MURAKAMI CONSTRUCTION OF 1 TO 1.5 SLOPED BOULDER REVETMENT 3/23/92

DEPARTMENT OF LAND UTILIZATION
92/SV-01(AC)

CHAPTER 343, HRS
Environmental Assessment/Determination
Negative Declaration

Recorded Owner	:	Leslene L.S. Murakami
Applicant	:	Leslene L.S. Murakami
Agent	:	Leslene L.S. Murakami
Location	:	55-343 Kamehameha Hwy, Laie, Oahu
Tax Map Key	:	5-5-002: 085
Request	:	To construct a 1 to 1.5 sloped boulder revetment
Determination	:	Environmental Impact Statement (EIS) Not Required

Attached and incorporated by reference is the environmental assessment prepared by the applicant for the project.

On the basis of the environmental assessment, we have determined that an Environmental Impact Statement is not required.

APPROVED Donald Clegg
DONALD A. CLEGG
Director of Land Utilization

DAC:cct

1992-03-23-OA-FEA - Murakami Construction MAR 23 1992
Shoreline Revetment

Coastal Engineering Report for the Shoreline Revetment Constructed in TMK 5-5-2:85 in Laie, Oahu

Prepared by

Tom Nance
Water Resources Engineering
680 Ala Moana Boulevard, 1st Floor
Honolulu, Hawaii 96813

Prepared for

Leslene L. S. Murakami
2014 Wilder Avenue
Honolulu, Hawaii 96822

January 1992

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Contents

List of Figures

INTRODUCTION

This report has been prepared to provide technical certification and environmental information in support of a Shoreline Setback Variance Application for a boulder revetment that was constructed across the shoreline frontage of Lot 115-C (TMK 5-5-2:85) in Laie, Oahu. The 11,480-square-foot lot is located directly across Kamehameha Highway from the Polynesian Cultural Center and has a shoreline frontage which is approximately 100 feet wide. Figure 1 shows the lots' location on the USGS Kahuku Quadrangle map. It is also shown on the City's facilities map on Figure 2. The boulder revetment was built in August 1991. It is contiguous with the rock revetments in front of the lots on both sides of TMK 5-5-2:85.

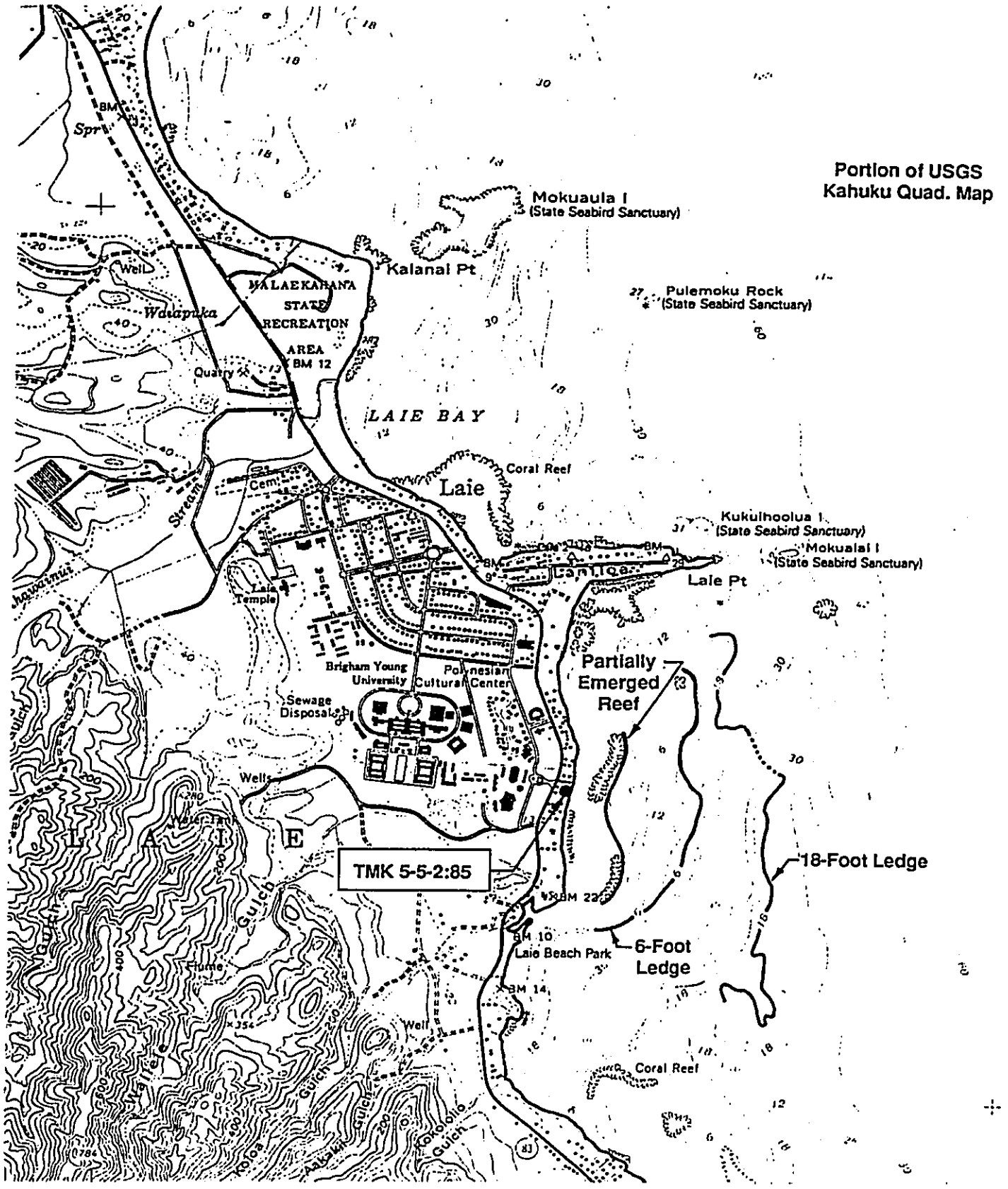
The information on which this report is based includes the following: a recent topographic survey by Engineers Surveyors Hawaii *(reproduced as Figure 3 of this report)*; correspondence from July to December 1988 of the Laniloa Beachfront Owners Association with the Corps of Engineers and State Department of Land and Natural Resources (compiled in Appendix B); several discussions with Mr. Jonah Murakami who represents Leslene L. S. Murakami, the owner of TMK 5-5-2:85; an as-built sketch of the revetment prepared by the contractor and Mr. Murakami; and site visits made by the author of this report on November 24 and 29, 1991.

HISTORICAL BACKGROUND

To evaluate the need for the shoreline revetment in front of TMK 5-5-2:85, it is instructive to consider the following chronological sequence of events:

- According to the Laniloa Beachfront Owners Association, some 60 or more feet of the beach frontage of lots in this area was lost during the 1946 tsunami. In the process, the tsunami exposed nearshore "reef" (so labeled Figure 3) and formed the shallow, sand channel between this reef and the present shoreline.

- Sometime following the tsunami, perhaps in the late 1940s or early 1950s, stone revetments in front of the four lots to the north of TMK 5-5-2:85 were constructed (these lots are TMK 5-5-2:27 through 30). These revetments recaptured most, if not all, of the beach frontage lost by these lots to the tsunami.



Scale: 1" = 2000'

Figure 1

TMK 5-5-2:85 in Laie, Oahu

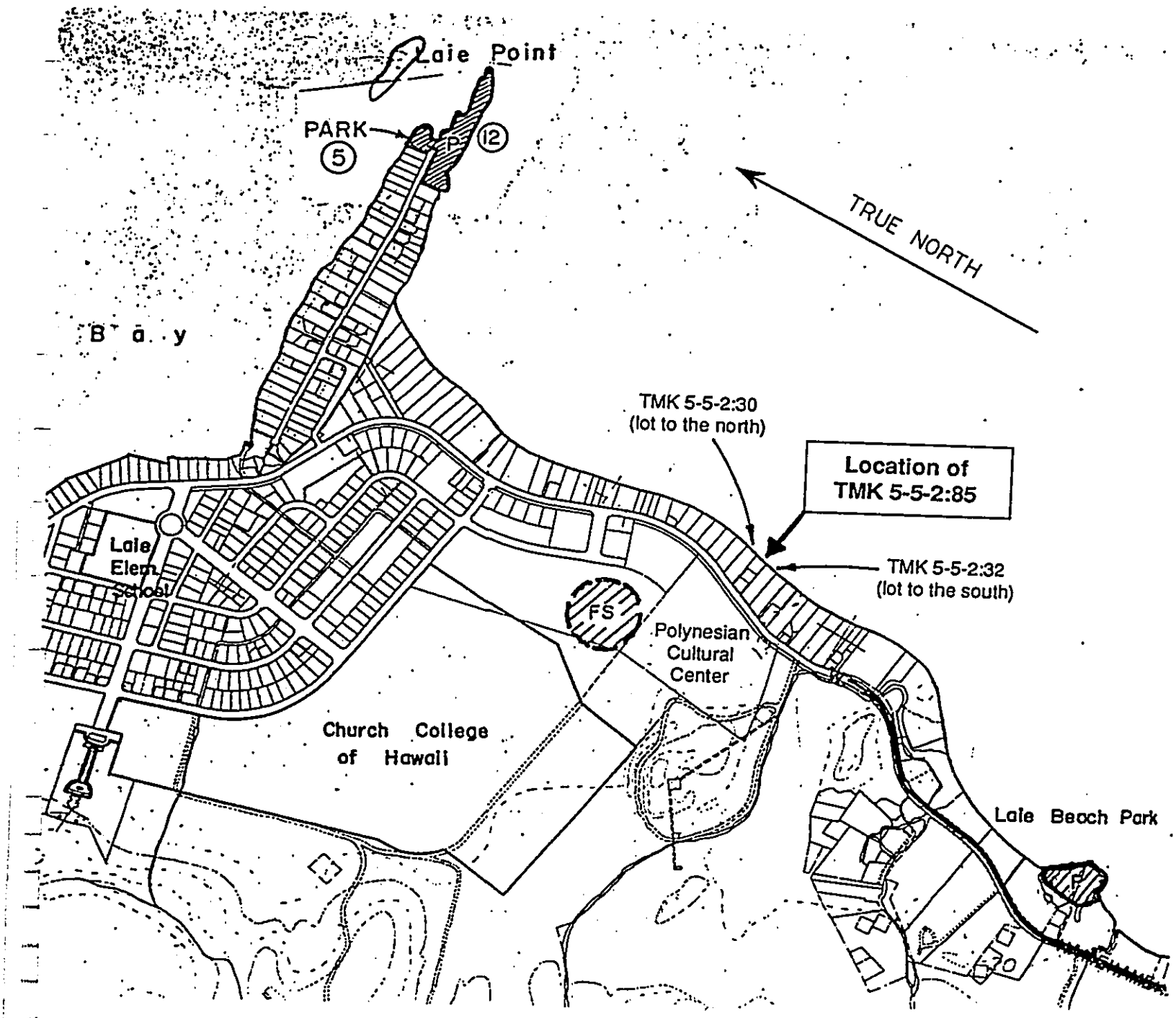
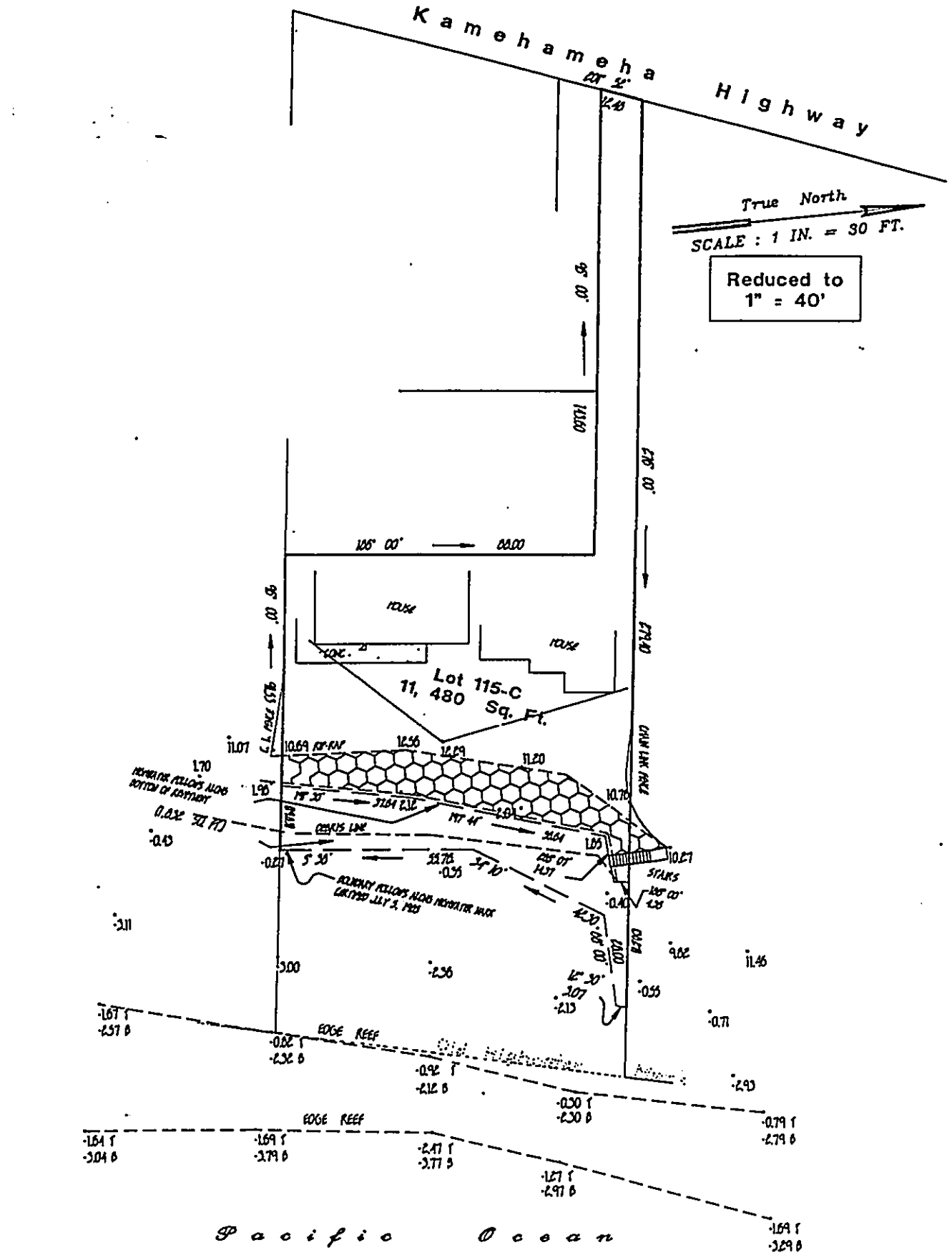


Figure 2
Location of TMK 5-5-2:85
in Laie, Oahu



Plan Showing
Shorline Fronting Lot 115-C
Land Court Application 772
at Laie, Koolauloa, Oahu, Hawaii
T.M.K. : 5-5-2 : 85

Figure 3
Survey by Engineers Surveyors Hawaii

- In mid-1988, the Laniloa Beachfront Owners (led by Mr. Ken Yee, owner of TMK 5-5-2:32, the lot to the south of TMK 5-5-2:85) sought help from Senator Dan Inouye and others for their shoreline erosion problem. Mr. Yee attributed the cause of erosion to the persistent current which moves northward between the nearshore reef and the shoreline.

- In August 1988, two engineers from the Corps of Engineers (COE) visited the site and drafted a report which adopted Mr. Yee's explanation of the cause of the erosion. The COE report recommended construction of a rock barrier perpendicular to the shoreline in front of TMK 5-5-2:30. The objective was to stop or at least slow down the northward current, thereby arresting the erosion.

- By December 1988, emergency authorization for the recommended rock barrier was granted by COE and the Department of Land and Natural Resources. It was built shortly after this using rocks of relatively modest size, generally two feet and less. Figure 4 identifies the location of this construction.

- Sometime in the 1989 to 1990 period, a rock revetment was constructed along the frontage of TMK 5-5-2:32, the lot immediately south of TMK 5-5-2:85.

- With the shorelines to the north and south stabilized by rock revetments, erosion of the beach frontage of TMK 5-5-2:85 was accelerated. In response to this, the rock revetment which is the subject of this report was constructed in August 1991.

EVALUATION OF THE AFFECTED SHORELINE ENVIRONMENT AND THE ROCK REVETMENT'S STRUCTURAL STABILITY

In the interests of brevity and clarity, the relevant technical considerations regarding the affected shoreline environment and the revetment's structural stability are presented in the numbered sequence below.

1. The nearshore, submerged calcareous ledge (labeled as a "reef" on the survey reproduced as Figure 3) is not actually a coral reef in the traditional use of the term. This ledge is actually cemented beach sand or "beachrock". Its surface is discolored and hardened by various marine processes, mostly the work of calcareous algae, so that it looks very much like a coral formation and is often mistaken as one. When the surface is chipped away, however, its structure weakly cemented sand grains is clearly evident. The existence of the calcareous sill

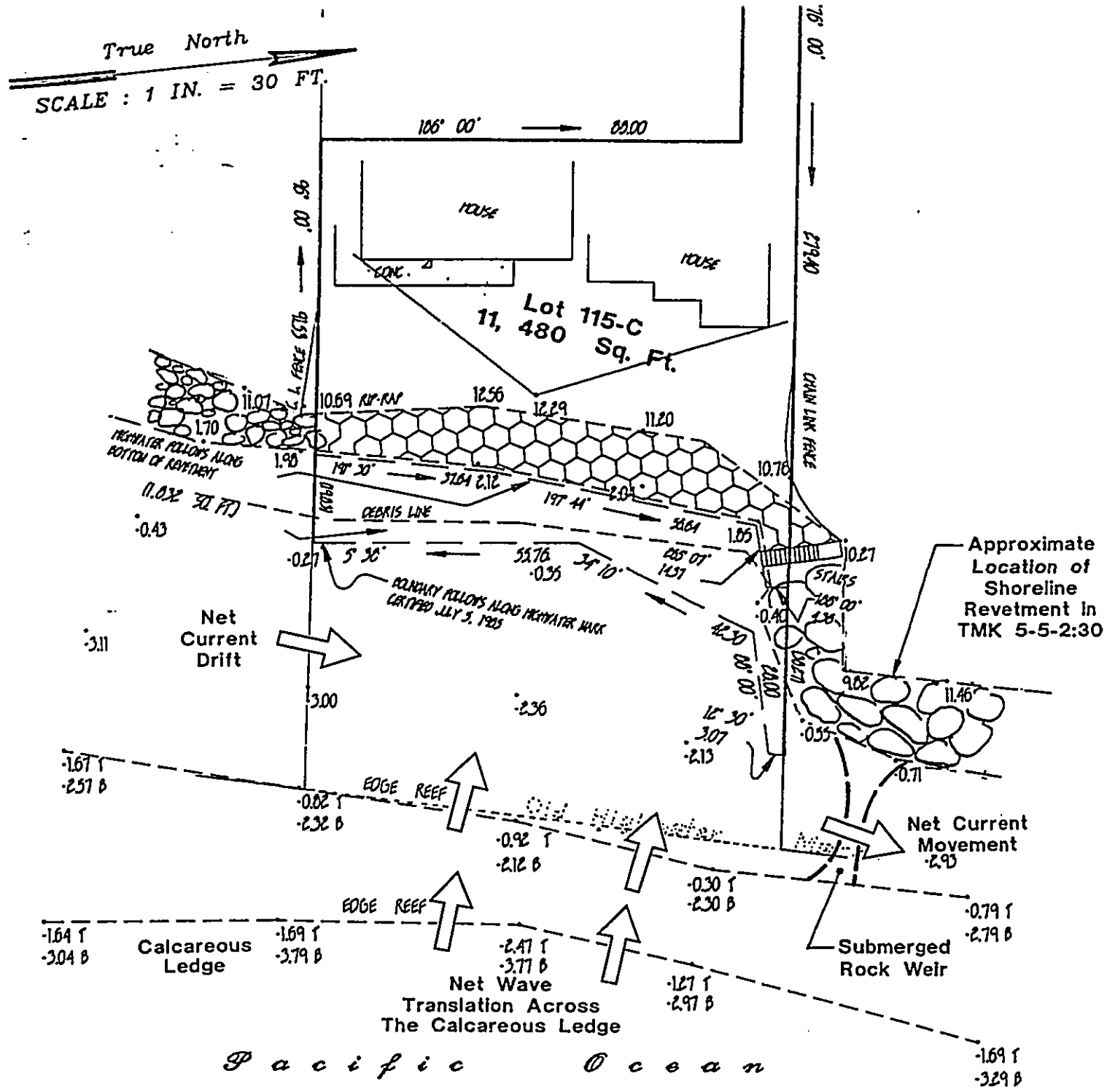


Figure 4
Prevailing Wave-Driven Water Movement

provides credible evidence to support the Laniloa owners' contention that the shoreline prior to the 1946 tsunami was at this location. Natural cementation of beachrock is a shoreline phenomenon occurring where freshwater (surface runoff and groundwater seepage) and seawater mix; it does not occur in an offshore, entirely saline environment. Beachrock shorelines are common throughout Laie and Kahuku.

2. In the small channel between the beachrock sill and the shoreline, there is a northward moving current on all phases of the tides. It is an entirely wave-driven phenomenon. Incoming waves transport water across the beachrock sill. While some of this water does drain directly back out across the sill, a significant portion escapes by moving northward parallel to the shoreline and then out across the sill in front of TMK 5-5-2:29 & 30, the two lots north of TMK 5-5-2:85.

3. The rubble rock weir that was constructed perpendicular to the shoreline in December 1988 in order to retard the northward current and thereby arrest shoreline erosion has not been a success. There are several reasons for this:

   a. The submerged weir was built up only to the level of the beachrock sill. While it does impede the current to some extent, its location is still the easiest escape point for water transported by waves over the sill into the inner channel.

   b. Wave set-up (meaning the build-up of the nearshore, still water level due to a succession of waves) can be substantial in the channel inside the beachrock sill. When waves of even modest size are occurring, the water level can be more than one foot above the tide level (as was the case during a 0.1-foot (msl) tide on the morning of November 29). For the rock weir to effectively cut off the northward current at such times, it would have to be two to three feet higher than the beachrock sill.

   c. Most importantly, the alongshore, wave-driven current was not the cause of shoreline erosion. Rather, it simply provided a transport mechanism for the escape of sand once it has been suspended by waves breaking on the beach. If the rubble rock weir had effectively cut off this current, sand suspended during wave attack could be carried directly out across the beachrock sill. Since the transport mechanisms to bring the sand back in across the sill are not as effective, beach erosion would continue to occur.

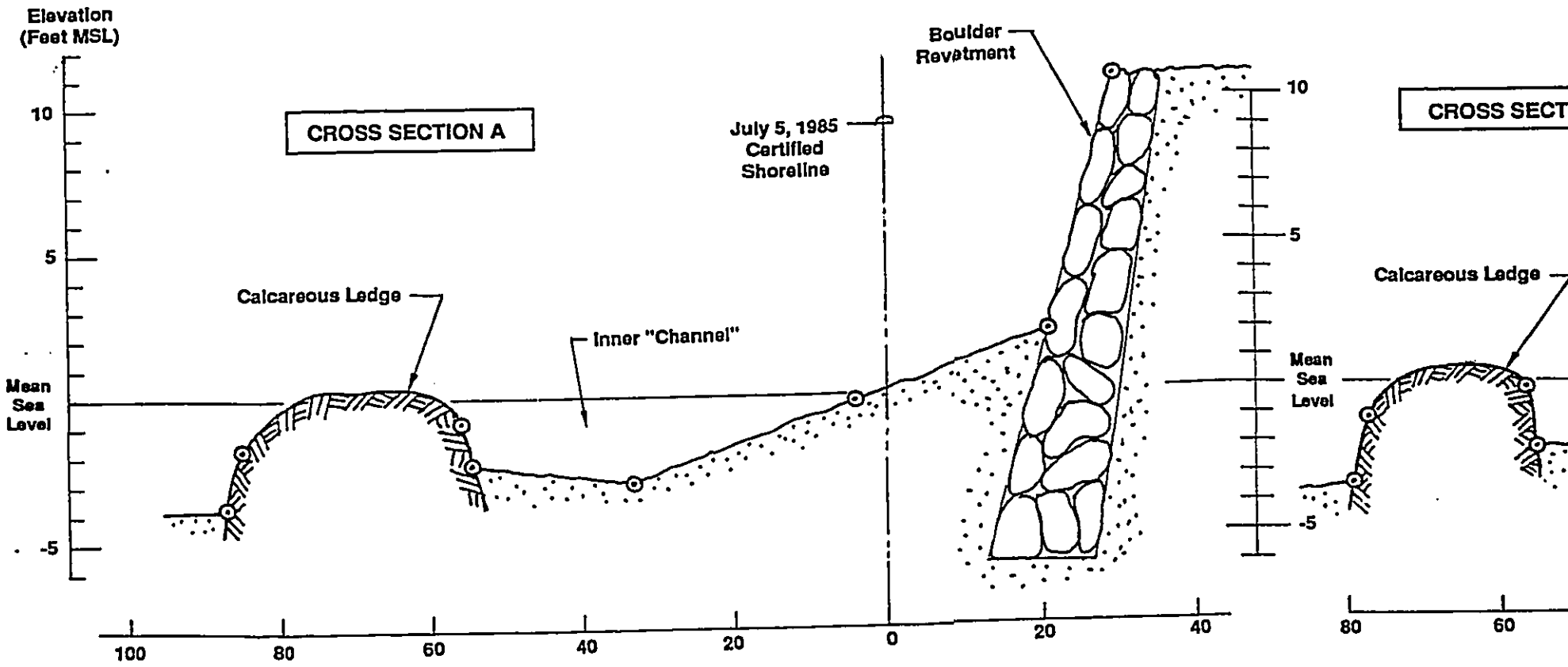
4. The cause of the shoreline erosion that was occurring in front of TMK 5-5-2:85 was incoming wave energy. Although the succession of submerged reef ledges offshore beyond the nearshore beachrock sill (identified on Figure 1) do reduce the size of waves striking the shoreline, sufficient energy does reach the beach to suspend and move its sand. Further, subtleties in the alignment and height of the nearshore beachrock sill cause some focusing of this energy at the frontage of TMK 5-5-2:85. When the boulder revetments were completed on the lots to both sides of TMK 5-5-2:85, its frontage was the only remaining unprotected beach and this apparently accelerated its erosion. In this situation, the only available alternatives to stop this erosion would have been to remove all the revetments to the north and south or to construct the revetment in front of TMK 5-5-2:85. The first of these alternative was not a practical or even advisable. The second is the subject of this report.

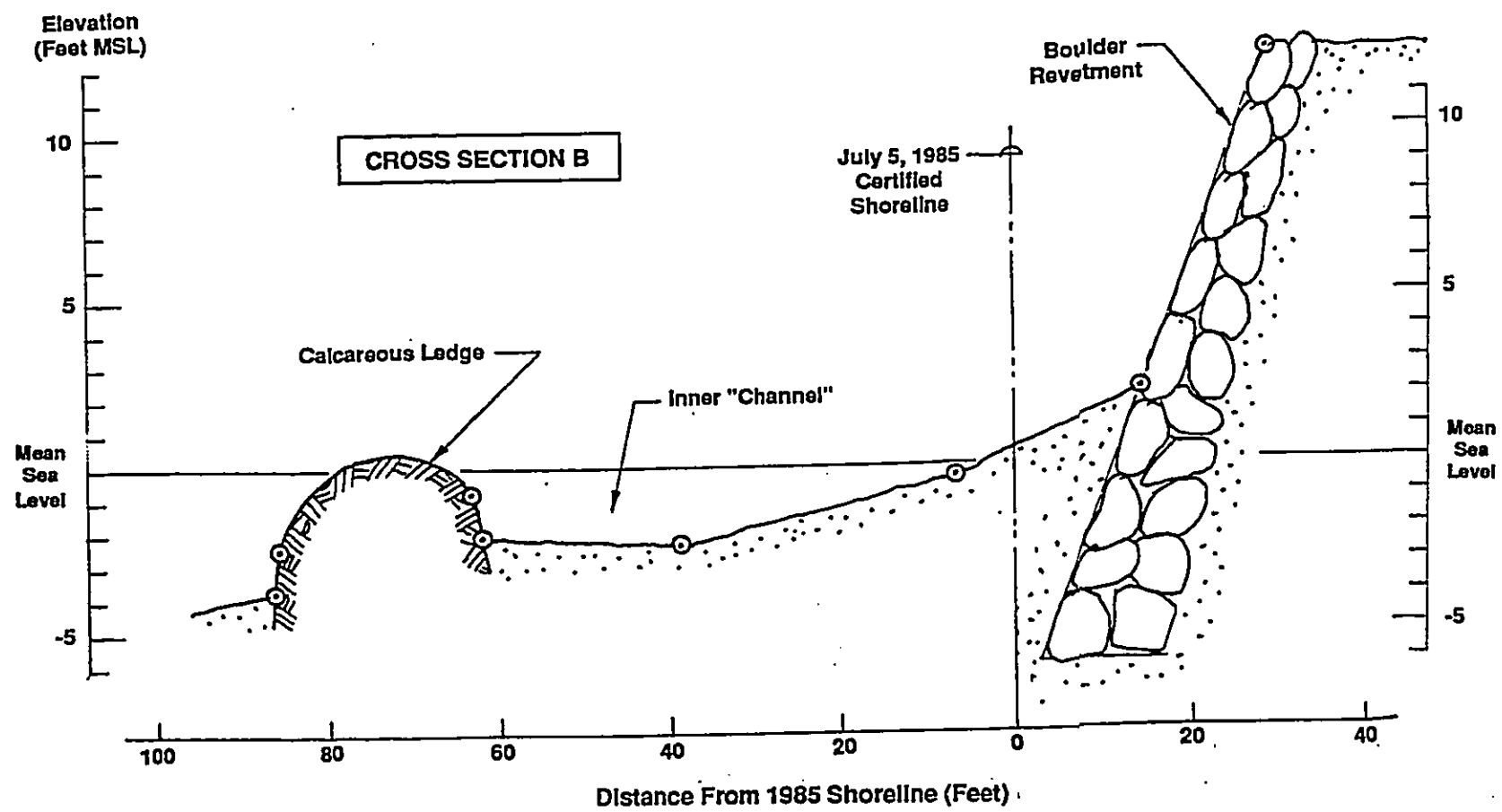
5. The revetment was constructed in August 1991. Two site visits for this evaluation were made in November 1991, three months after construction and a week following a period of very high waves. The shoreline in front of this new structure at the time of the site visits was similar in appearance to the lots to the north and south. Some sand has accumulated at the toe of the structure. This sand lies on a 1 (vertical):10 (horizontal) slope. This is typical of the adjacent lots as well (see Figure 5).

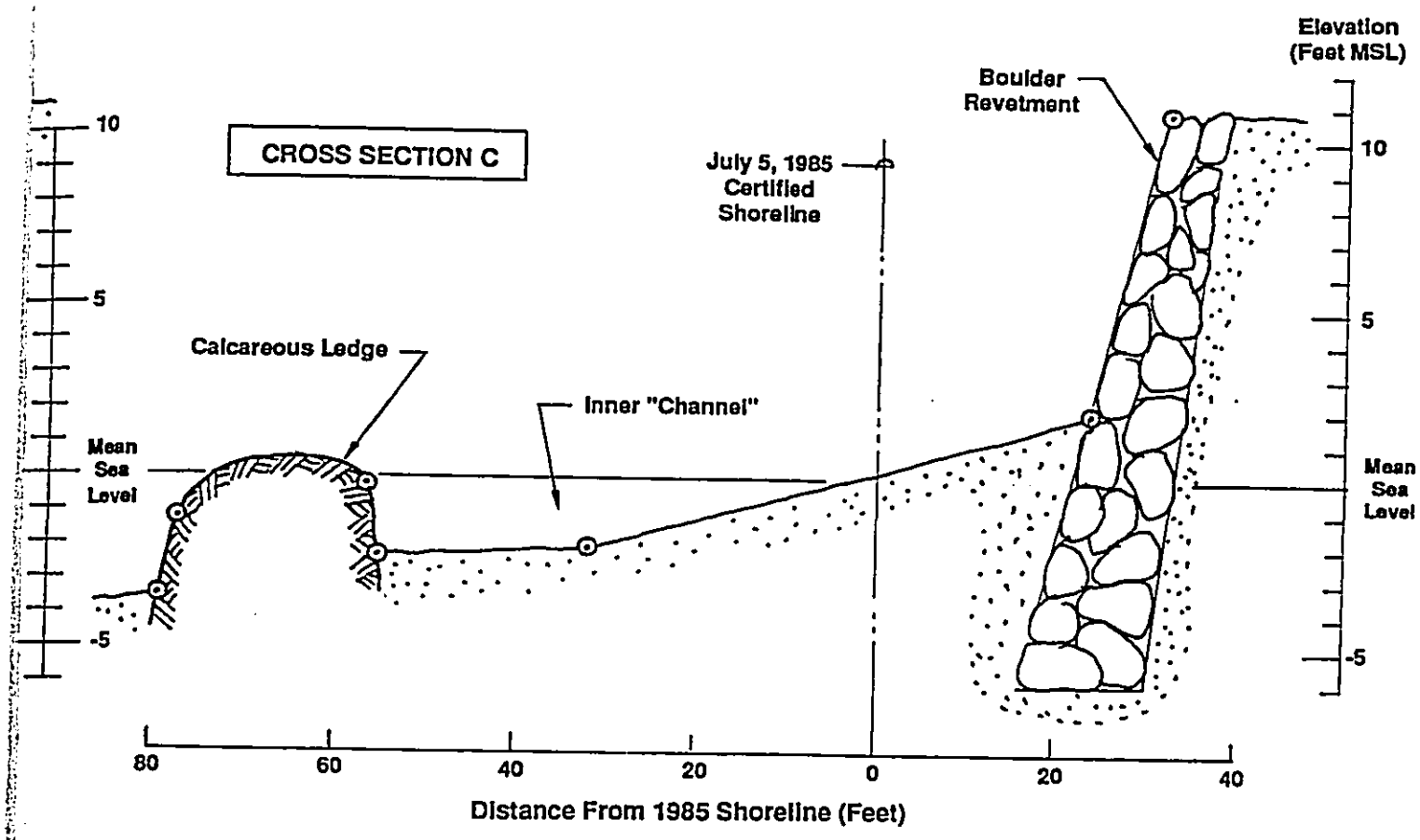
6. A comparison of the revetment's structural stability to wave attack with the highest expectable wave which could break on or directly in front of it illustrates that the revetment is of adequate design and construction:

   a. The structure's as-built section is detailed on Figure 6. Relevant design parameters are: use of 2- to 6-ton (basalt) armor stone; a structural slope of 1:1 at the two ends of the structure (matching the slopes of adjacent revetments) and 1:1.5 at mid-length; construction of the structure to a depth of eight feet below the existing grade at its toe; and use of geotextile fabric at the rock-sand contact surface.

   b. The Hudson formula, an empirical equation which is widely used to design rubble mound structures, indicates that the structure could withstand waves of up to 4.8 feet without damage if the least favorable combination of parameters is used in the equation (i.e. using the steepest slope and smallest armor stones):


Elevation
(Feet MSL)
10
5
-5
CROSS SECTION A
Calcareous Ledge
Inner "Channel"
Mean
Sea
Level
July 5, 1985
Certified
Shoreline
Boulder
Revetment
100
80
60
40
20
0
20
40
CROSS SECT
Calcareous Ledge
Mean
Sea
Level
80
60


Elevation
(Feet MSL)
10
5
-5
CROSS SECTION B
Calcareous Ledge
Inner "Channel"
Mean
Sea
Level
July 5, 1985
Certified
Shoreline
Boulder
Revetment
100
80
60
40
20
0
20
40
Distance From 1985 Shoreline (Feet)



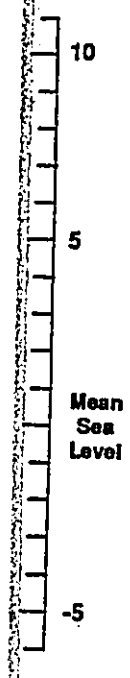
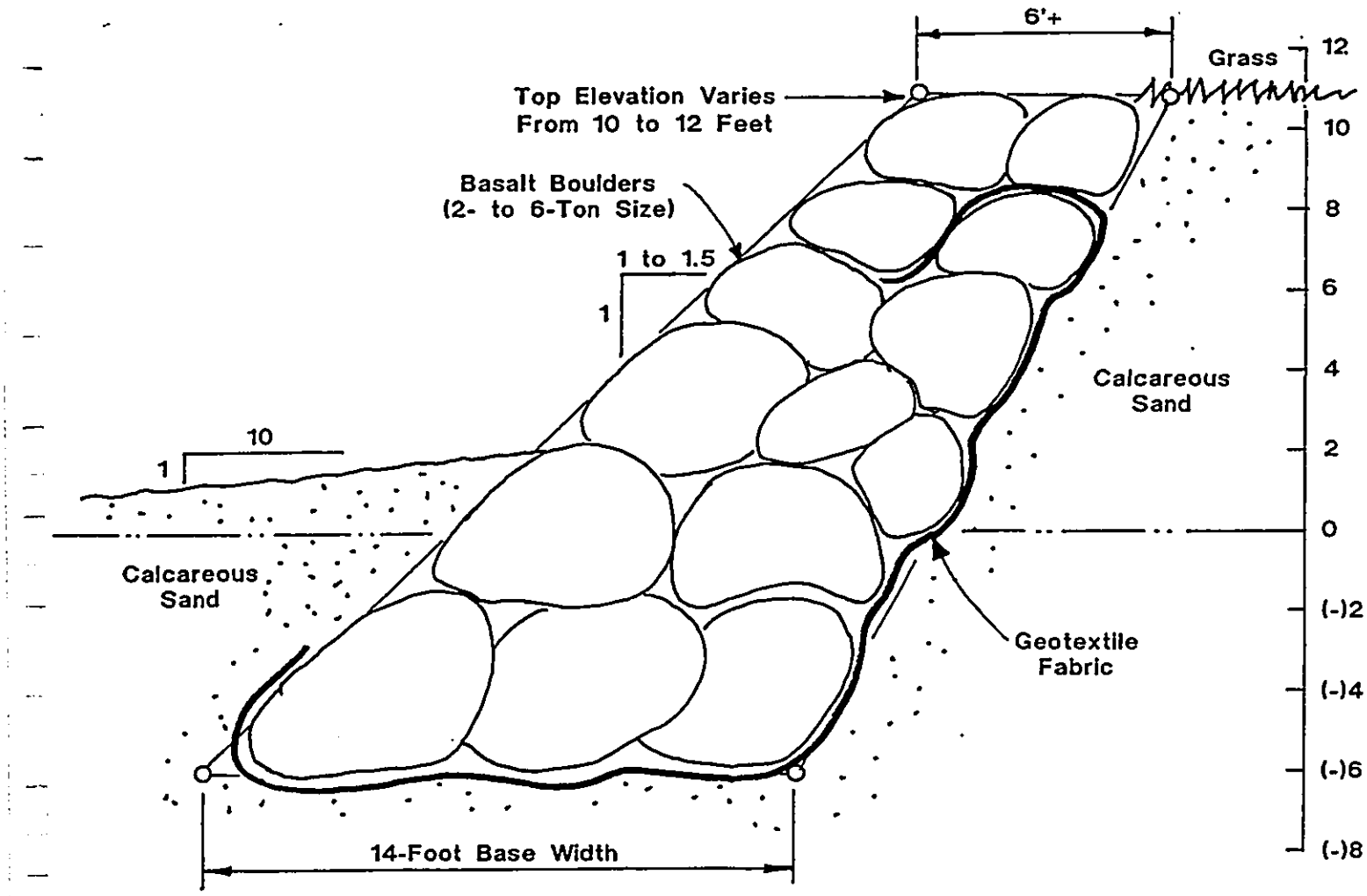


Figure 5

Cross Sections of the Nearshore Area
Fronting TMK 5-5-2:85
(All Cross Sections Drawn With Four-Fold Vertical Exaggeration)



Scale: 1/4" = 1'-0"

NOTE: As-built section based on information from the contractor, the ESH survey, and field observations.

Figure 6
As-Built Section of the Shoreline Revetment for TMK 5-5-2:85

$$H = \sqrt[3]{\frac{W K_D (Sr - 1)^3 \cot\emptyset}{Wr}} = \sqrt[3]{\frac{(4000)(1.2)(2.537 - 1)^3 (1)}{(160)}}$$

H = 4.8 feet where

H = calculated wave height in feet

W = weight in pounds of cover layer armor unit, 4000 pounds for 2-ton stones

K_D = stability coefficient; value of 1.2 is used for waves breaking on a randomly placed stone structure

Sr = specific gravity of the armor unit compared to water at the structure (2.600 + 1.025 = 2.537)

cotØ = cotangent of the angle of the structural slope measured from the horizontal (1.0)

Wr = unit weight of the armor unit (160 lbs. per ft^3 for basalt stone which came out of the excavation for the City's Waimanalo Gulch landfill)

When more typical parameters of the structure are used in the equation [mean stone size of 4 tons or 8000 pounds and average slope of 1 (vertical):1.25 (horizontal)], the Hudson formula indicates that the structure could withstand waves up to 6.5 feet high.

c. The sequence of offshore submerged and partially emerged reef shelfs (denoted on Figure 1) and the inner beachrock sill (shown on Figures 3, 4, and 5) provide excellent natural protection from wave attack. As a consequence, the largest wave which could break on or just in front of the shoreline revetment is constrained by the available depth. Using the most critical combination of the highest water level (tide of 1.5 feet above the beachrock sill and 2.5 feet wave set-up for a total depth of 4 feet), the existing offshore slope (approximately 0.01 as defined by the slope from 6-foot depth to the shoreline), and incoming wave periods of from 5 to 10 seconds, the depth-limited, highest breaking wave height would be 2.9 feet. All waves larger than this would break further offshore, dissipating most of their energy before reaching the revetment. The energy of this highest possible wave to break on the revetment itself is substantially less than the revetment's ability to resist wave attack. Further, the revetment's height, between 11 and 12 feet above mean sea level, is significantly

higher than the runup of this maximum incoming wave. Deposits of sand and debris observed on the structure during the recent period of high waves verify this. There is evidence that maximum runup which has occurred was only to the lower half of the revetment's height.

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

This report has been prepared to meet the certification requirements of the City and County's Shoreline Setback Rules and Regulations and to provide other relevant technical information. Specific issues of the certification are as follows:

1. Need for the Structure for Erosion Protection. As explained in the report, the shoreline erosion problem dates back to the 1946 tsunami. Over the years, adjacent property owners constructed stabilizing revetments along their respective shorelines. By sometime in 1991, the frontage of TMK 5-5-2:85 was the last unprotected beach and erosion was occurring rapidly.

2. The Constructed Revetment is the Best Alternative. With all of the beach frontages to the north and south of TMK 5-5-2:85 stabilized by boulder or cast concrete revetments, the number of practical alternatives available to protect TMK 5-5-2:85 was reduced to the one which was implemented. Other alternatives are simply not practical to consider: to remove all of the existing revetments and allow the beach to naturally stabilize, potentially losing several homes in the process; or to create wave protection by constructing offshore breakwaters.

3. The Structure will not Cause an Adverse Effect or Significant Change to the Shoreline. Because all of the beach frontages to the north and south have been stabilized, the new structure will not cause an adverse effect or significant change to the shoreline. The combination of offshore reef, nearshore beachrock sill, and onshore revetments presents a stable configuration to wave attack. The loose sand deposits which do exist are modest accumulations at the toes of the revetments or in pockets on the reef offshore. This sand does move in response to wave activity, but it is a natural, seasonal ocurrence with no adverse long-term trend.

APPENDIX A

Photographs of the
Shoreline Revetment

South

North

TMK
5-5-2:32

TMK
5-5-2:85

This panoramic view shows the revetment in front of TMK 5-5-2:85 which was constructed in August 1991. At
5-2:32; just visible to the right is the end of the revetment in front of TMK 5-5-2:30. Sand has accumulated at the t
(horizontal) slope.

North

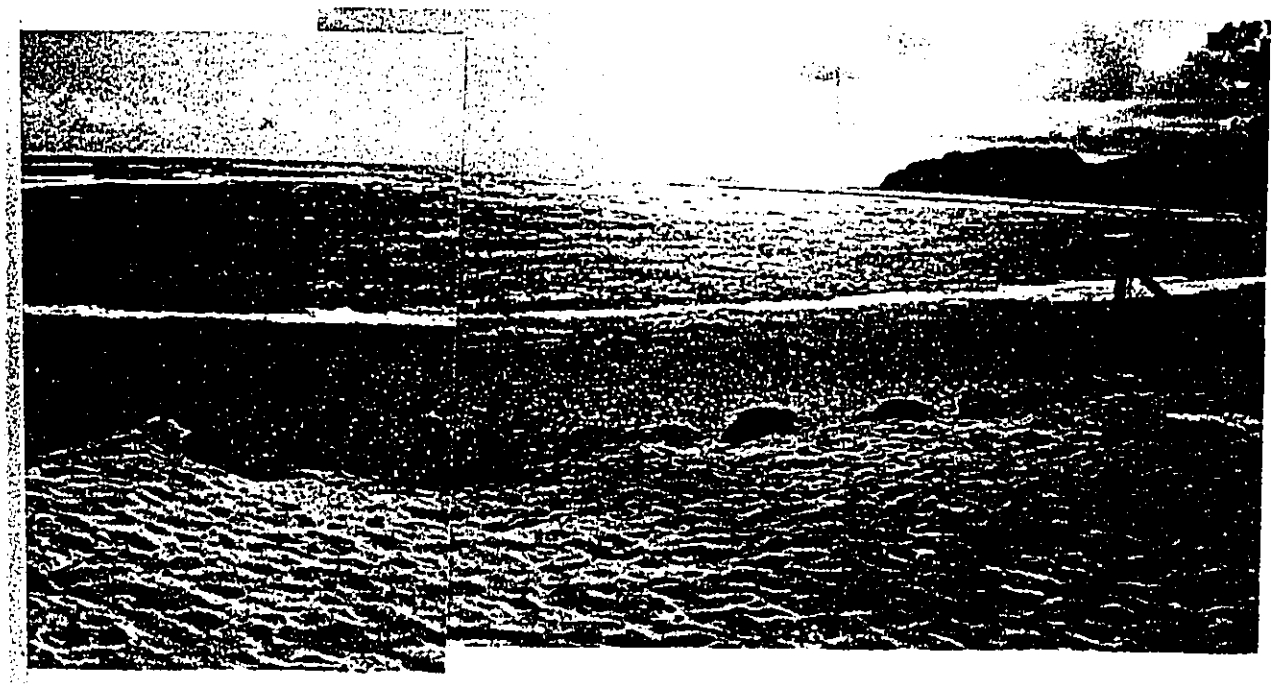
TMK
5-5-2:85

TMK
5-5-2:30

nstructed in August 1991. At left is the pre-existing revetment in front of TMK 5-
Sand has accumulated at the toe of the new revetment and sits on a 1 (vertical):10

This view taken at a relatively low tide, shows the partially emerged beachrock sill about 60 to 70 feet offshore, the sha
the projecting shoreline revetment of TMK 5-5-2:30, the adjacent lot to the north. In the background behind the man
which was installed in December 1988 to impede the northward moving nearshore current.

South



60 to 70 feet offshore, the shallow, sand bottom channel between the sill and shore, and background behind the man standing at left is the partially submerged rubble rock weir ent.

The rubble rock weir constructed in December off TMK 5-5-2:30 to impede the northward moving, wave-driven current is the partially exposed, partially submerged pile of rocks at the right side of this photo. Notice the accumulation of sand at the toe of the revetment constructed in front of TMK 5-5-2:85.

At this level of the tide and wave set-up, flow of the northward moving current over the rubble rock weir creates a small hydraulic jump just downstream.

APPENDIX B

Laniloa Beachfront Owners
1988 Correspondence

KEN/NANCY W. YEE
2394 Aina Lani Pl.
Honolulu, HI 96822
Ph. (808) 949-7441

5-5-2-32
33
57
34
77
56 75,76
78
72
36
37
38
81
80 79 78
3 = [illegible]

July 16. 1988

The Honorable Senator Daniel K. Inouye
US Senate
Washington DC

Dear Senator Inouye,

I am soliciting your help on behalf of my wife and myself as owners of lot 5-5-02-32 at Laie, Oahu, and owners of approximately fifteen other beach front lots which have been subject to devastating shoreline erosion in recent years and especially so within the past twelve months.

The Tax Map 5-5-02 dated July 1942 shows lots #19 to #30 running in a south to north direction showing their original oceanfront boundary. Our lot, #32, has been eroded to a depth of 65 to 70 feet back from the original seaward boundary. Other lots have lost 100 feet or more.

The beginning of this erosion dates back to the destructive tidal wave of 1946. Up to that time the high water boundary went up to a long reef approximately 30 to 40 feet wide which runs parallel to the shore line. The tidal wave gouged out the beach sand inland of the long coral reef, creating a small channel between the reef and the shore. At high tide, the water washes over the reef strip and is trapped between the strip and the beach. When the tide goes out and the top of the reef strip is exposed. The trapped water is forced to run out to sea in a northerly direction through a narrow channel created between lot 5-5-02 30 and the reef strip, a channel of approximately 25 feet.

The trapped water escaping carried more and more sand out over the years so that the trapped water basin has grown larger and larger each year. This increased amount of water has created stronger currents, which in turn are eroding more sand from the beach. Big needle pine trees which grew on the eroded areas have fallen victims to this assault. Some of these pine trees were over fifty years old. Their stumps on the beach are visible evidence of the damage done.

Some means must be found to stop this strong flow of water in the Kahuku (north) direction to prevent further erosion. In time the sand washed over the reef in normal wave action will be

KEN/NANCY W. YEE
2394 Aina Lani Pl.
Honolulu, HI 96822
Ph. (808) 949-7441

retained back of the reef strip and the beach will be built up again over a long period of years for the public to enjoy. Building retaining walls will not help as evidenced by several which have had their footings undermined by wave action and seriously damaged. Closing off the channel at lot 5-5-02-30 will be the most economical and the most effective way to solve this pressing problem.

Erosion has gouged out sand up to our house which originally was approximately 40 feet from the high water mark. Our neighbor on the right had to move his house back 40 to 50 feet. I cannot impress on you too much the gravity of this problem. I have talked to the US Engineers at Ft. Shafter but they told me that they cannot do anything, not even to investigate the situation. I have also talked with Mr. Cecil Santos of the State Land Utilization Division and he consented to take a look at the problem. This he has done with a visit to assess the situation and taken some photos. He agrees with my assessment of the situation and has informed me that he will let me know the steps that will be necessary to get any action but cautioned me that the process is very involved.

I have also talked with State Representative Joseph Leong and Senator Reb Bellinger representing the Laie district, informing them of the steps I have taken. So it is with a sense of urgency that I solicit your help to find a solution to our problem which is also the problem of fifteen other landowners affected.

Thank you.

Sincerely yours,

Ken Yee
2394 Aina Lani Place
Honolulu Hawaii 96822

Enclosures:
Tax Map 5-5-02 dated July 1942
Survey of Lots 31, 32, 33 dated 2-3-87
Photos

KEN/NANCY W. YEE
2394 Aina Lani Pl.
Honolulu, HI 96822
Ph. (808) 949-7441

August 10, 1988

Mr. William Paty, Chairman
Board of Land & Natural Resources
1151 Punchbowl St. Rm 227
Honolulu, Hi 96813

Dear Mr. Paty,

Enclosed is a letter to Senator Daniel Inouye outlining a severe beach erosion problem at Laie, a suggested solution, and a request for his help in correcting this problem.

Tax Map 5-5-02 shows the general area affected before the erosion where the high water boundary extended out to the exposed reef shown in the photos.

A shoreline survey in 1987 by Engineers Surveyors Hawaii Inc indicates a loss of 53.09 feet from the original 313.23 feet depth to the highway on the Kahuku side. Since then an additional 6 to 8 feet has been lost.

The problem is a critical one. Any help you can give the property owners in this area would be greatly appreciated. From the observation of the tide action and the current flow, we think the problem can be solved by stopping this flow of water in the channel on the Kahuku end

Thank you.

Sincerely yours,

Ken/Nancy W. Yee
Owners, Lot 5-5-02-32

KEN/NANCY W. YEE
2394 Aina Lani Pl.
Honolulu, HI 96822
Ph. (808) 949-7441

August 10. 1988

Representative Reb Bellinger
Hawaii House of Representatives
Honolulu Hawaii 96813

Dear Representative Bellinger.

Enclosed is a letter to Senator Daniel Inouye outlining a severe beach erosion problem at Laie, a suggested solution, and a request for his help in correcting this problem.

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Thank you.

Sincerely yours,

Ken/Nancy W. Yee
Owners, Lot 5-5-02-32

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858-5440

August 29, 1988

REPLY TO
ATTENTION OF:

Planning Branch

Honorable Daniel K. Inouye
United States Senate
722 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Inouye:

I am responding to your letter dated August 16, 1988, requesting information on the erosion problem of Mr. Ken W. Yee's Laie beach front property.

Members of my staff conducted a site investigation on August 23, 1988, with Mr. Yee at his property. Suggestions were made to Mr. Yee on possible remedies to his serious beach erosion problem. Mr. Yee was further informed that as the subject shoreline fronted private property, it was not eligible for Federal protection. Enclosed is a copy of the site investigation findings.

Mr. Yee expressed his appreciation for the technical assistance.

Sincerely,

Enclosure

F. W. Wanner
Colonel, U.S. Army
District Engineer

Copy Furnished:

Honorable Daniel K. Inouye
United States Senator
Prince Kuhio Federal Building, Box 50123
Honolulu, Hawaii 96850

CEPOD-ED-PH 25 August 1988

MEMORANDUM FOR RECORD

SUBJECT: Site Visit to Yee Property, Laie, Hawaii

1. On 23 August 1988 at 0945 hours, Mr. Stanley Boc and Ms. Helen Stupplebeen from CEPOD-ED-PH visited the Yee property, Tax Map Key #5-5-02-32 at Laie, Hawaii with Mr. Ken Yee at the request of U.S. Senator Daniel K. Inouye (enclosed).

2. In a letter forwarded from Senator Inouye's office, Mr. Yee requested help in finding a solution to the shoreline erosion that is affecting his lot and fifteen other beach front lots in recent years. In his letter he stated that the beach fronting his property was gradually being eroded by wave action and carried away in a northerly direction through a narrow channel in the reef flat that runs parallel to the shoreline.

3. During the drive to Laie Mr. Yee stated that his problem could be alleviated through the damming of the channel in the reef flat. This would stop the transport of sand away from the immediate area and result in the beach returning to it's original boundaries after a period of years.

4. After arrival and inspection of the site, it was evident that Mr. Yee does have a serious erosion problem. At the time of this visit the tide was at +1.6 feet and rising. The waves were washing close to the bottom of the bluff fronting the house and active erosion of sand from the escarpment was observed.

5. The Yee residence is situated on a 7 to 10 foot bluff overlooking a pocket beach. This beach is protected by a coral reef sill located 80 feet from the bottom of the bluff. This sill would act as a sand trap, by not allowing perpendicular offshore movement of the sand. The sill also acts as the seaward edge of a channel that has one opening facing to the north. The channel was observed to have a strong current which carries sand away from the beach resulting in further erosion of the pocket beach and bluff area.

6. Mr. Boc agreed with Mr. Yee that reducing the flow of water through the reef channel would slow the erosion from the pocket beach by maintaining the sand within the pocket beach area. The most economical way of doing this would be through designing and building a graduated rock barrier across the channel. This would allow the trapped water to flow through the barrier because of the structure's porosity, while reducing the velocity of the flow and allowing the sand to remain within the pocket beach area.

CEPOD-ED-PH 25 August 1988
SUBJECT: Site Visit to Yee Property, Laie, Hawaii

7. It was also recognized at this time that Mr. Yee has another immediate problem in stabilizing the bluff on the ocean side of his property. The bluff is on an approximately 2:1 slope and in examining a survey taken in early 1987, has lost in excess of two feet within the past year. A stairway on the southern end of the property and a tree stump located at the top of the bluff in the 1987 survey have already collapsed due to erosion within the past year. The nearest residence is situated within ten feet of the top of the bluff and if the bluff is not stabilized it would result in the loss of the structure in the near future. Mr. Boc suggested that the bluff could be stabilized thorough the use of a revetment or wall and possibly with the use of vegetation.

8. Mr. Yee was further informed that as the subject shoreline fronted private property, it was ineligible for Federal protection. Mr. Boc concluded this visit with an offer to talk to a group meeting of neighboring homeowners to explain the various options available to them and left a Help Yourself brochure with Mr. Yee.

9. The site visit was concluded at 1100 hrs.

STANLEY BOC
Hydraulic Engineer

HELEN STUPPLEBEEN
Civil Engineer

DANIEL K. INOUYE
HAWAII

DAVID M. PETERS
EXECUTIVE ASSISTANT
HAWAII

United States Senate

September 6, 1988

Mr. Ken W. Yee
2394 Aina Lani Place
Honolulu, Hawaii 96822

Dear Mr. Yee:

In the absence of Senator Inouye who is in Washington, D.C., I am forwarding the reply from the U.S. Army Engineer District concerning the erosion problem at your Laie beach front property.

I understand from Colonel Wanner's letter that two engineers, Mr. Boc and Ms. Stupplebeen, visited your property and made a survey of the shoreline and your serious beach erosion problem.

Senator Inouye will regret that because the subject shoreline fronted property is private property, it is ineligible for Federal protection. However, he will be pleased to learn that Mr. Boc offered to talk to a group meeting of neighboring homeowners to explain the various options available to them.

Thank you for bringing this matter to the attention of Senator Inouye. He was pleased to be of assistance.

Aloha,

David M. Peters

DAVID M. PETERS
Executive Assistant

DMP:nkt
Enclosure

REPRESENTATIVE REB BELLINGER
HOUSE OF REPRESENTATIVES
STATE CAPITOL
HONOLULU, HAWAII 96813

October 25, 1988

Mr. Jonah Muraki
2909 C Lowrey Ave.
Honoulu, Hawaii 96822

Dear Ms. Muraki,

At a recent meeting held at the State Capitol, we discussed various courses of action that could be pursued to address the continuing erosion problem at the beach by your property. The following course of action agreed upon:

1. The initial problem of erosion, as explained by the representative from the U.S. Army Corps of Engineers, resulted from a break in the barrier from the beach to the reef that existed on the Kahuku end of your beach area. This break allowed the sand in the area to escape, thus setting a new series of coastal ocean dynamics into motion. The end result is the current condition of the beach area.

Since the cause of the erosion has been established, the first step is to obtain permits from both the State Department of Land and Natural Resources and the U.S. Army Corps of Engineers which would allow for this beach barrier to be replaced and to prevent further loss of sand from the area. It was further decided that due to the degree of damage that exist, a request for emergency permits would be made to both the State and the U.S. Army Corps of Engineers.

2. Replacing the barrier between the beach and the reef, however, is only part of the answer. In order to have a long term solution, a total master plan for the entire beach area will need to be developed and each property will have to be evaluated as to the best course of action to be pursued. The reason for an overall master plan is due to the coastal ocean

dynamics that will occur if only some property owners take action and others do not. Basically, if one land owner pursues a course of action, let's say builds a sea wall, and the neighboring land owner does nothing, the land owner that does nothing will be negatively impacted by the building of the sea wall. What we want to be able to do is to solve the overall erosion problem without creating additional problems.

As of this date, I have talked with both the Department of Land and Natural Resources and the U.S. Army Corps of Engineers and they have agreed to cooperate and to expedite the permit process. I will obtain the necessary permit applications and forward them to Ken Yee, who will coordinate the overall effort.

We will set a tentative goal for obtaining all the necessary permits by the end of November 1988. Hopefully, the permits can be obtained before then. As soon as I have additional information, I will contact you.

Sincerely,

Reb Bellinger

Reb Bellinger
House of Representatives

JOHN WAIHEE
GOVERNOR OF HAWAII

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

DEC 16 1988

DOC. NO.: 4795E

Mr. Ken Yee
Laniloa Beachfront Owners
2394 Aina Lani Place
Honolulu, Hawaii 96822

Dear Mr. Yee:

EMERGENCY AUTHORIZATION

You are hereby authorized to perform the following emergency work:

1. The placement of 8" - 24" size rocks to a depth of about 5 feet within the 25-foot wide channel for a distance of about 30 feet on submerged land between the headland of TMK: 5-5-02: 30 and the reef. The total amount of rock used is to be less than 10 cubic yards.

This emergency authorization is provided after further review and discussions held with the property owners and Corps of Engineers staff, and the Department's Division of Water and Land Development. It is understood that erosion of beach frontage began when a reef outcrop located parallel to the shoreline became exposed from wave action and allowed subsequent lateral shore currents formed in the newly created depression along the shore side of the exposed reef outcrop to carry away embankment material. Progressive erosion from winter storms has occurred over the years and the property owners attempted to implement protective measures, with relatively little success. Presently, residences sit dangerously close (10± ft.) to 5- to 10-ft. cliffs of eroding sand, and the property owners, upon technical advice of the Corps of Engineers, requested that they be allowed to undertake the proposed remedial work to forestall the potential loss of their homes.

All work undertaken in conjunction with this written authorization is subject to the following conditions:

1. This work is temporary in nature, to the extent that the emergency is alleviated; and that this authorization does not imply any other commitment in the future relating to actions taken on behalf of this authorization;

2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this authorization; and

3. The applicant be required to secure all permits or certifications required of other agencies. They also are required to monitor the integrity of the rock blanket and submit periodic reports to the Department. Additionally, based on the performance of the emergency measure undertaken, the applicant needs to explore permanent solutions to the current problem.

If you agree to these conditions, please sign, date and return the copy of this letter before implementing any of the work authorized within thirty (30) days or whichever is sooner. If you have any questions regarding this Emergency Authorization, please feel free to call me or Roy Schaefer of my staff, at 548-7837.

Very truly yours,

for WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

I agree to the conditions stated above.

Laguna Beachfront Owners

Ken Yee

KEN YEE

12-17-88

Date

Attachment

cc: DOCARE, DOWALD

KEN/NANCY W. YEE
2394 Aina Lani Pl.
Honolulu, HI 96822
Ph. (808) 949-7441

December 17. 1988

Mr. William W. Paty, Chm
Board of Land and Natural Resources
PO Box 621
Honolulu. Hawaii 96809

Re: DOC No. 4795E

Dear Mr. Paty:

Thank you for your favorable reconsideration to our request for an Emergency Authorization to construct a rock barrier between the headland of TMK 5-5-02-30 and the reef.

We are reasonably certain that this rock barrier will have definite results that will stop the further loss of sand from the beach and eventually rebuild the beach out to its original configuration after a long period of time.

We will keep you informed of the completion of the project and also of developments at regular intervals.

Enclosed is a signed copy of the Emergency Authorization you requested.

Sincerely yours,
Laniloa Beachfront Owners

Ken Yee

REPRESENTATIVE REB BELLINGER
HOUSE OF REPRESENTATIVES
STATE CAPITOL
HONOLULU, HAWAII 96813

December 22, 1988

Mr. Ken Yee
2394 Aina Lani Pl.
Honolulu, Hawaii 96822

Dear Ken,

I am delighted with the success in obtaining the emergency permits from both the State Department of Land and Natural Resources and the U.S. Army Corps of Engineers. It is my understanding that work can begin immediately at addressing the erosion problems at your beach area in Laie.

In the event that the other people who have attended our meetings and who have been interested in this project have not been informed, I will send them copies of this letter and the one from DLNR which grants the approval of the emergency request.

Ken, you are to be congratulated on the hard work that you have done in pursuing this project so diligently. The major reason for its success belongs to your untiring efforts in pursuing these two permits.

If I may be of service, please don't hesitate to contact me.

Sincerely,

Reb Bellinger

Reb Bellinger
House of Representatives