighboring property, thus creating an unsafe environment for the neighbor as well.

Removal of the stairs and landing are also not a practical alternative. This would deny the applicant who is visually impaired from safe access to the beach and deprive him of reasonable use of the property.

### **5.3 Build a Rock Revetment:**

Rock revetments are sloped rubble structures of carefully placed un-cemented rock. Although rock revetments may absorb and dissipate more wave energy than vertical walls, in this case, the space between the revetment and deck structure would increase the risk of damage to the deck and would not provide enough flank protection. This could increase the risk of damage to the neighboring property.

### **5.4 Build an Open Lattice Fence:**

Another alternative would be instead of the moss rock retaining wall, building an open, lattice work fence of wood, vinyl or chain link. This would not be an effective alternative as the open work fence

would not (1) be strong enough to withstand the force of the waves or (2) retain the soil or protect the structures on the property. During high surf events, storm surge and extreme wave events, this type of fence would allow soil and debris to wash away contaminating the waters and would not prevent erosion of the foundation of the house and deck. It would potentially create an environment where damaging erosion could occur to such an extent that the house/deck could fall off the foundation and into the waters creating extreme hardship to the applicant.

### **5.5 Sand Bags**

Sand bags are a temporary solution that may provide some protection if the retaining wall is removed. However, they are a less than adequate permanent solution as sand bags are subject to undermining and displacement by high surf events, storm surge and extreme wave events. In addition, they are subject to vandalism and continual maintenance. Over time erosion would still occur undermining the foundation of the house and deck leading to a high risk of the structure coming off its foundation and being displaced. This would cause significant hardship to the applicant and deprive him from reasonable use of his property and legal structures.

### **5.6 Obtain an After-the-fact Shoreline Setback Variance and Permits for the Retaining Wall, Stairs and Landing:**

The preferred alternative is to apply for an after-the-fact shoreline setback variance and building permits to correct the current violation. The retaining wall, CRM stairs and landing have been in place since approximately 1996 prior to the applicant's purchase of the property. There have been no significant problems or issues with the stairs. The moss rock retaining wall has prevented erosion of the deck and foundation of the house for the last 16 years during high surf events, storm surge and tsunamis. There has never been any damage to any of the structures from these surf and wave events. The retaining wall prevents sandy, silty soil and debris from washing off the property onto the beach and into the Marine waters. All of the structures are landward of the shoreline on private property. They are not in the wash zone, nor do they impede sand movement or cause any environmental damage to the beach. They do not prevent any public access of the beach or impede any beach or cultural activities or impact any view planes.

## **6.0 Consistency with Public Policies and Objectives:**

### **6.1 Oahu General Plan:**

The Oahu General Plan directs growth to the primary urban centers of Central Oahu and the Ewa regions. Oahu's north shore is designated rural where growth and development will be managed to preserve the country-like atmosphere with its agricultural lands and "undesirable spreading of development is prevented" and "population densities are consistent with the character of development and environmental qualities desired for the area". (General Plan of the City and County of Honolulu)

Granting a shoreline setback variance and after-the-fact building permits for the existing retaining wall, stairs and landing on the applicant's property in no way conflicts with this plan or ideal. These structures have been in existence for approximately 15 years. They were not constructed by the applicant. There is no increase in population density, no change in zoning, is consistent with the R5 residential designation of the property and there is no negative impact to the local environment.

## **6.2 North Shore Sustainable Communities Plan:**

The North Shore of Oahu is considered the "country" particularly when compared to metropolitan Honolulu. The goal of the North Shore community is to maintain this rural character with its agricultural lands, open space, natural environment, recreational resources and scenic beauty of Oahu's northern coast. (NSSCP 20110) Legalization and permitting of the retaining wall stairs and landing do not conflict with this plan.

1. The site is located in an area designated for "Rural Residential" and "Rural Communities" on the North Shore Sustainable Communities Plan (SCP) Land Use Map and Open Space Map, respectively. Additionally, the site is within the Community Growth Boundary as shown on both the North Shore SCP Land Use Map and Open Space Map.
2. The proposed project is not anticipated to conflict with the vision for the North Shore which is to maintain and protect open space, scenic resources, native Hawaiian heritage and cultural diversity, and agricultural past (Section 2.1) because the Applicant is requesting after-the-fact permits rather than permits for new construction. The proposed project is not anticipated to conflict with policies and guidelines regarding residential communities (Section 3.5) and rural areas (Section 3.5.2.2) of the North Shore SCP because the property is in an area recognized as a well-established residential area in Kawaiioa.
3. The North Shore SCP discourages development or activities which result in beach loss and encourages development practices or activities such as increased shoreline setbacks which result in beach preservation or enhancement (Section 3.1.2.2). However, in this case, the Applicant is not proposing new structures or development that may negatively impact the shoreline.
4. Section 3.3.2.3 of the North Shore SCP regarding beach parks and shoreline areas seeks to limit uses within beach parks and near shore ocean area uses to preserve overall environmental quality, rural character, scenic views or development that may negatively impact the shoreline.

These structures do not impact the local beach and marine environment and do not limit public access to the beach, recreational activities or cultural practices. These structures have been present for at least 15 years without any significant impact. Removal of the retaining wall, stairs, and landing would lead deprive the applicant from reasonable use of his property, and could create a dangerous situation for the public by the destruction and debris that would arise from erosion from high surf events. Removal of these structures would increase erosion of the applicant's property, increase run-off that could potentially damage the reefs and near shore marine environment, undermine the foundations of legal structures, and as a result, would be in conflict with the North Shore Sustainable Communities Plan of 2011.

### 6.3 State Coastal Erosion Management Plan (COEMAP)/Coastal Zone Management:

One of Hawaii's most valuable, natural resources is its beaches. The applicant and preparers of this document have taken this into consideration in his evaluation of the impact of the retaining wall, stairs, and landing on the beach at this property. It is a fine balance between protecting one's property and yet minimizing the impact on beach processes. Many alternatives have been discussed such as rock revetment, removal and/or sand bags as well as others, in the environmental assessment. For this property, given the lack of impact the retaining wall, stairs and landing have on the natural processes along the shoreline, approval of 'as is' construction is appropriate. As stated in COEMAP, "to simply let our coastal investments and human efforts wash into the sea would not be a rational management decision". The retaining wall, landing and stairway in no way inhibit the public from any kind of access or utilization of the beach, ocean and shoreline. View planes are not impacted. Use of the reef for throw-net fishing, the ocean for surfing and other recreation are not impacted by these structures. This is described in detail below.

Hawaii Revised Statutes §205A-2 Coastal Zone Management Program objectives and policies include:

1. *Recreational Resources*

a. *Provide coastal recreational opportunities accessible to the public:*

The beach in the area in front of the applicant's property is 60-80 feet wide. As described in section 3.12.2 in this document, traditional cultural practices of throw net fishing and surfing take place on Kawailoa Beach. The only time the beach is not accessible for these activities and any others is when there is dangerous high surf and the beach is closed to the public for safety reasons. High Surf warnings occur when the threat to life property are imminent. The criteria for a high surf warning for the North Shore of Oahu are waves 25 feet or greater measured from the trough to the crest of the wave. During these occasions, the lifeguards string up yellow caution tape and the beaches are closed to the public. The lateral access to the beach is in no way impeded by the retaining wall, stairs or landing. Beach activities are only limited by the naturally occurring high surf and subsequent dangerous shorebreak and currents that result.

2. *Historic resources:*

a. *Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

There are no manmade or historic resources on the applicant's property in the location of the retaining wall, stairs and landing. Keeping the structures in place will prevent any further disturbance of the soil and dirt in the area.

3. *Scenic and Open Space Resources:*

a. *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources:*

The retaining wall stairs and landing are constructed of dark black basalt rock which is consistent with the color and type of beach rock found on this stretch of Kawailoa Beach. Aesthetically these structures blend in with the naturally occurring rocks on the beach. If they were to be removed, debris, trash and would accumulate under the legal nonconforming deck and would be less attractive to look at. In addition, erosion and dirt debris would color the beach and affect the natural resource if these structures were removed.

4. *Coastal Ecosystems:*

a. *Protect valuable coastal ecosystems, including reefs, from disruption and minimize*

*adverse impacts on all coastal ecosystems.*

As described in prior paragraphs in this document, leaving the structures of the retaining wall, stairs and landing in place would have the least environmental impact on the coastal and shoreline ecosystems. Without these structures under periods of high surf (30-40 feet) there would be significant erosion of dirt under the applicant's legal nonconforming house and deck. This would result in increased silt and soil in the nearshore waters which would increase turbidity and potentially negatively impact the reef and coastal ecosystems.

5. *Economic Uses:*

- a. *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

The structures in question have no negative impact on the State's economy.

6. *Coastal Hazards:*

- a. *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Permitting and allowing the structures of the retaining wall, stairs and landing are in complete alignment with this policy. These structures protect the applicant's property and other legal structures in cases of storm waves and tsunamis and prevent erosion. The retaining wall is only contacted by waves with any impact during unusual high surf conditions with surf at 50 feet or significant tsunamis such as the Japan tsunamis in 2011. The structures were built with rebar and designed to withstand significant wave impact and not crumble.

7. *Managing Development:*

- a. *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

The applicant is not seeking to add any new structures into the shoreline area, just trying to correct what the previous owner did by requesting after the fact building permits for these structures.

8. *Public Participation:*

- a. *Stimulate public awareness, education and participation in coastal management.*

There is no conflict with allowing after the fact building permits for the retaining wall, stairs and landing and this policy. As part of the environmental assessment process, the public is allowed to make comments and ask questions.

9. *Beach Protection:*

- a. *Protect beaches for public use and recreation*
- b. *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
- c. *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

As stated above under section 1(A), the retaining wall, stairs and landing in no way impede the public's ability to access or use the beach for recreation. In addition, the structures are mauka, not seaward of the shoreline. Erosion studies of Kawaihoa Beach with data recording the site of the shoreline have been ongoing since 1910, over 100 years. (See section 3.4.5) The shoreline in front of the applicant's property has not shown any significant long-term erosion since 1910. (Hwang 1981; SOEST 2010) Each of the neighboring properties, 2 to the north and 2 to the south have over 100 foot long vertical sea walls or rock revetments that have been in place over 40-50 years. No significant long-term erosion has occurred from those structures according to the SOEST data. The retaining wall and landing are only 20 feet in length and are highly unlikely to contribute significantly to any additional erosion. Short-term erosion can be serious danger to beach front property owners and occurs from the large winter swells along this stretch of beach. The retaining wall, stairs and landing were constructed by the previous

owner sometime during 1996-1999. The data from 1910 to the most recent survey 2006 do not show any significant impact of these structures on beach erosion or sand migration. The structures have been in place for approximately 15 years with no significant impact to sand migration or contributing to beach erosion. During the time period the structures have been in place, there have been 50 foot swells on several occasions (see section 3.4.3) and tsunamis' (see section 3.4.4). Seasonal sand migration continues to occur without disruption and the structures are not impeding sand movement. The only time the structures are in contact with the ocean is when the surf is 30-40 feet. They are not located in the swash zone nor do they affect the day to day natural beach processes. The large winter swells cause the greatest short-term seasonal beach changes, with no evidence so far of any long term erosion due to the retaining wall stairs or landing according to the SOEST erosion mapping and data. During these extreme wave events, often times the beaches on the North Shore are closed to the public for safety reasons. These structures do not limit the public's use of the beach for traditional or recreational activities in any way. However, the structures do protect the applicant's house from damage and erosion from extreme high surf events and are the best practicable alternative.

#### 10. Marine Resources:

- a. *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

The structures located on the applicant's property do not impede the use of the beach or any marine activities. If these structures were to be removed, then erosion would occur with dirt and silt impacting the coastal and marine environment causing a negative impact.

Scientific data have been used in making these assessments through evaluation of information from aerial photography, coastal engineering, textbooks, OEQC, North Shore Communities plan and COEMAP. The public has been consulted in this process by: the applicant discussing options with his neighbors. In the development of this document, the applicant has met with Art Challacomb and Steve H. Cheung as well as other members of DPP, Jiro Sumada, Jamie Peirson, John "Mike" Friedel, and Lester Hirano to aid in the resolution of this matter.

### 7.0 Justification for the Shoreline Setback Variance

Criteria for granting a shoreline setback variance are defined in Section 23-1.8 Revised Ordinances of Honolulu (ROH). The applicant is requesting a shoreline setback variance for an existing moss rock retaining wall, CRM stairs and landing based on the Hardship Standard set forth in ROH Section 23-1.8 (b)(3). Under the Hardship Standard (A) *a variance may be granted for an activity or structure that is necessary or ancillary to the following private facilities or improvements, if hardship will result to the applicant if the facilities or improvements are not allowed within the shoreline area:*

For the applicant's property ROH Section 23-1.8 (b)(3)(A)ii apply: *Private facilities or improvements that may artificially fix the shoreline, but only if hardship is likely to be caused by shoreline erosion and conditions are imposed prohibiting any such structure seaward of the existing shoreline unless it is clearly in the public interest.*

The moss rock retaining wall, CRM stairs and landing are "mauka" or landward of the shoreline as surveyed in 2013 located on private property. The structures have been present on the property

approximately 15 years and were not constructed by the applicant, but by the property's previous owner. The following 3 hardship criteria set forth in ROH Section 23-1.8(b)(3)(B).

- (i) *The applicant would be deprived of reasonable use of the land if required to comply fully with the shoreline setback ordinance and the shoreline setback rules;*

The applicant's property is located on the beach on the North Shore of Oahu which is known for its large surf. Caldwell, 2008 reported that surf of 9 meters or 29.5 feet in height occur on average ten times a year since 1981. Significant episodes or waves 12 meters or 39 feet in height occur on average once annually and extreme surf or waves 15-18 meters or 50-60 feet in height occur on average once every seven years. The applicant has a legal non-conforming house and deck that date back to 1924. The house is located 13 feet from the moss rock retaining wall and landing on one side and 15 feet on the other side. The moss rock retaining wall and landing support the deck and retains 3-4 feet of dirt behind it. The house and deck structures would be extremely vulnerable without the retaining wall during high surf events, storm surge and extreme wave events (surf >40-50 feet and tsunamis). In the last 8 years the applicant has owned the property, there have been 3 tsunamis and multiple high surf events >40-50 feet. Without the retaining wall, these high surf and extreme wave events would cause catastrophic erosion and damage to the applicant's house and deck. Over time and multiple events, the deck could be destroyed, the house could be severely damaged and the owner would lose a significant part of his property. Without the flank protection the retaining wall provides, the neighboring property to the south would be at risk to suffer erosion and damage also. The erosion, run off and debris created by this scenario would create a hazardous condition on the beach in front of the applicant's house, could damage the near shore marine environment and could create a situation that would be dangerous to the public using the beach. The applicant would be denied use of his house and deck, both legal structures, depriving him of reasonable use of his house and property, thus creating significant hardship. The CRM stairs and landing provide safe access to the beach. The applicant is visually impaired and it is reasonable for him to have safe access to the beach from his property. Stairs have been present on the property since at least 1986. These stairs have been present approximately 15 years without incident or problem. They were not constructed by the applicant and if they were removed, the applicant would have to navigate a steep, irregular rocky hill to reach the beach which could be potentially dangerous for the applicant and his family. Not having safe access to the beach would deprive the applicant from reasonable use of his property and would create significant hardship.

The shoreline setback provisions do not require a landowner to abandon his property in the shoreline setback area; rather, use of the property is permitted within the constraints imposed by the statutes. There is no degradation of the environment by the present structures, thus no environmental gain by requiring the wall or stairs or landing to be demolished. This is why the owner is requesting a shoreline setback variance and permits for these structures.

(ii) *The applicant's proposal is due to unique circumstances and does not draw into question the reasonableness of this chapter and the shoreline setback rules;*

Kawailoa Beach has a unique setting. The beach in front of the applicant's property is protected by a limestone bench reef. The moss rock retaining wall only is impacted by waves > 30 feet. It is landward of the shoreline survey from 2013. **The house and deck structures on the applicant's property are unique as they were constructed in 1924 long before existing rules and regulations. These structures are legal though non-conforming.** The neighboring properties to the north and south have either rock revetments or vertical rock walls protecting their properties from erosion and high surf events. Properties on this beach without any protection suffer from erosion each year and have had damage to existing decks and structures. Approval of the shoreline setback variance would be consistent with prior actions. Approval would be due to unique site-specific erosion issues and unique legal non-conforming structures present on the applicant's property and does not call into question the reasonableness of this chapter or the shoreline setback rules especially for new construction.

The applicant's property has had stairs on it since at least 1986 (documented by DPP-photograph appendix B). Several of the adjacent properties have CRM stairs or wooden stairs down to the beach. The applicant is visually impaired and having safe and stable access to the beach is essential for his ability to use the beach and his property. This is also a unique situation that does not call into question the reasonableness of the setback rules.

The purpose of the moss rock retaining wall, stairs and landing is to protect the applicant's house and deck from significant erosion high surf events and to allow safe access to the beach. High surf events that regularly occur on the north shore would cause significant erosion and damage to the applicant's property and legal structures. The shoreline setback provisions do not require a land owner to abandon their property or legal structures in the setback area. Use of the property is permitted within the constraints imposed by the statutes and this is what is occurring on this property.

(iii) *The proposal is the practicable alternative which best conforms to the purpose of this chapter and the shoreline setback rules.*

Under the alternative action section of this EA five alternatives are reviewed. Under the no action alternative, the applicant would continue to have a notice of violation on his property and fines would accrue causing financial hardship. This is not a viable alternative.

The second alternative is to remove the moss rock retaining wall, CRM stairs and landing. This would result in erosion from high surf events, storm surge and extreme wave events that would lead to the undermining of the foundation of the house and deck. Soils and debris would be washed off the property into the class A marine waters causing turbidity, damage to the reef and near shore nekton. Turtle feeding grounds on the reef would be damaged. Ultimately such damage could occur to cause the deck to be washed out to sea and severe damage to the house. This would result in a dangerous environment on the beach for the public and neighboring properties. The degradation to

the environment and the severe damage to the applicant's property make this alternative unacceptable.

The third alternative action is to build a rock revetment under the deck. Under some circumstances rock revetments can absorb and dissipate more wave energy than vertical walls, in this case, the space between the revetment and deck structure would increase the risk of damage to the deck and would not provide enough flank protection. This could increase the risk of damage to the neighboring property as well as the applicant's deck and house making this not an acceptable alternative.

The fourth alternative is an open lattice fence constructed out of wood, vinyl or chain link. This alternative is not practical as it does not protect the structures from erosion. Soil and small debris can pass through the openings and degrade the conditions of the beach and near shore waters. It is unlikely that this alternative is strong enough to withstand the force of high surf events and extreme wave events making it not an acceptable alternative.

The fifth alternative is the use of sand bags. Sand bags are a temporary solution that may provide some protection if the retaining wall is removed. However, they are a less than adequate permanent solution as sand bags are subject to undermining and displacement by high surf events, storm surge and extreme wave events. In addition, they are subject to vandalism and continual maintenance. Over time erosion would still occur undermining the foundation of the house and deck leading to a high risk of the structure coming off its foundation and being displaced. This would cause significant hardship to the applicant and deprive him from reasonable use of his property and legal structures.

The last and preferred alternative is to correct the current notice of violation by granting the applicant after-the-fact building permits for the existing moss rock retaining wall, CRM stairs and landing that have existed on the property for approximately 15 years. The existing retaining wall has withstood high surf events, extreme waves and tsunamis. There has been no degradation of the environment. The moss rock retaining wall is the best alternative for protecting against environmental damage and loss of property. The owner is applying for an after-the-fact shoreline setback variance and permitting to correct the current violation. This is the best and most practical alternative.

The preferred alternative is the best practicable alternative to reduce the hazards and problems due to high surf events, storm surge and extreme wave events. The moss rock retaining wall has a minimal footprint and elevation, is "mauka" of the shoreline and does not affect coastal access or public use of the beach. This is also the alternative that would have the least impact on the marine environment.

Section 23-1.9 sets forth that no variance shall be granted unless appropriate conditions are imposed:

- (a) *To maintain safe access to and along the shoreline or adequately compensate for its loss;*
- (b) *To minimize risk of adverse impacts on beach processes*

- (c) *To minimize risk of existing legal or proposed structures falling and becoming loose rocks or rubble on public property; and*
- (d) *To minimize adverse impacts on public views to, from and along the shoreline.*

The preferred and best practicable alternative of legalizing the moss rock retaining wall, CRM stairs and landing meet the above conditions. Lateral access to the beach is no way impeded. The sandy beach is 60-80 feet wide in front of the applicant's property. When there are large waves that would contact the structures, there is a high surf warning and the beaches are closed to the public for safety reasons.

Beach erosion is followed closely by SOEST. Aerial photographs and surveys documenting beach erosion are ongoing with data from 1910 on Kawaihoa Beach. Long-term beach erosion is low along this stretch of beach and there has been no significant impact on beach erosion by the structures over the last 15 years. Short-term seasonal shoreline changes can be dramatic due to large winter swells and can be a significant hazard to beach-front homes.

The retaining wall, stairs and landing were constructed from moss rock, concrete and dowel. Full height CRM buttresses (4' x1.5') spaced 5' on center behind the retaining wall provide additional support from horizontal forces induced from high waves. At the toe of the moss rock wall is a CRM landing (approximately 2-foot high and 3-feet wide) connected to a stair also constructed of rock, rebar and mortar. This built-up landing, coupled with an existing large lava rock bed in front of the wall, provides additional sliding resistance at the base of the moss rock wall. This continuous horizontal landing helps protect against possible damage to the wall due to scour and undercutting of the toe. Wave forces are dissipated when it hits raised rock landing. These structures are well constructed to withstand significant wave forces. If however, there is some sort of catastrophic event that results in the breakdown of the wall, the property owner would clean up any debris or rubble, but it is unlikely to occur with the usual winter surf or even more unusual surf with waves up to 50+ feet.

There is no adverse impact on the environment or public views by the existing structures. The materials used to construct the retaining wall, stairs and landing are consistent visually and aesthetically to the surrounding beach rock and thus, not a negative impact to the viewplane. Without the structures, trash and debris would accumulate under the deck resulting in a less pleasant view for the public.

Without the retaining wall, stairs and landing safe access to the shoreline would be denied to the applicant, erosion would take place and there would be a high risk that the legal deck and house structures could become loose rubble and debris impacting the beach environment. Thus, granting the after-the-fact shoreline setback variance and leaving the retaining wall, stairs and landing in place is the best practicable alternative that meets the criteria set forth in the Revised Ordinances of Honolulu Chapter 23.

### **8.0 Determination of Significance:**

The findings and determinations of this EA are based on the significance criteria contained in Chapter

343, HRS as amended, and Title 11, Chapter 200, HAR. In determining whether an action may have a significant effect on the environment, the proponent must consider every phase of the proposed action, the expected consequences, primary, secondary and cumulative.

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 applicant's property is not in a historic district, nor does it have any known cultural resources on the property. The retaining wall will serve to protect the existing legal non-conforming house and deck from significant damage and erosion, and also as it is constructed, protects neighboring properties from damage as well. There is no endangered flora or fauna that is impacted by the stairs, landing and seawall. Endangered marine animals such as the Hawaiian Monk seal and green sea turtle's habitats are not impacted by the presence of the seawall, stairs and landing.

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

There is no impact on public access to the shoreline and ocean. The closest public access, Leftovers, is 450 feet to the north of the property. There is no impact on lateral access to the shoreline and no impact to fishing on the reef flat seaward of the retaining wall, stairs and landing. Beneficial residential use of the environment would be threatened without the existing retaining wall, stairs and landing.

3. *"Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS"*

The seawall, stairs and landing are all landward of the certified shoreline as of October 2000. Therefore, they are not in the State Conservation District along the shore. The retaining wall, stairs and landing are also landward of the mean high tide line and separated by near shore water by a sandy stretch of beach. There is no soil run-off that could impact the near shore waters with the stairs, landing and retaining wall in place. If they were to be removed, then there would be a significant risk of soil erosion contaminating near shore water with high surf events, storm surge and extreme wave events.

4. *"Substantially affects the economic or social welfare of the community or state"*

There is not economic or social impact to the state by the existing stairs, landing and retaining wall. There would be a significant, detrimental effect to the property if these structures were removed. This would deprive the owner from accessing safely the beach and would significantly increase the risk of damage to his house, deck and neighboring properties creating hardship on the applicant.

5. *"Substantially affects public health"*

There is no public health affect by the existing structures.

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

There is no impact of the existing structures on the population, public services or facilities.

7. *"Involves a substantial degradation of environmental quality" –*

The existing structures do not degrade the environment. They are "mauka" of the shoreline. There is no significant adverse impact on marine flora and fauna. The retaining wall is impacted only when there is high energy surf in excess of 30 feet. These occurrences are rare, happening once or twice a year. Removal of the retaining wall would increase the risk of soil erosion, resulting in temporary siltation, and contaminating the near shore marine environment. Removal of the retaining wall and landing would increase the risk of damage to neighboring properties as well as the existing structures on the

applicant's property, and potentially creating a hazardous condition for the public. Visually, the stairs, landing and seawall are consistent with the existing walls and revetments along the beach.

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

The proposed action is not a component of other actions, and the existing structures have no cumulative impacts or commitment for larger actions.

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

The existing structures do not affect endangered species or habitat. Both the green sea turtle and Hawaiian Monk seal are found in the waters and reef in front of the property. The stairs, landing and retaining wall in no way affect their habitat or the ability for them to access the shoreline. The property is not in a designated critical habitat, marine sanctuary or wetlands.

10. *"Detrimentially affects air or water quality or ambient noise levels"*

Since no construction needs to be done, there will be no detrimental effects on the quality of air or water or ambient noise levels. Removal of the stairs, landing or retaining wall would substantially increase the risks of regular sedimentation, water quality impacts and environmental quality impacts on the near-shore area.

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 property is in FEMA flood zone VE with base flood elevation of 18 feet. The stairs, landing and retaining wall are within this plain, although the two houses on the property are above the flood elevations at 19 and 23 feet respectively. The stairs, landing and retaining wall are subject to wave conditions by high energy storm surf in the winter season from North Pacific storms. The retaining wall, stairs and landing have been examined and determined to be stable under possible severe wave conditions by a certified, licensed structural and civil engineer, Joe Jeffrey Cudiamat. (Appendix A for engineering report)

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

The applicant's property is one of eight homes along a private road. The beach cannot be seen from the highway in this area. The retaining wall, stairs and landing do not affect any view planes laterally and the structures do not extend above ground level on the property which is 15 feet. There is no impact on the public access north or south of the property and the structures will not be seen from those locations.

13. *"Requires substantial energy consumption"* –

The structures have been in place approximately 15 years, so no significant energy will be expended or consumed, nor is there any long-term commitment to energy use.

Based on the analysis of the 13 significance criteria listed above, the proposed action is not expected to result in significant adverse environmental impacts. There are no environmental impacts related to the applicant obtaining a shoreline setback variance and after-the-fact building permits. A Finding of No Significant Impact is anticipated.

## **9.0 Conclusions:**

Structures within the shoreline setback can potentially affect physical, biological and ecological characteristics of a shoreline as well as property values and community considerations. The impact can be both beneficial and adverse depending on a variety of factors, such as placement location, structure type, seasonal changes in wave and beach form and the density of the structure. (O’Connell) The applicant’s legal non-conforming structure originally built in 1924 predates the regulations governing shoreline setbacks. The applicant’s retaining wall is located well back from the surf zone unless there is an extreme high surf event. It does not limit the public’s use or enjoyment of the beach or significantly affect the beach processes. Nor do the structures significantly impact any biological or near shore marine processes or environment. Without the protection of the retaining wall, the legal non-conforming structures would be subject to direct erosion from high surf events, flank erosion from the proximity to the neighboring vertical CRM wall and scouring. This would result in damage to the foundation and potential loss of the house structure and deck which would deprive the applicant the use of his house and property and would cause significant hardship. In addition debris and sediment loss could damage the near shore environment and be a danger to the public. The applicant qualifies under the ROH §23-1.8 3 (b) definition of hardship. Thus, a Finding of No Significant Impact (FONSI) is anticipated for this environmental assessment and the best proposed solution to the notice of violation is after-the-fact shoreline setback variance and building permits.

## **10.0 Public Agency Involvement, Review and Consultation**

### **City and County of Honolulu**

Department of Planning and Permitting- Jiro Sumada, James Peirson, John “Mike” Friedel, Art Challacomb, Steve Chung, and Lester Hirano- meeting 11-1-13.

Office of Conservation and Coastal Lands – phone conversation Sam Lemmo (November 28, 2012)

### **Preparers/Consultants:**

Document preparation and technical research was done by: Dr. Janine K. Seymour

Engineering and Appendix A were prepared by: Joeffrey Cudiamat, S.E., P.E.

Dave Robichaux Environmental Consultant

### **References:**

AECOS, Inc., 1979, *Oahu Coral Reef Inventory*, prepared for the U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii.

AECOS, Inc., 1981, *Oahu Coastal Zone Atlas*, prepared for the U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii.

Baker, J.D., A.L. Hartig, T.A. Wurth and T.C. Johanos (2011) Dramatic Shifts in Hawaiian Monk Seal Distribution Predicted from Divergent Regional Trends. *Marine Mammal Science*, 27 (1); 78-93.

Brainard, R., D. Gulko, C. Hunter, A. Friedlander, R. Kelty and J. Maragos. 2002. Status of Coral Reefs in the Hawaiian Archipelago. In *Status of Coral Reefs of the World*. 14 pp.

Bunton, George W., 1966, *The Tides*, Honolulu Bishop Museum Press.

Caldwell, P.C., S. Vitousek, and J.P. Aucan. 2009. *Frequency and Duration of Coinciding High Surf and Tides along the North shore of Oahu, Hawaii, 1981-2007*. *Journal of Coastal Research*. Vol. 25 (3) p.734-743.

Clark, John R.K., 1977, *The Beaches of Oahu*, The University Press of Hawaii

Department of Planning and Permitting. 2011. *North Shore Sustainable Communities Plan*. City and County of Honolulu.

DLNR Land Division Coastal Lands Program. 2005. *Hawaii Coastal Erosion Management Plan (COEMAP)*. Department of Land and Natural Resources, State of Hawai'i.

Firing and Merrifield. 2004. *Extreme Sea Level Events at Hawaii: Influence of Mesoscale Eddies*. Department of Oceanography, University of Hawaii at Manoa. *Geophysical Research Letters*, Vol. 31 L24306.

Fletcher, Grossman, Richmond, Gibbs. 2002. *Atlas of Natural Hazards in the Hawaiian Coastal Zone*. U.S. Geologic Survey.

Fletcher, Romine, Barbee, Lim, and Vinson. 2009. Coastal Information, Oahu Erosion Maps. University of Hawaii Coastal Geology Group School of Ocean and Earth Science and Technology.  
<http://www.soest.hawaii.edu/asp/coasts.oahu>

Fletcher, C.H., Romine, B.M., Genz, A.S., Barbee, M.M., Dyer, Matthew, Anderson, T.R., Lim, S.C., Vitousek, Sean, Bochicchio, Christopher, and Richmond, B.M., 2012, National assessment of shoreline change: Historical shoreline change in the Hawaiian Islands: U.S. Geological Survey Open-File Report 2011–1051, 55 p. (Also available at <http://pubs.usgs.gov/of/2011/1051>.)

Friedlander, A.M., Brown, E., Monaco, M.E., and Clark, A. 2006. *Fish Habitat Utilization Patterns and Evaluation of the Efficacy of Marine Protected Areas in Hawaii: Integration of NOAA Digital Benthic Habitats Mapping and Coral Reef Ecological Studies*. Silver Spring, MD.

Haraguchi, Paul, 1979, *Weather in Hawaiian Waters*, Pacific Weather, Inc., Honolulu, Hawaii.

<http://www.soest.hawaii.edu/coasts/sealevel/>; Sea level Rise: Hawaii's Changing Climate.

Hwang, Dennis, 1981, *Beach Changes on Oahu as Revealed by Aerial Photographs*, Hawaii Institute of Geophysics, University of Hawaii.

Hwang, Dennis, Fletcher, Charles H., 1992, *Beach Management Plan with Beach Management Districts*, prepared for Hawaii Coastal Zone Management Program, Office of State Planning, Office of the Governor, State of Hawaii.

Jokiel, P., E.K. Brown, A. Friedlander, S.K. Rodgers, and W.R. Smith. 2001. Hawaii Coral Reef Initiative: Coral Reef Assessment and Monitoring Program (CRAMP) Final Report, 1999-2000. Prepared for Hawai'i Coral Reef Initiative, University of Hawaii, and NOAA National Ocean Service.

Juvik and Juvik. 1998. *Atlas of Hawai'i*, Third Edition. University of Hawai'i Press, Honolulu.

Kirch, P.V. 1985. *Feathered Gods and Fishhooks: an Introduction to Hawaiian Archaeology and Prehistory*. University of Hawaii Press.

Kirch, P.V. and M. Sahlins. 1992. *Anahulu: The Anthropology of History in the Kingdom of Hawaii, volume 2: The Archaeology of History*. University of Chicago Press.

Loomis, Harold G., 1979, *A Primer on Tsunamis Written for Boaters in Hawaii*, prepared for NOAA.

Maly, K. 2000. *Nā Honokōhau: Nā Hono I Nā Hau 'Elua* (Honokōhau: Bays of the Two Wind-born Dews), 2 Vols. Hilo: Kumu Pono Associates.

Moberly, R., D.C. Cox, T. Chamerlain, F.W. McCox and J.F. Campbell. 1963. *Coastal Geology of Hawaii*.

NOAA (2012) *Global Sea Level rise Scenarios for the United States National Climate Assessment*; NOAA Technical Report OAR CPO-1. Silver Springs, Maryland.

North Shore Sustainable Communities Plan 2011;

O'Connell, J.F., 2010, Shoreline armoring impacts and management along the shores of Massachusetts and Kauai, Hawaii , Shipman, H., Dethier, M.N., Gelfenbaum, G., Fresh, K.L., and Dinicola, R.S., eds., 2010, Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop, May 2009: U.S. Geological Survey Scientific Investigations Report 2010-5254, p. 65-76.

Pollock, James B., 1928, *Fringing and Fossil Coral Reefs of Oahu*, Bernice P. Bishop Museum Press, (reprint 1971).

Sea Engineering, 1989, *Oahu Shoreline Study, Part 2, Management Strategies*, prepared for City and County of Honolulu, Department of Land Utilization.

USDA Soil Conservation Service (U.S. Department of Agriculture Soil Conservation service). 1972. *Soil Survey of the Island of Kauai, O`ahu, Maui, Molokai, and Lanai, State of Hawai`i*. In cooperation with the University of Hawai`i Agricultural Experiment Station

Vitousek, S. and C.H. Fletcher. 2008. *Maximum Annually Recurring Wave Heights in Hawaii*. *Pacific Science* 62(4): 541-553.

**COASTAL ENGINEERING EVALUATION FOR  
SHORELINE SETBACK VARIANCE APPLICATION**

TMK:6-1-012:021  
61-357 Kamehameha Highway  
Haleiwa, Oahu, Hawaii

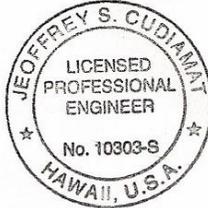
May 2007  
(updated 2013)

*Prepared by:*

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THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.

*Joeffrey Cudiamat* 4/30/08  
Signature Expiration Date of License

**APPENDIX A: COASTAL ENGINEERING**

**Prepared By:**



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## I. REFERENCES

- a. *Oahu Coral Reef Inventory*, prepared for the U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii, AECOS, Inc., 1979.
- b. *Oahu Coastal Zone Atlas*, prepared for the U.S. Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii, AECOS, Inc., 1981.
- c. *EM 1110-2-1100, Coastal Engineering Manual*, U.S. Army Corps of Engineers, April 30, 2002. (Supersedes *Shore Protection Manual*, U.S. Army Corps of Engineers, Coastal Engineering Research Center, 1984.
- d. *EM 1110-2-1614, Design of Coastal Revetment, Seawalls, and Bulkheads*, U.S. Army Corps of Engineers, June 30, 1995.
- e. *Design Analysis for Riprap Shore Protection Revetment at 55-295 Kamehameha Highway, (TMK 5-5-02:05), Laie, Oahu, Hawaii*, Sea Engineering, Inc., March 3, 2005.
- f. *Weather in Hawaiian Waters*, Pacific Weather, Inc., Honolulu, Hawaii, Haraguchi, Paul, 1979.
- g. *Beach Changes on Oahu as Revealed by Aerial Photographs*, Hawaii Institute of Geophysics, University of Hawaii, Hwang, Dennis, 1981.
- h. *Beach Management Plan with Beach Management Districts*, prepared for Hawaii Coastal Zone Management Program, Office of State Planning, Office of the Governor, State of Hawaii, Hwang, Dennis, Fletcher, Charles H., 1992.
- i. *Hawaii Coastal Hazard Mitigation Guidebook*, prepared for: Office of Conservation & Coastal Lands, DLNR, COEMAP, State of Hawaii; University of Hawaii Sea Grant College Program School of Ocean and Earth Science and Technology, University of Hawaii; Pacific Services Center, Coastal Services Center, NOAA, Hwang, Dennis, 2005.
- j. *Tsunami Wave Runup Heights in Hawaii*, Hawaii Institute of Geophysics, University of Hawaii and Joint Tsunami Research effort Pacific Marine Environmental Laboratory Environmental Research Laboratories, NOAA, Loomis, Harold G., 1976.

- k. *A Primer on Tsunamis Written for Boaters in Hawaii*, prepared for NOAA, Loomis, Harold G., 1979.
- l. *Fringing and Fossil Coral Reefs of Oahu*, Honolulu Bishop Museum Press, Pollock, James B., 1946.

## II. LOCATION AND GENERAL DESCRIPTION

This report has been prepared to accompany a Shoreline Setback Variance application to the City and County of Honolulu, Department of Planning and Permitting for 'as is' approval of CRM stairs, landing and moss rock retaining wall on a property located at 61-357 Kamehameha Hwy. The property is located on the makai (ocean) side of the highway and is part of Kawailoa Beach lots. It is located down a small private road off the highway in a development of single family homes. The property is located approximately 450 feet south of the public beach access of Leftovers. (Figure 1)

The property was purchased by the applicant in June, 2004. At that time, the CRM stairs, landing and moss rock retaining wall were in place. It was not disclosed to the applicant that these structures were non-permitted. On June 23, 2006, applicant received a notice of violation of CRM seawall, CRM stairway and landing. The shoreline certification map, dated October 24, 2000, shows the structures, walls and pipes located on the property. (Figure 2) There are two small houses on the property. The structure on the south side of the property that from now on will be designated as 'guesthouse', and attached deck are legal nonconforming structures, as part of the guesthouse and all of the deck are located within the shoreline setback area. The retaining wall is located directly below the deck. Attached and adjacent to the retaining wall are the CRM stairway and landing. The foundation of the house is within 13 feet of the seawall on one side and 15 feet on the other. According to the shoreline survey done by James R. Thompson and Andrew Bohlander (DLNR), the moss rock retaining wall, CRM stairway and landing are *mauka* (landward) of the shoreline.

As stated previously, the property is part of Kawailoa Beach lots and is located 450 feet south of the public access, Leftovers and 1/2 mile north of Kawailoa Beach Park. The shoreline ranges 60-80 feet wide at the makai side of the property and is made up of calcareous sand and exposed beach rock, fronted by a shallow fringing reef. It has a natural history of erosion, particularly to the south of this property. The two properties to the north and the two properties to the south of this property all have shoreline protective devices either in the form of rock revetment or CRM seawall. (Figure 8).

There is a layer of Waialua silty clay under the sand. Under typical conditions, this layer of clay is covered with a layer of sand. Waialua silty clay is present on smooth coastal plains. The surface layer is dark reddish-brown silty clay about 12 inches thick and the sub layer is about 26 inches thick in a sub angular blocky structure. (USDA Soil Survey 1972) (Figures 19, 20) Because of difficulties during construction to dredge through the clay, the retaining wall is anchored directly to the clay with dowels and mortar. The moss rock retaining wall is made up of blue rock weighing about 25 to 150 pounds (median weight of 80) and is 6' high from the north end of the wall to the south end. Full height CRM buttresses spaced approximately 5' on center behind the wall provide additional support from horizontal forces induced from high waves. Backfill behind the wall is approximately 3' to 4' above the foot of the wall. The 16"-wide moss rock wall supports the beach-side edge of the exterior, open deck located at the rear of the dwelling while the exterior deck is supported on posts and piers at interior bays. This moss rock wall protects the existing deck and house structure from tidal forces during periods of high wave action. Weep holes are present in the moss rock wall to allow any water collected behind the wall to be discharge to the beach. At the toe of the moss rock wall is a CRM landing (approximately 2-foot high and 3-feet wide) connected to a stair also constructed of rock, rebar and mortar. This built-up landing, coupled with an existing large lava rock bed in front of the wall, provides additional sliding resistance at the base of the moss rock wall. This continuous horizontal landing helps protect against possible damage to the wall due to scour and undercutting of the toe. Wave forces are dissipated when it hits raised rock landing. (Figure 18)

Because of the locations, legal nonconforming structures of guesthouse and deck, protection from erosion is essential to prevent undermining of the foundation of the guesthouse and damage to the deck creating a potentially dangerous situation. Also, safe access to the beach is essential as the applicant is visually handicapped. The applicant is striving to minimize any potential erosion or damage to the neighboring property to the south, and is keeping in consideration the impact of such structures on the environment, shoreline, beach and marine life. The applicant and preparers have taken under consideration information from the Oahu Shoreline Study Part 1 & 2, COEMAP and "North Shore Sustainable Communities Plan", Land Use Principle and Guidelines in making this report and will show how it meets the criteria for shoreline setback variance in Chapter 23, Revised Ordinances of Honolulu. Thus, the applicant is asking for 'as is' approval for CRM seawall, stairway and landing for shoreline setback variance.

### **III. GENERAL WAVE AND WATER LEVEL CONDITIONS**

The coast is directly exposed to prevailing winds and large winter season north swell waves generated by north Pacific storms.

North swell, which is primarily from the northwest, can occur any time of the year, but is most common during the months of October through March. The shoreline is protected from large wave forces by a wide and shallow fringing reef fronting the shoreline. Large waves break offshore, and then reform and continue shoreward as smaller waves. Wave breaking and reforming may occur several times before the wave finally expends its remaining energy on the shore. Waves reaching the shore are limited by the near-shore water depth, and on a wide and shallow reef, wave heights are typically about 0.6 times the water depth. Winter high tides can be +1.5 to +2.0 feet above MSL, and wave setup along the shore during periods of high surf may add another 0.5 feet to the water level. Assuming a high tide of +2.0 feet, a 0.5-foot wave setup, and a water depth of -2.5 feet below MSL immediately seaward of the offshore beach, wave heights of about 3 feet can be expected to break on the offshore beach. Wave heights at the beach would be less than 3 feet; however, severe storm and hurricane conditions near the project site could result in higher water levels and larger waves.

General tide data taken from EM 1110-2-1100 for the site is as follows, based on a mean lower low level (MLLW) datum:

Mean Higher High Water	1.90
Mean High Water	1.40
Mean Sea Level	0.8
Mean Tide Level	0.80
Mean Low Water	0.20
Mean Lower Low Water	0.00

Translating the data to values based on a mean sea level (MSL) datum:

Mean Higher High Water	1.10
------------------------	------

Mean High Water	0.60
Mean Sea Level	0.0
Mean Tide Level	0.00
Mean Low Water	-0.60
Mean Lower Low Water	-0.80

**IV. DESIGN WAVE HEIGHT AT TOE OF MOSS ROCK WALL (EM 1110-2-1614)**

Site Parameters:

Bottom slope seaward of structure,  $m$ : 1V to 20H

Water depth at structure of toe: +7 MSL

(taken from survey by James Thompson, PLS, dated May 28, 2013)

Still water level rise above MSL:

Tide (MHHW): +1.10 MSL

Wave setup: +0.50 MSL

Total design water depth,  $d_s$ : -2.40 MSL; however, assume +1.0 MSL

Wave period,  $T$ , of shallow water

Reformed wave on the reef flat: 6 seconds (ASSUMED)

Wave height,  $H$ , (EM 1110-2-1614, Fig. 2-2):

$$d_s/(gT^2) = 0.00086$$

For  $m=1:20$ ,  $H/d_s=1.05$ ;      Therefore,  $H = 1.05 \times 1.0 = 1.05'$

**V. VERIFY MOSS ROCK WALL DESIGN (EM 1110-2-1614)**

Required Individual Armor Unit Weight:

$$W = \frac{K_r H^3}{[K_D (\frac{K_r}{K_w} - 1)^3 \cot^2 \phi]} = 18 \text{ lbs.}; \text{ however, use 25 lbs.}$$

*Note: Stones used are approximated at 25 lbs to 150 lbs. The toe of wall is protected from scour and undermining by a 1-foot high x 3-foot wide CRM apron landing.*

The applicant’s property is zoned VE which corresponds to level of base flood elevation of 18 feet above sea level. “The floor of the legal nonconforming portion of the ‘guesthouse’ was raised to 19 feet above sea level when renovations were done in 2000 to conform to FEMA flood standards.” The permitted renovation of the legal non-conforming house conforms to the ordinance of Coastal high hazard district ROH Sec. 21-9.10-7. The legal non-conforming deck, retaining wall, stairs and landing are also constructed according to ROH Sec.21-9.10-7(b)(B)and (C), and are anchored in the Waialua clay with dowels, mortar and rebar with reinforcing buttresses to resist flotation, collapse, and lateral movement due to water forces. In addition the existing retaining wall stairs and landing do not affect regulatory flood or aggravate existing flood- related erosion hazards. (refer figure 3, 4)

**Figure 19: Diagram of Moss rock retaining wall, CRM stairs and landing**





**APPENDIX B:**

**Shoreline Survey as of May 28, 2013,**

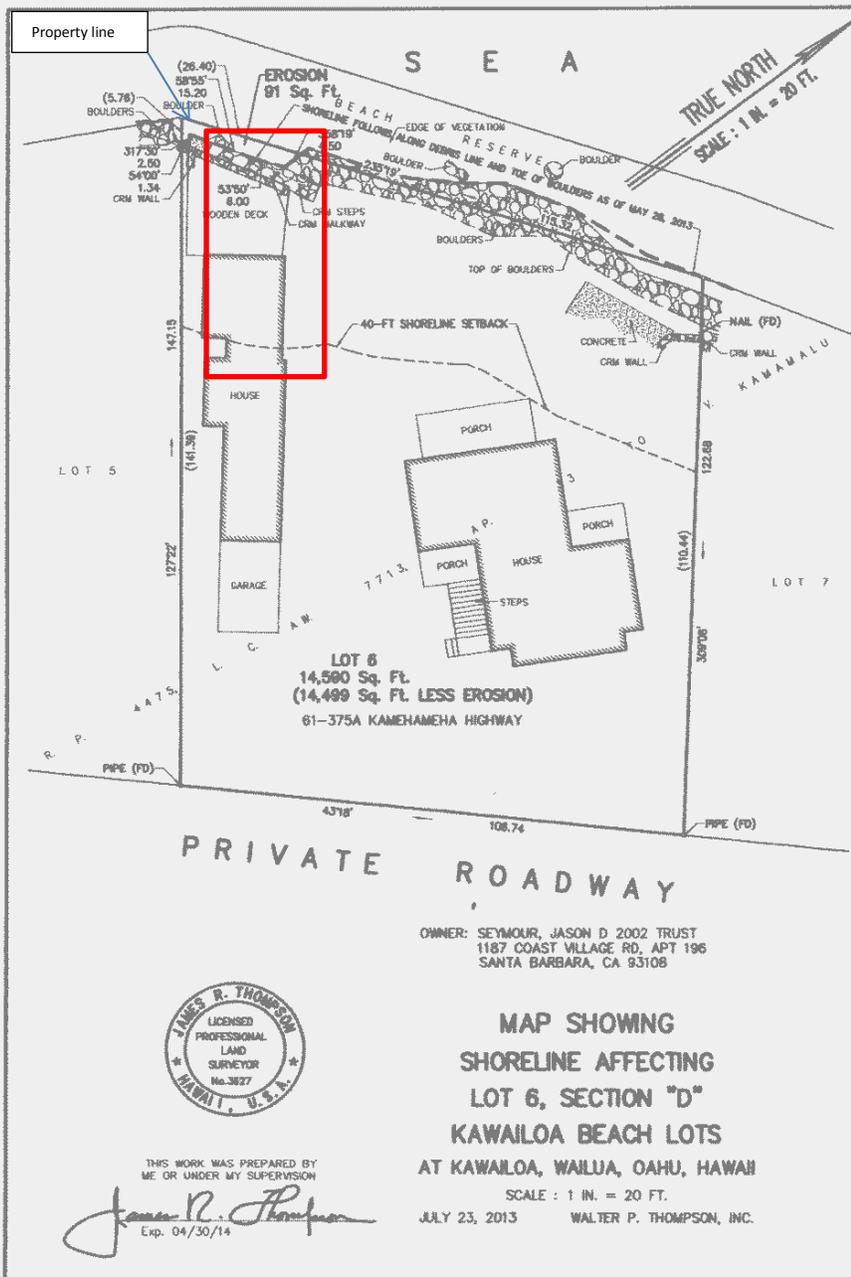
**Architectural Site Plan Including 2013 Shoreline,**

**2000 Certified Shoreline Survey,**

**Photographs of stairs from 1986 and 1996,**

**Landscape Plan**

12.2.1 2013 Shoreline Survey



96186c01.dwg/1604.89/gsp/20130328

TAX MAP KEY : 6 - 1 - 12 : 21

10" x 15" = 1.04 Sq.Ft.





12.2.4 Photographs of stairs from 1986 and 1996



March 14, 1986



November 18, 1996

*Source: Department of Planning and Permitting*



**APPENDIX C**

**LETTERS AND CORRESPONDANCE**



**OFFICE OF PLANNING  
STATE OF HAWAII**

230 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

NEIL ABERCROMBIE  
Governor

JESSE K. SOUKI  
DIRECTOR  
OFFICE OF PLANNING

Telephone: (808) 587-2845  
Fax: (808) 587-2824  
Web: <http://planning.hawaii.gov>

Ref. No. P-14156

October 31, 2013

Ms. Janine K. Seymour  
1187 Coast Village Road #196  
Santa Barbara, California 93108

Dear Ms. Seymour:

Subject: Hawaii Revised Statutes Chapter 343, Draft Environmental Assessment,  
Request for After-the-Fact Shoreline Setback Variance, 61-357 Kamehameha  
Highway – Kawaiiloa, Oahu, Tax Map Key: (1)6-1-012: 021

Thank you for the opportunity to provide comments on the Draft Environmental  
Assessment (EA) for the subject project at Kawaiiloa, Oahu.

The purpose of the subject project is to retain the after-the-fact moss rock retaining wall,  
concrete rock masonry (CRM) stairs and landing within the 40-foot shoreline setback.  
According to the Draft EA, pages 6 and 36, all these structures have been in place since  
approximately 1996, prior to the applicant's purchase of the property. The applicant is  
requesting an after-the-fact shoreline setback variance.

The Office of Planning has reviewed the Draft EA and has the following comments.

1. Hawaii Revised Statutes (HRS) Chapter 205A requires all state and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Final EA should include an assessment as to how the subject project conforms to each of the CZM objectives and policies set forth in HRS §205A-2.
2. The Draft EA, page 37, states that, "According to Hawaii Revised Statutes §205A-2, Coastal Zone Management Policies and Objectives under section (9)(B), *Prohibit the construction of private erosion-protection structures seaward of the shoreline except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities*. The applicant's retaining wall, stairs and landing are *mauka* of the shoreline and are consistent with these policies." However, the retaining wall and landing as the engineering solution to erosion at the site may eventually stop the migration of the shoreline and harden the shoreline. The Final EA should provide an assessment on potential beach loss which may be caused by the subject project.

3. The Draft EA, page 41, states that the subject project meets the conditions set forth in Section 23-1.9, Revised Ordinances of Honolulu. The Final EA should address as to how the after-the-fact retaining walls, stairs, and landing within the 40-foot shoreline setback will conform to appropriate conditions set forth in HRS §205A-46(c), as follows: (1) to maintain safe lateral access to and along the shoreline or adequately compensate for its loss; (2) to minimize risk of adverse impacts on beach processes; (3) to minimize risk of structures failing and becoming loose rocks of rubble on public property; and (4) to minimize adverse impacts on public views to, from, and along the shoreline.
4. Exterior lighting or lamp posts associated with the subject project shall be cut-off luminaries to provide the needed shielding to lessen possible seabird strikes, and to ensure that lighting is not directed to travel across property boundaries toward the shoreline and ocean waters, pursuant to HRS §§205A-71 and 205A-2(c)(10).

If you have any questions regarding this comment letter, please contact Leo Asuncion, Coastal Zone Management Program Manager, at (808) 587-2846.

Sincerely,



Jesse K. Sotki  
Director

c: Mr. George I. Atta,  
Department of Planning and Permitting, City and County of Honolulu

Janine K. Seymour  
P.O. Box 14001 – 196  
Ketchum, ID 83340

Jesse Souki  
Director Office of Planning  
State of Hawaii  
P.O. Box 2359  
Honolulu, HI 96804

November 19, 2013

Dear Mr. Souki,

Thank you for your time and attention in reviewing the Draft Environmental Assessment for the property at Kawailoa, Oahu. Please see my responses to the questions you raised. The answers and information are also being incorporated into the final Environmental Assessment.

1. ***Hawaii Revised Statutes (HRS) Chapter 205A requires all state and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Final EA should include an assessment as to how the subject project conforms to each of the CZM objectives and policies set forth in HRS §205A-2.***

Hawaii Revised Statutes §205A-2 Coastal Zone Management Program objectives and policies include:

1. *Recreational Resources*

- b. *Provide coastal recreational opportunities accessible to the public:*

The beach in the area in front of the applicant's property is 60-80 feet wide. As described in section 3.12.2 in this document, traditional cultural practices of throw net fishing and surfing take place on Kawailoa Beach. The only time the beach is not accessible for these activities and any others is when there is dangerous high surf and the beach is closed to the public for safety reasons. High Surf warnings occur when the threat to life property are imminent. During these occasions, the lifeguards string up yellow caution tape and the beaches are closed to the public. The lateral access to the beach is in no way impeded by the retaining wall, stairs or landing. Beach activities are only limited by the naturally occurring high surf and subsequent dangerous shorebreak and currents that result.

2. *Historic resources:*

- a. *Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

There are no manmade or historic resources on the applicant's property in the location of the retaining wall, stairs and landing. Keeping the structures in place will prevent any further disturbance of the soil and dirt in the area.

3. *Scenic and Open Space Resources:*

- a. *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources:*

The retaining wall stairs and landing are constructed of dark black basalt rock which is consistent with the color and type of beach rock found on this stretch of Kawailoa Beach. Aesthetically these structures

blend in with the naturally occurring rocks on the beach. If they were to be removed, debris, trash and would accumulate under the legal nonconforming deck and would be less attractive to look at. In addition, erosion and dirt debris would contaminate the beach and affect the natural resource if these structures were removed.

4. *Coastal Ecosystems:*

- a. *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

As described in prior paragraphs in this document, leaving the structures of the retaining wall, stairs and landing in place would have the least environmental impact on the coastal and shoreline ecosystems. Without these structures under periods of high surf (30-40 feet) there would be significant erosion of dirt under the applicant's legal nonconforming house and deck. This would result in increased silt and soil in the nearshore waters which would increase turbidity and potentially negatively impact the reef and coastal ecosystems.

5. *Economic Uses:*

- a. *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

The structures in question have no negative impact on the State's economy.

6. *Coastal Hazards:*

- a. *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Permitting and allowing the structures of the retaining wall, stairs and landing are in complete alignment with this policy. These structures protect the applicant's legal non-conforming structures on his property and other legal structures in cases of storm waves and tsunamis and prevent erosion. The retaining wall is only contacted by waves with any impact during unusual high surf conditions with surf at 50 feet or significant tsunamis such as the Japan tsunamis in 2011. The structures were built with rebar and designed to withstand significant wave impact and not crumble.

7. *Managing Development:*

- a. *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

The applicant is not seeking to add any new structures into the shoreline area, just trying to correct what the previous owner did by requesting after the fact building permits for these structures.

8. *Public Participation:*

- a. *Stimulate public awareness, education and participation in coastal management.*

There is no conflict with allowing after the fact building permits for the retaining wall, stairs and landing and this policy. As part of the environmental assessment process, the public is allowed to make comments and ask questions.

9. *Beach Protection:*

- a. *Protect beaches for public use and recreation*
- b. *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
- c. *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

As stated above under section 1(A), the retaining wall, stairs and landing in no way impede the public's ability to access or use the beach for recreation. In addition, the structures are mauka, not seaward of the shoreline. However, beach erosion and sand movement are a serious concern. Erosion studies of Kawaihoa Beach with data recording the site of the shoreline have been ongoing since 1910, over 100 years. (See section 3.4.5) The shoreline in front of the applicant's property has not shown any significant

long-term erosion since 1910. (Hwang 1981; SOEST 2010) Each of the neighboring properties, 2 to the north and 2 to the south have over 100 foot long vertical sea walls or rock revetments that have been in place over 40-50 years. Minimal long-term erosion has occurred from those structures. The retaining wall and landing are only 20 feet in length and are highly unlikely to contribute significantly to any additional erosion. According to SOEST studies, short-term erosion can be serious danger to beach front property owners and occurs from the large winter swells along this stretch of beach. (SOEST 2010) The retaining wall, stairs and landing were constructed by the previous owner sometime during 1996-1999. The data from 1910 to the most recent survey 2010 do not show any significant impact of these structures on beach erosion or sand migration. The structures have been in place for approximately 15 years with no significant impact to sand migration or contributing to beach erosion. During the time period the structures have been in place, there have been 50 foot swells on several occasions (see section 3.4.3) and tsunamis' (see section 3.4.4). Seasonal sand migration continues to occur without disruption and the structures are not impeding sand movement. The only time the structures are in significant contact with the ocean is when the surf is over 40 feet. They are not located in the swash zone nor do they affect the day to day natural beach processes. The large winter swells cause the greatest short-term seasonal beach changes, with no evidence so far of any long term erosion due to the retaining wall stairs or landing according to the SOEST erosion mapping and data. During these extreme wave events, often times the beaches on the North Shore are closed to the public for safety reasons. These structures do not limit the public's use of the beach for traditional or recreational activities in any way. However, the structures do protect the applicant's house from damage and erosion from extreme high surf events.

10. *Marine Resources:*

- a. *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

The structures located on the applicant's property do not impede the use of the beach or any marine activities. If these structures were to be removed, then erosion would occur with dirt and silt impacting the coastal and marine environment causing a negative impact.

2. ***The Draft EA, page 37, states that, " According to Hawaii Revised Statutes §205A-2, Coastal Zone Management Policies and Objectives under section (9)(B), 'Prohibit the construction of private erosion-protection structures seaward of the shoreline except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities:' The applicant's retaining wall stairs and landing are mauka of the shoreline and are consistent with these policies." However, the retaining wall and landing as the engineering solution to erosion at the site may eventually stop the migration of the shoreline and harden the shoreline. The Final EA should provide an assessment on potential beach loss which may be caused by the subject project.***

Please see the response above under section 9 of Coastal Zone Management Policies and Objectives.

3. ***The Draft EA, page 41, states that the subject project meets the conditions set forth in Section 23-1.9, Revised Ordinances of Honolulu. The Final EA should address as to how the after -the-fact retaining wall, stairs, and landing within the 40-foot shoreline setback will conform to***

***appropriate conditions set forth in HRS §205A-46(c), as follows: (1) to maintain safe lateral access to and along the shoreline or adequately compensate for its loss; (2) to minimize risk of adverse impacts on beach processes; (3) to minimize risk of structures failing and becoming loose rocks of rubble on public property; and (4) to minimize adverse impacts on public views to , from, and along the shoreline.***

Section 23-1.9 sets forth that no variance shall be granted unless appropriate conditions are imposed:

- (e) *To maintain safe access to and along the shoreline or adequately compensate for is loss;*
- (f) *To minimize risk of adverse impacts on beach processes*
- (g) *To minimize risk of existing legal or proposed structures falling and becoming loose rocks or rubble on public property; and*
- (h) *To minimize adverse impacts on public views to, from and along the shoreline.*

The preferred and best practicable alternative of legalizing the moss rock retaining wall, CRM stairs and landing meet the above conditions. Lateral access to the beach is no way impeded. The sandy beach is 60-80 feet wide in front of the applicant's property. When there are large waves that would contact the structures, there is a high surf warning and the beaches are closed to the public for safety reasons.

Beach erosion is followed closely by SOEST. Aerial photographs and surveys documenting beach erosion are ongoing with data from 1910 on Kawaihoa Beach. According to the data from SOEST, "Chun's and Leftovers Beaches (transects 61-133) have been approximately stable since 1910 at an average (+)0.1ft/yr. Some long-term accretion may be occurring in the South of Chun's Beach (see transect 61) but uncertainty with these rates is high and may be influenced by seasonal accretion in the July 2006 shoreline." Thus, long-term beach erosion is low along this stretch of beach and there has been no significant impact on beach erosion by the structures over the last 15 years. In addition as stated above, other rock revetments and vertical sea walls that are much larger in scale and are contiguous to the applicant's property have been in place over 40-50 years and long-term erosion rates have continued to be low even with the presence of these structures. The size and scale of the applicant's retaining wall and landing is extremely unlikely to contribute significantly to any changes in beach processes. However, according to the SOEST studies, short-term seasonal shoreline changes can be dramatic due to large winter swells and can be a significant hazard to beach-front homes. Allowing the present structures to remain will have the least impact on shoreline processes. Removal of the structures will increase erosion of the applicant's property contributing to contaminated runoff with dirt and debris that will impact the near shore waters, reef and beach to a greater extent than the existing structures.

The retaining wall, stairs and landing were engineered and constructed from moss rock, concrete and dowel. Full height CRM buttresses (4' x1.5') spaced 5' on center behind the retaining wall provide additional support from horizontal forces induced from high waves. At the toe of the moss rock wall is a CRM landing (approximately 2-foot high and 3-feet wide) connected to a stair also

constructed of rock, rebar and mortar. This built-up landing, coupled with an existing large lava rock bed in front of the wall, provides additional sliding resistance at the base of the moss rock wall. This continuous horizontal landing helps protect against possible damage to the wall due to scour and undercutting of the toe. Wave forces are dissipated when it hits raised rock landing. These structures are well constructed to withstand significant wave forces. If however, there is some sort of catastrophic event that results in the breakdown of the wall, the property owner would clean up any debris or rubble, but it is unlikely to occur with the usual winter surf or even more unusual surf with waves up to 50+ feet.

There is no adverse impact on the environment or public views by the existing structures. The materials used to construct the retaining wall, stairs and landing are consistent visually and aesthetically to the surrounding beach rock and thus, not a negative impact to the view plane. Without the structures, trash and debris would accumulate under the deck resulting in a less pleasant view for the public.

Without the retaining wall, stairs and landing safe access to the shoreline would be denied to the applicant, erosion would take place and there would be a high risk that the legal deck and house structures could become loose rubble and debris impacting the beach environment. Thus, granting the after-the-fact shoreline setback variance and leaving the retaining wall, stairs and landing in place is the best practicable alternative that meets the criteria set forth in the Revised Ordinances of Honolulu Chapter 23.

***4. Exterior lighting or lamp posts associated with the subject project shall be cut-off luminaries to provide the needed shielding to lessen possible seabird strikes, and to ensure that lighting is not directed to travel across property boundaries toward the shoreline and ocean waters, pursuant to HRS §205A-71 and 205A-2(c)(10).***

There are no exterior lights that shine toward the beach or are not shielded associated with the subject project.

Thank you for reviewing the DEA. The following comments will be incorporated into the Final EA. If you have further questions or need more information, please contact me by email at [j9md@hotmail.com](mailto:j9md@hotmail.com).

Sincerely,

*Janine K. Seymour*

Janine Kaufman Seymour, MD

Cc: Malyne Simeon Department of Planning and Permitting



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 3328  
HONOLULU, HI 96801-3328

LORETTA J. FLODY, A.C.S.M., M.P.H.  
DIRECTOR OF HEALTH

11111 JOAN WALKER  
13-204  
Seymour Residence

November 6, 2013

Ms. Janine K. Seymour  
1187 Coast Village Road #196  
Santa Barbara, California 93108

Dear Ms. Seymour

**SUBJECT: Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment  
Jason D. Seymour, 61-357 Kamehameha Highway, Kawailoa  
TMK: 6-1-12: 21, Shoreline Setback Variance**

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter dated October 16, 2013. Thank you for allowing us to review and comment on the subject document. EPO recommends that you review the standard comments at:

<http://health.hawaii.gov/epo/home/landuse-planning-review-program/>.

You are required to adhere to all standard comments specifically applicable to this application.

We have several comments in regards to this document. We are quite concerned that your document does not make any reference to climate change and anticipated sea level rise. Given the latest data, we anticipate that long term erosion rates of the beach are unstable, rather than stable as the document states on page 34. We are concerned that many of the documents you reference on page 44 are out of date given current conditions and climatic change predictions. We encourage you to review the new ORMP and factor this into your plans. Specifically, on page 23 of the 2013 ORMP the first target stated, under Management Priority #1 - Appropriate Coastal Development, is "manage retreat". This includes future strategies such as the prohibition of shoreline armoring and the encouragement of relocation of structures inland.

EPO suggests that you examine the many sources available on strategies to support the sustainable design of communities, including the:

State of Hawaii, Office of Planning: [www.planning.hawaii.gov](http://www.planning.hawaii.gov) and the new 2013 ORMP; and  
U.H., School of Ocean and Earth Science and Technology: [www.soest.hawaii.edu](http://www.soest.hawaii.edu).

We require a written response confirming receipt of this letter and any other letters you receive from DOH in regards to this submission. You may mail your response to 919 Ala Moana Blvd., Ste. 312, Honolulu, Hawaii 96814. However, we would prefer an email submission to: [epo@doh.hawaii.gov](mailto:epo@doh.hawaii.gov). We anticipate that our letter(s) and your response(s) will be included in the final document. If you have any questions, please contact me at (808) 586-4337.

Mahalo,

A handwritten signature in black ink, appearing to read "Laura Leialoha Phillips McIntyre".

Laura Leialoha Phillips McIntyre, AICP  
Manager, Environmental Planning Office

Janine K. Seymour, MD  
P.O. Box 14001-196  
Ketchum, ID 83340

Laura Leialoha Phillips McIntyre, AICP  
Department of Health: Environmental Planning Office  
919 Ala Moana Blvd., Ste. 312  
Honolulu, HI 96814  
[epo@doh.hawaii.gov](mailto:epo@doh.hawaii.gov)

Dear Ms. McIntyre,

Thank you for your time and attention in reviewing the Draft EA for the Seymour retaining wall, stairs and landing, file: 13-204. The standard comments were reviewed on the website at: <http://health.hawaii.gov/epo/home/landuse-planning-review-program/>. In regards to your comments, I will address each one.

- 1. We are quite concerned that your document does not make any reference to climate change and anticipated sea level rise. Given the latest data, we anticipate that long term erosion rates of the beach are unstable, rather than stable as the document states on page 34. We are concerned that many of the documents you reference on page 44 are out of date given current conditions and climatic change predictions.*

Climate change and Sea level rise in Hawaii:

Global sea level rise is the result of the change in the volume of water in the oceans due to changes in ocean temperature, melting and increased discharge of land-based ice (glaciers, ice caps, ice sheets), changes in run off and variation in large scale climate changes (ie: Pacific Decadal Oscillation, El Niño and La Niña). (NOAA2012) The rate of actual sea level rise (SLR) in Hawai'i (approximately 1.5 mm/yr at Honolulu and Nawiliwili) presently lags behind the global average (approximately 3.2 mm/yr) of the past two decades. This rate has been consistent over the last century and possibly longer. (SOEST) However, the global climate has changed with increased greenhouse gases and melting of polar ice caps. Some research indicates that global mean sea level will rise by 1 ft by mid-century, however, there are significant unknowns in predicting future sea level and patterns of sea level rise are not consistent worldwide. (NOAA 2012, SOEST)

In fact, estimates of future SLR variability diverge on this point. According to the IPCC AR4 models of ocean density and circulation indicate that Hawai'i falls in a zone of slightly reduced sea level change relative to the global mean. However, IPCC modeling does not take into account the effects of changing ice mass on the main ice sheets Greenland and Antarctica. (SOEST) Some more recent modeling predicts Hawaii might fall in a zone of slightly higher sea level compared to the global mean when considering the worst case scenario of ice melt. NOAA released its technical paper, *Global Sea Level Rise Scenarios for the United States National Climate Assessment*, in 2012. In this paper, the authors reviewed all the studies and data regarding SLR and projections for sea level rise. One of their conclusions was no widely

accepted method is currently available for producing probabilistic projections of sea level rise at actionable scales. (NOAA 2012) That is, there is not enough certainty in the present models to make concrete assumptions or conclusions on specific level of sea level rise for specific locations.

Other factors that influence sea level rise are the presence or absence of El Niño and La Niña patterns. Sea level rise is less when an El Niño pattern is in place due to decreased trade winds and more with a La Niña pattern when there are increased trade winds. Most recently in the Pacific, altimetry has shown an acceleration of trade winds which blow toward the western tropical Pacific (a La Niña pattern) raising sea level to the west of Hawaii. Another climate pattern that affects sea level rise is the Pacific Decadal Oscillation (PDO). (SOEST)

Coastal erosion will increase if the seas rise as projected. This will happen regardless of what structures are present or absent on the coastline and will occur as a natural process. These levels are predictions and there is a high degree of uncertainty associated with them. The range of the predictions of sea level rise is from 8 inches to 6.6 feet by the year, 2100 which is a huge range with high uncertainty.(NOAA 2012)(Woodworth 2009) With such a wide range of projections, trying to draw any meaningful conclusions as to long term future effects would be fraught with uncertainty at best and likely inaccurate. If the current facts and known accurate data are taken into account at this time the following conclusions can be made about beach erosion at Kawailoa Beach at this time.

Beach erosion and sand movement are a serious concern. Erosion studies of Kawailoa Beach with data recording the site of the shoreline have been ongoing since 1910, over 100 years. (See section 3.4.5) The shoreline in front of the applicant's property has not shown any significant long-term erosion since 1910. (Hwang 1981; SOEST 2010) "Chun's and Leftovers Beaches (transects 61-133) have been approximately stable since 1910 at an average (+)0.1ft/yr. Some long-term accretion may be occurring in the South of Chun's Beach (see transect 61) but uncertainty with these rates is high and may be influenced by seasonal accretion in the July 2006 shoreline." (SOEST 2010) Each of the neighboring properties, 2 to the north and 2 to the south have over 100 foot long vertical sea walls or rock revetments that have been in place over 40-50 years. Minimal long-term erosion has occurred from those structures. The retaining wall and landing are only 20 feet in length and are extremely unlikely to contribute significantly to any additional erosion. According to the SOEST studies, short-term erosion can be serious danger to beach front property owners and occurs from the large winter swells along this stretch of beach. (SOEST 2010) The retaining wall, stairs and landing were constructed by the previous owner sometime during 1996-1999. The data from 1910 to the most recent survey 2010 do not show any significant impact of these structures on beach erosion or sand migration. The structures have been in place for approximately 15 years with no significant impact to sand migration or contributing to beach erosion. During the time period the structures have been in place, there have been 50 foot swells on several occasions (see section 3.4.3) and tsunamis' (see section 3.4.4). Seasonal sand migration continues to occur without disruption and the structures are not impeding sand movement. The only time the structures are in significant contact with the ocean is when the surf is over 40 feet. They are not located in the swash zone nor do they affect the day to day natural beach processes. The large winter swells cause the greatest short-term seasonal beach changes, with no evidence so far of any long term erosion due to the retaining wall stairs or landing according to the SOEST erosion mapping and

data. At the present time, given the known factual information of 1.5mm/year of sea level rise, the applicant's retaining wall and landing are highly unlikely to cause or increase beach erosion in this location.

During these extreme wave events, often times the beaches on the North Shore are closed to the public for safety reasons. These structures do not limit the public's use of the beach for traditional or recreational activities in any way. However, the structures do protect the applicant's house from damage and erosion from extreme high surf events.

The following updated sources and information on climate change and sea level rise will be added to the Final EA.

Sources:

<http://www.soest.hawaii.edu/coasts/erosion/oahu/index.php>

<http://www.soest.hawaii.edu/coasts/sealevel/>

NOAA (2012) Global Sea Level Rise Scenarios for the United States National Climate Assessment; NOAA Technical Report OAR CPO-1.

Woodworth, P.L. et. al. (2009) Evidence for the Accelerations of Sea Level on Multi-decade and Century Timescales; International Journal of Climatology; Vol. 29 pg. 777-789.

- 2. We encourage you to review the new ORMP and factor this into your plans. Specifically on page 23 of the 2013 ORMP the first target stated, under Management Priority #1- Appropriate Coastal Development, is "manage retreat". This includes future strategies such as the prohibition of shoreline armoring and the encouragement of relocation of structures inland.*

The Hawaii Ocean Resources Management Plan (ORMP) was reviewed. No new construction is taking place in the applicant's proposed project. Another section under "manage retreat" is "allow flexibility in retrofitting existing structures" to maintain conservation of coastal resources. The applicant's house and deck are legal non-conforming structures that have been in place since 1924, long before any rules and regulations were in place. In 2000, the house structure underwent a legal, permitted remodel and the house was raised to conform to FEMA flood standards. The retaining wall, stairs and landing provide safe access to the beach and limit erosion. Without those structures in place, significant erosion of the foundation of the house and deck would occur under extreme high surf conditions leading to an increase in silt and turbidity in the class A marine waters, and damage to the near shore reef and wildlife. Under "manage retreat" owners would be encouraged to relocate structures inland. To require the applicant to relocate his home to behind the 40-foot setback would be impossible due to size and depth of the property and would cause extreme hardship, depriving the applicant from reasonable use of his land. The proposed action is the best practicable alternative that conforms best to the purpose of the shoreline setback regulations.

[http://files.hawaii.gov/dbedt/op/czm/ormp/ormp\\_update\\_reports/final\\_ormp\\_2013.pdf](http://files.hawaii.gov/dbedt/op/czm/ormp/ormp_update_reports/final_ormp_2013.pdf)

3. *EPO suggests that you examine the many sources available on strategies to support the sustainable design of communities, including the:  
State of Hawaii, Office of Planning: [www.planning.hawaii.gov](http://www.planning.hawaii.gov) and the new 2013 ORMP; and  
U.H. School of Ocean and Earth Science and Technology: [www.soest.hawaii.edu](http://www.soest.hawaii.edu).*

The above websites were reviewed and have been utilized and included in the Final EA. No new construction is part of the applicant's project.

Thank you for reviewing the subject DEA. If you have any further questions or need to contact me, please email me at [j9md@hotmail.com](mailto:j9md@hotmail.com).

Sincerely,

*Janine K. Seymour*

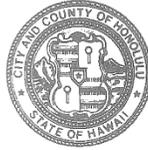
Janine K. Seymour, MD

Cc: Malynne Simeon

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 768-6041  
DEPT. WEB SITE: [www.honolulu.gov](http://www.honolulu.gov) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

KIRK CALDWELL  
MAYOR



GEORGE I. ATTA, FAICP  
DIRECTOR

ARTHUR D. CHALLACOMBE  
DEPUTY DIRECTOR

2013/ED-9 (MS)

December 2, 2013

Ms. Janine K. Seymour  
1187 Coast Village Road #196  
Santa Barbara, California 93108

Dear Ms. Seymour:

SUBJECT: Draft Environmental Assessment (EA) No. 2013/ED-9  
Existing Moss Rock Retaining Wall  
61-357 Kamehameha Highway – Waialua  
Tax Map Key 6-1-12: 21

We have reviewed the Draft EA for the above project and offer the following comments:

Planning Division Comments

1. The site is located in an area designated for "Rural Residential" and "Rural Communities" on the North Shore Sustainable Communities Plan (SCP) Land Use Map and Open Space Map, respectively. Additionally, the site is within the Community Growth Boundary as shown on both the North Shore SCP Land Use Map and Open Space Map.
2. The proposed project is not anticipated to conflict with the vision for the North Shore which is to maintain and protect open space, scenic resources, native Hawaiian heritage and cultural diversity, and agricultural past (Section 2.1) because the Applicant is requesting after-the-fact permits rather than permits for new construction.

The proposed project is not anticipated to conflict with policies and guidelines regarding residential communities (Section 3.5) and rural areas (Section 3.5.2.2) of the North Shore SCP because the property is in an area recognized as a well-established residential area in Kawaihoa.

3. The North Shore SCP discourages development or activities which result in beach loss and encourages development practices or activities such as increased shoreline setbacks which result in beach preservation or enhancement (Section 3.1.2.2). However, in this case, the Applicant is not proposing new structures or development that may negatively impact the shoreline.
4. Section 3.3.2.3 of the North Shore SCP regarding beach parks and shoreline areas seeks to limit uses within beach parks and near shore ocean area uses to preserve overall environmental quality, rural character, scenic views or development that may negatively impact the shoreline.

Ms. Janine Seymour  
December 2, 2013  
Page 2

Land Use Permit Division Comments

5. Please note that the Shoreline Setback Variance (SSV) application must include fully dimensioned and scaled plans and drawings, including elevation drawings, of all structures included in the SSV request.
6. Historic information on the coastal erosion and/or accretion rates for the shoreline in the area should be included. Previous certified shoreline surveys (2000) can be included as documentation.
7. The document you submitted states that the original wall was constructed prior to 2004. This statement must be supported with appropriate documentation in the Draft EA and that the stairs on the property since 1986, "just not this form." Please clarify what is meant by "just not this form" and provide any documentation that can help support these statements. The Final EA should clarify how long the rock wall, stairs and landing have been on the site.
8. A topographic site plan in the appendix should show the regulatory flood district boundary and related flood elevations. An adequate narrative description regarding compliance with the regulatory flood districts should also be included in the Final EA.
9. Provide more detail regarding the conditions of the shoreline along adjacent properties. The neighboring shoreline should be detailed for a half mile in each direction from the subject lot. Describe any other shoreline protection structures along the shoreline in proximity to the site, noting the type of structure (e.g., seawall, revetment, etc.), material used, and whether they are authorized structures.
10. Provide information on the Flood Insurance Rate Map (FIRM) flood districts and base flood elevations. On a map of the site, show the floodway boundaries and corresponding actual heights above MSL.
11. The Final EA should include a landscape plan of the area within the shoreline setback.
12. Include a description of how hardship will be caused to the Applicant if the subject structures are not allowed within the 40-foot shoreline setback area, relative to Section 23-1.8, Revised Ordinance of Honolulu (ROH). Justification of hardship is the single most important part of an SSV application. We suggest you review the criteria for granting an SSV under enumerated in Section 23-1.3 ROH.
13. A certified shoreline survey will be required as part of the SSV application.
14. We note that the toe of the seawall appears to encroach into the "beach reserve" which identified on several of the exhibits. The Final EA should discuss the encroachment and ownership of the beach reserve".

Ms. Janine Seymour  
December 2, 2013  
Page 3

Subdivision Branch

14. Clarify that the property is in Zone VE with a base flood elevation of 18 feet. The Final EA should indicate if the project is in compliance with floor hazard regulations. The project will be required to comply with flood hazard standards.

Please contact Malynne Simeon at 768-8023, if you have any questions.

Very truly yours,

  
George I. Atta, FAICP  
Director

GIA:nw

December 10, 2013

Dr. Janine K. Seymour  
P.O. Box 14001 – 196  
Ketchum, ID 83340

George I. Atta, FAICP  
Director of Department of Planning and Permitting  
City and County of Honolulu  
650 S. King Street, 7<sup>th</sup> Floor  
Honolulu, HI 96813

SUBJECT: Draft Environmental Assessment (EA) No. 2013/ED-9

Existing Moss Rock Retaining Wall

61-357 Kamehameha Highway – Waialua

Tax Map Key 6-1-12: 21

Thank you for your letter dated December 2, 2103, regarding the subject DEA. Each of your comments is in italics with the response underneath.

Planning Division Comments

- 1. The site is located in an area designated for "Rural Residential" and "Rural Communities" on the North Shore Sustainable Communities Plan (SCP) Land Use Map and Open Space Map, respectively. Additionally, the site is within the Community Growth Boundary as shown on both the North Shore SCP Land Use Map and Open Space Map.*
- 2. The proposed project is not anticipated to conflict with the vision for the North Shore which is to maintain and protect open space, scenic resources, native Hawaiian heritage and cultural diversity, and agricultural past (Section 2.1) because the Applicant is requesting after-the-fact permits rather than permits for new construction.*

*The proposed project is not anticipated to conflict with policies and guidelines regarding residential communities (Section 3.5) and rural areas (Section 3.5.2.2) of the North Shore SCP because the property is in an area recognized as a well-established residential area in Kawaihoa.*

3. *The North Shore SCP discourages development or activities which result in beach loss and encourages development practices or activities such as increased shoreline setbacks which result in beach preservation or enhancement (Section 3.1.2.2). However, in this case, the Applicant is not proposing new structures or development that may negatively impact the shoreline.*
4. *Section 3.3.2.3 of the North Shore SCP regarding beach parks and shoreline areas seeks to limit uses within beach parks and near shore ocean area uses to preserve overall environmental quality, rural character, scenic views or development that may negatively impact the shoreline.*

All of the above comments will be incorporated into the final EA.

#### Land Use Permit Division Comments

5. *Please note that the Shoreline Setback Variance (SSV) application must include fully dimensioned and scaled plans and drawings, including elevation drawings, of all structures included in the SSV request.*

Please refer to figures 2, 3, 4 and 4A which show scaled drawings with dimensions, height above mean sea level and elevations.

6. *Historic information on the coastal erosion and/or accretion rates for the shoreline in the area should be included. Previous certified shoreline surveys (2000) can be included as documentation.*

Please refer to section 3.4.5 in EA "erosion" for maps and data regarding coastal erosion on Kawaihoa Beach. According to the most recent published data by SOEST, "Chun's and Leftovers Beaches (transects 61-113) have been approximately stable since 1910 at an average of 0.1ft/yr. Some long-term accretion may be occurring in the south of Chun's Beach (see transect 61) but uncertainty with these rates is high and may be influenced by seasonal accretion in the July 2006 shoreline." Also, "previous studies by Hwang(1981) and Sea Engineering (1988) found little net change in the vegetation line at Kawaihoa 1949-1988 but Hwang found the water line varied by over

100 feet.” The shoreline in front of the applicant’s property corresponds to between transects 108 and 109 in figure 14. In addition, please refer to Appendix B for a site plan that includes previous shoreline surveys from 1996, 2000 and 2013. There has been no significant erosion from 2000 to 2013 according to these surveys.

7. *The document you submitted states that the original wall was constructed prior to 2004. This statement must be supported with appropriate documentation in the Draft EA and that the stairs on the property since 1986, "just not this form." Please clarify what is meant by "just not this form" and provide any documentation that can help support these statements. The Final EA should clarify how long the rock wall, stairs and landing have been on the site.*

The applicant purchased the property in 2004 and was given architectural plans, site plans and a 2000 shoreline survey that were all approved by Department of Planning and Permitting and Board of Land and Natural Resources showing the moss rock retaining wall, CRM stairs and landing. In a meeting with Art Challacomb and Steve Cheung on November 1, 2006, a photograph from November 18, 1996 documenting a set of wooden stairs from the deck to the beach was given to the applicant. The stairs were thus constructed by the previous owner, Mr. George Suman, sometime between 1996 and 2000. The applicant does not have the specific date, however the structures in question were built between November 1996 and 2000. Please refer to figure 2 and the 2000 certified shoreline survey (Appendix B).



March 14, 1986



November 18, 1996

*Source: Department of Planning and Permitting*

8. *A topographic site plan in the appendix should show the regulatory flood district boundary and related flood elevations. An adequate narrative description regarding compliance with the regulatory flood districts should also be included in the Final EA.*

Please refer to figure 11 in EA which shows the FEMA flood map for the applicant's property which is zoned VE which corresponds to level of base flood elevation of 18 feet above sea level. As documented in the draft EA on pages 9-11 and on figures 3 and 4. The legal non-conforming part of the structure of the house was renovated in 2000 and raised to 19 feet above msl to conform to the FEMA flood designation of VE with base flood elevation of 18 feet. Figures 3 and 4 show the elevation above msl of all the structures within the shoreline setback and relation to FEMA flood elevation. The permitted renovation of the legal non-conforming house conforms to the ordinance of Coastal high hazard district ROH Sec. 21-9.10-7. The legal non-conforming deck, retaining wall, stairs and landing are also constructed according to ROH Sec.21-9.10-7(b)(B)and (C), and are anchored in the Waialua clay with dowels, mortar and rebar with reinforcing buttresses to resist flotation, collapse, and lateral movement due to water forces. In addition the existing retaining wall stairs and landing do not affect regulatory flood or aggravate existing flood- related erosion hazards. Please refer to Appendix A of the engineering report and Figures 3, 4 in the EA. I will include this updated information into the final EA.

9. *Provide more detail regarding the conditions of the shoreline along adjacent properties. The neighboring shoreline should be detailed for a half mile in each direction from the subject lot. Describe any other shoreline protection structures along the shoreline in proximity to the site, noting the type of structure (e.g., seawall, revetment, etc.), material used, and whether they are authorized structures.*

Below is a table showing details of shoreline protection structures along the shoreline in proximity to the applicant's property and a map. To the north of property TMK: 61012025 is the public access and shoreline park "Leftovers". The properties without shore protection devices regularly have significant erosion and have to use emergency sandbags on a regular basis to protect their properties. All structures are authorized to the best of our knowledge. This information will be added to the Final EA.

Table of Shoreline Protection Structures Adjacent to Applicant

TMK	SHORE PROTECTION
61012025	Vertical CRM/rock seawall
61012023	Rock Revetment
61012021	Applicant's property
61012019	Vertical CRM/rock seawall
61012017	Vertical CRM/rock seawall
61012015	No seawall or revetment
61012013	No seawall or revetment
61012012	Vertical CRM/rock seawall
61008001	Vertical CRM/rock seawall

Map of shore protection devices in the proximity of the applicant's property



10. Provide information on the Flood Insurance Rate Map (FIRM) flood districts and base flood elevations. On a map of the site, show the floodway boundaries and corresponding actual heights above MSL.

Please refer to figure 11 in EA which shows the FEMA flood map for the applicant's property which is zoned VE which corresponds to level of base flood elevation of 18 feet above sea level. "The floor of the legal nonconforming portion of the 'guesthouse' was raised to 19 feet above sea level when renovations were done in 2000 to conform to FEMA flood standards. The base of the moss rock retaining wall is 11 feet above msl and the base of the landing is 10 feet above msl. The stairs range from 11'1" above msl to 15'6" above msl. The legal non-conforming deck is 16 feet above msl. (Figures 3,4)"

11. *The Final EA should include a landscape plan of the area within the shoreline setback.*

Please refer to section 3.10 for a description of the flora within the 40 foot setback. A landscape plan will be included in the final EA.

12. *Include a description of how hardship will be caused to the Applicant if the subject structures are not allowed within the 40-foot shoreline setback area, relative to Section 23-1.8, Revised Ordinance of Honolulu (ROH). Justification of hardship is the single most important part of an SSV application. We suggest you review the criteria for granting an SSV under enumerated in Section 23-1.3 ROH.*

Please refer to section 7.0 in the Draft EA, page 41-43, for a thorough discussion of ROH Section 23-1.8(b)(3) and how it applies to the applicant's property.

13. *A certified shoreline survey will be required as part of the SSV application.*

A waiver will be obtained for the certification of the shoreline survey. If the shoreline setback variance is approved then certification of the shoreline will be obtained and included in the Final document.

14. *We note that the toe of the seawall appears to encroach into the "beach reserve" which identified on several of the exhibits. The Final EA should discuss the encroachment and ownership of the beach reserve.*

Please refer to Appendix B for the most recent shoreline survey. The property line is marked and the landing and retaining wall are well within the property line. However, as stated in the draft

EA on page 6, the applicant owns a 1/8 undivided interest in the beach reserve (TMK: 161-012-040).

Subdivision Branch

*15. Clarify that the property is in Zone VE with a base flood elevation of 18 feet. The Final EA should indicate if the project is in compliance with floor hazard regulations. The project will be required to comply with flood hazard standards.*

Please refer to figure 11 in the draft EA which shows the FEMA flood map for the applicant's property which is zoned VE which corresponds to level of base flood elevation of 18 feet above sea level. "The floor of the legal nonconforming portion of the 'guesthouse' was raised to 19 feet above sea level when renovations were done in 2000 to conform to FEMA flood standards." The permitted renovation of the legal non-conforming house conforms to the ordinance of Coastal high hazard district ROH Sec. 21-9.10-7. The legal non-conforming deck, retaining wall, stairs and landing are also constructed according to ROH Sec.21-9.10-7(b)(B)and (C), and are anchored in the Waialua clay with dowels, mortar and rebar with reinforcing buttresses to resist flotation, collapse, and lateral movement due to water forces. In addition the existing retaining wall stairs and landing do not affect regulatory flood or aggravate existing flood- related erosion hazards. Please refer to Appendix A of the engineering report and Figures 3, 4 in the EA. I will include this updated information into the final EA.

The additional information about the ROH Sec. 21-9.10-7 will be included in the final EA.

Thank you for reviewing the DEA. If you have any questions or need more information please email me at [j9md@hotmail.com](mailto:j9md@hotmail.com) or call at 805-452-3121.

Sincerely,

*Janine K. Seymour*

Janine K. Seymour, MD

cc. Malynne Simeon

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 768-6041  
DEPT. WEB SITE: [www.honoluluapp.org](http://www.honoluluapp.org) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

KIRK CALDWELL  
MAYOR



GEORGE I. ATTA, FAICP  
DIRECTOR

ARTHUR D. CHALLACOMBE  
DEPUTY DIRECTOR

2013/ED-9(MS)

October 16, 2013

Dear Participant:

SUBJECT: Chapter 343, Hawaii Revised Statutes  
Draft Environmental Assessment (EA)

Applicant/  
Landowner: Jason D. Seymour  
Agent: Janine K. Seymour  
Location: 61-357 Kamehameha Highway - Kawaihoa  
Tax Map Key: 6-1-12: 21  
Request: Shoreline Setback Variance  
Proposal: To allow (retain) a moss rock retaining wall, stairs and landing within the 40-foot shoreline setback area.

Enclosed for your review and comment is a Draft EA (in PDF format) which has been prepared for the above-referenced project. We would appreciate any comments you may have regarding this document and/or environmental impacts associated with the request no later than November 23, 2013. Please send any comments regarding potential environmental impacts associated with the proposal to the Agent:

Ms. Janine K. Seymour  
1187 Coast Village Road #196  
Santa Barbara, California 93108

The Department of Planning and Permitting (DPP) must determine whether the impacts of the project are significant enough to warrant the preparation of an Environmental Impact Statement (EIS). Based on the information currently available, the DPP anticipates issuing a "Finding of No Significant Impact" for this project (i.e., no EIS required). Following completion of the environmental assessment phase, the Applicant will be submitting an application for an after-the-fact Shoreline Setback Variance.

If you have any questions, please call Malynne Simeon of our staff at 768-8023.

Very truly yours,

  
George I. Atta, FAICP  
Director

GIA:nw  
Enclosure: Draft EA (in PDF format)

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



WILLIAM I. AIAI, JR.  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 20, 2013

Ms. Janine K. Seymour  
1187 Coast Village Road #196  
Santa Barbara, California 93108

Dear Ms. Seymour,

SUBJECT: Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance to allow (retain) a moss rock retaining wall, stairs and landing within the 40-foot shoreline setback area

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division – Oahu District; and (2) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji  
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



WILLIAM J. AILA, JR.  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 21, 2012

MEMORANDUM

TO: *[Handwritten initials]*

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division -- Oahu District
- Historic Preservation

FROM: *[Handwritten initials]*

SUBJECT: *[Handwritten signature]* Russell Y. Tsuji, Land Administrator  
Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance to allow (retain) a moss rock retaining wall, stairs and landing within the 40-foot shoreline setback area

LOCATION: 61-357 Kamehameha Highway – Kailua; Tax Map Key 6-1-12: 21

APPLICANT: Jason D. Seymour by agent Janine K. Seymour

Transmitted for your review and comment on the above-referenced document which can be found here:

1. Go to: <https://sp01.ld.dlnr.hawaii.gov/LD>
2. Login: Username: LD\Visitor Password: 0pa\$\$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance", then click on "Files" and "Download a copy".

We would appreciate your comments on this document. Please submit any comments by **November 20, 2013**. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- (  ) We have no objections.
- (  ) We have no comments.
- (  ) Comments are attached.

Signed: *[Handwritten signature]*  
 Print Name: *[Handwritten signature]*  
 Date: *[Handwritten signature]* October 22, 2013

cc: Central Files

*[Handwritten initials]*

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



WILLIAM J. AHLA, JR.  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 21, 2012

MEMORANDUM

RECEIVED  
LAND DIVISION  
2013 OCT 23 PM 3:01  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

TO: DLNR Agencies:  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division -- Oahu District  
 Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator  
SUBJECT: Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance to allow (retain) a moss rock retaining wall, stairs and landing within the 40-foot shoreline setback area  
LOCATION: 61-357 Kamehameha Highway – Kawailoa; Tax Map Key 6-1-12: 21  
APPLICANT: Jason D. Seymour by agent Janine K. Seymour

Transmitted for your review and comment on the above-referenced document which can be found here:

1. Go to: <https://sp01.ld.dlnr.hawaii.gov/LD>
2. Login: Username: LD\Visitor Password: Opa\$\$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance", then click on "Files" and "Download a copy".

We would appreciate your comments on this document. Please submit any comments by **November 20, 2013**. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: [Signature]  
Print Name: Edward R. Underwood  
Date: 10/22/12

cc: Central Files

OCT21 13 PM 12:43:00 DLN



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 21, 2012

MEMORANDUM

RECEIVED  
LAND DIVISION  
2013 OCT 23 PM 3:01  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

TO: **DLNR Agencies:**  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division – Oahu District  
 Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance to allow (retain) a moss rock retaining wall, stairs and landing within the 40-foot shoreline setback area

LOCATION: 61-357 Kamehameha Highway – Kawaiiloa; Tax Map Key 6-1-12: 21

APPLICANT: Jason D. Seymour by agent Janine K. Seymour

Transmitted for your review and comment on the above-referenced document which can be found here:

1. Go to: <https://sp01.ld.dlnr.hawaii.gov/LD>
2. Login: Username: LD\Visitor Password: 0pa\$\$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Chapter 343, Hawaii Revised Statutes, Draft Environmental Assessment (EA), Jason D. Seymour, Shoreline Setback Variance", then click on "Files" and "Download a copy".

We would appreciate your comments on this document. Please submit any comments by November 20, 2013. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Moulton at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed:   
 Print Name: Edward E. Underwood  
 Date: 10/22/12

cc: Central Files

OCT21'13 04:43:00 010



**STATE OF HAWAII**  
**OFFICE OF HAWAIIAN AFFAIRS**  
711 KAPOLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

HRD13/6929

November 20, 2013

Janine K. Seymour  
1187 Coast Village Road #196  
Santa Barbara, CA 93108

**Re: Draft Environmental Assessment**  
**Shoreline Setback Variance – 61-357 Kamehameha Highway**  
**Kawaloa Ahupua'a, Waiānua District, O'ahu Island**  
**Tax Map Key: (1) 6-1-012-021**

Aloha e Janine K. Seymour:

The Office of Hawaiian Affairs (OHA) is in receipt of your October 16, 2013, request for comments on a draft environmental assessment (DEA), which supports the moss rock retaining wall, stairs and landing within the 40-foot shoreline setback area at 61-357 Kamehameha Highway. The structures have been present on the property approximately 15 years and were not constructed by the applicant, but by the property's previous owner.

According to the DEA, without the coastal structures, the house and deck structures will be extremely vulnerable during high surf events, storm surge and extreme wave events. The moss rock retaining wall will have minimal impact of the shoreline and will not affect coastal access, coastal fishing or public use of the beach. The proposed action does not expect to result in significant adverse environmental impacts. There are no environmental impacts related to the applicant obtaining a shoreline setback variance and after-the-fact building permits. A Finding of No Significant Impact is anticipated.

Based on the information contained in the DEA, OHA does not have any comments on the proposed project.

Thank you for the opportunity to provide comments. Should you have any questions, please contact Kathryn Keala at 594-0272 or [kathyk@oha.org](mailto:kathyk@oha.org).

'O wau iho nō me ka 'ōia'i'o,

A handwritten signature in black ink, appearing to read "Kamana'opono M. Crabbe".

Kamana'opono M. Crabbe, Ph.D.  
Ka Pūhaha, Chief Executive Officer  
Office of Hawaiian Affairs

KMC:kk

POLICE DEPARTMENT  
CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET • HONOLULU, HAWAII 96813  
TELEPHONE: (808) 529-3111 • INTERNET: [www.honoluluupd.org](http://www.honoluluupd.org)



KIRK CALDWELL  
MAYOR

LOUIS M. KEALOHA  
CHIEF

DAVE M. KAJIHIRO  
MARIE A. MCCAULEY  
DEPUTY CHIEFS

OUR REFERENCE EO-WS

October 28, 2013

Ms. Janine K. Seymour  
1187 Coast Village Road, No. 196  
Santa Barbara, California 93108

Dear Ms. Seymour:

This is in response to a letter from the Department of Planning and Permitting (DPP), dated October 16, 2013, regarding the Draft Environmental Assessment for a Shoreline Setback Variance Application. The project is located at 61-357 Kamehameha Highway in Kawaihoa.

The Honolulu Police Department has no concerns regarding the project at this time.

If there are any questions, please contact Acting Major Larry Lawson of District 2 (Wahiawa) at 723-8702 or via e-mail at [l.lawson@honolulu.gov](mailto:l.lawson@honolulu.gov).

Sincerely,

LOUIS M. KEALOHA  
Chief of Police

By   
CLAYTON G. KAU  
Assistant Chief  
Support Services Bureau

cc: Ms. Malyne Simeon, DPP

*Serving and Protecting With Aloha*

HONOLULU FIRE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**

638 South Street  
Honolulu, Hawaii 96813-5007  
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

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KIRK CALDWELL  
Mayor



DEPT OF PLANNING  
AND PERMITTING  
CITY & COUNTY OF HONOLULU

MANUEL P. NEVES  
FIRE CHIEF

LIONEL CAMARA JR.  
DEPUTY FIRE CHIEF

November 18, 2013

**TO:** GEORGE ATTA, FAICP, LEED AP, CEI, DIRECTOR  
DEPARTMENT OF PLANNING AND PERMITTING

**FROM:** ROLLAND J. HARVEST, ASSISTANT CHIEF

**SUBJECT:** DRAFT ENVIRONMENTAL ASSESSMENT  
SHORELINE SETBACK VARIANCE  
61-357 KAMEHAMEHA HIGHWAY - KAWAIOLOA  
TAX MAP KEY: 6-1-012: 021

In response to your letter of October 16, 2013, regarding the above-mentioned subject, the Honolulu Fire Department determined that there will be no significant impact to fire department services.

Should you have questions, please contact Battalion Chief Socrates Bratakos of our Fire Prevention Bureau at 723-7151 or sbratakos@honolulu.gov.

  
ROLLAND J. HARVEST  
Assistant Chief

RJH/SY:bh