DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honoluludpp.org

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2006/ED-20(AM)

July 23, 2007

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

07 JUL 26 A7:42

Dear Ms. Salmonson:

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

Landowner/Applicant:	Ethan Topper
Agent:	Analytical Planning Consultants, Inc.
Location:	1586-B Mokulua Drive – Kailua (Lanikai)
Tax Map Key:	4-3-1: 13
Request:	Shoreline Setback Variance
Proposal:	To allow (retain) a concrete rubble masonry (CRM) seawall and revetment within the shoreline setback area
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 four (4) copies of the Final EA. If you have any questions, please contact Ann Matsumura of our staff at 768-820.

Very truly yours,

Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:cs
Attachments

doc523387

Final

Environmental Assessment
Shoreline Setback Variance for an Existing Seawall and Revetment
Lanikai, Oahu, Hawaii

1586-B Mokulua Drive (Tax Map Key: 4 - 3 - 001: 013)

Prepared for:

Mr. & Mrs. Ethan Topper

Prepared by:

Wil Chee - Planning & Environmental

March 2007

Contents

Figures

Plates

Appendices

1.0 INTRODUCTION

This Environmental Assessment (EA) will be included with an Application for a Shoreline Setback Variance for Tax Map Key (TMK) 4 - 3 - 001: 013 pursuant to the Revised Ordinances of Honolulu Chapter 23, Shoreline Setbacks. The EA is prepared pursuant the requirements of Hawaii Revised Statues Chapter 343.

1.1 General Information.

THE APPLICANT:	Mr. & Mrs. Ethan Topper 60 Seaview Terrace San Francisco, CA 94121
RECORDED FEE OWNER:	Same As Above
THE APPLICANT'S AGENT:	Analytical Planning Consultants, Inc. 928 Nuuanu Avenue, Suite 502 Honolulu, HI 96817 Contact: Mr. Donald Clegg (808) 536-5695
EA PREPARER:	Wil Chee - Planning & Environmental 1018 Palm Drive Honolulu, HI 96814 Contact: Ms. Claire Tom or Ms. Judy Mariant (808) 596-4688
TMK:	4 - 3 - 001: 013
LOT AREA:	22,603 square feet or 0.51987 acres
AGENCIES CONSULTED:	Dept. of the Army, U.S. Army Engineer District, Honolulu State of Hawaii Dept. of Business, Economic Development & Tourism Dept. of Health Dept. of Land and Natural Resources Office of Environmental Quality Control Office of Hawaiian Affairs City and County of Honolulu Dept. of Planning & Permitting Others Kailua Neighborhood Board No. 31 Kailua Planning and Zoning Committee No. 31z UH Environmental Center
ACCEPTING AUTHORITY:	City & County of Honolulu, Dept. of Planning & Permitting
REQUIRED APPROVALS:	Shoreline Setback Variance and Building Permit

1.2 Background.

In 2001, the applicant (Mr. & Mrs. Ethan Topper) acquired TMK 4 - 3 - 001: 013 (Lot 326) consisting of 10,461 square feet of beachfront property and 12,142 square feet of the adjacent landward parcel identified as TMK 4 - 3 - 001: 012 (Lot 329). Lots 326 and 329 were consolidated into Lot A comprising 22,603 square feet as indicated on shoreline survey maps dated July 11, 2002 and April 14, 2004. The applicant is improving a rectangular-shaped portion of the property with street address 1586-B Mokulua Drive as one contiguous site. The following building permits were issued in February 2002:

Permit No.	Tax Map Key	Description
531120	4 - 3 - 001: 012	Demolish existing single family dwelling and clear off lot.
531119	4 - 3 - 001: 012	Demolish existing ohana unit and clear off lot.
531118	4 - 3 - 001: 013	Demolish existing single family dwelling and accessory structure. Clear entire lot.

Current plans call for a new residence, pool, and garage to be constructed entirely landward of the 40-foot setback line as measured from the shoreline that was certified by the Department of Land and Natural Resources on July 11, 2002 and April 4, 2004. Plans indicate that the seawall would not be altered in any way that would affect its structural integrity. Similarly, the revetment would not be disturbed or displaced. Lastly, an existing dwelling unit identified as 1586-A Mokulua Drive would be unaffected by improvements associated with the new residence. Proposed site improvements that have been approved by City and County of Honolulu agencies are noted in Building Permits 587394 and 592101 issued in October 2005 and February 2006, respectively:

Permit No.	Tax Map Key	Description
587394	4 - 3 - 001: 012 4 - 3 - 001: 013	Construct new one-story single family dwelling and garage.
592101	4 - 3 - 001: 012	Construct new in-ground pool and spa.

On June 1, 2006, a notice of violation was issued to the applicant by the City and County of Honolulu Department of Planning and Permitting citing seawall reconstruction in the shoreline setback area without a variance. Previous owners apparently constructed a concrete rubble or rock masonry (CRM) seawall and revetment without appropriate permits. An aerial photograph dated May 8, 1967 depicts a protective structure along the beachfront edge of the property. Additional photographs dated January 14, 1986, April 12, 1989, and October 2, 1991 indicate that the vertical seawall with two sets of stairs was completed sometime between 1986 and 1991.

The applicant proposes that the existing seawall and revetment be permitted through the issuance of an after-the-fact variance pursuant to the Revised Ordinances of Honolulu Section 23-1.8 Criteria for granting a variance. The applicant will then apply for a building permit to correct the violation.

1.3 Project Location.

The property owned in fee by the applicant, Mr. & Mrs. Topper, is located in Kailua within the Koolaupoko district of the City and County of Honolulu (see Figure 1). The project site is towards the southern end of the Lanikai residential community at the junction of Aalapapa Drive and Mokulua Drive. There is no public beach access at this end of Lanikai. As shown in Figure 2, a rectangular-shaped area was cleared of all previously existing structures to allow for the construction of a new residence, pool, and garage.

Figure 1: General Location.

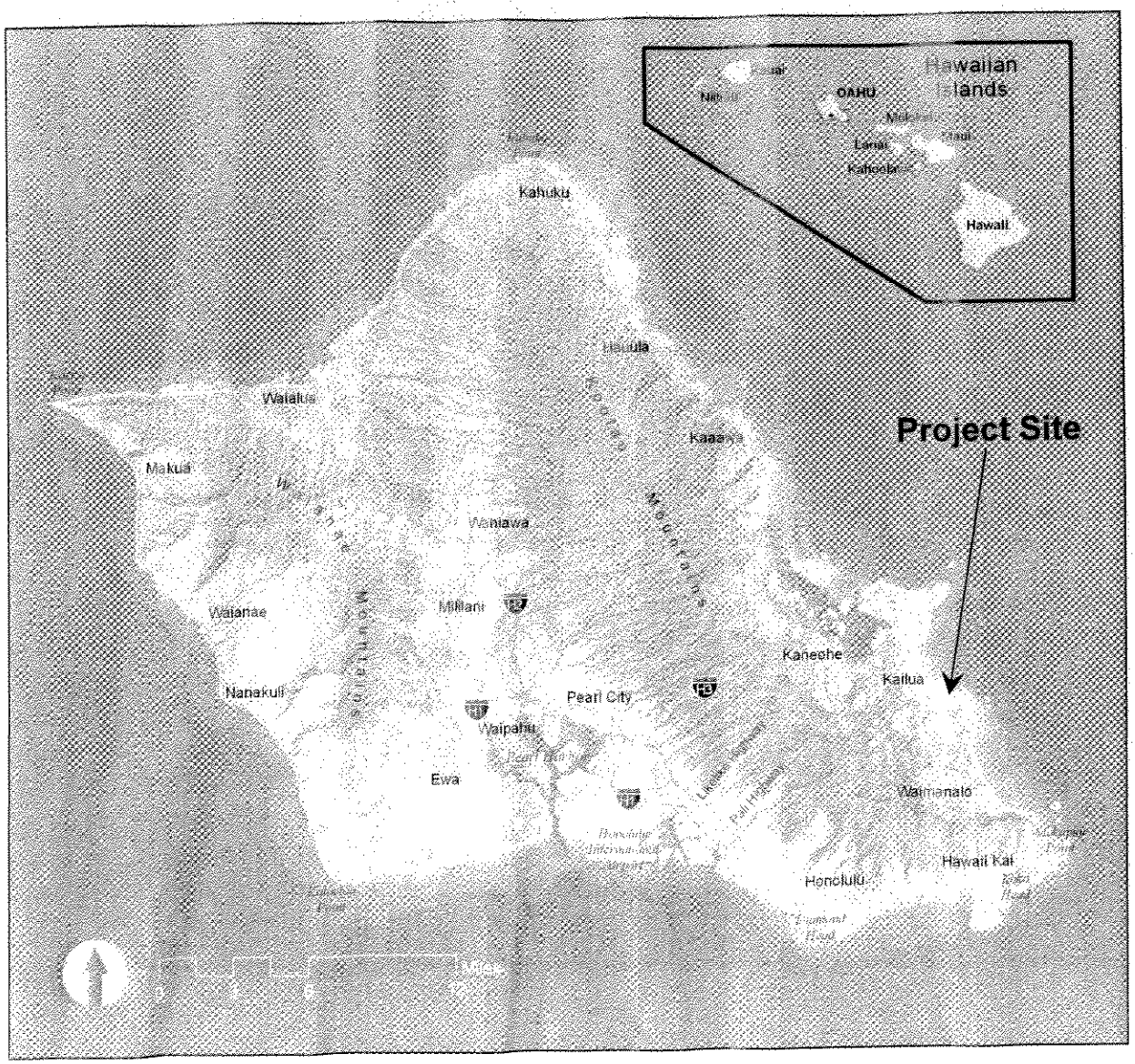
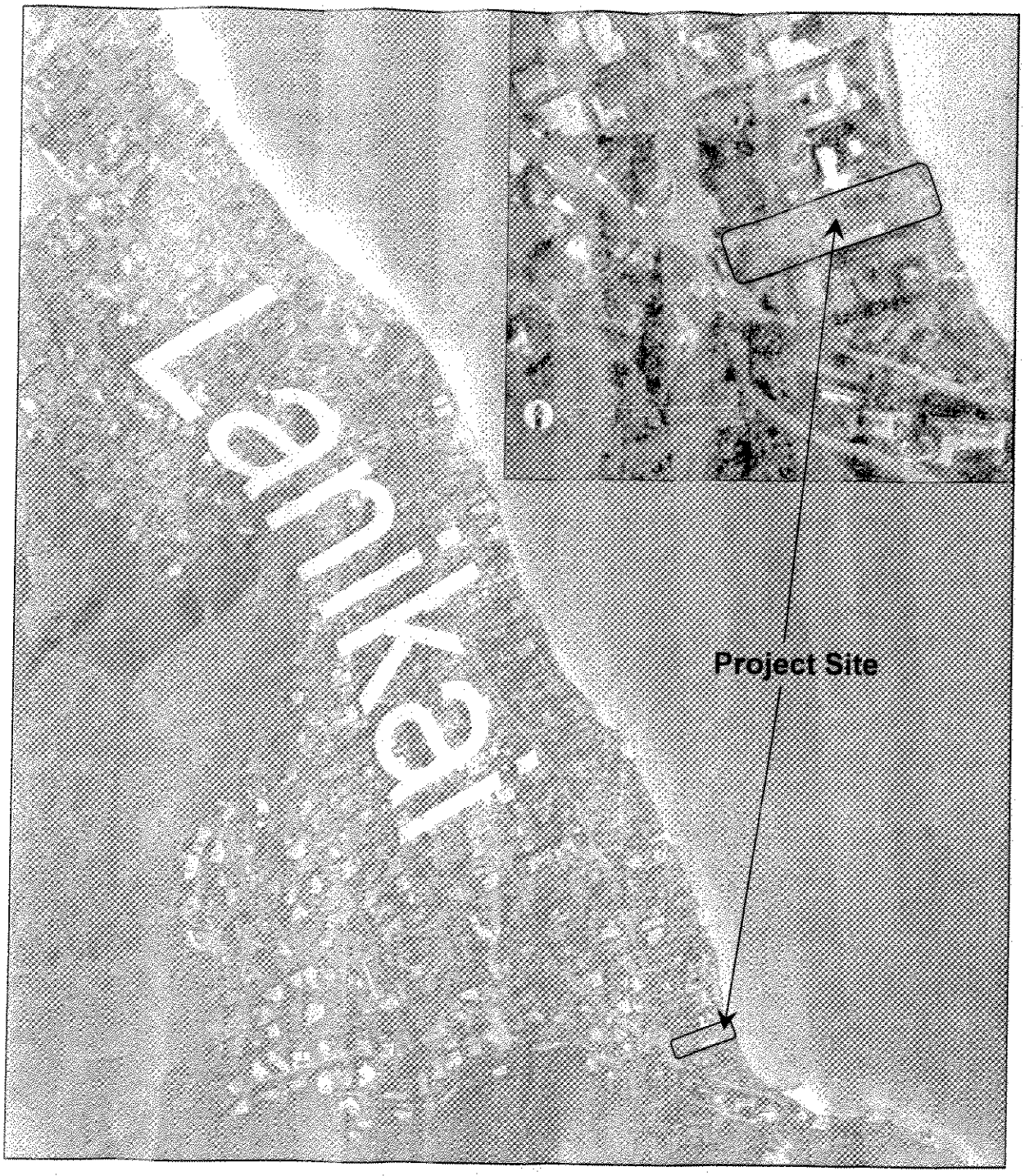


Figure 2: Project Site and Vicinity.



2.0 DESCRIPTION OF THE ACTION

2.1 Project Setting.

The residential community of Lanikai occupies a narrow strip of coastal plain along the northeastern or Windward shore of Oahu. The area is bounded by Kailua Beach Park, Mid-Pacific Country Club, Kaiwi Ridge, and Bellows Air Force Station.

Residential lots in the Lanikai subdivision are generally 10,000 to 20,000 square feet in size. The fully-developed subdivision is zoned R-10 Residential and most properties contain single-family dwellings. Almost all of the oceanfront properties in Lanikai have been hardened or armored with seawalls or other shoreline protection structures in response to coastal erosion. The adjacent property (TMK 4 - 3 - 003: 070 or Lot 36) and several abutting oceanfront parcels north of the project site have seawalls. Many beachfront lots south of the project site also have seawalls except for the adjoining parcel (TMK 4 - 3 - 001: 014 or Lot 327), which appears to be protected by a revetment.

2.2 General Description.

The applicant is seeking an after-the-fact shoreline setback variance for the seawall and revetment constructed by previous owners many years prior to the purchase in 2001 of the oceanfront property. The seaward edge of the parcel has been protected for approximately 40 years; the illegal seawall and revetment have been in place for at least 15 years. The current owners seek to correct the violation issued on June 1, 2006 by obtaining the variance and permit that would legalize existing structures associated with the property at 1586-B Mokulua Drive (TMK 4 - 3 - 001: 013) in accordance with applicable laws.

Shoreline Setback Variances have been issued for several properties and projects near the project site:

Tax Map Key	Project Description
4 - 3 - 004: 081	After-the-fact variance to retain a support wall and footing placed within the 40-foot shoreline setback area and constructed behind a seawall at 1368 Mokulua Drive.
4 - 3 - 003: 096	After-the-fact variance for a seawall constructed in 1984 by a previous owner at 1450A/B Mokulua Drive.
4 - 3 - 003: 063	After-the-fact variance for extensive repairs to an existing seawall circa 1993-1994 at 1502 Mokulua Drive.
4 - 3 - 003: 074	Shoreline setback variance for a seawall at 1508 Mokulua Drive.
4 - 3 - 001: 016	After-the-fact variance for an existing CRM retaining wall and concrete stairway constructed in 1985 within the 40-foot shoreline setback area at 1607 Mokulua Drive.

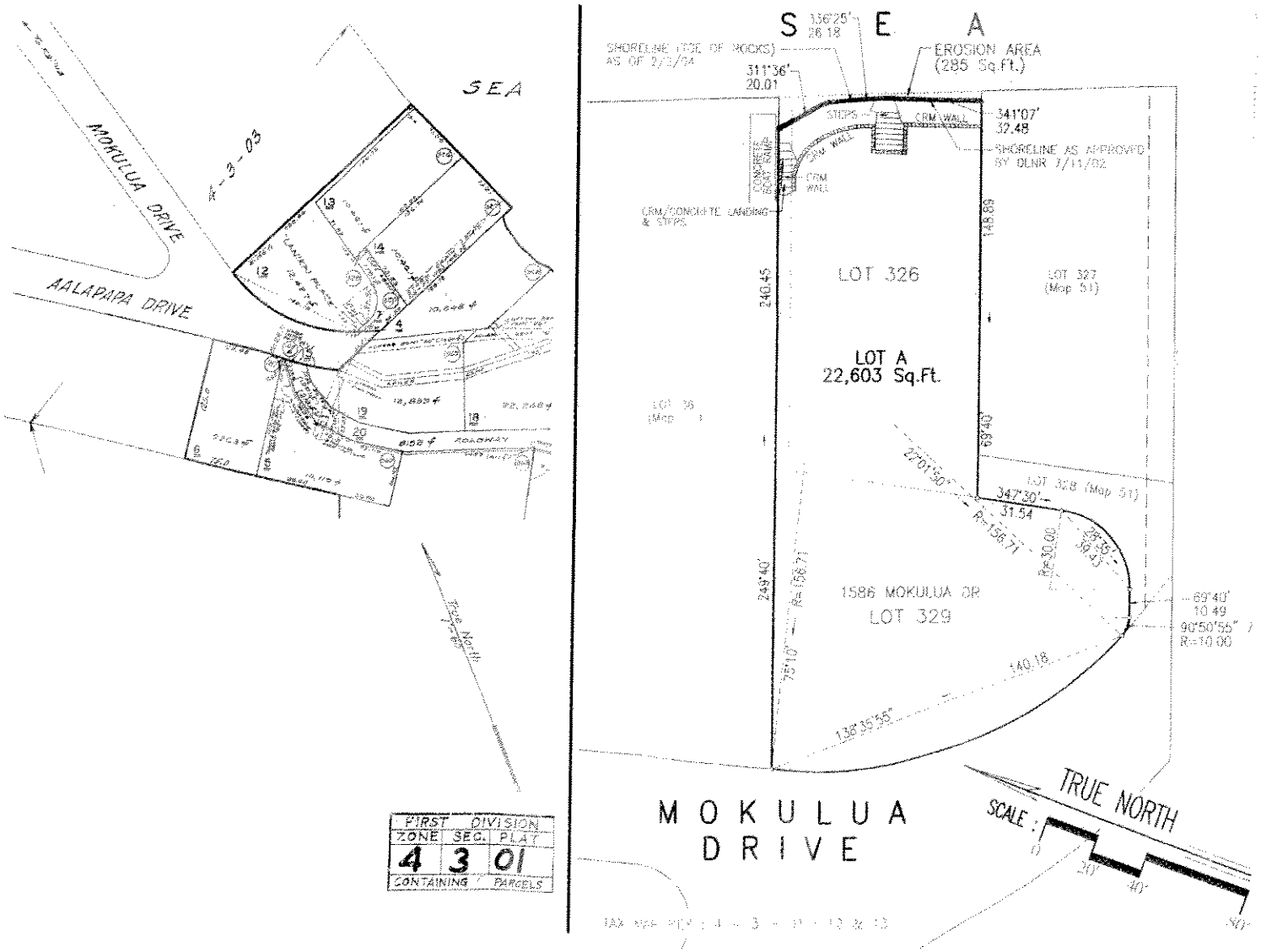
2.3 Relevant Features and Considerations.

2.3.1 TECHNICAL CHARACTERISTICS.

According to an aerial photograph of the project site, the seaward edge of the parcel may have had shoreline protection from as early as May 8, 1967. Additional photographs show that the illegal seawall and revetment were in place by October 2, 1991. The proposed action involves no alteration or disturbance of the existing seawall and revetment that would affect the structural integrity or composition of the shoreline protection features. No new shoreline structures are proposed.

As shown in Figure 3, the project site comprises the rectangular portion of Lot A, which comprises TMK: 4 - 3 - 001: 013 (or Lot 326) and TMK: 4 - 3 - 001: 012 (or Lot 329). The oceanfront lot has eroded inland from the recorded seaward parcel boundary. The eroded area is calculated to be 285 square feet.

Figure 3: TMK Map and Parcel Map.



In 2002, a rectangular area between the seawall and Mokulua Drive was cleared of all previously existing residential structures to allow the commencement of proposed site improvements. The new residence, in-ground pool and spa, and garage are sited entirely landward of the 40-foot setback line as measured from the shoreline approved by the Department of Land and Natural Resources on July 11, 2002 and April 4, 2004 (see Figure 4).

The seawall and revetment are aligned roughly parallel to the makai or seaward property line. The vertical seawall is consistent with a typical gravity wall design and has the added protection of a low-sloping protective blanket comprising large rocks and rubble that do not appear to have been cemented together. Rock revetment shore protection is generally preferable on sandy shorelines because the sloping face and permeability of the structure may reduce wave energy reflection and impacts on littoral or coastal processes.

Figure 4: Site Plan.

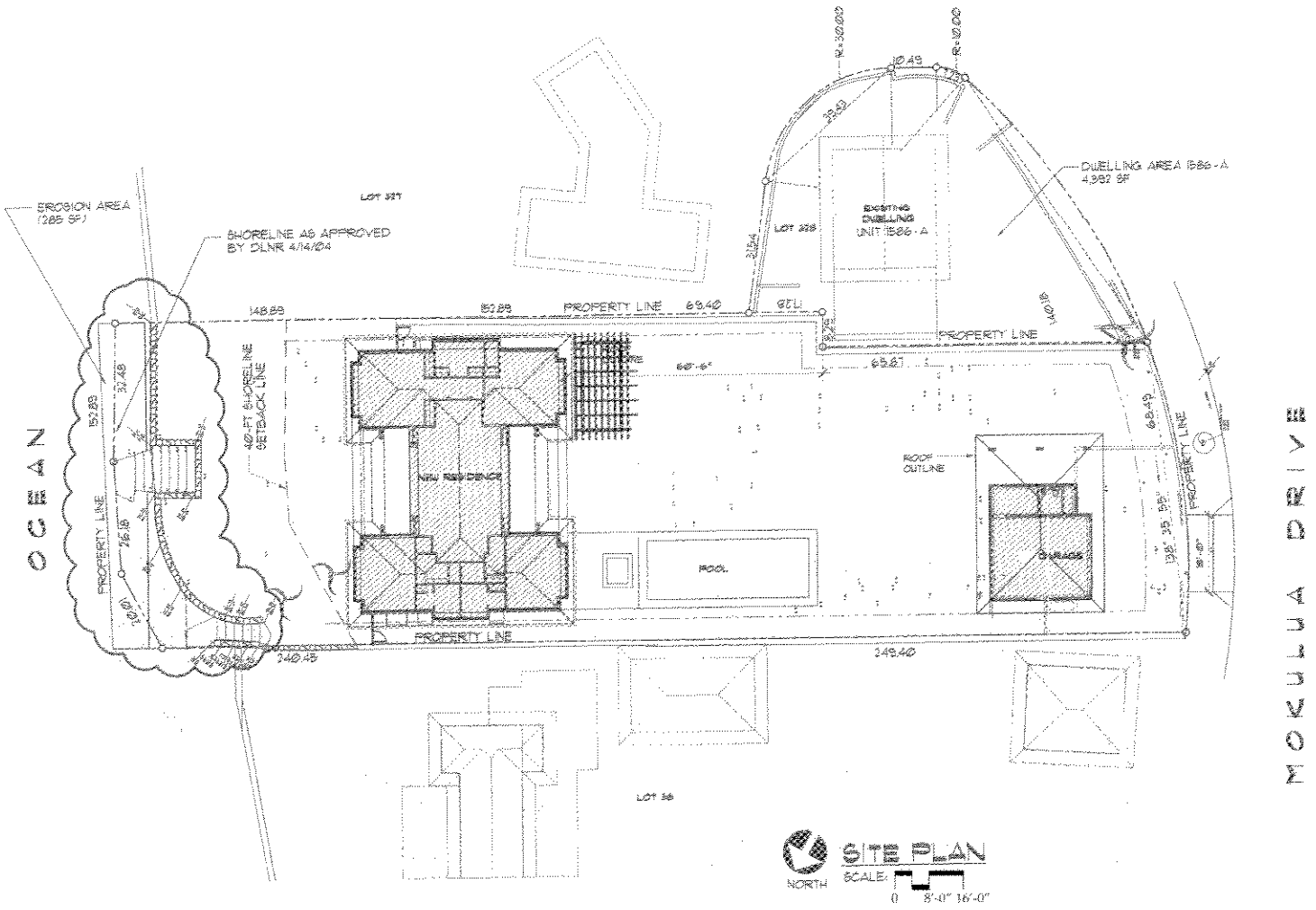


Figure 5: CRM Wall and Revetment Cross Sections.

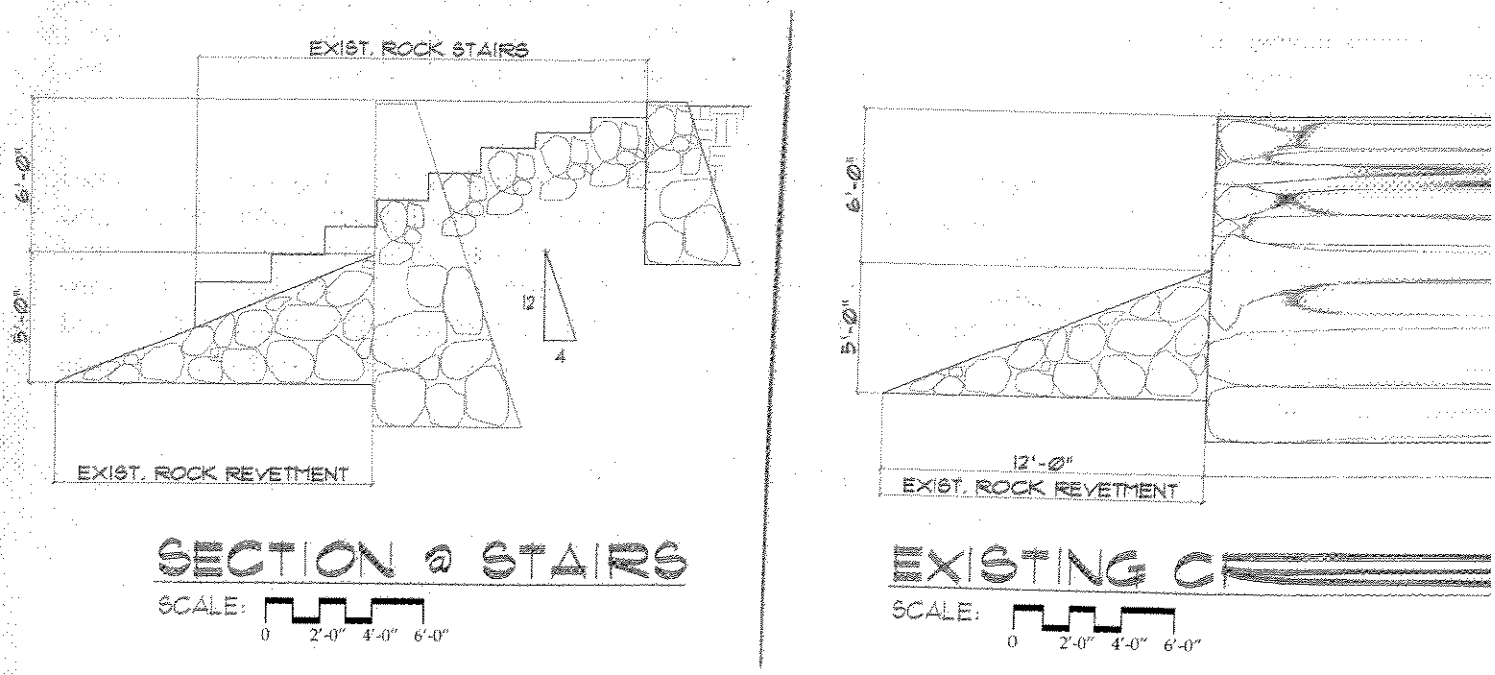
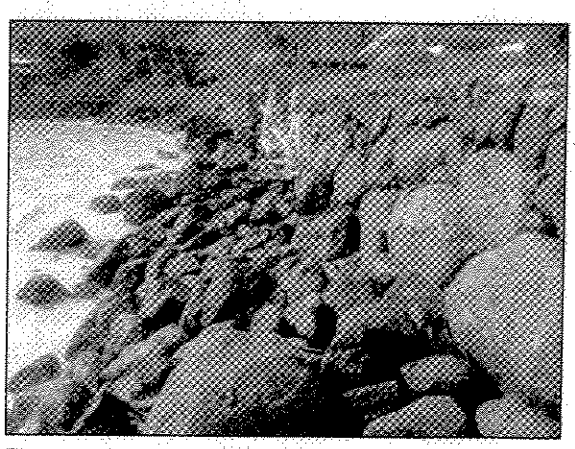


Figure 5 depicts the existing shore protection structures, which have been eva structural engineer James B. Walfish. The seawall measures approximately at its crest and has thickness and batter with large interlocking stone. Large the base of the wall are around 3 feet in diameter (refer to Plates 1 and 2).

Plate 1: View Looking Southeast.

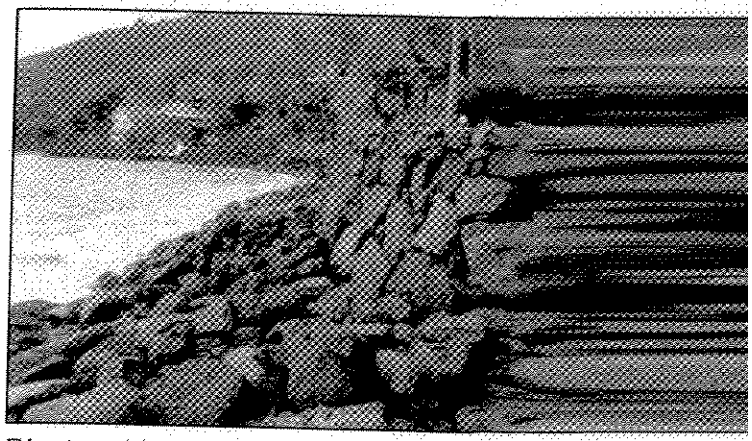
Rocks at the base of the CRM wall are very large.



Photograph by James B. Walfish

Plate 2: View Looking South.

The revetment protects the toe of and dampens wave force.



Photograph by James B. Walfish

In 2002, a rectangular area between the seawall and Mokulua Drive was cleared of all previously existing residential structures to allow the commencement of proposed site improvements. The new residence, in-ground pool and spa, and garage are sited entirely landward of the 40-foot setback line as measured from the shoreline approved by the Department of Land and Natural Resources on July 11, 2002 and April 4, 2004 (see Figure 4).

The seawall and revetment are aligned roughly parallel to the makai or seaward property line. The vertical seawall is consistent with a typical gravity wall design and has the added protection of a low-sloping protective blanket comprising large rocks and rubble that do not appear to have been cemented together. Rock revetment shore protection is generally preferable on sandy shorelines because the sloping face and permeability of the structure may reduce wave energy reflection and impacts on littoral or coastal processes.

Figure 4: Site Plan.

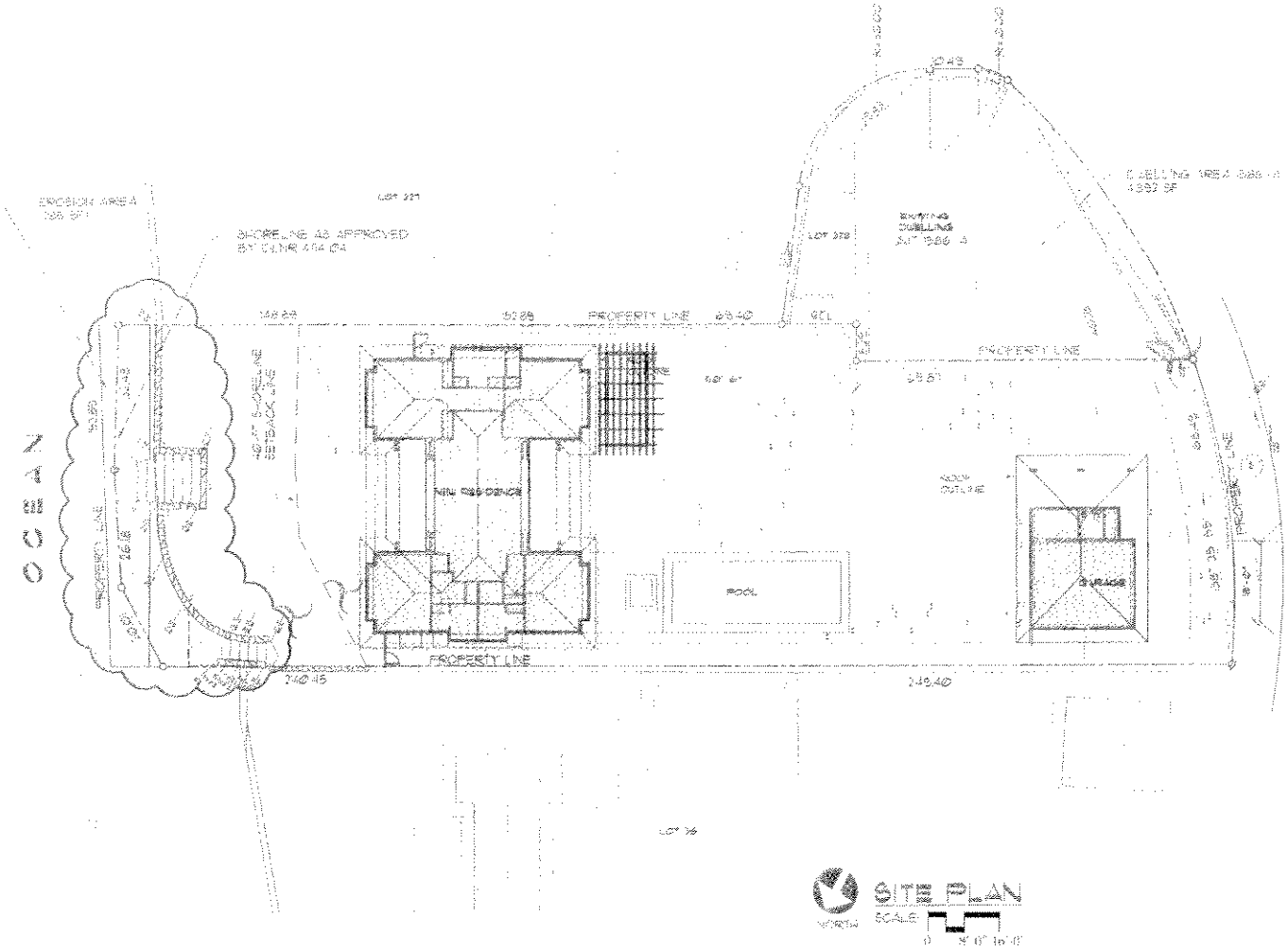


Figure 5: CRM Wall and Revetment Cross Sections.

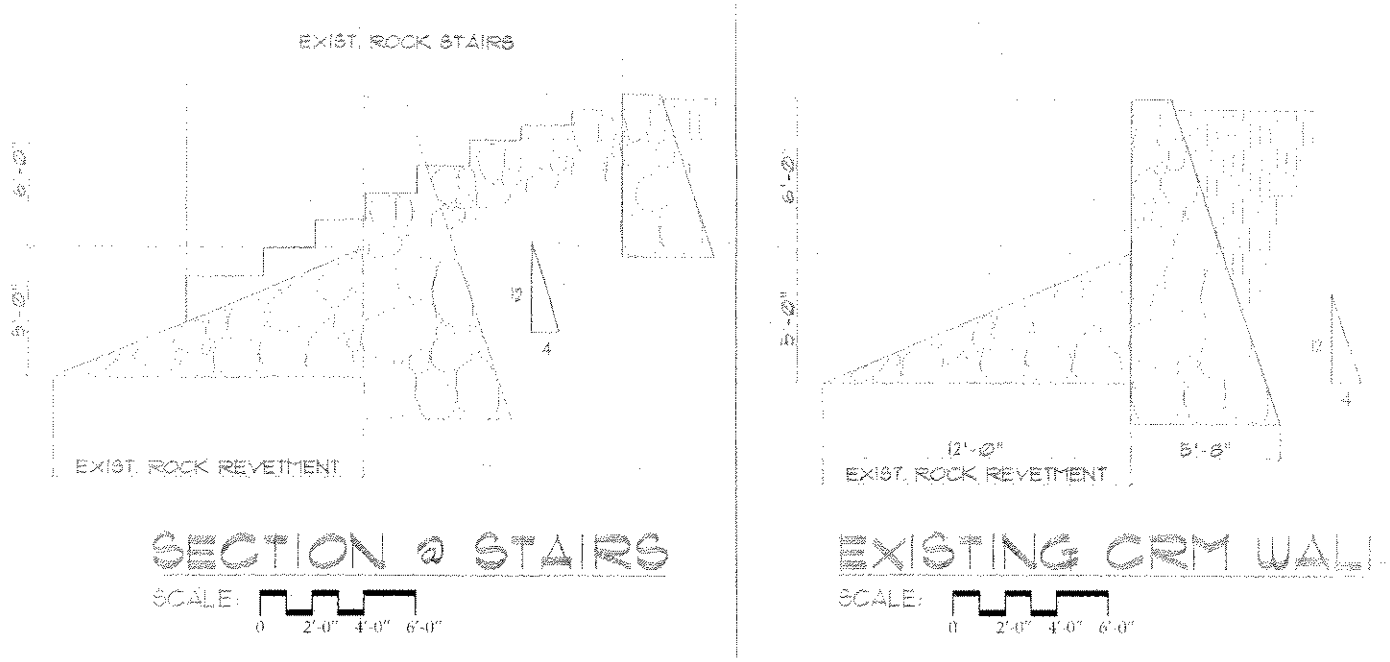
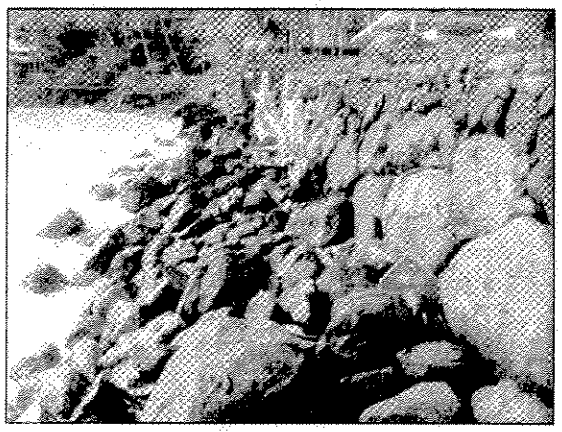


Figure 5 depicts the existing shore protection structures, which have been evaluated by structural engineer James B. Walfish. The seawall measures approximately 20 inches at its crest and has thickness and batter with large interlocking stone. Large rocks at the base of the wall are around 3 feet in diameter (refer to Plates 1 and 2).

Plate 1: View Looking Southeast.

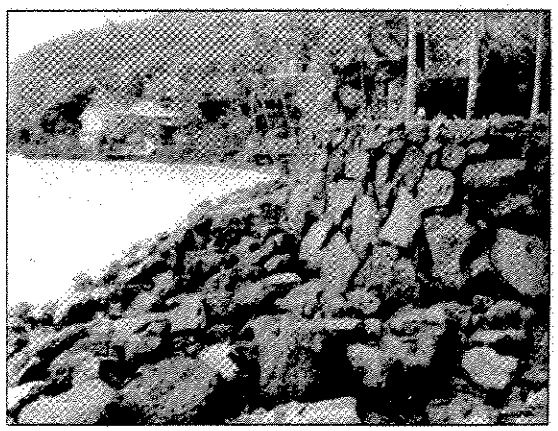
Rocks at the base of the CRM wall are very large.



Photograph by James B. Walfish

Plate 2: View Looking South.

The revetment protects the toe of the wall and dampens wave force.



Photograph by James B. Walfish

A wide center stairway provides direct access to the shoreline from the makai edge of the property (refer to Plate 3). The existing seawall and revetment are not expected to accelerate erosion on neighboring properties which are already armored by seawalls or revetments (refer to Plates 1, 2 and 4). The return at the northern end of the seawall where it meets a narrow set of steps reinforces the wall system (refer to Plates 5 and 6).

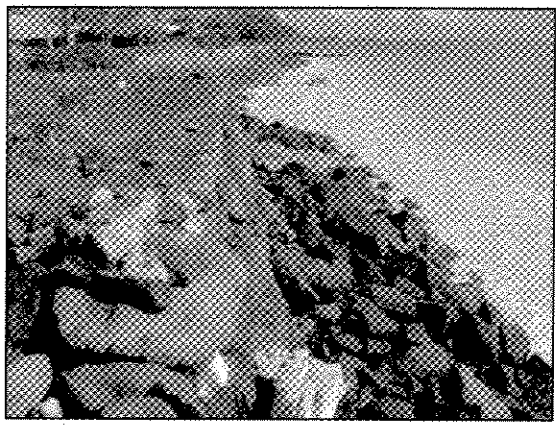
Plate 3: View Looking East.

The crest of the seawall is at or below the existing grade of the property.

Photograph by Claire Tom

Plate 4: View Looking North.

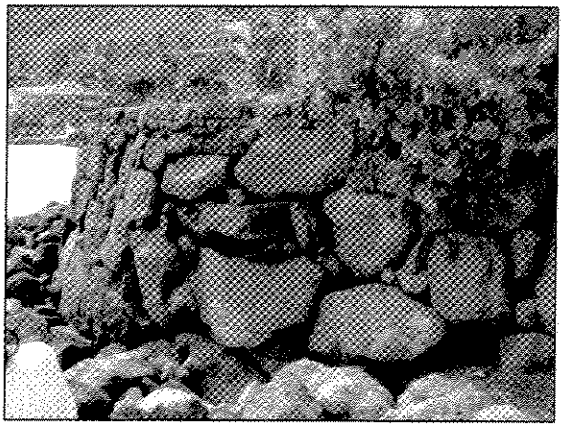
Several adjacent properties north of the project site are protected by seawalls.



Photograph by James B. Walfish

Plate 5: Return Wall.

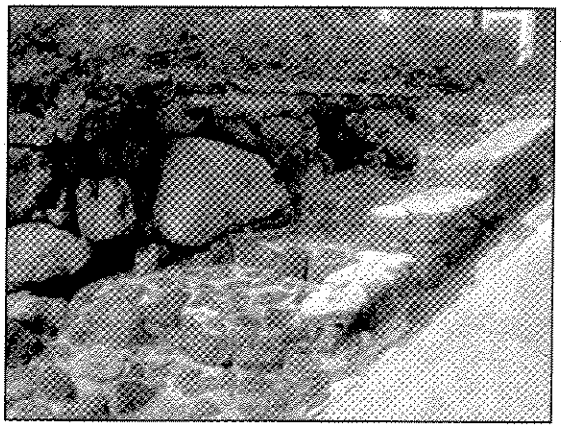
The return wall stiffens the system. Rocks at the wall base are very large.



Photograph by Claire Tom

Plate 6: CRM Wall and Rock Steps.

The narrow set of steps is located along the northern boundary of the project site.



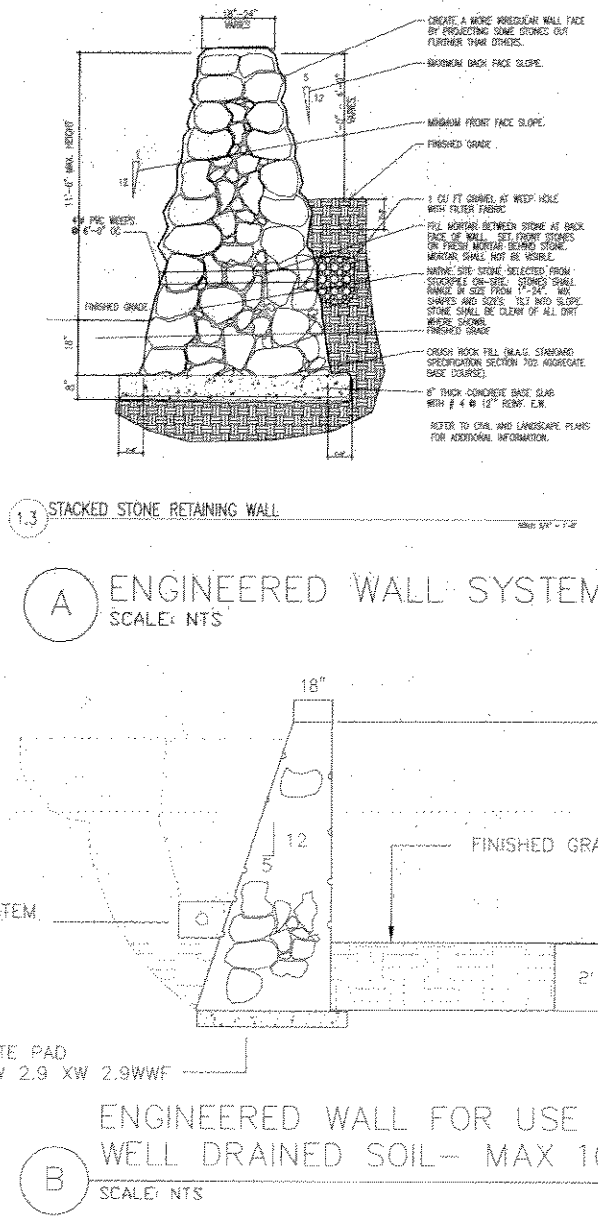
Photograph by James B. Walfish

A structural analysis of the seawall denotes the following characteristics:

> The existing seawall appears to have proper geometry for a CRM retaining and seawall structure and has the additional protection of the revetment or riprap at the base on the ocean side;
>
> The seawall appears to meet all conventional structural design requirements; and
>
> There does not seem to be any apparent distress in the structure.
>
> Source: Walfish, 2006.

As it currently stands, the CRM wall meets or exceeds the standards for engineered wall systems (see Figure 6).

Figure 6: Examples of Engineered Wall Systems.



The landward portion of the project site is located within the Urban District. The applicant has submitted a boundary interpretation request to the Land Use Commission pursuant to section 15-15-22, Hawaii Administrative Rules to determine the location of the existing seawall and revetment relative to the Urban/Conservation District boundary.

2.3.2 ECONOMIC AND SOCIAL CONSIDERATIONS.

Short-term construction of the seawall and revetment some 15 years ago resulted in no net loss or gain in jobs or other measurable economic impacts in the project area. The residential population of the area was also unaffected by the short-term project. The applicant proposes no new construction of shore protection features at the project site. No jobs would be lost or gained and no demographic changes would occur from retaining the existing seawall and revetment.

The project site is located within the fully-developed residential community of Lanikai. Existing shore protection structures have adequately protected the property from the effects of erosion and wave damage; therefore, the land continues to be viable for single-family residential uses. Two separate single-family dwellings and detached guest quarters were demolished in 2002 after the applicant acquired the property and obtained the necessary permits. A new single-family dwelling, spa and detached garage that are currently being constructed on the property will not alter the overall residential character of the area. The value of TMK 4 - 3 - 001: 013 would be maintained if the shoreline setback variance is granted because existing shore protection structures would remain in place to protect the property from erosion and wave damage.

2.3.3 CULTURAL AND HISTORIC CONSIDERATIONS.

The applicant's pursuit of an after-the-fact variance involves no subsurface disturbance if existing shoreline structures constructed by previous landowners are allowed to remain. The State of Hawaii Department of Land and Natural Resources State Historic Preservation Division has indicated that 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 (Chinen, 2007). 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 (Ibid). Numerous Native Hawaiian Burials located in Jaucas sand along Kailua Bay, as well as in other areas in Kailua, have been disturbed by construction activities (Ibid). The affected residential property is not utilized for cultural or religious practices. There is no public beach access at the southern end of Lanikai in the vicinity of the project site; therefore, the seawall and revetment do not impede public access to the shoreline.

2.3.4 ENVIRONMENTAL CONSIDERATIONS.

The property identified by TMK 4 - 3 - 001: 013 and street address 1586-B Mokulua Drive is armored along its seaward boundary in similar fashion to almost all of the other Lanikai beachfront properties. The shoreline of the affected parcel has been adequately protected for almost 40 years. The illegal seawall and revetment, which have been in place for at least 15 years, were constructed by previous landowners. The applicant's request for a shoreline setback variance involves retaining the existing shore protection structures. No structural alterations to the seawall or revetment are proposed. The current owners seek to remedy the issued violation by obtaining the necessary variance and permit that would legalize the seawall and revetment.

Ongoing littoral processes along the Lanikai shoreline have resulted in a fluctuating shoreline profile resulting from a natural accretion-erosion cycle. Many landowners constructed temporary or permanent shore protection structures to protect their homes and beachfront properties from severe shoreline erosion caused by large North Pacific swell events. Retaining the existing seawall and revetment is expected to have no significant impact on existing coastal processes because historical evidence suggests that "the presence of a seawall does not preclude natural beach accretion" (Edward K. Noda and Associates, Inc., 1997, pg. 8). The seawall and revetment protecting the applicant's property are not expected to accelerate erosion on neighboring properties which are already armored with seawalls or revetments.

The project site, which is located within an established residential subdivision, contains no environmentally sensitive natural or cultural resources. Consequently, no long-term negative impacts are anticipated from the applicant's request for a shoreline setback variance, which involves no new construction activities at the project site.

3.0 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

3.1 Topography.

The property identified by TMK 4 - 3 - 001: 013 and street address 1586-B Mokulua Drive comprises flat, oceanfront land between Mokulua Drive and the top crest of the seawall along the seaward boundary of the property. Construction of the seawall and revetment by previous land owners has had no impact on the topography of the project site. The applicant is seeking an after-the-fact shoreline setback variance, which involves no construction activities. Existing shore protection structures would remain in place such that no impacts on the topography of the site would occur. No mitigation is required.

3.2 Soils and Drainage.

Soils in the project area are depicted in the General Soil Map for Oahu Island, Hawaii and Sheet Number 65, respectively, of the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai* (U.S. Department of Agriculture Soil Conservation Service, 1972). Soils in the Lanikai area are classified as belonging to the Kaena-Waialua association, which occurs along the northern and eastern coastline of Oahu (pg. 7). The prevalent soils type at project site is Jaucas sand, 0 to 15 percent slopes (JaC). The JaC soils type is neutral to moderately alkaline, permeability is rapid, and runoff is very slow to slow (pg. 49). The seaward edge of the project site comprises the land type classified as Beaches (BS), which are sandy, gravelly, or cobbly areas that are washed and rewashed by ocean waves (pg. 28). The seawall and revetment have had no adverse impact on the soils of the area. Drainage at the project site is excellent because surface water such as rainfall quickly percolates into the sandy soils. Retaining the seawall and revetment would have no impact on soils and drainage at the project site. No mitigation is required.

3.3 Shoreline Characteristics and Coastal Processes.

Lanikai Beach is affected by North Pacific swells and tradewind waves, but is rarely subject to hurricane waves (Oceanit Coastal Corporation, 1994, pg. 3). The project site is located along the coastline at the southern end of Lanikai. This area has experienced considerable accretion and subsequent erosion over several decades. The long-term accretion-erosion cycle is a natural process that may be caused by shifts in wind and wave patterns. The accretion-erosion cycle is not unique to Lanikai Beach. Similar fluctuations of the beach profile have occurred elsewhere, including Kailua Beach Park.

An aerial photograph depicts a shoreline protection feature along the seaward edge of the parcel as of May 8, 1967. Additional photographs show that the illegal seawall and revetment were in place by October 2, 1991.

Seawalls and revetments protect almost the entire Lanikai coastline, which has three characteristically different segments:

> The **northern** area comprising about 1,500 feet of coastline north towards Alala Point experiences seasonal fluctuations in beach width, depending on wave conditions;
>
> The **middle** area, which includes roughly 3,000 feet of coastline, has experienced relatively small fluctuations in the position of the shoreline and beach; and
>
> The **southern** area encompassing approximately 2,500 feet of coastline south towards Wailea Point has experienced considerable accretion followed by severe erosion of the beach profile over a period of many decades.

The fluctuating shoreline profile in the Lanikai area is attributed to the littoral processes that are aptly described in the Coastal Engineering Evaluation report (1997) prepared by Edward K. Noda and Associates, Inc. for TMK: 4 - 3 - 004: 074 and 4 - 3 - 005: 061. Between 1950 and 1970, the southern coastline of Lanikai accreted substantially; however, from 1970 through the early 1980s the shoreline profile eroded back to the 1950s position. The beaches of Lanikai have largely experienced net long-term erosion since the 1970s resulting in very little to no dry beach at the northern and southern endpoints of Lanikai. Furthermore, the erosion trend is steadily progressing from the southern area towards the middle segment of the Lanikai coastline.

The nearshore wave approach patterns in the Lanikai area are reportedly complex due to interactions between the wave trains and the irregular offshore reefs and islands. The Lanikai coastline basically experiences net transport of sand predominantly northward from Wailea Point during the summer months due to easterly tradewind-generated waves and southeasterly swells, and southward from Alala Point during the winter months due to North Pacific swells. The resulting effect is more beach loss at the coastal endpoints and a more stable beach area within the middle segment.

Seawalls and revetments armoring over 2,000 contiguous feet of the southern Lanikai shoreline were constructed to protect properties from the chronic effects of coastal erosion. Shoreline hardening combined with other factors such as sea-level rise can refocus erosion onto the beach, which can contribute to beach loss. The absence of large sand deposits along the southern end of Lanikai appears to be causing a gradual shift of the erosion trend northward into the middle portion of the Lanikai coast.

The applicant's existing seawall and revetment along roughly 30 feet of the shoreline is expected to have no significant impact on shoreline characteristics and coastal processes that encompass a much larger area. Historical evidence has demonstrated the effects of the natural accretion cycle by which accreted sand can and has built up the beach in front of seawalls in the Lanikai area (Edward K. Noda and Associates, Inc., 1997, pg. 8). The applicant's seawall and revetment are not expected to accelerate erosion on neighboring properties which have been armored to resist erosion. The existing shore protection structures do not halt the potential for future restoration of a wide sandy beach through natural accretion or artificial means such as beach nourishment involving sand placement along the shoreline. No mitigation is required.

3.4 Marine Resources and Water Quality.

Marine resources in the vicinity of the project site include a very narrow strip of sandy beach and offshore coral outcroppings. Schools of small fish may traverse the waters immediately seaward of the existing revetment. The protected green sea turtle (*Chelonia mydas*) is known to frequent the waters off Lanikai. The Hawaiian Stilt (*Himantopus mexicanus knudseni*) may occasionally forage along the shoreline. The seawall and revetment have not adversely impacted marine resources including protected marine species or their habitats. Minor water quality impacts probably did occur when the seawall and revetment were constructed by previous landowners; however, it is likely that the shore protection structures provide a long-term beneficial impact to coastal water quality by preventing shoreline erosion. Existing shore protection structures would remain in place such that no impacts on marine resources and water quality would occur. No mitigation is required.

3.5 Flood Considerations.

The affected property falls within Zone X on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). Zone X refers to areas determined to be outside the 100- and 500-year flood plain (FEMA, 2004). Land along the seaward edge of the project site is classified as Zone AE, which refers to areas inundated by 100-year flooding, and the regulatory floodway elevation is between 5 to 6 feet above mean sea level. The project site is a coastal property that does lie within a tsunami evacuation zone; therefore, flooding can occur if a tsunami or storm surge approaches this part of Oahu. The seawall and revetment have not exacerbated the potential for flooding at the project site. Retaining the seawall and revetment is not expected to affect the potential for flooding at the project site. No mitigation is required.

3.6 Air Quality.

The project site contains no stationary sources of air pollution. Background ambient air quality is probably influenced by motor vehicle emissions primarily along Mokulua Drive. Equipment utilized during short-term construction of the seawall and revetment may have increased pollutant emissions at the project site but no long-term adverse impacts were generated. Similarly, construction activities associated with the applicant's permitted site improvements may temporarily increase exhaust emissions and fugitive dust at the project site. Anticipated short-term impacts to air quality are not usually considered a threat to public health and welfare. Ambient air quality is expected to return to levels comparable with surrounding residential properties once construction ceases. Retaining the seawall and revetment would not generate any additional air quality impacts at the project site. No mitigation is required.

3.7 Noise.

Sources of background ambient noise in the vicinity of the project site are primarily attributed to motor vehicle traffic along Mokulua Drive. Noisy activities probably did occur when the seawall and revetment were constructed; however, intermittent noise generated from short-term construction activities is not usually considered a threat to public health and welfare. No noise impacts are currently associated with the existing seawall and revetment. Construction activities associated with the applicant's permitted site improvements may temporarily increase noise at the project site. Ambient background noise is expected to return to levels comparable with surrounding residential properties once construction ceases. Retaining the existing seawall and revetment would not generate any additional noise impacts. No mitigation is required.

3.8 Flora and Fauna.

The affected property is situated within a well-established residential area. The project site itself was previously developed for residential uses and is devoid of terrestrial flora and faunal species that are protected under State or Federal environmental laws. Urbanized areas typically provide no suitable habitat for Oahu threatened, endangered or candidate faunal species—the Hawaiian hoary bat (*Lasiurus cinereaus semotus*), the Hawaiian or Oahu tree snail (genus *Achatinella*), the Hawaiian owl (*Asio flammeus sandwichensis*) and the Oahu creeper (*Paroremyza maculata*). No protected flora or faunal populations or their habitats have been affected by the seawall and revetment. Existing shore protection structures would remain in place such that no impacts on protected flora or faunal populations or their habitats would occur. No mitigation is required.

3.9 Archaeological, Cultural and Historic Resources.

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 (Chinen, 2007). 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 (Ibid). Numerous Native Hawaiian Burials located in Jaucas sand along Kailua Bay, as well as in other areas in Kailua, have been disturbed by construction activities (Ibid). No adverse impacts to historic or archaeological resources are known to have occurred from construction of the seawall and revetment by previous landowners. There have been no observed occurrences of traditional Hawaiian practices or gatherings within the vicinity of the affected parcel. Retaining existing shore protection structures involves no subsurface disturbance and is expected to generate no impacts on archaeological, cultural and historic resources. No mitigation is required.

3.10 Public Recreation Resources and Beach Access Points.

The sandy beach along the central portion of the Lanikai shoreline is popular for recreational uses including walking and jogging. Swimming, sailing, kayaking, canoeing and fishing occur in the waters off Lanikai. Near-shore fish populations are reportedly sparse, whereas offshore resources are better for spear fishing and snorkeling (Pacific Land Services, 2002, pg. 6). Surf breaks occur around Mokulua Islands and the offshore reef provides a better area for fishing and diving (Ibid).

The seaward boundary of the property is located along the open ocean; however, there currently are no beach accesses, open space/preservation areas, or public recreation areas such as beach parks at the southern end of Lanikai in the vicinity of the project site. Net long-term erosion since the 1970s may have contributed to beach loss. The area fronting the applicant's property is currently under water or impassable at all times.

Seawalls and revetments armoring the shoreline prevent erosion of coastal lands but, combined with other factors such as sea-level rise, can refocus erosion that contributes to beach loss. Longtime residents of Lanikai have reported noticeable beach erosion over several decades to the extent that sections of the sandy beach could only be accessed at very low tide (Shapiro, 2000). A stretch of southern Lanikai beach was restored in March 2000 with dredged sand from Kaelepulu Stream, thereby improving public access, but the demonstration project provided approximately half of the total amount of sand needed to more fully nourish the beach (State of Hawaii Department of Land and Natural Resources, 2000).

Pedestrians can access eleven public access points along Mokulua Drive, but there are no mauka-makai or lateral beach accesses in the vicinity of the project site. The low-density residential neighborhood of Lanikai has no off-street vehicular parking, public restrooms or showers for beach-goers. Visual access to the Lanikai shoreline from Mokulua Drive is described as "very limited" (City and County of Honolulu Department of Planning and Permitting, 2000, pg. 3-7). Retaining the existing seawall and revetment maintains the status quo and is expected to have no impact on mauka-makai and lateral beach access points, open space/preservation areas, public recreation resources, or view planes. No mitigation is required.

3.11 Public Services, Roads and Utilities.

The seawall and revetment have had no impact on the demand or supply of public services such as police and fire protection. Additionally, the structures have had no effect on school, medical, and recreational facilities in the project area. Short-term construction-related traffic may have been generated when the seawall and revetment were constructed; however, no long-term adverse effects on existing roadways, traffic patterns, or parking occurred. Public utilities including potable water systems, wastewater systems, drainage facilities, solid waste disposal, electrical power, and communications systems were similarly unaffected by construction of the seawall and

revetment by previous landowners. Existing shore protection structures would remain in place such that no impacts on public services, roads and utilities would occur. No mitigation is required.

3.12 Coastal Views and Aesthetic Considerations.

The existing shore protection structures lie below the existing grade of the lot and do not block coastal views. The structures maintain a consistent appearance with nearby Lanikai beachfront properties that also have seawalls or revetments. Retaining existing shore protection structures would generate no impacts on coastal views. No mitigation is required.

3.13 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 State land use designation of the affected parcel was established on August 23, 1964 (Ching, 2006, pg. 1). The landward portion of the project site is located within the Urban District. The applicant has submitted a boundary interpretation request to the LUC pursuant to section 15-15-22, Hawaii Administrative Rules to determine the location of the existing seawall and revetment relative to the Urban/Conservation District boundary.

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 within a Low Density Residential area on the Koolaupoko Sustainable Communities Plan (SCP) Land Use Map (Map A-2, Section 3: Kailua). Single-family residential uses are consistent with Koolaupoko SCP and R-10 zoning designations for TMK 4 - 3 - 001: 013. The current SCP land use designation is not a site-specific designation, but rather an illustration of text policies. Section 3.1.3.2 of the Koolaupoko SCP contains guidelines pertaining to shoreline areas including:

> Maintain lateral access along popular beaches that are subject to long-term and seasonal erosion, particularly at Lanikai and Kualoa;
>
> Designate the Alala Point to Wailea shoreline as an erosion-prone area and prepare and implement a beach management plan; and
>
> Discourage the use of shore armoring structures.

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 (SMAs) and shoreline setbacks. The affected property lies within the SMA. The application for an after-the-fact variance for the existing seawall and revetment involves

no new construction and the applicant's new single-family residence is not part of a larger development; therefore, no Special Management Use Permit is required.

In 2002, the property was cleared such that there are no remaining residential structures within the 40-foot shoreline setback line as measured from the shoreline approved by the Department of Land and Natural Resources on July 11, 2002 and April 4, 2004. The applicant's new residence, pool, and garage will be constructed entirely landward of the 40-foot setback area; however, previous owners of the property constructed the seawall and revetment within the 40-foot setback area without appropriate permits.

3.14 Summary of Short-Term and Long-Term Mitigation Measures.

No mitigation has been identified or proposed with respect to the applicant's request to retain the seawall and revetment that were constructed by previous landowners.

3.15 Summary of Unavoidable Adverse Environmental Impacts.

Construction of the seawall and revetment by previous landowners 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 and revetment to remain in place prevents property losses due to erosion and wave damage; however, the structures may be impounding a substrate comprised of beach quality sand that would naturally nourish a healthy beach. Efforts to restore the beach in southern Lanikai where the entire shoreline has been armored, 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 applicant's seawall and revetment along roughly 30 feet of the coastline would not release the amount of sand necessary to replenish the beach 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 and revetment are removed. Maintaining status quo by allowing the applicant's existing shore protection structures to remain in place is not expected to create any new significant adverse impact on littoral processes along Lanikai Beach.

3.16 Irreversible and Irretrievable Commitments of Resources.

Construction of the shore protection structures by previous landowners did require resources such as rubble and rock, other construction materials, and human effort. Private funds paid for those resources. Retaining the existing seawall and revetment would require no additional resources except for the human effort required to apply for, review and process the variance and permit applications.

(This page is intentionally blank.)

4.0 EVALUATION OF ALTERNATIVES

4.1 No Action.

This alternative is not viable because it implies that no action would be taken to resolve the illegal seawall and revetment. The applicant would incur continuous civil fees owed to the City and County of Honolulu for the shoreline setback violation.

4.2 Remove Existing Shore Protection Structures.

This alternative is also not viable because it implies that the applicant would deliberately remove structurally sound shore protection structures and expose the seaward portion of his property to the effects of erosion and wave damage due to North Pacific swell events that are known to impact the Lanikai area. The absence of shoreline protection would ultimately result in deterioration and loss of the property. Removal of the applicant's seawall and revetment along roughly 30 feet of the coastline would not release the amount of sand necessary to replenish the beach 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 and revetment are removed. A single severe storm event has the potential to create a public health and safety hazard if an unconsolidated shoreline is undermined to the extent that it collapses on the beach. Addressing the public hazard when the shoreline erosion becomes severe would involve temporary measures such as the placement of geotextile sandbags to stabilize the shoreline and/or permanent measures including the construction of a seawall, revetment, or groin.

4.3 Implement a Soft Shore Protection Strategy.

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 placement 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 (State of Hawaii Department of Land and Natural Resources, 2007). In March 2000, approximately 10,000 to 12,000 cubic yards of dredged sand from Kaelepulu 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 of sand that will be needed to more fully nourish south Lanikai Beach" (State of Hawaii Department of Land and Natural Resources, 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.

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 replenishment and/or the construction of sand dunes in the Lanikai area 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. Beach replenishment and/or dune restoration may be the best long-term solution, but these measures are beyond the capability of the applicant.

4.4 Obtain an After-the-Fact Shoreline Setback Variance.

The seawall and revetment are already in place and have adequately protected the property for at least 15 years. The protective structures are the best practicable alternative that a single landowner can accomplish to prevent loss of land from erosion. In light of these considerations, the applicant is seeking an after-the-fact variance and will apply for a building permit to correct the violation.

5.0 FINDINGS AND ANTICIPATED DETERMINATIONS

As demonstrated by the information presented in this document, the existing seawall and revetment have not had a significant effect on the environment. There are no environmental impacts associated with the requested shoreline setback variance; therefore, the preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact is anticipated.

The "Significance Criteria" in Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules" were used as a basis for the above findings and conclusions:

(1) No irrevocable commitment to loss or destruction of any natural or cultural resources has or will result.

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) The seawall and revetment have not and will not curtail the range of beneficial uses of the environment.

Granting a permit that would allow existing shore protection structures to remain in place would not disturb, curtail, or prevent access to or along the shoreline.

(3) The seawall and revetment have not and will not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders.

The seawall and revetment do not conflict with the State's policies, goals or guidelines.

(4) The seawall and revetment have not and will not substantially affect the economic or social welfare of the community or state.

Granting the requested variance is expected to have no impact on the economic or social welfare of the community or State.

(5) The seawall and revetment have not and will not substantially affect public health.

Granting the requested shoreline setback variance involves no construction activities and no impacts to public health.

(6) No substantial secondary impacts, such as population changes or effects on public facilities are expected.

Granting an after-the-fact shoreline setback variance for the seawall and revetment involves no secondary impacts such as changes in demographics or infrastructure.

(7) No substantial degradation of environmental quality has occurred or is expected to occur due to the seawall and revetment.

The shoreline of the affected parcel has been protected for almost 40 years. The illegal seawall and revetment have been in place for at least 15 years. The requested shoreline setback variance involves no new construction activities. Allowing the shore protection structures to remain would not degrade existing environmental quality.

(8) No cumulative effects on the environment or commitment to larger actions have been or will be involved.

No cumulative impacts are associated with the requested variance. The seawall and revetment help to stabilize the shoreline and do not appear to affect existing littoral processes or adjacent shorelines that are already armored with seawalls or revetments. In contrast, removing the seawall and revetment would require a commitment for larger actions at the project site. Possible actions include grading and construction of other types of erosion control or shore stabilization structures.

(9) No rare, threatened or endangered species or their habitats are affected.

There are no known rare, threatened or endangered species or their habitats located at or near the seawall and revetment.

(10) The seawall and revetment have not and will not detrimentally affect air or water quality or ambient noise levels.

The application for the shoreline setback variance involves no new construction activities. No detrimental affects on air or water quality, or ambient noise levels have occurred from the seawall and revetment. It is likely that the seawall and revetment provide a beneficial impact to coastal water quality by preventing shoreline erosion.

(11) The seawall and revetment have not and will not detrimentally affect environmentally sensitive areas, such as flood plains, tsunami zones, beaches, erosion-prone areas, geologically hazardous lands, estuaries, freshwaters, or coastal waters.

The existing seawall and revetment provide a beneficial impact because these structures minimize the potential for shoreline erosion. The seawall and revetment have had and will have little or no impact on flooding characteristics at the project site. The seawall and revetment have not and will not alter existing long shore or cross-shore sediment transport processes affecting the shoreline area. The seawall and revetment have not had and will not have adverse long-term impacts on marine resources or coastal waters.

(12) The seawall and revetment have not and will not substantially affect scenic vistas and view planes identified in county or state plans or studies.

The crest of the seawall matches the existing grade of the property. The seawall and revetment maintain a consistent appearance with nearby Lanikai beachfront properties that have seawalls or revetments.

(13) There has not been and there will be no requirements for substantial energy consumption.

The application for an after-the-fact shoreline setback variance involves no new construction activities and no requirements for substantial energy consumption.

6.0 SHORELINE SETBACK VARIANCE JUSTIFICATION

The current landowner will suffer hardship if he is not allowed to retain the illegal seawall and revetment that have been in place for at least 15 years. The applicant's request for an after-the-fact shoreline setback variance is hereby evaluated according to the three criteria for hardship as set forth in the Revised Ordinances of Honolulu (ROH) Section 23-1.8(b)(3):

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

It is reasonable to assume that property losses will occur if the applicant is required to comply with shoreline rules and remove the illegal structures that have been in place for at least 15 years. Adjacent properties along the southern end of Lanikai Beach are armored with similar types of structures to prevent the effects of shoreline erosion and wave damage that would otherwise occur due to North Pacific swell events. A single severe storm event has the potential to undermine and collapse an unconsolidated shoreline, thereby creating a public hazard on the beach.

(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 illegal seawall and revetment were constructed by previous landowners several years prior to the purchase of the property in 2001. The current landowner seeks only to legalize existing structures and does not propose to construct any new shore protection within the setback area. A structural engineer has indicated that the seawall protecting the applicant's property appears to have the proper geometry and meets or exceeds the design standards for an engineered wall for use in well-drained soils. The existing revetment provides additional protection at the base of the seawall. The seawall does not exhibit any apparent signs of distress.

(3) The proposal is the practicable alternative which conforms best to the purpose of the shoreline setback regulations.

The preferable alternative that would restore Lanikai Beach involves beach replenishment or nourishment by placing sand along the shoreline, and further augmentation by construction of a low-profile offshore breakwater structure. A project of this magnitude must occur along numerous residential properties in order to be effective and is usually initiated by a government entity or agency. The scope of this type of project means it is beyond the capabilities of individual landowners who do not have the means or expertise to design, finance, develop and execute a beach nourishment strategy. The best practicable alternative that a single landowner can accomplish to prevent loss of land from erosion is the construction of a protective structure.

Many other property owners have been allowed to construct new seawalls or revetments to protect their homes from erosion. After-the-fact shoreline setback variances have been granted for several such projects near the affected property. It would be unreasonable and unfair to deprive the landowner of the opportunity to protect his property by retaining existing structures when other beachfront landowners have been allowed to undertake protective measures that accomplish similar goals in response to coastal erosion.

7.0 REFERENCES CITED

City and County of Honolulu Department of Planning and Permitting. 2000. *Koolaupoko Sustainable Communities Plan.* August.

Chinen, Melanie. 2007. (Letter to Mr. Henry Eng, Director, Department of Planning and Permitting from the State of Hawaii Department of Land and Natural Resources State Historic Preservation Division). February 7.

Ching, Anthony J.H. 2006. (Letter to Mr. Henry Eng, Director, Department of Planning and Permitting from the State of Hawaii Department of Business, Economic Development & Tourism, Land Use Commission.) December 5.

Edward K. Noda and Associates, Inc. 1997. *Coastal Engineering Evaluation for a Shore Protection Structure at Lanikai, Oahu, Hawaii (TMK: 4 - 3 - 4: 74 and 4 - 3 - 5: 61).* December. (Revised)

Federal Emergency Management Agency. 2004. (National Flood Insurance Program, Flood Insurance Rate Map, City and County of Honolulu, Hawaii, Panel 295 of 395, Map Number 15003C0295F). September.

Oceanit Coastal Coporation. 1994. *Final Environmental Assessment for Shore Protection at 870 Mokulua Drive, Lanikai, Oahu, TMK: 4 - 3 - 08: 50.* November.

Pacific Land Services. 2002. *Final Environmental Assessment: Construct A Sea Wall Mauka of Existing Revetment, Lanikai, Oahu, Hawaii, TMK: 4 - 3 - 05: 60.* April.

Shapiro, Treena. 2000. "Lanikai Beach gets back sand: Erosion has been taking Lanikai sand to Kailua for years, but the state and city rectified the situation." *Honolulu Star Bulletin.* March 23.

State of Hawaii Department of Land and Natural Resources. 2007. "Kuhio Beach Restoration Project Successfully Concludes." (Department of Land and Natural Resources News Release.) January 5.

State of Hawaii Department of Land and Natural Resources. 2000. "South Lanikai Beach Gets New Sand Through Partnership Project." (Department of Land and Natural Resources Public Information Office News Release.) March 23.

United States Department of Agriculture, Soil Conservation Service. 1972. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.* August.

Walfish, James B. 2006. (Letter to the City and County of Honolulu Building Inspection Division.) October.

8.0 INDIVIDUALS AND AGENCIES CONSULTED

Individuals

Clegg, Donald, Analytical Planning Consultants, Inc.
Walfish, James B., Consulting Structural Engineer

Agencies

Dept. of the Army, U.S. Army Engineer District, Honolulu

State of Hawaii
- Dept. of Business, Economic Development & Tourism, Land Use Commission
- Dept. of Health
- Dept. of Land and Natural Resources, Office of Conservation and Coastal Lands
- Dept. of Land and Natural Resources, State Historic Preservation Division
- Office of Environmental Quality Control
- Office of Hawaiian Affairs

City and County of Honolulu
- Dept. of Planning and Permitting

Others
- Kailua Neighborhood Board No. 31
- Kailua Planning and Zoning Committee No. 31z
- UH Environmental Center

(This page is intentionally blank.)

APPENDIX A

SUPPORTING PHOTOGRAPHS

4-3-01:13

JAN. 14, 1986

Photo 16: View northward from north end of subject parcel TMK:4-3-5:61 showing eroded condition of adjacent shoreline.

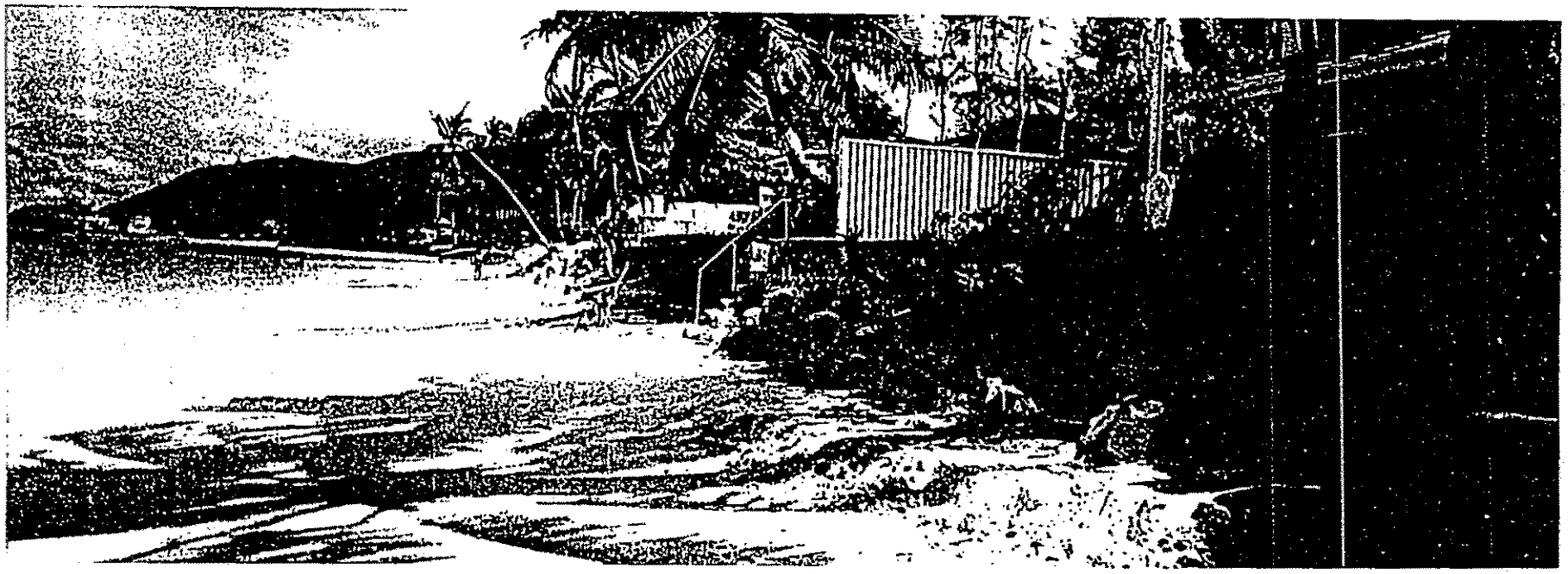


Photo 17: View southward from public right-of-way showing exposed seawalls on parcels 62 and 63 located north of subject parcel.

DATE OF PHOTOS: MAY 9, 1997 (Tide approx. +1' MLLW)

Appendixes A and B

A. Lanikai Beach Pilot Research Project Monitoring Report - September 1997

B. Review of Monitoring Report

Lanikai Beach Management Committee

1343 Mokulua Drive
Kailua, Hawaii, 96734

July 24, 1997

Michael Wilson, Chairman
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI, 967809

The Lanikai Beach Management Committee has prepared this report as an informational update for the various City, State and Federal agencies that were involved in the planning and permitting of our pilot project.

David Lipp, our coastal engineering consultant, has provided a series of beach profiles covering the period from September, 1995 to June, 1997. He includes a brief written assessment.

A photographic record of the area has been kept since December, 1995. Views up and down the beach are taken once a month at low tide. Prior to December, 1996, the tide height for photographs was random. We are now trying to standardize the time for shooting a photo so that changes in beach profile are more apparent. We have included a few of these pictures as a visual record of the project. More are available upon request.

We have several observations on the use of the bags as experienced over the last months:

1. The sandbags placed along the escarpments fronting the subject properties have provided protection from further erosion of the fastland. They have been shored up in several spots, but no moreso than boulder revetments that line the area to the south of the experiment. They would appear to be working well as a means of protecting the private property they front.

2. The "perched beach" has provided continuous lateral access to the open beach from the public right of way. After the erosion became acute in 1994, such access was unavailable to the public until the sandbags were positioned in this format.

3. The sandbags are "user friendly". Children play on and around them, fishermen fish from them and sunbathers sit on them. Walking on them is not difficult, as opposed to walking on boulders at the water's edge.

4. Repositioning the bags can be done relatively quickly with the right equipment. Mr. Correa has developed a method of moving the bags from spot to spot and has reconfigured the layout several times in the course of the experiment. (See photo)

APPENDIX A

5. Since the bags have been in the water schools of halalu (young akule) have formed in the nearshore water where none were observed before. Sea turtles have also been seen grazing on the limu that grows over the submerged bags.

6. The smooth fabric bags become slippery when submerged, but the heavily textured bags, even though covered with limu, are not hazardous underfoot.

The project has another year to go under the terms of the permit. We would like to continue.

Sincerely yours,

Philip R. Foti

Summary of observations on the Lanikai Beach Revetment Alternative Pilot Research Project (9/95 to 7/96):

The sand movement in Lanikai is primarily longshore and its direction is dependant on the wind and wave directions. In the test area there is little sand transport during a mild wind and wave climate from any direction. Strong trade winds and associated wind waves produce a slight northwesterly transport (toward Kailua). Strong easterly winds and waves produced from a long duration easterly wind produce a strong northwesterly transport. North winds and north swells produce a southeasterly transport (toward Waimanalo). The trend is thus slow sand movement toward Kailua during the summer, increased sand movement toward Kailua during the fall (when the trades tend to turn easterly and increase in velocity), and variable movement during the winter dependant on wind and swell. The trend during the winter and spring is for sand movement towards Waimanalo.

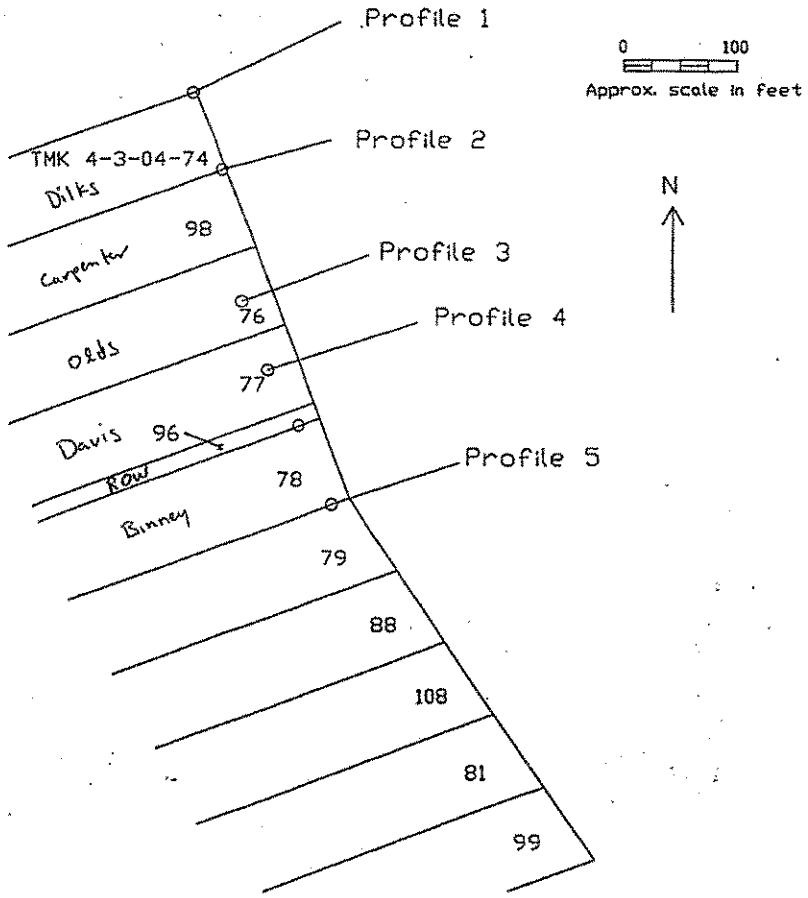
'Between the period of 9/2/95 when the first profile was taken, and 10/5/96, there was considerable loss of sand from the area fronting Dilks and Carpenter (profiles 1 and 2). During the period of 10/5/96 and 6/8/97, all the sand returned to this area, the 6/8/97 profile is very similar to the 9/2/95 profile. This sand movement into the project area during late '96 and early '97 is due to environmental factors and not the sandbags themselves. ***What is important to note is that the sandbags did not prevent the beach from reforming.***

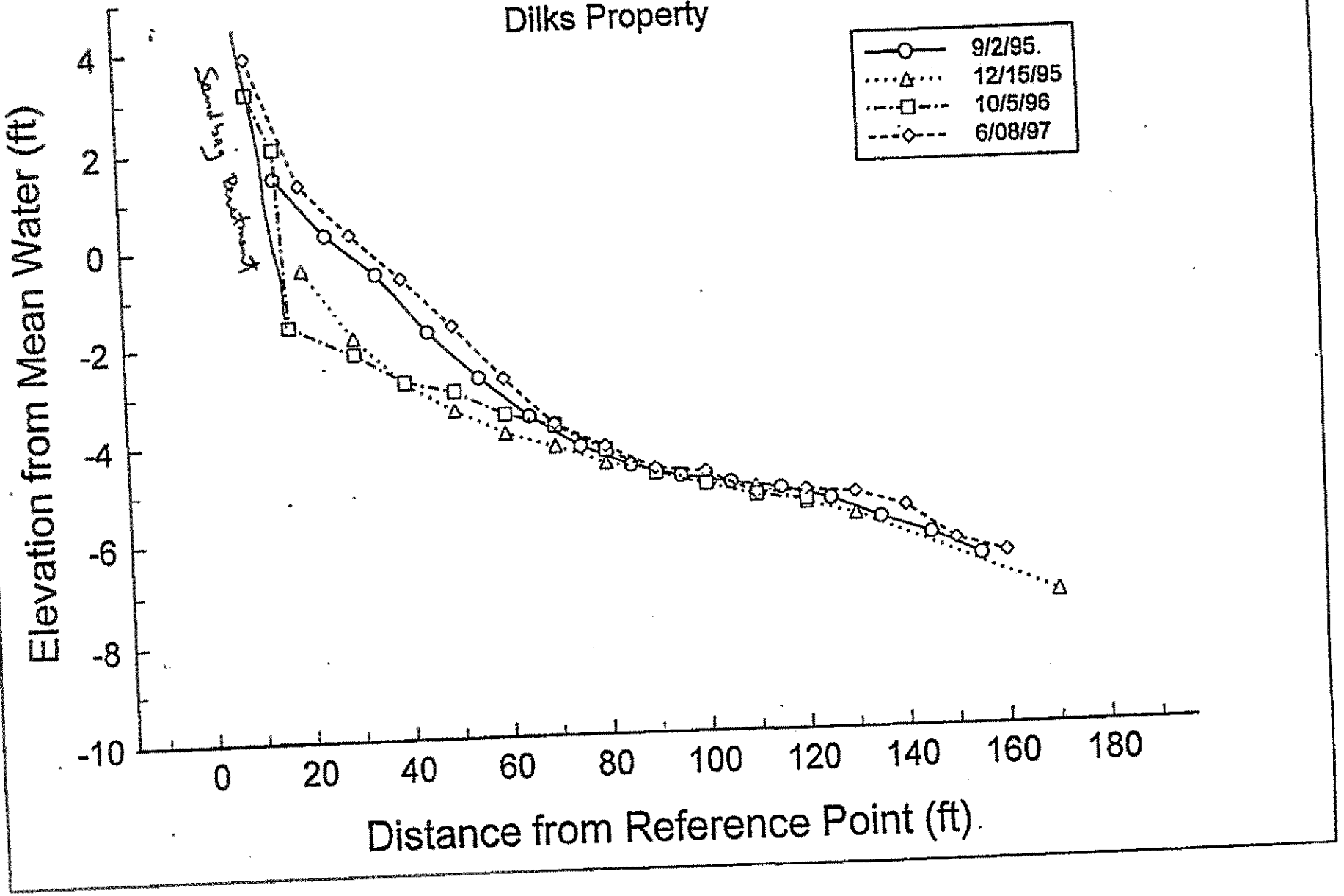
The profiles fronting the Olds property shows no real loss between 9/95 and 10/96, but does show an increase by 6/97. Again, mother nature moved the sand, but the bags did not prevent the beach from forming.

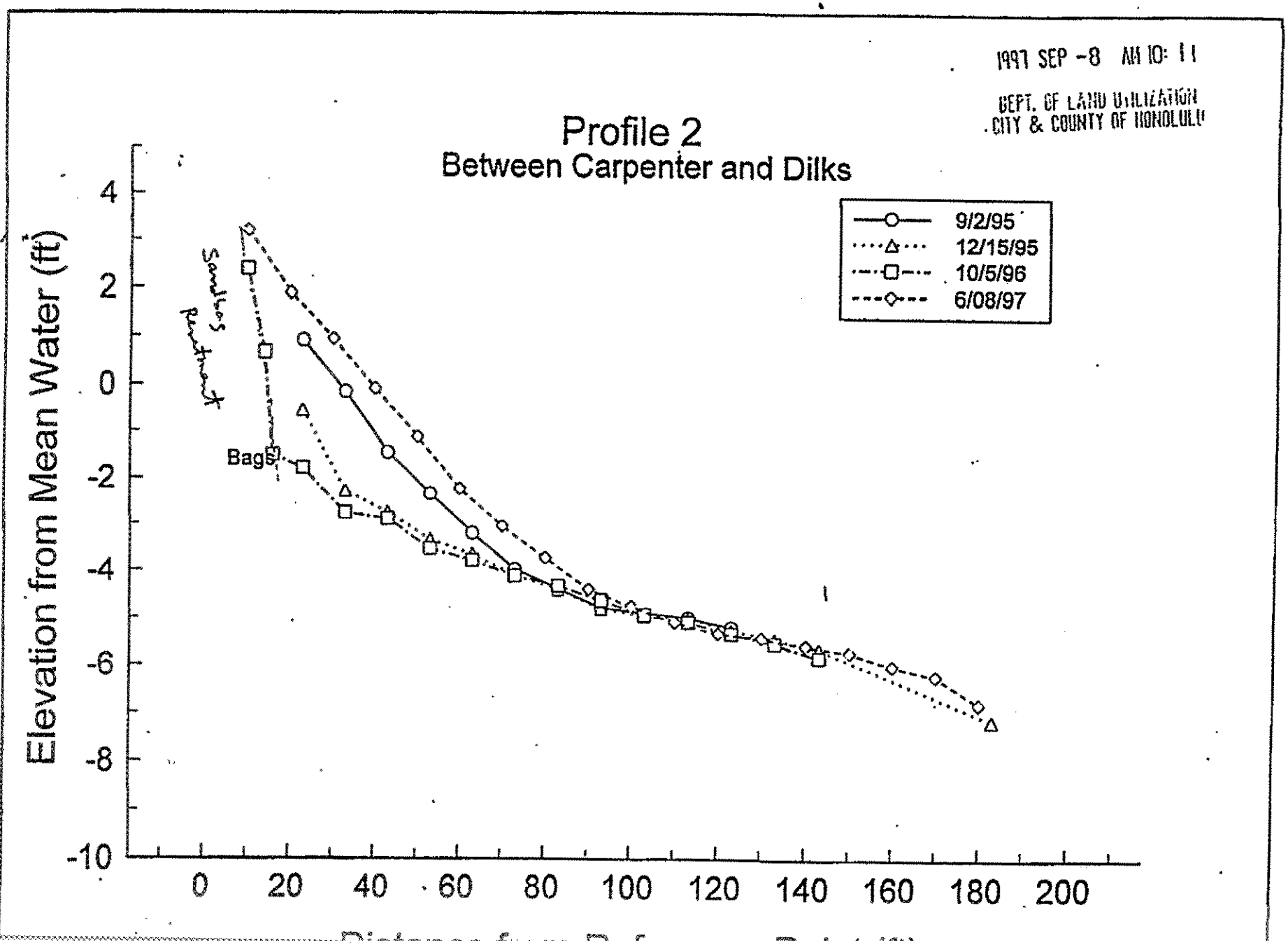
The Davis property bags jut out slightly from the neighboring bags, this has turned out to be beneficial to the beach fronting the neighboring properties. During the winter the sand accumulated fronting the Olds property, during the summer and spring the sand accumulates fronting the public right of way to the beach. The sand accumulates because a small longshore transport gradient is created due to the sandbags fronting the Davis property. This effect is shown in the Binney profile of 10/5/96. Binney is to the southeast of Davis, during tradewind weather the sand accumulates fronting the right of way between Binney and Davis. This has enhanced public access.

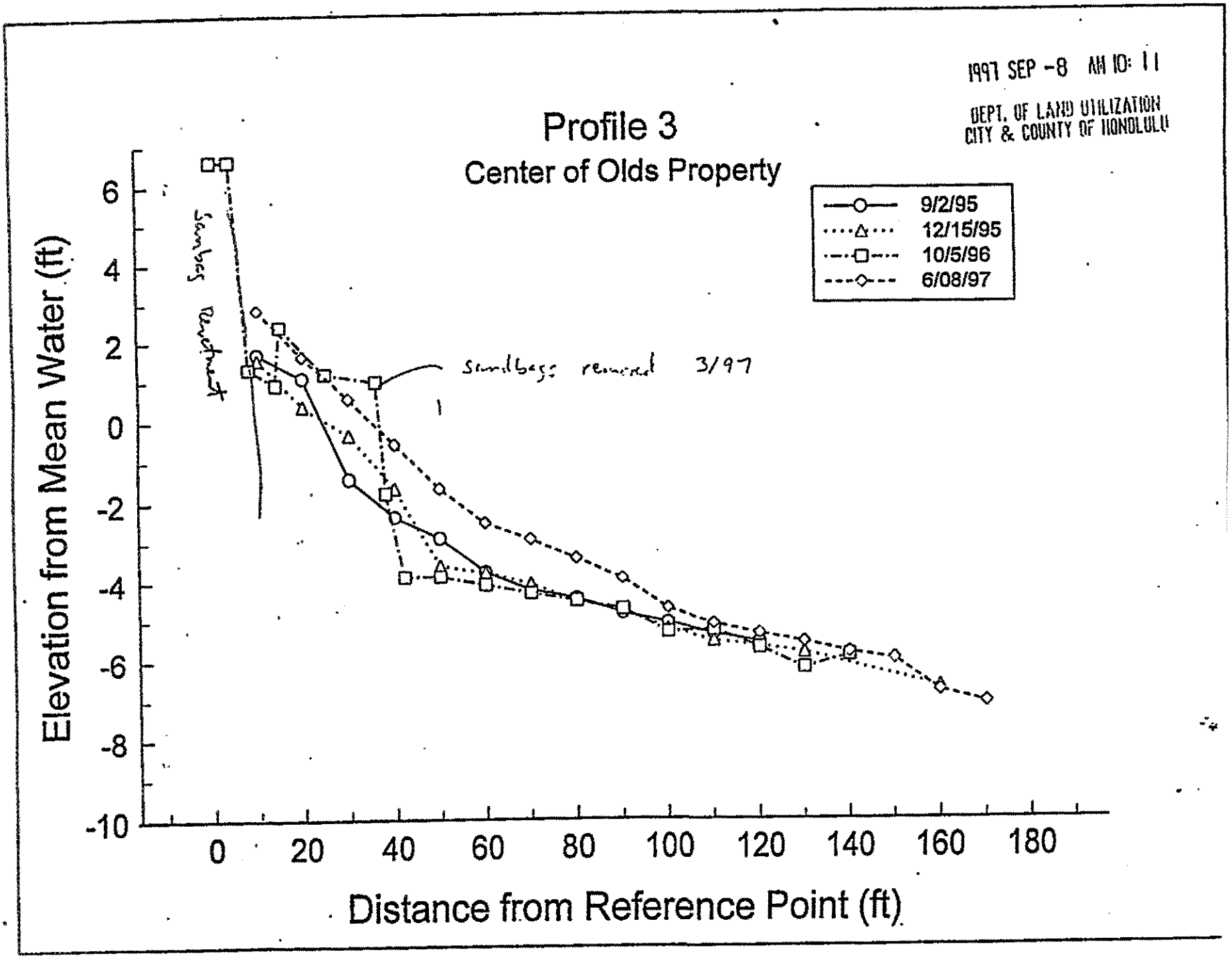
I recommend continuing the pilot program.

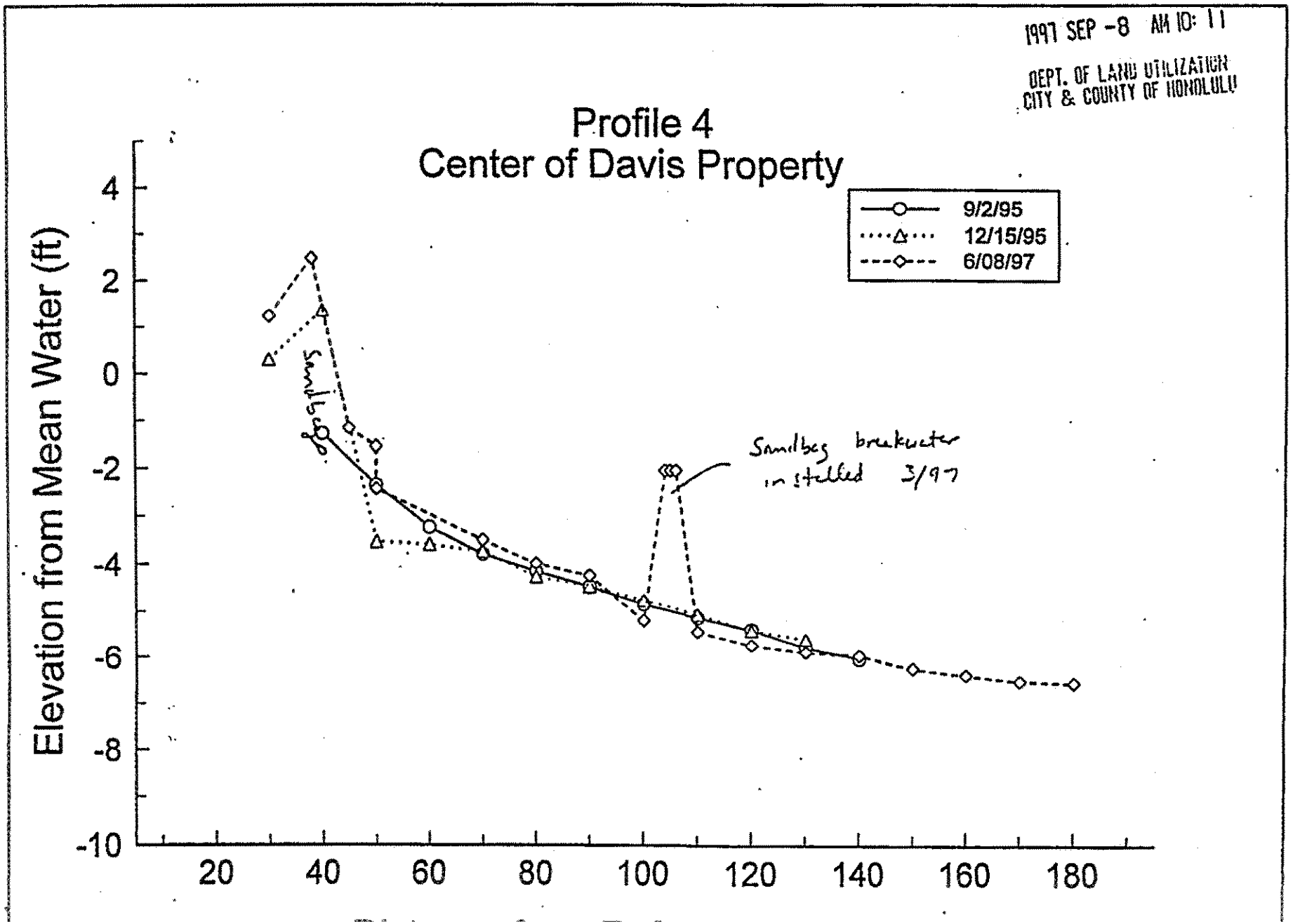
David Lipp
Coastal Engineer

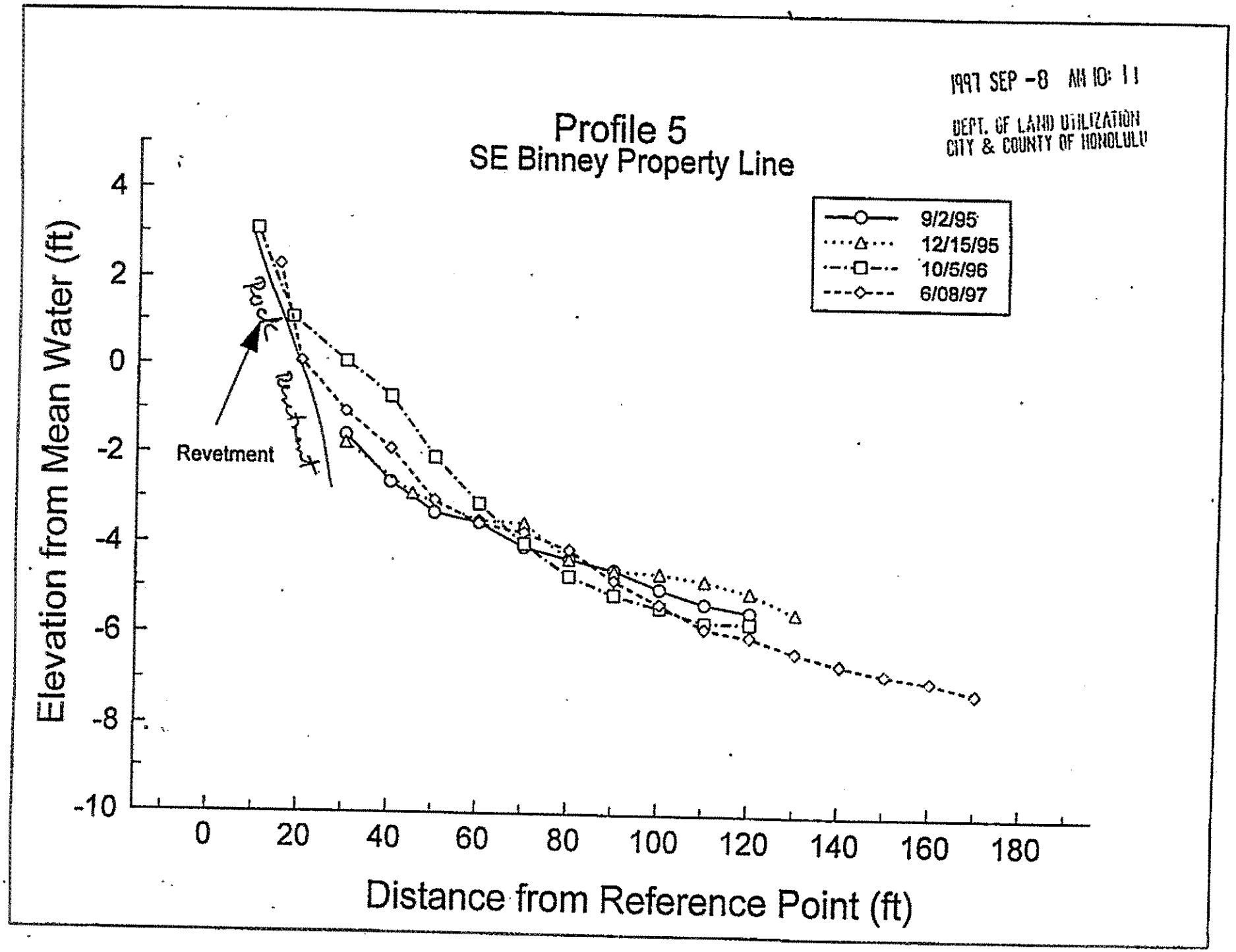












Edward K. Noda
and
Associates, Inc.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Pilkoi Street
Suite 300
Honolulu, Hawa
96814-3139

Telephone:
(808) 591-8553
Facsimile:
(808) 593-8551

CN 1781 September 8, 1997

MEMORANDUM

TO: Robin Foster

FROM: Elaine Tamaye

SUBJECT: Summary Report by David Lipp

I have reviewed the data and summary report by David Lipp and have the following comments:

(1) There is a significant seasonal movement of sand along this section of coastline. The beach profile data are not sufficient to define the extent of the seasonal variability versus long-term trend. Profiling was done only twice in 1995 (Sept and Dec), once in 1996 (Oct), and once in 1997 (Jun). Therefore, it is not possible to draw any conclusions from this data about the "effectiveness" of the pilot program. It is important to note that David Lipp's conclusion was that the sand movement is due to environmental factors and not the sandbags themselves. His only "conclusion" about the sandbags is that "the sandbags did not prevent the beach from reforming".

(2) Although the profiles indicate that the sand elevations on the beach have increased from Dec 1995 to June 1997, that is not to say that the beach has been "restored". The profiles extend seaward of the sandbag revetments, and there is no evidence of restoration of any dry beach area. The top of beach elevations (less than 4 feet above mean water level) are clearly below the wave runup level. Therefore, if not for the existing shore protection structures, there could very likely have been additional loss of fastlands (erosion of the shoreline as defined by the vegetation line), even though there may have been a slight gain in elevation of the beach foreshore.

(3) In order to provide meaningful data, the beach profiles need to be measured at least quarterly, and additional profiles should be established on the Kailua-side (across "dry" beach areas) to determine the pilot program's effect on adjacent shoreline areas and to obtain a better understanding of the seasonal sand movement affecting this coastal reach.

(4) There is no mention about how much sand was "added" to the littoral system. How much of this sand fill contributed to the increase in beach elevations? There is also no description of what was done with the sandbags, such as what configurations were tested and for how long. There is simply insufficient information from the monitoring program to draw any valid conclusions about the pilot program.

APPENDIX B

APPENDIX E

COMMENT LETTERS AND RESPONSES

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

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

March 7, 2007

Mr. Anthony J.H. Ching
Executive Officer
State of Hawaii Department of Business Economic Development & Tourism
Land Use Commission
P.O. Box 2359
Honolulu, HI 96804-2359

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project

Dear Mr. Ching:

Thank you for your comment letter dated December 5, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We kindly offer the following responses:

1. We acknowledge the statement that the State land use designation of the subject parcel was established on August 23, 1964. Text in Section 3.13 Applicable Land Use Considerations, paragraph 1 of the Final EA (FEA) will be revised accordingly.
2. The applicant has submitted a boundary interpretation request to the State Land Use Commission pursuant to section 15-15-22, Hawaii Administrative Rules to determine the location of the existing seawall and revetment relative to the Urban/Conservation District boundary. Text in Section 2.3.1 Technical Characteristics, last paragraph and Section 3.13 Applicable Land Use Considerations, paragraph 1 of the FEA will be revised accordingly.
3. The applicant has submitted appropriate documentation to the State Land Use Commission including information confirming the location of the highwater mark in 1964 or at about the time of the establishment of the protective structure.

Thank you again for your comments on the DEA. Please do not hesitate to contact me if you have questions or require further clarification.

Regards,

Donald Clegg
Analytical Planning Consultants, Inc.

LINDA LINGLE
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

December 5, 2006

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 Environmental Assessment (DEA) and Shoreline Setback Variance Application
Mr. & Mrs. Ethan Topper
1586-B Mokulua Drive, Lanikai, Oahu, Hawaii
Tax Map Key: 4-3-01: 13

We are in receipt of the subject DEA transmitted by your letter dated November 21, 2006. We understand that the landowners/applicants are seeking an after-the-fact shoreline setback variance for an existing seawall and revetment constructed on the subject parcel by its previous owners. No new shoreline structures are proposed. We further understand that the seawall with two sets of stairs was completed sometime between 1986 and 1991.

For your information, the State land use designation of the subject parcel was established on August 23, 1964. While the landward portion of the parcel was designated within the State Land Use Urban District, any coastal area of the parcel having an elevation *below* the highwater mark was designated within the State Land Use Conservation District. Although a May 8, 1967, aerial photograph of the subject parcel depicts a protective structure along the beachfront edge of the parcel, we note that it is not representative of the existing seawall and revetment in place and that its exact location relative to these shoreline structures is unclear. In this case, the certified shoreline is not necessarily indicative of the district boundary location as the existing seawall and revetment may have altered the shoreline since the district boundary for the parcel was established.

We therefore request that a boundary interpretation request be filed with our office pursuant to section 15-15-22, Hawaii Administrative Rules, to determine the location of the Urban/ Conservation District boundary relative to the existing seawall and revetment on the subject parcel. Such a request should be accompanied by the appropriate documentation, including, but not limited to, information confirming the location of the highwater mark as it existed in 1964, or, in the alternative, as it existed at or about the time of the establishment of the former protective structure.

Thank you for the opportunity to comment on the subject DEA. Please feel free to contact Bert Saruwatari of my office at 587-3822, should you require clarification or any further assistance.

Sincerely,

ANTHONY J. H. CHING
Executive Officer

c: Office of Environmental Quality Control

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

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

March 7, 2007

Ms. Genevieve Salmonson, Director
State of Hawaii Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project

Dear Ms. Salmonson:

Thank you for your comment letter dated December 22, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We kindly offer the following responses:

1. Shoreline hardening. We acknowledge your agency's response to applications for seawalls, groins and revetments and we are familiar with the policy items listed under the Guidelines for Assessing Shoreline Alteration and Hardening Projects. The DEA includes justifications and analyses as these pertain to the context and circumstances of the applicant's project, which involves retaining existing shore protection structures that were built and reinforced many years prior to the applicant's purchase of the property in 2001. Many beachfront landowners have been allowed to construct seawalls or revetments to protect their homes from erosion. After-the-fact shoreline setback variances have been granted for projects near the affected property, and a structural engineer has indicated that the existing seawall meets or exceeds the standards for engineered wall systems.
2. Contacts. The Final EA (FEA) will identify the agencies and other groups that were consulted during the review process. The DPP transmitted copies of the DEA to the Kailua Neighborhood Board No. 31 and Kailua Planning and Zoning Committee No. 31z on November 31, 2006. The DPP also transmitted a copy of the DEA to the Kailua Public Library; therefore, sufficient time to review and comment on the DEA has been allotted.
3. Cultural impacts assessment. The DPP transmitted copies of the DEA to the Office of Hawaiian Affairs (OHA) and the State Historic Preservation Division (SHPD). OHA responded by letter dated December 28, 2006 indicating no comments. Comments from SHPD as stated in its letter dated February 7, 2007 will be incorporated into the FEA. The Guidelines for Assessing Cultural Impacts were consulted during the preparation of the EA document.

Thank you again for your comments on the DEA. Please do not hesitate to contact me if you have questions or require further clarification.

Regards,

Donald Clegg

Donald Clegg
Analytical Planning Consultants, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

December 22, 2006

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

Attn: Ann Matsumura

Dear Mr. Eng:

Subject: Draft Environmental Assessment (EA)
Topper residence seawall and revetment after-the-fact variance application

We have the following comments to offer:

Shoreline hardening: Please comply with the policy items listed in our guidance document, which can be accessed at http://www.state.hi.us/health/oeqc/guidance/shoreline.htm.

Contacts: Consultation with the community is required. Send a copy of the draft EA to the nearest neighborhood board, allowing them sufficient time to review the EA and submit comments. Document all contacts in the final EA and include copies of any correspondence.

Cultural impacts assessment: Section 3.9 concluded that there would be no impacts to cultural resources. Besides observation on the property, what other steps have you taken in order to reach that conclusion? You may wish to consult our guidelines at http://www.state.hi.us/health/oeqc/guidance/cultural.htm.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

c: Analytical Planning Consultants

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

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

March 7, 2007

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

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project
File No.: 2006/ED-20

Dear Mr. Eng:

Thank you for your comment letter dated December 28, 2006 addressed to Mr. Clegg of Analytical Planning Consultants, Inc. We kindly offer the following responses:

1. Concerns raised by the State Land Use Commission (LUC). The applicant has submitted a boundary interpretation request to the State LUC to determine the location of the existing seawall and revetment relative to the Urban/Conservation District boundary. Text in Section 2.3.1 Technical Characteristics, last paragraph and Section 3.13 Applicable Land Use Considerations, paragraph 1 of the Final EA (FEA) will be revised accordingly. We acknowledge that the State's LUC determination must be known prior to the City's acceptance of the Shoreline Setback Variance application.
2. Section 2.2 General Description; Section 2.3.1 Technical Characteristics; and Section 3.3 Shoreline Characteristics and Coastal Processes. We acknowledge your agency's statement that the existing seawall and revetment are illegal because they were constructed after the inception of the Shoreline Setback Regulations of June 22, 1970 without permits. Text in the FEA will be revised accordingly.
3. Section 2.3.1 Technical Characteristics. It is our understanding that the applicant's seawall and revetment will not accelerate erosion on neighboring properties because the adjacent shorelines have been deliberately armored to resist erosion. The applicant does not have any records indicating what design standards, if any, were applied during the placement of the rock revetment makai of the seawall by previous landowners; therefore, the applicant does not expect Mr. Walfish to verify that the revetment has been constructed in accordance with current coastal engineering standards and practices.
4. Section 2.3.4 Environmental Considerations and Section 3.3 Shoreline Characteristics and Coastal Processes. It is our understanding that shoreline and coastal processes are not unique to small areas such as a residential lot with 30 feet of coastal exposure. The Coastal Engineering Evaluation report (1997) prepared by Edward K. Noda and Associates, Inc. for TMK: 4 - 3 - 004: 074 and 4 - 3 - 005: 061 describes the shoreline and coastal processes affecting the southern end of Lanikai including the location of the applicant's property. The 1997 report by Edward K. Noda will be included in the FEA.

5. Figure 6. It is our understanding based on our observations and the site photograph dated January 14, 1986 (which depicts site conditions prior to the existence of the seawall) that the material behind the wall exists to maintain the natural elevation of the property from the landward side. The existing grade at the project site is consistent with the gradients of adjacent properties and the surrounding neighborhood. The applicant will continue to coordinate with the DPP regarding the applicability of a Zoning Variance. Additional plans will be prepared and will accompany the applications for a Shoreline Setback Variance and Zoning Variance, as appropriate.
6. Lateral beach access impacts. It is our understanding based on reviews of the Koolaupoko Sustainable Communities Plan (2000) and tax maps that there are no lateral beach accesses in the vicinity of the project site. The nearest beach access is located slightly south of the Lanipo Drive and Mokulua Drive intersection whereas ten other beach accesses are further north. There is also no sandy beach fronting the project site during low and high tide. Retaining the seawall maintains the status quo with respect to mauka-makai and lateral public access points, open space/preservation areas, public recreation areas, and view planes; therefore, no mitigation measures are warranted.
7. Section 4.3 Implement a Soft Shore Protection Strategy and Section 6.0 Shoreline Setback Variance Justification. We are not aware of any discussions between the State Department of Land and Natural Resources (DLNR) and the landowners about the feasibility of beach nourishment along the coastline. The discussion in Section 4.3 of the FEA will be expanded to include more information about soft shore protection strategies. The text in Section 8.0 of the FEA will be revised to include agencies such as the DLNR Office of Conservation and Coastal Lands (OCCL) and other groups that were consulted during the review process.
8. Comments from the Office of Environmental Quality Control. We acknowledge the statement pertaining to copies of the DEA that were transmitted to the Kailua Neighborhood Board No. 31 and the Kailua Planning and Zoning Committee No. 31z on November 21, 2006.

Thank you again for your comments on the DEA. Please do not hesitate to contact me if you have questions or require further clarification.

Regards,

Donald Clegg

Donald Clegg
Analytical Planning Consultants, Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4432 • FAX: (808) 527-6743
DEPT. INTERNET: www.honoluludpp.org • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

(AM)

December 28, 2006

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

Dear Mr. Clegg:

Subject: Chapter 343, Hawaii Revised Statutes (HRS)
Draft Environmental Assessment (EA)
Project Name: Topper Shoreline Setback Variance
File No.: 2006/ED-20
Location: 1586-B Mokulua Drive - Lanikai
Tax Map Key: 4-3-1: 13

In accordance with the procedural provisions of Chapter 343, Hawaii Revised Statutes (HRS), all comment letters received during the 30-day public comment period, which began with the initial publication of a notice of availability of the Draft EA in The Environmental Notice on December 8, 2006, require a response addressed directly to the commenter. The Final EA must include all comment letters and responses to the letters, as well as appropriately revised text. Herewith, for your information and appropriate action are comments from the State Land Use Commission, State Department of Health and Office of Environmental Quality Control.

In addition, enclosed herein are the Department of Planning and Permitting's comments on the DEA.

1. Concerns raised by the State Land Use Commission (LUC) regarding the location of the wall relative to the Conservation District boundary must be resolved prior to acceptance of the Shoreline Setback Variance (SV) application. A determination that the wall is within the Conservation District may lead to the conclusion that it was constructed seaward of the 40-foot shoreline setback (i.e., within the conservation district) and as such, would not require an SV. Should it be determined that the wall is located within the shoreline setback, then a filing fee of $2,000 as well as a completed Master Application Form will be required to complete the SV application and initiate permit processing. Section 2.3.1 (Technical Characteristics) on page 11 may have to be revised, in accordance with the State LUC's determination.

2. Section 2.2 General Description, page 5; Section 2.3.1 Technical Characteristics, page 6; and Section 3.3 Shoreline Characteristics and Coastal Processes, page 13: Reference to the existing seawall and revetment as nonconforming is inaccurate. The seawall and revetment were constructed after the inception of the Shoreline Setback Regulations of June 22, 1970 without permits, which make these structures illegal. The Final EA should be revised accordingly.

3. Section 2.3.1 Technical Characteristics, page 9: What is the basis (i.e., Coastal Engineering Study) of your findings that the existing seawall and revetment are not expected to accelerate erosion on neighboring properties? Is structural engineer James Walfish able to verify that the revetment in addition to the seawall, has been constructed in accordance with coastal engineering standards and practices?

4. Section 2.3.4 Environmental Considerations, page 12 and Section 3.3 Shoreline Characteristics and Coastal Processes, page 14: Can the conclusion be made that the environmental conditions at the properties identified as Tax Map Keys 4-3-4: 74 and 4-3-5: 61 and referenced in the 1997 Coastal Engineering Report by Edward K. Noda and Associates, Inc. are the same for the applicants' property? Please include the 1997 Report in the Final EA as an appendix.

5. Figure 6, page 10: Based on the wall section, it appears that a Zoning Variance will be required to allow the seawall containing fill to exceed the 6-foot height limit within the required yard(s). Please provide an estimate of the amount of backfill that is being retained behind the existing seawall.

   The plans should be drawn to accurate and practical scale, and consist of: 1) a topographic map showing **existing and finish grades**; 2) a site plan showing **property and setback lines**; 3) additional wall elevations from all sides; and 4) cross-sections showing existing and finish grades, including top and bottom elevations of the wall where the wall exceeds the maximum permitted height. We have attached instructions for filing a Zoning Variance for your information. The Zoning Variance may be processed concurrently with the Shoreline Setback Variance.

6. Inasmuch as preservation of open space along the shoreline is a primary objective of the Shoreline Setback Ordinance [Section 23-1.2(a)], expand on and discuss the impacts of the seawall on open space, visual impacts (lateral views of coastline as well as views of the coastline from Mokulua Drive), and lateral beach access impacts (i.e., the approximate width of the lateral public access during low and high tide, and if applicable, the frequency and duration of when the lateral access is underwater or impassable). How has the seawall system impacted use of the beach? What mitigation measures could be undertaken to reduce the adverse impact to lateral access along the beach?

7. Section 4.3 Implement a Soft Shore Protection Strategy, page 19 and Section 6.0 Shoreline Setback Variance Justification, page 22: Please disclose whether there were any discussions between the State Department of Land and Natural Resources (DLNR) and the landowners about the feasibility of beach nourishment along the coastline. Accordingly, 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.

8. In response to the Office of Environmental Quality Control's comments of December 22, 2006, the DPP transmitted a copy of the subject Draft Environmental Assessment to the Kailua Neighborhood Board No. 31 and Kailua Planning and Zoning Committee No. 31z on November 21, 2006 for their review and comment.

Should you have any questions, please contact Ann Matsumura of our staff at 523-4077.

Very truly yours,

For Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:cs
Encls.

cc: Mr. and Mrs. Ethan Topper
Office of Environmental Quality Control

Doc498140

PHONE (BUS): (808) 536-5605
FAX: (808) 599-1553

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

March 7, 2007

Mr. Clyde W. Namuo
Administrator
State of Hawaii Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project
(HRD06/2824)

Dear Mr. Namuo:

Thank you for your comment letter dated December 28, 2006 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We acknowledge that OHA does not have any comments regarding the project at this time.

Regards,

Donald Clegg
Analytical Planning Consultants, Inc.

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD06/2824

December 28, 2006

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

ATTN: Ann Matsumura

RE: Request for comments on the Draft Environmental Assessment and Application to retain a Concrete Rubble Masonry seawall and revetment within the Shoreline Setback Area for 1586-B Mokuiua Drive; Kalaupoko, O'ahu; TMK: 4-3-001:013

Dear Henry Eng,

The Office of Hawaiian Affairs (OHA) is in receipt of your November 21, 2006, request for comments on the above project, which would allow Ethan Topper to receive an after-the-fact Shoreline Setback Variance for an existing, nonconforming seawall and revetment within the Shoreline Setback Area. The applicant proposes to demolish two existing single-family dwellings, an 'ohana unit and some accessory structures before clearing the lots and constructing a new single-family dwelling, pool and garage. OHA notes that the existing wall and revetment were built and reinforced long prior to the applicant's purchase of the property in 2001. Shoreline Setback Variances have been granted for several properties near this subject one in this highly eroded beach area, and the existing seawall meets or exceeds the standards for engineered wall systems. OHA does not generally support any construction in the shoreline, but because of the above, and the fact that this is a pre-existing structure, OHA does not have any comments at this time.

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

Sincerely,

Clyde W. Nāmu'o
Administrator

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1533

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

March 7, 2007

Ms. Dina Wong
City and County of Honolulu
Department of Planning and Permitting, CAPB
650 South King Street, 7th Floor
Honolulu, HI 96813

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project
File No. 2006/ED-20

Dear Ms. Wong:

Thank you for your comments dated January 2, 2007. We kindly offer the following responses:

1. Section 2.3.3 Cultural and Historic Considerations. It is our understanding based on reviews of the Koolaupoko Sustainable Communities Plan (2000) and tax maps that there are no lateral beach accesses in the vicinity of the project site. The nearest beach access is located slightly south of the Lanipo Drive and Mokulua Drive intersection whereas ten other beach accesses are further north. Section 2.3.3 of the FEA will remain as written.
2. Section 3.3 Shoreline Characteristics and Coastal Processes. Thank you for identifying the apparent inconsistencies in our descriptions of shoreline characteristics and coastal processes. Text in Section 3.3, paragraph 6 of the FEA will be revised.
3. Section 3.10 Public Recreation Resources and Beach Access Points. It is our understanding that the area fronting the project site is currently under water or impassable at all times. Retaining the seawall and revetment maintains the status quo. Text in Section 3.10 of the FEA will be revised to state these conditions.
4. Section 3.13 Applicable Land Use Considerations. Thank you for identifying references to "Development Plan" that we will replace with "Sustainable Communities Plan." Text in Section 3.13 of the FEA will be revised to include information pertaining to the current SCP land use designation.
5. Section 3.13 Applicable Land Use Considerations. Text in Section 3.13 of the FEA will be revised to include information pertaining to SCP guidelines for shoreline areas.

Thank you again for your comments on the DEA. Please do not hesitate to contact me if you have questions or require further clarification.

Regards,

Donald Clegg

Donald Clegg
Analytical Planning Consultants, Inc.

Faxed to me 1/4/07

Record agency comments
Job 025275831-002 (2006/ED-20)

DPP CAPB comments

Assigned To	Status	Outcome	Scheduled Start	Scheduled Completed	Actual Start	Actual Completed
LCHUN	Scheduled		Jan 02, 2007			

Details

Agency: DPP CAPB

Reviewed by: Dina Wong

Agency Comments:

Please find below DPP CAPB comments on the Draft Environmental Assessment (EA) Shoreline Setback Variance for an Existing Seawall and Revetment, Lanikai, Oahu (TMK 4-3-001:013). Several of the comments pertain to the Koolaupoko Sustainable Communities Plan (Koolaupoko SCP, August 2000):

Section 2.3.3 (Cultural and Historic Considerations) states that the seawall and revetment do not impede public access to the shoreline. In the Final EA, this statement should be revised to reflect lateral shoreline access conditions.

Section 3.3 (Shoreline Characteristics and Coastal Processes) on page 14 states that "these structures may now be interfering with natural sand movement patterns because they increase the reflectivity of wave energy that removes sand. The absence of large sand deposits along the southern end appears to be causing a gradual shift of the erosion trend northward into the middle portion of the Lanikai coastline." The above appears to contradict statements made in the Draft EA that indicate otherwise. This should be corrected in the Final EA.

Section 3.10 (Public Recreation Resources and Beach Access Points) in the Final EA should include a description of lateral shoreline access fronting the subject property, i.e., the approximate width of the lateral public access during low and high tide and, if applicable, the frequency and duration of when the lateral access is underwater or impassable. The long-term consequence of beach loss fronting the existing wall and revetment will affect lateral public access and should be addressed in the Final EA.

In Section 3.13 (Applicable Land Use Considerations) of the Final EA, references to "Development Plan" should be changed to "Sustainable Communities Plan." Furthermore, the last sentence on page 17 should be corrected to state that the subject property is within a Low Density Residential area on the Koolaupoko SCP Land Use Map (Map A-2; Section 3: Kailua). It should also be noted that the subject property's current SCP land use designation is not a site-specific designation, but rather an illustration of text policies.

Section 3.13 (Applicable Land Use Considerations) of the Final EA should note the relevant Koolaupoko SCP contains guidelines pertaining to shoreline areas (Section 3.1.3.2 of the Koolaupoko SCP), including: (1) maintain lateral access along popular beaches that are subject to long-term and seasonal erosion, particularly at Lanikai and Kualoa; (2) designate the Alala Point to Waikea shoreline (where the subject property is located) as an erosion-prone area and prepare and implement a beach management plan; and (3) discourage the use of shore armoring structures.

Ann: Please note that GIS and Posse do not reflect that Parcels 12 and 13 were consolidated.

Comments:

Jan 02, 2007 14:51

Post-it® Fax Note 7671	Date 1/4/07	# of pages ▶ 1
To Dina Wong	From Ann Matsuura
Co./Dept. DPP	Co. DPP (Planning Division)
Phone #	Phone # 527-5837
Fax # 527-6743	Fax #

PHONE (BUS): (808) 536-5695
FAX: (888) 599-1553

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

March 7, 2007

Mr. Kelvin H. Sunada
Manager
State of Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project
(EPO-06-209)

Dear Mr. Sunada:

Thank you for your comment letter dated January 3, 2007 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We have reviewed the Standard Comments posted at www.state.hi.us/health/environmental/env-planning/landuse/landuse.html and acknowledge that your office does not have any comments regarding the project at this time.

Regards,

Donald Clegg
Analytical Planning Consultants, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-06-209

January 3, 2007

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

Dear Mr. Eng:

SUBJECT: 2006/ED-20(AM)
Draft Environmental Assessment and Shoreline Setback Variance Application (After-the-fact) for an Existing Seawall and Revetment at 1586-B Mokulua Drive, Lanikai, Oahua, Hawaii
TMK: (1) 4-1-001: 013

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time. We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

for KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

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

March 7, 2007

Mr. Samuel J. Lemmo, Administrator
State of Hawaii Department of Land and Natural Resources
Office of Conservation and Coastal Lands
Post Office Box 621
Honolulu, HI 96809

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project
(Correspondence No.: OA-07-111)

Dear Mr. Lemmo:

Thank you for your comment letter dated January 8, 2007 addressed to Mr. Henry Eng of the Department of Planning and Permitting. We kindly offer the following responses:

1. References to the applicant's undeveloped lot. We would like to clarify that the property identified by TMK: (1) 4-3-001: 013 and street address 1586-B Mokulua Drive is a developed lot that was cleared of existing dwellings to allow for permitted construction of a new single-family dwelling, pool and garage. The landowner has legally applied for and has been granted permits allowing new construction. A new residence will be in the path of erosion and subject to a potential hazard if the existing wall and revetment are removed.
2. Impacts of the seawall. We acknowledge the statement that the applicant's seawall may be impounding substrate comprising beach quality sand that would naturally nourish a healthy beach. It is our understanding that the removal of the existing seawall and revetment along roughly 30 feet of coastline would not release enough sand to restore a beach in an area where the entire shoreline has been armored, the sand supply has decreased, and the State public resource has been compromised for several decades. Restoration of the beach would require the removal of many contiguous armaments along the southern Lanikai coastline. Removal of the existing seawall and revetment would first hasten erosion of the applicant's parcel and may subsequently erode areas behind existing shoreline structures on adjacent properties. The following sections of the Final EA (FEA) will be revised to reflect relevant information from the above statement and responses: Section 3.15 Summary of Unavoidable Adverse Environmental Impacts and Section 4.2 Remove Existing Shore Protection Structures.
3. Compensatory Mitigation. We are aware of compensatory mitigation as an element of a comprehensive coastal lands policy proposed by the Department of Land and Natural Resources Office of Conservation and Coastal Lands. A requirement for compensatory mitigation as an integral component of the variance and permitting process has the appearance of being unduly punitive at this time and in light of the circumstances of the project, which involves retaining existing shore protection structures or maintaining status quo. It is our understanding that southern Lanikai Beach continues to be impacted by the

totality of contiguous armaments along the shoreline and not one single landowner's seawall or revetment. We are unaware of any fair or reasonable standard for assessing compensatory mitigation; therefore, the FEA will remain unchanged with respect to this issue.

Thank you again for your comments on the DEA. Please do not hesitate to contact me if you have questions or require further clarification.

Regards,

Donald Clegg
Analytical Planning Consultants, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

BRIAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DLNR:OCCL:CC

Correspondence No.: OA-07-111

JAN - 8 2007

Henry Eng, FAICP
Director of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

SUBJECT: Review of Draft Environmental Assessment for Shoreline Setback Variance for After the Fact Permit of Shore Protection Improvements
TMK: (1) 4-3-001:013
1586-B Mokulua Drive, Lanikai, Oahu, Hawaii

The State of Hawaii Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) has reviewed the August 2006 Draft Environmental Assessment (DEA) for Shoreline Setback Variance (SSV). The ultimate purpose of the SSV is to acquire an After the Fact permit for shore protection improvements, in their current state, on an undeveloped lot. This is in pursuit of maintaining the hardened and stabilized shoreline.

The OCCL finds the general description of the situation in the DEA to be satisfactory. There are, however, several critical issues the OCCL has concerns about several portions of the DEA.

The DEA meticulously documents the expected outcome from removal of the wall as justification for an After the Fact permit in Sections 4.2 and 6.0(1). The DEA is very clear that removal of the wall will result in dramatic erosion to the property. In cases where a shoreline structure such as a seawall is preventing shoreline migration on a chronically eroding coast and the inland substrate is composed of beach quality sand, it is impounding the material that would naturally nourish a healthy beach. This prevents the beach from migrating landward. The seawall may not be accelerating erosion, but it is clearly adversely impacting the health of the beach, and that is an impact to a State public resource protected by the State Constitution, Hawaii Revised Statute §205A and §183C, and the Revised Ordinances of Honolulu Chapter 23. The OCCL has strong reservations about the granting of a FONSI in this context.

Statements made in 2.3.1, 2.3.4, and 3.3, would lead a reviewer to believe that the only significant impacts a hardened shoreline structure may have are erosion on neighbor properties or complete prevention of potential accretion. These examples, as presented in the DEA, can be simplified to the following statements:

> "If the structure is not presently causing erosion on neighbor's property, then it is not having a significant impact," and
>
> "If there is a different structure somewhere in the vicinity that does not completely prevent accretion, then this structure is having no significant impact."

Impacts of hardened shoreline structures are well documented in the scientific and engineering communities. As a point of fact, the entire purpose of a hardened shoreline structure is to have an impact, to prevent

landward shoreline migration within the property. This affects beach resources in several significant ways. This impounds sediment that would normally be released to the beach as a sediment source for the sediment budget, and would otherwise maintain beach width (health) while the shoreline migrates. This impedes long shore transport of sediment, the dominant form of transport in Hawaiian coastal sediment budgets, and diminishes this sediment source within the sediment budget by increasing wave energy on "wet" beaches. This also impedes accretion of sediment in areas where shoreline processes are in contact with the structure. It is true that this does not completely prevent accretion, but an accurate statement would read:

> "Where the structure does not interfere with sand accumulation, the presence of the structure does not preclude natural beach accretion."

The difference is that this statement allows for beach accretion in areas with a sediment surplus, such as the middle portion of Lanikai, but also explains the lack of beach, or wet seawalls on the north and south ends. In those locations, including the project site, the inland sediment supply is being impounded, longshore transport is impacted by increased wave energy at the shoreline, and accretion is currently not occurring. These are all significant impacts. These have diminished and virtually destroyed the once healthy beach environment.

Continuing on this avenue, erosion does not diminish beach resources by itself. Erosion in a coastal sediment system with a balanced or surplus sediment supply will maintain a healthy beach. It is only when erosion causes the shoreline to migrate to a hardened structure or hard substrate that the beach resource is impacted. The backshore area of Lanikai, including the project site, is a large sand deposit. Thus erosion, without the presence of a seawall, might release sediment to the system and allow for a healthy beach to begin forming.

Section 4.2 discusses this course of action, and determines that it is "not viable" as it would "result in deterioration and loss of property." Erosion will change the character of the property as backshore areas release sand to supply a beach system. This is a change, but not necessarily a deterioration of conditions. This section also states that removal could result in "…the potential to create a public health and safety hazard if unconsolidated shoreline is undermined to the extent that it collapses on the beach." Again, erosion does not create a public health and safety hazard by itself. It is only when erosion threatens or damages structures, such as single-family homes, located too close to the shoreline that the hazard exists.

In addition to the impact to the State public beach resource, the OCCL believes the seawall is also impacting the coastal zone recreational resources for the area. The DEA documents the lack of dry beach fronting the seawall, in a location where a sandy beach previously existed. Removal of the seawall might release the needed materials to create a dry beach and improve or return the degraded or lost coastal recreation resources.

The option not discussed is compensatory mitigation. Currently there is a small, wet sandy beach fronting the property. Though the DEA asserts that a seawall will be the best erosion control alternative for preserving the shoreline, it is understood that any hardened structure will fix the shoreline at the beach's expense. Understanding that the beach has been diminished through time due to the armoring of this lot's shoreline, the application would be more complete by considering compensatory mitigation as an integral component of permitting the seawall. Hawaii Revised Statute §205A **requires** agencies to preserve and maintain these public and environmental resources (beaches). As such, agencies and applicants should consider compensatory mitigation when impacts to beaches cannot be avoided.

HRS §205A-2 Coastal zone management program; objectives and policies

> ***(c).I.B.ii***
> *Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and* ***sand beaches****, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*

The OCCL believes that the findings in Section 5 should be addressed. Subsections 1, 2, 3, and 7 all assume that the existing structure is not having an impact. The impact of the structure is assessed by comparison to the

current conditions, where it already exists. This is incorrect. The impact of the structure should be assessed by comparison to the natural conditions. Seawalls are not naturally occurring geologic features. The impacts of the seawall and rock slope are impoundment of a portion of the sediment supply, impediment of longshore transport of a portion of the sediment supply, diminishing the capacity of current sediment accretion, and the elimination of a dry sandy beach fronting the lot. This applies directly to subsection 11 concerning beaches and erosion-prone areas. The OCCL has strong reservations about the granting of a Finding Of No Significant Impact when the individual and cumulative impacts of the structure have not been accurately weighed in the DEA.

Furthermore, the OCCL questions the justification of permitting such a structure. There is currently no development on the lot, so there is no potential hazard, as there is no building placed in the path of erosion. Erosion of this empty lot is far more likely to result in a sandy shoreline. If the structure is removed, then a proper setback may be determined from a shoreline located on an equilibrated beach system. This would ensure that the future structure is built in the proper location and not threatened by erosion.

The OCCL believes that a FONSI is unwarranted. Issuance of an After The Fact permit for a shoreline structure that protects a vacant lot establishes a poor precedent. The OCCL also suggests the consideration of compensatory mitigation, as required in HRS §205A, if the shoreline structure is granted an After The Fact permit.

Thank you for the opportunity to comment on this project. The OCCL is willing to work with the C&C and the applicant to help resolve these shoreline issues. Please contact Sam Lemmo at 587-0381 or Chris Conger, Sea Grant Extension Agent, at 587-0049, with questions or for guidance and assistance.

Sincerely,

SAMUEL J. LEMMO, Administrator
Office of Conservation and Coastal Lands

cc: Chairperson
Oahu Board Member
Oahu Land Agent
CZM
LUC
Wil Chee Planning and Environmental, Inc.
1018 Palm Drive
Honolulu, HI 96814

PHONE (BUS): (808) 536-5605
FAX: (808) 599-1553

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

March 7, 2007

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

Subject: Review of Draft Environmental Assessment (DEA)
Topper Shoreline Setback Variance project
(POH-2006-490)

Dear Mr. Young:

Thank you for your comment letter addressed to Mr. Henry Eng of the Department of Planning and Permitting and dated January 16, 2007, which is after the 30-day public comment period ending January 8, 2007. We acknowledge that the proposed action to obtain an after-the-fact setback variance for the seawall and revetment 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 and revetment structures.

Regards,

Donald Clegg
Analytical Planning Consultants, Inc.

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

REPLY TO ATTENTION OF

January 16, 2007

Regulatory Branch

File No. POH-2006-490

07 JAN 18 P1:28

RECEIVED

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

Dear Mr. Eng:

This responds to your request (letter dated November 21, 2006) for comments on a draft Environmental Assessment (dEA) prepared for a shoreline setback variance for an existing seawall and revetment located at 1586-B Mokulua Drive, Kailua, O'ahu Island, Hawaii (TMK: (1) 6-8-10: 21). We have reviewed the information you provided under the Corp's authority to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403) and Section 404 of the Clean Water Act (CWA) of 1977 (33 USC1344).

Based on the information provided in the dEA, the proposed action to obtain an after-the-fact setback variance for the seawall and the revetment will not require a DA permit. Please note, however, should the applicant decide to conduct any future maintenance, modification, or removal work to the seawall and the revetment structures, a DA permit may likely be required, and it is recommended that the applicant contact this office for a determination on whether a DA permit will be required for the proposed activity.

Should you have any questions regarding this determination, please contact Ms. Joy Anamizu at (808) 438-7023, fax at (808) 438-4060, or email at joy.n.anamizu@usace.army.mil and reference the above file number in future correspondence.

Sincerely,

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

Copy Furnished:

Mr. and Mrs. Ethan Topper, 60 Seaview Terrace, San Francisco, CA 94142
Mr. Donald Clegg, Analytical Planning Consultants, Inc., 928 Nuuanu Ave, Suite 502, Honolulu HI 96817

PHONE (BUS): (808) 536-5695
FAX: (808) 599-1553

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

March 7, 2007

Ms. Melanie Chinen
State of Hawaii Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, HI 96707

Subject: Chapter 6E-42 Historic Preservation Review
Review of Draft Environmental Assessment (DEA) for
An Existing Seawall & Revetment at TMK: (1) 4-3-001: 013
Log No: 2006.3920/Doc No: 0702aj07/Archaeology

Dear Ms. Chinen:

Thank you for your comment letter addressed to Mr. Henry Eng of the Department of Planning and Permitting and dated February 7, 2007, which is after the 30-day public comment period ending January 8, 2007. We acknowledge the following statements from your letter and kindly offer the following responses:

1. Archaeological, cultural and historic resources. 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. Numerous Native Hawaiian Burials located in Jaucas sand along Kailua Bay, as well as in other areas in Kailua, have been disturbed by construction activities. Text in the following sections of the Final EA (FEA) will be revised: Section 2.3.3 Cultural and Historic Considerations and Section 3.9 Archaeological, Cultural, and Historic Resources.
2. Mitigation. The State Historic Preservation Division (SHPD) would have required proactive mitigation (e.g., an archaeological inventory survey and/or archaeological monitoring during construction) if it had been afforded the opportunity to comment on permits regarding the construction of the seawall and revetment. The SHPD is unable to offer concurrence on the project. The FEA will remain unchanged with respect to mitigation because the applicant's pursuit of an after-the-fact variance involves no subsurface disturbance if existing shoreline structures constructed by previous landowners are allowed to remain.

Thank you again for your comments on the DEA. Please do not hesitate to contact me if you have questions or require further clarification.

Regards,

Donald Clegg
Analytical Planning Consultants, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

CITY & COUNTY OF HONOLULU
2007 FEB 13 P12:00
DEPT. OF PLANNING & PERMITTING

February 7, 2007

Henry Eng, FAICP, Director
City & County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

LOG NO: 2006.3920
DOC NO: 0702aj07
Archaeology

Dear Mr. Eng:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Draft Environmental Assessment (DEA) for an Existing Sea Wall and Revetment
Kailua Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 4-3-001:013

Thank you for the opportunity to comment on the aforementioned project, which we received on November 22, 2006. We apologize for the delay in responding. The applicants, Mr. and Mrs. Ethan Topper, are requesting an after-the-fact shoreline setback variance for a seawall and revetment that was constructed by the previous owners between 1986 and 1991.

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. Additionally, according to the United States Soil Conservation Service (Foote *et al.* 1972), soils in the subject property consist of Jaucas sands, which are known to contain historically-significant deposits, including subsurface cultural layers and human remains/burials. Numerous Native Hawaiian Burials located in Jaucas sand along Kailua Bay, as well as in other areas in Kailua, have been disturbed by construction activities (2002. Mann *et al. Archaeological Monitoring report for the Kalama Beach Park Project (Boetticher Estate) 248 North Kālāheo Avenue, Kailua Ahupua'a, Ko'olaupoko District, Island of O'ahu.* Rpt No. O-2916).

If we had been afforded the opportunity to comment on the permits regarding the construction of the seawall and revetment, 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.

Please contact Mr. Adam Johnson (O'ahu Assistant Archaeologist) at 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

aj:

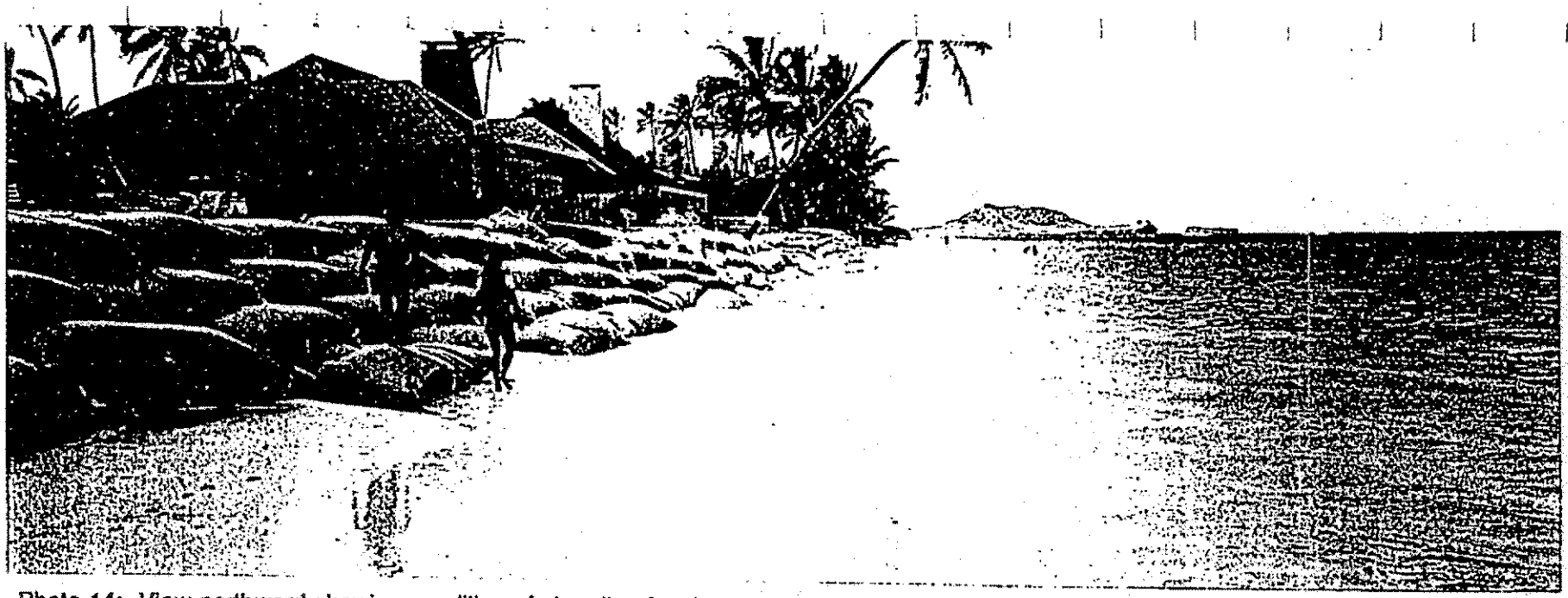


Photo 14: View northward showing condition of shoreline fronting adjacent parcels 76 (Olds) & 98 (Carpenter). Subject parcel is in background.

Photo 15: View southward fronting parcel 77 (Davis). Note stockpiled sand and new sand bags on this property.

Photo 12: View southward fronting subject property TMK:4-3-5:61 showing condition of sand bag revetment after repairs completed.

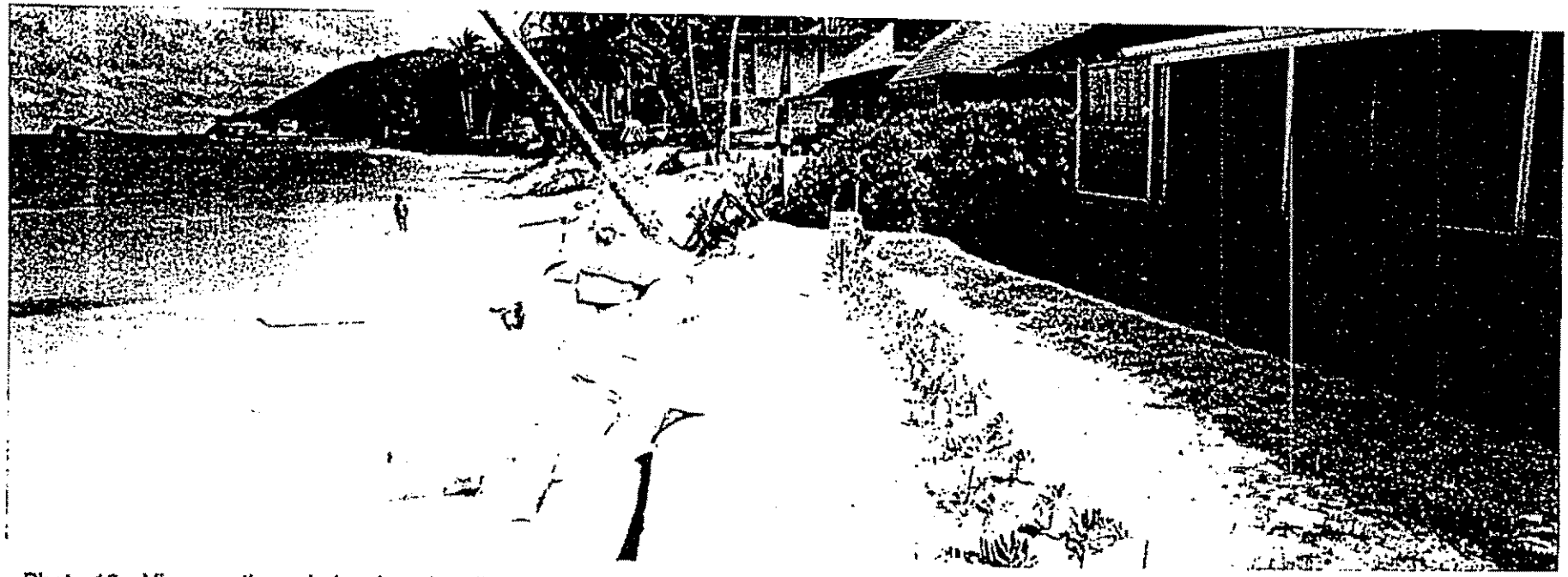


Photo 13: View southward showing shoreline condition in front of the house on subject parcel TMK:4-3-4:74.

DATE OF PHOTOS: MAY 9, 1997 (Tide approx. +1' MLLW)

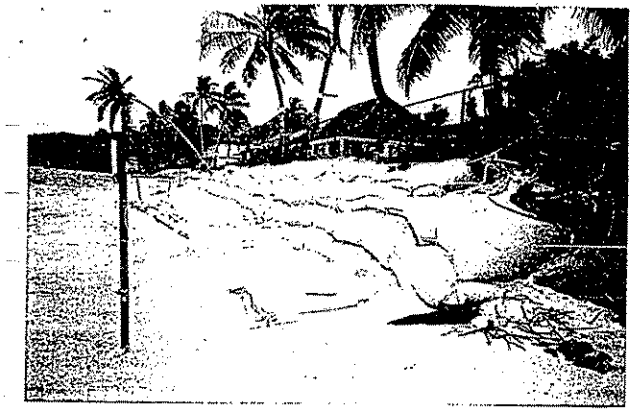


Photo 9: View southward showing completed sand bag revetment on subject property TMK:4-3-5:61.

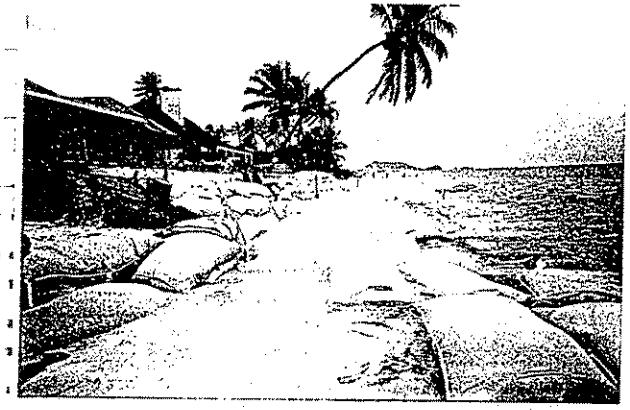


Photo 10: View northward from parcel 76 (subject property TMK:4-3-4:74 is in background).

Photo 11: View southward from parcel 76.

DATE PHOTOS: JUNE 30, 1996
(Tide approx. +2' MLLW)

Photo 7: Eroded condition of subject property at TMK:4-3-5:61. (Note erosion of shoreline vegetation and undermining/collapse of fence.)

Photo 8: View southward showing rebuilt sand bag revetment on adjacent parcel 98 (Carpenter).

DATE OF PHOTOS: MARCH 14, 1996 (Tide approx. +0.3' MLLW)

Photo 4: View northward showing damaged condition of sandbags fronting adjacent parcel 98 (Carpenter).

Photo 5: View southward showing sandbags fronting parcels 76 (Olds) and 77 (Davis).

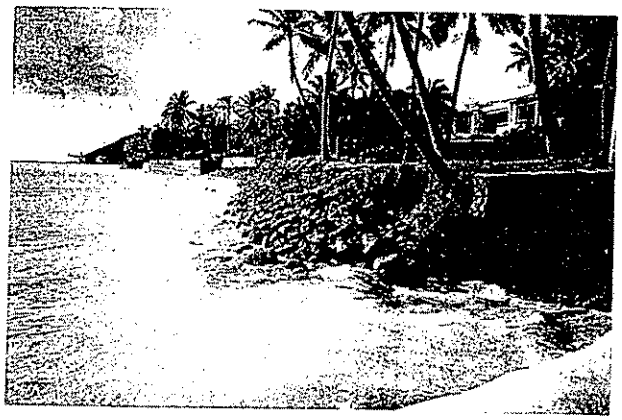


Photo 6: View southward showing condition of shoreline south of parcel 96 (public right-of-way).

DATE PHOTOS: FEBRUARY 6, 1996
(Tide approx. +1' MLLW)

Photo 1: View southward showing eroded condition of subject property at TMK:4-3-4:74. (Note sand bags on beach south of subject property.)

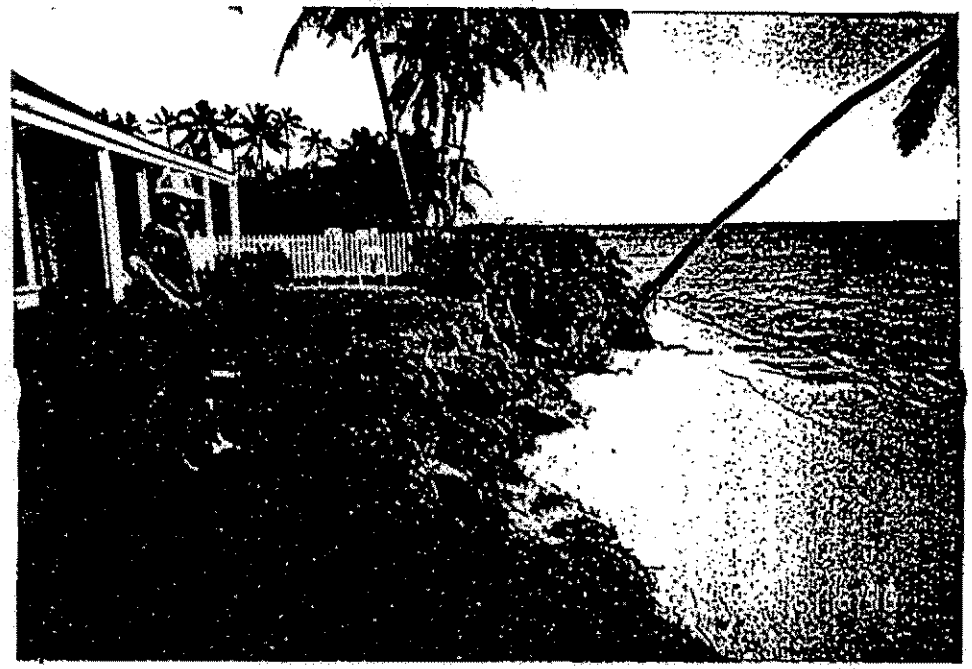
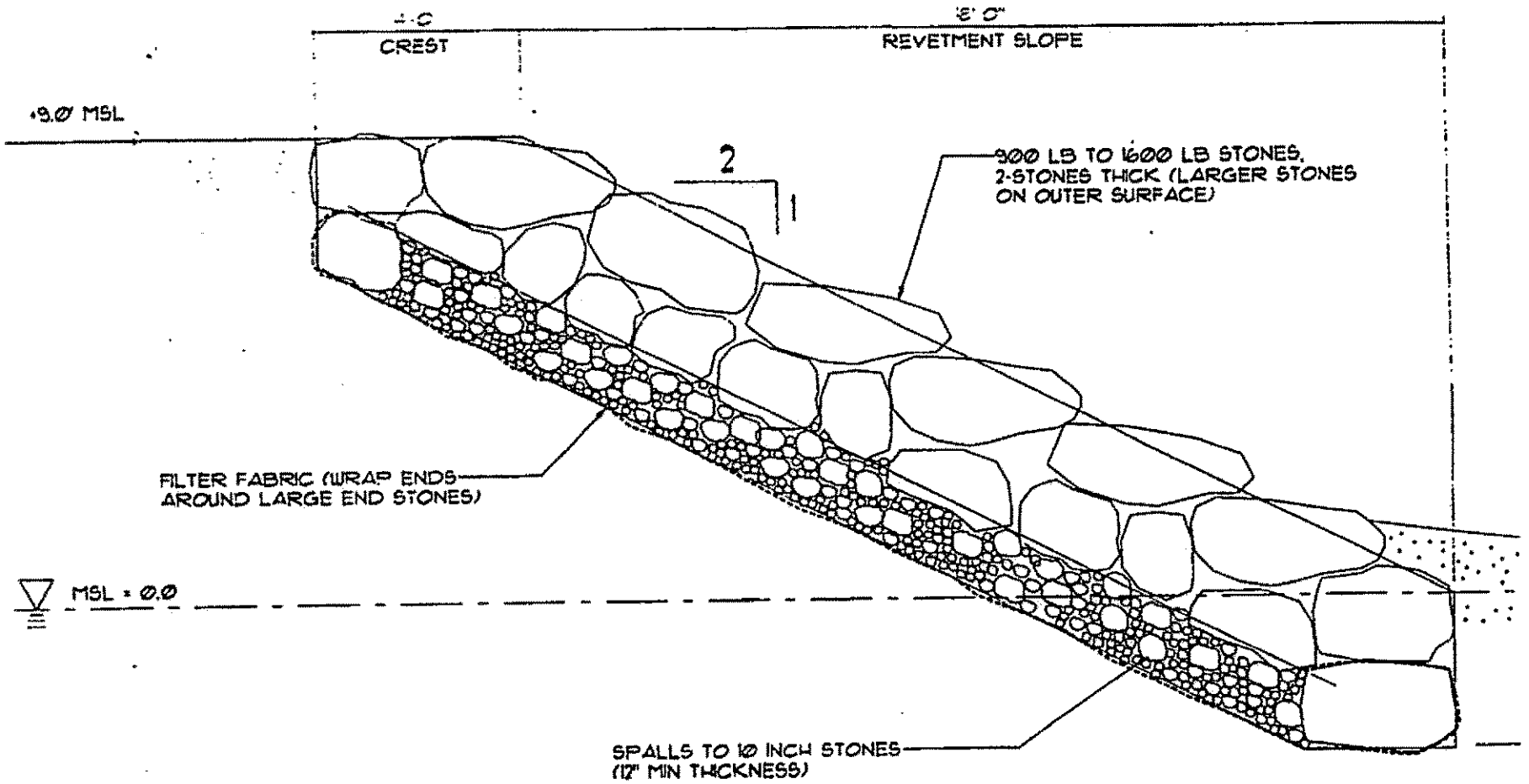


Photo 2: View northward showing eroded condition of subject property.

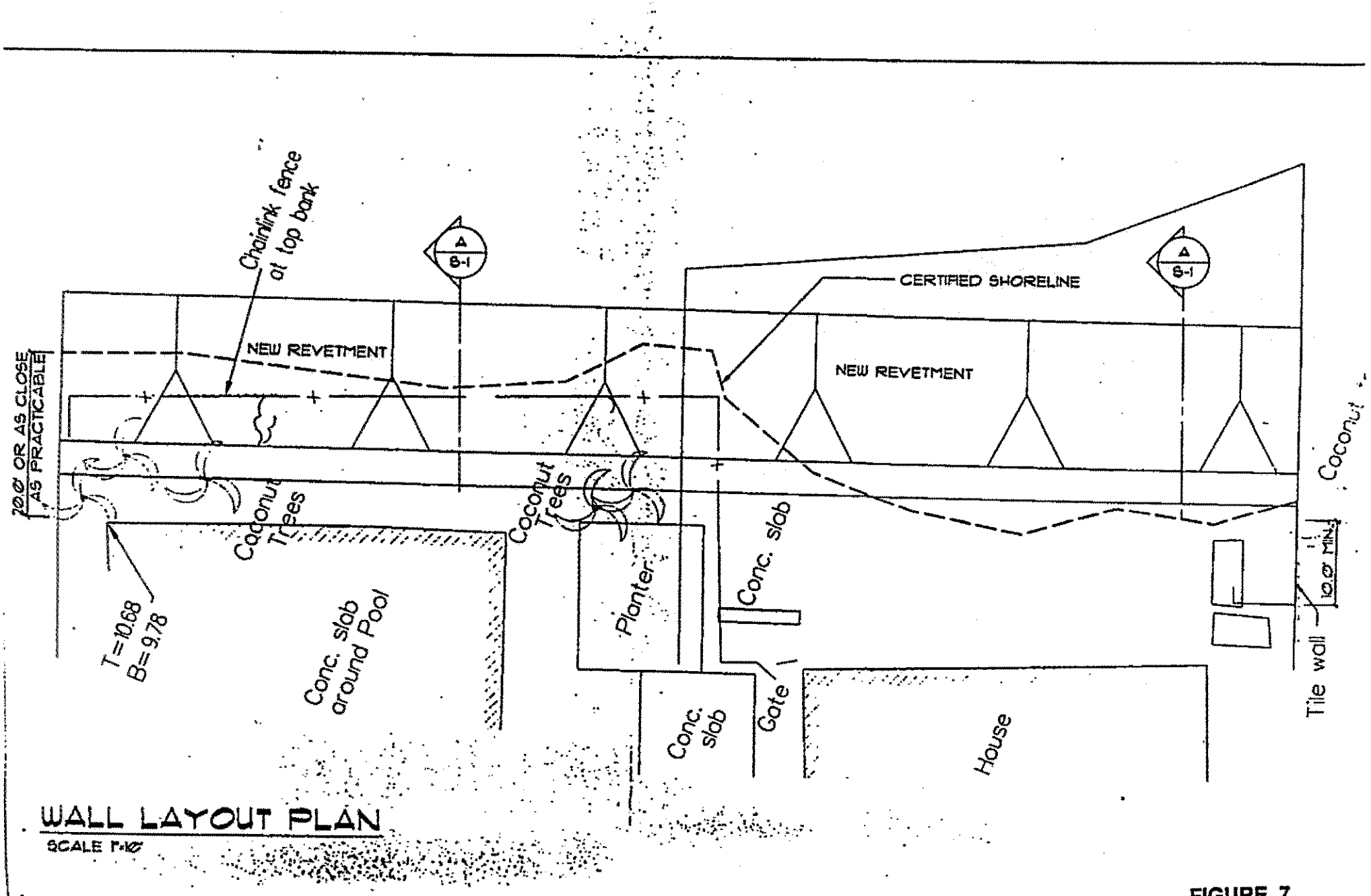
Photo 3: View southward fronting subject property TMK:4-3-5:61.

DATE OF PHOTOS: FEBRUARY 6, 1996 (Tide approx. +1' MLLW)



TYPICAL SECTION THRU REVETMENT

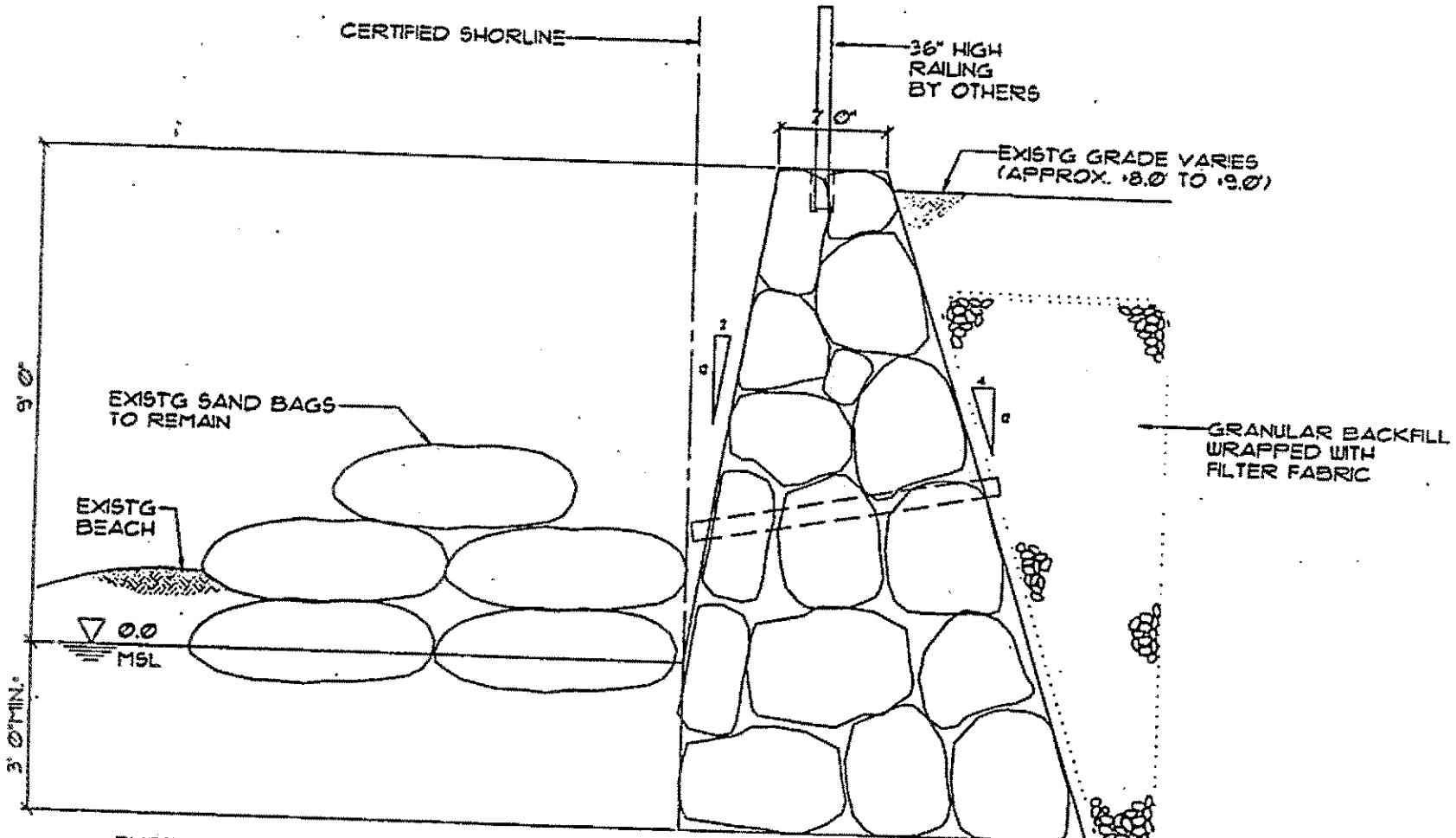
SC 1/2" = 1'-0"



WALL LAYOUT PLAN

SCALE 1"=10'

FIGURE 7

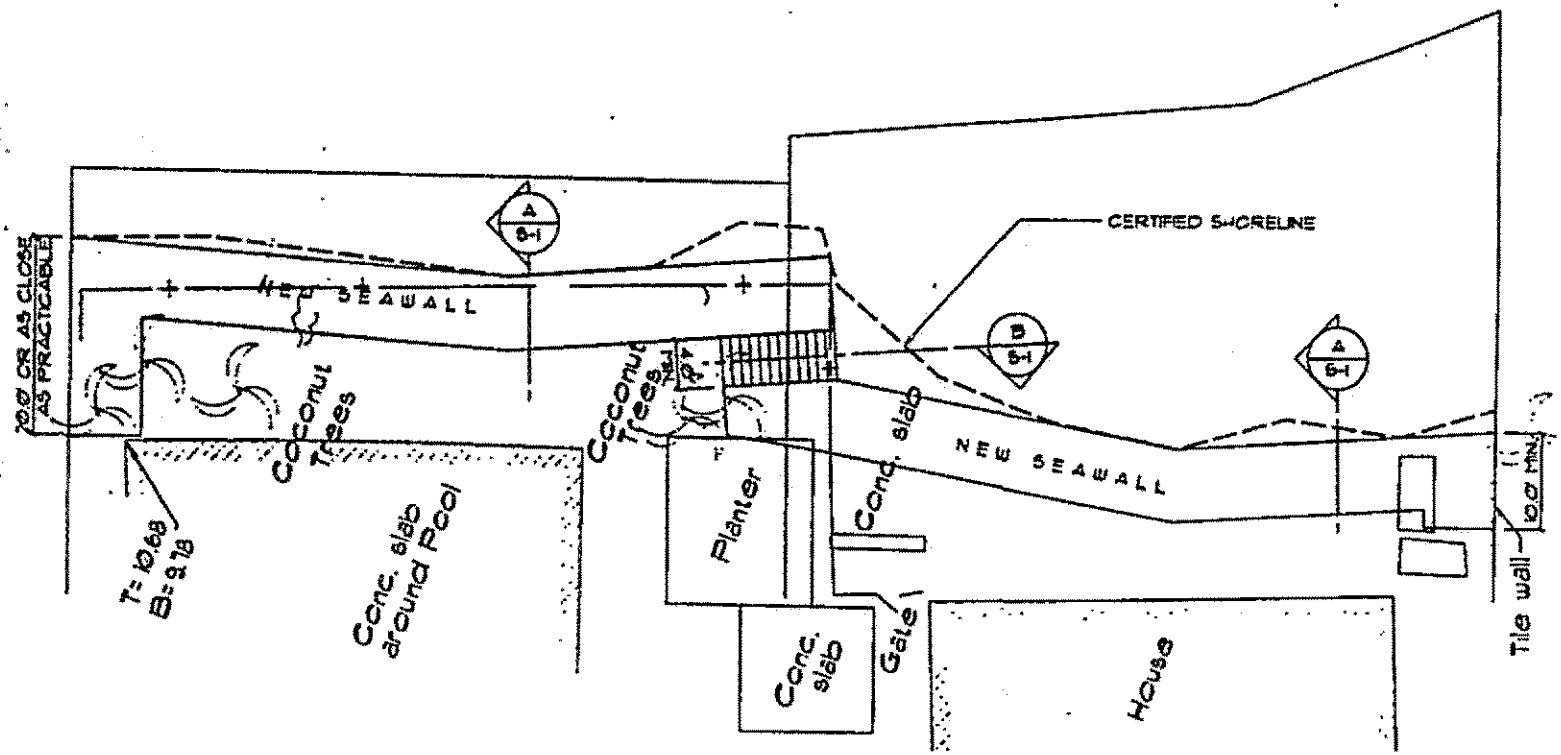


*EMBED 3'-0" MIN. BELOW MEAN SEA LEVEL UNLESS FOUNDED ON SOLID NON-ERODIBLE SUBSTRATA

SECTION THRU NEW CRM SEAWALL

SCALE: 1" = 3'

S-1



WALL LAYOUT PLAN

SCALE: 1" = 20'

FIGURE 5

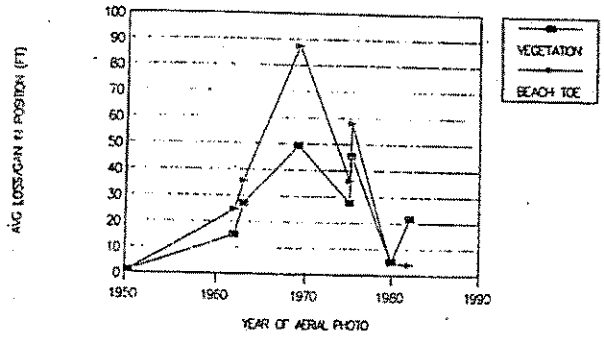


Figure 4a: Average cumulative movement for a 2,500-foot stretch of shoreline from Wailea Point northward to the project site.

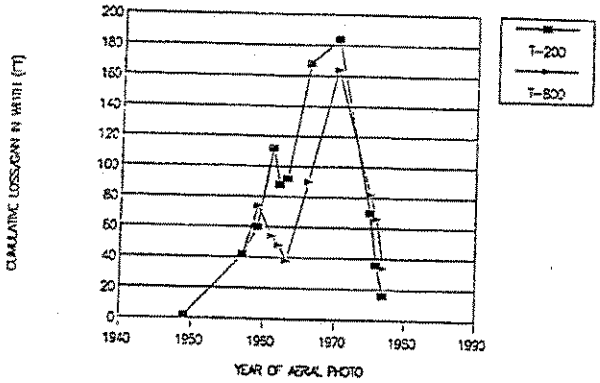


Figure 4b: Cumulative movement of the shoreline at Kailua Beach Park at locations 200' and 800' from the boat ramp.

(From "HAWAII SHORELINE EROSION MANAGEMENT STUDY, Overview and Case Study Sites - Makaha, Oahu; Kailua-Lanikai, Oahu; Kukuiula-Poipu, Kauai", by Edward K. Noda and Associates, Inc. and DHM, Inc., for the Hawaii Coastal Zone Management Program, June 1989.)

FIGURE 4

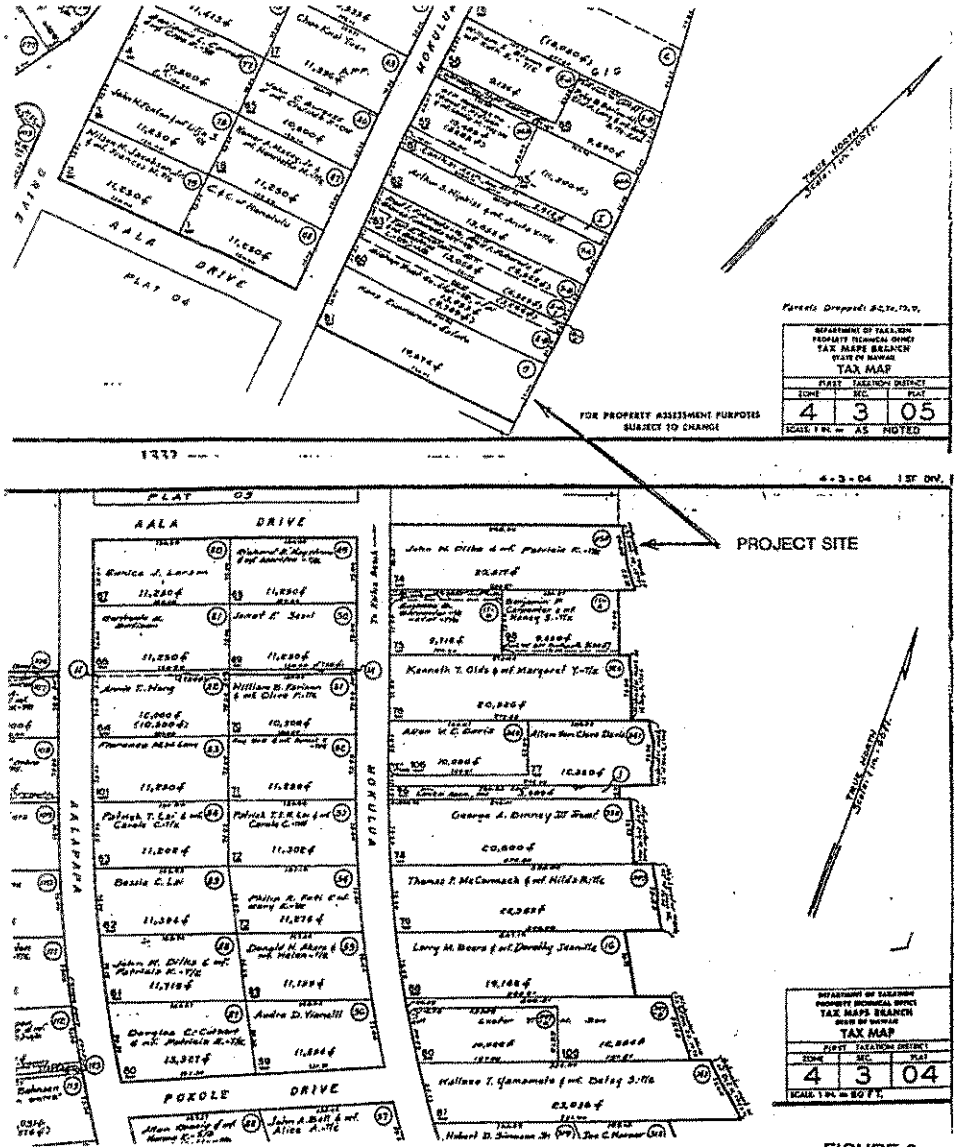
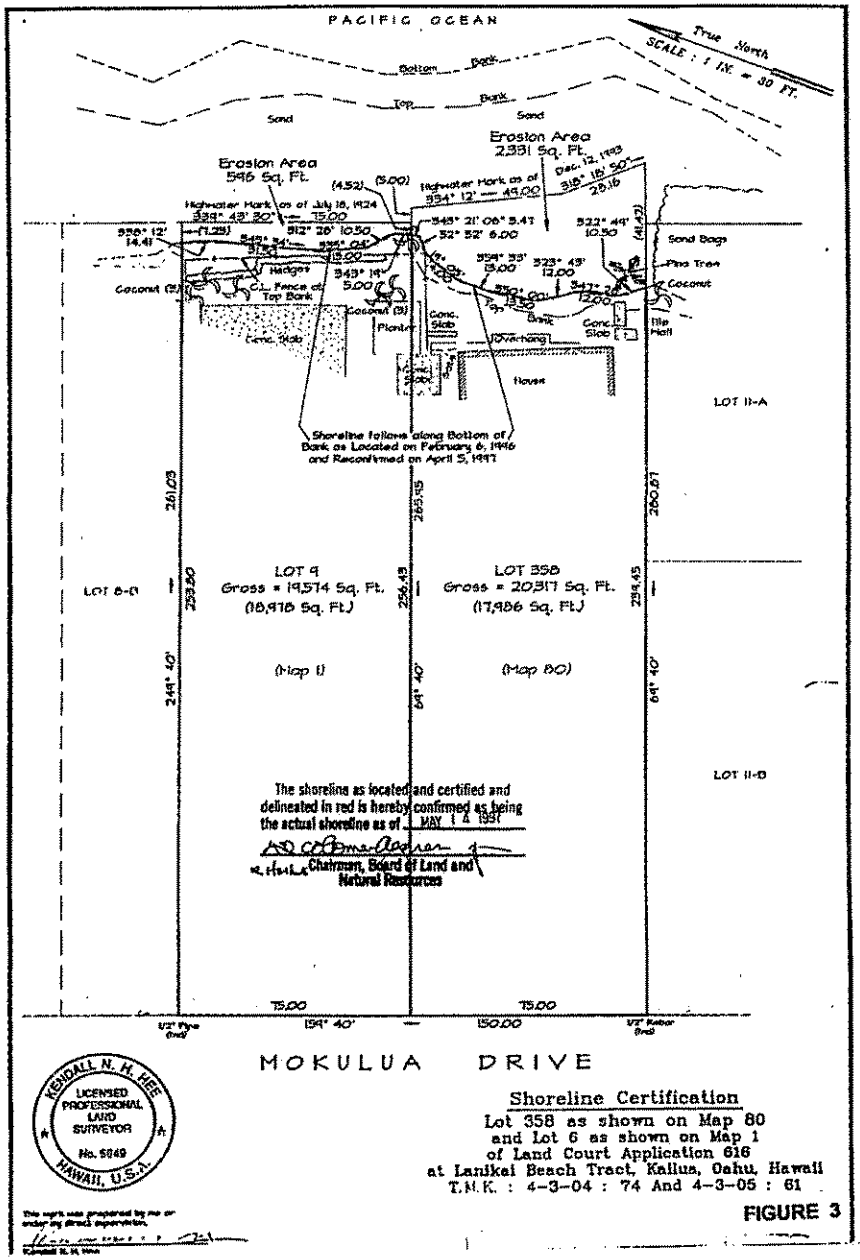


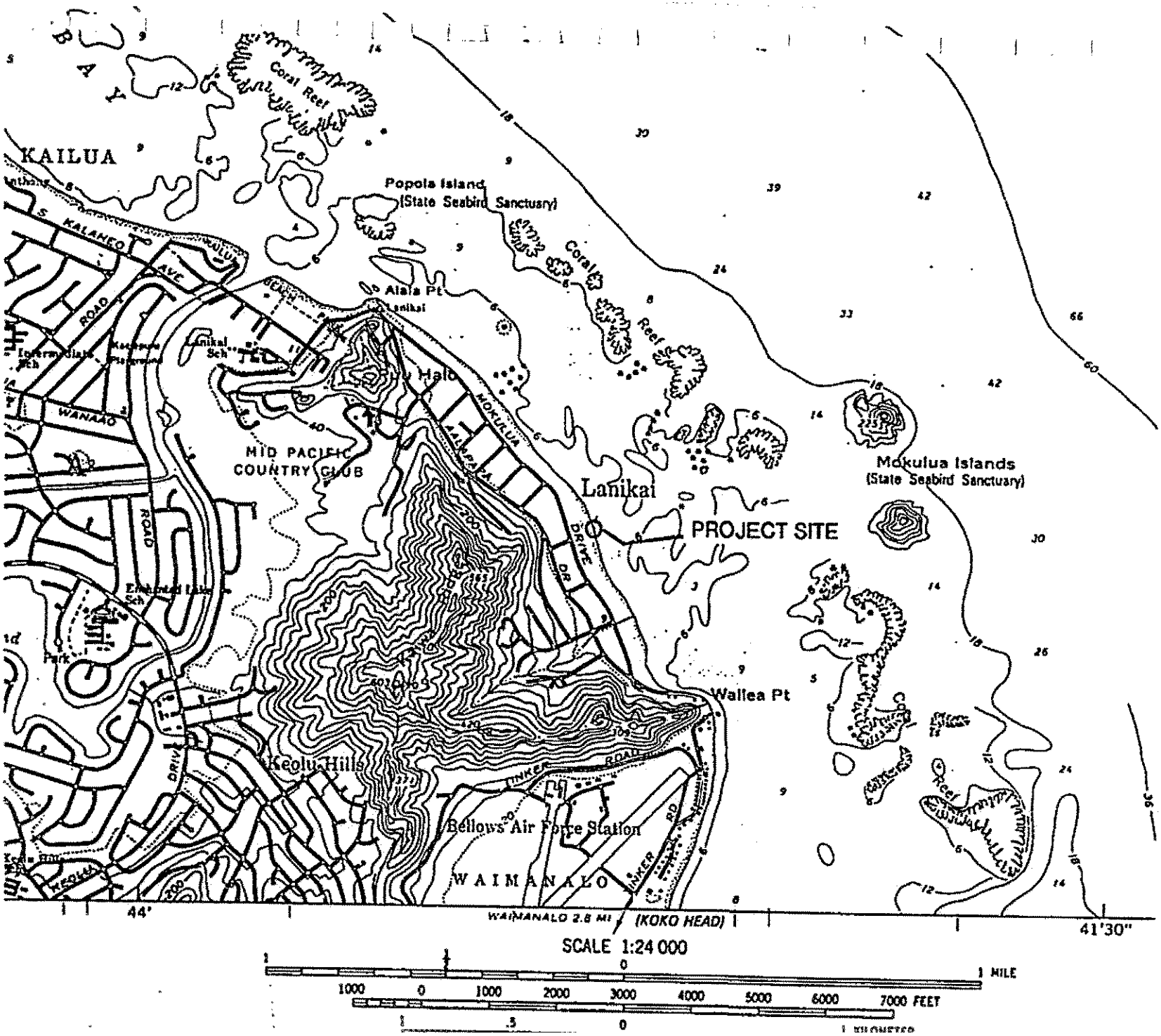
FIGURE 2



Shoreline Certification

Lot 358 as shown on Map 80
and Lot 6 as shown on Map 1
of Land Court Application 616
at Lanikai Beach Tract, Kailua, Oahu, Hawaii
T.M.K. : 4-3-04 : 74 And 4-3-05 : 61

FIGURE 3


KAILUA
Popoia Island
(State Seabird Sanctuary)
Coral Reef
Alala Pt
Lanikai
Lanikai Hale
MID PACIFIC
COUNTRY CLUB
Lanikai
PROJECT SITE
Mokulua Islands
(State Seabird Sanctuary)
Wailea Pt
Keolu Hills
Bellows Air Force Station
WAIMANALO
S. KALAHEO AVE
KALAHEO ROAD
WANAAO ROAD
MOKULUA DRIVE
AALAPAPA DRIVE
KEOLU DRIVE
KEOLU
TINKER ROAD
44'
41'30"
WAIMANALO 2.8 MI
(KOKO HEAD)
SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

FIGURE

vertical seawall as well as on the adjacent unprotected beach.

The erosion that is occurring along the Lanikai 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 building the proposed seawall at the Lanikai properties.

In the long-term, passive erosion will likely continue to affect adjacent unprotected properties. However, the consequence of not building the subject shore protection structure is the eventual loss of the house and other residential improvements to erosion damage. Because the existing improvements on the subject parcels (consisting of a 3,000 square feet slab-on-grade custom-designed house and adjacent pool) cannot feasiblely be relocated, the economic and environmental consequences of erosion damage to these improvements are very significant.

If and when a major beach replenishment/restoration program is implemented, the subject seawall and other shore protection structures will not adversely affect the design and performance of the restored beach. In fact, the existing shore protection structures will be beneficial to the long-term beach nourishment program. Periodic nourishment requirements cannot be predetermined with a high degree of assurance (because erosional forces are dependent on the wind/wave climate), and therefore severe erosion of the beach can result in damage to unprotected residential properties and improvements before renourishment can be implemented. However, if properties are already protected with a seawall or other shore protection measure, then this provides flexibility in the timeframe for planning and implementation of subsequent renourishment (for example, time to obtain the necessary funding, and to design and implement the renourishment), without the worry of imminent erosion or wave damage to residential improvements. Thus, a long-term beach replenishment/restoration program can be designed for the sole purpose of maintaining recreational beaches, rather than to serve in the additional capacity of providing shoreline protection.

Potential water quality impacts during construction of a seawall would be temporary and minor, since the seawall would be constructed entirely landward of the certified shoreline. To the extent practicable, the existing SEAbags would be left in place to form a protective berm, to protect the work area from wave uprush. This would minimize wave erosion and turbidity during the excavation to place the base of the seawall. Once the seawall is completed to a height of about 4 feet above MSL (above the height of normal wave uprush), there will be no potential water quality impacts during the remainder of the wall construction.

With respect to construction of a sloping revetment, there would be minor water quality impacts during excavation and placement of the stones. These impacts can be mitigated by performing the excavation during periods of low tide and using the larger stones to form a temporary berm that would protect the work area from wave action. This would minimize wave erosion and turbidity during excavation and would facilitate construction. There would be short-term impacts to beach access and use along this shoreline reach because, for safety reasons, public access within work limits may be restricted during the period of construction.

The toe of the revetment would be placed 3 feet below MSL and would rise at a 2:1 slope—2 horizontal to 1 vertical—to an elevation approximately 9 feet above MSL, at or slightly above the existing grade at the property shoreline. The revetment would be approximately 18 feet wide from top to bottom, with a 4-foot crest at the top that would be level with the grade of the property.

As shown in the drawings, the revetment would be aligned in a straight line across the front of the properties and sited as far landward as possible. On the northern parcel, the toe of the revetment would extend to the seaward Land Court property boundary. On the southern parcel, the toe would be landward of the Land Court property boundary. On both parcels, the revetment would extend seaward of the certified shoreline, so that a portion would be in the Shoreline Setback, administered by the City, and a portion would be in the Conservation District, administered by the DLNR. Both a Shoreline Setback Variance and a Conservation District Use Permit would be required.

Based on the plans prepared by the applicant's structural engineer (Figure 8), the following describes the main elements of the revetment:

- Filter fabric and a bedding layer of spalls to 10-inch stones placed on a slope of 2H: 1V. The filter fabric/ bedding layer serves as a foundation for the armor stones to prevent differential settlement into the sand.

- A 2-stone-thick layer of armor stones 900-1,600 pounds in weight (stones of approximately 2-foot diameter), which are large enough to prevent dislocation by storm waves. The larger rocks would be placed on the outer surface. The ends of the filter fabric would be wrapped around large end stones at the crest and toe of the revetment.

The ends of the revetment would be armored to prevent erosion from waves wrapping around the structure, in the event that the adjacent properties are not protected and are allowed to erode.

The SEAbags currently protecting the shoreline of the property would be opened and the sand released. Alternatively, some or all of the SEAbags may be moved away from the Dilks' property and reused in the Lanikai Beach Management Committee's pilot project.

6.0 POTENTIAL LITTORAL IMPACTS

Neither the proposed seawall nor the alternative sloping rock revetment will alter the existing littoral processes affecting the site. The entire southern end of the Lanikai shoreline has been experiencing net long-term erosion since 1970, and erosion has been steadily progressing northward into the middle segment of the Lanikai coast. Unless permanent shore protection is constructed, there is a high risk of damage to the foundation of the house and pool in the near term.

The seawall will not affect longshore sediment transport processes, but 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 the Lanikai 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 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[6], 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. Recent field studies conducted by 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-

[6]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.

5.0 DESCRIPTION OF PROPOSED ACTION

Because of the severity of the shoreline erosion fronting the subject parcels, there is little space between the certified shoreline and the house and swimming pool structures. The only type of structure which can physically be constructed landward of the certified shoreline (county jurisdiction only) is a near-vertical seawall. As discussed in Section 4.0 above, constructing a sloping revetment would entail extending the structure seaward into the State Conservation District and would require obtaining a Conservation District Use Permit. Although the Department of Land and Natural Resources has stated that it favors a vertical seawall in this situation, a plan for a sloping revetment has been prepared and is provided as an alternative to the vertical seawall (see Section 5.2 below).

5.1 Proposed CRM Seawall

A concrete reinforced masonry (CRM) seawall is a practical and visually attractive type of shore protection which has been constructed on many lots throughout Lanikai Beach. The seawall would be built landward of the certified shoreline[5] fronting both subject parcels. The seawall would extend along approximately 150 feet of shoreline frontage, with short return sections at each end. Figure 5 shows the proposed layout plan for the seawall and Figure 6 shows a typical section prepared by the property owner's structural engineer.

The top of the seawall would be at elevation 9 feet above MSL, which is at or slightly above the existing grade of the property shoreline. The bottom of the wall would be placed 3 feet below MSL (or on hard material if encountered at shallower depth). Therefore, the total height of the wall is 12 feet. The existing SEAbags that are still intact would be left in place along the seaward base of the seawall, to the extent practicable, to provide additional scour protection and to facilitate construction of the wall. At present, there is little or no dry sand beach fronting the project site (i.e., waves reach the SEAbag revetment during high tide). Therefore, if not for the existing SEAbags, it would be very difficult to build the seawall because wave uprush would inundate the work area.

[5]The February 12, 1996 shoreline survey was submitted for certification. The shoreline was certified by the State Land Surveyor on June 12, 1997.

The seawall would be constructed of rock set with cement mortar, using very large rocks at the base of the wall and smaller rocks near the top. The bottom width of the wall would be 7.5 feet. Because of the requirement to build the seawall entirely landward of the certified shoreline, the landward base of the wall would be within about 8 feet of the foundation of the house at its closest point, and within about 10 feet of the concrete slab of the pool. Temporary shoring may be required to stabilize the excavation side slope during construction.

Because the top of the wall would not extend much above the existing shoreline elevations, wave overtopping can occur during high tides and storm wave attack. Therefore, weepholes would be provided to relieve hydrostatic pressures that could result in damage to the wall or formation of sinkholes landward of the wall.

To facilitate access to the beach, stairs would be constructed at about midpoint near the boundary between the two subject parcels. No portion of the stairs would extend seaward of the certified shoreline.

At both ends, the seawall would turn mauka and extend approximately 20 feet landward along the side property boundaries. The flank sections of the wall would be virtually identical to the seaward section, except that the footing need not be extended as deep. Because wave crests are nearly parallel with the beach, the flank walls will not be subject to scouring problems. Their function is to prevent erosion on the back-side of the seawall in the event that the adjacent properties are not protected and are allowed to erode. Because the seawall must be built entirely within the Dilks' property, there is very little room to build the flank sections.

The top of the wall will have a green chainlink fence, bronze anodized railing or similar dark-colored fence or railing approximately 42 inches above grade. This is needed for safety.

5.2 Revetment Alternative

As a proposed alternative, a sloping rock revetment would be built along the certified shoreline fronting both parcels. It would extend along the 150 feet of shoreline frontage, with short return sections at each end. Figure 7 shows the proposed layout plan for the revetment, and Figure 8 shows a typical section.

structure, if damaged due to an extreme storm event, is also very costly due to difficulty in accessing the structure with conventional land equipment.

For individual residential property owners, seawalls and revetments are the most viable methods of protecting the shoreline from wave attack. Seawalls are vertical or near-vertical structures, typically concrete or grouted rock masonry walls. Revetments are sloping structures typically constructed using rock of sufficient size to remain stable under design wave attack, although there are a variety of manufactured systems and materials used to build sloping revetment structures. Seawalls are generally less costly to construct than revetments since they can be built using smaller building materials than rock revetments and require much less total quantity of building material. Near-vertical seawalls also occupy less space along the shore than sloping revetments, and their narrow footprint maximizes use of the backshore areas as well as minimizing encroachment into the public shorefront seaward of the structure.

For sandy shorelines, vertical impermeable seawalls are generally not as desirable as permeable rock revetments because of their high reflectivity, which can cause scouring of the sand in front of the structure and can lead to undermining at the base of the wall if the seawall is not founded on hard material. For beach environments, rock revetments are more effective in dissipating wave energy and are not prone to catastrophic damage due to its flexibility. However, revetments must be properly designed such that the armor layer is stable under design wave attack, and with proper provisions for underlayer(s) and filter material to prevent leaching of the foundation or backfill material through the voids in the rock layers. Revetments can also suffer scouring of sand in front of the structure, and the revetment toe must be designed to prevent undermining at the base of the rock slope, which can lead to slumping or unraveling of the rock slope. Because revetments occupy substantial space on the shoreline due to their sloping face and multiple rock layers, in some cases there is insufficient space between the certified shoreline and the dwelling to construct a revetment because of the substantial erosion that has already occurred.

To construct a sloping revetment on the Dilks' property would entail building a portion of the structure seaward of the certified shoreline, within the jurisdiction of the State Conservation District. This would necessitate applying for and obtaining a Conservation District Use Permit from the State Board of Land and Natural Resources. It could also require a permit from the U.S. Army Corps of Engineers.

The placement of SEAbags for interim shore protection, as has been used at the subject property to provide a protective revetment slope, is effective but cannot be considered a permanent measure. The bags are prone to damage from storm wave attack and vandalism, and can require frequent and continual maintenance. The cost of materials and labor to install the bags is less than $300 per linear foot of revetment (assuming that in-situ sand is used to fill the bags). But considering the potential long-term maintenance requirement, the total cost over 25 years can be greater than the cost of initially constructing a permanent shore protection structure. 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 probably is more reflective than a rock revetment, for the same slope. 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 safety problems 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.

In summary, the City and County of Honolulu has made concerted effort over the last ten years to enforce the shoreline setback rules and regulations in a way that would minimize potential impacts to the beach and shoreline at Lanikai. Unpermitted seawalls were required to be replaced with sloping rock revetments, and sand bags were required to be used in lieu of permanent shore protection as an interim measure in hopes that the erosion trend may diminish or reverse. As of this date, the long-term erosion trend is continuing, and there is no evidence of significance difference in beach response related to the types of shore protection structures that have been built. Construction of the proposed seawall would not foreclose the possibility of future restoration of a wide beach strand, whether by natural or artificial means. In the 1960's and 70's, seawalls were built along other portions of Lanikai Beach which were then suffering erosion but have subsequently experienced accretion. Along the middle part of Lanikai Beach, accreted sand has built up the beach in front of the seawalls, in some cases almost to the full height of the walls. The history along Lanikai Beach gives evidence that the presence of a seawall does not preclude natural beach accretion.

4.0 CONSIDERATION OF ALTERNATIVES

Beach restoration and nourishment would be the preferred alternative for the entire southern end of Lanikai. Unfortunately, this alternative is costly 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 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. In fact, sand is periodically barged to Hawaii from overseas locations (such as Australia) for commercial sale to golf courses at premium cost. For beach restoration programs, the actual "cost" of implementation includes the regulatory (EIS/permits), design, initial construction, and periodic nourishment costs. All phases involve substantial commitment of resources, clearly beyond the financial capability of individual residential landowners.

An offshore breakwater structure would be a suitable alternative to mitigate continued erosion damage. A low profile offshore breakwater would not significantly affect scenic views while still serving to dissipate the incoming wave energy, thereby forming a protective area in the lee of the structure. Since littoral sediment transport processes require breaking wave energy to transport the littoral materials at the shoreline, a reduction of the incident wave energy will directly reduce erosion in the lee of the breakwater. Access to the beach and nearshore waters would not be affected by the offshore structure. However, the breakwater must be properly designed to function adequately. For example, it must have adequate dimensions (length, width, height) to dissipate storm wave energy, it must be built with materials that will maintain its structural integrity under storm wave attack (large boulders or concrete armor units), and it must not affect nearshore circulation in a way that may cause water quality problems or dangerous currents. Offshore breakwater construction is costly and carries a higher risk than onshore construction. Repair or maintenance of the

the beach. The SEAbags on the adjacent properties did not survive the 1995-1996 winter season very well. The SEAbag revetment on adjacent parcel 98 had to be rebuilt in February-March 1996, and by that time, the property owner of the two subject parcels had suffered extensive erosion damage. Photos 1 through 8 show the condition of the subject properties and adjacent properties in February-March 1996.

Whether the SEAbag work undertaken on the adjacent parcels aggravated the erosion on the subject parcels is speculative. However, the erosion that was experienced during that 1995-1996 winter season was particularly severe, prompting the subject property owner to also construct a SEAbag revetment as an emergency shore protection measure. The SEAbag revetment on the subject parcels was initiated in April 1996 and was substantially completed in May 1996. Photos 9 through 11 show the completed SEAbag revetment on the subject parcels and the condition of adjacent properties in June 1996. In November 1996, severe winter waves caused additional damage to the already deteriorated SEAbag system on the adjacent parcels, and also caused some damage to the SEAbag revetment on the subject parcels. Erosion damage to the adjacent unprotected property on the north side of the subject parcels also occurred. In early 1997, the subject property owner replaced the damaged SEAbags to restore the condition of his SEAbag revetment.

Photos 12 through 17, taken in May 1997, show the existing condition of the SEAbag revetment on the subject parcels and the condition of adjacent properties. Note that the shoreline fronting the adjacent properties to the south is continuing to be modified by placement of SEAbags, removal of prior SEAbags that were damaged, placement of additional beach sand obtained from offsite source(s), and possibly mechanical re-distribution of sand in the nearshore area. While the details are unclear, apparently the work is being done as part of a demonstration pilot project for beach replenishment by the Lanikai Beach Management Committee.[4] A Departmental Permit for use within the Conservation District was issued by the Board of Land and Natural Resources on June 3, 1996 for the demonstration beach replenishment project. A condition of the permit was the requirement to perform pre-, during-, and post-construction beach profile monitoring and topographic monitoring for at least a year. The first monitoring report for the "Pilot Research Project" was filed in September 1997 by David Lipp, the coastal engineer who is monitoring the project on a volunteer basis. The report

[4]Reference: Conservation District Use Application for a Demonstration Pilot Project for Beach Replenishment on State-owned Submerged Lands Identified as Offshore at Kailua, Oahu, File No. OA-2802, dated May 31, 1996, Department of Land and Natural Resources.

includes time series graphs of beach profiles for five transects along the shoreline. Each graph shows data from four observations made between September 1995 and June 1997. Attached as Appendix A, Lipp's report states that sand movement into the area over time is due to environmental conditions, not the SEAbags themselves. According to Lipp, *"What is important to note is that the sandbags did not prevent the beach from reforming."*

The monitoring report and its conclusions were reviewed in a memorandum dated September 8, 1997, which is attached as Appendix B. In summary, the review:

(1) concurred with Lipp's conclusions and commented on the seasonal movement of sand on Lanikai Beach;

(2) pointed out that there was no evidence of restoration of any dry beach area and that, without the SEAbags protecting the properties, there could have been greater loss of fastlands;

(3) observed that quarterly measurements would account for seasonal changes and provide more meaningful data; and

(4) observed that the monitoring report lacks any description of the work actually performed over the 21-month period, including the amounts of sand added to the littoral system and the various configurations of SEAbags tested.

In any event, the "Demonstration Pilot Project" is limited to a small portion of the Lanikai shoreline and is unlikely to benefit the Dilk's property or the adjacent properties to the north. As stated in the Conservation District Use application, it is experimental in nature. To date, there is no known plan to undertake a comprehensive beach replenishment/restoration program.

In Photo 17, note also that seawalls are now exposed on two parcels to the north of the subject parcels (TMK: 4-3-05:62 and 63). Located on the south side of a public right-of-way (TMK:4-3-05:87), these seawalls were probably built some time ago but were obscured with vegetative growth because this section of beach had accreted and was relatively stable until recent times. With this past winter storm wave damage to the shoreline area, the seawalls are now fully exposed.

3.0 HISTORIC BEACH AND SHORELINE CHANGES

Data from a prior study[2] indicates that the southern end of the Lanikai shoreline has experienced considerable accretion and subsequent erosion over a long-term period from 1950 to the 1980s, while the middle segment has been relatively more stable. It is evident that the erosion trend is continuing at present, and progressing into the middle segment.

Between 1950 and 1970, the southern end of Lanikai accreted substantially, a maximum of about 200 feet near the Lanipo Drive drainage channel. Over a 2,500 feet length of shoreline north of Wailea Point, average accretion of the vegetation line was 50 feet and about 90 feet for the beach toe line, over the 20-year period. From 1970 to the early 1980s, this shoreline reach eroded back to the approximate 1950s position. Most of the seawalls were constructed in response to this erosion cycle. This long-term accretion-erosion cycle was not unique to Lanikai, as similar shoreline movement occurred at Kailua Beach Park. Figure 4a shows the average cumulative movement of the shoreline at the southern end of Lanikai, and Figure 4b shows the historical shoreline movement at Kailua Beach Park at the location of two transects northward of the boat ramp. The long-term accretion-erosion cycle was a natural process, possibly caused by shifts in wind and wave patterns. In general, long-term cycles have been observed in meteorological trends and it has been postulated[3] that there is a cycle with an appropriate period involving the variation in mean direction of the tradewinds near the Hawaiian Islands.

The seawalls and revetments armoring the entire southern end of Lanikai were constructed in response to the erosion cycle to protect existing residential improvements, and were not the cause of the erosion. Their influence now, however, may be to discourage sand buildup because of the increase in reflectivity. Deficit of sand along this southern end of Lanikai is causing a gradual shift of the erosion trend northward into the middle segment of the Lanikai coast which historically has been relatively stable. The project site is in the transition zone between the armored

[2]Based on analysis of historical aerial photos as described in the study report "HAWAII SHORELINE EROSION MANAGEMENT STUDY, Overview and Case Study Sites (Makaha, Oahu; Kailua-Lanikai, Oahu; Kukuiula-Poipu, Kauai)", prepared by Edward K. Noda and Associates, Inc. and DHM Inc., for the Hawaii Coastal Zone Management Program, Office of State Planning, June 1989.

[3]Wyrtki, K. and G. Meyers, (1975), "The Trade Wind Field Over the Pacific Ocean - Part 1. The Mean Field and the Mean Annual Variation", Hawaii Institute of Geophysics Report HIG-75-1.

southern end of Lanikai and the middle segment that has undergone relatively small fluctuations in the position of the shoreline and beach. Because there is no evidence that the long-term erosion cycle in the vicinity of the project site is likely to reverse, the subject property owner and others to the north will likely suffer progressive erosion damage, and have little recourse but to build shore protection structures to prevent erosion damage to their homes.

About seven years ago, four property owners with unpermitted seawalls were required to remove the walls and replace them with sloping revetment structures. The prevailing opinion at that time was that sloping revetment structures were less harmful to the beach than vertical seawalls. These four contiguous properties are located about 200 feet south of the project site, on the south side of the public right-of-way (TMK:4-3-4:96). The property on the immediate north side of the public right-of-way (TMK: 4-3-4:77) was the last armored property along this southern reach at that time, also with an unpermitted shore protection structure.

After lengthy litigation with the City and County, a settlement agreement was reached with the property owner of parcel 77. The settlement agreement required that the unpermitted rock slope be removed and a system of sand-filled bags would be used initially to construct a protective revetment structure. Because the Lanikai Community Association was considering pursuing a comprehensive plan for replenishment or restoration of sand along the Lanikai shoreline, the sand bag system would serve as interim protection until such time as the beach was restored. However, because of the uncertainty of the beach restoration program and the questionable long-term durability of the sand bag revetment under storm wave attack and continued beach erosion, the property owner would be permitted to construct a permanent rock revetment if and when the sand bag revetment does not serve to adequately prevent erosion and wave damage to the property. The settlement agreement also included the adjacent parcel 76 (on the north side of parcel 77) and parcel 96 (the public right-of-way on the south side of parcel 77).

The sand bag work was initiated in late 1995. By February 1996, SEAbags had been placed along parcels 77, 76 and 98 (parcel 98 is adjacent to subject parcel 74). SEAbags were not only stacked along the shoreline embankment, but were also placed seaward of the shoreline to form a somewhat protective breakwater berm seaward of the beach toe. The offshore berm was apparently intended to function by tripping the waves and, in the process, trapping suspended sand landward of the berm to rebuild

2.0 SHORELINE CHARACTERISTICS AND COASTAL PROCESSES

Lanikai's beaches have been undergoing net long-term erosion over the past 30 years or so. The coastal reaches at both the northern and southern end of Lanikai are devoid of dry beach, and beach erosion is progressing towards the middle section of this coastline. Various types of seawalls and revetments protect about 2,500 feet of shoreline reach northward of Wailea Point (at the south end of Lanikai) and about 1,500 feet of shoreline reach southward of Alala Point (at the north end of Lanikai). A narrow beach remains along about 3,000 feet of shoreline in the middle segment, but erosional processes are continuing to affect this reach with the starving of sediment from the endpoints of the Lanikai coast.

The project site is located at the southern boundary between the "unprotected" middle segment and "armored" southern end of Lanikai. Beach and shoreline erosion has been steadily progressing northward into the "unprotected" middle segment. Where a narrow dry beach (above the limits of typical wave uprush during high tide) fronted the project site about 7 years ago, now there is no dry beach as well as additional loss of about 10-20 feet of shorefront property. The shoreline escarpment is within about 10 feet of the house foundation on parcel 74, which prompted the owner to construct emergency SEAbag protection.

Figure 3 is a shoreline survey that was performed in February 1996 just prior to the placement of the SEAbags. The SEAbags were stacked against the shoreline embankment to prevent further erosion of the property which could lead to damage to the house foundation. If not for the SEAbags, the large winter waves of November 1996 would certainly have caused more serious damage to the house. Although significant wave overtopping and wave splash carried sand and water onto the property and dwelling, the SEAbags prevented significant additional shoreline erosion and potential undermining of the house foundation. However, in preventing significant additional erosion of the shoreline, the SEAbag protective structure did suffer damage from these storm waves, compromising the integrity of the structure. Storm wave damage, coupled with the ongoing problem of vandalism (bags intentionally or unintentionally cut by beach users and fishermen), had resulted in significant damage and loss of individual SEAbags within a 6-month period following the initial placement of the emergency structure. The owner subsequently replaced the damaged bags to restore the SEAbag revetment structure to its approximate original configuration.

Although the wave climate along the Lanikai shoreline is relatively mild because of the protection afforded by the shallow offshore fringing reefs and islands, ongoing beach erosion threatens properties and homes that are not fronted by wave protective structures. Typical nearshore wave heights are 1 foot or less, with typical maximum wave heights less than 2 feet. Extreme breaking wave height at the shoreline is estimated to be less than 4.8 feet at the project site.

Beaches protect the shoreline by dissipating wave energy through wave breaking and runup processes. However, as beaches narrow because of ongoing erosion processes, more wave energy reaches the shoreline or "fastlands" mauka of the beach, causing erosion damage to the private properties. Property owners typically lose substantial property area and are faced with increasing danger of losing houses and other improvements to erosion damage before they are compelled to expend substantial amounts of money to erect shore protection measures. As in this case for the subject project, combined loss to erosion of almost 3,000 square feet has occurred for the two parcels, and erosion is threatening the foundation of the house and pool.

The nearshore wave approach patterns are complex due to interactions between the wave trains and the irregular offshore reefs and islands. In general, within the Lanikai littoral cell, net transport is predominantly northward from Wailea Point during summer months due to easterly tradewind-generated waves and southeasterly swell that may reach this coastal area, and southward from Alala Point during winter months due to North Pacific swell. This accounts for the greatest loss of beach at the endpoints of the Lanikai littoral cell, and the greater stability of beach area within the middle segment. Because there is a deficit of sand at the southern end of Lanikai, there is little sand transport towards the project site during predominant easterly tradewind wave conditions. During periods of more northerly tradewind waves and in winter months when northerly swell can occur, southward longshore transport of sand from the beaches in the middle segment of Lanikai can result in some buildup of sand along the project reach. However, because winter North Pacific swell can be more energetic than typical tradewind waves, they can also cause more wave damage to properties that are already vulnerable to erosion damage because of narrow or non-existent dry beach area.

Edward K. Noda
and
Associates, Inc.

Engineers
and
Environmental
Consultants

Engineering
Planning
Surveys
Computer
Modeling

615 Piikoi Street
Suite 300
Honolulu, Hawaii
96814-3116

Telephone:
(808) 591-8553
Facsimile:
(808) 593-8551

COASTAL ENGINEERING EVALUATION FOR A SHORE PROTECTION STRUCTURE AT LANIKAI, OAHU, HAWAII (TMK:4-3-4:74 and 4-3-5:61)

Prepared by:

Edward K. Noda and Associates, Inc.
615 Piikoi Street, Suite 300
Honolulu, Hawaii 96814

(EKNA Control No. 1781)

December 1997
(Revised)

1.0 LOCATION AND PROBLEM IDENTIFICATION

The project site is located along two (2) contiguous parcel shorefronts at Lanikai, at 1286 and 1302 Mokulua Drive (TMK: 4-3-4:74 and 4-3-5:61). Both parcels are owned by John Dilks. Figure 1 shows the general site location and Figure 2 provides portions of the Tax Map Key for both parcels.

Because of severe ongoing erosion to these two parcels, particularly during the 1995-1996 winter season, emergency sandbag protection was initiated in April 1996 and completed in May 1996. The SEAbags[1] were placed along the eroded escarpment to form a protective slope. Authorization for this work was obtained from the State of Hawaii Department of Land and Natural Resources (DLNR) and from the U.S. Army Corps of Engineers. Coordination with the City and County Department of Land Utilization was also undertaken.

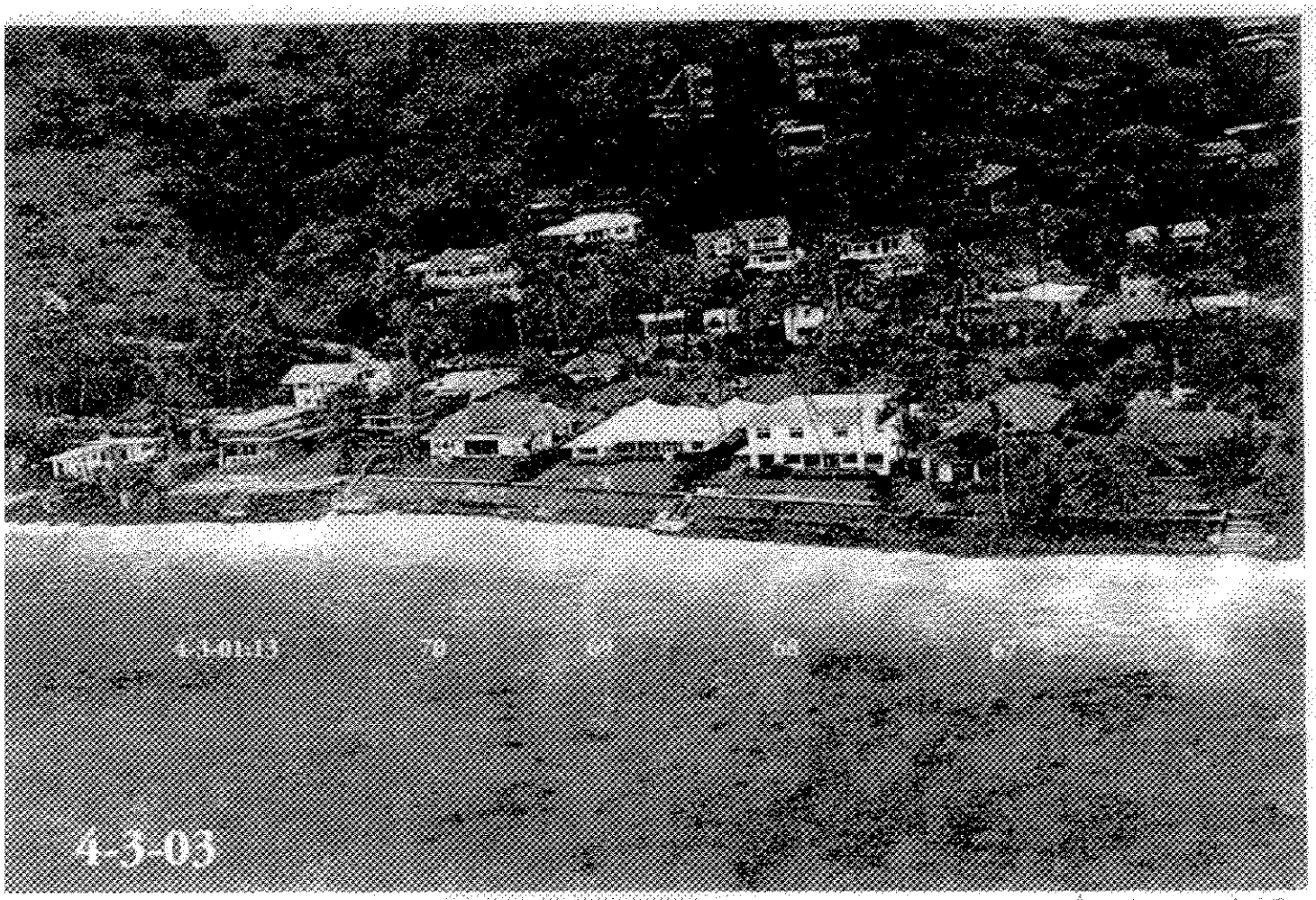
Unusually large North Pacific swell during November 1996 caused severe shoreline erosion and wave overtopping damage to the windward Oahu coastline. While properties adjacent to the subject parcels suffered additional erosion damage, the emergency sandbag protection prevented significant additional damage to the shoreline embankment fronting the subject properties. However, damage and loss of individual SEAbags did occur, causing slumping of the protective structure and scouring at the crest. Significant wave overtopping also caused sand and water damage to the house and property.

Because the beach fronting this Lanikai coastline is continuing to erode, and because the SEAbag structure was intended as only a temporary emergency measure, the property owner desires to construct a permanent shore protection structure. In accordance with Ordinance No. 92-34 and the Shoreline Setback Rules and Regulations of the City and County of Honolulu, this coastal engineering evaluation is prepared in support of an application for a Shoreline Setback Variance for a permanent shore protection structure extending across the two subject parcels.

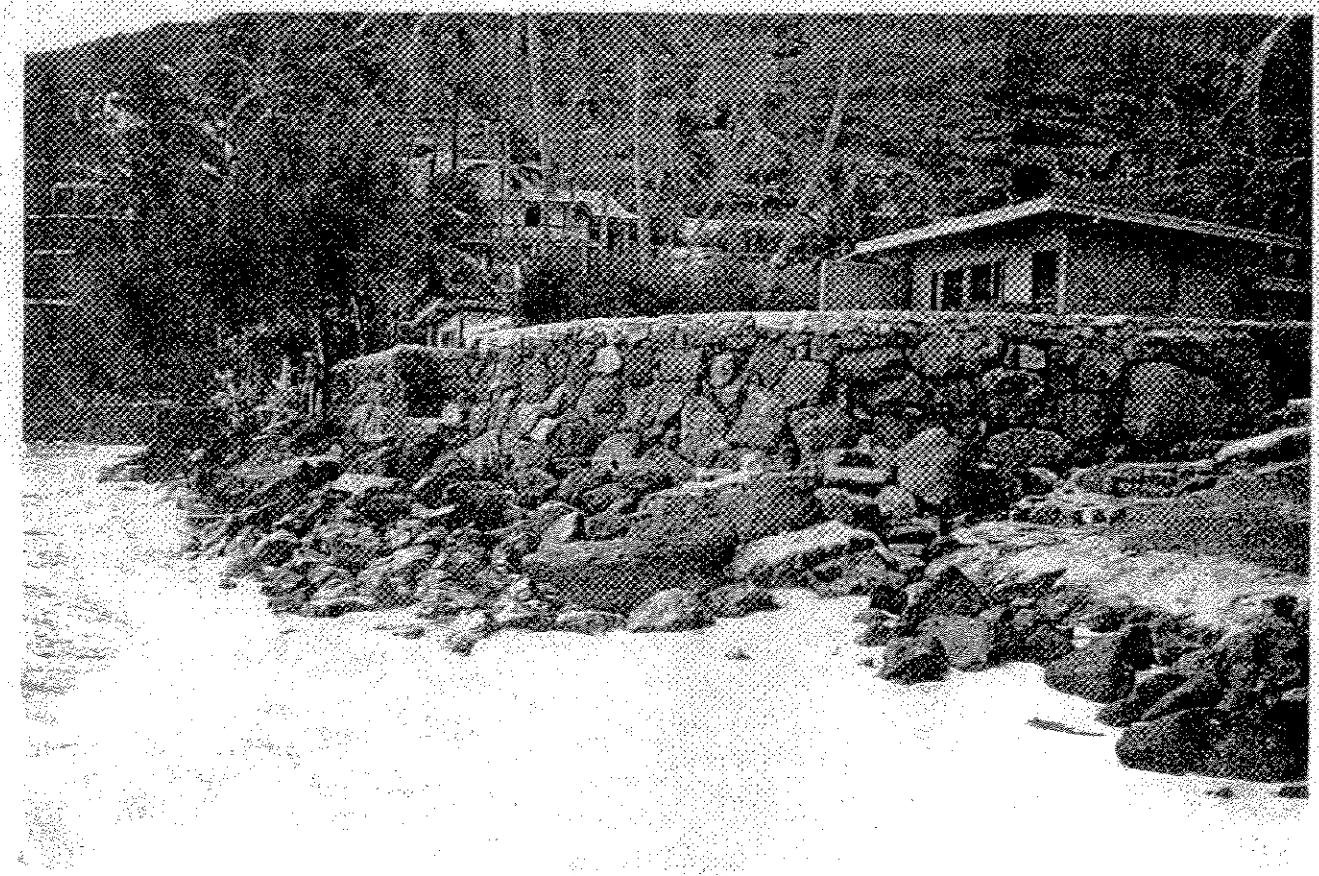
[1]Trade name for large sand bags from Bulk Lift International, designed for beach erosion protection.

APPENDIX D

COASTAL ENGINEERING EVALUATION REPORT



4-15-1989



4-3-01:13 OCT 2, 1991

APPENDIX B

SHORELINE CERTIFICATIONS

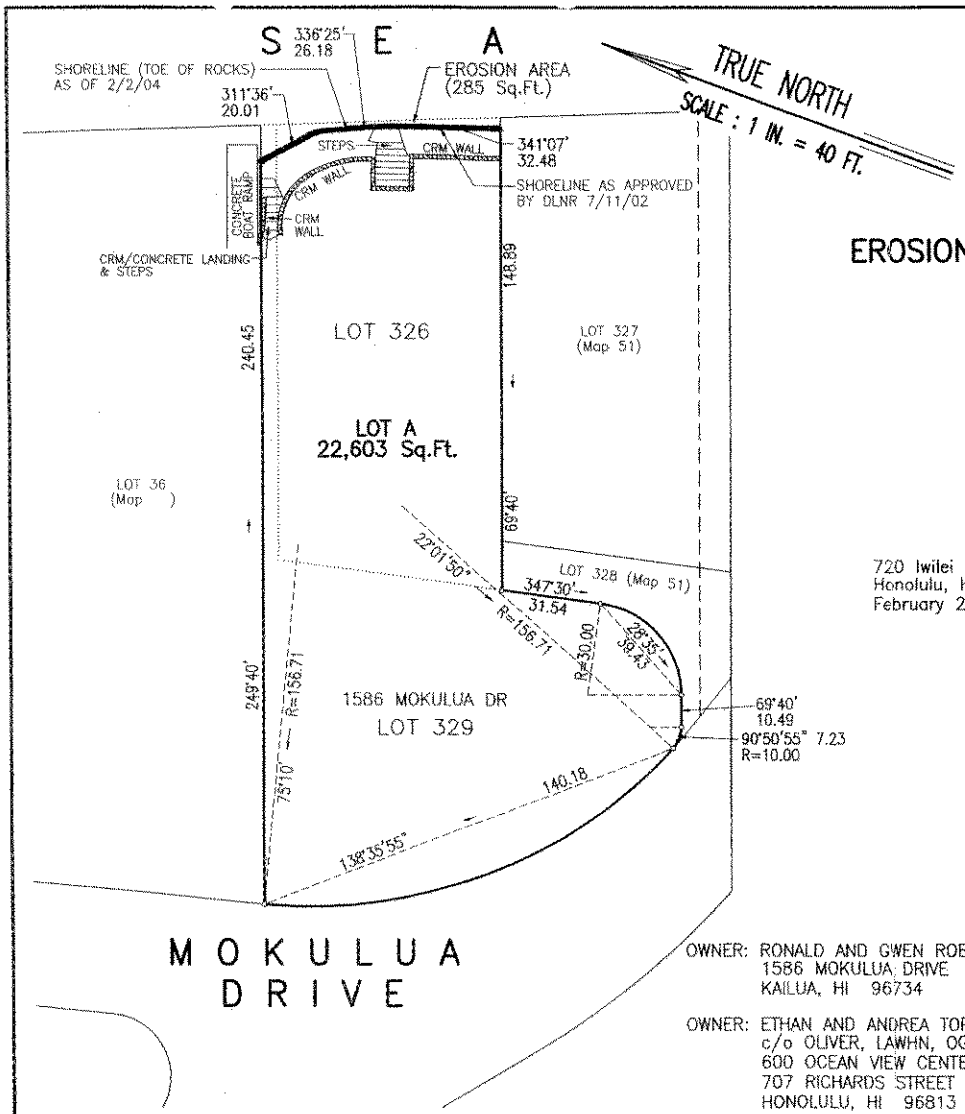
MAP

LAND COURT

STATE OF HAWAII

LAND COURT APPLICATION 616

EROSION TO LOTS 326 AND 329 AS SHOWN ON MAP 51 AND THE CONSOLIDATION OF LOTS 326 AND 329 LESS EROSION INTO LOT A AT KAILUA, KOOLAUPOKO, OAHU, HAWAII



720 Iwilei Road
Honolulu, Hawaii
February 2, 2004

JAMES R. THOMPSON
LICENSED PROFESSIONAL LAND SURVEYOR
No. 3627
HAWAII, U.S.A.

WALTER P. THOMPSON, INC.

Licensed Professional Land Surveyor
Certificate 3627
Land Court Surveyor No.178

OWNERS: ETHAN and ANDREA TOPPER
RONALD and GWEN ROBINSON

TRANSFER CERTIFICATE OF TITLE:

The shoreline as located and certified and delineated in red is hereby confirmed as being the actual shoreline as of APR 1 4 2004

Chairman, Board of Land and Natural Resources

AUTHORIZED AND APPROVED BY ORDER OF THE JUDGE OF THE LAND COURT DATED _____
BY ORDER OF THE COURT.

REGISTRAR OF THE LAND COURT

OWNER: RONALD AND GWEN ROBINSON
1586 MOKULUA DRIVE
KAILUA, HI 96734

OWNER: ETHAN AND ANDREA TOPPER
c/o OLIVER, LAWHN, OGAWA & NAKAMURA
600 OCEAN VIEW CENTER
707 RICHARDS STREET
HONOLULU, HI 96813

01219O1.dwg/dc/jul02

Shoreline Notices

April 23, 2004

Shoreline Certifications and Rejections

Pursuant to §§13-222-26, HAR the following shorelines have been proposed for certification or rejection by the DLNR. Any person or agency wishing to appeal a proposed shoreline certification or rejection shall file a notice of appeal in writing with the department no later than 20 calendar days from the date of the public notice of the proposed shoreline certification or rejection. The Notice of appeal shall be sent to the BLNR, 1151 Punchbowl Street, Room 220, Honolulu, HI 96813.

Case No.	Actions Under New & Old Shoreline Rules	Location	Applicant	TMK
HA-066-2	3/31/04 Rejected	Portion of RP 4475, Land Commission Award 7713, Apana 43 to V. Kamamalu, land situated at Hoilaulea 1st and 2nd, North Kona, Island and County of Hawaii Address: 76-6274 Alii Drive Purpose: Building Permit	Wes Thomas Associates/Kim Bryant	7-6-14: 13
OA-974	Proposed Shoreline Certification 4/14/04	Lot 107 of Land Court Application 1100 (Map 21), land situated at Heeia, Koolaupoko, Island of Oahu, Hawaii Address: 46-109 Lilipuna Road Purpose: Building Permit	Wesley T. Tengan/ Kenneth Simon	4-6-03: 06
OA-183-2	Proposed Shoreline Certification 4/14/04	Lot 62-A of Pupukea-Paumalu Beach Lots, land situated at Pupukea and Paumalu, Koolauloa, Island of Oahu, Hawaii Address: 59-271 Ke Nui Road Purpose: Determine Building Setback	Jamie F. Alimboyoguen/ Summer Tree Hotels and Resorts, Ltd	5-9-19: 48
OA-694A-2	Proposed Shoreline Certification 4/14/04	Lots 1 and 2 of Evershine VIII Tract (F.P. 2271) and Lot 4-A of the Subdivision of 4 and Lot 5 of Portlock Road Subdivision No. 2 (F.P. 2193, land situated at Maunalua, Island of Oahu, Hawaii Address: 525, 535 & 567 Portlock Road Purpose: New Structure	Sam O. Hirota, Inc./Evershine VIII, L.P.	3-9-26: 44-45 and 47-48
OA-870-2	Proposed Shoreline Certification 4/14/04	Lots 326 and 329 as shown on Map 51 Land Court Application 616, and the Consolidation of Lots 326 and 329 Less Erosion into Lot A, land situated at Kailua, Koolaupoko, Island of Oahu, Hawaii Address: 1586 Mokulua Drive Purpose: Consolidation	Walter P. Thompson, Surveying and Mapping, Inc/Jason Topper, etal	4-3-01: 12 and 13

Environmental Tip

Avoid Hardening of the Shoreline

Hardening of the shoreline should be considered the erosion management option of last resort, and it's use should be avoided if other options are available. In addition, development in coastal hazard zones, including erosion hazard zones and coastal flood zones should be avoided in order to: (1) prevent the inevitable financial and personal hardships that befall individuals and families, and the expenditure of public funds that accompany the occurrence of coastal hazards on developed shorelines; (2) prevent the inevitable need to harden the shoreline where there is chronic erosion and the resulting loss of public beaches, lateral shoreline access, open space and view corridors, and littoral sand due to sediment impoundment behind walls; (3) mitigate threats to inhabited structures, and public infrastructure from coastal hazards; and (4) avoid the need for future public expenditures in responding to damage caused by hurricanes, tsunami, high wave impacts and other coastal hazards.

See OEQC's website at *www.state.hi.us/health/oeqc/index.html* for guidelines on shoreline hardening.

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 15, 2004

OA-870-2THOMPSONSL-P
L-2047

LD-NAV

Walter P. Thompson, Inc.
James R. Thompson, LPLS
720 Iwilei Road, Suite 427
Honolulu, Hawaii 96801

Dear Mr. Thompson:

Subject: ACCEPTANCE OF PROPOSED SHORELINE CERTIFICATION
Applicant: Walter P. Thompson, Inc./Topper, etal
Island: Oahu - District: Kailua, Koolaupoko
TMK: (1) 4-3-01: 012 and 013

The State Land Surveyor has recommended certification of the subject shoreline certification application. We have submitted this proposed certification for publication in April 23, 2004 OEQC Environmental Notice to allow for appeals. Any person wishing to file an appeal shall have twenty (20) days from the publication. If no appeals are received, the Chairperson will certify the shoreline and we will send you the signed maps.

If you have any questions, please feel free to contact Mr. Nicholas Vaccaro at (808) 587-0384. Thank you.

Sincerely,

DIERDRE S. MAMIYA
Administrator

cc: ODLO

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
Comptroller

KATHERINE R. THOMASON
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING
AND GENERAL SERVICES
SURVEY DIVISION
P.O. BOX 119
HONOLULU, HAWAII 96810-0119

Response Refer to:
O-48(04)
OA-870-2

April 14, 2004

Shoreline Determination
T.M.K.: 4-3-01:12 & 13
Kailua, Koolaupoko, Oahu, Hawaii

RECEIVED
LAND DIVISION
2004 APR 14 A 9:46
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Ms. Dierdre S. Mamiya, Administrator
Land Division
Dept. of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii

Attn.: Mr. Nicholas Vaccaro, Land Agent

Dear Ms. Mamiya:

Your request dated February 18, 2004 for shoreline determination has been reviewed.

The State of Hawaii should have no objections to adopting the toe of rocks as the shoreline as delineated on the map prepared by Mr. James Thompson, Licensed Professional Land Surveyor.

Nine (9) copies of the map are enclosed for your approval. Upon certification, please return the copy marked "SURVEY OFFICE COPY" to the Survey Division.

Very truly yours,

Randall M. Hashimoto
RANDALL M. HASHIMOTO
State Land Surveyor

Enclosures

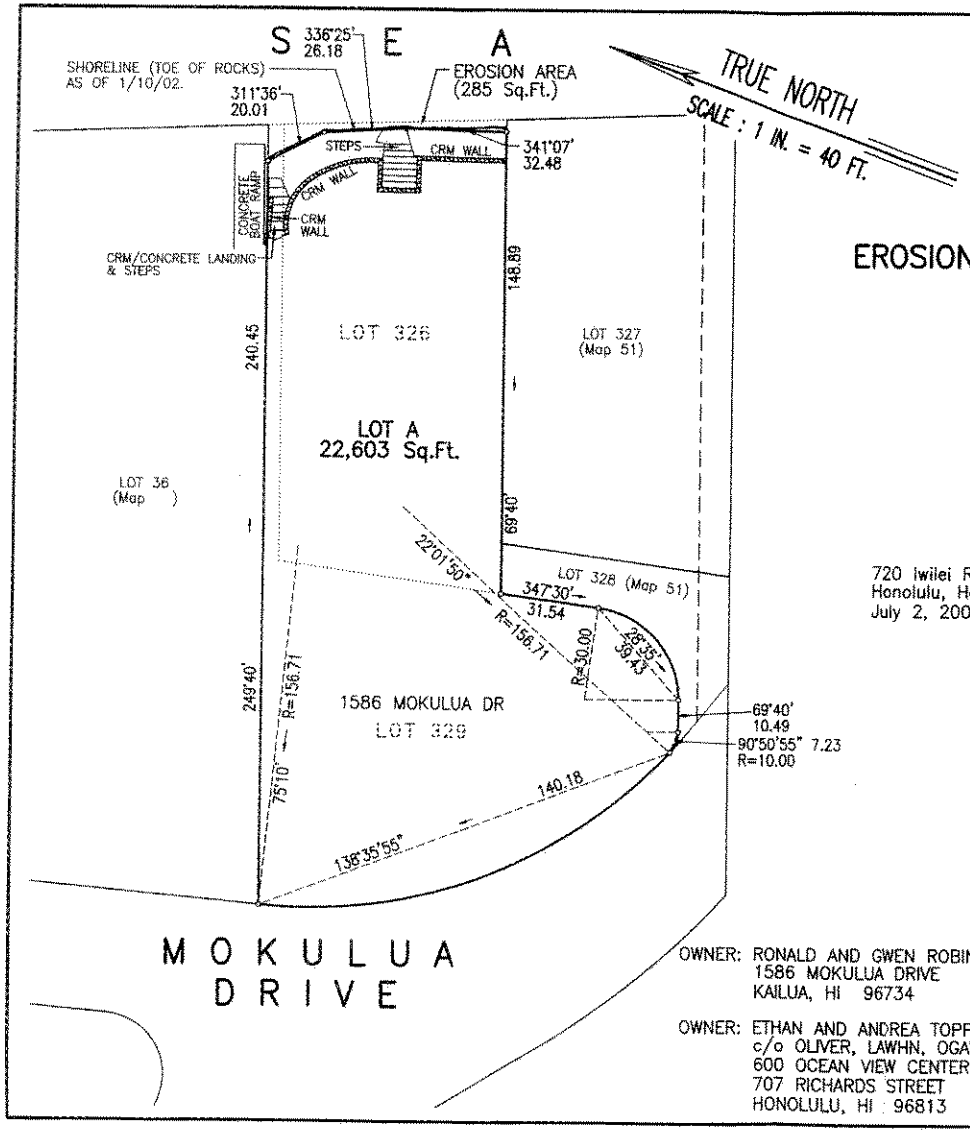
MAP

LAND COURT

STATE OF HAWAII

LAND COURT APPLICATION 616

EROSION TO LOTS 326 AND 329 AS SHOWN ON MAP 51
AND THE CONSOLIDATION OF
LOTS 326 AND 329 LESS EROSION
INTO LOT A
AT KAILUA, KOOLAUPOKO, OAHU, HAWAII



720 Iwilei Road
Honolulu, Hawaii
July 2, 2002

JAMES R. THOMPSON
LICENSED PROFESSIONAL LAND SURVEYOR
No.3627
HAWAII, U.S.A.

WALTER P. THOMPSON, INC.

Licensed Professional Land Surveyor
Certificate 3627
Land Court Surveyor No.178

OWNERS: ETHAN and ANDREA TOPPER
RONALD and GWEN ROBINSON

TRANSFER CERTIFICATE OF TITLE:

The shoreline as located and certified and delineated in red is hereby confirmed as being the actual shoreline as of JUL 1 2002

Chairman, Board of Land and Natural Resources

AUTHORIZED AND APPROVED BY ORDER OF THE JUDGE OF THE LAND COURT DATED
BY ORDER OF THE COURT.

REGISTRAR OF THE LAND COURT

OWNER: RONALD AND GWEN ROBINSON
1586 MOKULUA DRIVE
KAILUA, HI 96734

OWNER: ETHAN AND ANDREA TOPPER
c/o OLIVER, LAWHN, OGAWA & NAKAMURA
600 OCEAN VIEW CENTER
707 RICHARDS STREET
HONOLULU, HI 96813

01219t01.dwg/dc/jul02

TAX MAP KEY : 4 - 3 - 01 : 12 & 13

10"x 15" = 1.0 Sq.Ft.

Shoreline Notices

JULY 23, 2002

Shoreline Certifications and Rejections

Pursuant to §13-222-26, HAR the following shorelines have been certified or rejected by the DLNR. A person may appeal a certification or rejection to the BLNR, 1151 Punchbowl Street, Room 220, Honolulu, Hawai'i 96813, by requesting in writing a contested case hearing no later than twenty (20) calendar days from the date of public notice of certification or rejection.

Case No.	Date Received	Location	Applicant	Tax Map Key
MA-053-2	7/11/02 Certified	Lot 4 Kahana Sunset Beach Lots, Being a portion of R.P. 1663, Land Commission Award 5524 to L. Konia, land situated at Alaeloa, Honokeana, Kaanapali, Lahaina, Island of Maui, Hawaii Address: 5171 Lower Honoapiilani Road Purpose: Building Permit	Valencia Land Surveying, for Mark Ciaburri	4-3-007: 04
~~OA-870~~	~~7/11/02 Certified~~	~~Land Court Application 616 (Map 51) Consolidation of Lots 328 and 329 lots swoon into Lot 5 at Kailua, Koolaupoko, Island of Oahu, Hawaii~~ ~~Address: 3586 Mokulua Drive~~ ~~Purpose: Consolidation~~	~~Walter P. Thompson, Inc., for Ethan and Andree Topper & Ronald and Gwen Robinson~~	~~4-3-01: 12 and 13~~
OA-878	7/11/02 Certified	Lots 160-A & 160-B (Map 66), Lot 161 (Map 11), Lot A-2 (Map 3) and 28 & 30(Map 4), of Land Court Application 1095, land situated at Kaluaku, Koolauloa, Island of Oahu, Hawaii Address: Vacant Purpose: Consolidation & Resubdivision	ControlPoint Surveying, Inc., for the Estate of James Campbell	5-6-02: 09 & 10 and 5-6-03: 10, 26, 34
OA-877	7/11/02 Certified	Lots 264, 265 and 266 of Land Court Application 505 (Map 138), land situated at Kailua, Koolaupoko, Island of Oahu, Hawaii Address: 928 Mokulua Drive Purpose: Building Permit	Wesley T. Tengan L.P.L.S., for Paul Alston, et al	4-3-07: 36
OA-873	7/11/02 Certified	Lot 25 of Land Court Consolidation 23 as shown on Map 7, land situated at Kaipapau, Koolauloa, Island of Oahu, Hawaii Address: 54-001 Haukoi Place Purpose: Building Permit	ParEn, Inc. dba park engineering, for Ronald S. Nakata Revocable Trust and Jessie N. Nakata Revocable Trust	5-4-12: 15
OA-874	7/11/02 Certified	Lots 19 and 20 of Land Court Application 999 and Lots 1 and 2 being a Portion of R.P 1319, Land Commission Award 1 to Hoopalahoe, land situated at Kaipapau, Koolauloa, Island of Oahu, Hawaii Address: 54-215 Kamehameha Highway Purpose: Building Permit	Walter P. Thompson, Inc., for TUW, LLC	5-4-11: 01
MA-266	7/11/02 Certified	Being a Portion of Land Commission Award 11216, Apana 21 to M. Kekauonohi, Being all of Lot 54 of Makena Beach Lots, Land situated at Palauea, Honuaula, Makawao, Island of Maui, Hawaii Address: Makena Road (Vacant) Purpose: Planning future use of parcel	Warren S. Unemori Engineering, Inc., for Kuoha, LLC	2-1-11: 14
MA-267	7/11/02 Certified	Being a Portion of Land Commission Award 11216, Apana 21 to M. Kekauonohi, Being all of Lot 51 and 52 of Makena Beach Lots, Land situated at Palauea, Honuaula, Makawao, Island of Maui, Hawaii Address: Makena Road (Vacant) Purpose: Planning future use of parcel	Warren S. Unemori Engineering, Inc., for Larson Family Trust	2-1-11: 16 & 17
MA-210-3	7/11/02 Certified	Being a Portion of Land Commission Award 11216, Apana 21 to M. Kekauonohi, Being all of Lot 46 of Makena Beach Lots, Land situated at Palauea, Honuaula, Makawao, Island of Maui, Hawaii Address: Makena Road (Vacant) Purpose: Planning future use of parcel	Warren S. Unemori Engineering, Inc., for Colter Bay Holding, LLC	2-1-11: 20

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

July 17, 2002

OA-870THOMPSONRSSMAPS
L-1699/304

REF: LD-NAV

Walter P. Thompson, Inc.
Surveying and Mapping
720 Iwilei Road, Suite 425
Honolulu, Hawaii 96801

Dear Mr. Thompson:

Subject: Shoreline Certification Request: File Number OA-870
Owner: Ethan Topper, etal
Location - Island: Oahu - District: Kailua, Koolaupoko- Tax Map Key: 4-3-1: 12 & 12
Property Address: Mokulua Drive

This letter informs you that the above shoreline survey maps have been certified. Please be aware that in the past these maps were withheld until the end of the 20-day appeal period. The Department of the Attorney General recently advised us that, while perhaps well intentioned, withholding the maps had the effect of imposing an automatic stay on the release of the maps and was not consistent with the intent of the public records law or with the shoreline certification rules.

Therefore, please find enclosed for your records five (5) certified shoreline survey maps. However, please be advised that pursuant to Section 13-222-26, Hawaii Administrative Rules, this certification is **subject to appeal** which may possibly include a contested case hearing. Public notice of this shoreline certification is scheduled for publication in the **July 23, 2002,** Environmental Notice.

You will be notified whether an appeal or request for a contested case hearing to the shoreline certification has been filed during the appeal period, which ends on **August 12, 2002**. If no appeal has been filed during the 20-day period, then the certification is final. If, however, an appeal is filed, then the certification would be subject to the resolution of the contested case hearing process. Should you have any questions on this matter, please feel free to contact Nicholas A. Vaccaro (808) 587-0438.

Very truly yours,

Marlene E. Mamiya

for DIERDRE S. MAMIYA
Administrator

c: District Land Branch (w/o attach)
Survey Division (w/attach)
C&CoH Department of Planning and Permitting

APPENDIX C

STRUCTURAL REPORT AND CALCULATIONS

James B. Walfish
Consulting Structural Engineer
1704 Mikahala Way
Honolulu, Hawaii 96816
(808)-737-0141
To:
City and County of Honolulu
Building Inspection Division :
750 S. King St.
Honolulu,Hawaii 96813
FAX: 523-4400
Date: October 14, 2006

Topper Sea Wall: Structural Report

Please refer to the enclosed photos,drawing and calculation which addresses the structural situation at the referenced seawall installation in Lani Kai.

The seawall along the Topper Residence lot was constructed in a fashion similar to seawalls along that particular stretch of oceanfront. The Topper wall appears to have proper geometry for a CRM retaining and seawall structure and has the additional protection of the revetment or riprap at the base on the ocean side. The wall appears to meet all conventional structural design requirements.

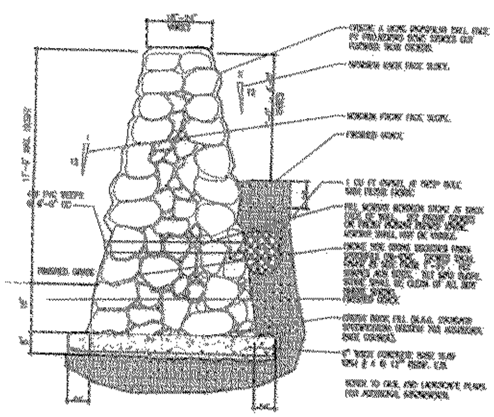
Based on field observation there does not seem to be any apparent distress in the structure as it exists to this date.

Please feel free to respond with any questions or comments.

Respectfully submitted;

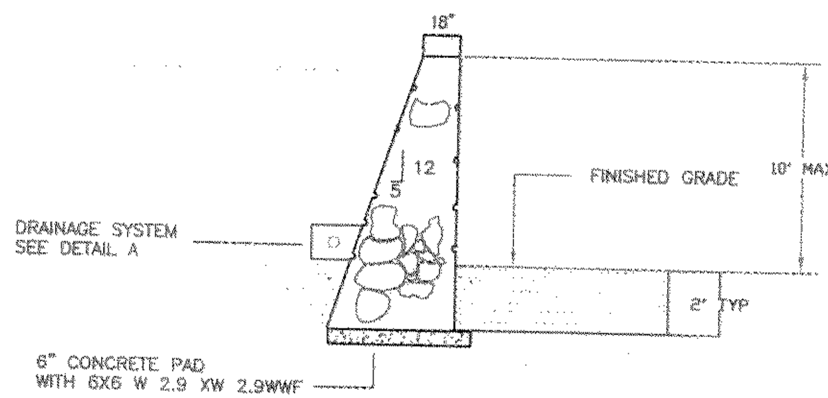
James B. Walfish

James B. Walfish E2612S



1.3 STACKED STONE RETAINING WALL

SCALE: NTS



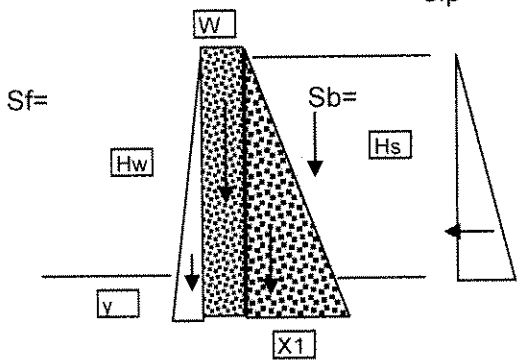
SCALE: NTS

JBW

DATE

EXHIBIT 2

CRM WALL TOPPER SEAWALL

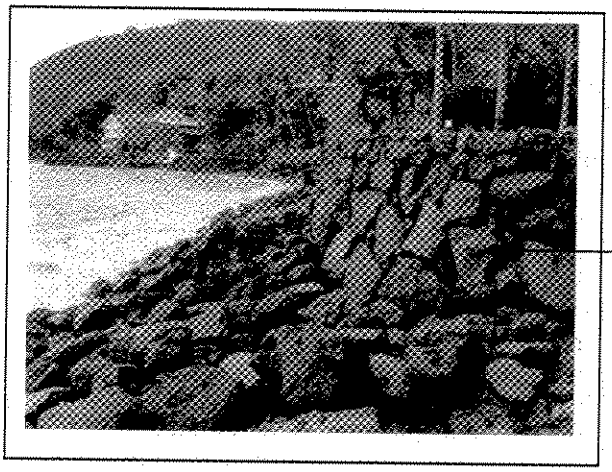


efp	0.04		
Hs=	5.50		
Hw=	6.00		
w=	1.50 x	y	
sb=	0.17	2	12
sf=	0.17	2	12
y=	2.00		
xb=	1.33		
xf=	1.33		
xs=	0.92		
L=	4.17		

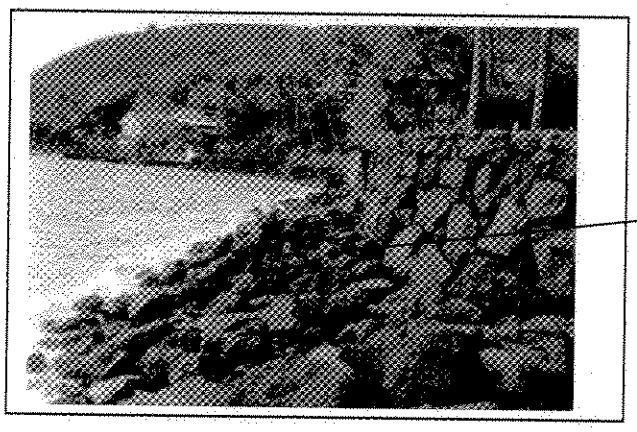
	W	Xo	Mo
Wc=	1.44	2.08	3.00
Wb=	0.55	3.72	2.05
Wf=	0.64	0.89	0.57
Ws=	0.25	3.44	0.87
	2.88		6.49

V=	0.605
Mot=	1.109167
SFOT=	5.850584
VRES=	1.213292

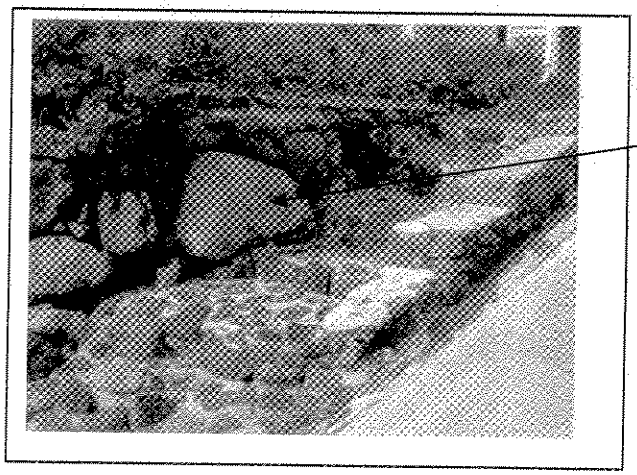
e'=	1.866
e=	0.217334
L/6=	0.694444



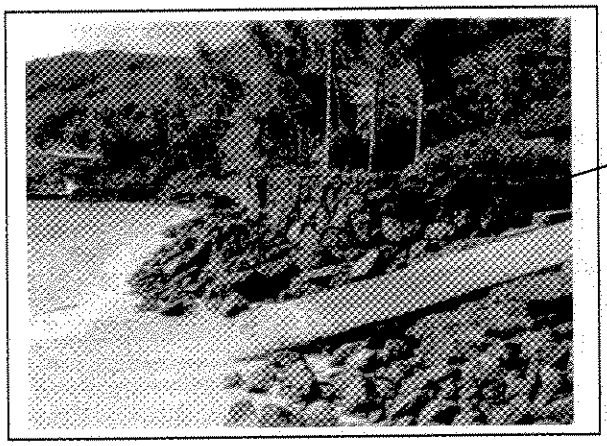
Note size of rock and rubble protection on seaward side. Wall measures approximately 20 inches at top. Rocks at base approximately 3 foot diameters.



Rock revetment at base protects toe of wall from "kick out "or sliding. Revetment also dampens wave force.

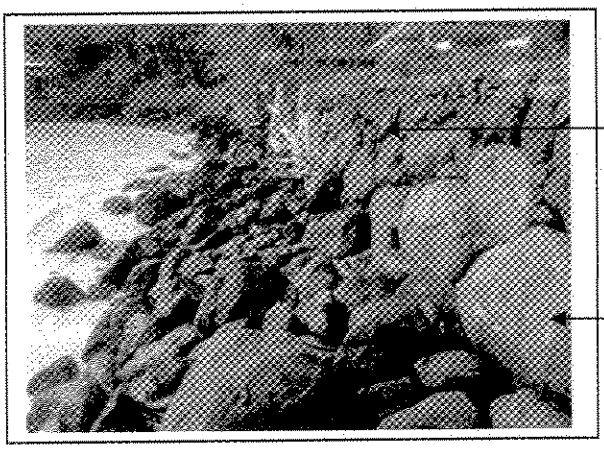


Note size of rocks in wall base



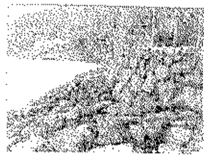
Return wall stiffens system

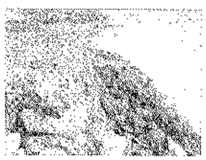
Wall has thickness and batter with large interlocking stone, Note seaward rubble protection.

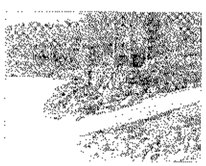


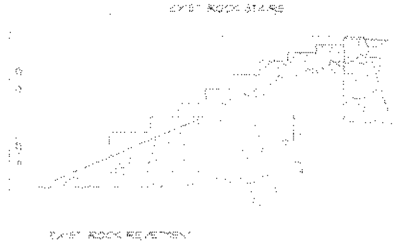
Highest water should not reach top of wall.

Note size of rocks

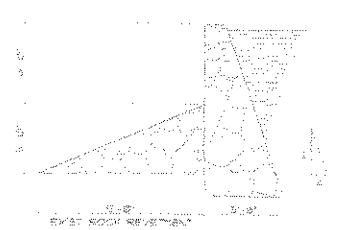








SECTION @ STAIRS
SCALE: 1/4" = 1'-0"

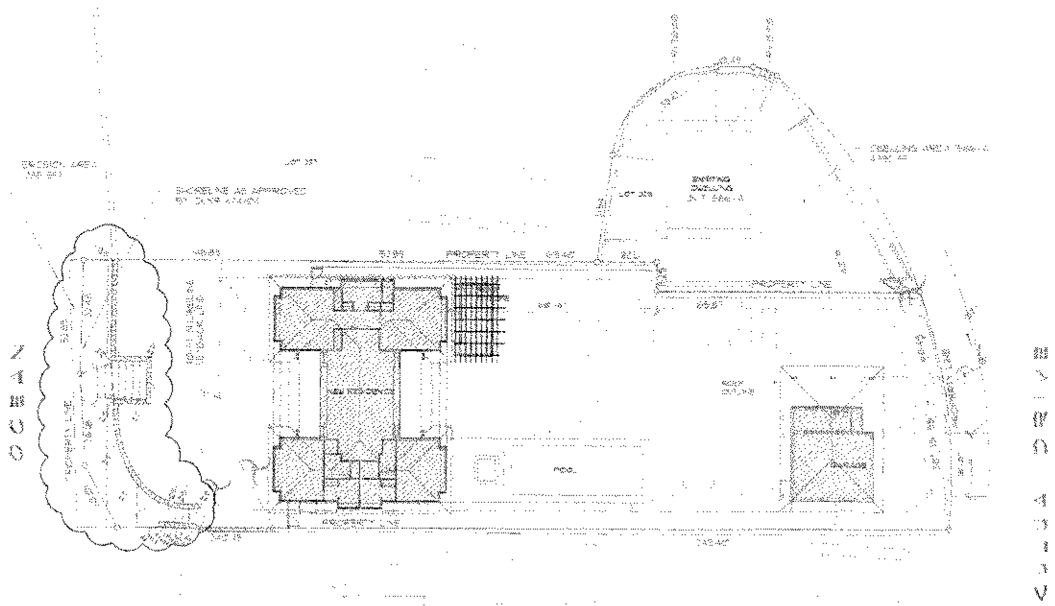


EXISTING CRM WALL
SCALE: 1/4" = 1'-0"

PROJECT DATA

TAX MAP KEY
ADDRESS
LAND AREA
ZONING
FLOOD ZONE

LOT COVERAGE CALCULATIONS



SITE PLAN

SEA WALL FOR
ETHAN & ANDREA TOPPER
1566B MOKULUA DR.
KAILUA, HAWAII 96734
TMK: 4-3-001: 013