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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

December 12, 1995

Mr. Gary Gill, Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Re: Final Environmental Assessment/Negative Declaration
Croft Residence Rock Revetment
Shoreline Setback Variance SSV-95-2
TMK: 4-1-2-13:35 Kekaha, Kauai

The Notice of Availability of the Draft Environmental Assessment (EA) for the above referenced project was published in the OEQC Bulletin on April 8, 1995 and April 23, 1995, therefore, the 30 day comment period has elapsed. The comments received during the review period, and the applicant's responses are included as Appendix C of the enclosed four copies of the Final Environmental Assessment.

The County of Kauai Planning Department has reviewed the Environmental Assessment and the comments received during the comment period and has determined that the project will not have any significant impacts on the environment. Based on our determination we are filing a negative declaration for this project.

Findings and reasons supporting the determination:

1. The proposed project will not involve a loss or destruction of any natural or cultural resources.
2. The proposed project will not curtail the range of beneficial uses of the environment.
3. The proposed project will not conflict with the State's long-term environmental policies.
4. The proposed project will not substantially affect the economic or social welfare of the community or State, or public health.

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Mr. Gary Gill
December 12, 1995
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5. The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.
6. The proposed project will not involve a substantial degradation of environmental quality.
7. The proposed project will not have considerable cumulative effects on the environment, or involve a commitment to larger actions.
8. The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat. No endangered species of flora or fauna are known to exist at the project site.
9. The proposed project will not detrimentally affect air or water quality or ambient noise levels.
10. The proposed project will not adversely affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geographically hazardous land, estuary, freshwater area or coastal waters.

Please be advised that the foregoing action does not indicate the Planning Department's position on this proposal relative to the requirements of the County of Kauai Special Management Area Rules and Regulations, the County Shoreline Setback Rules and Regulations or Hawaii Revised Statutes, Chapter 205A. The requirements of these Rules and Regulations will be considered by the Planning Department during the permit review process.

Please contact George Kalisik of my staff at 241-6677 if you have any questions or comments regarding this matter.



Dee M. Crowell
Planning Director

1996-01-08-KA-FEA-Croft Residence Shore Line Set back JAN 8 1996



Oceanit Coastal Corporation
coastal engineering services

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FINAL

**ENVIRONMENTAL ASSESSMENT FOR
SHORE PROTECTION AT
CROFT RESIDENCE, 4470 MAMO ROAD
KEKAHA, KAUAI, TMK 1-2-13:35**

submitted to:

**PLANNING DEPARTMENT
COUNTY OF KAUAI**

DEC.
February 1995

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I. GENERAL INFORMATION

- A. APPLICANT: Mr. Chuck Croft
P.O. Box 1058
Waimea, HI 96796
- B. RECORDED FEE OWNER: 585273 Alberta, Ltd.
RR3 Churchill 1 C-9
117 Madrona Road
Salt Spring Island, B.C.
Canada VOS1EO
- C. CONTACT PERSON: Dr. Warren E. Bucher, Senior Ocean Engineer
Oceanit Coastal Corporation
1100 Alakea Street, Suite 3100
Honolulu, HI 96813
Telephone: (808) 531-3017
FAX: (808) 531-3177
- D. TAX MAP KEY: 1-2-13:35
- E. LOT AREA: 1.368 acres
- F. AGENCIES CONSULTED IN MAKING ASSESSMENT
Planning Department, County of Kauai



II. DESCRIPTION OF PROPOSED ACTION

A. GENERAL DESCRIPTION

On September 9, 1994, a Special Management Area Permit Assessment Application was submitted to the County of Kauai Department of Planning by the property owner for construction of a seawall to protect his residence and other improvements from severe coastal erosion (Exhibit 1). On December 7, 1994, the property owner was granted a Special Management Area (SMA) Emergency Permit and Shoreline Setback Variance (SV) to construct a sloping stone revetment mauka of the certified shoreline in the middle and the east sections (Exhibit 2). As a condition of the emergency permit, the property owner was required to prepare an Environmental Assessment. The revetment was constructed along approximately 200 feet of the shoreline. Because erosion is still occurring on the unprotected portion of the shoreline, the owner proposes to extend the revetment to his western property line.

Based on the emergency permit and after consultation with the Planning Department, a rock revetment was designed and constructed (see design drawings in Figures B-1 and B-3). A description and assessment of conditions prior to and subsequent to the construction, and recommendations based on the assessment are contained herein.

The residential property is located at 4470 Mamo Road in Kekaha as shown in Figure 1. The property is fronted the ocean side by Kikiaola Beach, which extends from the Kikiaola Boat Harbor to Oomano Point. This beach suffers from severe long-term erosion. The erosion rate was dramatically aggravated after the construction of the Kikiaola Boat Harbor, which is located at approximately 1400 ft east of the Croft property and intercepts the predominant westward littoral drift.

Oceanit Coastal Corporation (OCC) was contracted by Mr. Chuck Croft to assess the nature and extent of the coastal erosion, to provide preliminary recommendations on alternatives for remedial action, and to design proper erosion control structures. OCC evaluated the erosion problem and concluded that the long-term erosion of the shoreline at Kekaha together with accelerated erosion during 1994 resulted in recession that finally reached the property of coastal landowners, including Mr. Croft (Figure 2). Based on beach profile measurements and the fact that the property was not protected by a beach to the top elevation of the property, large amounts of erosion would have continued before an equilibrium beach profile was established. This loss would have endangered structures including a swimming pool and house on the property. In addition, several large coconut trees were also threatened. The erosion of large amounts of topsoil created an offshore sediment plume that was detrimental to marine life, especially coral or other benthic organisms (Figure 9d).



OCC recommended that the construction of a rubble revetment was the best option available to Mr. Croft for the protection of his property. No other solution was identified that met both technical and regulatory requirements.

The proposed revetment was constructed in the Shoreline Setback area and requires an SMA Use Permit and an SV to satisfy the County SMA Rules and Regulations and Section 205A-46 of the Hawaii Revised Statutes.



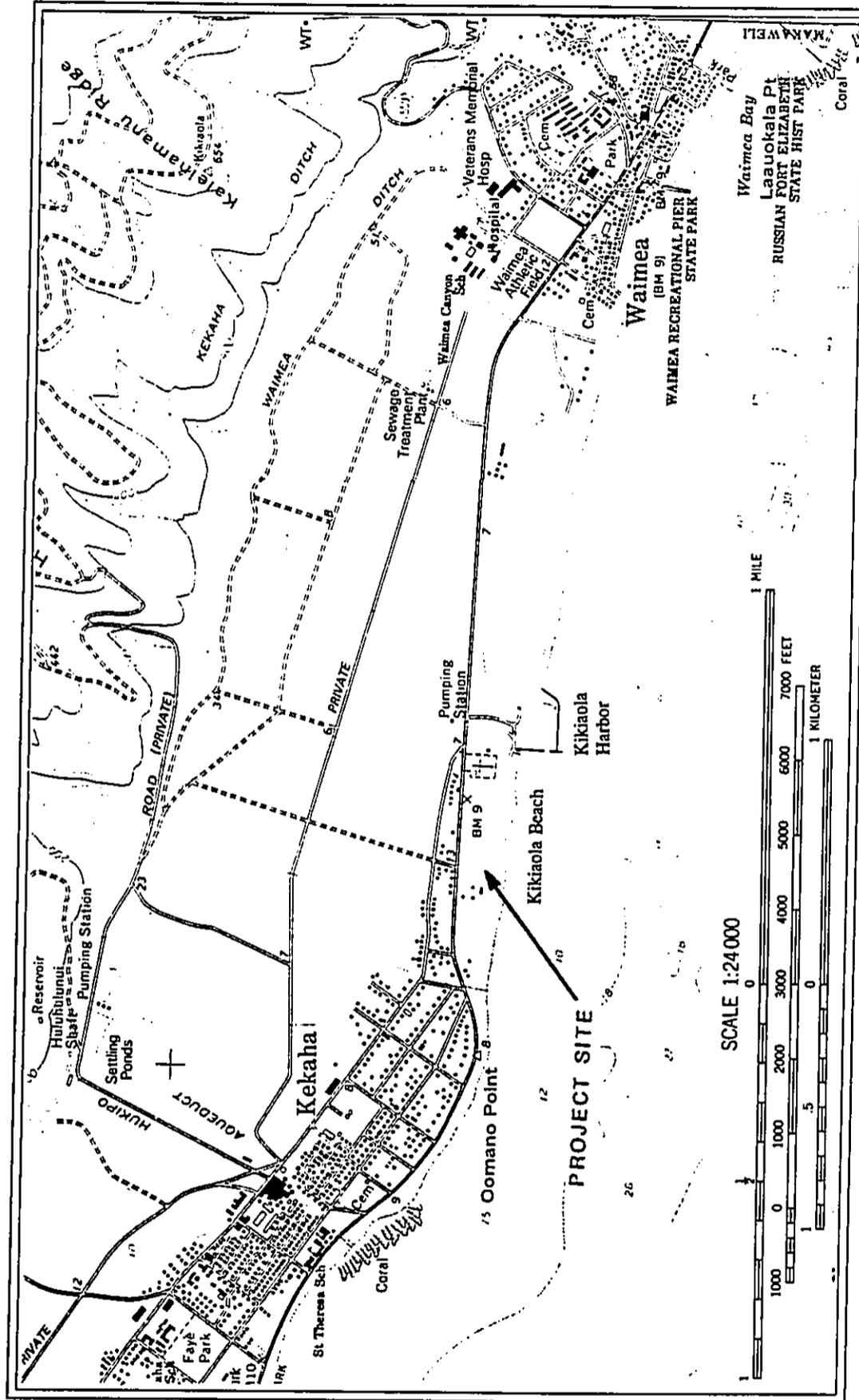
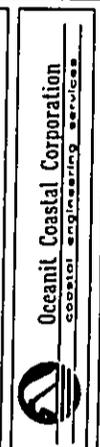


FIGURE 1 VICINITY MAP

4470 MAMO ROAD, KEKAHA, KAUAI



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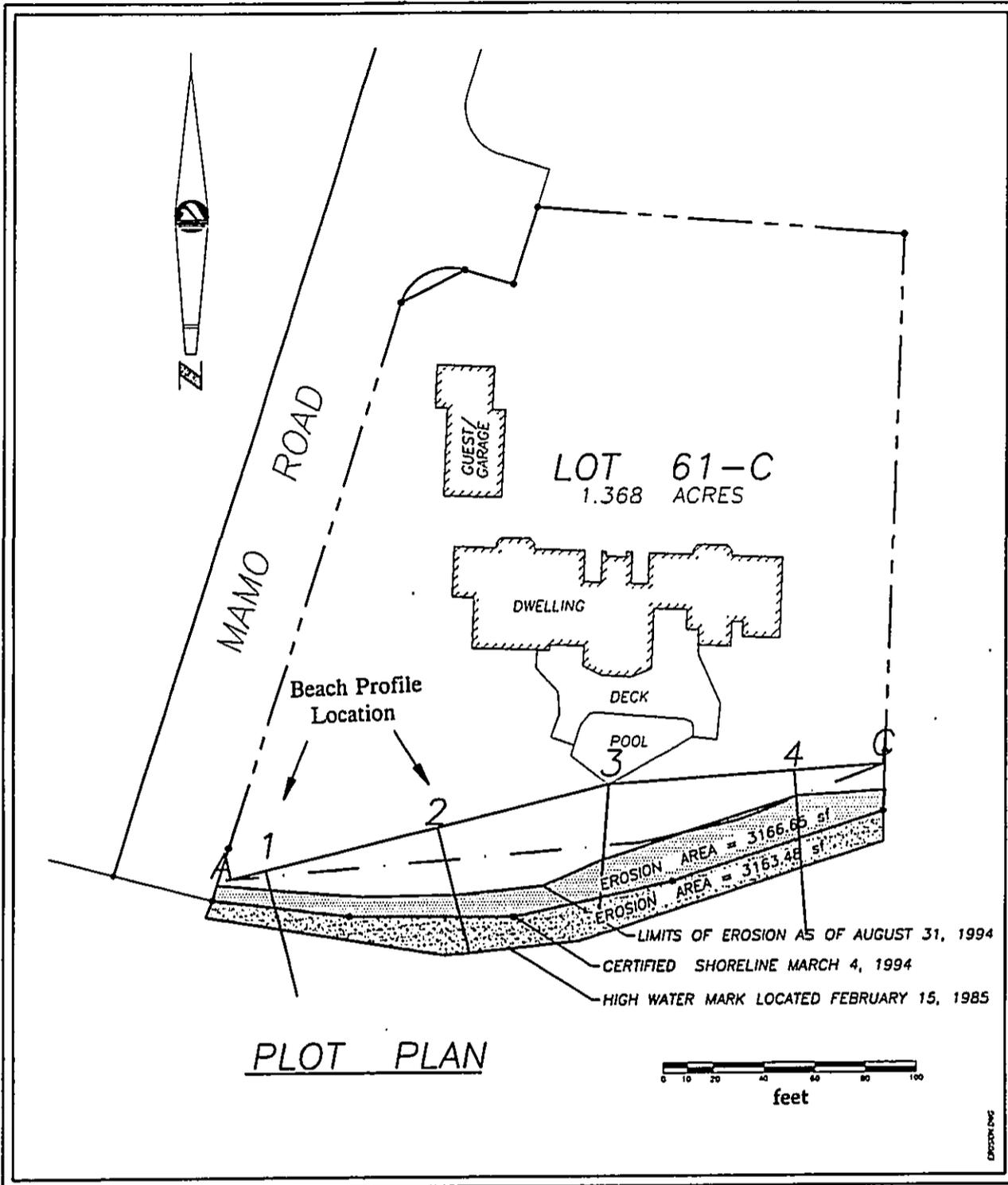


FIGURE 2 SHORELINE POSITION

4470 MAMO ROAD, KEKAHA, KAUAI
TMK : (4)-1-2-13:35

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B. TECHNICAL CHARACTERISTICS

1. Use Characteristics

The rubble revetment will protect the property from severe erosion induced by combined wave and current action.

2. Physical Characteristics

Property Layout

A certified shoreline survey map is included in Appendix A. The site plan is shown in Figure 2.

Shoreline Conditions

The shoreline at Kikiaola Beach consists of a narrow sand beach, composed primarily of volcanic sand mixed with white calcareous sand. The volcanic sand is denser than the white sand and is probably eroded from inland deposits and washed into the sea by rivers. The Waimea River located east of the project site is probably the primary source of volcanic sand found along the Kekaha shoreline. Median sand size in front of the Croft property is in the range of 400 - 500 μm and the percentage of calcareous sand is about 11 - 15% as shown in Figure 3.

The Kekaha shoreline of Kauai is subject to deepwater waves that are predominantly from the south (S) and southwest (SE) with the most probable wave height of 3 feet and period of 12 to 14 seconds (Figures 4 and 5). In addition to direct exposure to south swell and Kona storm waves, the shoreline is indirectly exposed to refracted tradewind waves from the east and North Pacific swell from the west. As these waves approach the shoreline they are transformed by refraction, friction, and shoaling until they strike the beach. The site is fronted by a reef that is slightly shallower than surrounding areas. Many waves break when they hit the reef; however, the water becomes deeper inside the reef so that waves can reform before reaching the beach.

Although the wave climate varies seasonally, the predominant littoral drift is to the west, as indicated by typical wave refraction/diffraction patterns taken from aerial photographs (Figures 6 and 7). The angle that the wave front makes with respect to the shoreline will generate a westward longshore current and thus cause westward sediment transport. According to the U.S. Army Corps of Engineer Division (Hawaii Regional Inventory of the National Shoreline Study, 1971) and Campbell (Erosion and Accretion of Selected Hawaiian Beaches, 1962-1972), the shoreline immediately west of the Waimea River has eroded steadily since the early 1900's. The construction of the Kikiaola Boat Harbor in 1959 divided the shoreline into two sections. One of them is Waimea Beach from Waimea River to the Boat Harbor, and the other is Kikiaola Beach

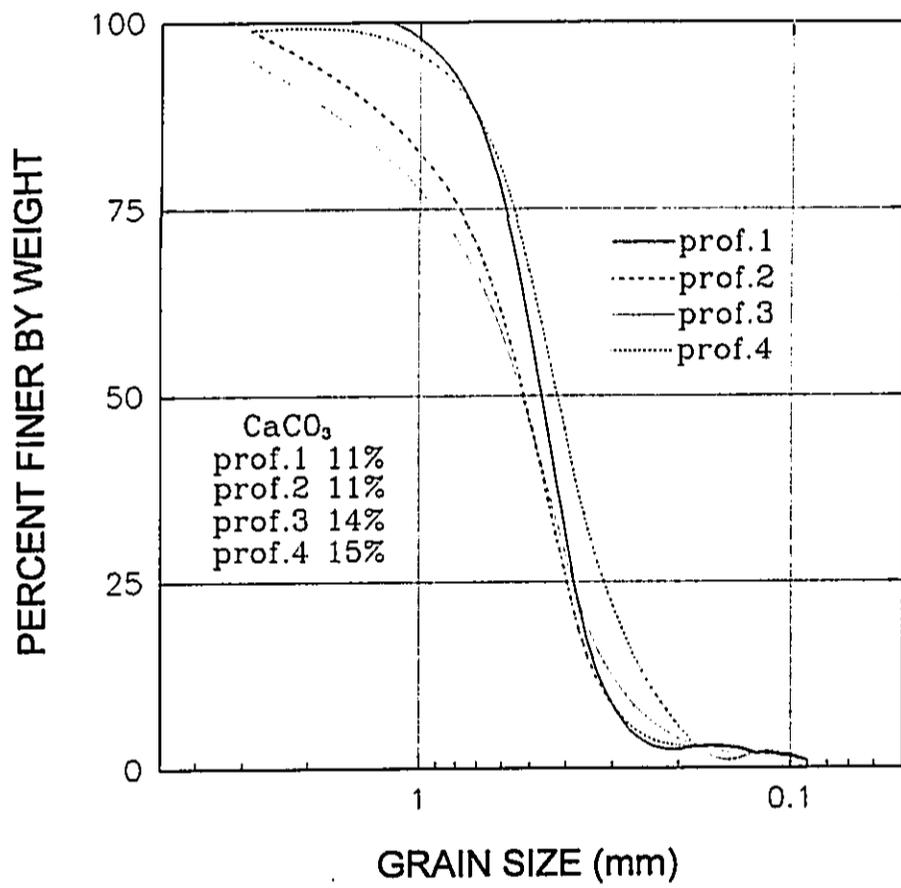
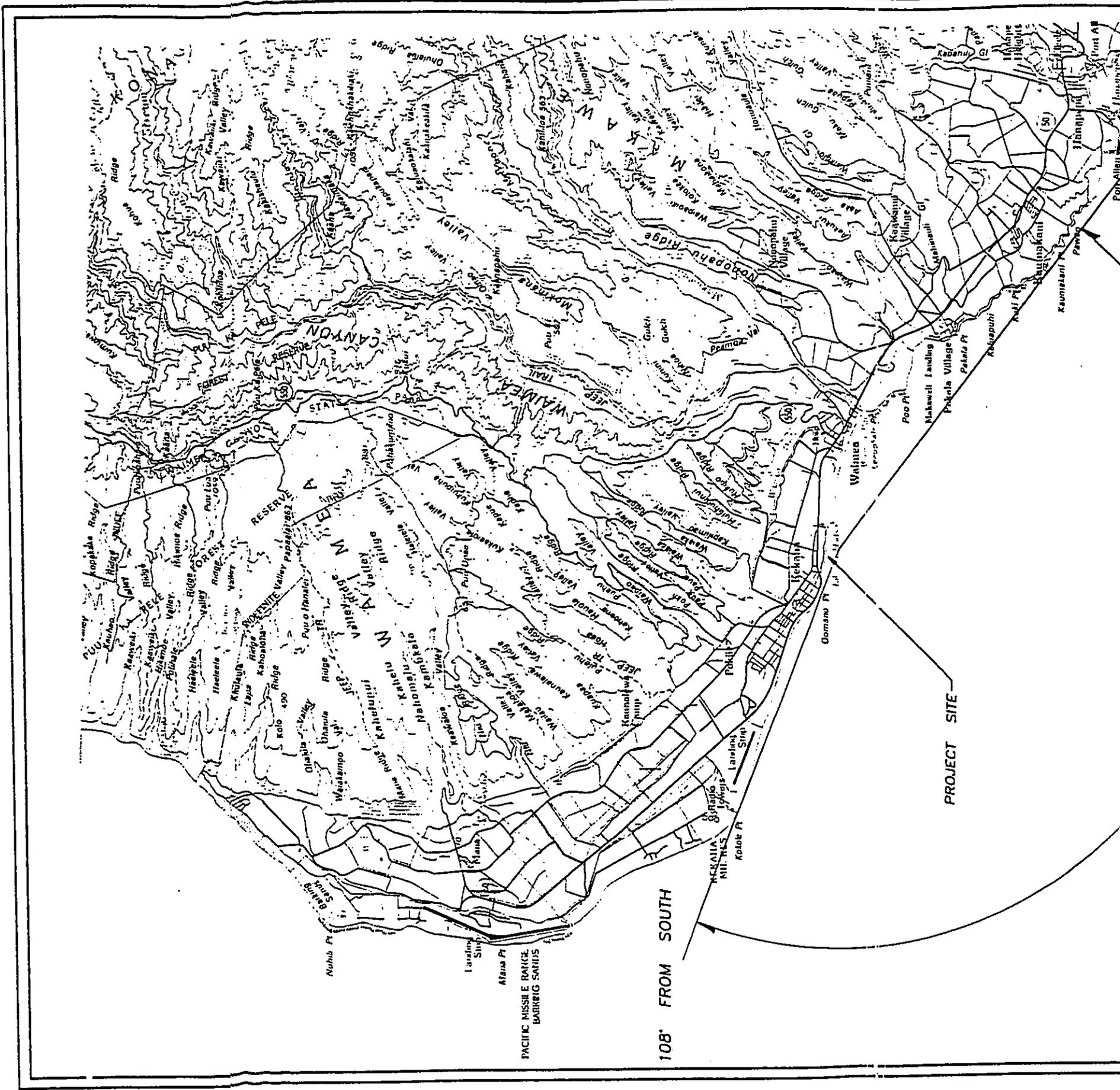
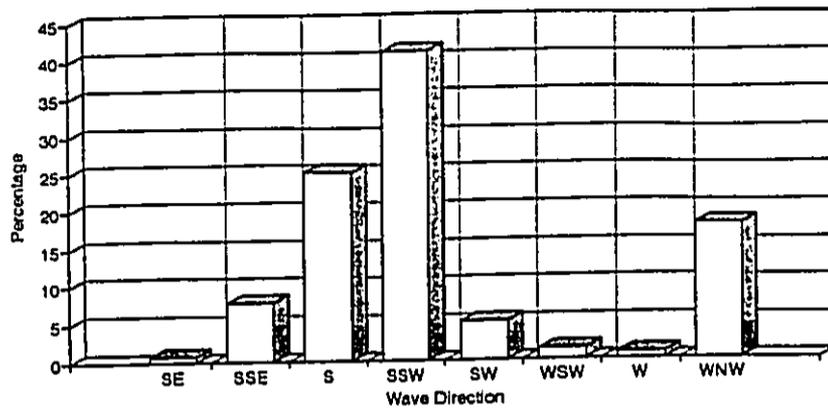


FIGURE 3 SAND SIEVE CURVES

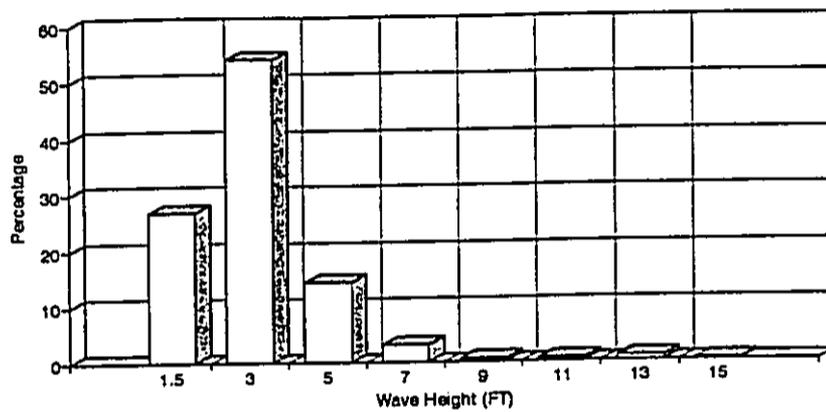
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Histogram of Wave Direction



Histogram of Wave Height



Histogram of Wave Period

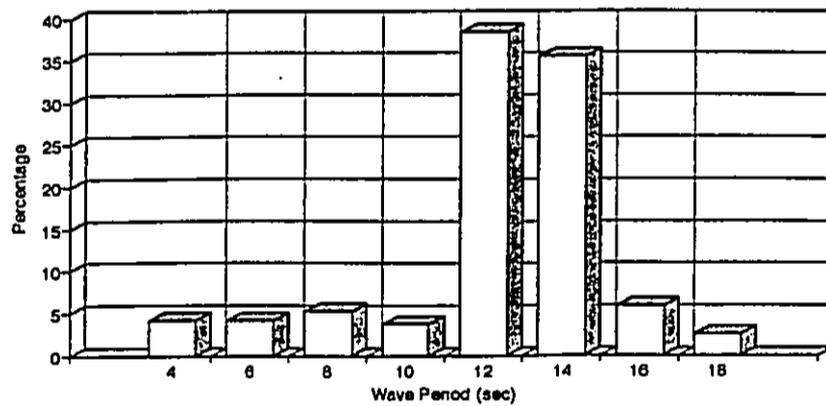


FIGURE 5 WAVE STATISTICS

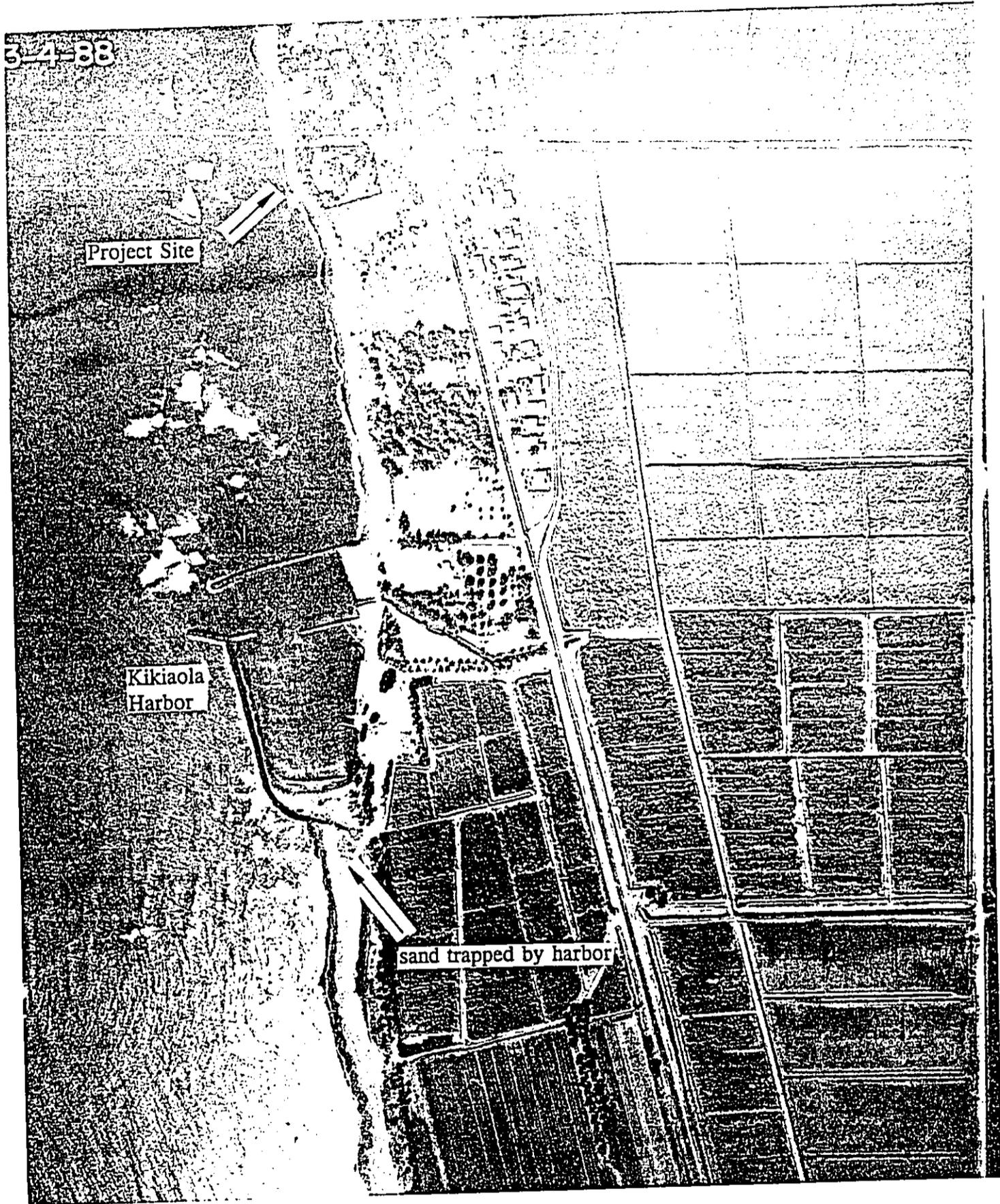


FIGURE 6 AERIAL PHOTOGRAPH



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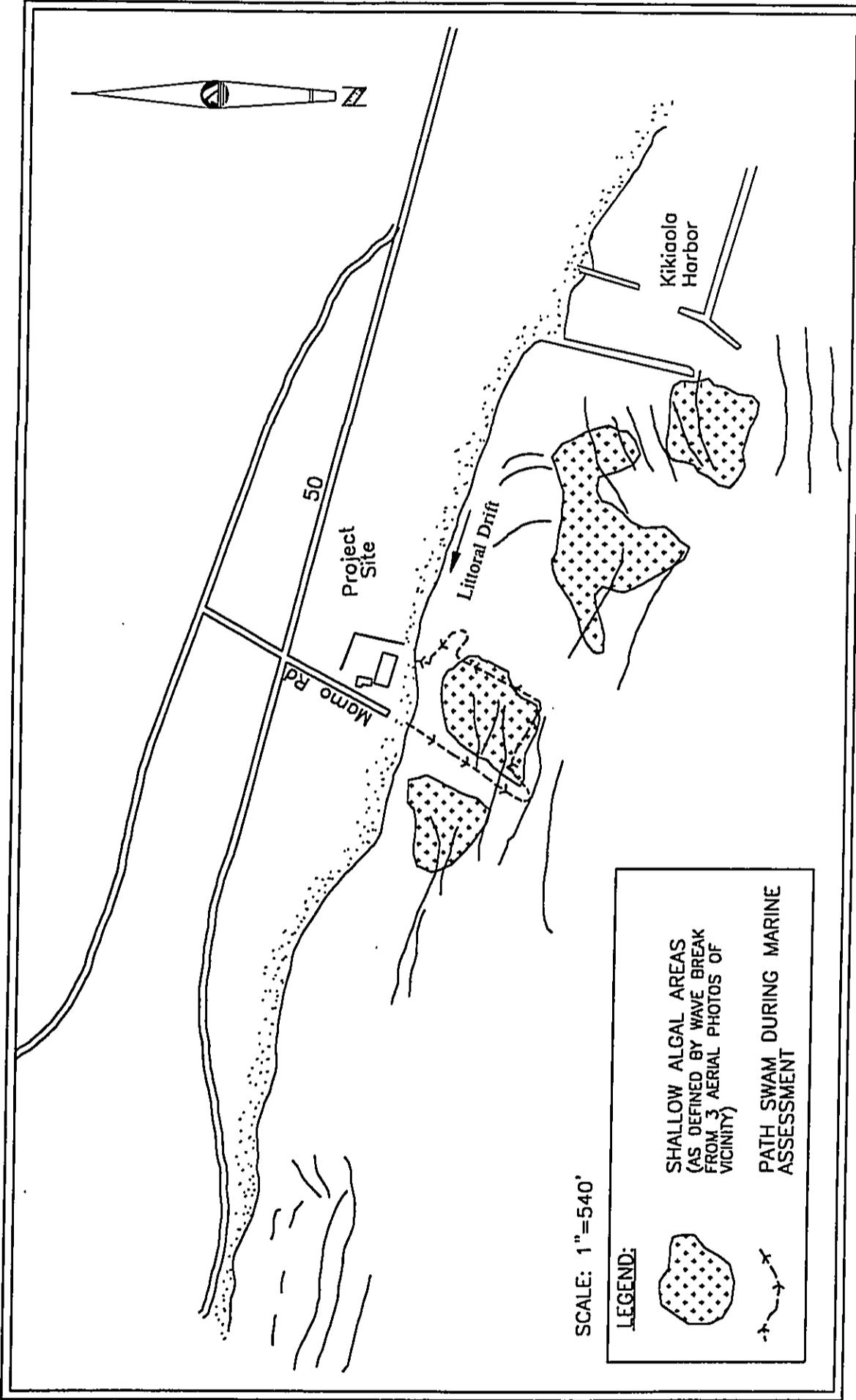
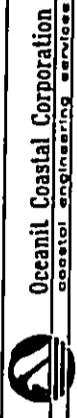


FIGURE 7 WAVE REFRACTION/DIFFRACTION PATTERN

4470 MAMO ROAD, KEKAHA, KAUAI



from the harbor to Oomano Point. The former section has accreted and the latter section has had intensified erosion since the construction of the harbor (Makai Ocean Engineering Inc. and Sea Engineering Inc., Aerial Photograph Analysis of Coastal erosion on the Islands of Kauai, Molokai, Lanai, Maui and Hawaii, 1991). The erosion patterns can also be seen in aerial photographs (Figure 6).

A passing hurricane can generate large deepwater waves on the order of 25 feet high. Hurricane surge can cause the nearshore water level to rise as much as 3 to 5 feet. This rise in water level permits larger waves than normal to reach the beach, and sediment transport becomes correspondingly greater than usual. During July and August of 1994, hurricane Emilia (July 20), Gilma (July 25), and John (August 23) passed the south of Hawaiian Islands. Waves generated by these hurricanes increased the erosion rate at the project site.

The eroded shoreline as measured on August 31, 1994 is shown on a copy of the certified shoreline map in Figure 2. Also shown is the high water mark of 1985. The recession of the shoreline indicates long-term erosion at 1.4 feet per year. However, between March 1994 and August 1994, the shoreline has receded at an average of 2.1 feet per month, a much greater rate. Erosion at the Croft property has been aggravated at the east end by a neighboring rock wall that caused flanking erosion over 24 feet from the certified shoreline. Much of this erosion is reportedly recent. Table 1 gives the estimated areas and quantities of material lost. Figure 8 shows the beach profiles measured on August 31, 1994. Instead of a smooth sloping beach between the property and the waterline, there was an abrupt escarpment 4-5 feet high where topsoil and vegetation fell into the water. The escarpment is shown in the photographs of Figure 9a-b-c.

TABLE 1 EROSION ESTIMATES

| Items | 1985-1994 | Mar-Aug 1994 |
|----------------------------------------------|-----------|--------------|
| Back beach area lost (sq ft) | 3,164 | 3,167 |
| Back beach volume lost (cu yd) | 516 | 516 |
| Beach material lost (cu yd) | 1,600 | 1,600 |
| Total material lost (cu yd) | 2,116 | 2,116 |
| Property line recession rate (ft/6 months) | 0.7 | 12.6 |
| Property material lost rate (cu yd/6 months) | 118 | 2118 |

Also shown in Figure 8 are the profiles measured on January 12, 1995 after the completion of the revetment construction. The increase in beach width and sand accretion in front of the revetment is apparent in post construction photographs (Figures 11a-b and 12a-b). The condition of the beach after construction indicates that the revetment is performing well, dissipating wave energy and encouraging beach growth.

The unprotected shoreline at the western end of the property exhibits continuous erosion and trees in the shoreline are in danger of being lost (Figures 11c-d and 12d). By comparing Figures 11d and 12d, it may be concluded that some erosion occurred between November 29, 1995 and January 12, 1995 along the unprotected section, at least around the endangered trees. Either rainfall runoff or wave runup could have caused this erosion. In case of bad weather and high surf conditions in the foreseeable future, this section of the shoreline will be a potential problem and merits immediate attention. Although the whole unprotected shoreline shows slight recession, there is no sign of flank erosion at the western end of the revetment (Figures 11c and 12c). The same is true for the eastern flank protection. This indicates that the flank protection is properly designed and it is unlikely to cause flank erosion to neighboring property.

A chain-link fence was also erected along the newly built revetment approximately 5 feet seaward from the top of the revetment (Figure 12c). Construction of the fence is necessary to avoid liability that may be occasioned by unauthorized use of the swimming pool or damage to landscaping. The fence does not block public beach access.

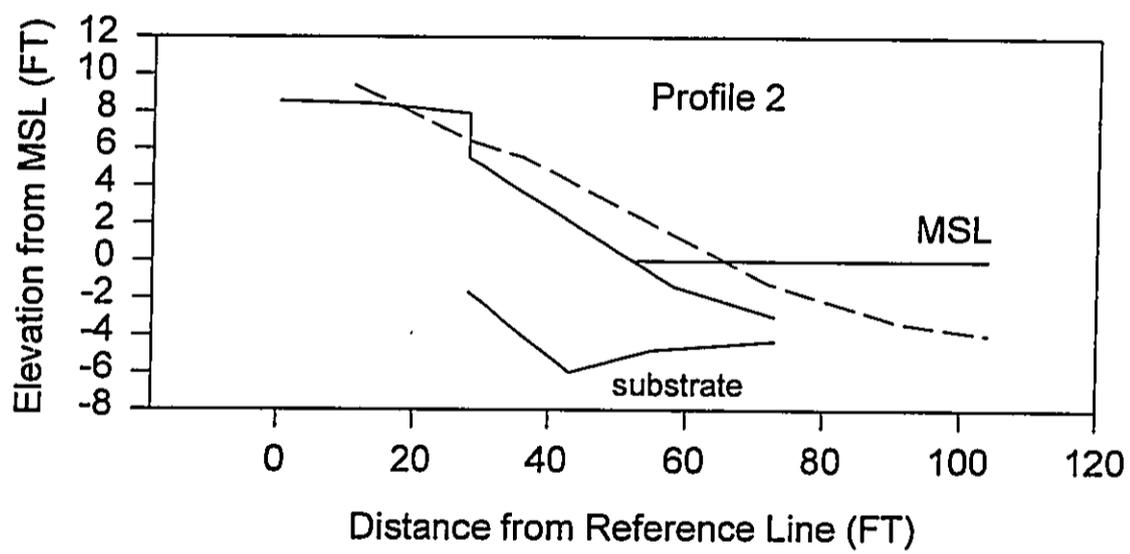
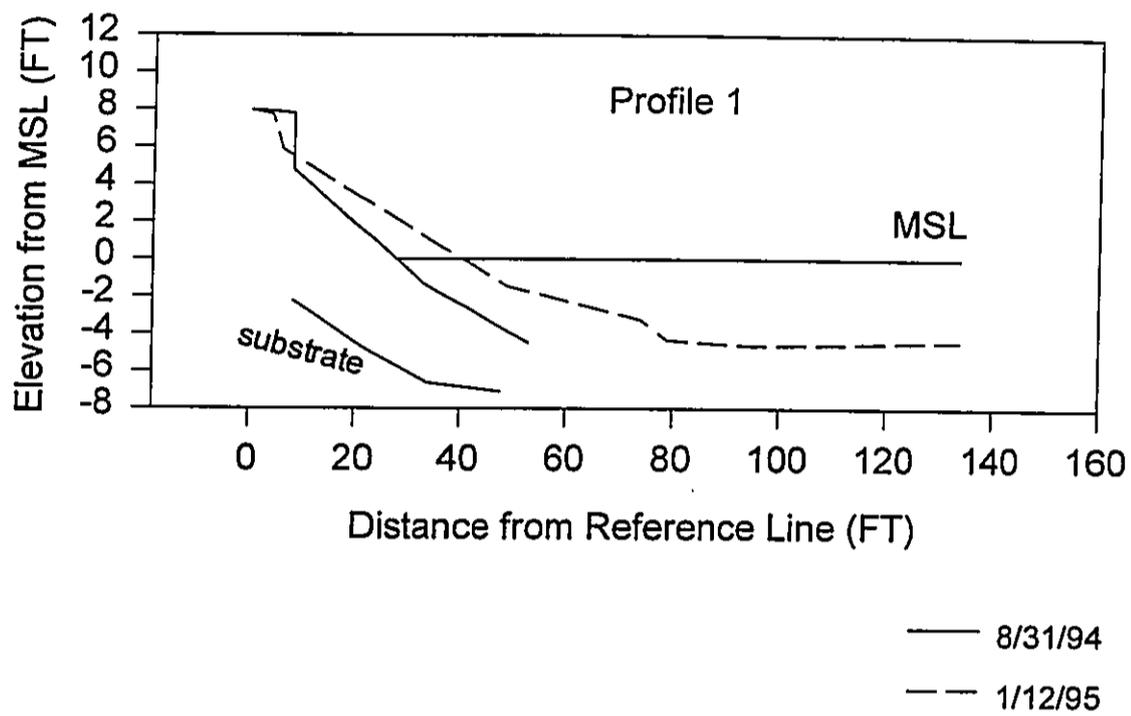


FIGURE 8 BEACH PROFILES

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
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SEE FRAME(S)
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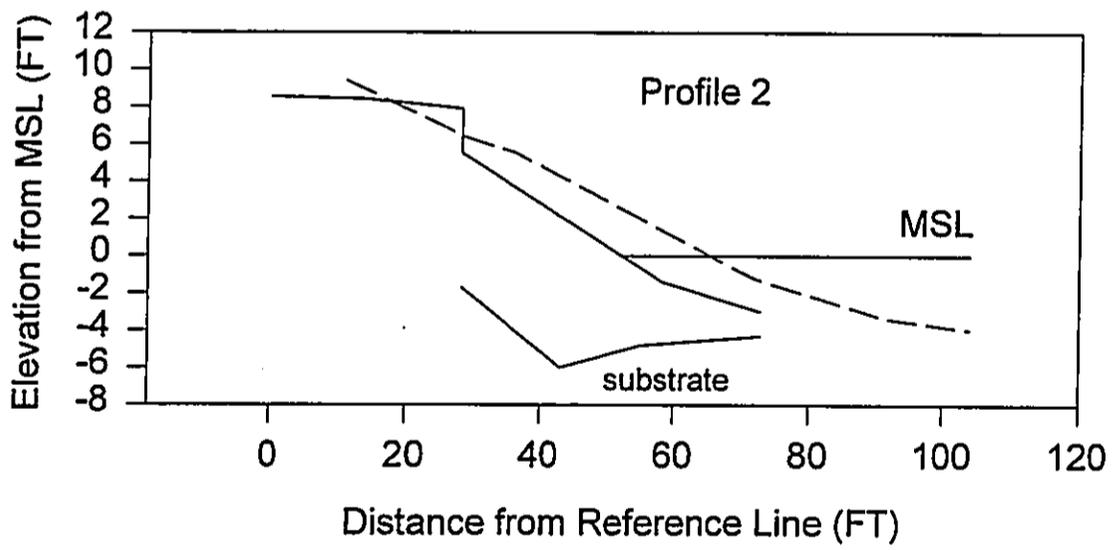
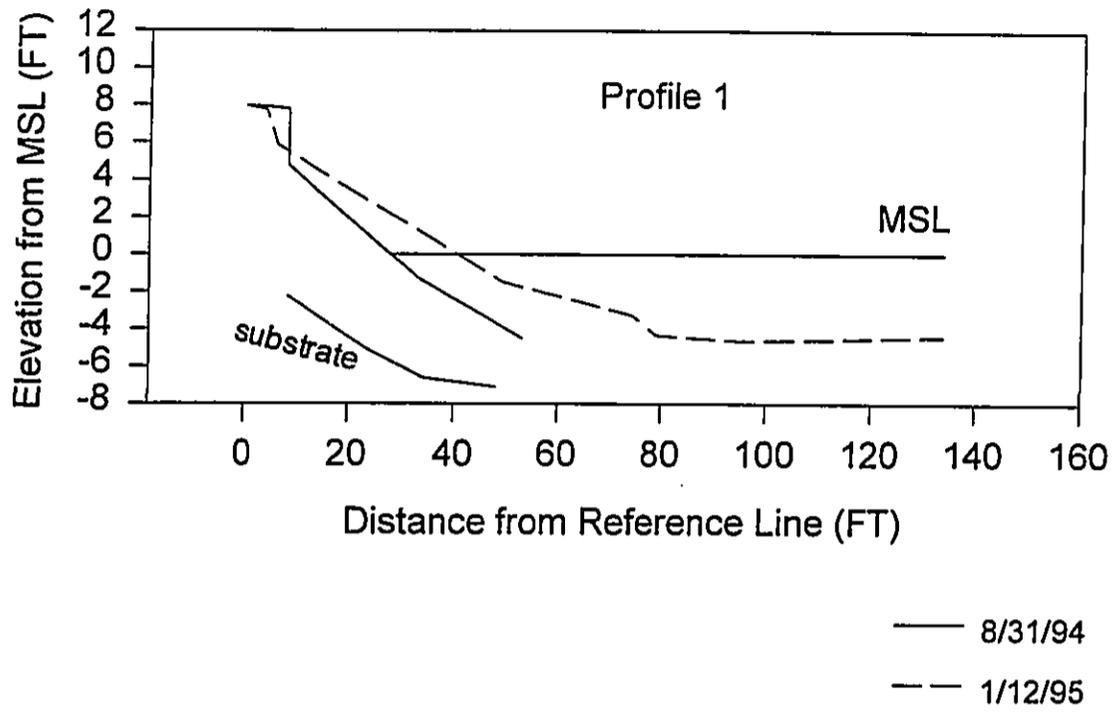
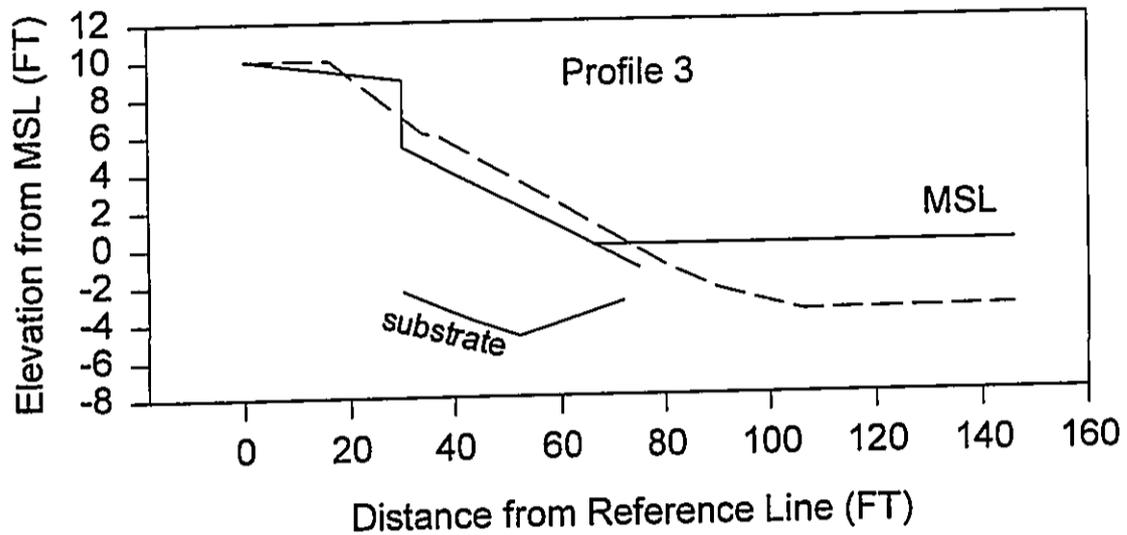


FIGURE 8 BEACH PROFILES



— 8/31/94
 - - 1/12/95

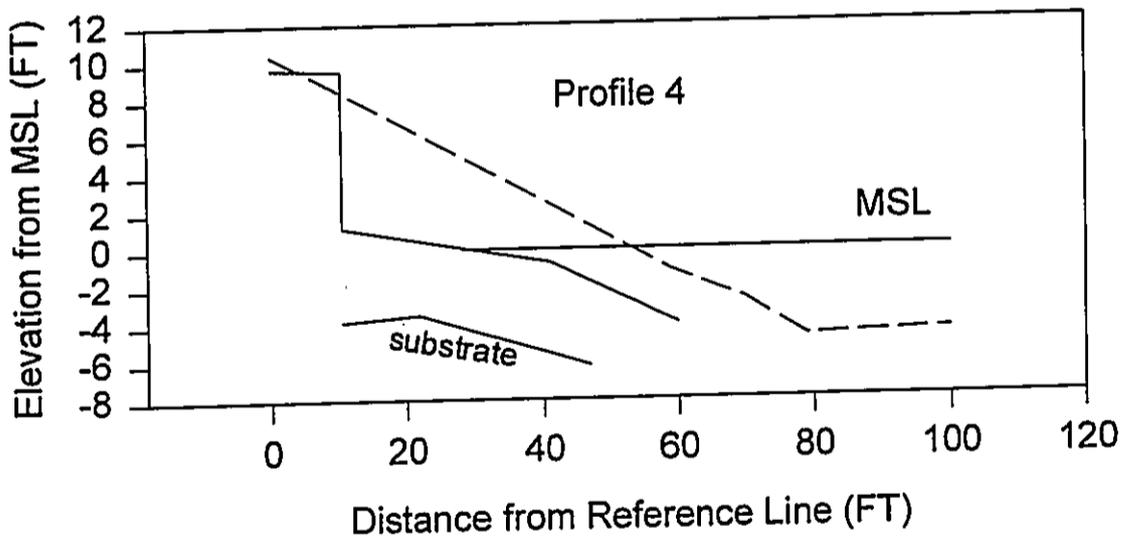


FIGURE 8 (CONTINUED) BEACH PROFILES



FIGURE 9 PHOTOGRAPHS BEFORE CONSTRUCTION
a. EAST EDGE OF PROPERTY
b. MIDDLE SECTION OF PROPERTY



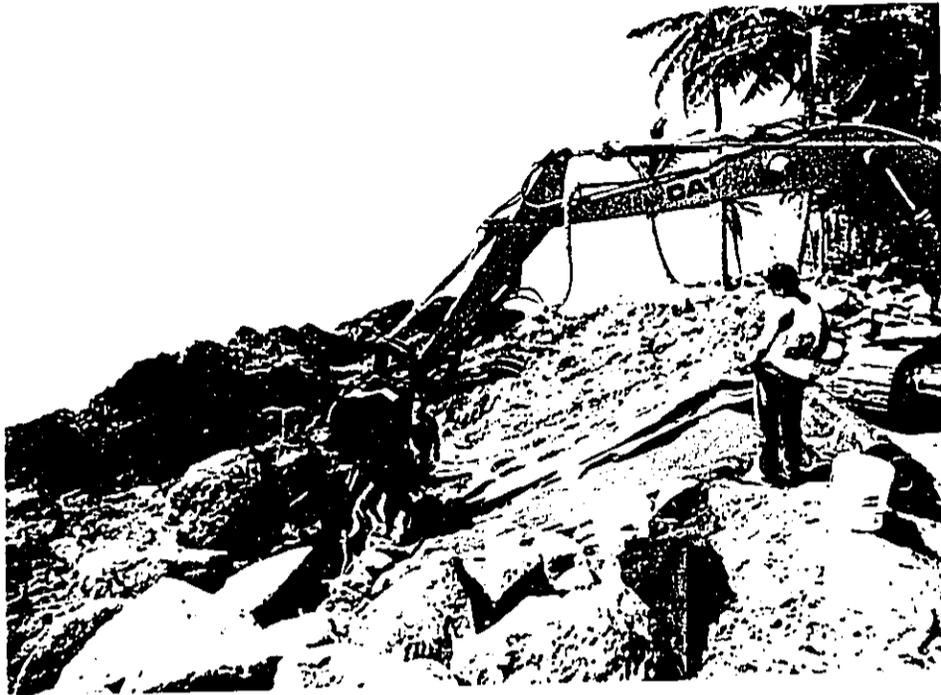


FIGURE 10 PHOTOGRAPHS DURING CONSTRUCTION
a. FILTER FABRIC PLACEMENT
b. TOE STONE PLACEMENT



FIGURE 11 PHOTOGRAPHS AFTER CONSTRUCTION (11/29/94)
a. FRONT YARD AND REVETMENT
b. BEACH AND REVETMENT



FIGURE 11 (CONTINUED) PHOTOGRAPHS AFTER CONSTRUCTION
c. WEST END OF REVETMENT AND UNPROTECTED SHORELINE
d. ENDANGERED TREES AT THE WEST SECTION OF PROPERTY



FIGURE 12 PHOTOGRAPHS AFTER CONSTRUCTION (1/12/95)
a. EAST EDGE OF PROPERTY
b. BEACH AND NEIGHBORING SEAWALL





FIGURE 12 (CONTINUED) PHOTOGRAPHS AFTER CONSTRUCTION (1/12/95)
c WEST FLANK OF REVETMENT AND FENCE
d SCARP AND ENDANGERED TREES AT WEST EDGE



Shore Protection Structure Description

The shore protection structure is a rubble revetment with a slope of 1:2 (vertical: horizontal). Design drawings are included in Appendix B. The revetment was designed according to accepted coastal engineering practices and Corps of Engineers' guidelines. The top of the revetment is at an elevation of 8 feet MSL. The toe of the revetment follows the certified shoreline. The toe stones were placed on hard substrate where found or buried up to 7 ft below sea level. Armor stones ranged from approximately 700 to 1200 pounds with some larger stones used in the toe. These are quarry stone or field stone with specific gravity approximately 2.65 and nominal size ranges from 1.9 to 2.2 feet diameter. Two layers of armor stones were placed on a bedding layer of 1/10 size stone. The bedding layer is two stones thick with a minimum thickness dimension of 1.6 feet. Filter fabric was placed between the bedding layer and existing soil to prevent sand piping (see Figure 10 for the placement of filter fabric and other construction scenes). Amoco 4553, 4551, or equivalent fabric was used. The filter fabric is puncture resistant with mesh size small enough to retain soil particles. The fabric was placed loosely, not in a stretched condition, but free of wrinkles, creases, or folds. The revetment is flanked on both the east and the west ends by extending the revetment 20 to 30 feet inland (see design drawings in Appendix B).

With a design wave of 3.5 feet, runup on the revetment will be approximately 6 to 8 feet. Therefore, some overtopping may occur during high wave conditions. The revetment has been designed to allow overtopping water or rain runoff to drain back into the sea.

Since the revetment has a gentle slope of 1:2 and is constructed of rubble and properly flank protected, it will have minimal effect on sand transport along the beach. Rubble revetments with gentle slope dissipate wave energy and minimize scour and reflection effects associated with vertical seawalls.

III. AFFECTED ENVIRONMENT

The property is located near the east end of Kikiaola Beach (Figure 1). The area is designated residential and is located in a coastal flood zone (Figure 13). The map shows an inundation elevation of 10 feet for a 100 year flood. This is comparable to the tsunami inundation elevation of 8.2 feet at 200 feet inland calculated by using the Manual for Determining Tsunami Runup Profiles on coastal Areas of Hawaii prepared by M&E Pacific, Inc. The revetment will greatly reduce soil erosion in case of flooding. The revetment is below the existing grade of the lot and does not block coastal views. The project site can be accessed from Mamo Road via Route 50. The shoreline from Kekaha to Waimea is relatively straight and featureless. There are only two small public beach parks: one is located just west of the Waimea River mouth and the other

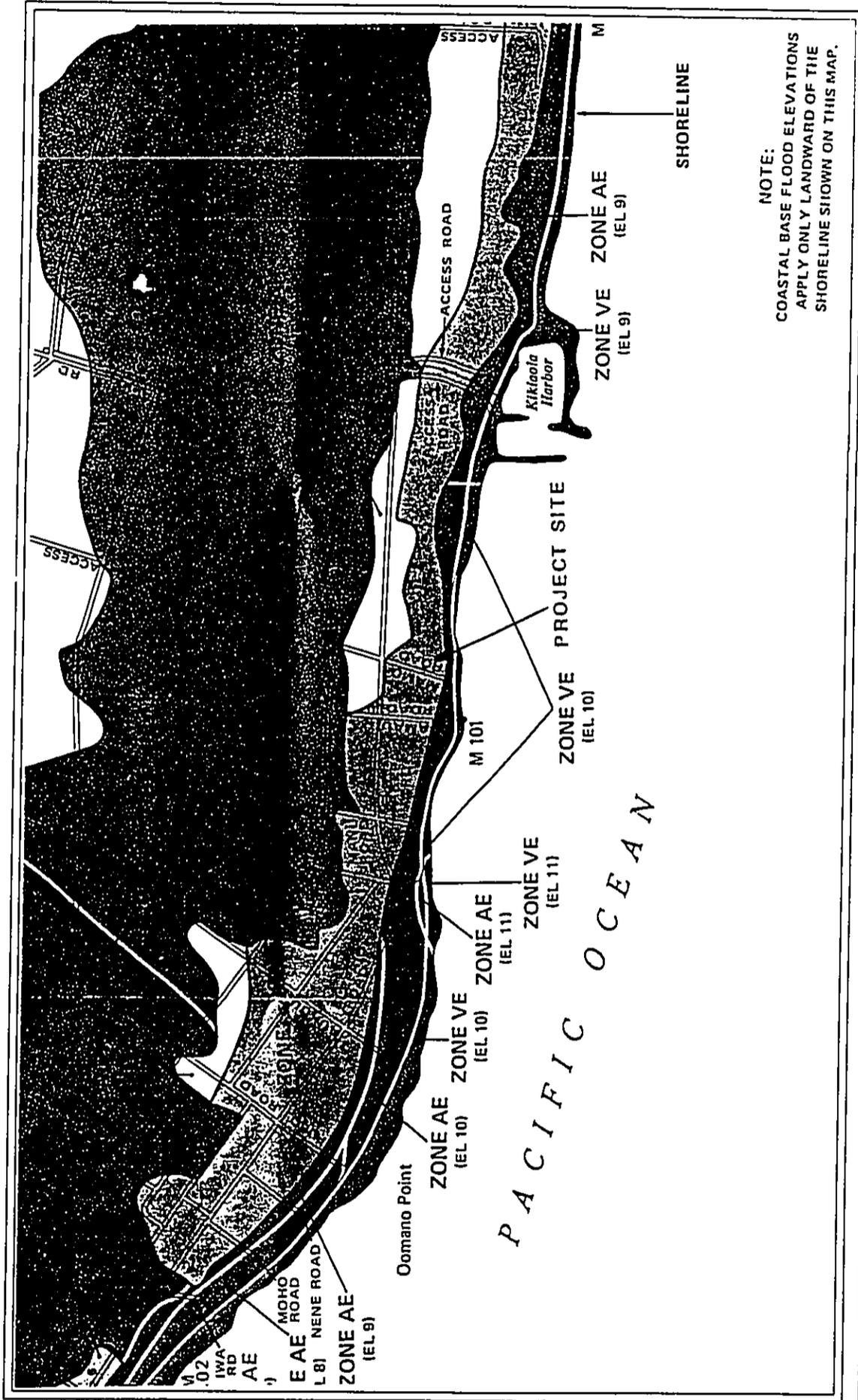


FIGURE 12 FEMA FLOOD INSURANCE RATE MAP

4470 MAMO ROAD, KEKAHA, KAUAI



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Engineering & Surveying Services, Inspection & Program

is located at the Kikiaola Boat Harbor. The project site will not affect public beach access. The rest of the coast is either in residential use, agricultural use, or vacant. The town of Kekaha and the Kekaha Beach Park are further to the west of the project site.

A biological assessment was made subsequent to the revetment construction. The assessment consisted of snorkel observations made during a 30 minute swim off the beach fronting the property. In Figure 7 a line is traced from aerial photographs showing the approximate path of the observation route. Observations were made up to a distance of approximately 650 feet off shore in line with the western property boundary to a point just outside the small (1.5 feet) breakers, back into the breaker zone to the east and then back to shore roughly parallel to the eastern property boundary. A brief detour was taken into the calm "channel" area to the east of the property. Shaded portions of the drawing are the maximum extent of breaking waves as seen from three separate aerial photographs, and most likely represent shallow reef areas.

Water clarity was about 3 feet near shore and decreased to about 1.5 feet beyond the breaker zone. Observations were somewhat hindered by the poor visibility and constant surge action over the shallow reef. There was a weak current near the shoreline flowing east towards the harbor, which is contrary to the general westward longshore current. The beach consists of a fine olivine sand that terminates near shore. At the western property boundary the sand bottom extends about 15 to 30 feet into the ocean, whereas at the eastern boundary the sand terminates within 3 feet of the water's edge.

The offshore substrate consists of an algal ridge reef community. This type of reef is built up almost exclusively through algae growth. Although the surface of the reef is fairly fragile, due to the nature of the calcified *Porolithon* algae, the reef structure is fairly uniform and solid without caves, undercuts or channels. The reef apparently has well defined edges. To the right side of the swim path going out, the reef edge dropped about 1.5 feet to a sand channel. The width of the channel was not determined. Similarly the reef came to an abrupt end and a 3-foot drop just outside the breaker zone with a similar but less well defined edge on the west side near the swim path.

Two principal calcareous algae, *Porolithon gardineri* and *Porolithon onkodes*, account for much of the calcium structure and cementing action of these reefs. However other algae also tend to trap and hold sand and fine sediments which eventually become cemented to the reef top. A dense algal mat covered almost all available substrate. Principal algae species observed include *Grateloupia* sp., *Dictyota sandvicensis*, *Codium arabicum*, *Codium edule*, and *Porolithon gardineri*. A diatom film covered much of the algae and contributed to the poor water clarity.

Only two live corals (no dead corals were seen) were noted, one small (15 sq. in.) encrusting lobe coral (*Porites lobata*), and one small cauliflower or rose coral (*Pocillopora meandrina*). In calmer conditions with better water quality, it is quite likely that other corals (probably including *P. damicornis*) would have been found on the reef. No fish were observed along the entire transit route. Only one macro invertebrate, a sea cucumber (*Holothuria nobilis*), was noted on the surface of the reef. It is probable that under calmer conditions many other invertebrate animals would be seen inhabiting the fine scale structure of the reef.

The beach fronting the Croft property is somewhat sheltered from surf by the nearshore reef. The reef mass appears to be constructed primarily of calcified algae although the surface of the reef displays many algae species, some of which are edible (*Codium* sp.). The reef does not support a large population of fish, probably due in part to the absence of large holes or caves within the reef structure. Water clarity at the site was poor and, according to local residents and fishermen, this is a typical condition. Effluent from the Kikiaola small boat harbor and the Waimea River to the west contribute to the silt load and probably also add nutrients which promote algae growth. The heavy silt load and probable high nutrient content of the water may be a primary factor in the formation of the expansive algal ridge reefs with little or no coral growth of significance.

There do not appear to be any caves or overhangs that could be used by green sea turtles for resting areas. However the density of fleshy algae on the reef top suggests that during calm weather, turtles could utilize this area for foraging during high tide.

No turtles, seals, or other endangered or unique species were noted.

It does not appear that the construction or existence of the seawall fronting the Croft property will have any adverse impact on the nearshore marine communities.

IV. IMPACTS AND ALTERNATIVES

A. IMPACT OF PROPOSED REVETMENT

The revetment has been designed to have minimal impact on beach processes. The random placement of armor stones on a 1:2 slope will dissipate wave energy and will not significantly increase sediment transport. The revetment toe will not protrude from the shoreline and will not impede longshore transport.

A field trip was made on January 12, 1995 to assess the impact of the revetment. Sand has accreted and a nice beach was observed in front of the property (Figure 12a-b). The waterline moved approximately 10 feet offshore as a result the revetment

construction except at Profile 3, which is in the middle of the property (Figures 3 and 8). This result clearly shows the effectiveness of the proposed design for protection of both the property and the beach.

B. ALTERNATIVES

Three alternatives other than the selected revetment were considered. These are discussed in the following paragraphs.

No Action

Without any action the property will continue to be washed away since equilibrium conditions cannot be reached without altering the wave climate or the sand balance. The topsoil particles are much smaller than sand and are easily put in suspension. The erosion of large amounts of topsoil will create offshore sediment plumes that are detrimental to marine life, especially coral and other benthic organisms. This alternative is not acceptable for either the property owner or the environment.

Retaining Wall with Rubble Toe

A vertical retaining wall with rubble toe would provide shore protection; however, sloping rubble revetments dissipate wave energy and encourage beach growth better than vertical walls.

Beach Nourishment

Beach nourishment is possible but would require state intervention to bypass sand around Kikiaola Boat Harbor (see aerial photograph in Figure 6 for the sand trapped updrift of the harbor). Sand bypassing is not legally permissible or economically viable for private home owners.



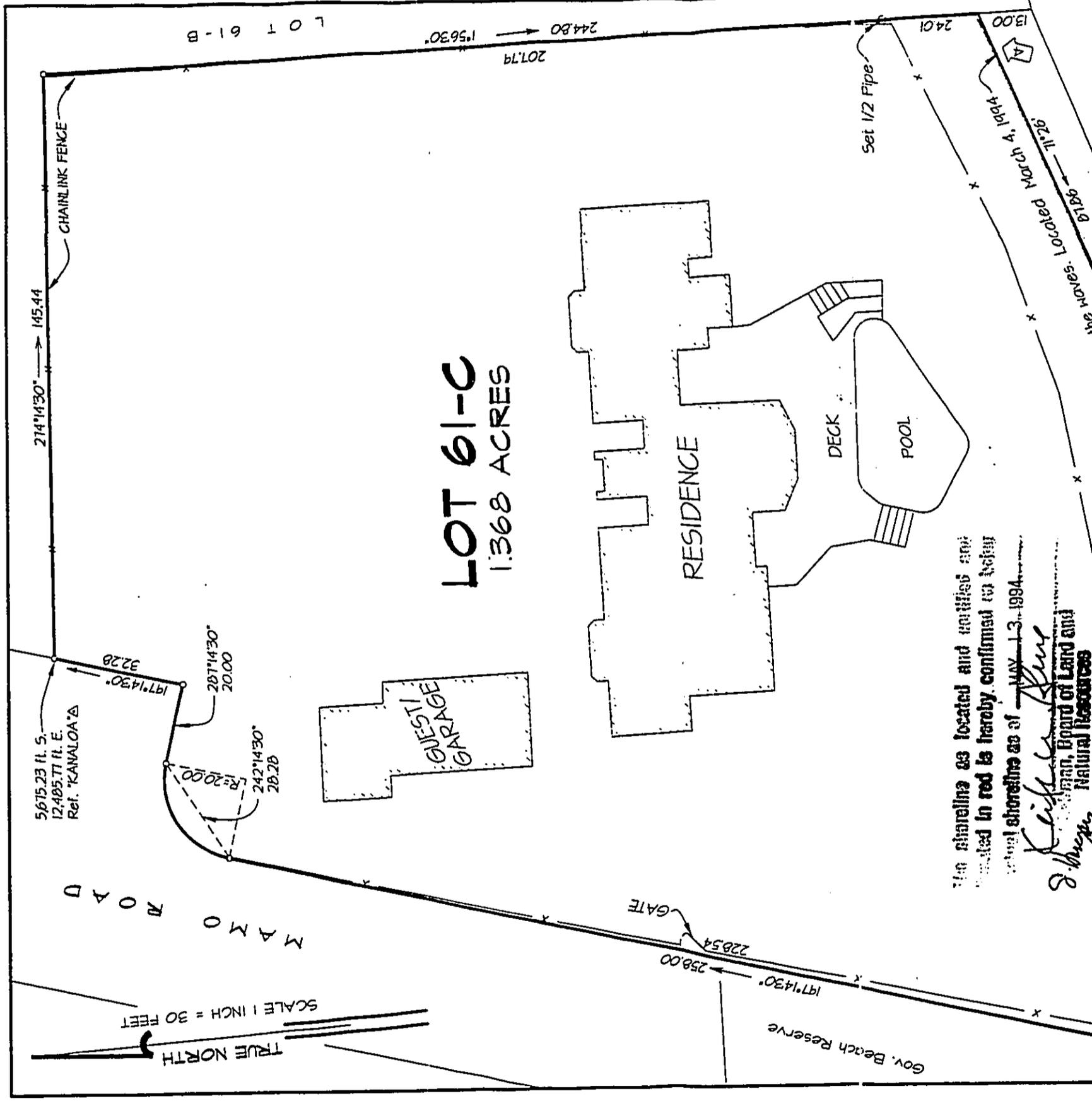
C. RECOMMENDED ALTERNATIVE

Since the house and other facilities are threatened, and the property suffers from severe loss, some type of protection is required. A 1:2 rubble revetment, properly designed and constructed, will provide the greatest protection with minimal impact on beach processes. Our assessment shows that the constructed revetment has improved the surrounding marine environment, whereas the unprotected section at the west edge of the property has shown continuous erosion. Therefore, we recommend that the revetment be extended to the property boundary along the certified shoreline. The extended revetment should follow the same design and construction method. The extended design drawings are shown in Figure B-2. The addition of a chain-link fence is recommended to avoid liability from unauthorized use of the swimming pool and damage to shore protection vegetation on the revetment.

V. MITIGATION MEASURES

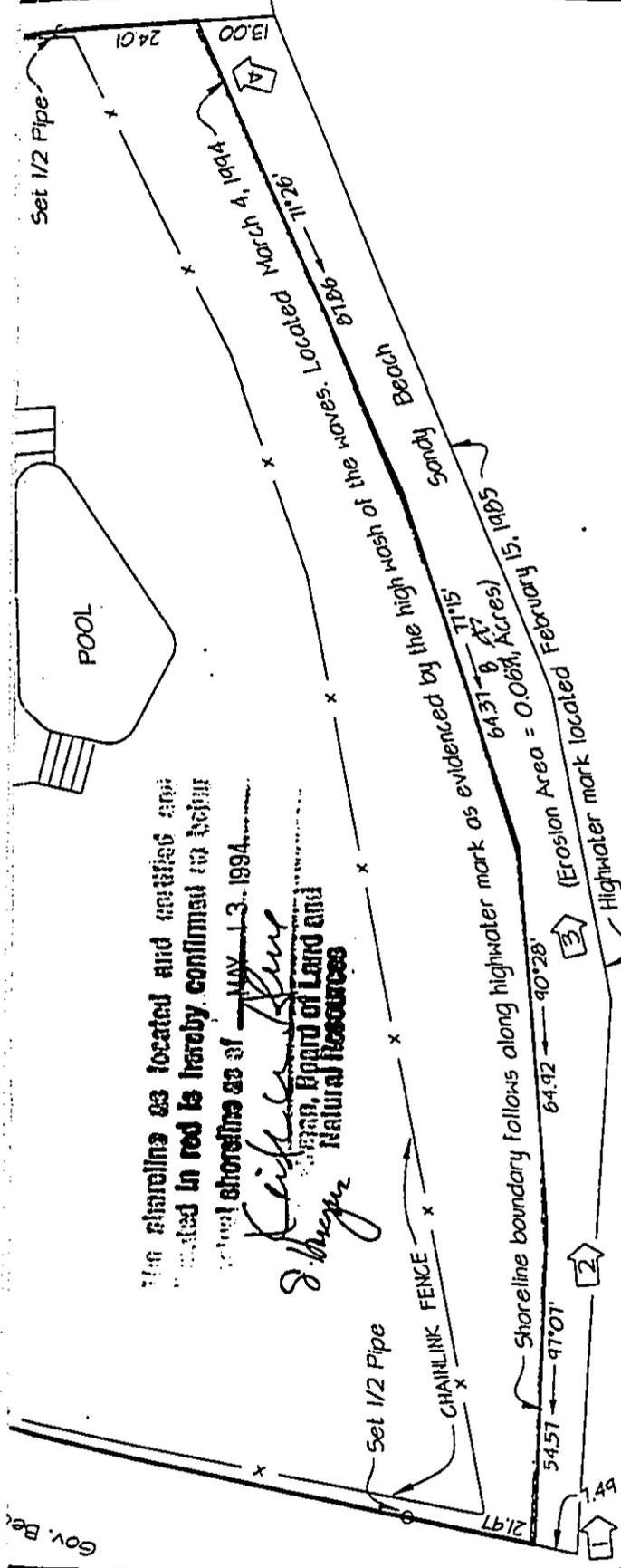
Because of the negligible impact of the revetment on the environment, no mitigation measures are considered necessary.

**APPENDIX A
SHORELINE SURVEY**



The shoreline as located and notified and located in red is hereby confirmed to be the actual shoreline as of MAY 13, 1994.

Richard B. Dew
 Chairman, Board of Land and Natural Resources



Shoreline Certification

Map of
LOT 61-C
 Being a portion of
Ld. Ct. App. 1076
 (Map 32)

at
 Kikiaola, Waimea, Kauai, Hawaii

Note: Denotes position and number of shoreline picture taken.

Prepared for:
 585273 Alberta Ltd.
 c/o Chuck Croft
 P.O. Box 1058
 Maimea, HI 96796

March 8, 1994
 Revised May 9, 1994



Wagner Engineering Services, Inc.
 P.O. Box 851 Hanalei, HI 96714 (808) 826-7256

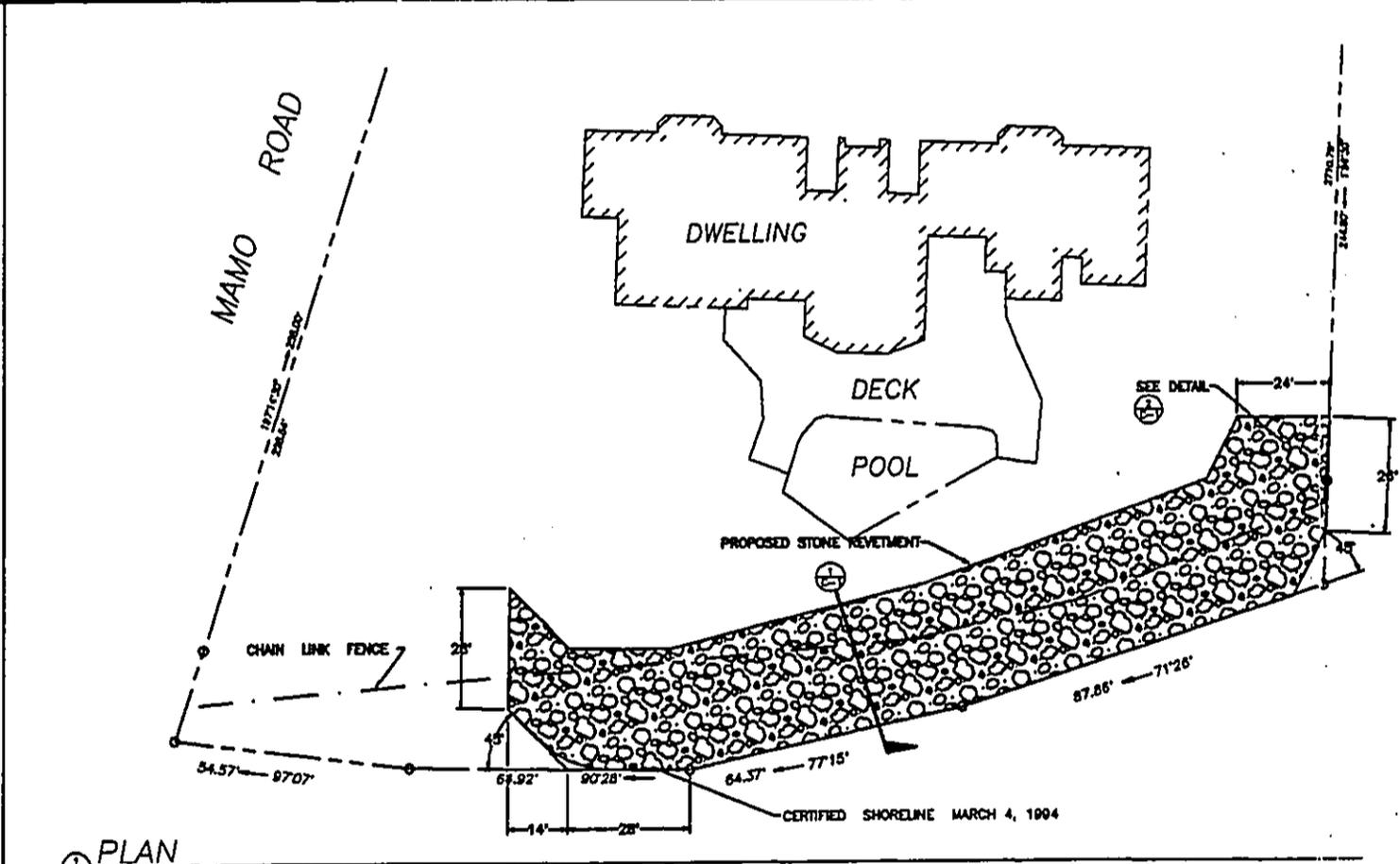
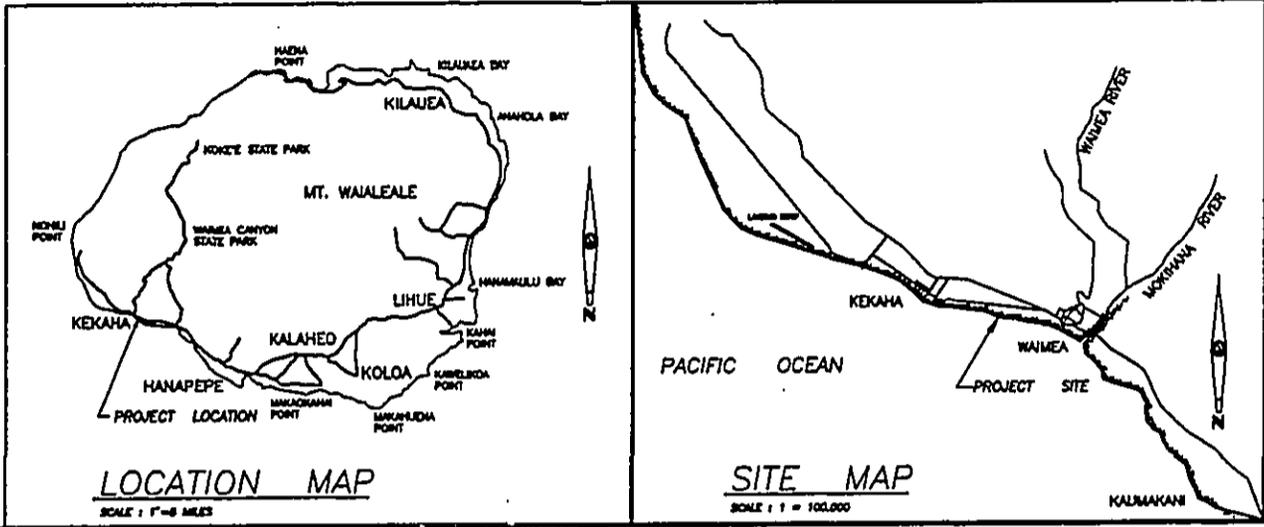


THIS MAP WAS PREPARED BY ME OR UNDER MY SUPERVISION

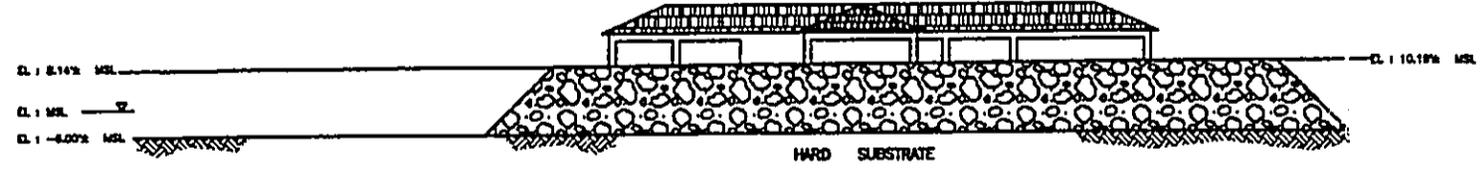
Ronald G. Wagner
RONALD G. WAGNER
 Registered Professional Land Surveyor
 Certificate No. 5074

TMK 1-2-13:35 (4 th DIV.) Project No. 0775

**APPENDIX B
REVTMENT DESIGN DRAWINGS**



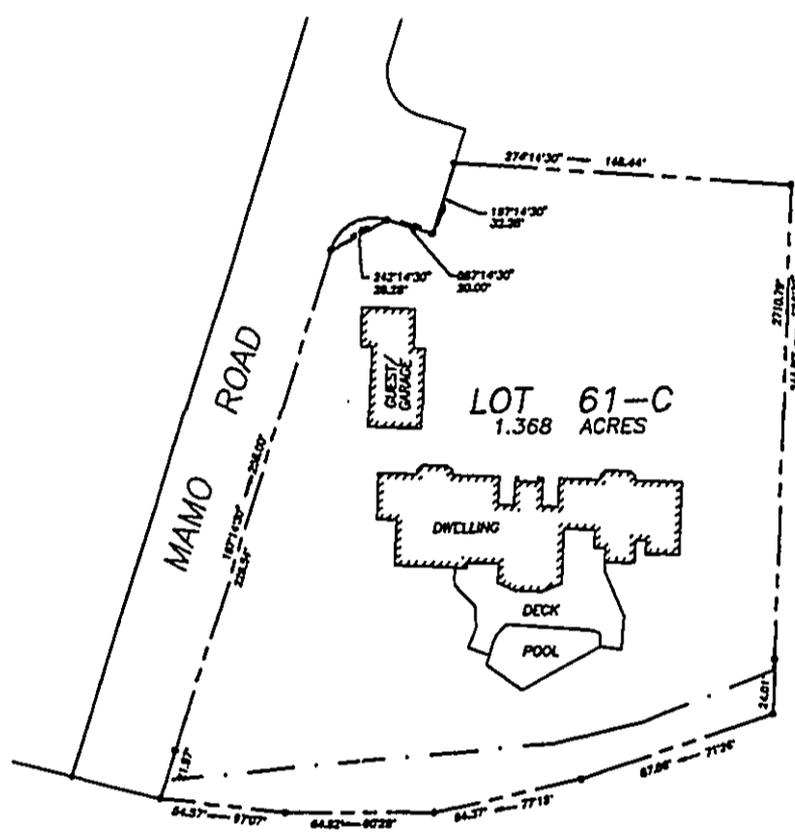
PLAN
SCALE: 1" = 20'



FRONT ELEVATION
SCALE: 1" = 20'

NOTE: THIS DESIGN IS PRELIMINARY AND SUBJECT TO REVISION AFTER FIELD CONDITIONS.

As-Built
Existing



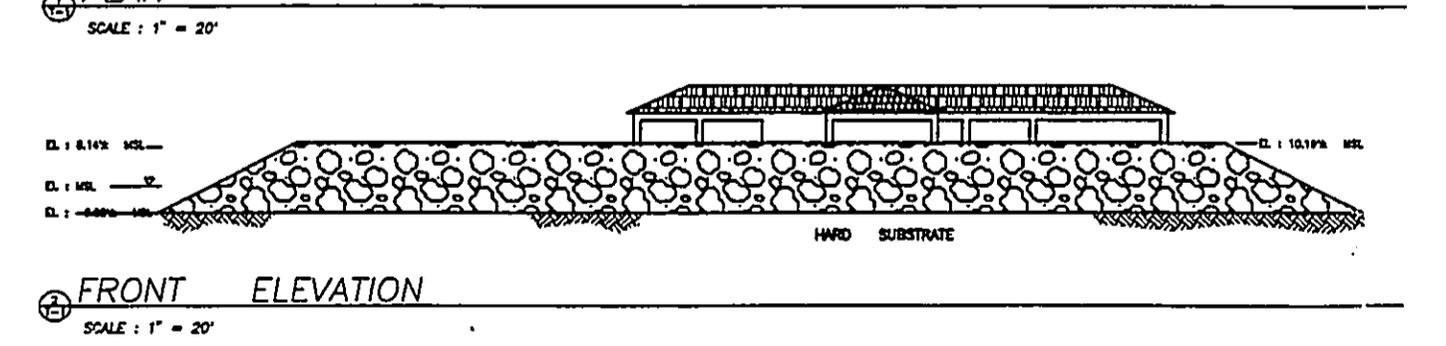
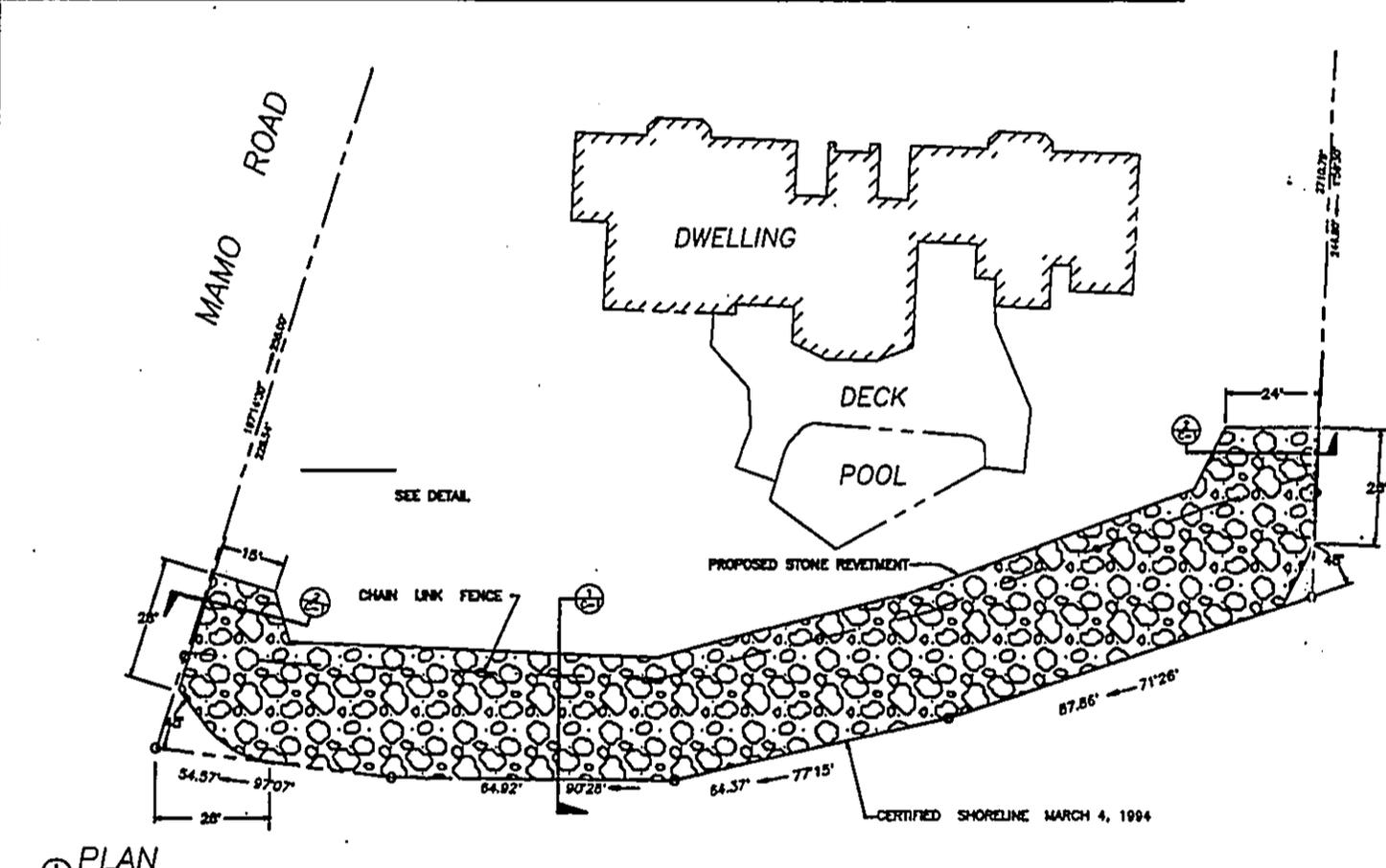
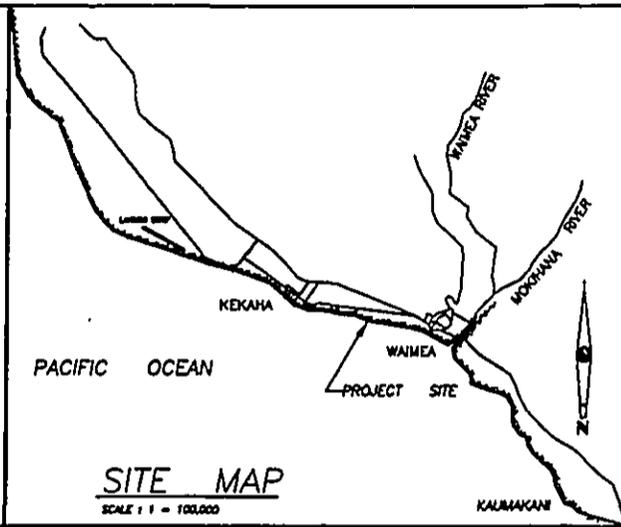
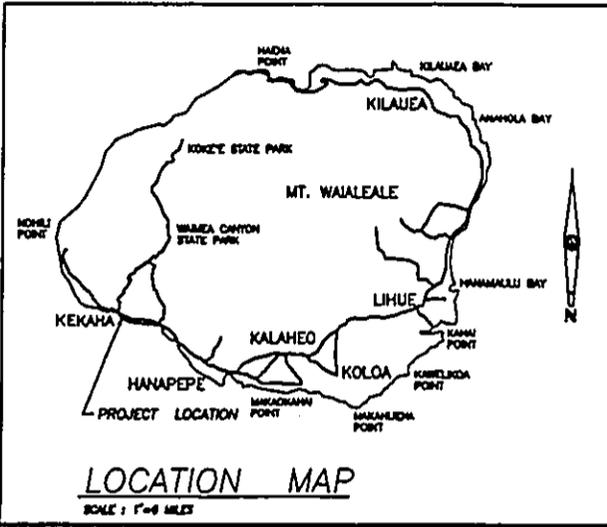
PLOT PLAN
SCALE: 1" = 40'

As-Built Drawing of Existing Revetment

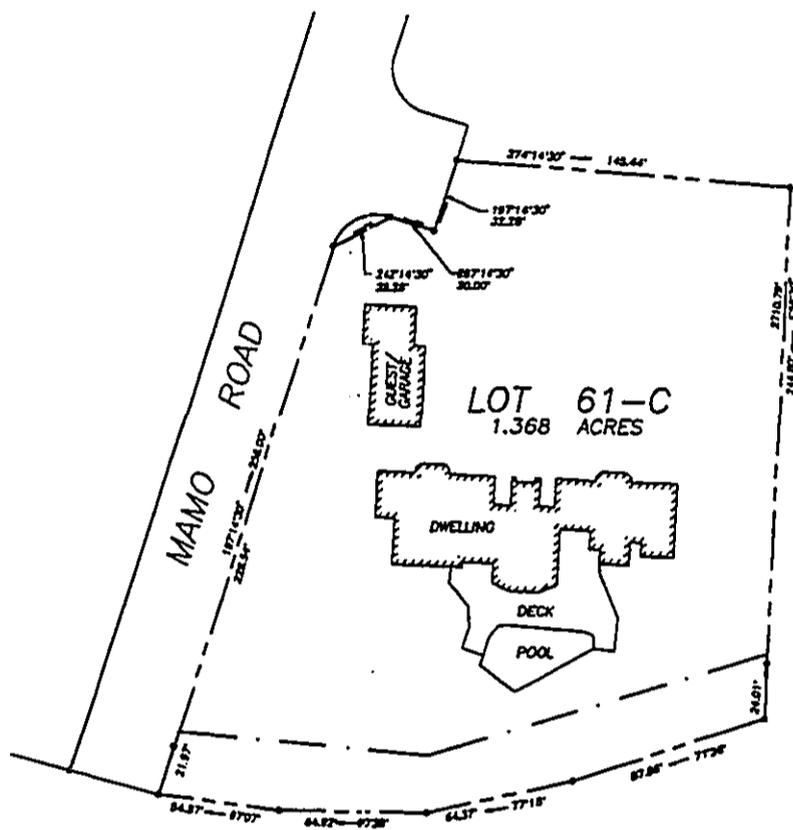
EL. 10.18% MSL

NOTE: THIS DESIGN IS PRELIMINARY AND SUBJECT TO REVISION AFTER INVESTIGATION OF SHORELINE CONDITIONS.

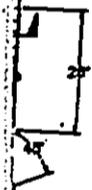
| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------|----------|
|  Oceanit Coastal Corporation coastal engineering services 1100 Aloha Building 1100 Aloha Street, Suite 3100 Honolulu, Hawaii 96813 | | Ph: (808) 531-3017 Fax: (808) 531-3177 MCI: OCEANIT | |
| | | REVETMENT DESIGN 4470 MAMO ROAD, KEWAHA, KAUAI TMK: 1-2-1335 | |
| SCALE AS NOTED | APPROVED BY | DESIGN | WEB |
| DATE: 9/94 | | DRAWN BY | VEB |
| | | JOB NO. | 9408 |
| | | ACAD FILE: | CR0711-6 |
| FIGURE B-1 | | DRAWING NUMBER | T-1 |



NOTE: THIS DESIGN IS FOR REVISION AFTER CONDITIONS.

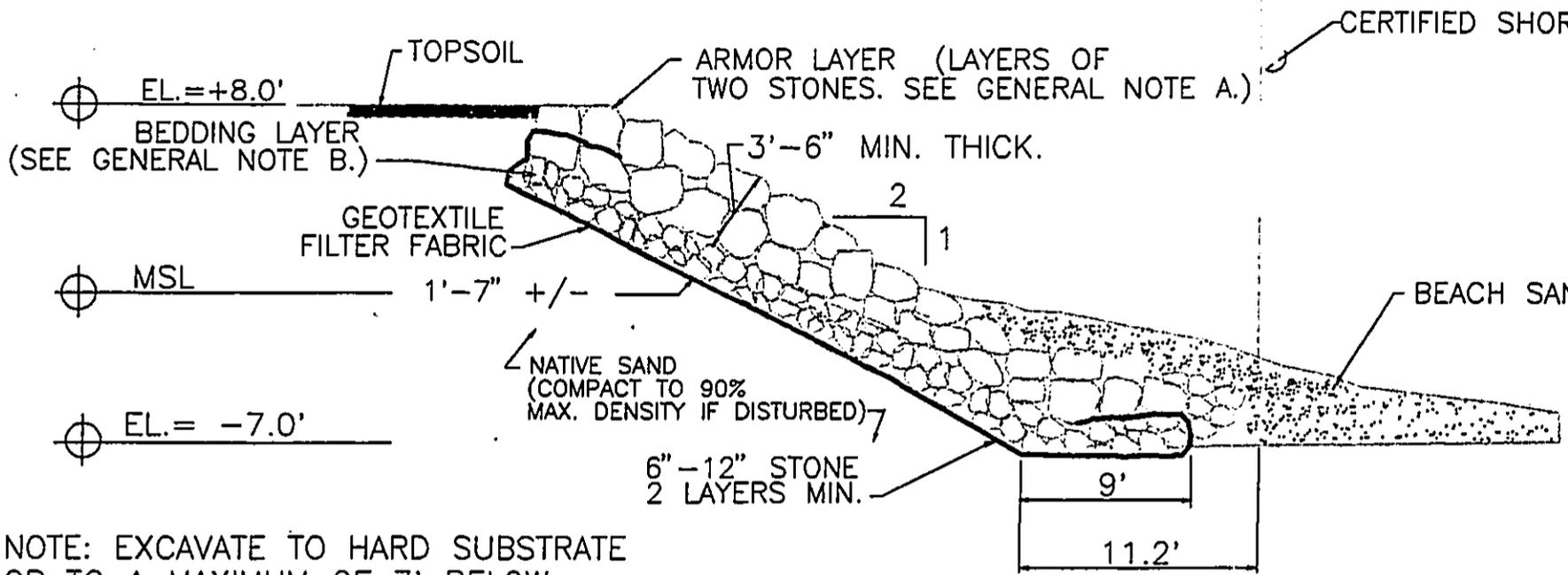


Ⓢ PLOT PLAN
SCALE: 1" = 40'



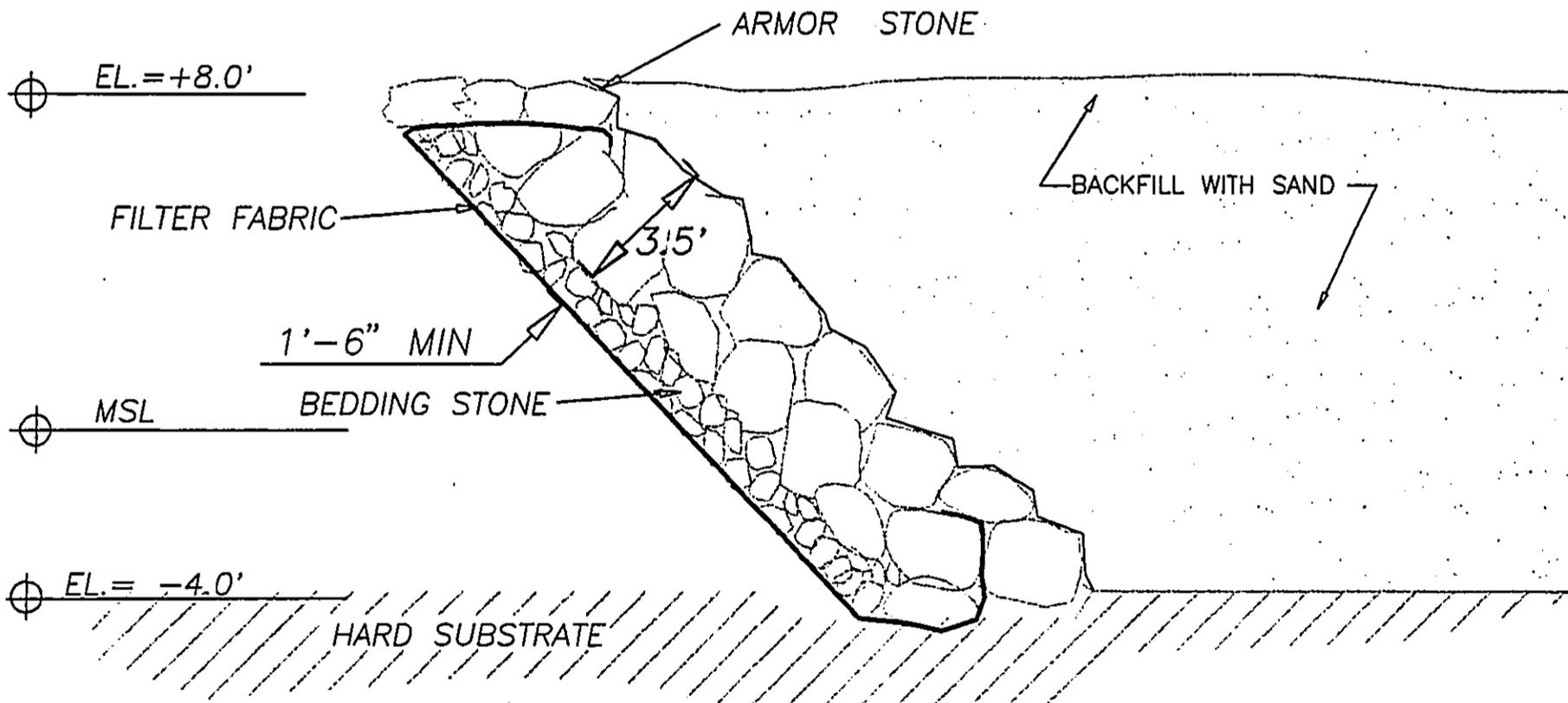
NOTE: THIS DESIGN IS PRELIMINARY AND SUBJECT TO REVISION AFTER INVESTIGATION OF SHORELINE CONDITIONS.

| | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------|
|  Oceanit Coastal Corporation coastal engineering services 1100 Alakai Building Ph: (808) 531-3017 1100 Alakai Street, Suite 3100 Fax: (808) 531-3177 Honolulu, Hawaii 96813 MCI: OCEANIT | | |
| | | |
| SCALE AS NOTED | APPROVED BY | DESIGNED WEB |
| DATE: 2/95 | | DRAWN BY VZB |
| | | JOB NO. 9408 |
| | | ACAD FILE: 09DF2-3.DWG |
| FIGURE B-2 | | DRAWING NUMBER T-1 |



NOTE: EXCAVATE TO HARD SUBSTRATE OR TO A MAXIMUM OF 7' BELOW M.S.L.

1 CROSS SECTION (TYPICAL)
 C-1 SCALE: 1"=8'



2 CROSS SECTION (TYPICAL)
 C-1 SCALE: 1"=8'

CERTIFIED SHORELINE

GENERAL NOTES

A. ARMOR LAYER:

1. Armor stones shall range from 700 pounds to 1200 pounds with 50 percent greater than 900 pounds.
2. Armor stone shall be quarry stone or field stone with specific gravity greater than 2.65.
3. The armor layer shall be two stones thick with minimum thickness dimension of 3.5 feet.

B. BEDDING LAYER:

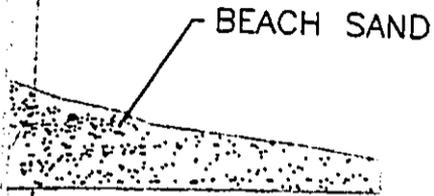
1. Bedding stones shall range from 70 to 120 pounds with 50 percent greater than 90 pounds.
2. The bedding layer shall be two stones thick with a minimum thickness dimension of 1.6 feet.

C. GEOTEXTILE FILTER FABRIC:

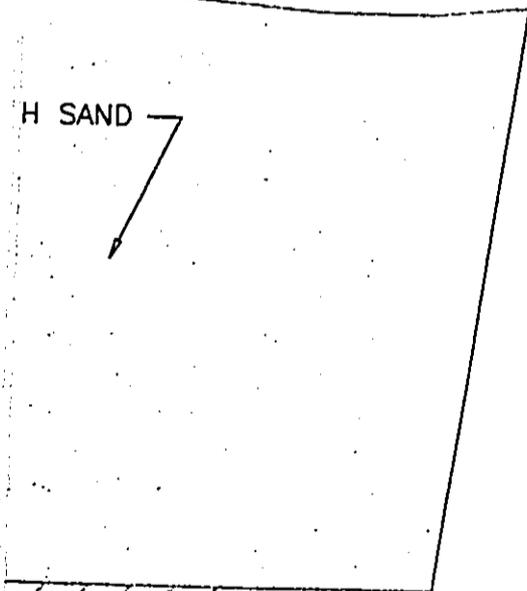
1. A geotextile filter fabric shall be placed between the bedding layer and the soil. The filter fabric shall be puncture resistant and shall retain soil particles. The fabric shall be Supac 8NP by Phillips Fiber Corp. or approved equal.
2. The fabric must be placed loosely, not in a stretched condition, but free of wrinkles, creases, or folds.

D. CONSTRUCTION:

1. Sand and rubble shall be excavated to hard substrate. If hard substrate is not found, the project engineer must be notified immediately for possible design changes.
2. The largest armor stones will be used as toe stones. Toe stones must be placed on hard substrate. No stones shall be placed seaward of the certified shoreline.
3. After revetment construction, the beach shall be cleaned of construction debris and returned to the original slope.
4. The contractor shall remove all unused material from the site.
5. The contractor shall backfill the revetment wall with sand and compact.



H SAND



Oceanit Coastal Corporation
coastal engineering services

1100 Alakaa Building
1100 Alakaa Street, Suite 3100
Honolulu, Hawaii 96813

Ph: (808) 531-3017
FAX: (808) 531-3177
MCI: OCEANIT

REVETMENT DESIGN
4470 MAMO ROAD, KEKAHA, KAUAI
TMK: 1-2-13:35

| | | | |
|----------------|-------------|----------------|------------|
| SCALE AS NOTED | APPROVED BY | DESIGNED | WEB |
| DATE: 2/95 | | DRAWN BY | WTY |
| | | JOB NO. | 9408 |
| | | ACAD FILE: | crfb01.dwg |
| FIGURE B-3 | | DRAWING NUMBER | |
| | | C-1 | |

**APPENDIX C
EA COMMENTS AND RESPONSES**



Oceanit Coastal Corporation

coastal engineering services



OFFICE OF STATE PLANNING

Office of the Governor

MAILING ADDRESS: P.O. BOX 3540, HONOLULU, HAWAII 96811-3540
STREET ADDRESS: 250 SOUTH HOTEL STREET, 4TH FLOOR
TELEPHONE: (808) 587-2846, 587-2800

Benjamin J. Cayetano, Governor
FAX: Director's Office 587-2848
Planning Division 587-2824

Ref. No. C-1171

May 2, 1995

The Honorable Dee Crowell
County of Kauai
Planning Department
4444 Rice Street
Lihue, Hawaii 96766

Attention: Mr. George Kalisik

Dear Mr. Crowell:

These comments are submitted in response to the draft environmental assessment for shore protection at the Croft residence on Mamo Road. Please consider these comments both in assessing the adequacy of the EA and in considering the Special Management Area Permit and Shoreline Setback Variance.

Hardened shorelines tend to contribute to beach loss. *See e.g. Hwang & Fletcher, Beach Management Plan with Beach Management Districts* (June 1992). The environmental assessment itself notes that erosion at the Croft property has been aggravated at the east end by a neighboring rock wall (p. 12). How will the Croft wall and the proposed extension to the western property line affect erosion along the coast?

It is our contention that by armoring the shoreline, the long-term retreat and erosion of the land may be halted. But the beach itself will narrow and disappear -- an unnatural process (rendering structures even more prone to hurricane damage).

The environmental assessment asserts that the revetment is encouraging beach growth. More likely, natural processes are at work. Generally, beaches erode and accrete in cycles. This beach likely stabilized after summer storms as it normally would -- not because of the revetment.

Before making a final determination on this permit application, the county should develop a long-term plan for the area. Will the county allow for the gradual hardening of the entire shoreline and the subsequent loss of public beach resources? Or will it plan for a retreat from the shoreline? Will the county work with the Army Corps of Engineers and the state DOT on a beach by-pass operation that will allow the sand presently accumulating at Kikiaola Harbor to reach the shoreline West of the harbor?

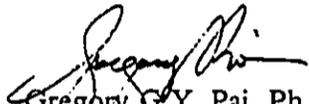
In addressing the need for this revetment, the county should balance the potential negative impact of this project with its benefits. It appears that erosion does not, at this time threaten a residence. Rather, it threatens only a swimming pool.

The Honorable Dee Crowell
Page 2
May 1, 1995

Finally, the county should not allow the chain-link fence to remain at its present location (approximately five feet seaward from the top of the revetment). One of the policies of HRS 205A is to provide and manage "adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value." Furthermore, all development in the special management area shall ensure adequate access to publicly owned beaches. HRS 205A-26(A). If the county allows the revetment to remain, the beach in front of the residence will probably disappear. The fence itself will make access along the coast even more difficult since it will force the public to walk on the uneven rocky revetment. Construction of the revetment, together with the fence, threaten to hinder lateral access by the public. At a minimum, the fence should be set back mauka of the revetment and a condition added to assure safe public access along the crest of the revetment.

If there are any questions concerning our comments, please call Thomas Eisen at 587-2880 or David Kimo Frankel at 587-2839.

Sincerely,


Gregory G.Y. Pai, Ph.D.
Director

cc: Chuck Croft
Dr. Warren Bucher
Gary Gill



Oceanit Coastal Corporation

coastal engineering services

A subsidiary of Oceanit Laboratories, Inc.

June 7, 1995

Gregory G.Y. Pai, Ph.D.
Director
Office of State Planning
P.O. Box 3540
Honolulu, HI 96811-3540

Subject: Draft Environmental Assessment for Shore Protection at Croft Residence,
4470 Mamo Road, Kekaha, Kauai, TMK 1-2-13:35

Dear Dr. Pai:

Thank you for your comments sent to the County of Kauai Planning Department on the subject Environmental Assessment (Ref. No. C-1171, May 2, 1995). We are providing the following responses to your questions and concerns on behalf Mr. Chuck Croft, the permit applicant.

COMMENT:

How will the Croft wall and the proposed extension to the western property line affect erosion along the coast?

RESPONSE:

The shore protection structure is a rock revetment designed and constructed at a slope of 1:2 according to Corps of Engineers standards. A revetment of this type has minimal effect on the remaining shoreline as evidenced by the beach that has rebuilt in front of the revetment since its construction. We have designed a flanking section for the west end of the revetment to ease the transition to the unprotected shoreline. This flanking section is similar to what was constructed initially. There is presently no flanking erosion evident at the western end; therefore, we do not believe the revetment will accelerate downdrift erosion patterns.

COMMENT:

It is our contention that by armoring the shoreline, the long-term retreat and erosion of the land may be halted. But the beach itself will narrow and disappear -- an unnatural process (rendering structures even more prone to hurricane damage).

1100 Alakea Building • 1100 Alakea Street, 31st Floor • Honolulu, Hawaii 96813
TELEX: 7431404 • MCI: OCEANIT • TEL: (808) 531-3017 • FAX: (808) 531-3177

Office of State Planning
June 7, 1995
Page 2

RESPONSE:

According to the landowner, the beach in front of the constructed revetment is wider after construction than at any time since he bought the property. Photographs we have taken show that the beach is substantially wider than it is at neighboring properties. Long-term erosion caused by the state-owned Kikiaola Boat Harbor could make the shoreline recede farther. The harbor is by far the primary cause of erosion along this beach, not the revetment.

COMMENT:

The environmental assessment asserts that the revetment is encouraging beach growth. More likely, natural processes are at work. Generally, beaches erode and accrete in cycles. This beach likely stabilized after summer storms as it normally would -- not because of the revetment.

RESPONSE:

The important fact to note is that the beach did stabilize after the summer storms. If the revetment was going to aggravate erosion and result in a narrow or no beach, the beach would probably not have stabilized and grown as it has. During our site visit in March 1995, the revetment was nearly buried in sand, and this was after a period of high Kona waves.

COMMENT:

Before making a final determination on this permit application, the county should develop a long-term plan for the area.

RESPONSE:

There should be a long-term plan for the area that includes addressing the erosion caused by Kikiaola Boat Harbor. However, structures may be irreversibly damaged or lost while such a plan is formulated and implemented. The harbor has been in existence since 1959, and there is no state, county, or federal erosion control plan yet. Until the erosion is stopped by sand by-passing or nourishment, the property owner will have to use shore protection structures.

COMMENT:

It appears that erosion does not, at this time threaten a residence. Rather, it threatens only a swimming pool.

RESPONSE:

During the summer of 1994, the shoreline eroded inland over 20 feet at some locations in approximately two months. If erosion continued at this rate, the swimming pool would be threatened. The pool is a legal structure that was originally constructed more than 40 feet from the shoreline and is connected to the house by a patio. Loss of the pool would not only be a large financial burden, the resulting broken structure would make much of the yard unusable and unsafe. Moreover, the residence is located only 15 feet from the pool, and following the loss of the pool structure, the threat of erosion to the residence would be immediate.

COMMENT:

Finally, the county should not allow the chain-link fence to remain at its present location (approximately five feet seaward from the top of the revetment). One of the policies of HRS 205A is to provide and manage "adequate public access, consistent with conservation of natural resources, to and along the shoreline with recreational value." Furthermore, all development in the special management area shall ensure adequate access to publicly owned beaches. HRS 205A-26(A). If the county allows the revetment to remain, the beach in front of the residence will probably disappear. The fence itself will make access along the coast even more difficult since it will force the public to walk on the uneven rocky revetment. Construction of the revetment, together with the fence, threaten to hinder lateral access by the public. At a minimum, the fence should be set back mauka of the revetment and a condition added to assure safe public access along the crest of the revetment.

RESPONSE:

A fence existed at approximately the same location prior to the erosion and subsequent revetment construction. The fence is necessary to avoid liability that may be occasioned by unauthorized use of the swimming pool or damage to landscaping. There are many locations for public access to the beach along this coastline. One is immediately west of the property at the end of Mamo Road. Others are located farther east along the beach and at Kikiaola Boat Harbor. The beach has not disappeared in front of the revetment, and we have no reason to believe that it will disappear. At the present time the beach is over 25 feet wide, thereby allowing unlimited lateral access



Office of State Planning
June 7, 1995
Page 4

fronting the Croft parcel. It is not necessary to walk along the crest of the revetment to access the beach.

We have tried our best to provide a design that not only protects the property but minimizes any adverse effect to the beach. The revetment has been designed and constructed according to Corps of Engineers guidelines and standard coastal engineering practices. We would support any state or county long-term plans that would reduce the erosion at Kikiaola Beach as long as our client's property is not threatened. We would be happy to discuss your concerns further at your convenience.

Sincerely,



Warren E. Bucher, Ph.D.
Senior Ocean Engineer

cc: Mr. Chuck Croft
County of Kauai Planning Department

WEB/106075gp.osp



Oceanit Coastal Corporation
coastal engineering services

ENJAMIN J. CAYETANO
GOVERNOR



GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-2452

April 4, 1995

Dr. Warren E. Bucher
Oceanit Coastal Corporation
1100 Alakea Street, #3100
Honolulu, Hawaii 96813

Dear Dr. Bucher:

SUBJECT: Draft Environmental Assessment for Croft Residence Rock Revetment,
Kekaha, Kauai, TMK 1-2-13:35

Please consult the Army Corps of Engineers and the Coastal Zone Management program of the Office of State Planning and include their responses in your final environmental assessment.

Sincerely,


Gary Gill
Director

GG/NH:kk

c: George Kalisik, County of Kauai Planning Department



Oceanit Coastal Corporation

coastal engineering services

A subsidiary of Oceanit Laboratories, Inc.

June 6, 1995

Mr. Gary Gill, Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street
Fourth Floor
Honolulu, HI 96813

Subject: Draft Environmental Assessment for Shore Protection at Croft Residence,
4470 Mamo Road, Kekaha, Kauai, TMK 1-2-13:35

Dear Mr. Gill:

Thank you for your comments (April 4, 1995) on the subject Environmental Assessment (EA). The Army Corps of Engineers has not, to date, provided a response to the EA even though they have been contacted several times by phone. The shore protection structure presented in the EA was designed according to Corps of Engineers guidelines.

The Office of State Planning has also provided comments, and we are responding to them. The response will be included in the final EA.

Sincerely,

Warren E. Bucher, Ph.D.
Senior Ocean Engineer

cc: Mr. Chuck Croft
County of Kauai Planning Department

WEB/106065oe.qc

**EXHIBIT 1
SPECIAL MANAGEMENT AREA
PERMIT ASSESSMENT APPLICATION**

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A:

OWNER: Mr. Chuck Croft

APPLICANT: Michael J. Belles

APPLICANT'S STATUS IF NOT OWNER: Attorney for Owner

ADDRESS: 4334 Rice Street, Suite 202

Lihue, Kauai, HI 96766 PHONE: 245-4705

FAX NO.: 245-3277

TMK: (4)1-2-13:35 ZONING: Open SLUD: Urban

GENERAL PLAN: Open CURRENT LAND USE: Residential/Open

NATURE OF DEVELOPMENT: Construction of seawall to protect residence and other improvements located on the parcel from severe erosion caused by unprecedented oceanographic conditions that have resulted in dramatic loss of land along shoreline and thereby threatens to severely damage structures on the property.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: \$67,708.55
(attached contractor's estimate)

DATE OF APPLICATION: September 9, 1994

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.
2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.
3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are submitted.
4. Any other plans or information required by the Director.

Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

- a. Description of the area and environment involved including flora and fauna, and other features;

Residential parcel of land containing one residence and guest/garage abutting shoreline as shown on Shoreline Certification attached to application.

- b. Description of the existing land uses of the project site and surrounding areas;

Project site contains residential uses with adjacent residential uses to the North and East, Mamo Road and the State Beach Reserve to the West, and the ocean to the South.

- c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

- | | <u>Yes</u> | <u>No</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------|
| 1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to, historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources; | <u> </u> | <u> x </u> |

Discussion:

- | | | |
|--------------------------------------------------------------|-------------|--------------|
| 2. curtails the range of beneficial uses of the environment; | <u> </u> | <u> x </u> |
|--------------------------------------------------------------|-------------|--------------|

Discussion:

- | | | |
|------------------------------------------------------------------------------------------|-------------|--------------|
| 3. conflicts with the County's or the State's long-term environmental policies or goals; | <u> </u> | <u> x </u> |
|------------------------------------------------------------------------------------------|-------------|--------------|

Discussion:

- | | | |
|-----------------------------------------------------------------------------------------------------------|-------------|--------------|
| 4. substantially affects the economic or social welfare and activities or the community, County or State; | <u> </u> | <u> x </u> |
|-----------------------------------------------------------------------------------------------------------|-------------|--------------|

Discussion:

- | | | |
|---------------------------------------------------------------------------------------------------------|-------------|--------------|
| 5. involves substantial secondary impacts, such as population changes and effects on public facilities, | <u> </u> | <u> x </u> |
|---------------------------------------------------------------------------------------------------------|-------------|--------------|

Discussion:

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

Discussion:

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

Discussion:

8. detrimentally affects air or water quality or ambient noise levels; or

Discussion:

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

Discussion: As described in the attached report prepared by Oceanit Laboratories, construction of the seawall will not have an adverse effect on shoreline.

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

Discussion:

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

Discussion:

- d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

- | | <u>Yes</u> | <u>No</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| 1. Will the proposed development adversely affect coastal resources uniquely suited for recreational activities that cannot be provided in other areas? | <u> </u> | <u> x </u> |
| Discussion: | | |
| 2. Will the project require replacement of coastal resources having significant recreational value, including but not limited to surfing sites, sandy beaches and fishing areas, when such resources will be unavoidably damaged by the proposed development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable? | <u> </u> | <u> x </u> |
| Discussion: | | |
| 3. Is the project site near a State or County Park? | <u> x </u> | <u> </u> |
| Discussion: To the West of the Project Site is situated Mammo Road and the State Beach Reserve. | | |
| 4. Will the proposed development affect an existing public access to or along the shoreline? | <u> </u> | <u> x </u> |
| Discussion: | | |
| 5. Will the proposed development provide public access to and/or along the shoreline? | <u> </u> | <u> x </u> |
| Discussion: | | |
| 6. Will the proposed development encourage expanded recreational use of County, State, or Federally owned or controlled shoreline lands and waters having recreational value? | <u> </u> | <u> x </u> |
| Discussion: | | |
| 7. Will the development generate point or non-point sources of pollution that will affect recreational value of coastal area? | <u> </u> | <u> x </u> |
| Discussion: | | |

HISTORICAL RESOURCES:

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

- | | <u>Yes</u> | <u>No</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| 1. Is the project site within a Federal, State, and/or County designated historic/cultural district? | — | <u>X</u> |
| Discussion: | | |
| 2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places? | — | <u>X</u> |
| Discussion: | | |
| 3. Does the project site include land(s) which has not been previously surveyed by an archaeologist? | — | <u>X</u> |
| Discussion: | | |
| 4. If a archaeological survey has been conducted for the project site, has the survey been submitted to the State Historic Preservation Office for review and recommendations? | — | N/A — |
| Discussion: | | |
| 5. Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey) | — | <u>X</u> |
| Discussion: | | |
| 6. Is the project site within or near a Hawaiian fishpond? | — | <u>X</u> |
| Discussion: | | |
| 7. Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.) | — | <u>X</u> |
| Discussion: | | |

SCENIC AND OPEN SPACE RESOURCES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

- | | <u>Yes</u> | <u>No</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| 1. Does the project site abut or affect a valued scenic resources or landmark within the SMA? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 2. Does the proposed development affect existing shoreline open space and scenic resources? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 3. Does the proposed development involve alteration natural landforms and existing public views to and along the shoreline? | <u> X </u> | <u> </u> |
| Discussion: Although the proposed construction of a seawall will alter natural land forms, such construction will not adversely affect shoreline as indicated on Oceanit Laboratories report, and such construction is necessary to prevent further erosion of parcel and potential damage to structures located on the project site. | | |
| 4. Is the project compatible with the visual environment? | <u> X </u> | <u> </u> |
| Discussion: No adverse visual impact is anticipated from construction of the seawall and such construction is preferable to srosion currently occuring on parcel, coupled with existing pollution to ocean. | | |
| 5. Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 6. Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)? | <u> X </u> | <u> </u> |
| Discussion: See attached Shoreline Certification. | | |

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

- | | <u>Yes</u> | <u>No</u> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|
| 1. Is the project site a habitat for endangered species of flora and fauna? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 2. Will the proposed development adversely affect valuable coastal ecosystems of significant biological or economic importance? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 3. Will the proposed involve disruption or degradation of coastal water ecosystems through stream diversions, channelization, and similar land and water uses? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 4. Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 5. Is there a wetland on the project site? | <u> </u> | <u> X </u> |
| Discussion: | | |
| 6. Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary? | <u> </u> | <u> X </u> |
| Discussion: | | |

ECONOMIC USES:

Objectives: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

- | | <u>Yes</u> | <u>No</u> |
|------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| 1. Does the project involve a harbor or port? Discussion: | — | <u>X</u> |
| 2. Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project? Discussion: | — | <u>X</u> |
| 3. Does the project site include agricultural lands designated for such use? Discussion: | — | <u>X</u> |
| 4. Does the proposed development relate to commercial fishing or seafood production? Discussion: | — | <u>X</u> |
| 5. Does the proposed development relate to energy production? Discussion: | — | <u>X</u> |

COASTAL HAZARDS:

Objectives: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

- | | <u>Yes</u> | <u>No</u> |
|---------------------------------------------------------------------------------------------------------------------------------|------------|------------|
| 1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)? | <u>x</u> | ___ |
| Discussion: | | |
| 2. Is the project site within a potential flood inundation area according to a FIRM? | <u>x</u> | ___ |
| Discussion: | | |
| 3. Does the project comply with the requirements of the Federal Flood Insurance Program? | ___ | <u>N/A</u> |
| Discussion: | | |
| 4. Has the project site or nearby shoreline areas experienced shoreline erosion? | <u>x</u> | ___ |
| Discussion: See attached report prepared by Oceanit Laboratories. | | |
| 5. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity? | <u>x</u> | ___ |
| Discussion: Seawall constructed on parcel located to the East. | | |

PROJECT ASSESSMENT cont'd:

- e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

Discussion: Construction of the seawall pursuant to attached preliminary construction drawings will not generate adverse impacts, and the seawall offers the best alternative to avoid further erosion and potential damage to structures currently located on the property.

- f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

Discussion: NONE

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

Discussion: Proposed construction of the seawall is in full compliance with Chapter 205A, Hawaii Revised Statutes, and Section 3.0 of the SMA Rules and Regulations.

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

Discussion: The proposed construction of the seawall is consistent with and in compliance with applicable provisions of the County General Plan, Development Plan and Zoning Ordinances.


SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

9/9/94
DATE

EXHIBIT 2
SPECIAL MANAGEMENT AREA EMERGENCY PERMIT
AND SHORELINE SETBACK VARIANCE



Oceanit Coastal Corporation

coastal engineering services

MARYANNE W. KUSAKA
MAYOR



COUNTY OF KAUAI
PLANNING DEPARTMENT
4444 RICE STREET, SUITE 473
LIHUE, KAUAI, HAWAII 96766

DEE M. CROWELL
PLANNING DIRECTOR
NEIL L. AALAND
DEPUTY PLANNING DIRECTOR
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KAUAI OFFICE
CASE & LYNCH

December 7, 1994

Mr. Charles Croft
RR3 Churchill IC-9
Salt Spring Island, British Columbia
Canada VOS IEO

RE: Special Management Area Emergency Permit SMA(E)-95-7
and Shoreline Setback Variance
Shoreline Protection Structure
TMK: 1-2-13:35, Mamo Road, Kekaha, Kauai

REQUEST:

Pursuant to Section 11 of the County of Kauai Special Management Area Rules and Regulations "Emergency Permits" which was adopted by the County of Kauai on June 1, 1993, and Hawaii Revised Statutes Sections 205A-43.5(2) and 205A-46, the subject application is being submitted for review.

The applicant is requesting an SMA Emergency Permit pursuant to Section 11 of the SMA Rules and Regulations, and a Shoreline Setback Variance pursuant to HRS Section 205A, for a shoreline protection structure in a case of emergency requiring immediate action to prevent substantial physical harm to a residence and pool costing more than \$20,000.

EVALUATION:

According to Section 11 of the SMA Rules and Regulations, an emergency permit may be issued for a development as defined in Section 1.4.H, in cases of emergency requiring immediate action to prevent substantial physical harm to property. The proposed shoreline protection structure is a development as defined in Section 1.4.H, and the applicant has demonstrated that the rate of shoreline erosion at the subject property is such that immediate action is required to prevent substantial physical harm to the applicant's pool and residence.

According to HRS Section 205A-43.5, action may be taken on an application for a Shoreline Setback Variance without a public hearing prior to action on the application, for protection of structures costing more than \$20,000, provided the structure is at risk of immediate damage from shoreline erosion. It appears

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that the applicant's pool and residence have a value in excess of \$20,000, and are at risk of immediate damage from shoreline erosion.

HRS Section 205A-46 states that a variance may be granted for private improvements that may artificially fix the shoreline provided that shoreline erosion is likely to cause hardship if the improvements are not allowed, and provided that structures seaward of the existing shoreline are prohibited. The damage to the applicant's pool and residence which would result from continued shoreline erosion may be considered a hardship, and the proposed structure will not be located seaward of the shoreline.

DETERMINATION:

Based on the information submitted and the above evaluation, it has been determined that the subject request is in conformance with Section 11 of the SMA Rules and Regulations, and HRS Section 205A-43.5 and 205A-46. Therefore, a Special Management Area Emergency Permit and Shoreline Setback Variance is hereby issued authorizing construction of a sloping stone revetment mauka of the certified shoreline at TMK:1-2-13:35, Mamo Road, Kekaha, to prevent an immediate threat from shoreline erosion to the applicant's pool and residence.

Approval of the application is subject to the following conditions:

1. The emergency shoreline protection structure shall be the minimum length and width necessary to protect the applicant's pool and residence.
2. The emergency shoreline protection structure shall be located as far mauka as possible, but in no case shall the structure extend beyond the current certified shoreline.
3. This Emergency Permit only authorizes construction of the sloping stone revetment. No other development, including fencing, shall be permitted within the Shoreline Setback Area which is defined as 40 feet mauka of the certified shoreline.
4. As agreed to by the applicant, within 180 days from issuance of this Emergency Permit the applicant shall submit an application for an SMA Use Permit and Shoreline Setback Variance. An Environmental Assessment shall be prepared and submitted pursuant to HRS Chapter 343 with the application.
5. The applicant is advised that the application for the SMA Use Permit and Shoreline Setback Variance may be denied by

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the Planning Commission, or the structure may be required to be modified. Should the application for an SMA Use Permit and Shoreline Setback Variance be denied, or should the structure require modification, the applicant shall remove or modify the structure, as required by the Planning Commission, within 90 days of the Commission's action on the application.

6. As agreed to by the applicant, the applicant shall obtain an irrevocable letter of credit in an amount sufficient to pay for removal or modification of the shoreline protection structure. The letter of credit shall be used to remove or modify the structure should the Planning Commission determine that removal or modification shall be required, and the applicant does not voluntarily remove or modify the structure. The letter of credit shall identify the County of Kauai as beneficiary, and shall have an expiration date of September 8, 1995.
7. This Emergency Permit shall be subject to periodic review by the Planning Department, but in no event shall such review be conducted less than one year from the date of issuance of this permit.
8. The applicant shall work with the State Department of Transportation-Harbors Division and other appropriate agencies to develop and implement measures to mitigate the adverse impacts of Kikiaola Harbor on natural beach processes.

Also be informed that other permits or conditions from other agencies may be required prior to construction. The applicant is responsible for revolving these conditions with the other respective agency(ies).

Dee M. Crowell for

Dee M. Crowell,
Planning Director

c: Michael J. Belles, Case & Lynch