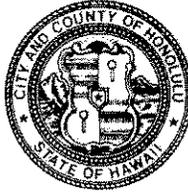


DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

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

MUFI HANNEMANN  
MAYOR



JUN 23

2 2009 AM 10:00  
JUN 23 2009

DAVID K. TANOUÉ  
DIRECTOR

ROBERT M. SUMITOMO  
DEPUTY DIRECTOR

2005/ED-27(AA)

June 5, 2009

The Honorable Katherine Puana Kealoha, Director  
Office of Environmental Quality Control  
State of Hawaii  
State Office Tower, Room 702  
235 South Beretania Street  
Honolulu, Hawaii 96813

Dear Ms. Kealoha:

Subject: Chapter 343, Hawaii Revised Statutes  
Environmental Assessment (EA)/Determination  
Finding of No Significant Impact

Landowner/Applicant: Gregory B. Michaels  
Agent: Analytical Planning Consultants, Inc.  
Location: 68-683 Farrington Highway - Mokuleia  
Tax Map Key: 6-8-10: 19  
Request: Shoreline Setback Variance  
Proposal: To retain a reinforced concrete seawall with a concrete rubble masonry exterior, and other structures within the shoreline setback.  
Determination: A Finding of No Significant Impact is Issued

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 preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and two copies of the Final EA. If you have any questions, please contact Ann Asaumi of our staff at 768-8020.

Very truly yours,

A handwritten signature in black ink, appearing to read "David K. Tanoue".

David K. Tanoue, Director  
Department of Planning and Permitting

DKT:cs  
Encls.

g:\posseworkingdirectory\ann\2005ed27oeqcfonsi.doc

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**FINAL ENVIRONMENTAL ASSESSMENT**

---

**SHORELINE SETBACK VARIANCE**

TMK: 6-8-10: 019  
68-683 Farrington Highway  
Mokuleia, Oahu, Hawaii

**ACCEPTING AUTHORITY:**

City and County of Honolulu  
Department of Planning and Permitting

**PREPARED BY:**

Analytical Planning Consultants, Inc.

**July 2008**

---

---

**FINAL ENVIRONMENTAL ASSESSMENT**

---

**SHORELINE SETBACK VARIANCE**

TMK: 6-8-10: 019  
68-683 Farrington Highway  
Mokuleia, Oahu, Hawaii

**APPLICANT AND OWNER:**

Mr. Greg Michaels

**ACCEPTING AUTHORITY:**

City and County of Honolulu  
Department of Planning and Permitting

**PREPARED BY:**

Analytical Planning Consultants Inc.  
Honolulu, Hawaii

**July 2008**

---

OEQC BULLETIN PUBLICATION FORM

(Follow instructions on other side)

1. Project Name: Shoreline Setback Variance for Improvements at 68-683 Farrington Highway, Hawaii

Type of Document (circle one): Draft EA, Final EA, EIS prep notice, draft EIS, final EIS, NEPA

check if applicable: X revised document \_\_\_\_\_ supplemental document

Legal Authority: Chapter 343 HRS

Agency determination: Anticipated FONSI

Applicable sections:

- Use of state or county lands or funds
- Use of conservation district lands
- Use of shoreline area
- Use of historic site or district
- Use of land in the Waikiki district
- Amendment to county general plan
- Reclassification of conservation lands
- Construction or modification of helicopter facilities

2. Island: Oahu  
Judicial District: Honolulu  
Tax Map Key Number: (1) 6-8-10: 019

3. Applicant or applicant agency:  
Mr. Greg Michaels  
Address: 27515 Enterprise Circle West  
Temecula, CA 92590  
Contact: Greg Michaels Phone: (951) 693-1880

4. Approving Agency (EAs) or Accepting Authority (EISs):  
City and County of Honolulu, Department of Planning and Permitting  
Address: 650 South King Street  
Honolulu, Hawaii 96813  
Contact: David Tanoue, Director Phone: 808-523-4432

5. Consultant: Analytical Planning Consultants, Inc.  
Address: 928 Nuuanu Avenue Suite 502  
Honolulu, Hawaii 96817  
Contact: Don Clegg, President Phone: 808-536-5695

6. Public Comment Deadline: \_\_\_\_\_

7. Permits required prior to implementation: Shoreline Setback Variance, Building Permits  
Zoning Adjustment

8. Project Summary (name of file): Michaels Shoreline Setback Variance

9. Public Library Copy: \_\_\_\_\_ (not required for final EAs)

10. This form was prepared by Lauri Clegg Phone: 808-536-5695

**Note for EAs:**  
**When the applicant is a state or county agency, the applicant agency and approving agency are the same.**

---

# ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

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**ENVIRONMENTAL ASSESSMENT**

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

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6. Delete – See Appendix C
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10. Mokuleia Beach Loss – Historic Aerial Photo
11. Mokuleia Beach – Changes in Vegetation Line
12. Sand Transport Figures

**Appendices**

- Appendix A Building Permits
- Appendix B Property Tax Record Card (select material) and 1986 DLU setback calculations
- Appendix C Shoreline Survey
- Appendix D 2005 and 2004 Coastal Engineering Assessment by EKNA Services, Inc.

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 1. GENERAL INFORMATION

After-the-fact approval is being sought for construction of a modified vertical seawall structure that was constructed across the shoreline frontage of the subject property around 1969 and other miscellaneous structures located within the shoreline setback area. The structures were built without City approvals, including a Shoreline Setback Variance (ROH 1992 Chapter 23) and a Building Permit (ROH 1990 Chapter 18). Pursuant to the Revised Ordinances of Honolulu Chapter 23, Shoreline Setbacks, a Shoreline Setback Variance will be required and will be submitted pending issuance of a Finding of No Significant Impact (FONSI). The EA has been prepared in compliance with the Environmental Impact Statement (EIS) regulations of Chapter 343, Hawaii Revised Statutes.

- A. Project:** Shoreline Setback Variance
- B. Owner/Applicant:** Mr. Gregory Michaels  
**Mailing address:** 27515 Enterprise Circle West  
Temecula, CA 92590
- C. Accepting Agency:** City and County of Honolulu  
Department of Planning and Permitting
- D. Agent:** Analytical Planning Consultants Inc  
Mr. Donald Clegg, President  
928 Nuuanu Avenue  
Honolulu, HI 96817  
Phone: 536-5695 Fax: 599-1553
- E. Property Profile:**
- |                              |   |
|------------------------------|---|
| Location:                    | 68-683 Farrington Highway                           |
| TMK:                         | 6-8-10: 019   |
| Land Area:                   | Total 10,632 SF<br>Erosion 2,741 SF<br>Net 7,891 SF |
| Present Use:                 | Single Family Residential                           |
| State Land Use District:     | Urban   |
| Zoning:                      | R-5 Residential                                     |
| Sustainable Communities Plan | North Shore/Rural Residential                       |
| Special District:            | No  |
| Special Management Area:     | Yes   |
| Flood Zone:                  | FIRM Zone AE  |

## ENVIRONMENTAL ASSESSMENT

---

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### **F. Agencies Consulted:**

- City and County of Honolulu, Department of Planning and Permitting
- State Bureau of Conveyances
- State Department of Accounting & General Services (Survey Division)
- State Department of Land and Natural Resources/  
State Historic Preservation Division
- State Office of Environmental Quality Control
- State Office of Hawaiian Affairs
- Sierra Club
- Department of the Army
- Oahu Civil Defense

### **G. Anticipated Determination      Finding of No Significant Impact (FONSI)**

## 2. LOCATION AND GENERAL DESCRIPTION OF THE SUBJECT PROPERTY

### 2.1 Site Description and Background

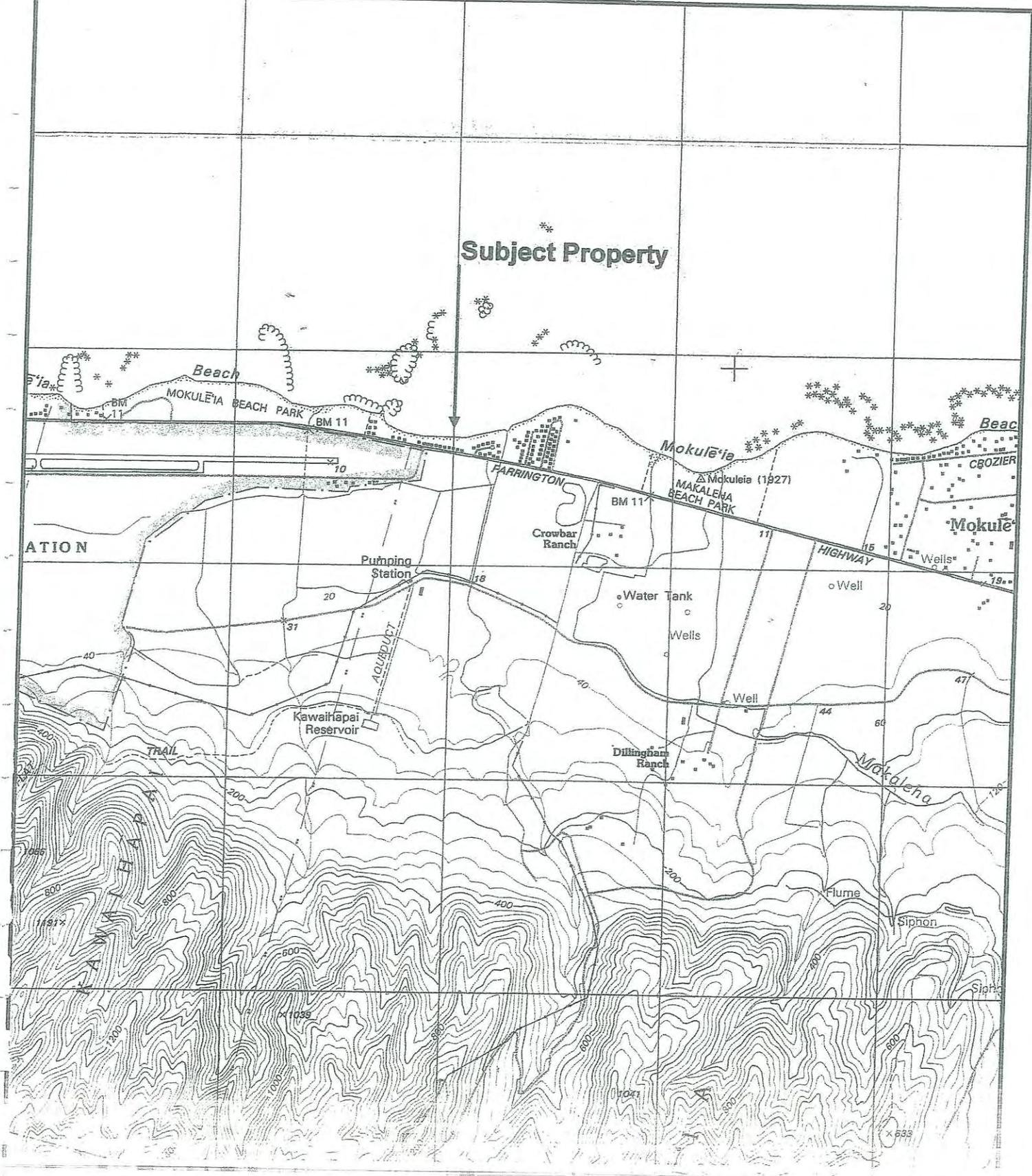
The subject property, TMK 6-8-10: 019, is located at 68-683 Farrington Highway on the northwest coast of Oahu. The subject property is located between two single family residences on either side. The makai side of the highway along this stretch of Mokuleia is almost completely developed with single-family houses. A general location map for the subject property is shown in **Figure 1** and a Tax Key Map identifying the property is shown in **Figure 2**.

The subject property is located along an embayment that stretches between Mokuleia Beach Colony to the east and the Episcopal Church Camp to the west. The beach varies in width and is composed primarily of fine calcareous sand. The project site faces north and is subject to seasonal storm damage associated with large winter surf. Based on historical aerial photos of the Mokuleia coastline taken between 1949-1996, there has been a loss of shoreline due to erosion activity since the lots were first subdivided in 1960. Erosion of the lot area was noted by the City and County of Honolulu Real Property Tax Office as of the mid 1960's. The 1989 report *Oahu Shoreline Study – Data on Beach Changes* that was prepared by Sea Engineering, Inc. for the City and County of Honolulu, Department of Land Utilization documents a landward recession of the vegetation line since 1949 for the area immediately in the vicinity of the subject property. The landward recession totaled between 10 to 18 feet over the 39 year study period. Since the late 1960's a variety of shoreline structures have been constructed along the ocean frontage of the adjoining properties to the east and west to help stabilize the retreating shoreline.

The subject property was purchased in August 2003 by Mr. Greg Michaels. The recorded lot area to which the owner holds title is 10,632 square feet. After subtracting the eroded seaward portion of 2,741 square feet, the net area of the lot is 7,891 square feet. Vegetation on the site consists of yard grass and various residential landscaping materials. The topography of the lot is flat as is evident in the site photos in **Figure 3A**; **Figure 3** is a photo key map.

The house and garage were constructed in 1960, respectively, per Building Permit No. 172518 and Building Permit No. 172519 both dated September 9, 1960. (**Appendix A**). In the early 1960's that area was referenced by TMK: 6-8-3: (*parcel number*) before it was further subdivided to today's Plat Number of 10 (TMK 6-8-10). The dimensions of the house are shown on the January 10, 1961 Real Property Tax Record Card, which also includes the 1982 addition of a 250 Square foot concrete "lanai" per building Permit No. 165435 dated March 3, 1982. (**Appendix B**).

**Subject Property**



NORTH



SCALE IN FEET

Source: USGS 1958

**Figure 1  
LOCATION MAP**

Michaeis, 68-683 Farrington Highway, Mokuieia, Oahu, Hawaii



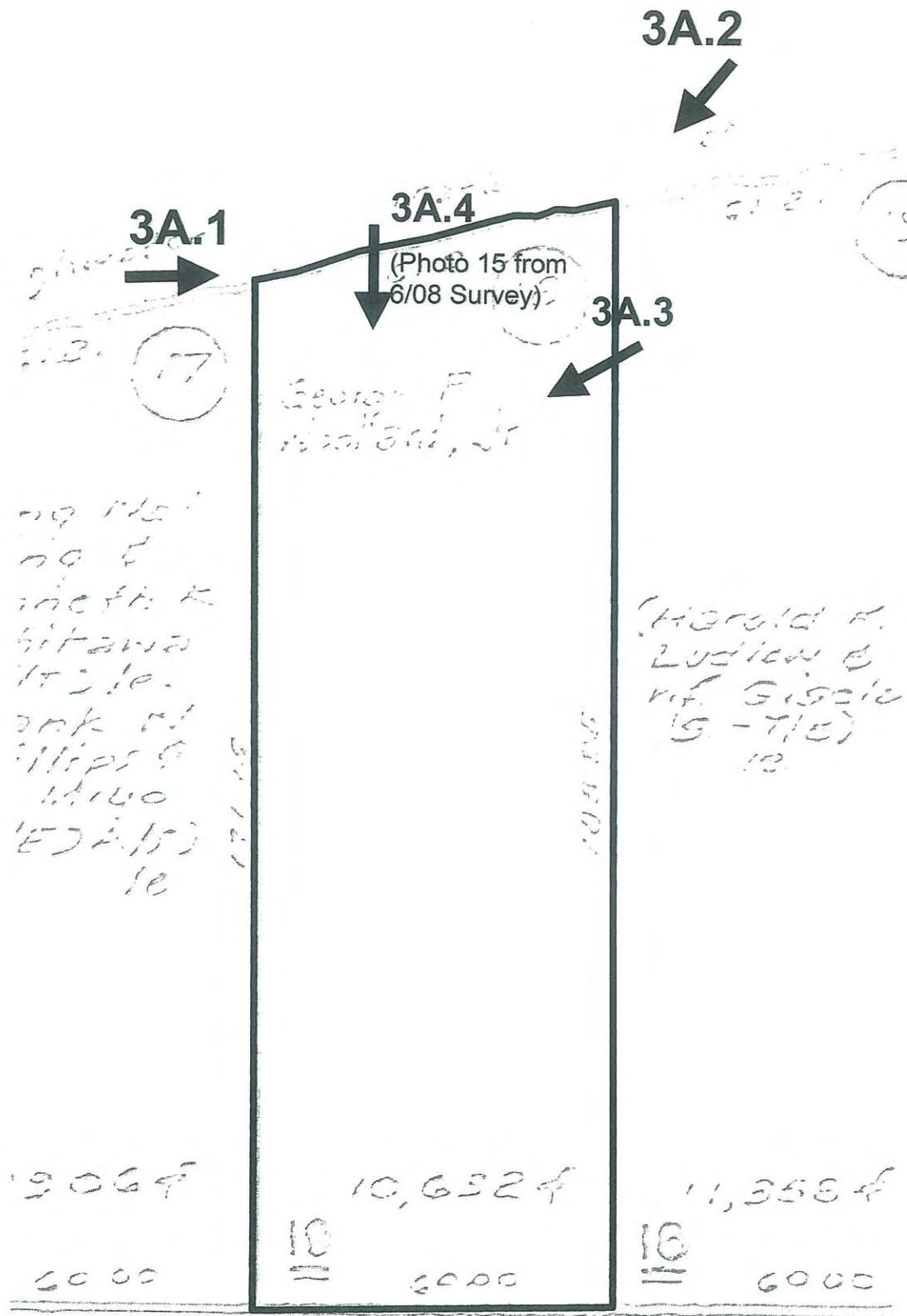
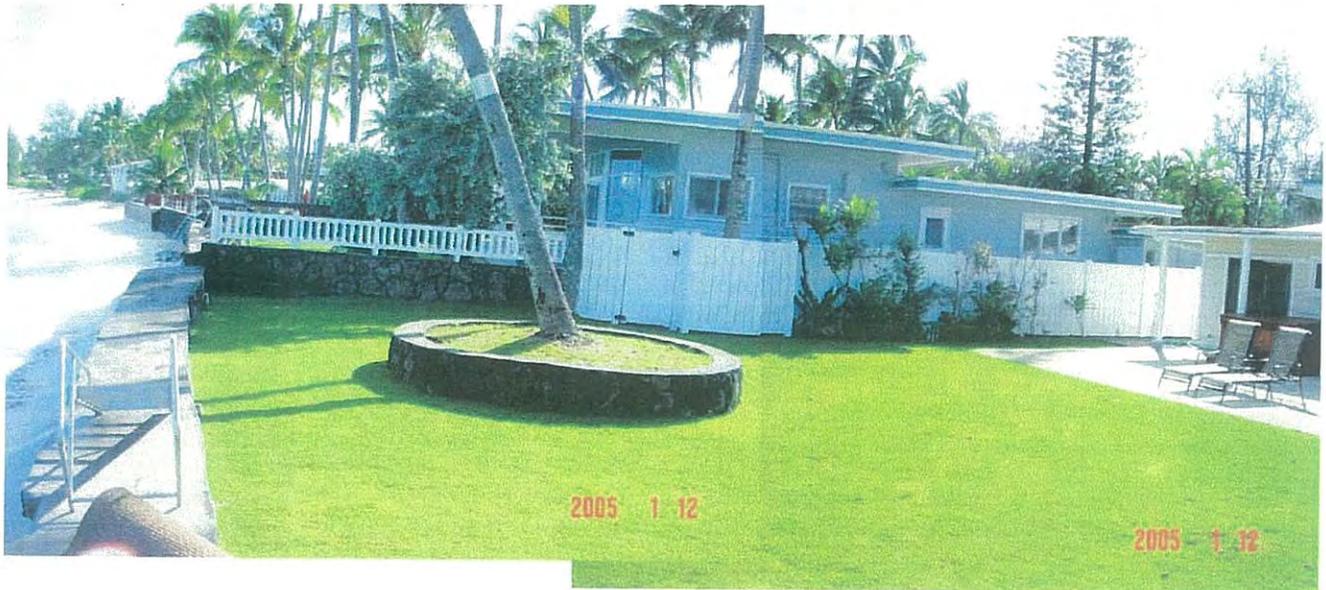
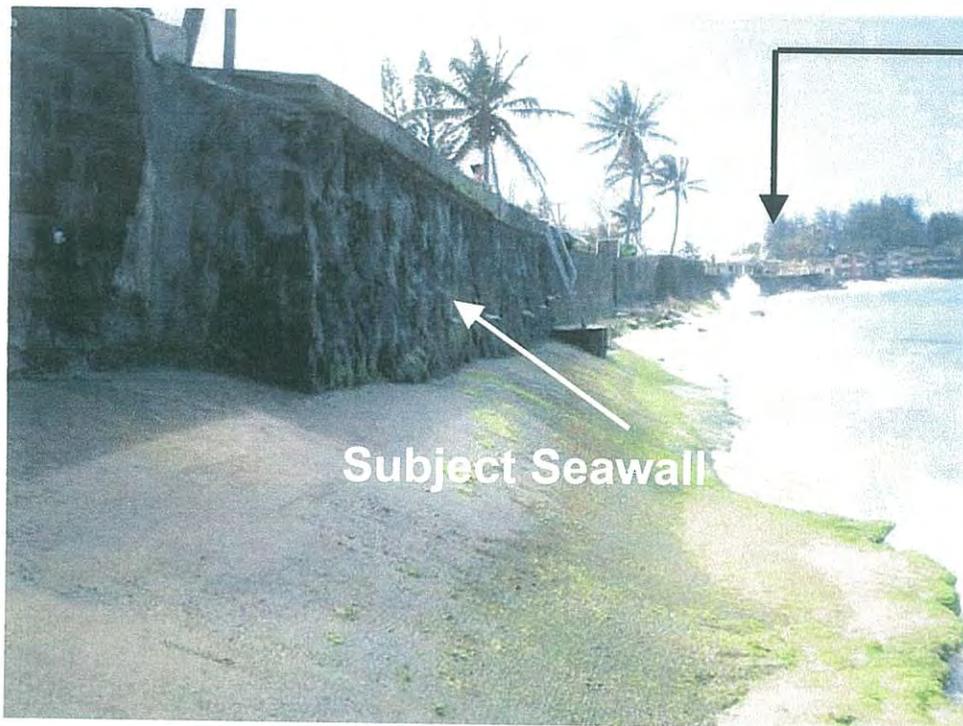


Figure 3  
PHOTO KEY MAP

68-683 Farrington Highway, Mokuleia, Oahu, Hawaii



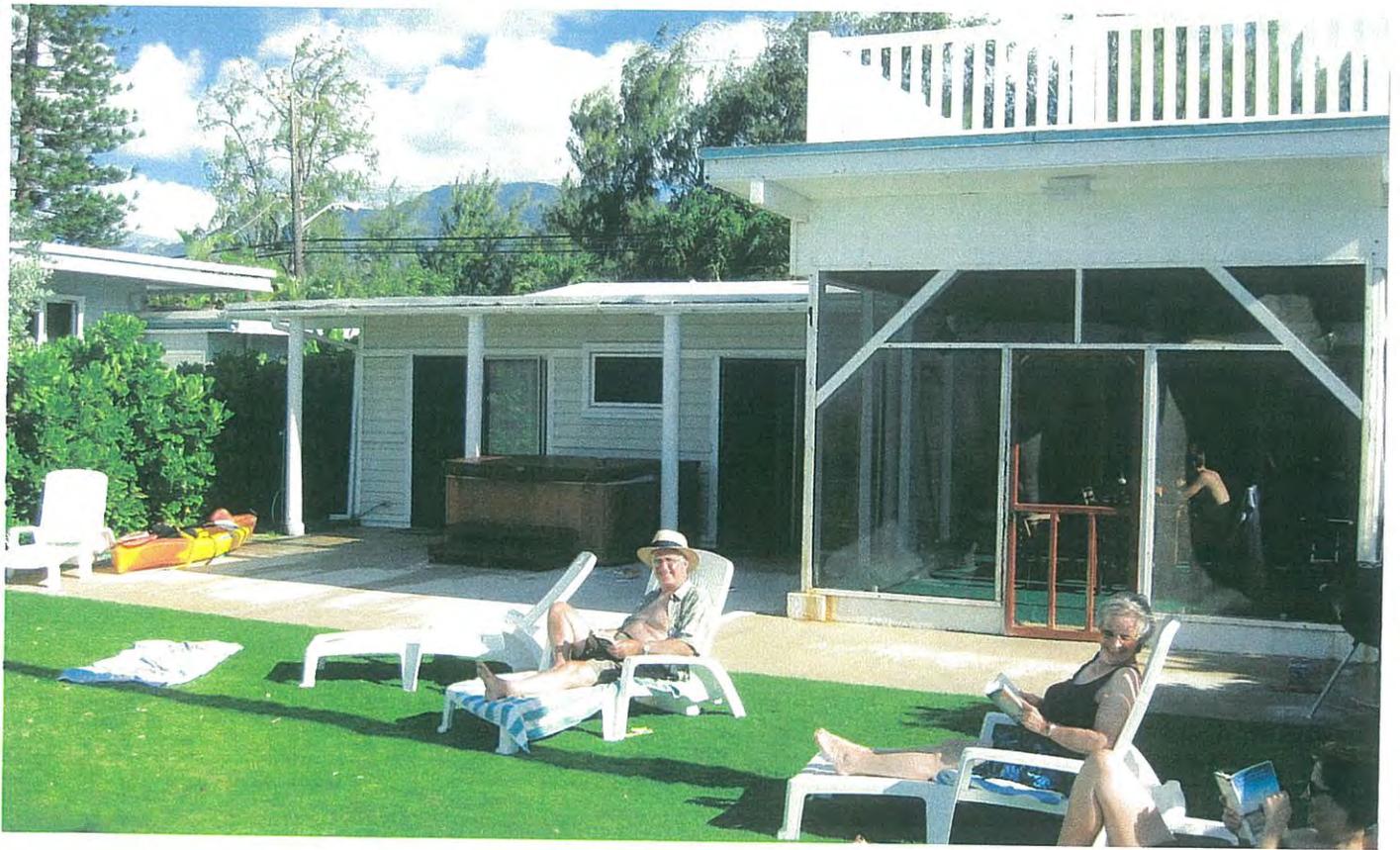
**3A.1** Mokuleia  
TMK: 6-8-10:19  
Photo date 01-12-05  
By Hida, Okamoto & Assoc.



DPP approved  
seawall on 4 lots  
TMK: 6-8-10: 23, 24,  
25, 26

**3A.2**  
Mokuleia  
TMK: 6-8-10:19  
Photo date 04-02-05  
Time 2:00 pm  
By EKNA Services  
Tide approx. 0.1' MLLW

**Figure 3A**  
**SUBJECT SEAWALL TMK: 6-8-10: 019**  
68-683 Farrington Highway, Mokuleia, Oahu, Hawaii



**Figure 3A**

**SUBJECT SEAWALL TMK: 6-8-10: 019**  
68-683 Farrington Highway, Mokuleia, Oahu, Hawaii

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuieia, Oahu

**Appendix B** also contains a Department of Land Utilization (DLU) May 1, 1986 worksheet for the subject property which shows that that parcel was subject to a 20-foot shoreline setback area, rather than 40-foot setback. Prior to 1992, the shoreline setback was 20 feet for lots whose buildable area was reduced to less than 50% after applying the 40 foot shoreline setback and all other yard setback requirements. The subject property meets those criteria as demonstrated in the DLU calculations.

There also exists on the property other minor structures, walls and fences located within the 40-foot setback. As there are no building permits nor evidence to collaborate that these structures were constructed legally and placed prior to 1992, the structures do not have nonconforming status and may require a Shoreline Setback Variance or Minor Shoreline Structures permit in order to be retained. There is no building permit for the additional concrete slab on the makai side of the dwelling; however, except for a small a corner on the west it is located mauka of the 40-foot shoreline setback area.

The tax map shows that the makai boundary of all the properties in this embayment is in line with each other on a gently curving arc. There is historic evidence – shoreline surveys and City communications – that documents seawalls along this embayment since the late 1960's and early 1970's following the significant period of erosion during that time. Similarly, from the photographic evidence available, it appears that the original seawalls were constructed using very large concrete blocks for foundation along this line/arc. In 1986, the owner of this parcel 19 received written confirmation from the City's Department of Land Utilization that the seawall on Parcel 19 was "built prior to the adoption of the Shoreline Setback Rules of the City and County of Honolulu in 1971" (Figure 5). In 1991, some of the walls collapsed from the continuous pounding of the ocean and it appears that, over time, these seawalls have been replaced and/or repaired and strengthened and the original foundations left to support the walls. The existing subject seawall has been repaired since it was originally constructed, but the timeframe is unknown as the current owner purchased the property recently in 2003. A comparison of the certified shorelines done in 1982 and the one done in 2004 shows that the reconstructed wall has been extended makai of the previous seawall.

DEPARTMENT OF LAND UTILIZATION  
**CITY AND COUNTY OF HONOLULU**  
660 SOUTH KING STREET  
HONOLULU, HAWAII 96813 (808) 525-4400

P. 1

FRANK F. FASI  
MAYOR



JOHN P. WHALEY  
DIRECTOR

86/SI-3 (PR)

May 12, 1986

Mr. Gary N. Pardy  
68-683 Farrington Highway  
Waialua, Hawaii 96791

Dear Mr. Pardy:

Shoreline Setback Determination

Thank you for your letter of April 25, 1986 requesting a determination as to whether a 40-foot or a 20-foot shoreline setback applies to your property (Tax Map Key 6-8-10: 19).

The attachments you provided with your letter have established that nearly 3000 square feet (SF) of land was eroded from your property and a seawall built prior to the adoption of the Shoreline Setback Rules of the City and County of Honolulu in 1971.

Upon further review of the information you provided, we have determined that when the 40-foot shoreline setback and all other required setbacks are applied to your lot, the buildable area of the parcel is reduced to less than 50 percent of the lot area.

Therefore, we find that, as stated in Rule 9 of the Shoreline Setback Rules and Regulations of the City and County of Honolulu, a 20-foot shoreline setback applies to your parcel.

In addition, we are waiving the need for an instrument survey under the provisions of Rule 10 of the Shoreline Setback Rules and Regulations. As shown on your plan, the fence extension is 30 feet from the shoreline and therefore clearly outside the shoreline setback. Our field measurements verify the dimensions shown on your plan.

COPIES

Figure 5

1986 CITY DEPT OF LAND UTILIZATION LETTER - PARCEL 19 SHORELINE SETBACK DETERMINATION

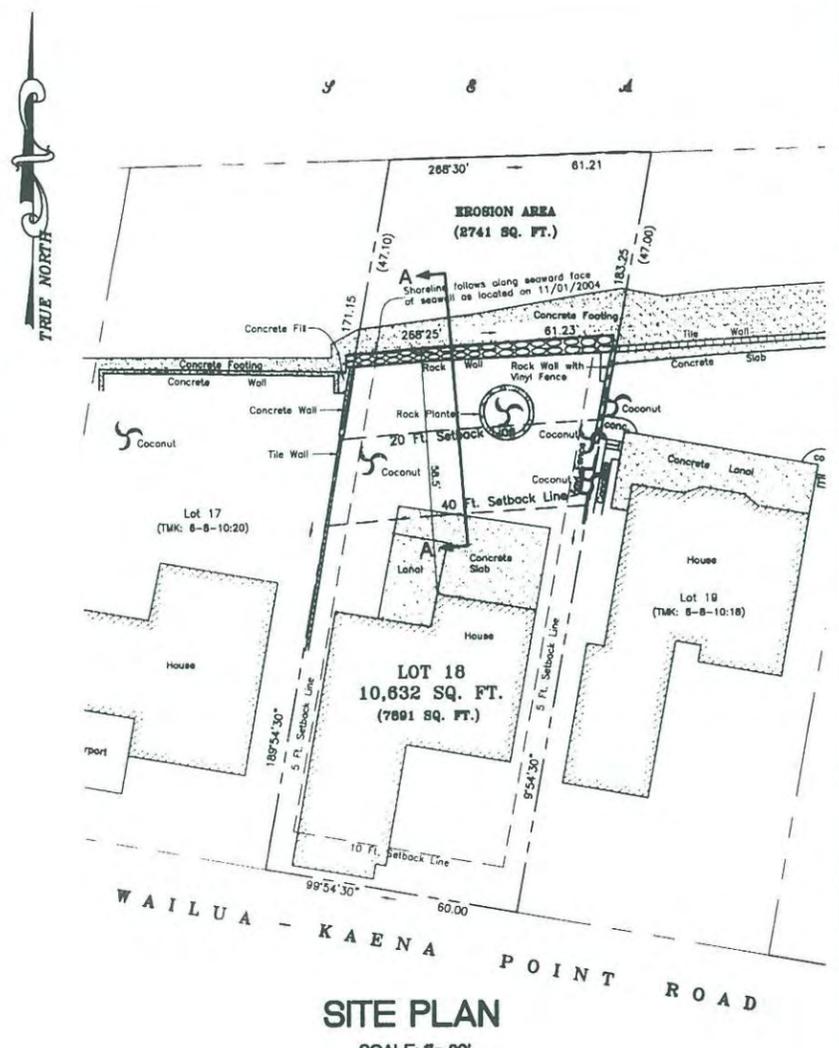
68-689 Farrington Highway, Mokuleia, Oahu, Hawaii

## ENVIRONMENTAL ASSESSMENT

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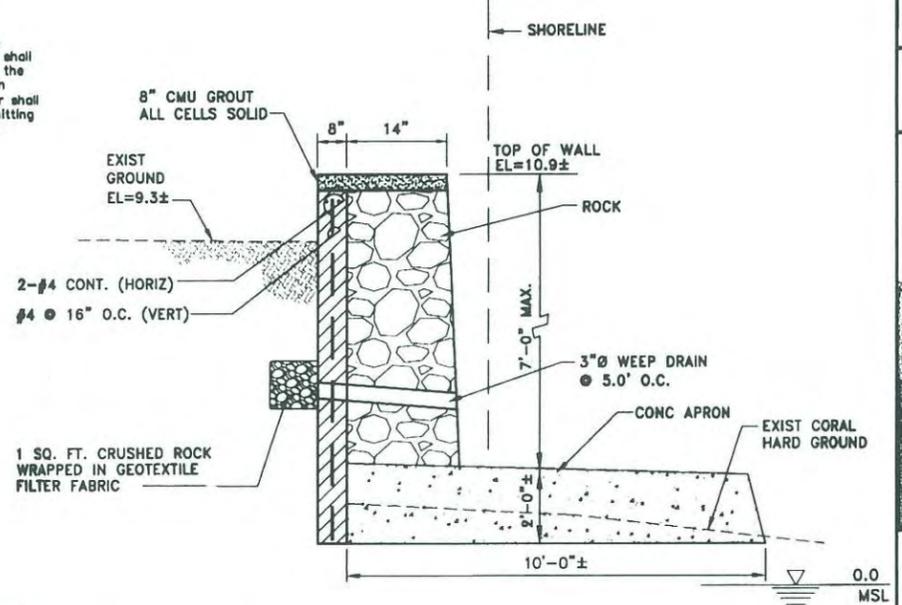
Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

Additional Background Information: The Findings of Fact for the after-the-fact Shoreline Setback Variance for parcels 27-30 (93/SV-12), located north of the subject parcel, references an aerial photograph of the area dated April 22, 1967 on file at the City which shows no shore protection structures and the vegetation line ranging from 0-20 feet away from the dwellings. Seawalls appear to have been built along this embayment some time after 1967. Records at the Real Property Tax Office reference damage to existing walls and dwellings along the embayment during high surf in 1970. It is speculated that the construction of seawalls along the shoreline took place after this damage. The 1993 report also references Department slides and photographs of the area, taken from 1982 through 1991 which display walls in the sand area along the shoreline for 16 residential lots east of the Episcopal Church Camp, including the subject lot. No building permits are on file for construction of these seawalls; however, after-the-fact Shoreline Setback Variances and building permits have been issued for 9 of the properties since 1990. The Mokuleia Beach Colony (TMK 6-8-09: 001) has an approximately 350-foot long seawall, with an approved shoreline setback variance. The historical photos on file at the DPP also indicate that over the years walls have been destroyed by storm waves and reconstructed at increasing heights. The applicant is seeking after-the-fact approval of a Shoreline Setback Variance for the structures located within the shoreline setback as has been done for the other 9 properties along this portion of Mokuleia Beach.

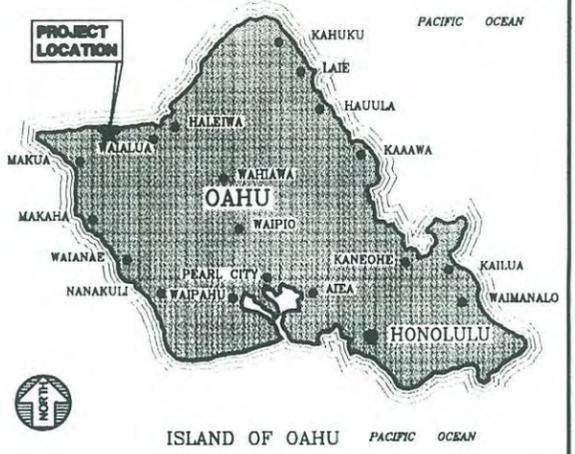


- CONSTRUCTION NOTES
- All applicable construction work shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986 and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
  - The underground pipes, cables or ductlines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
  - No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
  - The Contractor shall be responsible for conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best Management Practices shall be employed at all times during construction.
  - Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting (523-4881); and for City projects, notify the responsible City agency.
  - For Bench Mark, see sheet C-1.
  - Assumed Life expectancy for Seawall is 30 years.

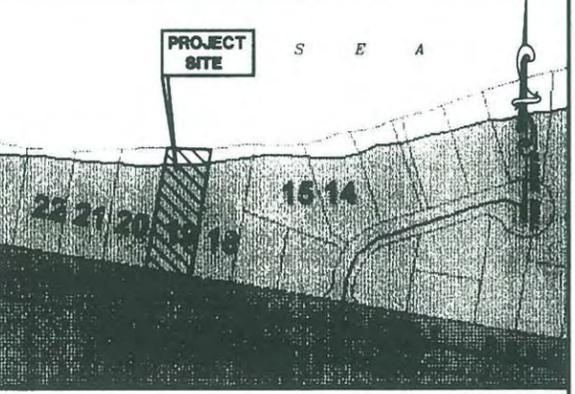
NOTE: BACKFILL UTILIZED : 27 Cu. Yd.



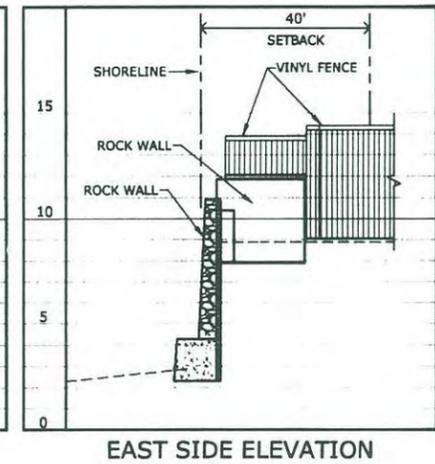
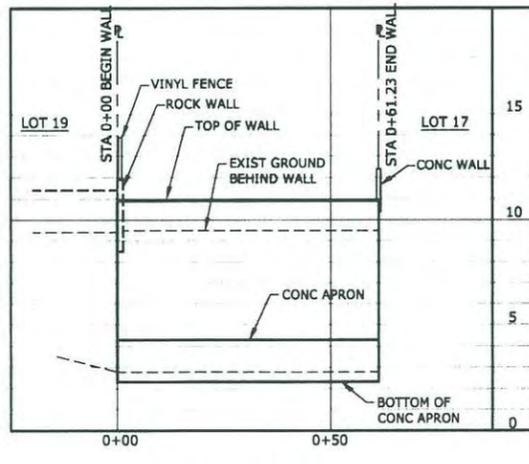
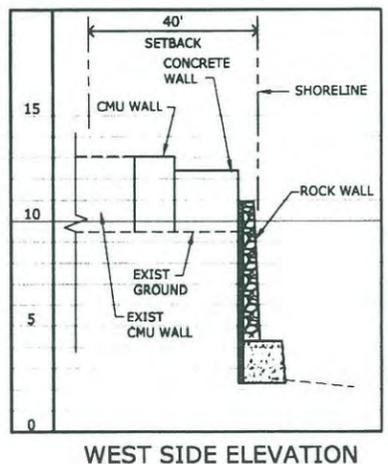
TYPICAL WALL DETAIL  
SCALE: 1/2" = 1'-0"



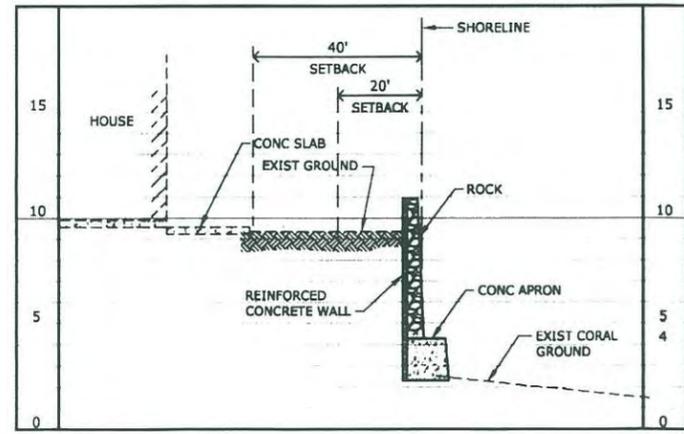
VICINITY MAP  
NO SCALE



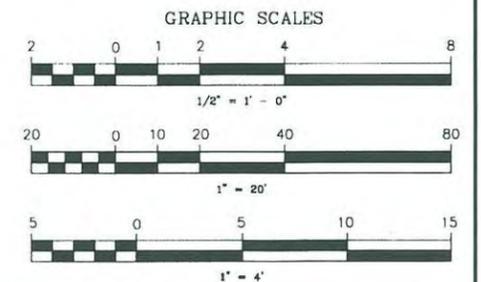
LOCATION MAP  
NO SCALE  
TAX MAP KEY: 6-8-10:19



ELEVATION  
SCALE: HORIZ 1" = 20'  
VERT 1" = 4'



SECTION A-A  
SCALE: HORIZ 1" = 20'  
VERT 1" = 4'



LICENSE EXP. APR. 30, 2010  
This work prepared by me or under my supervision and construction of this project will be under my observation.  
(Observation of construction as defined in Section 16-115-2 of the Rules of the Board of Professional Engineers, Architects and Surveyors of the State of Hawaii.)  
By: \_\_\_\_\_  
Date: \_\_\_\_\_

Revision	Date	Brief	Made by	Approved
<b>HIDA, OKAMOTO &amp; ASSOCIATES, INC.</b> CONSULTING ENGINEERS 1440 KAPIOLANI BOULEVARD, SUITE 1180, HONOLULU, HAWAII 96814 TELEPHONE (808) 948-0088				
SEA WALL AFTER-THE-FACT Mokuleia, Wailua, Oahu Tax Map Key: 6-8-10:19				
VICINITY MAP, LOCATION MAP, SITE PLAN, ELEVATION, SECTION, AND NOTES <b>Figure 7</b>				
Des. HKH	Dr. RH	Ch. HKH		

C-1

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 2.2 Proposed Action

The applicant received a Notice of Violation in July 2004 for the existing seawall and concrete footing. The applicant wishes to seek approval for an after-the-fact Shoreline Setback Variance and an after-the-fact building permit for:

1. The seawall and concrete apron;
2. The rock wall and vinyl fence located along the east property line;
3. Concrete and tile wall along the west property boundary.

The applicant is requesting that these additional non-permitted structures located within the 40-foot shoreline setback be included in the variance or that these structures be approved as "minor structure" under Chapter 23 section 15-1(b)(8):

1. Rock planter around coconut tree.

The applicant will apply for a zoning adjustment to permit the seawall wall to exceed the maximum permitted height for safety and topological reasons or a height variance. This will be determined during processing of the Shoreline Setback Variance. Without the seawall, erosion would immediately and significantly impact the shoreline frontage thereby threatening the existing residential structure. As noted earlier, this embayment along the Mokuleia coastline has a history of documented chronic erosion. **Appendix C** contains a full size copy of the shoreline survey/site plan.

A certified shoreline was obtained for the subject property in 1982. Prior to obtaining after-the-fact building permits for the structures located within the shoreline setback area, the applicant will be required to obtain a certified shoreline from the State of Hawaii Department of Land and Natural Resources. As per Section 13-222-7(a)(14) Hawaii Administrative Rules, an application for shoreline certification cannot be accepted by the State of Hawaii Department of Land and Natural Resources until the illegal shoreline protection structure has been approved by the appropriate governmental agencies, i.e. by obtaining a Shoreline Setback Variance.

This Environmental Assessment is the first step in obtaining this approval. The Department of Accounting and General Services Survey Division in their review of the shoreline survey will determine placement of the certified shoreline and any encroachments will be determined at that time.

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 2.3 Technical Characteristics

The existing seawall is a reinforced concrete wall with a CRM exterior and a top elevation of about +10.3' MSL. The seawall, which spans a width of 61.23 feet across the makai side of the property, has a return wall along the east property line. **Figure 7** is the as-built plan prepared by Hida Okamoto & Associates, Inc. with a site plan, elevation, section and typical wall detail drawings. Built into the wall are 3-inch tile drains about 5 feet off center set in crushed rock wrapped in filter fabric. The base of the wall is protected by a concrete footing, with a top of beach elevation of about +1' MSL. Backfill is estimated at 27 cubic yards. Life expectancy for the sea wall is estimated at 30 years.

When the wall was reconstructed the original foundation was left to provide additional support and to protect the foundation of the wall from scouring as the elevation of the fronting beach was lowered by continuing erosion. Granting of the Shoreline Setback Variance will allow the property owner to maintain and repair the seawall as needed, otherwise overtime, portions of the wall could collapse should the footings be undermined by wave action. Any mitigation would involve securing the footings to prevent undermining by wave action. The subject seawall ties into a reinforced concrete seawall on the east side of the property and a concrete seawall on the west side of the property. The owners of parcel 20 and 18 are in the process of obtaining an after-the-fact shoreline setback variance.

### 2.4 Economic and Social Characteristics

No new construction is proposed, therefore no economic or social impacts are anticipated.

### 2.5 Cultural and Historic Characteristics

The property has been disturbed since 1960 when the single family residence and related improvements were initially constructed. The State of Hawaii Department of Land and Natural Resources State Historic Preservation Division is unable to offer concurrence on the project because the project site is located in an area where there is a moderate to high potential for historically significant sites, including Native Hawaiian burials and/or habitation sites, to be located beneath the ground surface. Soils in the project area consist of Jaucas sands, which are known to contain historically-significant deposits, including subsurface cultural layers and human remains/burials. (Chinen 2007). No adverse impacts to historic or archeological resources are known to have occurred from the original construction of the seawall. The Office of Hawaiian Affairs reviewed the project and had no comment. The Mokuleia shoreline is very active with Native Hawaiians and the general public accessing the beach for recreation and traditional gathering. Public access to the shoreline is located just east of the subject property via a City-owned public right-of-way at TMK: 6-8-10: 012 and lateral access is available depending on the tides.

## 2.6 Environmental Characteristics

The subject property is located near the middle of an embayment that stretches between Mokuleia Beach Colony to the east and the Episcopal Church Camp to the west. The project site faces north and is subject to seasonal storm damage associated with large winter surf. In the 1960's and 70's there was sand mining along this stretch of the bay; and, according to official reports, major erosion occurred during 1967 to 1971 from significant storm wave damage, which is the time frame in which the owner/applicant had the seawall constructed. Many of the seawalls along this embayment were built in response to the 1967/1971 period of storm wave damage and chronic erosion and there has been a seawall along the shoreline of this property for over 30 years.. The subject property has had a seawall in place – according to the 1986 DLU Letter – prior to 1971 or for over 34 years. The subject seawall ties into seawalls on both sides of the subject property. Please see Section 4 and the Coastal Engineering Assessment in **Appendix D** for a more detailed discussion of environmental characteristics.

The subject property does not contain unique or endangered plant or animal species

## 3. ENVIRONMENTAL SETTING

### 3.1 General Description

The project area is a developed residential strip fronting the ocean with single-family homes along the shore. Many of these houses were constructed in the early 1960's. The State's Land Use designation is Urban and the City and County of Honolulu's zoning is R-5 Residential. All of the shoreline lots in the vicinity of the subject property have existing seawalls or revetments to provide shoreline erosion protection.

### 3.2 Soils

The soils for the subject property are of the Jaucas sand series. Slopes range from 0 to 25 percent and the permeability is moderate to rapid. Runoff is considered to be very slow to medium and the erosion hazard is slight to moderate. (U.S. Department of Agriculture, 1972).

### 3.3 Flood Characteristics

The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRM), labels the shoreline in the project area as Zone AE with a regulatory flood elevation of +12 feet MSL. The Zone AE designation indicates that the site is not subject to high velocity tsunami flow. Because the height of the seawall is lower than the base flood elevation of 12 feet, the seawall will have little or no effect on the flood characteristics. The project site is also located within the tsunami evacuation zone as determined by the Oahu Civil Defense.

### 3.4 Marine Flora and Fauna

There are no known endangered species either land or aquatic flora or fauna, in the vicinity of the subject property. The following information about the marine flora and fauna in the vicinity of the project area is taken from the *Hawaii Coral Reef Inventory, Island of Oahu* (AECOS, 1979): “Off the east end of Dillingham Air Field, Montipora flabellata is very abundant, with Porites lobata and Pocillopora meandrina are common. Turbinaria ornata and Asparagopsis taxiformis are the most abundant algae, with Galaxaura less common. Schools of Heniochus diphreutes, Chromis verator, Decapterus macarellus, and Acanthurus dussumieri are abundant in the vicinity of sand channels crossing the limestone bottom, the margins of which provide vertical relief. Green sea turtles (Chelonia mydas) are present.”

### 3.5 Water Quality

Nearshore waters are classified as “A” by the Department of Health. No major point sources discharge into these waters, but coastal waters are subject to turbidity following periods of heavy rain when sediments are washed from the land. These effects become less more westward of Kaiaka Bay.

### 3.6 Public Access, Coastal Use and Recreational Resources

A public right-of-way (TMK: 6-8-10: 012) owned by the City and County of Honolulu is located east of the subject property. Mokuleia Beach Park, about 4,000 feet west of the subject property, also provides public access to Mokuleia Beach.

The shoreline along Mokuleia Beach is light to moderately used by fisherman typically where there is a broader sandy beach and mostly commonly pole fishing is used to catch ulua, papio, oio, goatfish, and other reef species. Some throw-netting also occurs and some people have been observed walking out on the shallow reef headland, presumably fishing. There is a more limited amount of spear-fishing and trapping. There is no “dry beach” fronting the subject property and the sandy beach is relatively narrow, especially depending on the tidal and wave conditions. The area is also used by some for recreational diving, but more in the vicinity of Kaiahulu Bay.

The City’s Mokuleia Beach Park provides camp sites for those who obtain permits. Swimming along Mokuleia Beach is relatively safe during calm seas, but dangerous currents can develop especially during heavy surf. In some areas, swimming is not very good because of the rocky bottom and the usually turbid waters.

At the time that the individual lots were created in 1960, there was no publicly mandated requirement for lateral access along the shoreline and the property boundaries were formed at the highwater mark. Due to the natural process of erosion along this embayment, approximately 25% of the lot area has eroded and a portion of the property is underwater. As such, any previously existing public lateral access, which would have been beyond the property boundary is no longer available. This natural process has limited the amount of sandy beach fronting the property and during high tide there is no beach area. Recreational resources are available depending on seasonal tides.

### **3.7 Archaeological and Cultural Resources**

The project site is located in the Mokuleia ahupuaa. The Hawaiian land division, known as an ahupuaa, generally runs from the top of the mountains to the edge of the coral reef in the sea. The Kolea fishing shrine, now destroyed, is documented in the *Sites of Oahu* as being located far east of the project site, in the vicinity of the Mokuleia Polo field. (Sterling, Bishop Museum Press) The subject property has been previously disturbed by the construction of the seawall and single family dwelling improvements. The subject property does not contain any known archaeological or historic sites. No new construction is proposed.

The proposed action will have no effect on traditional cultural practices. On-shore and off-shore fishing along the embayment occurs now and will continue to take place if the proposed action is approved. The State of Hawaii Department of Land and Natural Resources State Historic Preservation Division is unable to offer concurrence on the project because the project site is located in an area where there is a moderate to high potential for historically significant sites, including Native Hawaiian burials and/or habitation sites, to be located beneath the ground surface and the wall was constructed prior to their review. If additional construction or renovation plans should be considered in the future and should significant archaeological features be uncovered, the applicant will be responsible for contacting the Department of Land and Natural Resources, State Historic Preservation Division in accordance with applicable regulations.

The State of Hawaii Office of Hawaii Affairs has commented that the seawall was built before the property was purchased by the current owner and the area has experienced - and continues to experience - chronic coastal erosion, with many existing and abutting seawalls along the same coastline.

### 3.8 Applicable Land Use Considerations

Chapter 205, Hawaii Revised Statutes (HRS) promulgates the State Land Use Law. The State of Hawaii Land Use Commission (LUC) classifies all land into four districts: Urban, Conservation, Agriculture, and Rural. The fast portion of the subject parcel is within the State Urban District; and, the approximately 2,741 square feet of the land, which has eroded and is currently submerged, is located within the State Land Use Conservation District pursuant to HAR 15-15-20(6). Section 13-227(a)(141) of the Hawaii Administrative Rules (HAR) requires government approval where the shoreline is located at the base of a manmade structure. Prior to obtaining after-the-fact building permits for the structures located within the shoreline setback area, the applicant is required to obtain a certified shoreline from the State of Hawaii Department of Land and Natural Resources. The Department of Accounting and General Services Survey Division in their review of the Shoreline survey will locate placement of the certified shoreline and any foundation encroachments will be determined by the DLNR Office of Conservation and Coastal Lands in their review of the project. A certified shoreline was issued in 1982 for the subject property.

The Coastal Zone Management (CZM) Program is promulgated by Chapter 205A, HRS. Through the CZM Program, each county is required to establish Special Management Areas (Chapter 25) and Shoreline Setbacks (Chapter 23). The affected property lies within the SMA and has been determined to have a “grandfathered” 20-foot shoreline setback. The application for an after-the-fact variance for the existing seawall involves no new construction; therefore, no Special Management Area Use Permit is required.

Chapter 23 has as its purpose to protect and preserve the natural shoreline; public pedestrian access laterally along the shoreline; and open space along the shoreline. Reduction of beach area has been an ongoing problem since the residential subdivision was created in 1960. Prior to construction of the seawall, the property lost 25% of its lot area to erosion from wave action along the shore as the natural shoreline changed. Depending on the seasonal tides people can transit the area fronting the wall for recreational purposes and approval of the shoreline setback variance will not diminish any existing lateral access. Scenic vistas and view planes from and along the Mokuleia coastline and from the near-shore waters are enjoyed by residents. All of the residential properties along this area have similar shoreline protection structures in place and the subject seawall maintains a consistent appearance. The seawalls are located on private property and no public open space or scenic views are impacted.

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Provisions of the Land Use Ordinance of the City and County of Honolulu regulate the utilization of land in a manner intended to encourage orderly development in accordance with adopted land use policies. The project site is located in Mokuleia, Waialua within a rural residential designated area on the North Shore Sustainable Communities Plan (SCP) Land Use Map. (This designation is not a site-specific designation but is illustrative of land use policies stated in the text of the SCP.) Section 3.1 which discusses open space and the natural environment notes that open space preservation, which includes shoreline areas, is a key element for the North Shore and promotes effective management of these resources and deter land-based activities which contribute to their degradation. Section 3.1.32 contains guidelines pertaining to shoreline areas including:

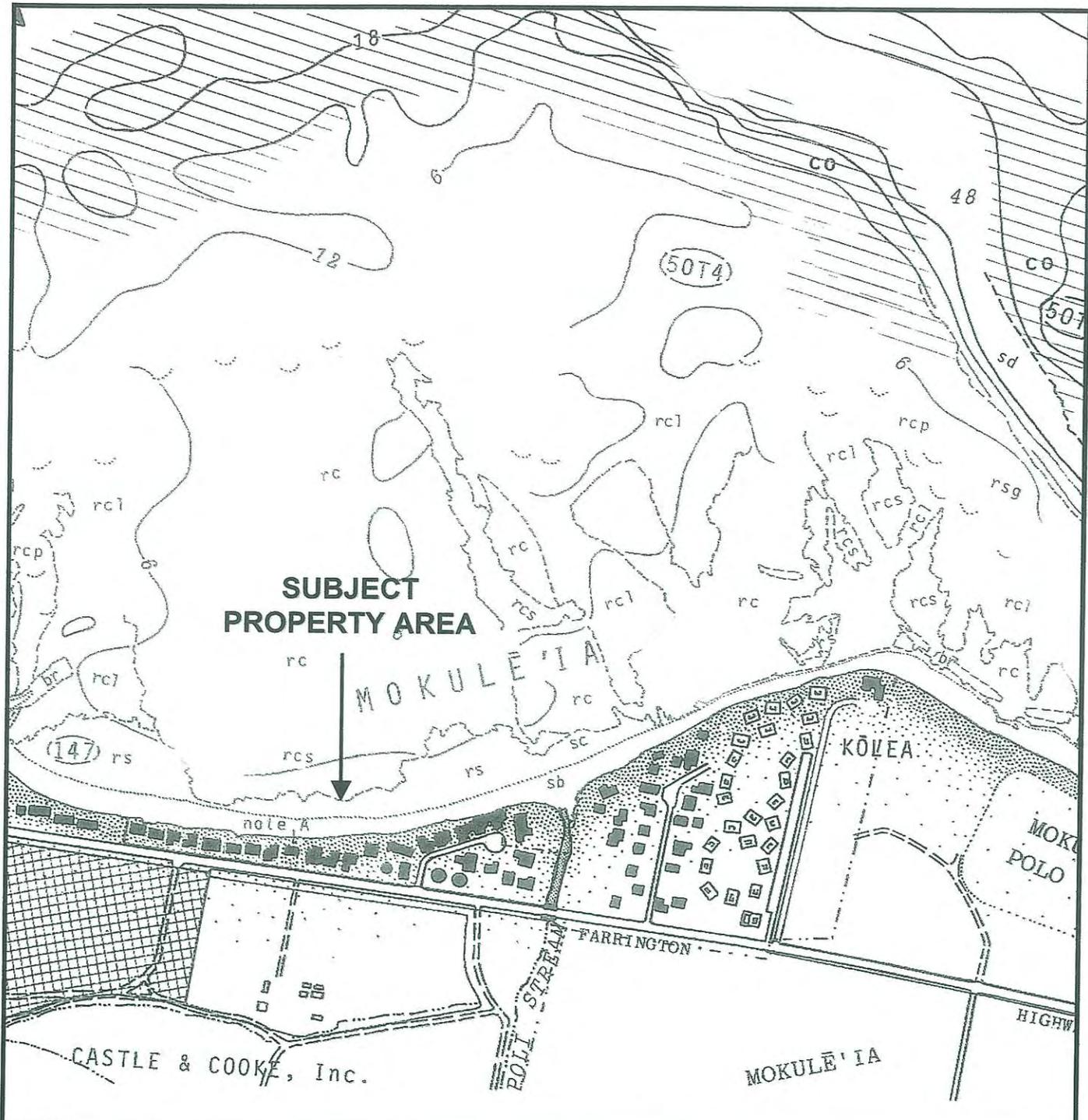
- Protect nearshore coral reefs from damaging activities such as soil erosion.
- Discourage development or activities which result in beach loss.
- Maintain and expand public beach access to the shoreline and lateral shoreline access along the coast, especially in areas with high recreational or scenic value, including the shoreline along Sunset and Kawailoa where access to popular sandy beaches and surf spots are in demand.

Comment: According to the Coastal Engineering Report done by EKNA Services, the existing seawalls do not alter seasonal erosion/accretion patterns. The entire coastal reach has been experiencing net long-term erosion over the past 50 years. The area is not specifically noted as an area of high recreational or scenic value. In any case, the seawalls, which are on private property are not a barrier to lateral access along the beach.

## 4. COASTAL SETTING

### 4.1 General Description

The Mokuleia coastline stretches between Kaena Point to Kaiaka Bay at Haleiwa town on the northwest coast of Oahu. This area is characterized by low-lying platforms of fossil reef-rock that are elevated 3 to 6 feet above mean sea level (MSL). These platforms have been subjected to broad inter-tidal and sub-tidal wave abrasion which has carved into the Waimanalo-age limestone. The coastline contains isolated sandy beaches between breaks in the rocky bench. These beaches widen towards Mokuleia and connect with small offshore sand fields. The wave energy and bioerosion are high at the shoreline in this area as is evidenced by the modern intertidal cuts into the elevated limestone. (Fletcher, 2002)



**LEGEND**

br	beachrock
rbs	hard bottom with sand pockets
rcl, rcp	consolidated limestone bottom
rc, rcs	complex reef (sand, rubble, hard & soft)
rs	hard bottom with sand pockets
rsg	consolidated grooved limestone with sand
sb	sand beach
sc, sd	sand bottom or patch; also in depths > 30 feet

**Figure 8**  
**SHORE AND NEARSHORE CHARACTERISTICS**  
 68-683 Farrington Highway, Mokuleia, Oahu, Hawaii

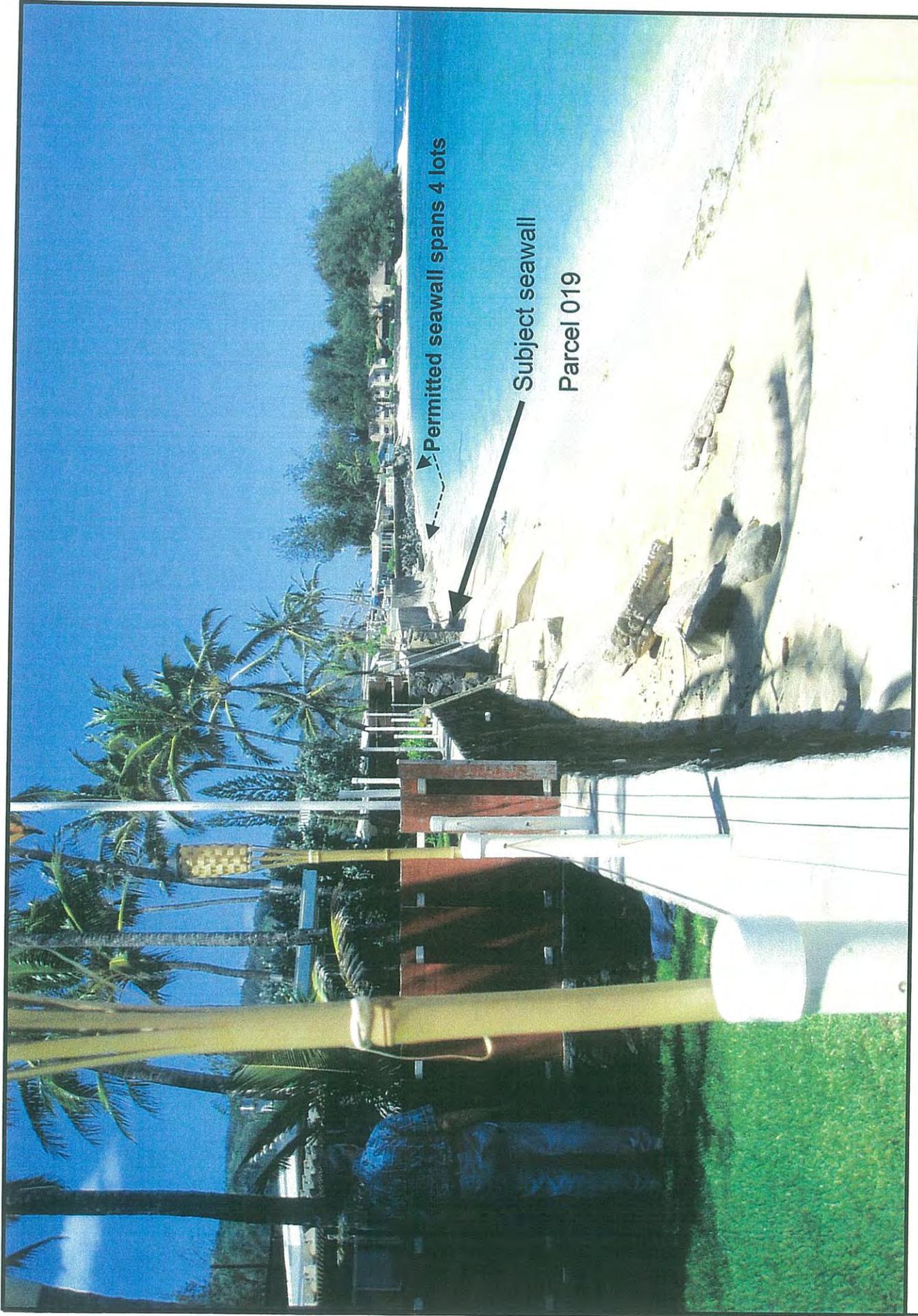


Figure 9

**EXISTING CONTINUOUS SEAWALLS ALONG EMBAYMENT**

Taken from TMK: 6-8-10: 014, Mokuleia, Oahu, Hawaii

## 4.2 Shoreline Characteristics

EKNA Services, Inc. was contracted to prepare a Coastal Engineering Assessment of the potential impact of the subject seawall on existing coastal processes along this Mokuleia shoreline area. EKNA Services, Inc. also prepared in 2004 a Coastal Engineering Assessment of two existing seawalls (TMK: 6-8-9: 010 and 011) for two properties located along the same embayment about 1,300 feet east of the subject property. The 2004 Assessment Report contains a large amount of information that is relevant to the subject property, i.e. information about coastal processes, alternative shore protection measures, and potential littoral impacts. As recommended by EKNA Services, Inc., the entire 2004 Assessment Report is in **Appendix D** to provide coastal engineering information in support of the shoreline setback variance for the subject property. In addition to the 2004 Assessment Report, EKNA Services, Inc. prepared a 2005 letter report (**Appendix D**) to provide additional information specific to the subject parcel.

The following information is taken from the EKNA Services, Inc. 2004 and 2005 Coastal Engineering Assessment (**Appendix D**). The subject property lies on the Mokuleia coast, characterized as an undulating coastal reach containing numerous embayed coral sand beach systems. The subject property is near the middle of one such embayment located near the east end of Dillingham Airfield. This particular embayment is formed between two prominent reef “headleads”, which are shallow reef formations that protrude seaward from shore. The reef headland which bound the eastern end of this embayment fronts the Mokuleia Beach Colony, just west of the Mokuleia Polo Grounds. The subject property is also west side of the Mokuleia Beach Colony. **Figure 8** shows the general shoreline and nearshore physical characteristics.

The shoreline fronting this area is a narrow beach underlain with reef limestone that extends seaward as a variable depth reef platform. This area is exposed to winter North Pacific swell and the predominant tradewind waves. Shallow fringing reefs protect the shoreline from moderate tradewind wave energy. However, during large winter swell conditions and high water levels, erosion of the narrow beach and wave runup and overtopping of the beach cause erosion damage and flooding to unprotected backshore areas and dwellings. Numerous property owners along this coastal reach have constructed shore protection to prevent further storm wave runup damage to their dwellings. The subject property owner wants to retain the existing seawall and related improvements to prevent future erosion and wave runup damage to the dwelling and property.

During an April 2004 site visit to the east end of the embayment by EKNA Services, Inc., reef headlands were not bared, but were noticeably shallower than the reef fronting the central portion of the embayment. Breaking wave activity was evident across the entire bay-front. While not observable from shore, a review of aerial photos shows calm areas between breaker zones that indicate the deeper “channels” through the reefs fronting the embayment.

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## ENVIRONMENTAL ASSESSMENT

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A site visit to the subject property was conducted on April 2, 2005 during low tide (0.1'MLLW), moderate North Pacific swell conditions (3 to 5 foot surf) and strong tradewinds. The base of the wall was subject to wave runoff at the time of the site visit. Breaking wave activity was evident across the entire bay-front.

The subject seawall ties into concrete seawalls on both sides of the subject property. A public right-of-way (ROW) is located east of the subject property. Properties further eastward of the ROW to the Poli Stream mouth are protected with structures, and properties westward of the ROW within the embayment are protected by seawall – about 1,000 linear feet or so. There is no “dry beach” fronting the seawalls extending westward within the embayment. **Figure 3A** contains photos which depict the condition of the shoreline in the vicinity of the subject property.

### 4.3 Existing Shoreline Structures

All of the residential lots on both sides of the subject property along this embayment have existing seawalls or revetments to provide shoreline erosion protection (**Figure 9**). Many of these shoreline protection structures were likely built in the 1960's, 1970's and 1980's due to chronic erosion. While almost all of the shoreline protection structures that were built over 20 to 30 years ago were built without building permits, many have subsequently obtained after-the-fact Shoreline Setback Variances and building permits from the City and County of Honolulu. The seawall starting on Parcel 23 to the west of the subject property, which fronts four contiguous parcels, was built in 1998 under the approval of a shoreline setback variance to replace old seawalls. The seawalls on Parcels 22, 21, and 20 to the west and on Parcels 18, 15 and 14 the east of the subject property are also in the process of submitting shoreline setback variance applications to the City.

### 4.4 Shoreline History

Historical aerial photographs depict the significant loss of shoreline along the Mokuleia coast. The subject property has lost to erosion approximately 2,741 square feet or almost 26 percent of the property's total 10,632 square feet. An area more than 45 linear feet in depth is now located seaward of the 2004 shoreline survey.

The report *Beach Changes on Oahu as Revealed by Aerial Photographs* (Hwang, 1981), documents the characteristics of the “middle section” of Mokuleia Beach, which includes the subject property. Hwang (1981) used historical aerial photograph analysis to assess shoreline changes on Oahu, based on movement of the vegetation line. **Figure 10** shows the location of transects where data were collected as shown in **Figure 11**. The subject property is located between Transect 10 and 11. During the 25-year period between 1949 and 1975 the subject

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

embayment area experienced an erosion loss of between 10 to 8 feet (Transect 10 and 11 respectively). According to Hwang's report, major erosion occurred during 1967 to 1971 due to significant storm wave damage – this time frame is consistent with residents' testimony regarding when all of the seawalls along this embayment were originally built. Many of the homes along this stretch of coastline are less than 20 feet from the edge of the vegetation line or an existing seawall. These homes, like the project site, would be impacted by any erosion that would reduce the natural buffer zone significantly.

In 1989, Sea Engineering Inc. prepared for the City's Department of Land Utilization (DLU) the *Oahu Shoreline Study – Data on Beach Changes*, which was similar to and an extension of the 1981 Hwang study. The report concluded that landward recession of the vegetation line since 1949 has continued. Data were collected only for Transect 10 which showed an additional erosion loss of 8 more feet. The total loss at Transect 10 between 1949 and 1988 totaled 18 feet. As such, a number of vertical seawall structures have developed along the 3,000 foot long embayment between the Episcopal Camp and the Mokuleia Beach Colony. The following are excerpts taken from the 1989 Oahu Shoreline Study which relate to this embayment.

The following are excerpts taken from the 1989 *Oahu Shoreline Study* completed for the City's Department of Land Utilization which relate to this embayment.

*This is a small embayment, 3,000 feet long, that is completely developed. Polipoli Stream discharges in the center of embayment. The shoreline from the Episcopal Camp to the stream is lined with shore protection structures, except for the four lots just west of the stream. The unprotected houses have only a few feet of vegetation between them and the beach.*

*The structures are generally vertical seawalls of varying heights and types. At the west end, particularly, the walls protrude varying distances out onto the beach.*

*Given the extent of the existing seawalls and the proximity of the unprotected houses to the waterline, shore protection should be allowed throughout this area.*

***The shore protection structure of choice will probably be a vertical seawall, since there is little room for sloping revetments. The DLU should ensure that the design is adequate and that the alignment matches the surrounding areas.***

*At present, there is lateral access along this beach, at least during some seasons, but if erosion continues, this will be lost.*

## ENVIRONMENTAL ASSESSMENT

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Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokualeia, Oahu

The above description and management recommendations are consistent with the findings of the EKNA engineering assessment for the subject property. Given the established pattern of shoreline protection, an individual lot owner has no choice but to protect his property with a vertical seawall structure similar to the existing seawall structure along the ocean frontage of the subject property.

### 4.5 Coastal Processes and Sand Transport

The following information is taken from the EKNA Services, Inc. 2004 and 2005 Coastal Engineering Assessment (**Appendix D**). It is apparent that during high tide, wave runup reaches the base of the existing seawall. During storms and large winter swell conditions, wave runup and overtopping of the beach likely causes flooding and sand transport into the properties that are not protect by seawalls. The owner of the subject property has also experienced sand deposited into the rear yard and significant amount of wave runup and water have overtopped the wall and ocean water has been deposited in the rear yard.

This coastal reach is exposed to winter North Pacific swell and predominant tradewind generated waves. It is apparent that during high tide, wave uprush reaches the base of the existing seawall. During storms and large winter swell conditions, wave runup and overtopping of the beach likely causes flooding and sand transport into properties that are not protected by seawalls.

According to the 2005 EKNA Services assessment, the erosion that is occurring along this span of costal reach can be described as “passive” erosion (in contrast to “active” erosion which induced or accelerated by shore protection structures). Passive erosion proceeds independent of the type of shore protection constructed.

The subject property is sheltered from deepwater wave energy due to the shallow reefs that surround the embayment. These reefs dissipate nearly all wave energy during typical tradewind generated wave conditions. The wave energy that can reach the shoreline is limited by the water depths over the reefs and the channels through the reef. During large swell activity, waves breaking over the reefs can cause a rise in water level known as wave setup. The increased water levels allow more wave energy to be transmitted over the reef. Thus, wave activity at the shoreline is greatest during large swell or storm wave conditions and during high tides. The conditions that promote wave overtopping problems for unprotected parcels – those without seawalls – occur during large winter swell activity. Typical tradewind waves are not capable of causing appreciable wave setup and very little tradewind-generated wave energy reaches this shoreline reach.

## ENVIRONMENTAL ASSESSMENT

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Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

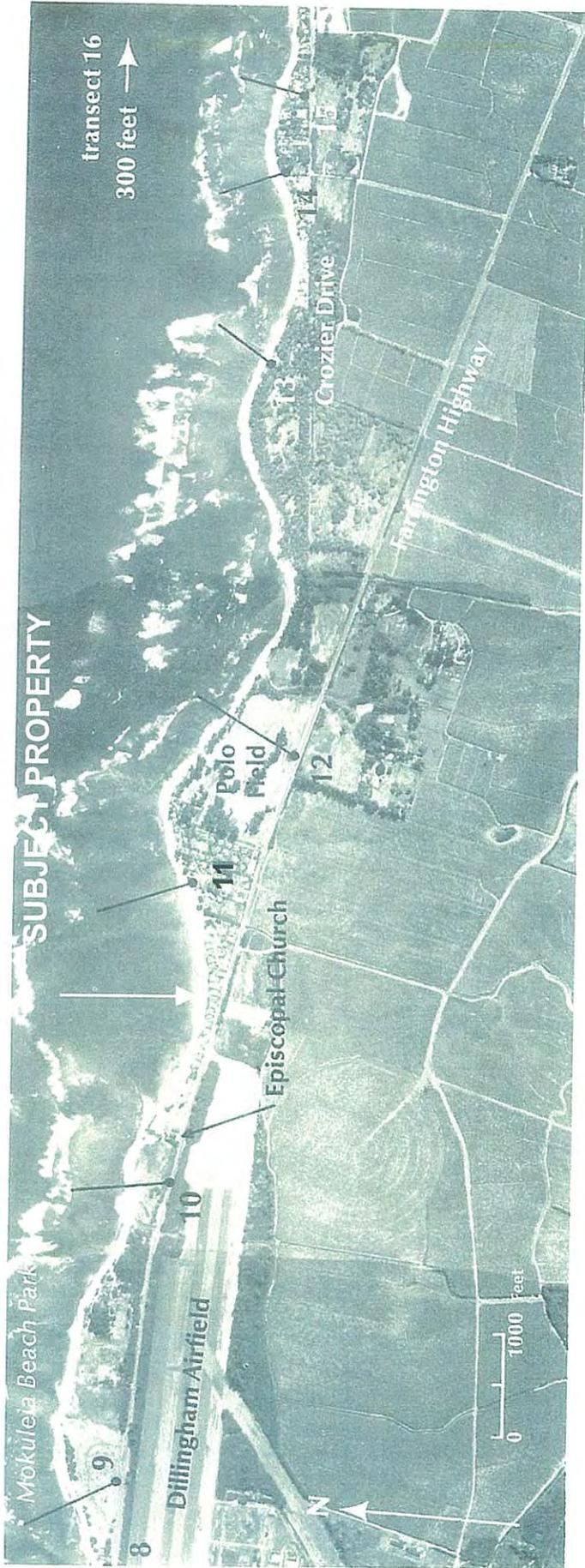
Normally along an exposed coastal reach, wave energy is the primary factor that drives nearshore currents in the surf zone. Waves approaching the shore at an angle will induce longshore currents and transport of beach material alongshore in the direction of breaking waves. However, the shallow reefs surrounding the site considerably alter the deepwater wave characteristics within this embayment, resulting in possibly complex patterns of waves approaching along this shoreline.

According to a prior report by EKNA Services for the Mokuleia area, residents have noted that shoreline currents within this embayment flow towards the west during high winter swell activity, which may be hydraulically driven due to the bathymetric contours within the embayment rather than wave-driven. Water that accumulates within this embayment during large swell or storm wave activity seeks to flow towards the deeper water depth areas on the west side of the embayment, or areas of hydraulically least resistance. Thus, the water drains towards deeper areas within the embayment and those deeper water depths exist on the west side of the embayment.

The shallow reef structure offshore of the eastern headland – closer to the Mokuleia Beach Colony – is broader and extends further in the embayment than the shallow reef structure offshore of the western headland. The configuration of the shallow reef structure and the presence of an apparent “channel” through the offshore reef near the western end of the embayment, along with hydraulically-driven circulation, are probably the basis for the westerly-flowing shoreline current that residents have noted.

If the shoreline flows are strong, they have the potential to carry wave-suspended shoreline sediments offshore into the deeper reaches of the embayment and seaward of the surrounding reef as the shore-parallel flows are diverted seaward through openings in the shallow reef. These sediments may be deposited in water depths too deep for normal wave activity to return it to the beach. This means that the history of long-term erosion of this coastline is evidence that such permanent loss of beach material occurs.

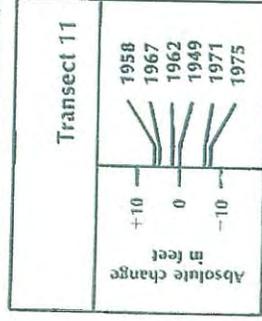
While net long-term erosion is evident, residents also indicated that seasonal fluctuation of beach width occurs. There is a pattern of erosion along the eastern part of the embayment during the winter and restoration of the beach width during the summer. The opposite occurs for the western shoreline where there is a pattern of erosion during the summer and restoration during the winter. **Figure 12** depicts the probable seasonal transport processes. Because water depths in the central part of the embayment are too deep for sediments to move back to shore, the seasonal fluctuation of beach width is presumably due to longshore transport of sediments from the shoreline and shallow nearshore areas around the headlands.



**Photomap 2. Mokuleia Beach (Middle Section)**

Photographs by Air Survey Hawaii: March 1971

Absolute change is the change in the position of the vegetation line compared to the earliest or base year.



SOURCE: Beach Changes on Oahu as Revealed by Aerial Photographs, 1981, Dennis Hwang

**Figure 10**  
**MOKULEIA BEACH LOSS AS REVEALED BY HISTORIC AERIAL PHOTOGRAPH**  
68-683 Farrington Highway, Mokuleia, Oahu, Hawaii

Table 2 - Central Mokuieia Beach. Changes in the Vegetation Line in Feet.

Observation Period	Transect Number															
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sep 28, 1949 - Nov 01, 1958	*	-6	4	6	-4	*	1	-15	-4							
Nov 01, 1958 - Aug 22, 1962	*	-1	-5	-4	3	-6 <sup>2</sup>	7	28	20							
Aug 22, 1962 - Apr 22, 1967	*	8	7	3	-3	-7	-2	-8	-9							
Apr 22, 1967 - Mar 17, 1971	-2	-3	-8	-12	-5	-2	7	-1	*							
Mar 17, 1971 - Apr 11, 1975	-1	-2	-8	-11	-7	2	-3	5	23							
Apr 11, 1975 - Aug 06, 1979	12	9	-1	*	8	1	-4	-8	1							
Aug 06, 1979 - Feb 03, 1988	-22	-26	-7	*	-7	-4	-5	20	-1							
Net Change - Vegetation Line	-13	-21	-18	-8	-15	-16	1	21	9							
Range - Vegetation Line	22	26	24	14	16	16	13	36	20							

\* No Data

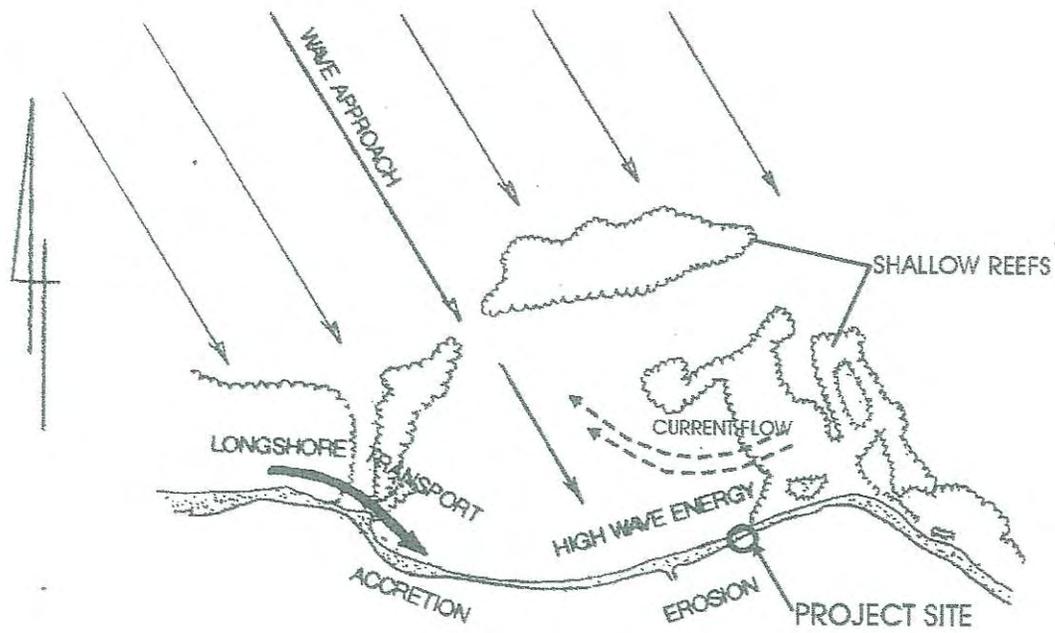
1 To Seawall

2 Change from 1949 to 1962

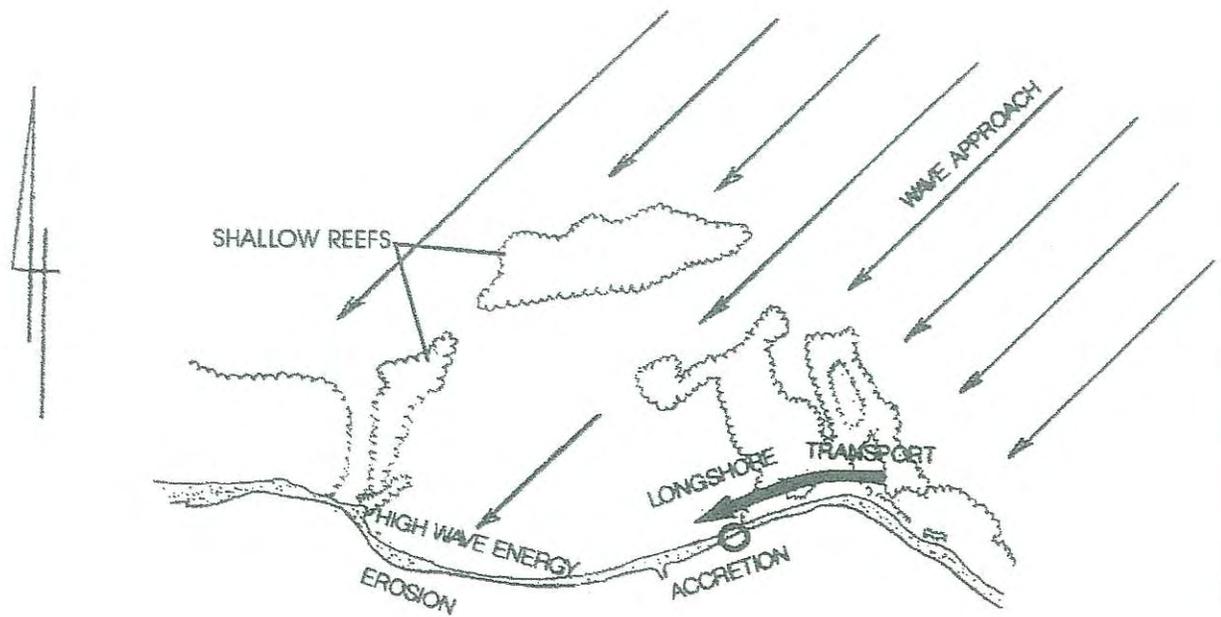
3 Change from 1967 to 1975

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.  
 Transect locations and historical data from Hwang, Table 2.

Figure 11  
 MOKULEIA BEACH - CHANGES IN VEGETATION LINE  
 68-683 Farrington Highway, Mokuieia, Oahu, Hawaii



WINTER NORTHWEST SWELL CONDITIONS



SUMMER NORTHEAST TRADEWIND CONDITIONS

Source: EKNA Services, Inc.

**Figure 12**  
**SAND TRANSPORT FIGURES**  
 68-683 Farrington Highway, Mokuleia, Oahu, Hawaii

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For this coastal area, and for most coastal areas in the state, the general trend is toward continued long-term erosion. There is no evidence that the long-term erosion trend along this coastal reach will reverse in the future.

### 4.6 Potential Littoral Impacts

The following information is taken from the EKNA Services 2005 letter reports for the subject properties, which states the existing seawall and others along this coastal reach, have no effect on the existing littoral processes at this site. The subject seawall is functionally consistent with existing seawalls along this coastal reach. This entire coastal reach has been experiencing net long-term erosion over the past 50 years. There is a continuing high risk of erosion and flooding damage due to overtopping waves to unprotected properties.

While the subject seawall does not affect longshore sediment transport processes, there may be some concern that cross-shore transport may be affected because of wave reflection from the near-vertical impermeable face of the seawall. It has been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts by discouraging sand accumulation in front of the structure.

However, given the fact that beach and shoreline erosion is continuing to occur along this coastline and elsewhere along this coastline where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainly not be reversed simply by constructing sloping porous-surfaced shore protection structures. According to the EKNA 2004 Report, in fact, studies sponsored by the U.S. Army Corps of Engineers have found no significant difference in impact to the beach fronting a sloping rip-rap revetment and an adjacent vertical concrete seawall. EKNA Services, Inc. has conducted field studies on Kauai that showed seasonal beach accretion – increase in beach width – occurred in front of a near-vertical seawall as well as on an adjacent unprotected beach.

The erosion that is occurring along the Mokuleia shoreline can be described as “passive” erosion. It is not “active” erosion, which is induced or accelerated by shore protection structures. Passive erosion designates the process that occurs when a protective structure is built along an already eroding shoreline and erosion continues to occur. Passive erosion proceeds independent of the type of shore protection constructed. The unprotected shoreline adjacent to a protective structure will continue to erode and will eventually migrate landward beyond the protection structure. This is the most common result of shoreline hardening in Hawaii, and is the probable long-term consequence of the existing seawalls at Mokuleia.

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## ENVIRONMENTAL ASSESSMENT

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Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 4.7 Coastal Hazards

The *Atlas of Natural Hazards in the Hawaiian Coastal Zone (2002)* rates the “overall hazard assessment” along the Kaena Point coast from “moderate (4) at Kaena point to high (6) along the low-lying sandy beaches of Camp Erdman and Mokuleia Beach, where the coastal slope is lowest and chronic erosion is diminishing Mokuleia’s sandy beach”. Tsunami and stream flooding are other concerns in this area. They are ranked high along the lower slopes between Camp Erdman and Mokuleia.

The hazards of high wave action throughout this region of the North Shore is rated as high. This northwestern tip of Oahu is also subject to Kona storms, high tradewinds and hurricanes. The storm hazard is ranked moderate for the eastern portion of this coast (including the vicinity of the project area) where it become a bit more sheltered from hurricane and Kona storm energy, as compared to the western portion towards Kaena Point. The *Atlas*, rates the erosion hazard as high along the isolated sandy beaches of Camp Erdman and Mokuleia, whereas erosion hazard becomes more moderate along Kaena Point’s hard limestone shoreline where it is rocky.

## 5. ALTERNATIVES CONSIDERED

The EKNA April 2005 letter report for the subject property states that EKNA’s prior April 2004 report for two other properties that are also located along Mokuleia Bay should be referenced in its entirety. The 2004 report is contained in **Appendix D**. The 2004 EKNA report discusses in detail various alternatives to after-the-fact approval of an existing seawall at Mokuleia Bay.

The EKNA April 2005 letter report specifically for the subject property appears at the front of **Appendix D**. It states that removal of the existing seawall and replacing it with a different type of shore protection measure does not provide any significant benefit. Seawalls exist on both sides of the subject property. Also, removing the seawall without constructing replacement shore protection would result in the immediate loss of least 50 feet of property as the shoreline attempts to achieve a stable slope. The adjacent properties would also be impacted as their existing seawalls become flanked.

### 5.1 Sloping Revetment

Replacing the seawall with a sloping revetment structure will not improve the existing shoreline access and will not halt the ongoing erosion along this coast. Although there is sufficient space on the property to construct a sloping revetment without removing or relocating the dwelling, at least 20 feet of flank walls would need to be constructed to protect the adjacent properties, since the top of the revetment slope would be located about 20 feet inland of the adjacent seawalls. It would also be significantly visually incompatible with the adjacent vertical seawalls.

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 5.2 Sand Bags

While large geotextile sand bags have been used as temporary erosion control in several areas, including Lankikai, use of the bags has drawbacks. The bags are prone to damage from storm wave attack and vandalism, require frequent and continual maintenance, and cannot be considered a permanent protection measure. The large sand bags are solid, hard building materials when fully filled, and a sand bag revetment structure is more reflective than a rock revetment. Another potential concern is that bags that are under water become very slippery due to algal growth, and therefore pose a safety problem in terms of people walking across them.

### 5.3 Beach Restoration

The State of Hawaii Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) is developing a comprehensive coastal lands policy that strives to mitigate negative impacts to the coastal system from shore protection structures by encouraging alternatives to the construction of seawalls and revetments. In the foreseeable future, the DLNR will implement new, proactive and sustainable shoreline management practices in accordance with the objectives and policies that pertain to Hawaii's beaches, which are a State public resource protected by the State Constitution and Hawaii Revised Statute 205A and 183C. Policies for the protection and preservation of Oahu's natural shoreline and sandy beaches are further promulgated by the Revised Ordinances of Honolulu Chapter 23.

Beach and dune restoration with sand nourishment can slow coastal erosion and restore lost beach areas. The recent Kuhio Beach restoration project involved the replacement of 10,000 cubic yards of reclaimed sand from nearshore deposits. The project, which was executed between November 27, 2006 and January 6, 2007, cost approximately \$475,000 and was funded by the DLNR – Land Development Fund (DLNR, 2007). In March 2000, approximately 10,000 to 12,000 cubic yards of dredged sand from Kaelupulu Stream in Kailua was used in a demonstration project to renourish south Lanikai Beach (Shapiro 2000). A news release pertaining to the project indicated that it “provided about half of the total amount that will be needed to more fully nourish south Lanikai Beach” (DLNR 2000). It is not known when another beach nourishment project would be accomplished for south Lanikai Beach since adequate funds and sources of sand would first need to be secured.

## ENVIRONMENTAL ASSESSMENT

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Soft shore protection measures are not feasible from the perspective of a single landowner because they require resources and coordination on a large-scale. Beach restoration must occur along numerous residential properties in order to be effective. In addition to the challenges of finding suitable sand and navigating the permitting process, a successful beach nourishment project may require coordination and cooperation among a group of homeowners who maintain a long-term commitment to undertake sand replenishment on a periodic basis. It is likely that a groin or offshore breakwater structure would also need to be constructed to prevent sand from being quickly redistributed by wave energy. Due to intense storm wave activity on the north shore these solutions do not appear to be practical. Beach replenishment may be the best long-term solution, but these measures are beyond the capacity of the applicant who is simply trying to permit a seawall that has been in existence for more than 30 years in order to protect his property from further damage.

### **5.4 No Action**

This alternative is not viable because it implies that no action would be taken to resolve the illegal seawall. The applicant would incur continuous civil fees owed to the City and County of Honolulu for the shoreline setback violation. The engineer has estimated that the existing seawall could last as long as 30 years but at the same time it is not possible to predict storm wave action for the north shore of Oahu. Granting of the Shoreline Setback Variance is the means for legalizing the existing seawall under ROH Chapter 23 and would provide a means for the owner to legally repair the wall but it is no guarantee that the structure will be permanent. However, in general, a legal structures is more likely to be repaired in accordance with building code regulations than an illegal structure.

### **5.5 Removal of the Existing Seawall.**

Removal of the existing seawall, which is functioning as a retaining wall, is not a viable alternative because it would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope. With the house only 40 feet away from the existing wall, the house would be destroyed if the seawall was removed. In addition, removal of the existing seawall along 61 feet of coastline would not release enough sand to restore a beach in an area where the entire shoreline has been armored and would hasten erosion of the applicant's parcel. Areas behind existing shoreline structures on adjacent properties may eventually erode if the applicant's seawall are removed.

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 6. PROJECT IMPACTS

Potential impacts are addressed in terms of how proposed action relates to the thirteen criteria below. Chapter 200 of Title 11, Administrative Rules of the State Department of Health establishes criteria for determining whether an action may have a significant impact on the environment (11-220-12).

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

The subject property lies along an eroded sandy shoreline. No new construction is proposed. The subject property does not contain any significant flora or fauna. No known cultural resources are located on the property. No impacts to natural or cultural resources are anticipated due to the proposed action. The application is for an after-the-fact shoreline setback variance which involves no construction activities and no irrevocable commitment, loss or destruction of resources.

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

There is no impact on public access to the shoreline. A City-owned public right-of-way (TMK: 6-8-10: 012) is located four parcels east of the subject property. There will be no impacts on fishing or ocean use due to the proposed action. The existing seawall configuration and related improvements do not curtail the beneficial use of the environment. The property is zoned residential and is committed to private residential use. The existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. However, when a protective structure is built along an eroding shoreline and erosion continues, the result will be loss of beach fronting the wall and is the probable long-term consequence of the existing seawalls at Mokuleia. Loss of beach could impact shoreline recreational activities including on and off-shore fishing. On the other hand, removal of the seawall would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope (EKNA 2006). The existing seawall protects the property from further erosion and maintains the owner's beneficial use of the property.

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

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

Chapter 343, HRS requires environmental assessment for any use within a shoreline area as defined in section 205A-41. It is the policy of Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of our island beaches. However, the existing seawall is consistent with the longstanding history of government decisions that approved shore protection structure along this stretch of the Mokuleia coastline in order to protect the rights of homeowners. The eight (8) adjacent properties to the west of the applicant's property have all received shoreline setback variance approvals and building permits (1993/1997) for their respective seawalls. These issues have been discussed at length with the DLNR and there is no simple answer or statewide policy that has been implemented.

**4. Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;**

The economic and social welfare, and cultural practices of the community or State are not affected by the existing seawall and related improvements or the proposed action to seek after-the-fact approval. No new construction is proposed.

**5. Substantially affects public health;**

There are no public health concerns relating to the existing seawall and related improvements. No new construction is proposed.

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

There are no anticipated secondary impacts to population or public facilities. No new construction is proposed. The proposed action does not impact public services or facilities.

**7. Involves a substantial degradation of environmental quality;**

The existing seawall prevents further erosion of the applicant's property and therefore minimizes the potential for runoff entering the ocean. The subject seawall ties into seawalls on both sides of the subject property. Historical aerial photographs and studies depict the significant loss of shoreline along the Mokuleia coast since 1949. The subject property has lost to erosion approximately 26 percent of the property's total area. The majority of homes have vertical seawalls or some form of shore protection along this embayment.

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokualeia, Oahu

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

No new construction is proposed. The adjacent properties are developed as residential properties. All the residential properties along this embayment experienced loss of 25-30 % of property lot area due to wave action and erosion prior to construction of the seawalls between 1967-70. Nine of the properties have undergone environmental review in order to obtain after-the-fact shoreline setback variances to legalize the existing seawalls. There has been no determination of significant cumulative impact by the approving government agency. The process of obtaining the after-the-fact shoreline setback variance for the subject property will not result in any significant cumulative impact and does not involve a commitment for larger actions. As such, a Finding Of No Significant Impact is being requested. There is no commitment for a larger action; the subject property will remain single family residential.

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

The project site has been previously disturbed and developed when the single family residence and improvements were constructed. There are no known endangered, threatened, or rare plants or animal species at or near the subject property.

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

No new construction is proposed. The existing seawall and related improvements do not detrimentally affect air or water quality or ambient noise levels.

**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 located in Flood Hazard Zone AE with a base flood elevation of twelve feet and the tsunami evacuation zone. The seawall protects the property from further erosion and protects the house structure from wave energy, wave run-up and overtopping. The existing seawall is not expected to increase the flood hazard for the surrounding properties or the subject property. Because the height of the seawall is lower than the base flood elevation of 12 feet, the seawall will have little or no effect on the flood characteristics. Any tsunami which would breach the wall would most likely cause damage to both the wall and property.

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

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

The 1987 Coastal View Study designates Mokuleia Beach Park as a “significant stationary view”. The project site is located over 4,000 feet east of Mokuleia Beach Park. The Study also designates Farrington Highway as a “coastal roadway with intermittent coastal views”. Views of the shoreline and subject property’s rear yard are not possible from Farrington Highway due to the existing private residential structures, garages, fences and hedges lining the Highway. Scenic vistas and view plans from and along the coastline and from the near-shore waters are enjoyed by residents. All of the residential properties along this area have similar shoreline protection structures in place and the subject seawall maintains a consistent appearance. No scenic views are impacted.

### 13. Requires substantial energy consumption.

Not applicable.

## 6.1 Summary of Unavoidable Adverse Environmental Impacts

Construction of the original seawalls in the late 60’s or early 1970’s may have prevented the erosion of coastal land behind the shoreline structures but, combined with other factors such as sea-level rise, may have refocused erosion that can contribute to beach loss. Allowing the applicant’s seawall to remain in place prevents property losses due to erosion and wave damage, however, the structures may be impounding a substrate beach quality sand that would naturally nourish a healthy beach. Efforts to restore the beach in southern Lanikai where, as is the case along this shoreline, the entire shoreline has been armored for many years, the sand supply has decreased, and the State public resource has been severely compromised for several decades would require the removal of many contiguous armaments along the affected coastline. Removal of the existing seawall along 61 feet of coastline would not release enough sand to restore a beach in an area where the entire shoreline has been armored and would hasten erosion of the applicant’s parcel. Areas behind existing shoreline structures on adjacent properties may eventually erode if the applicant’s seawall is removed. Maintaining status quo by allowing the applicant’s existing shoreline protection structure to remain in place is not expected to create any new significant adverse impact on littoral processes along the shoreline.

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## ENVIRONMENTAL ASSESSMENT

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Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuieia, Oahu

### **6.2 Finding and Reasons Supporting Anticipated Determination**

The significance criteria of Title 11 Chapter 200-12 HAR have been applied and it is proposed that the proposed action to approve the after-the-fact shoreline setback variance for the existing seawall and related improvements will not have a significant effect on the immediate or surrounding environment and that an Environmental Impact Statement will not be required. Based upon this Environmental Assessment document and the evaluation of the determination, it is recommended that a Finding of No Significant Impact (FONSI) be issued for the proposed action.

### **7. MITIGATION MEASURES**

As indicated in Section 6.0 Project Impacts, the proposed action would cause no significant short-term or long-term impacts to recreational, biological or scenic resources. The Coastal Engineering Assessment states that the existing seawall has no effect on the existing littoral processes at this site, it does not alter seasonal erosion/accretion patterns, and does not affect lateral access along the beach. No mitigation measures are proposed.

### **8. REQUIRED APPROVALS, AGENCY AND PUBLIC CONSULTATION AND REVIEW**

#### **8.1 Required Approvals**

The project will require the following:

- Shoreline Setback Variance pursuant to Chapter 23, Revised Ordinances of Honolulu
- After-the-fact Building Permit from the City and County of Honolulu
- Zoning adjustment for the height of the existing seawall
- Minor Shoreline Structure Permit

#### **8.2 Shoreline Setback Variance**

The applicant will need to submit an application for an after-the-fact Shoreline Setback Variance for the following primary structures.

1. The seawall and concrete apron;
2. The rock wall and vinyl fence located along the east property line;
3. Concrete and tile wall along the west property boundary.

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As set forth in the Revised Ordinances of Honolulu (ROH) Section 23-1.8(b)(3), the variance application will contain the three tests of hardship that the landowner will incur if he is not allowed to retain the structures

**(1) The applicant will be deprived of reasonable use of the land.**

All 16 residential properties along this coastline are protected with similar structures to prevent the effects of shoreline erosion and wave damage that would otherwise occur due to North Pacific swell events. Previous erosion from wave action had already substantially diminished the property area prior to construction of the shoreline protection structure. It is reasonable to assume that property losses will occur if the applicant is required to remove the illegal seawall structures that have been in place since 1969. Granting of the Shoreline Setback Variance is the means for legalizing the existing seawall under ROH Chapter 23 and would provide a means for the owner to legally repair the wall should a severe storm event undermine and collapse an unconsolidated shoreline, thereby creating a public hazard on the beach. Any other action would deprive the applicant of reasonable use of his property.

**(2) The applicant's proposal is due to unique circumstances and does not draw into question the reasonableness of ROH Chapter 23 and the shoreline setback rules.**

The beach fronting the property began to be narrowed since the original subdivision in 1960. The original seawall was constructed without building permits prior to the implementation of the shoreline setback rules and subsequently repaired in response to wave damage. Chapter 23 allows shoreline protection structures that have received a shoreline setback variance on the basis that the structure does not adversely affect beach processes, public access along the shoreline or shoreline open space. Retreat of the shoreline along this stretch of coast has been in existence prior to the building of the first seawall; and, would most likely continue without the shoreline protection structure. People can transit the area fronting the walls for recreational purposes at low tide and the open space and view planes are not impacted by the existence of the seawall. It is also a policy of Chapter 23 to reduce hazards to property from coastal flooding and retreat of the shoreline; and, as the wall has been in existence for almost 40 years and is connected to a series of seawalls protecting the residential properties along the embayment, it is reasonable to allow the wall to remain and to allow it to be repaired as needed in accordance with government regulations

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## ENVIRONMENTAL ASSESSMENT

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Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuieia, Oahu

### **(3) The proposal is the practical alternative which conforms to the purpose of the shoreline setback regulations**

The applicant concurs that while the preferable alternatives would be to redesign the wall to include a sloped revetment and/or engage in a program of beach restoration, the proposal to retain the existing seawall is the only practical solution. To demolish and reconstruct the wall would unduly impact beach processes and beach restoration is beyond the scope of a single landowner. Legalization of the existing shoreline protection structure, so that it can be repaired as necessary, is the best alternative given the history of erosion and wave action for this portion of the north shore of Oahu. These criteria and any specific engineering solutions will be expanded on in the application for the Shoreline Setback Variance and will include a request and justification to retain other minor structures.

### **8.3 Preparation of the Final Environmental Assessment**

The following agencies were consulted during the preparation of the Final Environmental Assessment (FEA):

- City and County of Honolulu, Department of Planning and Permitting
- State Bureau of Conveyances
- State Department of Accounting & General Services (Survey Division)
- State Department of Land and Natural Resources/  
State Historic Preservation Division
- State Office of Environmental Quality Control
- State Office of Hawaiian Affairs
- Sierra Club
- Department of the Army
- Oahu Civil Defense

### **8.2 Comments and Responses on the Draft Environmental Assessment**

The Final EA contains the following comment and response letters on the Draft Environmental Assessment.

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

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MUFI HANNEMANN  
MAYOR

HENRY ENG, FAICP  
DIRECTOR

DAVID K. TANOUÉ  
DEPUTY DIRECTOR

2005/ED-27(TC)

January 23, 2006

Mr. Donald Clegg, President  
Analytical Planning Consultants, Inc.  
928 Nuuanu Avenue  
Honolulu, Hawaii 96817

Dear Mr. Clegg:

Re: Draft Environmental Assessment (DEA)  
DPP Project Reference No. 2005/ED-27  
Project : Michaels After-the-Fact Seawall  
Location : 68-683 Farrington Highway – Mokuleia  
Request : Shoreline Setback Variance To Retain An After-The-  
Fact Seawall  
Tax Map Key : 6-8-010: 019

We have reviewed the Draft Environmental Assessment (DEA) for the above-referenced project and offer the following comments:

1. Section 2.2 – Proposed Action: In Figure 6 – Shoreline Survey, there are indications for two photographs (Arrow Nos. 1 and 2). Where are these photographs? Clarify whether the existing concrete wall and tile wall along the west property line should be included in the shoreline setback variance.

This section should be revised to include all existing structures to be included in the after-the-fact request for a shoreline setback variance.

2. Section 2.3 – Technical Characteristics:

a. The Typical Wall Detail (Figure 7) shows a concrete top of wall width of 14 inches but the top of wall in the Photo 3A.2 (Figure 3A) appears to be much wider. Verify the top of wall width and rock wall thickness and revise the drawing as required.

Mr. Donald Clegg  
January 23, 2006  
Page 2

- b. The Site Plan should include the vinyl fences and gates in the shoreline setback area as shown in Photo 3A.1 in Figure 3A. Provide a photo of the shoreline setback area along the west property line showing the existing concrete wall and tile wall, as well as, the existing lanai and concrete slab attached to the dwelling.
- c. According to Photo 3A.2 in Figure 3A, there is an existing concrete landing at the base of the existing seawall. This landing should also be shown in the Site Plan and Shoreline Survey Map.
- d. In the first paragraph, it states that, "Figure 2 is the as-built survey" but it should be Figure 7.
- e. In the second paragraph, it states that, "on the west side of the addition is located 20 feet landward of the seawall face" but when we measure the distance on the shoreline survey map (Appendix C) it is about 43 feet. Verify measurements.
- f. In the last sentence of the second paragraph, it states that, "a very minor portion of the newer 'concrete lanai' appears to be landward of the 40-foot shoreline setback area." It should be seaward rather than landward.
- g. The Final EA should include an estimate of the amount of backfill that is retained behind the existing seawall.

h. A certified shoreline survey for a complete shoreline setback variance application. However, we are aware the Department of Land and Natural Resources (DLNR) rules for shoreline certifications, revised December 12, 2002, explicitly require government approval where the shoreline is located at the base of a manmade structure (e.g., Section 13-222-7(a)(14), Hawaii Administrative Rules). Please address what, if any, issues (i.e., shoreline encroachments, etc.) exist that must be addressed in order to obtain a certified shoreline survey.

3. Section 5.3 – Beach Restoration: This section should be revised to disclose if the DLNR Office of Conservation and Coastal Lands was contacted on possible beach restoration options. We are aware that a program for small-scale beach nourishment projects has been developed in conjunction with the State Department of Health and the U.S. Army Corps of Engineers.

4. Section 5.4 – No Action: This section must be expanded to describe the physical conditions that are anticipated if no action were to be taken. The Final EA should provide an estimate of the life expectancy of the existing seawall without further alterations.



July 11, 2008

5. Section 6 – Project Impacts:

- a. Criteria 3 - The discussion of Criteria 3 fails to describe the State's policies with regard to beach erosion and shoreline protection. The Final EA should be revised to include a discussion of the shoreline protection policies of the DLNR Office of Conservation and Coastal Lands. It should also disclose whether the office was consulted on this proposed action relative to the State's long-term policy and goals and guidelines for our shoreline.
- b. Criteria 12 - The discussion of Criteria 12 fails to discuss the scenic vistas and view planes from and along the coastline and from the near-shore waters, which are enjoyed by residents and visitor alike and crucial to the ocean recreation and tourist industry.
6. Shoreline Setback Regulations: The Final EA should include a section that addresses the criteria under which a shoreline setback variance (SV) may be granted. This section must specifically address the three (3) tests of the Hardship Standard, pursuant to Section 23-1.8(b)(3), ROH. We strongly recommend that a thorough discussion be provided in the context of these specific criteria.
7. Conformance with County Plans: A section should be added to the Final EA that addresses how the request is consistent with the vision, land use policies, principles and guidelines of the North Shore Sustainable Community Plan (Ordinance 00-15), including the Open Space and Natural Environment (Section 3.1) and guidelines pertaining to lateral public access along shoreline areas (Section 3.1.3.2).

Should you have any questions or need additional information, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Very truly yours,

  
Henry Eng, FAICP | Director  
Department of Planning and Permitting

HE:fm  
cc: DLNR-OCCL  
OEQC

doc420352rev1

Mr. Henry Eng, FAICP, Director  
City & County of Honolulu  
Department of Planning and Permitting  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, HI 96813

ATTN: Anthony Ching

**Subject:** Draft Environmental Assessment (DEA) No. 2005/ED-27 (tc)  
Shoreline Setback Variance for Existing Seawall - Michaels  
68-683 Farrington Highway – Mokuieia  
Tax Map Key 6-8-010:019

Dear Mr. Eng:

Thank you for your comment letter dated January 23, 2006 addressed to Mr. Donald Clegg, President, of Analytical Planning Consultants, Inc. All information requested has been included in the FEA as necessary. We respectfully offer the following responses:

1. Section 2.2 has been revised to include all structures located within the shoreline setback area in the shoreline setback variance request. Additional photos (from the revised survey) have been enclosed.
2. (a) The as-built drawings have been revised.  
(b)(c) The survey has been revised to show all structures in the 40' setback. Additional pictures have been provided and elevations of the side walls have been included on the plans.  
(g) The estimated amount of fill has been verified by Hida, Okamoto & Associates  
(h) A discussion of requirements for a certified shoreline has been included in Section 2.3.
3. Section 5.3 Beach Restoration has been expanded to include information of other beach restoration projects on Oahu and their relevancy to the subject property.
4. Section 5.4 No Action has been expanded to include the following information:  
This alternative is not viable because it implies that no action would be taken to resolve the illegal seawall. The applicant would incur continuous civil fees owned to the City and County of Honolulu for the shoreline setback violation. The engineer has estimated that the existing seawall could last as long as 50 years but at the same time it is not possible to predict storm wave action for the north shore of Oahu. Granting of the Shoreline Setback Variance is the means for legalizing the existing seawall under ROH Chapter 23 and would provide a means for the owner to legally repair the wall but it is no guarantee that the structure will

be permanent. However, in general, a legal structure is more likely to be repaired in accordance with building code regulations than an illegal structure.

The life expectancy of the existing seawall (without further alterations) has been estimated at 30 years by Hida, Okamoto & Associates.

6. Section 6 Criteria 3: The following information has been added:  
Chapter 343, HRS requires environmental assessment for any use within a shoreline area as defined in section 205A-41. It is the policy of Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of our island beaches. The construction of vertical seawalls appears to have aggravated shoreline erosion and loss of beach access in the area, and in this sense, the proposal to retain the existing seawall conflicts with these long-term environmental policies or goals or guidelines of the State of Hawaii. However, the existing seawall is consistent with the longstanding history of government decisions that approved shore protection structure along this stretch of the Mokuia coastline in order to protect the rights of homeowners. The eight (8) adjacent properties to the west of the applicant's property have all received shoreline setback variance approvals and building permits (1993/1997) for their respective seawalls. These issues have been discussed at length with the DLNR and there is no simple answer or statewide policy that has been implemented.

Criteria 12: The following information has been added:  
Scenic vistas and view plans from and along the coastline and from the near-shore waters are enjoyed by residents. All of the residential properties along this area have similar shoreline protection structures in place and the subject seawall maintains a consistent appearance. No scenic views of the coastline are impacted.

6. Criteria and justification for a Shoreline Setback Variance have been added to the FEA.

7. Section 3.8 Applicable Land Use Considerations has been added to the FEA which includes a discussion of the North Shore Sustainable Communities Plan.

Thank you again for your consideration and review of the Draft Environmental Assessment. We appreciate the time you have given to determining the scope of the project and are requesting the Department of Planning and Permitting to issue a Finding of No Significant Impact (FONSI). If you have any questions or require additional information, please contact myself or Lauri Clegg at 536-5695.

Sincerely,



Donald Clegg  
President

Isaac Moriwake  
223 S. King St. 4<sup>th</sup> Fl.  
Honolulu, HI 96813  
(808) 599-2436 x13

January 23, 2006

Donald Clegg  
Analytical Planning Consultants, Inc.  
928 Nu'uamu Ave.  
Honolulu, HI 96817

Anthony Ching  
C&C Dep't of Planning & Permitting  
650 S. King St., 7<sup>th</sup> Fl.  
Honolulu, HI 96813

OEQC  
Leiopapa A. Kamehameha Bldg.  
235 S. Beretania St., Suite 702  
Honolulu, HI 96813

Re: Michaels After-the-Fact Seawall at 68-683 Farrington Hwy (HRS 343 DEA)

Dear Sirs and Madams:

I am the Chair of the O'ahu Group of the Sierra Club and submit these comments on behalf of the Sierra Club. Review of the draft environmental assessment (DEA) for this after-the-fact seawall reveals various inadequacies and points of concern. We would appreciate it if the applicant's consultant and/or the agency could follow up with further analysis and answers to the questions below in its final EA, or more appropriately, a revised draft EA.

Initially, since this seawall and others in the vicinity were illegally built, much has been learned about the harmful impacts of coastal hardening such as seawalls on the natural, public beach. In this better informed day and age, our government regulators should not be allowing seawalls to persist, which everyone knows would all but ensure the loss of the beach. County agencies are now taking a more enlightened approach (see, e.g., Morgan v. Kauai Planning Department, 104 Haw. 173 (2004), where the Kauai planning department ordered a seawall removed), and we respectfully ask this agency to do the same, for the sake of these public trust shoreline resources we all share.

More specifically, we are aware of examples of shoreline landowners who had seawalls destroyed during extremely high surf events and were not allowed to rebuild the seawalls, but rather were directed to use other protective measures. We request that the applicant's consultant and/or the agency provide detailed explanation why landowners who follow the law are not allowed to rebuild, while others who unilaterally and illegally rebuild are allowed to apply for after-the-fact approvals, apparently without any consequences, and to the detriment of the public interest in preserving beach resources and public beach access.

Apart from the substantive questions of the propriety of seawalls in general and in this case, the DEA needs more detailed and thoughtful analysis to meet the law's requirements. At minimum, the following issues should be addressed:

(1) The DEA emphasizes this lot is one of numerous others along this coastline, some of which are concurrently applying for after-the-fact approval of seawalls. Indeed, it appears that the same consultant is handling these present applications, and that this DEA is a virtual carbon copy of the ones accompanying the other applications. In the last three months, this consultant has submitted four practically identical DEAs for four different parcels in this area; last month, the consultant submitted a DEA for another lot in the area owned by the very same landowner as this case (see "Michaels After-the-Fact Seawall, Moku'e ia (HRS 343 DEA)"). This raises serious concerns of segmentation of actions and impacts. Please specify how many other seawalls are present in the area (number and length) and how many total applications are pending. Please also make clear the potential impacts of this seawall, not only standing alone, but also together with the others concurrently applying for approvals, as well as all the other seawalls along this coastline. This concept is called cumulative impact analysis and is expressly required by law.

(2) Please specifically address the potential cumulative impacts of the seawalls on this coastline on surrounding beach areas, including the public beach parks on either side of this coastline (Moku'e ia and Makaleha). It is widely understood that coastal hardening deflects wave energy and causes erosion elsewhere. Could these seawalls cause long-term erosion of the surrounding beaches?

(3) If analysis of these cumulative impacts indicate that these seawalls currently under application "may" have a significant impact together with all the other seawalls in the area, then by law these applicants should jointly prepare a full EIS examining these impacts.

(4) The DEA states that this shoreline has a "history of chronic erosion." Please discuss whether there is a difference in erosion rates between this area developed with seawalls, and the beaches on either side of this area, and whether the shoreline hardening accounts for this difference.

(5) The DEA claims that the seawalls have not contributed to erosion and asserts that the erosion is "passive" and not affected by coastal hardening (this, despite claims that if the seawall is removed, erosion would "immediately and significantly" impact the shoreline). This concept appears to be novel and is not referenced in various recognized reports. Dennis Hwang's recent Hawaii Coastal Hazard Mitigation Guidebook (2005), for example, maintains that coastal hardening "are directly related to where structures are placed along the shoreline" (p. 7). In recent comments on a similar request for after-the-fact seawall approval, state Office of Conservation and Coastal Lands administrator Sam Lemmo stated "[t]he purpose and function of [such a] structure is to prohibit the landward erosion of the shoreline, thus impacting the shoreline processes. If the structure did not impact the shoreline, there would be no need to build one in the first place." Please provide authority for this concept of "passive erosion," if it exists.

(6) Please provide more thorough analysis of the potential impacts and discussion of the factors for determining "significance" of the impacts. For example:

(a) The DEA does not discuss potential loss of lateral access from physical presence of the structure in the wave impact area and from erosion of the beach, but simply mentions public access in perpendicular terms. There is simply no excuse for such an omission, since the DEA cites a report stating that "if erosion continues, [lateral access] will be lost." Please discuss potential impacts on lateral access.

(b) The DEA does not discuss the potential of seawalls exacerbating erosion under any of the applicable factors, e.g., "irrevocable an irrevocable commitment to loss or destruction of any natural . . . resource," "secondary impacts." Please address this concern.

(c) Under the factor of "conflicts with the state's long-term policies," the DEA simply cites a "long-standing history" of government approvals. Please discuss the existence and applicability of any policies regarding preservation of public beaches and access and the now-disfavored practice of coastal hardening. Specifically, please address the express legal command under HRS § 205A-46(a) that variances for sea walls may be granted only if they "neither adversely affect beach processes or artificially fix the shoreline," in addition to the applicant showing hardship.

(d) Please discuss these potential impacts from a cumulative point of view, as discussed above.

(7) Please provide more thorough analysis of the alternatives and mitigation, so that the agency can make a reasoned decision on these issues. For example, the new Hwang report, Dr. Charles Fletcher at the University of Hawaii, and OCCL recommends beach restoration instead of seawalls, but the DEA summarily concludes this is too expensive, without any details or bases for reasoned comparison. More fundamentally, should not a private landowner seeking to preserve private property by keeping a seawall be required to pay to restore the public beach, or otherwise pay compensation for the value of the loss of the public beach?

Similarly conclusory analysis is provided regarding other measures such as sand bags. For example, sand bags are described as more reflective than seawalls when fully filled, which begs the question, why not use partially filled sandbags?

Finally, it is very hard to believe that in this enlightened day and age, absolutely no mitigative measures are available to alleviate beach loss. This omission is all the more glaring -- and unlawful -- given that HRS § 205A-46(b) expressly mandates that any variance must, inter alia, "maintain safe lateral access to and along the shoreline or adequately compensate for its loss," "minimize risk of adverse impacts on beach processes," and "minimize adverse impacts on public views to, from, and along the shoreline." Please be more complete in this analysis.

(8) Since the waves rush against the seawalls, it would appear that the shoreline is located further mauka of the seawall, and that the seawall is located on public (state) land. State law is clear that the shoreline is not a fixed boundary, but shifts over time in line with natural

PHONE (BUS): (808) 596-5695  
FAX: (808) 596-1553



**ANALYTICAL PLANNING CONSULTANTS, INC.**  
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

July 11, 2008

Mr. Isaac Moriwake  
223 S. King Street 4<sup>th</sup> Floor  
Honolulu, Hawaii 96813

**Subject:** Draft Environmental Assessment (DEA)  
Shoreline Setback Variance for Existing Seawall - Michaels  
68-683 Farrington Highway – Mokuleia  
Tax Map Key 6-8-010-019

Dear Mr. Moriwake:

Thank you for your comment letter dated January 23, 2005 addressed to Mr. Henry Eng of the Department of Planning and Permitting. Since the comment letters were received on the DEA, Analytical Planning Consultants has been in consultation with the DPP as to how to proceed with the project. At this time, we respectfully offer the following responses to your letter. Appropriate sections of the final EA have been expanded or revised to reflect this information as required.

1. The EA has disclosed the proposed action in its entirety and does not include a future phase. As such, there is no segmentation of actions and impacts. Regarding other seawalls in the area, historical slides and photographs of the area, taken from 1982 through 1991 display walls in the sand area along the subject shoreline area for 16 residential lots east of the Episcopal Church Camp, including the subject lot. After-the-fact Shoreline Setback Variances and building permits have been issued for 9 of the properties. Parcels 27-28 applied for and received variances in 1990 and parcels 23-26 applied for and received variances in 1997. Additionally, the Mokuleia Beach Colony (TMK 6-8-09: 001) has an approximately 350-foot long seawall, with an approved shoreline setback variance.

In 2004, the owners of parcels 14, 15, & 18-22 were sited for construction of seawalls without a shoreline setback variance and are in the process of applying for the necessary after-the-fact government permits to legalize the walls which have been in place for more than 30 years. The process of obtaining the after-the-fact shoreline setback variance will not result in any cumulative impact and does not involve a commitment for larger actions. Legalizing the existing subject seawall will allow the owner to maintain and repair the wall as needed for safety of the beach and property.

conditions. Please respond to this issue. Please also discuss whether the opinions of the relevant DLNR staff, including Office of Coastal Conservation Land, has been actively solicited in the preparation of this DEA. Apart from whether OCCL has submitted comments on these DEAs, the applicant and agency have an independent legal obligation under the law to consult OCCL as recognized experts and authorities in this area. Accordingly, we are sending OCCL a copy of this letter.

If you could address the above concerns in any subsequent EA, we would greatly appreciate it. As the saying goes, "an ounce of prevention is worth a pound of cure." This rings particularly true in the context of seawalls, where the very existence of our public beaches is at stake, as well as in the context of the EIS law, where thorough, honest analysis helps to inform sound agency decision-making and prevent controversy regarding the process. Please feel free to contact me if you have any questions.

Very truly yours,

Isaac Moriwake

cc: Sam Lemmo, OCCL

2. Regarding long-term erosion in the area, the Coastal Engineering Assessment done by EKNA Services, states that the existing seawalls do not alter seasonal erosion/accretion patterns. The entire coastal reach has been experiencing net long-term erosion over the past 50 years. As beach and shoreline erosion is continuing to occur along this coastline and elsewhere where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process.
3. Chapter 343, HRS requires that an environmental assessment address cumulative impact. All the residential properties along this embayment experienced loss of 25-30 % of property lot area due to wave action and erosion prior to construction of the seawalls between 1967-70. Nine of the properties have undergone environmental review in order to obtain after-the-fact shoreline setback variances to legalize the existing seawalls. There has been no determination of significant cumulative impact by the approving government agency. The process of obtaining the after-the-fact shoreline setback variance for the subject property will not result in any significant cumulative impact and does not involve a commitment for larger actions. As such, a Finding Of No Significant Impact is being requested.
4. There are aerial photos for this section of the coastline dating back to 1949. The presence of the vertical seawalls does not indicate direct evidence of accelerated shoreline retreat due to the seawall structure on this property. The beach has retreated at an average of one foot per year since 1949. This rate of retreat applies to the 20-30 years before the subject seawalls were built. It is clear that the current situation is a constant reflection of energy and scouring of sand from the area fronting the seawall.
5. If the trend of shoreline retreat was allowed to continue at this property, the beach would have continued to retreat at a rate of approximately one foot per year and this property would now be eliminated and Farrington Highway would be threatened by shoreline erosion.
6. As explained in the Coastal Engineering Assessment prepared by EKNA Services, even within the scientific community, controversy exists on whether seawalls are adverse and promote erosion. The erosion that is occurring along Mokuleia shoreline is "passive" (in contrast to "active" which is induced or accelerated by shore protection structures). Historically, the entire coastal reach has been experiencing net long-term erosion over the past 50 years. The report concludes that the existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. Any erosion that may be occurring is due to the scouring of sand from the area fronting the seawall.
7. (a) Reduction of beach area has been an ongoing problem along this section of beach since the residential subdivision was created in 1960. Prior to construction of the seawall the property lost 25% of its lot area to erosion

from wave action along the shore. The beach along the entire section of Mokuleia could be considered very narrow. Depending on the seasonal tides people can transit the area fronting the wall for recreational purposes. Approval of the shoreline setback variance will not diminish existing lateral access.

- (b) The application is for an after-the-fact shoreline setback variance which involves no construction activities and no irrevocable commitment, loss or destruction of resources.
- (c) Section 6.0.1 has been expanded to include the following information: Chapter 343, HRS requires environmental assessment for any use within a shoreline area as defined in section 205A-41. It is the policy of Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of our island beaches. The construction of vertical seawalls appears to have aggravated shoreline erosion and loss of beach access in the area, and in this sense, the proposal to retain the existing seawall conflicts with these long-term environmental policies or goals or guidelines of the State of Hawaii. However, the existing seawall is consistent with the longstanding history of government decisions that approved shore protection structure along this stretch of the Mokuleia coastline in order to protect the rights of homeowners. The eight (8) adjacent properties to the west of the applicant's property have all received shoreline setback variance approvals and building permits (1993/1997) for their respective seawalls. These issues have been discussed at length with the DLNR and there is no simple answer or statewide policy that has been implemented.

7. Section 5 Alternatives has been expanded to include beach restoration and no action.
8. Determination of the certified shoreline is determined by the Department of Land and Natural Resources. Typically the DLNR the shoreline is established at the face of a vertical seawall structure.

Thank you again for your comments on the DEA. If you have any questions or require further clarification, please contact myself or Lauri Clegg at 536-5695.

Sincerely,



Donald Clegg  
President

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 586-4186  
FACSIMILE (808) 586-4186  
E-mail: [oeqc@health.state.hi.us](mailto:oeqc@health.state.hi.us)

December 20, 2005

Mr. Henry Eng, Director  
Department of Planning and Permitting  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Eng:

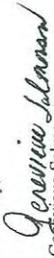
Subject: Draft EA for the Michaels (TMK 6-8-010:19) Shoreline Setback Variance,  
Mokuleia

Thank you for the opportunity to comment. Here are our comments.

1. Please consult with adjacent neighbors and notify the neighborhood board.
2. How does this project comply with state and county policies on beach protection?
3. For assistance in completing the assessment please review the "Shoreline Hardening Policy and Environmental Assessment Guidelines" available at <http://www.state.hi.us/health/oeqc/guidance/shoreline.htm>.

Please call Jeyan Thiruganam at 586-4185 if you have any questions.

Sincerely,

  
Genevieve Salmonson  
Director

C: APC  
Michaels

GENEVIEVE SALMONSON  
DIRECTOR

PHONE (BUS): (808) 536-5695  
FAX: (808) 594-1553



ANALYTICAL PLANNING CONSULTANTS, INC.  
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

May 29, 2008

Ms. Katherine Puana Kealoha, Director  
State of Hawaii Office of Environmental Quality Control (OEQC)  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (DEA)  
Shoreline Setback Variance for Existing Seawall - Michaels  
68-683 Farrington Highway – Mokuleia  
Tax Map Key 6-8-010:019

Dear Ms. Kealoha:

Thank you for your comment letter dated December 20, 2005 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We respectfully offer the following responses:

1. The adjacent property owners have been notified of the request to retain the existing seawall and a copy of the DEA was forwarded to the North Shore Neighborhood Board.
2. The comment regarding compliance with state and county beach protection policies has been noted and we will continue to take these policies into consideration and apply them to the final EA document.

Thank you again for your comments on the DEA. If you have any questions or require further clarification, please contact myself or Lauri Clegg at 536-5695.

Sincerely,

  
Donald Clegg  
President



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
FT. SHAFTER, HAWAII 96858-5440

REPLY TO  
ATTENTION OF

March 6, 2006

Regulatory Branch

Mr. Henry Eng  
City and County of Honolulu  
Department of Planning and Permitting  
650 South King Street, 7th Floor  
Honolulu, Hawaii 96813

FILED  
MAR 8 PM 1 52  
File No. POH-2005-663  
DEPT OF PLANNING  
& PERMITTING  
CITY & COUNTY OF HONOLULU



ANALYTICAL PLANNING CONSULTANTS, INC.  
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

PHONE (HLS): (808) 536-5695  
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May 29, 2008

Mr. George P. Young, P.E.  
Department of the Army  
Regulatory Branch  
Department of the Army  
U.S. Army Engineer District, Honolulu  
Ft. Shafter, HI 96858-5440

**Subject:** Draft Environmental Assessment (DEA)  
Shoreline Setback Variance for Existing Seawall - Michaels  
68-683 Farrington Highway - Mokuieia  
Tax Map Key 6-8-010:019

Dear Mr. Young:

Thank you for the comment letter dated March 6, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We acknowledge that the proposed action to obtain and after-the-fact setback variance for the seawall will not require a Department of the Army (DA) permit.

As suggested in your letter, the applicant will contact your office for a determination upon consideration of any future maintenance, modification, or removal work to the seawall.

Sincerely,

*Donald Clegg*  
Donald Clegg  
President

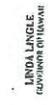
This responds to your request for comments on the Draft Environmental Assessment (DEA) for an after-the-fact shoreline setback variance for a seawall and associated structures located at 68-683 Farrington Highway, Mokuieia, Oahu (TMK 6-8-10: 019). We have reviewed the document with respect to the Corps' authority to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).

Since no work is being proposed for the existing seawall, which the DEA indicates is known to have been built sometime prior to 1971; a DA permit is not required. However, any future repair, modification, removal, or other work occurring seaward of the high tide may require a DA permit. Prior to undertaking any such future activities, the parcel owner should first contact this office for a determination of DA permit requirements.

Should you have questions concerning this determination, please contact Mr. Galloway via e-mail ([peter.c.galloway@usace.army.mil](mailto:peter.c.galloway@usace.army.mil)), by telephone at 438-8416, or by fax at 438-4060). Written inquiries should cite the file number above and can be sent to: Regulatory Branch (CEPOH-EC-R/P, Galloway); U.S. Army Engineer District, Honolulu; Building 230; Fort Shafter, Hawaii 96858-5440.

Sincerely,

*George P. Young*  
George P. Young, P.E.  
Chief, Regulatory Branch



6 MAY 9 23

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA BOULEVARD, ROOM 555  
KAPOLEI, HAWAII 96707

PETER T. VOING  
DIRECTOR  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA BOULEVARD, ROOM 555  
KAPOLEI, HAWAII 96707  
PHONE: (808) 536-5695  
FAX: (808) 599-1553



ANALYTICAL PLANNING CONSULTANTS, INC.  
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

May 29, 2008

Ms. Nancy McMahon, Acting Branch Chief  
State of Hawaii Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kamokila Blvd. Room 555  
Kapolei, Hawaii 96707

**Subject:** Draft Environmental Assessment (DEA)  
Shoreline Setback Variance for Existing Seawall - Michaels  
68-683 Farrington Highway - Mokuleia  
Tax Map Key 6-8-010-019

Dear Ms. McMahon:

Thank you for the comment letter dated March 1, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We respectfully offer the following responses:

Your comments will be included in the FEA. For clarification, there is no government documentation of the original construction of the seawalls along the embayment of the Mokuleia Beach Homes subdivision; however, they were believed to have been originally constructed in the 1970's after extensive wave damage to properties in the area. Any later repairs utilized the original foundations. No adverse impacts to historic or archeological resources are known to have occurred from construction or repair of the seawalls. Retention of the existing seawall will involve no subsurface disturbance. Should repairs involving subsurface disturbance be undertaken in the future, the State Historic Preservation Division will be contacted for guidance.

Thank you again for your comments on the DEA. If you have any questions or require further clarification, please contact myself or Lauri Clegg at 536-5695.

Sincerely,

*Donald Clegg*  
Donald Clegg  
President

March 1, 2006

Mr. Henry Eng  
Department of Planning and Permitting  
City & County of Honolulu  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 1 96813

Dear Mr. Eng:

**SUBJECT:** Chapter 6E-8 Historic Preservation Review--  
Draft Environmental Assessment for Shoreline Setback Variance  
68-683 Farrington Highway, Landowner: Mr. Greg Michaels  
Mokuleia Ahupua'a, Waiahua District, Island of O'ahu  
TMK (1) 6-8-010-019

Thank you for the opportunity to comment on the aforementioned project. According to your cover letter and attached Draft Environmental Assessment (DEA), the applicant (Mr. Michaels) seeks approval for an after-the-fact Shoreline Setback Variance and an after-the-fact building permit for a seawall and concrete footing, and a fence and concrete rubble masonry wall.

Given the physiographic location of this parcel, there is a moderate to high potential for historically-significant sites, including Native Hawaiian burials and/or habitation sites, to be located beneath the ground surface. We are unable to find a date of construction for the aforementioned features in the DEA. However, if we had been afforded the opportunity to comment on the permits regarding the construction of these features, we would have required some form of proactive mitigation (e.g., an archaeological inventory survey and/or archaeological monitoring during the construction), depending on the exact nature of the proposed undertaking. For these reasons, we are unable to offer our concurrence for these after-the-fact requests.

Thank for requesting our input on this proposal. Please call SHPD at 808-692-8015 if you, or the applicant, have any questions about this letter.

Aloha,

*Melanie Chinen*  
Melanie Chinen, Administrator  
State Historic Preservation Division

CM



STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
7111 KAPI'OLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

Henry Eng  
January 13, 2006  
Page 2

Thank you, also, for the opportunity to comment. If you have further questions or concerns, please contact Heidi Guth at (808) 594-1962 or e-mail her at [heidig@oha.org](mailto:heidig@oha.org).

Sincerely,

Clyde W. Nāmu'o  
Administrator

HRD05/2170

January 13, 2006

Henry Eng, FAICP  
Director  
Department of Planning and Permitting  
City and County of Honolulu  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, HI 96813

CC: Gregory Michaels  
27515 Enterprise Circle West  
Temecula, CA 92590  
✓ Donald Clegg  
President  
Analytical Planning Consultants, Inc.  
928 Niuuanu Avenue  
Honolulu, HI 96817

**RE: Request for review and comment on an application for a Shoreline Setback Variance, with included Draft Environmental Assessment, for Gregory Michaels to retain an existing seawall and attachments, 68-683 Farrington Highway; Mokuleia, O'ahu; TMK: 6-8-010-019**

Dear Henry Eng,

The Office of Hawaiian Affairs (OHA) is in receipt of your December 14, 2005, request for comments on the above project, which would allow Gregory Michaels to obtain a Shoreline Setback Variance to retain an existing seawall and concrete footing, and the fence and concrete rubble masonry wall located along the east property line. We apologize for our delayed response.

Because no improvements are requested, the seawall was built before the property was purchased by the current owner, and the area has experienced – and continues to experience – chronic coastal erosion, with many existing and abutting seawalls along the same coastline, OHA has no comments at this time. Thank you, however, for updating OHA on the status of this seawall.

PHONE (RUSS): (808) 536-5895  
FAX: (808) 599-1553



**ANALYTICAL PLANNING CONSULTANTS, INC.**  
928 NUUANU AVENUE, SUITE 502 • HONOLULU, HI 96817

May 29, 2008

Mr. Clyde W. Namu'o  
State of Hawaii Office of Hawaiian Affairs  
711 Kapiolani Blvd, Suite 500  
Honolulu, HI 96813

**Subject:** Draft Environmental Assessment (DEA)  
Shoreline Setback Variance for Existing Seawall - Michaels  
68-683 Farrington Highway - Mokuleia  
Tax Map Key 6-8-010:019

Dear Mr. Namu'o:

Thank you for the comment letter dated January 13, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We acknowledge your comment that because the seawall was built before the property was purchased by the current owner and the area has experienced - and continues to experience - chronic coastal erosion, with many existing and abutting seawalls along the same coastline, OHA has no comments at this time.

Sincerely,

A handwritten signature in cursive script that reads "Donald Clegg".

Donald Clegg  
President

## ENVIRONMENTAL ASSESSMENT

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### 9. 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 – Representing the Hawaii Coral Reef Inventory, Island of Oahu*. Prepared for the Harbors Division, Department of Transportation, Honolulu, Hawaii.
- Bathen, Karl. 1978. *Circulation Atlas for Oahu, Hawaii*. Sponsored by the University of Hawaii Sea Grant College Program.
- Chu, Michael S., and Robert B. Jones for the City and County of Honolulu, Department of Land Utilization, *Coastal View Study*, 1987.
- City and County of Honolulu, Department of Planning & Permitting, Geographic Information Systems on-line database at <http://.gis.hicentral.com>
- EKNA Services, Inc. April 2004. *Coastal Engineering Assessment of Existing Seawalls at Mokuleia, Oahu, Hawaii, TMK: 6-8-9:010 and 011*.
- Fletcher, Charles. 2002. *Atlas of Natural Hazards in the Hawaiian Coastal Zone*. Prepared in cooperation with the University of Hawaii, State of Hawaii Office of Planning and the National Oceanic and Atmospheric Administration.
- Hwang, Dennis. 1980. *A Method for Using Aerial Photos in Delineating Historic Patterns of Beach Accretion and Retreat*. Prepared for the State of Hawaii Department of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.
- Hwang, Dennis. 1981. *Beach Changes on Oahu as Revealed by Aerial Photographs*. Prepared for the State of Hawaii Department of Planning and Economic Development by the Urban and Regional Planning Program and the Hawaii Institute of Geophysics, University of Hawaii.
- Sea Engineering, Inc. 1989. *Oahu Shoreline Study. Part 1 – Data on Beach Changes and Part 2 – Management Strategies*. Prepared for the Department of Land Utilization, City and County of Honolulu.

## ENVIRONMENTAL ASSESSMENT

---

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuieia, Oahu

Sterling, Elspeth and Catherine Summers. *Sites of Oahu*. Bishop Museum Press, Honolulu, Hawaii.

U.S. Army Corps of Engineers, Pacific Ocean Division. June 1979. *Help Yourself – A Shore Protection Guide for Hawaii*.

U.S. Department of Agriculture, Soil Conservation Service in cooperation with the University of Hawaii Agriculture Experiment Station. Soil Survey of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii. August 1972.

**ENVIRONMENTAL ASSESSMENT**

---

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

**APPENDIX A**

---

PERMIT NUMBER

172518

DEPARTMENT OF BUILDINGS  
CITY AND COUNTY OF HONOLULU

215 684 80028.50

SEE INSTRUCTIONS BELOW

# APPLICATION AND BUILDING PERMIT

Fee Receive

WRITE IN ALL INFORMATION	EST. VALUE	PERMIT FEE	CLASS OF CONSTRUCTION	NO. OF STORIES	ZONE	SEC.	PLAT	PARCEL	LOT NO.	DISTRICT	
	\$6,500.00	\$28.50	UN	1	6	8	3	10	12	MOKULIA	
CHECK BOX OR WRITE IN IF NECESSARY	NEW BLDG.	EXIST. BLDG.	OTHER STRUCTURES			ADD.	ALTER.	REPAIR	OTHER WORK		
	<input checked="" type="checkbox"/>		Detached Garage								
	FENCE WALL	RETAINING WALL				RECONSTR.	DEMOLITION				

APPLICATION IS HEREBY MADE FOR PERMIT TO DO WORK AS FOLLOWS: **Model A**

CLASSIFICATION OF OCCUPANCIES GROUP: **I Dwlg**

SHOW NUMBER OF UNITS	SINGLE FAMILY DWELLING	DUPLEX	APARTMENT	BUSINESS	INDUSTRIAL	PUBLIC	INSTITUTIONAL	STORAGE	MIXED
1									

CLASSIFICATION OF CONSTRUCTION

CHECK PROPER BOX	FIRE PROOF TYPE I	SEMI FIRE PROOF TYPE II	HEAVY TIMBER TYPE III	NON COMBUSTIBLE TYPE IV (1)	UNPROTECTED METAL TYPE IV (N)	ORDINARY MASONRY TYPE V (1)	WOOD FRAME TYPE V (2)
<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/>

PROPOSED ADDRESS: **Mokulua & Kaena Point** LOT AREA: **10,615** SQ. FT. USE DISTRICT: **RP**

OVERALL DIMENSIONS: **46' x 28'** FLOOR AREA: **1288** SQ. FT. NO. OF STORIES: **1**

FILL IN REQUIRED INFORMATION

BASEMENT: **None** SQ. FT. FOUNDATION: **Concrete** TYPE OF FLOOR: **Concret**

TYPE OF EXTERNAL WALLS: **Wood** TYPE OF INTERNAL PARTITIONS: **Wood** TYPE OF ROOF: **Built up 5 ply**

CONNECTION TO SEWER: \_\_\_\_\_ CONNECTION TO CESSPOOL: **X**

NO PART OF THIS BUILDING WILL BE NEARER THAN **7** FT. **0** INCHES TO NEAREST ADJOINING PROPERTY LINE AND NO PART OF THIS BUILDING WILL BE NEARER THAN **11** FT. **6** INCHES FROM 1ST STORY, NOR \_\_\_\_\_ FT. \_\_\_\_\_ IN FROM STORIES ABOVE THE 1ST FLOOR OF ANY BUILDING ON THE SAME LOT. NO EAVE, OVERHANG, OR OTHER PROJECTION WILL PROJECT MORE THAN 50% OF THE SPACE ADJOINING A PROPERTY LINE. UNDERSIDE OF FLOOR SILLS WILL BE AT LEAST 20 INCHES ABOVE HIGHEST PART OF GROUND. CEMENT FLOOR SLABS OF BUILDINGS SHALL HAVE MARGINAL WALLS 24 INCHES BELOW GRADE WHERE REQUIRED.

PERMIT APPLICATION RECEIVED

OWNER: **John Hones** ADDRESS: **Liberty Bank Bldg.**

GENERAL CONTRACTOR: **K.K. Nishikawa Inc.** LICENSE NO. **B-374** ADDRESS: **Waimana Home Rd.**

PLAN MAKER: **Mid Pac. Lumber** ADDRESS: **Kalaui Street**

PLUMBING SUB-CONTRACTOR: **Kakuku Plumbing**

ELECTRICAL SUB-CONTRACTOR: **Star's Electric**

SIGNATURE OF APPLICANT: **[Signature]** DATE: **9-12-60**

SIGNATURE OF OWNER OF BUILDING: **[Signature]**

DATE AND SIGN

PERMISSION IS HEREBY GIVEN TO DO THE ABOVE WORK ACCORDING TO THE CONDITIONS HEREON AND ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS PERTAINING THERETO, SUBJECT TO COMPLIANCE WITH ORDINANCES OF THE CITY AND COUNTY OF HONOLULU, HAWAII.

APPLICANTS WILL NOT WRITE IN THIS PART OF FORM

OF HAWAII, CONSTRUCTION TO BE COMPLETED ON OR ABOUT \_\_\_\_\_ 19\_\_

DATE: **9-17-60** APPROVED: **[Signature]** AGENT, BOARD OF HEALTH

DATE: \_\_\_\_\_ 19\_\_ APPROVED: \_\_\_\_\_ CHIEF ENGINEER, FIRE DEPARTMENT

DATE: **9-14-60** APPROVED: **[Signature]** FOR SUPERINTENDENT OF BUILDINGS

WARNING! PERMIT PLACARD MUST BE POSTED ON THE SITE OF THE WORK. BE SURE YOU ARE FULLY INFORMED ON BUILDING AND ZONING LAWS BEFORE BEGINNING YOUR WORK. PLANTING HEDGES, TREES OR CONSTRUCTION FENCES BEYOND LIMITS OF YOUR PROPERTY LINE IS FORBIDDEN BY LAW. (PENALTY OF \$100.00 FINE AND/OR 30 DAYS IMPRISONMENT)

PLANNING DEPARTMENT

ZONE (USE DISTRICT): **RP** SUB-DIVISION PENDING

SET BACK: **None** ON MASTER PLAN

SUB-DIVISION FILED: **Yes** COMMISSION REPORT

SUB-DIVISION APPROVED: \_\_\_\_\_ RECOMMENDATION: **[Signature]**

315 665 80005.00

PERMIT NUMBER

172519

DEPARTMENT OF BUILDINGS  
CITY AND COUNTY OF HONOLULU

# APPLICATION AND BUILDING PERMIT

Fee Received

SEE INSTRUCTIONS BELOW

WRITE IN ALL INFORMATION	EST. VALUE	PERMIT FEE	CLASS OF CONSTRUCTION	NO. OF STORIES	ZONE	SEC.	PLAT	PARCEL	LOT NO.	DISTRICT
	\$800.00	\$5.00	UN	1	6	8	3	10	12	MOKULEIA

CHECK BOX OR WRITE IN IF NECESSARY	NEW BLDG.	EXIST. BLDG.	OTHER STRUCTURES			ADD.	ALTER.	REPAIR	OTHER WORK
	FENCE WALL	RETAINING WALL				RECONSTR.	DEMOLITION		

APPLICATION IS HEREBY MADE FOR PERMIT TO DO WORK AS FOLLOWS: Model A Garage

CLASSIFICATION OF OCCUPANCIES GROUP: J Garage

SHOW NUMBER OF UNITS	SINGLE FAMILY DWELLING	DUPLEX	APARTMENT	BUSINESS	INDUSTRIAL	PUBLIC	INSTITUTIONAL	STORAGE	MIXED
1									

CLASSIFICATION OF CONSTRUCTION

CHECK PROPER BOX	FIRE PROOF TYPE I	SEMI FIRE PROOF TYPE II	HEAVY TIMBER TYPE III	NON COMBUSTIBLE TYPE IV (1)	UNPROTECTED METAL TYPE IV (N)	ORDINARY MASONRY TYPE V (1)	WOOD FRAME TYPE V (N)
							<input checked="" type="checkbox"/>

PROPOSED ADDRESS: Waimoia & Keena Point LOT AREA 10,615 SQ. FT. USE DISTRICT RP

OVERALL DIMENSIONS: 24'6" x 31'8" FLOOR AREA 387 SQ. FT. NO. OF STORIES 1

FILL IN REQUIRED INFORMATION	BASEMENT	None	TYPE OF FOUNDATION	Concrete	TYPE OF FLOOR	Concrete and AC.
	TYPE OF EXTERNAL WALLS	Wood	TYPE OF INTERNAL PARTITIONS	Wood	TYPE OF ROOF	Built up 3 ply
	CONNECTION TO SEWER		CONNECTION TO CESSPOOL	X		

NO PART OF THIS BUILDING WILL BE NEARER THAN 7 FT. 0 INCHES TO NEAREST ADJOINING PROPERTY LINE AND NO PART OF THIS BUILDING WILL BE NEARER THAN 11 FT. 6 INCHES FROM 1ST STORY, NOR 0 FT. 0 INCHES FROM STORIES ABOVE THE 1ST FLOOR OF ANY BUILDING ON THE SAME LOT. NO EAVE, OVERHANG, OR OTHER PROJECTION WILL PROJECT MORE THAN 50% OF THE SPACE ADJOINING A PROPERTY LINE. UNDERSIDE OF FLOOR SILLS WILL BE AT LEAST 20 INCHES ABOVE HIGHEST PART OF GROUND. CEMENT FLOOR SLABS OF BUILDINGS SHALL HAVE MARGINAL WALLS 24 INCHES BELOW GRADE WHERE REQUIRED.

NAMES AND ADDRESSES OF:	BUILDING OWNER	<u>Oahu Homes</u>	ADDRESS	<u>Liberty Bank Bldg.</u>
	GENERAL CONTRACTOR	<u>E. I. Nishikawa Inc.</u>	LICENSE NO.	<u>B-374</u>
	PLAN MAKER	<u>Mid. Pac. Lumber</u>	ADDRESS	<u>Kalani Street</u>

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL CITY AND COUNTY ORDINANCES AND STATE LAWS REGULATING BUILDING CONSTRUCTION.

DATE AND SIGN: SIGNATURE OF APPLICANT [Signature] DATE 9/12/60 SIGNATURE OF OWNER OF BUILDING [Signature]

PERMISSION IS HEREBY GIVEN TO DO THE ABOVE WORK ACCORDING TO THE CONDITIONS HEREON AND ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS PERTAINING THERETO, SUBJECT TO COMPLIANCE WITH ORDINANCES OF THE CITY AND COUNTY OF HONOLULU, STATE

APPLICANTS WILL NOT WRITE IN THIS PART OF FORM	OF HAWAII, CONSTRUCTION TO BE COMPLETED ON OR ABOUT	19
	DATE	<u>9-12 19 60</u> APPROVED <u>[Signature]</u> AGENT, BOARD OF HEALTH
	DATE	19 APPROVED _____ CHIEF ENGINEER, FIRE DEPARTMENT
	DATE	<u>9-14 19 60</u> APPROVED <u>[Signature]</u> FOR SUPERINTENDENT OF BUILDINGS

WARNING! PERMIT PLACARD MUST BE POSTED ON THE SITE OF THE WORK. BE SURE YOU ARE FULLY INFORMED ON BUILDING AND ZONING LAWS BEFORE BEGINNING YOUR WORK. PLANTING HEDGES, TREES OR CONSTRUCTING FENCES BEYOND LIMITS OF YOUR PROPERTY LINE IS FORBIDDEN BY LAW. (PENALTY OF \$100.00 FINE AND/OR 30 DAYS IMPRISONMENT.)

PLANNING DEPARTMENT	DATE	19
ZONE (USE DISTRICT)	<u>RP</u>	SUB-DIVISION PENDING
SET BACK	<u>None</u>	ON MASTER PLAN
SUB-DIVISION FILED	<u>[Signature]</u>	COMMISSION REPORT
SUB-DIVISION APPROVED	<u>[Signature]</u>	RECOMMENDATION
OFFICE INDEX COPY	SIGNATURE	<u>[Signature]</u>

PERMIT APPLICATION RECEIVED

SEP 13 3 55 PM '60

[Signature]  
9/12/60

## **ENVIRONMENTAL ASSESSMENT**

---

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

## **APPENDIX B**

---

13. USE TYPE & OCC.

RENT. HOME

1-FAM.

2-FAM.

APART.

MULTI.

14. UNITS & ROOMS

LIV. UNITS 1

ROOMS 6

STORIES 1

BASEMENT 1

15. FOUND. & STEPS

CONC.  FD.  ST.

H.T.

STONE

WD. P.

H.O.G.

16. FRAME

WD-SW  SWDB  DW

MASONRY

STEEL

REIN. CONC.

17. EXTERIOR WALLS

BRICK 1 x 8 Rfd

STONE/ROCK 1 x 8 Rfd

PLAS/STUCCO 1 x 8 Rfd

18. ROOF DESIGN

GABLE  HIP

FLAT  GAMB

19. ROOF STRUCT.

WOOD 18 x 36 = 648

STEEL 10 x 46 = 460

CONC. 11 08

20. ROOFING

COMP. 10 x 21 = 420

BLT/UP 8 x 19 = 152

SHING 10 x 19 = 180

SHAKES 10 x 19 = 180

METAL 10 x 19 = 180

TILE 10 x 19 = 180

RAIN GUTTERS

21. FLR STRUCT.

WOOD JOISTS

CONC.

STEEL

CONC. SLAB

22. FLOORING

LIV. B/R/BTH KIT. OTHER

PINE

HDWD

CEM

TILE

23. ELECTRICAL

FIXT. CH  M  GD

OUTL. S/ST  ST  VG

B-T/IN OVEN  STOVE

VENT  D/W/R

24. INTER. WALLS

TYPE 1 x 8

MAT. Rfd

25. CEILING

CANEC  PLAS

PINE  PLY

26. BATHROOMS

1  1 1/2

2  2 1/2

3

27. MILLWORK

WINDOWS-D/H 1-10-61 DOORS-PANEL 1-10-61

SL. CS. 1 SOLID 1

PICTURE 1 SLID'G 1

JALOUSIE 1 CUSTOM 1

TRIM-PINE 1 CABINETS 1

HARDWD 1 SHELVES 1

METAL 1 VANITY(NO) 1

28. PLUMBING

ITEM	CH	MED	GD	VAL.
5-UNIT				570
BATH TUB				
W.C.				173 213
BASIN				89 102
SH. STALL				
SINK				
LAUND				
SUN HT.				
SUB TOTAL-PLUMBING				163

29. ADD'L IMPVT DETAILS

ITEM	RF	WL	FL	AREA	VAL.
Carpet	1/6	1/2	1/2	570	694
PATIO	11	1	1	180	257
B/LALS					156
S/I ROOM SOA				1687	4056
PATIO				240	982 2099
Deck				240	506 1430
wood nail				52	717 886
Garage				420	6083
CAR DR					1065
SUB TOTAL DETAILS					1049
TOTAL ITEMS 28 & 29					1810

30. ADD'L FLOOR DET.

2ND  3RD  4TH

31. CONDITION

BETTER THAN AVER

AVERAGE (NOR. DEP)

BELOW AVER.

32. CLASSIFICATION

CLASS 10

BY Lerr

**BUILDING DEPARTMENT  
CITY AND COUNTY OF HONOLULU  
BUILDING PERMIT APPLICATION**

Permit No. **165435**

APPLICANT FILL IN AREA BELOW		FOR BUILDING DEPARTMENT USE																																																						
Owner <b>Gary N. Pardy</b> <b>637-6042</b>	Tel. No.	ZONE	SEC	PLAT	PARCEL	LOT NO.	LOT AREA																																																	
Owner's Address <b>608-683 Farrington Hwy. (Whitaker)</b>	Tel. No.	6	8	10	19	7-112614	sq.																																																	
Construction Site Address <b>Same as above</b>	Tel. No.	Occupancy Group <b>R-3 Dwdg</b>		Orig. Bldg. Permit No. <b>F</b>		District <b>Makulei</b>																																																		
Plan Maker <b>Owner</b>	Prof. Reg. No.	Accepted Value <b>\$3000.00</b>		Permit Fee <b>28.00</b>		FLOOD HAZARD																																																		
Address <b>Same as above</b>	Tel. No.	TYPE OF CONSTRUCTION		NO. OF STORIES		FLOOD HAZARD																																																		
Contractor <b>Owner-builder</b>	State Lic. No.	MINIMUM <b>UN</b>	ACTUAL <b>UN</b>	EXISTING <b>1</b>	FINAL <b>1</b>	<b>Flood Ir.</b>																																																		
Address <b>Same as above</b>	Tel. No.	FLOOR AREA (SQ. FT.)		Name of Project <b>New 480 DECK</b>		REMARKS																																																		
Electrical Contractor <b>N/A</b>	State Lic. No.	Existing		New		Total																																																		
Address <b>N/A</b>	Tel. No.	Name of Project		REMARKS		REMARKS																																																		
Plumbing Contractor <b>N/A</b>	State Lic. No.	<b>ZONING AND CZC DATA</b>																																																						
Address <b>N/A</b>	Tel. No.	STRUCTURE CODE: <b>51</b> CENSUS TRACK-BLOCK NO.: <b>99.2</b>																																																						
DESCRIPTION OF WORK TO BE DONE <b>Patio with sun deck above on north side of existing structure</b>		ZONE (Use District): <b>R-1</b> SET BACK: <b>NO</b>																																																						
Proposed Use: <b>Dwelling Addition</b>		DESIGNATION: <b>RES</b> SHORELINE S/B: <b>Yes</b>																																																						
Estimated Value of Work: <b>\$ 3000.00</b>		SLU DESIGNATION: <b>URBAN</b> SMA S/B: <b>Yes</b>																																																						
<b>NATURE OF WORK</b> 1 <input type="checkbox"/> New Bldg.      5 <input type="checkbox"/> Alteration      9 <input type="checkbox"/> Retaining Wall 2 <input type="checkbox"/> Foundation Only      6 <input type="checkbox"/> Repair      10 <input type="checkbox"/> Electrical 3 <input type="checkbox"/> Shell Only      7 <input type="checkbox"/> Demolition      11 <input type="checkbox"/> Plumbing 4 <input checked="" type="checkbox"/> Addition      8 <input type="checkbox"/> Fence      12 <input type="checkbox"/> Other		REMARKS <b>Sec. 21-11-14 Exempt from Flood</b>																																																						
		<b>WORK WILL</b> <b>ADD</b> <b>DELETE</b> RESIDENTIAL UNITS <b>1</b> Total      _____ Total HOTEL ROOMS      _____ Rooms      _____ Room																																																						
<b>SIDEWALK, CURB, AND DROP DRIVEWAY</b> <input type="checkbox"/> Construct <input type="checkbox"/> Conc. <input type="checkbox"/> A.C.      EXISTING <input type="checkbox"/> Reconstruct <input type="checkbox"/> Lava Rock <input type="checkbox"/> Conc.      SIDEWALK <input type="checkbox"/> R.C. <input type="checkbox"/> A.C.      DRIVEWAY		APPROVAL OF OTHER AGENCIES (ROUTE AS INDICATED)																																																						
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>AGENCY</th> <th>SIGNATURE</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>CITY AND COUNTY</td> <td><i>[Signature]</i></td> <td></td> </tr> <tr> <td>LAND UTILIZATION</td> <td><i>[Signature]</i></td> <td>3/3/8</td> </tr> <tr> <td>DIV. OF ENGINEERING</td> <td></td> <td></td> </tr> <tr> <td>LOT GRADING</td> <td></td> <td></td> </tr> <tr> <td>HIGHWAY</td> <td></td> <td></td> </tr> <tr> <td>DRAINAGE</td> <td></td> <td></td> </tr> <tr> <td>DIVISION OF SEWERS</td> <td></td> <td></td> </tr> <tr> <td>FIRE DEPT.</td> <td></td> <td></td> </tr> <tr> <td>TRANSPORTATION</td> <td></td> <td></td> </tr> <tr> <td>BD. OF WATER SUPPLY</td> <td></td> <td></td> </tr> <tr> <td>STATE OF HAWAII</td> <td></td> <td></td> </tr> <tr> <td>HEALTH DEPT.</td> <td></td> <td></td> </tr> <tr> <td>HAWAIIAN HOME LANDS</td> <td></td> <td></td> </tr> <tr> <td>LAND &amp; NATURAL RESOURCES</td> <td></td> <td></td> </tr> <tr> <td>HIGHWAYS DIVISION</td> <td></td> <td></td> </tr> <tr> <td>DIV. OF INDUSTRIAL SAFETY</td> <td></td> <td></td> </tr> </tbody> </table>						AGENCY	SIGNATURE	DATE	CITY AND COUNTY	<i>[Signature]</i>		LAND UTILIZATION	<i>[Signature]</i>	3/3/8	DIV. OF ENGINEERING			LOT GRADING			HIGHWAY			DRAINAGE			DIVISION OF SEWERS			FIRE DEPT.			TRANSPORTATION			BD. OF WATER SUPPLY			STATE OF HAWAII			HEALTH DEPT.			HAWAIIAN HOME LANDS			LAND & NATURAL RESOURCES			HIGHWAYS DIVISION			DIV. OF INDUSTRIAL SAFETY
AGENCY	SIGNATURE	DATE																																																						
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HIGHWAYS DIVISION																																																								
DIV. OF INDUSTRIAL SAFETY																																																								
<b>SEWAGE DISPOSAL</b> <input type="checkbox"/> New <input type="checkbox"/> Existing <input checked="" type="checkbox"/> Not Applicable <b>METHOD</b> 1 <input type="checkbox"/> Public Sewer      2 <input type="checkbox"/> Aerobic Unit      3 <input type="checkbox"/> Cesspool 4 <input type="checkbox"/> Private Sewage Treatment Plant 5 <input type="checkbox"/> Other (Specify) _____		REMARKS																																																						
I hereby acknowledge that I have read this application and state that the above is correct and agree to comply with all City and County ordinances and State laws regulating building construction.		<b>NOTES TO APPLICANT:</b> SEPARATE SIGN PERMIT SHALL BE OBTAINED AS NECESSARY. ELECTRICAL AND PLUMBING WORK SHALL BE DONE BY DULY LICENSED PERSONS AS REQUIRED UNDER CHAPTER 448E, HAWAII REVISED STATUTES. POST PERMIT PLACARD ON SITE OF WORK. THIS PERMIT MAY BE REVOKED IF WORK IS NOT STARTED WITHIN 180 DAYS OF DATE OF ISSUANCE OR IF WORK IS SUSPENDED OR ABANDONED FOR 180 DAYS. VIOLATING ANY OF THE PROVISIONS OF THE BUILDING, ELECTRICAL OR PLUMBING CODES IS PUNISHABLE BY FINE AND/OR IMPRISONMENT.																																																						
SIGNATURE (OWNER OR AGENT) <b>Gary N. Pardy</b> DATE <b>12-28-81</b>																																																								
IF AGENT, PRINT NAME      AGENT'S TEL. NO.																																																								

Permission is hereby given to do above work according to conditions herein and according to approved plans and specifications pertaining thereto, subject to compliance with ordinances and laws of City and County of Honolulu and State of Hawaii.

This building shall not be occupied until a certificate of occupancy has been issued.

*[Signature]*      3-3-82

Department of Land Utilization

Contact Memorandum

Date 1 May 86  
Project No. \_\_\_\_\_

SUBJECT: Area Calculations to Determine  
CONTACT: 20' vs 40' setback.

10,632 - total lot area

-2,973 - loss due to erosion prior to 1971

7,659 current total lot area

60 - front yard p.l.

x 10 - setback

600 s.f.

61.83 - rear yard p.l.

x 40 - shoreline setback

2,473.2 s.f.

120.20 - side yard p.l.

x 5 - setback

601 s.f.

135.11 - side yard p.l.

x 5 - setback

675.55 s.f.

4,349.75 total s.f. taken away by setbacks.

~~4,319~~ is greater than  $\frac{1}{2}$  7,659 s.f.

Therefore 20' shoreline setback applies.

## **ENVIRONMENTAL ASSESSMENT**

---

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

### **APPENDIX C**

---

The shoreline as located and certified and delineated in red is hereby confirmed as being the actual shoreline as of **9 1982**

*Alana J. Muelke*  
State Land Surveyor

**S E A**

**SURVEY OFFICE COPY**

**MAP SHOWING  
SHORELINE LOCATION OF LOT 18  
OF LAND COURT APPLICATION 1810  
AS SHOWN ON MAP 4**

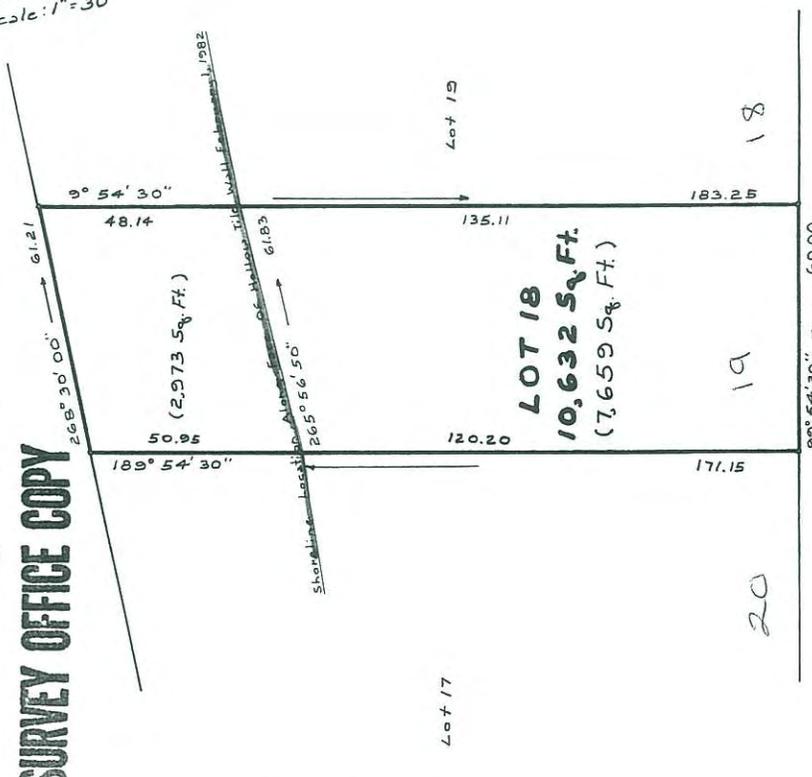
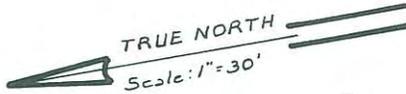
AT MOKULEIA, WAIALUA, OAHU, HAWAII

OWNERS: Gary N. Pardy  
Deborah A. Pardy  
68-683 Farrington Highway  
Waiialua, Hawaii 96791

A.F.M. CORPORATION  
1193 Kiko Place  
Kailua, Hawaii 96734

This work was prepared by me  
or under my supervision

*Alana J. Muelke*  
Registered Professional Surveyor  
Certificate Number 4969



**FARRINGTON HIGHWAY**

10" x 15" = 1.04 Sq. Ft.

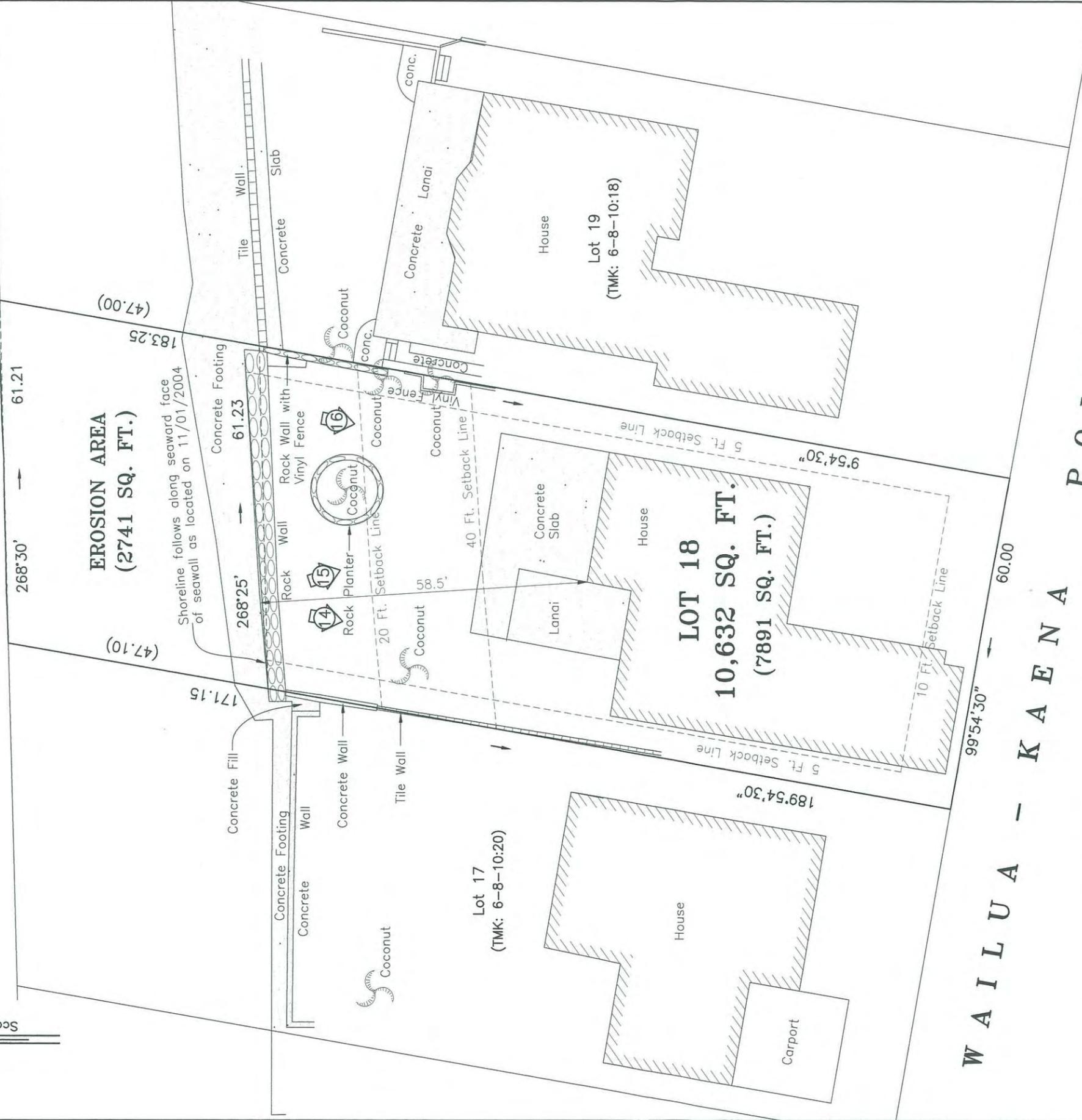
TAX MAP KEY: G-B-10:19

TRUE NORTH  
Scale: 1 inch = 20 feet

9

8

A



W A I L U A - K A E N A P O I N T R O A D

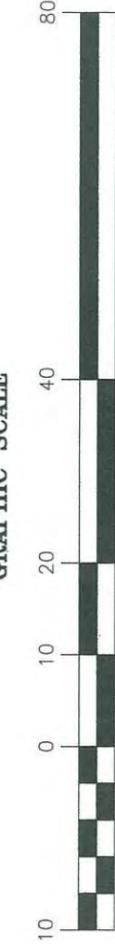
SHORELINE SURVEY MAP  
LOT 18

as shown on Map 4  
of Land Court Application 1810  
Mokuleia, Waialua, Oahu, Hawaii  
Tax Map Key: 6-8-10:19  
Scale: 1 inch = 20 feet  
Date: July 6, 2005  
Revised: June 9, 2008

Owner: Mr. Greg Michaels  
Mailing Address: 27515 Enterprise Circle South  
Temecula, CA 92590



*Greg Michaels* exp. 4/30/10



( IN FEET )  
1 inch = 20 feet

This work was prepared by me  
or under my direct supervision.

NOTES:

1. Only improvements shown were located.
2. Denotes number and direction of photographs.

**ENVIRONMENTAL ASSESSMENT**

---

Shoreline Setback Variance TMK 6-8-10: 019, 68-683 Farrington Highway, Mokuleia, Oahu

**APPENDIX D**

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EKNA Services, Inc.

CN 2474-00F#

August 25, 2005

Mr. Donald Clegg  
Analytical Planning Consultants, Inc.  
928 Nuuanu Avenue, Suite 502  
Honolulu, Hawaii 96817

Subject: SSV for Existing Seawall  
68-683 Farrington Highway, Mokuleia, Oahu  
TMK: 6-8-10:19

Dear Mr. Clegg:

This letter provides a Coastal Engineering Assessment of the potential impact of the subject seawall on existing coastal processes along this Mokuleia shoreline area. EKNA Services, Inc. prepared a Coastal Engineering Assessment of Existing Seawalls (TMK:6-8-9:010 and 011) in April 2004, for two properties located about 1100 feet east of the subject parcel. This prior report contains a large amount of information that is relevant to the subject property - i.e., information about coastal processes, alternative shore protection measures, and potential littoral impacts. The purpose of this letter is to provide additional information specific to the subject parcel. I recommend that our prior report be included in entirety as an Appendix in the Environmental Assessment for the subject seawall to provide the required coastal engineering information to support the SSV application.

#### Existing Seawall

The existing seawall is a CRM wall with top elevation of about +10' Mean Sea Level (MSL). According to the as-built survey by Hida, Okamoto & Associates, Inc., the base of the wall is protected by an extended concrete footing, with a top-of-beach elevation of about +1' MSL (+2' Mean Lower Low Water (MLLW)). A site visit was conducted on April 2, 2005 during low tide (+0.1' MLLW), moderate North Pacific swell conditions (3-5 foot surf), and strong tradewinds. The base of the wall was subject to wave runup at the time of the site visit. Breaking wave activity was evident across the entire bayfront.

The subject seawall ties into a reinforced concrete seawall on the east side of the property, and a concrete seawall on the west side of the property. A public right-of-way (ROW) is situated four parcels to the east of the subject parcel. Properties eastward of the ROW to the stream mouth are protected with structures, and properties westward of the ROW within the embayment are protected by seawalls (about 1000 feet or so). There is no "dry beach" fronting the seawalls extending westward within the embayment. The attached photos depict the condition of the

Engineers  
and  
Environmental  
Consultants

Engineering  
Planning  
Surveys  
Computer  
Modeling

615 Piikoi Street  
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96814-3139

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Mr. Donald Clegg  
TMK: 6-8-10:19

shoreline in the vicinity of the subject property. The poured concrete slope fronting the adjacent parcel 18 extends partially across the subject wall frontage. It is likely that continuing erosion fronting the subject seawall was potentially jeopardizing the stability of the wall, similar to the adjacent parcel. Seawalls continuing westward showed similar measures to protect the foundation of the walls from scouring as the elevation of the fronting beach was lowered by continuing erosion.

#### Potential Littoral Impacts

The erosion that is occurring along this coastal reach can be described as “passive” erosion (in contrast to “active” erosion which is induced or accelerated by shore protection structures). The existing seawall and others along this coastal reach have no effect on the existing littoral processes at this site. However, when a protective structure is built along an eroding shoreline and erosion continues to occur, the result will be loss of beach in front of the shore protection structure as the water deepens and the shoreface profile migrates landward. This process is designated as passive erosion and is the result of fixing the position of the shoreline on an otherwise eroding stretch of coast. Passive erosion proceeds independent of the type of shore protection constructed. This is the most common result of shoreline hardening in Hawaii, and is the probable long-term consequence of the existing seawalls at Mokuleia.

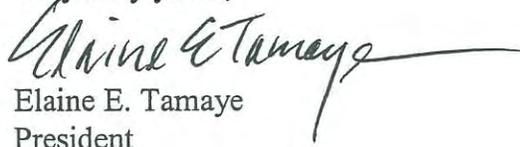
#### Consideration of Alternatives

Removing the seawall (which is functioning as a retaining wall), without constructing replacement shore protection, would result in immediate loss of at least 50 feet of property as the shoreline attempts to achieve a stable slope. The adjacent properties would be impacted as their existing seawalls become flanked.

Removal of the existing seawall and replacing it with a different type of shore protection measure does not provide any significant benefit. Seawalls exist on both sides of the subject property. Although there is sufficient space on the property to construct a sloping revetment without removing or relocating the dwelling, at least 20 feet of flank walls would need to be constructed to protect the adjacent properties, since the top of the revetment slope would be located about 20 feet landward of the adjacent seawalls. However, replacing the seawall with a sloping revetment structure will not improve the existing shoreline access and will not halt the ongoing erosion along this coast.

I trust that this letter addresses the coastal engineering issues concerning the subject seawall.

Very truly yours,

  
Elaine E. Tamaye  
President

attachment

Coastal Engineering Assessment  
of Existing Seawalls at Mokuleia  
Oahu, Hawaii

TMK: 6-8-9:010 and 011

Prepared for:

Bruce Clements  
68-003 Laau Paina Place  
Waialua, Hawaii 96791

and

Michael Ells  
68-001 Laau Paina Place  
Waialua, Hawaii 96791

Prepared by:

EKNA Services, Inc.  
615 Piikoi Street, Suite 300  
Honolulu, Hawaii 96814  
(EKNA Control No. 2439-00R#)

April 2004

Coastal Engineering Assessment  
of Existing Seawalls at Mokuleia  
TMK: 6-8-9:010 and 011

1. LOCATION AND PROBLEM IDENTIFICATION

The project site is located along two (2) contiguous parcel shorefronts at Mokuleia, at 68-001 and 68-003 Laau Paina Place (TMK: 6-8-09:010 and 011). Figure 1 shows the general site location and Figure 2 provides the Tax Map Key.

Both properties are protected by existing seawalls, that were constructed because of ongoing long-term erosion along this shorefront. The seawalls were constructed without obtaining a building permit and Shoreline Setback Variance. In accordance with Ordinance No. 92-34 and the Shoreline Setback Rules and Regulations of the City and County of Honolulu, this coastal engineering assessment is prepared in support of an application for a Shoreline Setback Variance for the existing seawalls at the two subject parcels.

The shoreline fronting this site is a narrow beach underlain with reef limestone that extends seaward as a variable depth reef platform. The site is exposed to winter North Pacific swell and the predominant tradewind waves. Shallow fringing reefs protect the shoreline from moderate tradewind wave energy. However, during large winter swell conditions and high water levels, erosion of the narrow beach and wave runup and overtopping of the beach cause erosion damage and flooding to unprotected backshore areas and dwellings. Numerous property owners along this coastal reach have constructed shore protection to prevent further storm wave runup damage to their dwellings. The subject property owners desire to retain the seawalls to prevent future erosion and wave runup damage to their dwellings.

2. SHORELINE CHARACTERISTICS AND COASTAL PROCESSES

The project site lies on the Mokuleia coast, characterized as an undulating coastal reach containing numerous embayed coral sand beach systems. The project site is situated in one such embayment near the east end of the Dillingham Airfield. This particular embayment is formed between two prominent reef "headlands", which are shallow reef formations that protrude seaward from shore. The reef headland which bounds the eastern end of this embayment fronts the Mokuleia Beach Colony, just to the west of the Mokuleia Polo Grounds. The two subject parcels are on the west side of the Mokuleia Beach Colony.

A site visit was conducted on April 9, 2004 during a low tide (0.0 MLLW<sup>1</sup>), moderate North Pacific swell conditions (3-5 foot surf), and strong tradewinds. The reef headlands were not bared, but were noticeably shallower than the reef fronting the central portion of the embayment. Breaking wave activity was evident across the entire bayfront. While not observable from shore, a review of aerial photos shows calm areas between breaker zones that indicate the deeper “channels” through the reefs fronting the embayment.

Photo page-1 shows the approximately 350-foot long seawall fronting the Mokuleia Beach Colony on the east side of the project site. The narrow and steep beach fronting this parcel is a “wet” beach, meaning that during high tide, the wave uprush reaches the seawall. Photo page-2 shows the subject Parcel 10 curvilinear seawall that ties into the Mokuleia Beach Colony’s seawall. Photo page-3 shows the subject Parcel 11 seawall that is largely obscured from sight by the naupaka vegetation. This seawall ties into Parcel 10’s seawall on the east side, and extends landward along the western boundary of the parcel for about 20 feet. Debris fronting the subject Parcel 11 shorefront indicates that wave uprush during high tide frequently reaches the existing wall. A privately-owned right-of-way is adjacent to subject Parcel 11 (the right-of-way is jointly owned by the property owners on Laau Paina Place and is not open to the public).

Photo page-4 shows the parcels westward to the stream. The parcel on the west side of the right-of-way (Parcel 12) is obscured by naupaka vegetation, and the adjacent parcel (Parcel 13) is fronted by a CMU wall. The large parcel on the east side of the stream (Parcel 20) is unprotected. Photo page-5 shows the stream and adjacent shoreline reach to the west. The parcel on the west side of the stream mouth shows obvious erosion damage, and a nearly continuous line of seawalls protect the remaining shoreline within the embayment.

A 1995 shoreline survey<sup>2</sup> indicates that the top-of-wall elevation on Parcel 11 is about +10’ MSL and the base of the wall (top of beach) is about +6.0 to +6.5’ MSL. The adjacent Parcel 10 top-of-wall elevation is the same, however, the base of the wall is ½ to 1 foot lower (because of the narrower beach front). The top-of-beach elevation fronting the adjacent three parcels to the west is probably on the order of +8’ to +9’ MSL.

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<sup>1</sup>Honolulu low tide was at noon at -0.2’ MLLW, and high tide was at 8:07 pm at +2’ MLLW. Based on corrections for Waialua Bay, low tide was estimated to occur at 10 am at the site. The site visit was conducted 09:00 - 09:30 am.

<sup>2</sup>Survey by DJNS Surveying & Mapping, Inc., performed January 18, 1995 and submitted for shoreline certification.

It is apparent that during high tide, wave uprush reaches the base of the existing seawalls. During storms and large winter swell conditions, wave runup and overtopping of the beach likely causes flooding and sand transport into the properties that are not protected by seawalls. There is no evidence that the existing seawalls are accelerating erosion problems at the site. There is no indication of excessive escarpment or landward retreat of the unprotected shoreline directly adjacent to the Parcel 11 seawall. The beach profile is uniform along this entire shoreline reach. These factors indicate that the existing seawalls have had no adverse effects on existing beach processes.

This coastal reach is exposed to winter North Pacific swell and predominant tradewind-generated waves. The shallow reefs which surround the embayment provide much sheltering of the project site from deepwater wave energy. These reefs dissipate nearly all wave energy during typical tradewind-generated wave conditions. During large winter swell activity, waves initially break on the surrounding reefs where most of their energy is spent. What little energy remains propagates to shore as reformed waves which break on the shoreline. The wave energy that can reach the shoreline is limited by the water depths over the reefs and the channels through the reef. Deeper water depths over the reefs allow greater transmission of wave energy. During large swell activity, waves breaking over the reefs can cause a rise in water level known as wave setup. The increased water levels allow more wave energy to be transmitted over the reef. Thus, wave activity at the shoreline is greatest during large swell or storm wave conditions and during high tides.

The super-elevation in water level during large swell activity will allow waves to attack the shoreline at higher elevations on the beach. This is also aggravated during high tide conditions. Thus, the conditions which promote wave overtopping problems for unprotected parcels occur during large winter swell activity, as confirmed by residents. Typical tradewind waves are not capable of causing appreciable wave setup and very little wave energy reaches this shoreline reach.

Normally along an exposed coastal reach, wave energy is the primary factor which drives nearshore currents in the surf zone. Waves approaching the shore at an angle will induce longshore currents and transport of beach material alongshore in the direction of breaking. The large winter North Pacific swell approaches this coastal reach from the northwesterly direction. Therefore, it may be expected that longshore currents and longshore transport during winter swell activity would be towards the easterly direction at the project site. However, the shallow reefs surrounding the site considerably alter the deepwater wave characteristics within the embayment, resulting in possibly complex patterns of wave approach along the shoreline. According to a prior report by the author, residents have noted that shoreline currents within the embayment flow towards the west during high

winter swell activity. This flow may be primarily hydraulically driven due to the bathymetric contours within the embayment rather than wave-driven. The water which accumulates within the embayment during large swell or storm wave activity seeks to flow towards areas of hydraulically least resistance. Thus, the water drains towards deeper areas within the embayment. Deeper water depths exist on the west side of the embayment.

The shallow reef structure offshore the eastern headland (fronting the project site) is broader and extends further into the embayment than the shallow reef structure offshore the western headland. This reef structure offshore the eastern headland appears to gradually deepen towards the stream mouth, at which point the reef structure becomes less distinct and the reef bottom is mottled with sand cover throughout the western half of the embayment. There is an apparent "channel" through the offshore reef near the western end of the embayment. Thus, it is postulated that during large winter swell activity, setup in water level due to breaking waves on the broad shallow reef areas on the eastern end of the embayment induces flows towards the deeper central and west portion of the embayment. The channel through the surrounding reef at the west end of the embayment then allows the water to escape seaward through the opening in the surf zone. This hydraulically-driven circulation is probably the basis for the westerly-flowing shoreline current that residents have noted.

If the shoreline flows are strong, they have the potential to carry wave-suspended shoreline sediments offshore into the deeper reaches of the embayment and seaward of the surrounding reef as the shore-parallel flows are diverted seaward through openings in the shallow reef. Such sediments may be deposited in water depths too deep for normal wave activity to return it to the beach. The history of long-term erosion of this coastline is evidence that such permanent loss of beach material occurs.

While net long-term erosion is evident, residents also indicated that seasonal fluctuation of beach width occurs. According to the residents, there is a pattern of erosion along the eastern part of the embayment during the winter, with restoration of the beach width during the summer. Conversely, for the shoreline reach towards the western part of the embayment, there is a pattern of erosion during the summer and restoration during the winter. Because water depths in the central part of the embayment are too deep for transmitted wave energy to move sediments back to shore, the seasonal fluctuation of beach width is presumably due to longshore transport of sediments from the shoreline and shallow nearshore areas around the headlands. Figure 3 depicts the probable seasonal transport processes.

During high winter northwest swell activity, a depression in the surrounding reef at the

northwestern end of the embayment can permit substantial wave energy to enter the embayment and attack the eastern shoreline reach, while the shallow reefs fronting the western headland shelter the adjacent westerly shoreline reach within the embayment. The direction of wave breaking on the shallow westerly reef, however, can transport sediments from the shallow reef and shoreline areas around the point and into the embayment.

During strong northeasterly tradewind wave conditions which can occur during the summer months, a depression in the surrounding reef at the northeastern end of the embayment can permit substantial wave energy to enter the embayment and attack the western shoreline reach, while the shallow reefs fronting the eastern headland shelter the adjacent easterly shoreline reach within the embayment. The direction of wave breaking on the shallow easterly reef, however, can transport sediments from the shallow reef and shoreline areas around the point and into the embayment.

For this coastal area, and for most coastal areas in the state, the general trend is toward continued long-term erosion. There is no evidence that the long-term erosion trend along this coastal reach will reverse in the future.

### 3. POTENTIAL LITTORAL IMPACTS

The existing seawalls have no effect on the existing littoral processes at this site. The seawalls are functionally consistent with existing seawalls along this coastal reach. The existing seawalls do not alter seasonal erosion/accretion patterns. There is no evidence that the seawalls have caused aggravated erosion to the adjacent unprotected parcels. This entire coastal reach has been experiencing net long-term erosion over the past 50 years. There is a continuing high risk of erosion and flooding damage due to overtopping waves to unprotected properties.

The seawalls do not affect lateral access along the beach. While the seawalls do not affect longshore sediment transport processes, there may be some concern that cross-shore transport may be affected because of wave reflection from the near-vertical impermeable face of the seawall. It is been a generally held presumption that the more reflective the structure, the greater the potential for adverse impacts by discouraging sand accumulation in front of the structure. However, given the fact that beach and shoreline erosion is continuing to occur along this coastline and elsewhere where there are no shore protection structures, it can be concluded that the long-term erosion trend is a natural process that will certainly not reverse simply by constructing shore protection structures with a sloping porous surface. In fact, long-term field studies by the University of California at Santa

Cruz<sup>3</sup>, sponsored by the U.S. Army Corps of Engineers, found no significant difference in impact to the beach fronting a sloping rip-rap revetment and an adjacent vertical concrete seawall. Field studies conducted by EKNA Services, Inc. (formerly Edward K. Noda and Associates, Inc.) at Aliomanu, Kauai, also demonstrated that seasonal cross-shore transport is unaffected by an existing seawall. Monitoring of beach profiles over a four month period (July-October 1996) showed that seasonal beach accretion (increase in beach width) occurred in front of the near-vertical seawall as well as on the adjacent unprotected beach.

The erosion that is occurring along the Mokuleia shoreline can be described as “passive” erosion (in contrast to “active” erosion which is induced or accelerated by shore protection structures). When a protective structure is built along an eroding shoreline and erosion continues to occur, the unprotected shoreline adjacent to the structure will continue to erode and eventually migrate landward beyond the structure. The result will be loss of beach in front of the shore protection structure as the water deepens and the shoreface profile migrates landward. This process is designated as passive erosion and is the result of fixing the position of the shoreline on an otherwise eroding stretch of coast, and is independent of the type of shore protection constructed. This is the most common result of shoreline hardening in Hawaii, and is the probable long-term consequence of the existing seawalls at Mokuleia.

#### 4. CONSIDERATION OF ALTERNATIVES

Removal of the existing seawalls is not a viable alternative, since the improvements presently existing on the parcels would be susceptible to erosion and wave damage. The

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<sup>3</sup>Because increased development in coastal areas has led to increased “hardening” of shorelines in response to net long-term shoreline erosion, there is an increased concern of coastal planners to the potential impacts of seawalls and/or revetments on beaches and shorelines. Even within the scientific and engineering community, controversy exists on whether seawalls and/or revetments are adverse and promote erosion. Because of the lack of sufficient field data to objectively resolve the controversy, the U.S. Army Corps of Engineers sponsored studies, beginning in the later 1980s, to monitor beach response to seawalls and revetments at several study sites. The following references describe the results of the monitoring:

U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center, Coastal Engineering Technical Note, CETN III-46 (3/92), CETN III-57 (6/95).

Griggs, G.B., J.F. Tait, K. Scott, N. Plant (1991), “The Interaction of Seawalls and Beaches: Four Years of Field Monitoring, Monterey Bay, California”, Proceedings Coastal Sediments '91.

Griggs, G.B., J.F. Tait, W. Corona (1994), “The Interaction of Seawalls and Beaches: Seven Years of Monitoring, Monterey Bay, California”, Shore and Beach 62:21-28.

houses on both parcels are situated within about 15 feet at their closest point from the top of the seawalls. Replacing the seawalls with a sloping revetment structure is also not a viable option because of the limited land area between the building improvements and the existing seawalls. As well, there is no reason to expect that a revetment would halt the ongoing erosion along this coast.

Large geotextile bags filled with sand have been used as temporary erosion control measures at several coastal erosion hot spots over the past years, most notably the Lanikai area. Large bags such as SEAbags<sup>4</sup> have been used for emergency shore protection in Lanikai for the last 10 years. The bags are prone to damage from storm wave attack and vandalism, require frequent and continual maintenance, and cannot be considered a permanent protection measure. Sand bags are considered “environmentally benign” because the color and texture of the fabric blends in with the beach, and they can be easily removed by simply cutting the bags to release the sand contents. However, they are not “soft” structures in their as-built state. In fact, the large sand bags are solid, hard building materials when fully filled, and a sand bag revetment structure is more reflective than a rock revetment. Although the bag material is permeable (meaning that water will pass through the bag material), once the bags are filled and stacked to form a structure, the overall porosity (ratio of void space to hard surface) of the structure is very low on the time scale of wave impact. Therefore, because there are few voids between the stacked bags, wave energy is more readily reflected rather than dissipated within the structure slope as would be for a rock revetment. Another potential concern is that bags that are below the water line or within the tidal/swash zone become very slippery because of algal growth, and pose a safety problem where people can slip and injure themselves. Even newly installed bags with no algal growth can be slippery because of the smooth surface of the bag material.

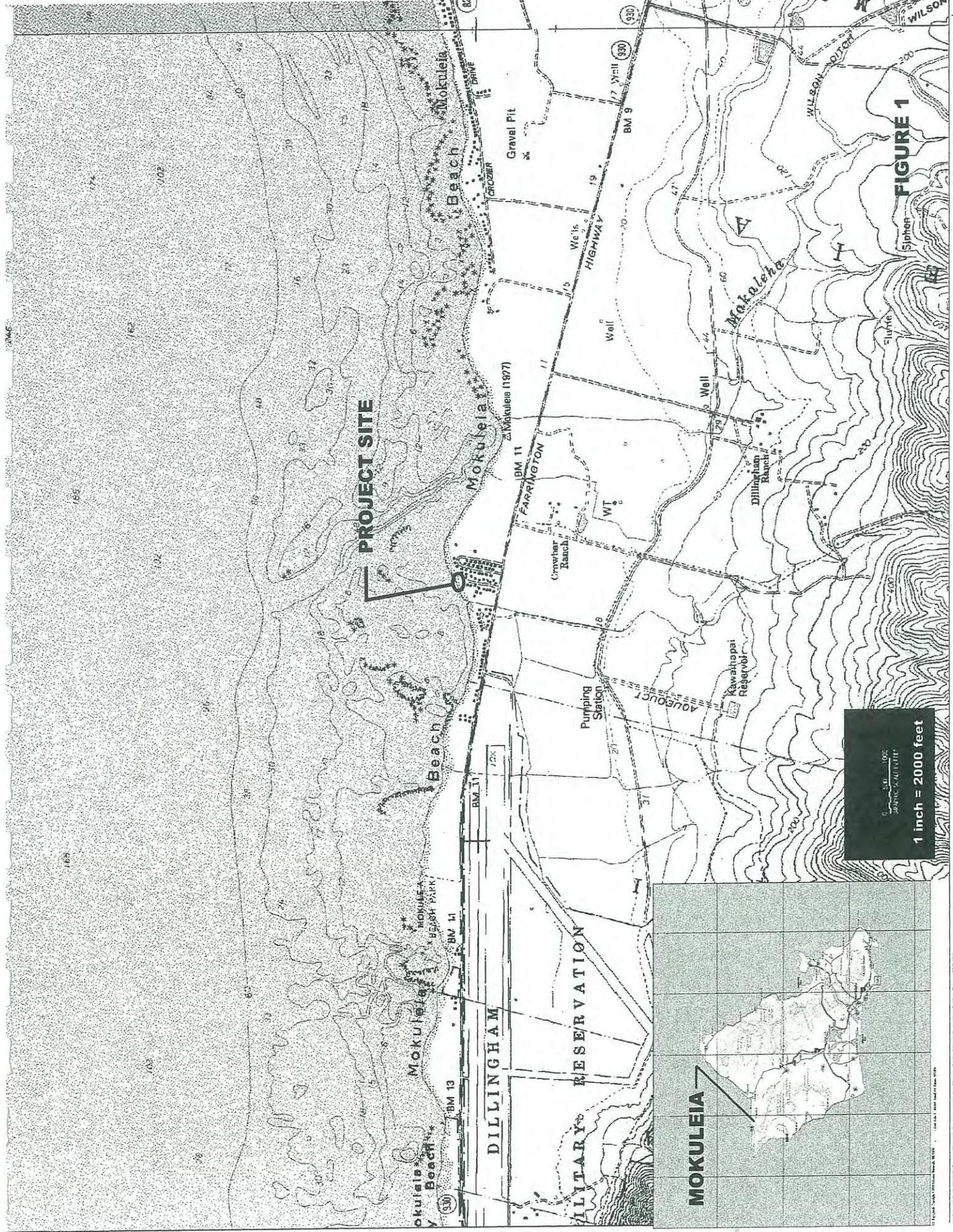
Beach restoration and nourishment is commonly cited as a preferred alternative to protecting eroding shorelines and beaches. Unfortunately, this alternative is costly (due to lack of suitably large quantities of natural beach sand to serve as a commercial source of material) and not an economically viable alternative for individual residential property owners. Beach nourishment would be required for a long stretch of shoreline reach extending beyond the subject parcels, since wave energy will quickly redistribute small quantities of beach material unless beach containment structures (such as groins) are built to confine the beach fill fronting individual parcels or short stretches of shoreline. If no structural measures are built to stabilize the beach fill, periodic nourishment would likely

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<sup>4</sup>Trade name for large sand bags from Bulk Lift International, designed for beach erosion protection.

be required. Beach restoration and nourishment, in general, is difficult to design and maintain as a “shore protection” alternative. For the beach to provide adequate protection during storm wave events, it must have adequate beach width, elevation, and length along the entire shoreline reach within the defined littoral cell. The large quantities of suitably coarse natural beach sand required for major beach restoration/nourishment projects are not readily available in Hawaii. As a matter of fact, the government agencies that have responsibility for our recreational beach resources can rarely afford to perform major beach nourishment for public beach parks or publicly accessible beach areas.

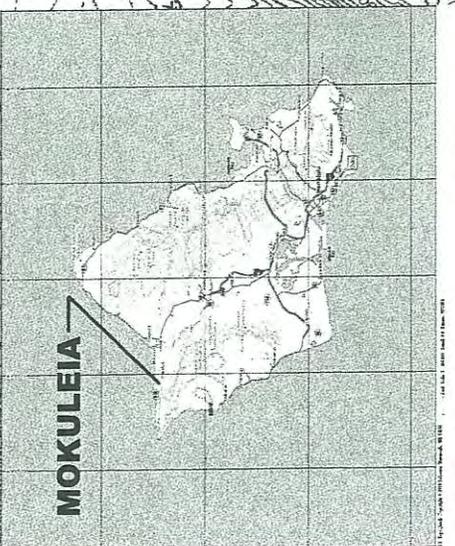
While not an erosion control measure, relocating the existing building improvements on the parcels is considered a temporary measure to prevent or mitigate damage to the dwellings. Erosion is expected to continue along this coastline, leading to continued loss of properties that are not protected. While it is not possible to predict the “serviceable” life of any beachfront property, it is a reasonable certainty that properties that are not protected from erosion damage will eventually be lost to the sea.



**PROJECT SITE**

**FIGURE 1**

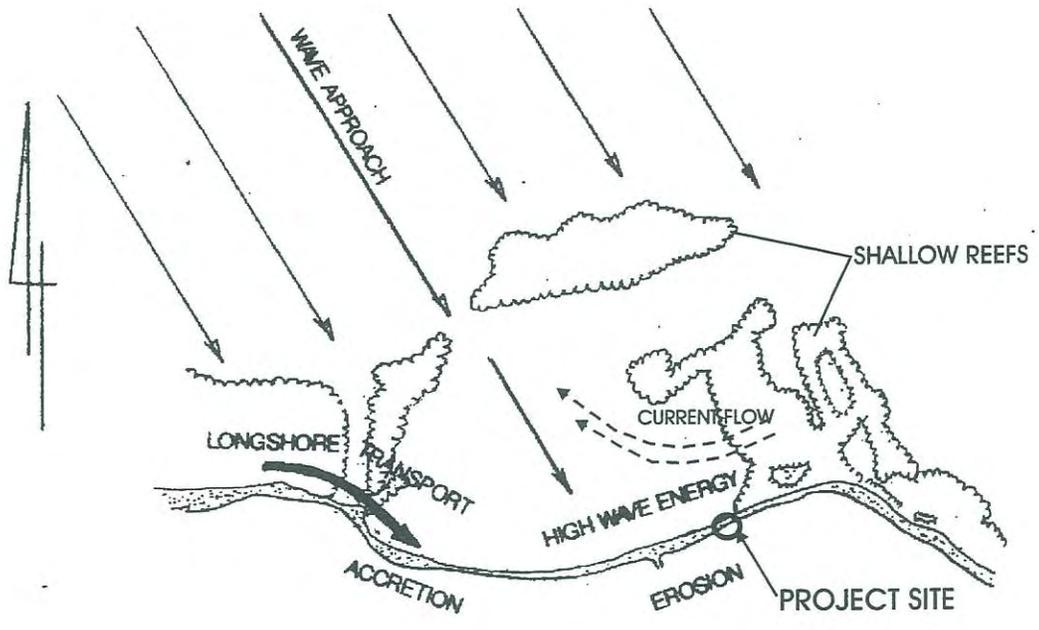
0 50 100  
 METERS  
 1 inch = 2000 feet



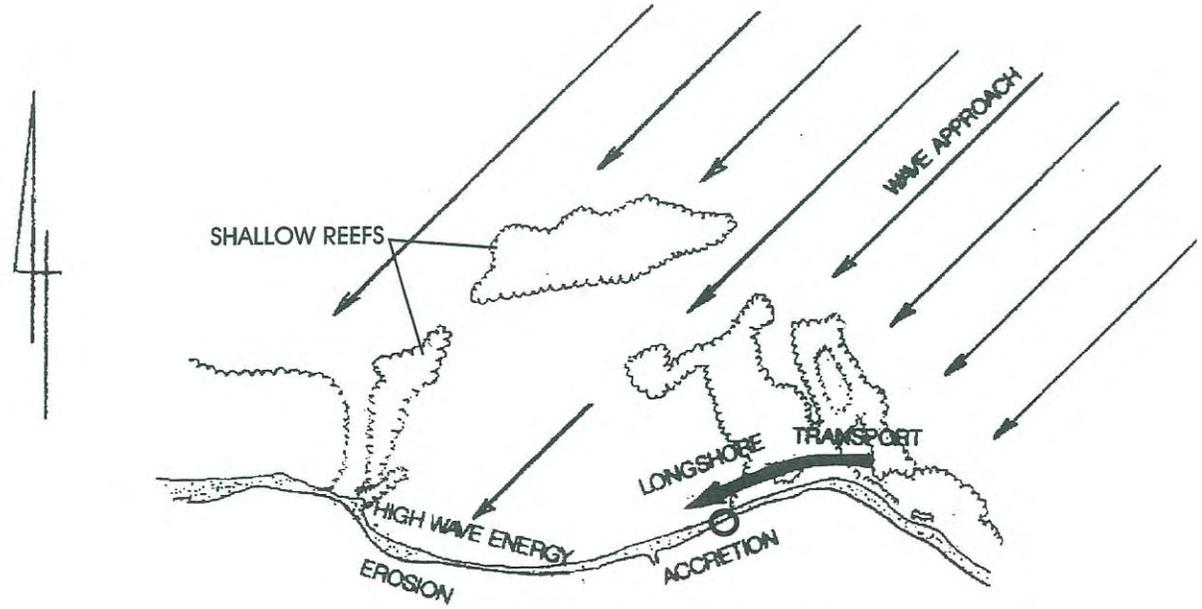
**MOKULEIA**

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WINTER NORTHWEST SWELL CONDITIONS



SUMMER NORTHEAST TRADEWIND CONDITIONS

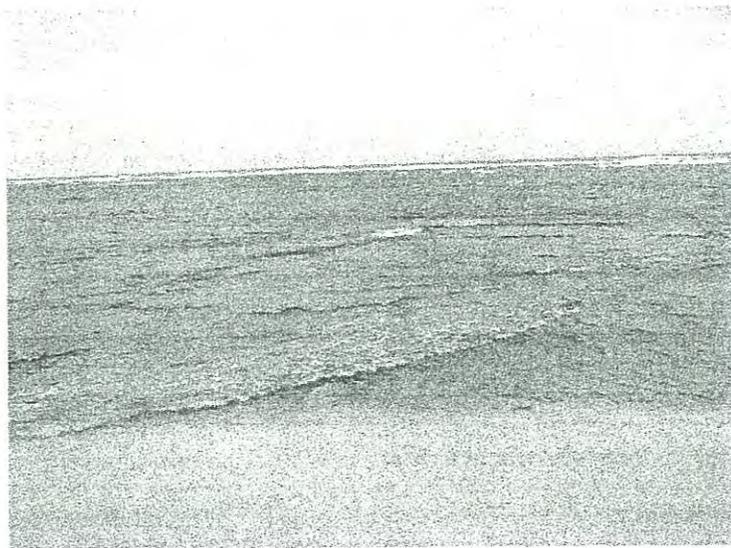
FIGURE 3



View eastward along the top of the seawall fronting the Mokuleia Beach Colony. Note the narrow beach.



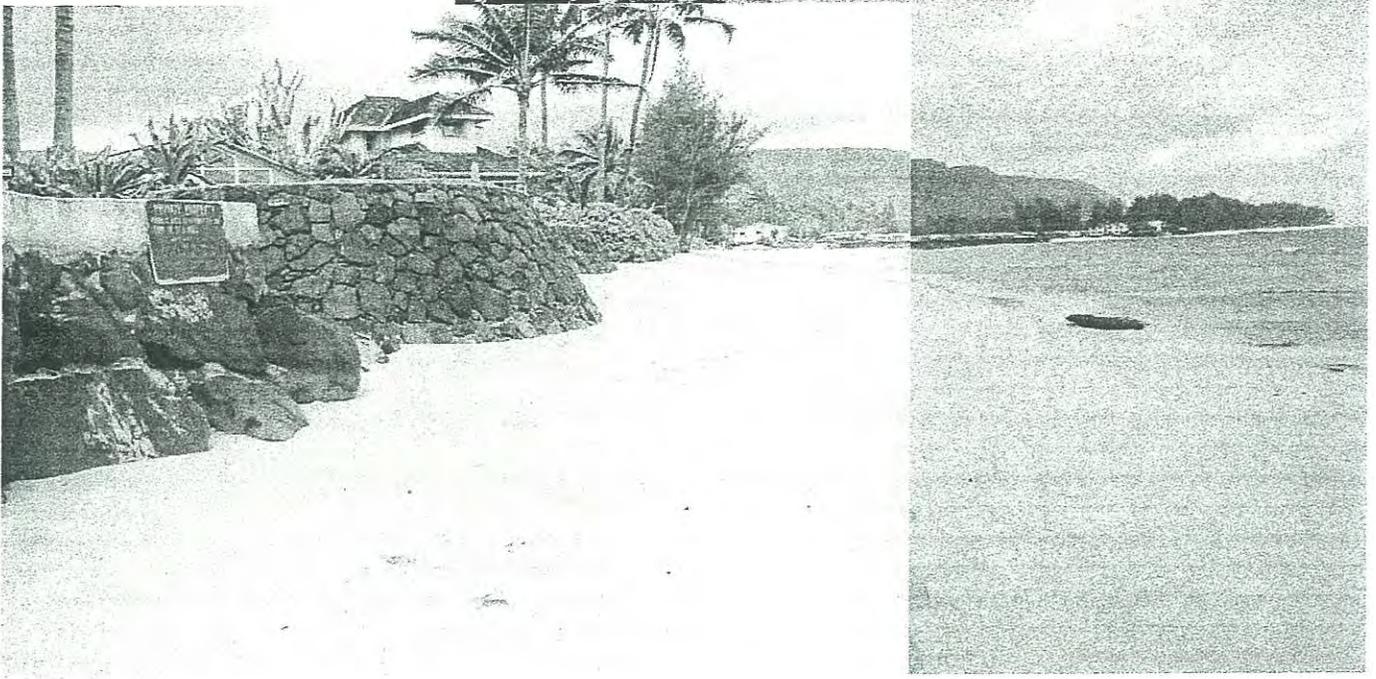
View eastward along the beach fronting the Mokuleia Beach Colony seawall. Note the narrow and steep beach profile.



View offshore Parcel 10. Note the shallow reef and wave angle at the shoreline indicating eastward longshore transport.

Winter North Pacific swell were causing breaking waves across entire embayment.

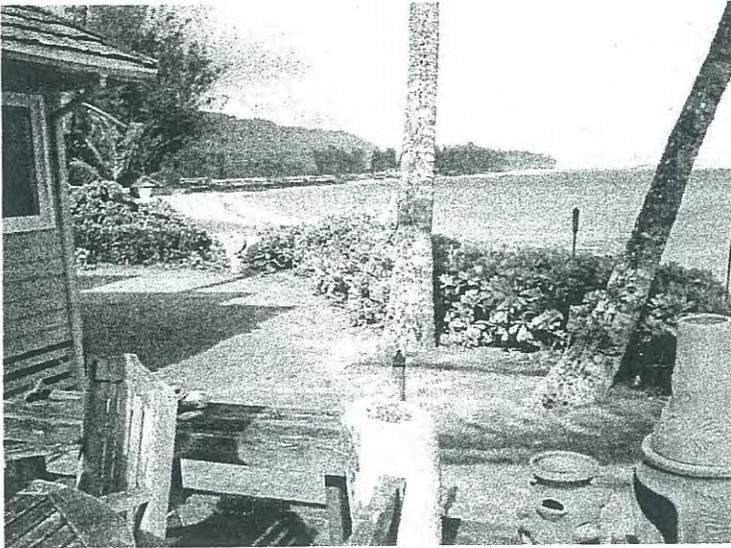
MOKULEIA  
PHOTO DATE 4-9-04  
TIME 09:15 AM  
TIDE APPROX. 0.0 MLLW



Views westward from west end of Mokuleia Beach Colony seawall. Parcel 10 is in the foreground. Parcel 11 is next to Parcel 10. (Sign is on the west end of the Mokuleia Beach Colony seawall. The sign permits the public to walk on the top of the seawall.)

MOKULEIA  
PHOTO DATE 4-9-04  
TIME 09:15 AM  
TIDE APPROX. 0.0 MLLW

**PHOTO page-2**



View westward from porch on Parcel 11.



View offshore from porch on Parcel 11.  
Steps in seawall lead down to the beach.



View of Parcel 11 seaward frontage. Seawall is hidden by naupaka vegetation. Curved seawall on left fronts Parcel 10.



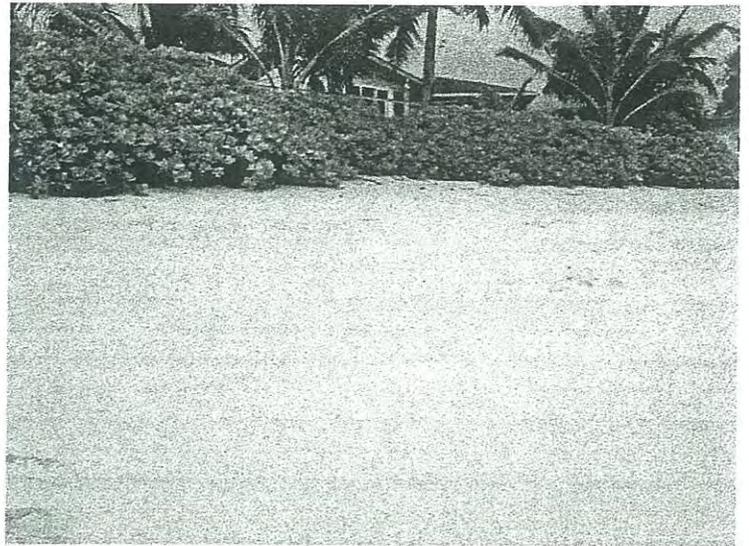
View mauka along private right-of-way. The CRM wall on left is Parcel 11's return wall.

MOKULEIA  
PHOTO DATE 4-9-04  
TIME 09:00 AM  
TIDE APPROX. 0.0 MLLW

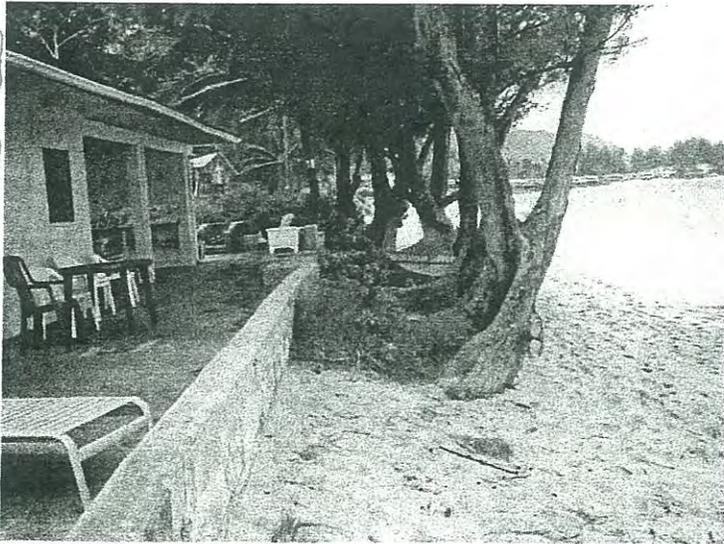
**PHOTO page-3**



View westward from private right-of-way.  
Naupaka vegetation fronts Parcel 12.



Naupaka vegetation fronting Parcel 12 on  
west side of private right-of-way.



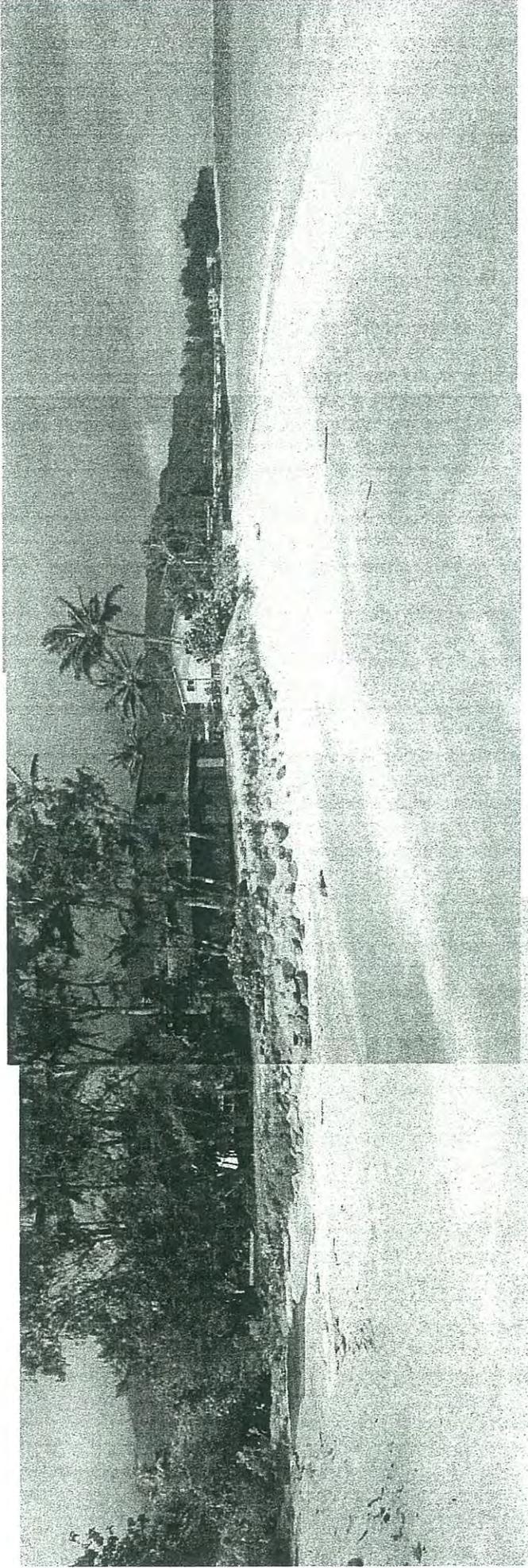
CMU wall fronts Parcel 13 .



Shoreline fronting Parcel 20 on east side  
of stream. Note debris line at edge of  
vegetation.

MOKULEIA  
PHOTO DATE 4-9-04  
TIME 09:25 AM  
TIDE APPROX. 0.0 MLLW

**PHOTO page-4**



View westward from stream mouth. Note eroded condition of embankment on west side of the stream. Continuous line of seawalls protect entire central shore frontage within the embayment.

MOKULEIA  
PHOTO DATE 4-9-04  
TIME 09:30 AM  
TIDE APPROX. 0.0 MLLW