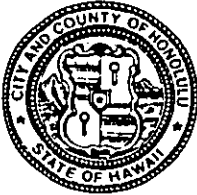


Stubenberg After-the-Fact
Seawall

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET • HONOLULU, HAWAII 96813
PHONE: (808) 523-4414 • FAX: (808) 527-6743

JEREMY HARRIS
MAYOR



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JAN NAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR
98/SV-004 (ST)

October 19, 1998

ENVIRONMENTAL
CONTROL

Mr. Gary Gill, Director
Office of Environmental Quality Control
State of Hawaii
State Office Tower, Room 702
235 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Gill:

CHAPTER 343, HRS
Environmental Assessment (EA)/Determination
Finding of No Significant Impact

Recorded Owners: James A. Stubenberg Trust and Lynne E. Stubenberg Trust
Applicants : James A. and Lynne E. Stubenberg
Agent : Roland Ejercito, Jr.
Location : 55-321/C Kamehameha Highway, Laie, Oahu
Tax Map Key : 5-5-02: 77
Request : Shoreline Setback Variance
Proposal : After-the-fact variance for a shoreline revetment, wooden fence and stairway
Determination : A Finding of No Significant Impact is Issued

Attached and incorporated by reference is the Final EA prepared by the applicant for the project. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA. If you have any questions, please contact Steve Tagawa of our staff at 523-4817.

Very truly yours,

JAN NAOE SULLIVAN
Director of Planning
and Permitting

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Encls.

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After-the-Fact Seawall

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APPLICATION FOR SHORELINE SETBACK VARIANCE

AND

FINAL ENVIRONMENTAL ASSESSMENT

Existing Shoreline Revetment, Wood Fence and Walkway

Stubenberg Residence, TMK (1) 5-5-2:77 (Lot 116-A)
55-321C Kamehameha Highway, Laie, Oahu, Hawaii

Applicant:

James A. Stubenberg, trustee, and
Lynne E. Stubenberg, trustee
55-321C Kam Hwy
Laie, Hawaii

Applicant's Agent:

ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P. O. BOX 2681
PHONE: (808) 842-4063, 841-5113

DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

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August 1998

**APPLICATION FOR SHORELINE SETBACK VARIANCE AND
FINAL ENVIRONMENTAL ASSESSMENT**

Existing Shoreline Revetment, Wood Fence and Walkway
Stubenberg Residence, TMK (1) 5-5-2:77 (Lot 116-A)
55-321C Kamehameha Highway, Laie, Oahu, Hawaii

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Overview

After-the-fact approval is being sought for a sloping boulder revetment that was constructed across the shoreline frontage of the subject property in 1988 and 1989. There is also a wood fence and walkway constructed above and mauka of the revetment around 1989. These improvements were built without City approvals, including a Shoreline Setback Variance (ROH 1992 Chapter 23) and a Building Permit (ROH 1990 Chapter 18). This application and environmental assessment provides a description of the action and addresses the potential impacts to the coastal environment.

(1) **Applicant**

James A. Stubenberg, trustee and
Lynne E. Stubenberg, trustee
55-321-C Kamehameha Highway
Laie, Hawaii
Telephone: (808) 526-0892

(1a) **Applicant's Agent**

Roland Ejercito, Jr. - Consulting Engineer
P. O. Box 2681
Honolulu, HI 96803
Telephone: (808) 842-4063

(2) **Approving Agency**

City and County of Honolulu, Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, HI 96813
Steve Tagawa, Coastal Land Branch
Telephone: (808) 523-4817

(3) **Agencies Consulted**

City and County of Honolulu, Department of Planning and Permitting
City and County of Honolulu, Building Department
State of Hawaii, Department of Land and natural Resources

(4) **General Description of the Action's Technical, Economic, Social and Environmental Characteristics**

State/County Land Use. The State Land Use District designation of the property is Urban. The County Development Plan Land Use Map designation is Residential, and the zoning district is R-5 Residential.

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Technical Characteristics. The proposed action involves after-the-fact approval of a sloping rock revetment, wood fence and walkway at the shoreline frontage of 55-321C Kamehameha Highway in Laie. The general location of the subject property is shown in Figure 1 across from the Quarry Road intersection with Kamehameha Highway, at the south end of the Polynesian Cultural Center.

The subject revetment, wood fence and walkway is located along the shoreline frontage of the Stubenberg property.

The parcel is relatively level and improved with a single family dwelling built in 1972, and an existing wooden fence at the front, back and side yards.

On December 27, 1985, the County approved the subdivision of Lot 9-A-3-A into two Lots: Lot 9-A-3-A-1 consisting of 6,830 sq. Ft. (Stubenberg property) and Lot 9-A-3-A-2 consisting of 10,565 sq. Ft. (Amjadi property).

Also, a variance (Case No. 81-ZBA-229) was granted by the Zoning Board of Appeals for the minimum lot width for Lot 9-A-3-A-1 (Stubenberg property).

On January 8, 1998, the Building Department issued a permit (#412339) for the repair of an existing revetment on Lot 116-B (Amjadi's property).

Based on historical aerial photographs of the Laie coastline taken over the past 56 years (1949-1995), there has been a significant loss of shoreline at this location due to erosion activity since the lots were first subdivided. The subject property has lost between 40 to 50 feet of land along the makai edge, totaling approximately 3,000 sq. ft.

Since the 1950's, shoreline structures have been constructed along the ocean frontage of the adjoining properties to the north and south to help stabilize the retreating shoreline. Most of the lots to the north and south have either sloping rock revetments or vertical seawalls protecting their shoreline frontage. Lots that do not have structural protection are experiencing shoreline erosion.

Exhibit A includes the Shoreline Survey Map certified by the DLNR on August 1998. Figures 2 and 3 provide site specific details of the shoreline structure and wooden walkway, showing location and elevation relative to the makai side and neighboring residential lots. Directly makai of the structure is a short section (30 to 40 feet) of low-lying, grouted rock that wall built in September or October 1988. Limestone boulders were placed mauka of and on top of the low rock wall in February 1989. The boulder revetment spans the entire shoreline frontage of the Amjadi's property and Stubenberg's property. The shoreline of the adjoining lot to the north, and the shoreline of the four lots beyond the neighbor to the north, are all protected by a sloped revetment structure.

An older low CRM wall (approx. 24 to 36 in. High) exists about 30 to 40 feet makai of the subject revetment, built sometime between 1949 and 1958. The top of the old wall is about 1.6 to 2.5 feet above mean sea level.

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Figure 4 shows cross sections of the composite structure. Its height ranges from 7 to 8 feet on the north side, 6.2 feet at the walkway, to 4.8 feet above grade on the south side. The revetment, wood fence and walkway are shown in plan view and cross-sections in Exhibit B.

The revetment is completely stable. A recent storm (November 1996) brought 20 foot surf to the upper windward coast from a north and northeast direction. Erosion was experienced along the coastline, and several properties and roadside areas received damage to the shoreline frontage. The subject property did lose several inches of sand at the toe of the revetment during this event. Only the bottom step of the walkway was dislodged by the waves. The offshore reef shelf, the inner beachrock sill and revetment provides excellent natural protection from wave attack.

Exhibit C includes a report completed by Tom Nance Water Resource Engineering (TNWRE) (December 1996). This report provides an oceanographic evaluation of the shoreline revetment and color photographs. An evaluation of the seawall's materials and structural stability is also included with the TNWRE report.

Socio-Economic Characteristics. The total construction cost value for the sloping revetment is estimated at \$10,000. The revetment construction causes no economic impacts on the immediate community or the community at large. The cost of the wooden fence and walkway is estimated at \$2,000.00.

Without the shoreline revetment, further erosion of the shoreline frontage during high surf events could ultimately result in damage to the existing residential structure. The property owner could potentially lose the value of a portion of their land and improvements if the revetment was not constructed. The proposed action was undertaken to protect these assets.

Some people use this shore for fishing and ocean gathering, however, its use is limited due to the lack of good lateral access makai of the revetments along this section of the coast. There is a public beach access located approximately 400 feet to the north. The shallow sand-bottom waters inside of the nearshore sill is used by people for wading and shallow swimming. The sill is exposed at low tides, and provides opportunities for ocean gathering.

Environmental Characteristics. The shoreline revetment was constructed in 1989 and 1990. The oceanographic study completed by TNWRE (Exhibit C) evaluates the potential for erosion caused by the shoreline structure. The study shows that erosion of the adjacent beach areas is not being accelerated by the presence of this structure. Without the revetment, erosion along the seaward frontage of the subject properties would likely occur, possibly threatening the residential structure.

Construction activities associated with the rock revetment, wood fence and walkway caused no adverse effects to ocean water quality. Boulder placement and construction activities were limited to area above high water. No long-term effects to water quality resulted.

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The Flood Insurance Rate Map designates this property as Zone AE (elevation 9). The residence and shoreline cliff is at elevation of 13.75 feet of the lowest grade and 15.7 at the highest grade.

(5) Summary Description of the Affected Environment

Soils on this parcel are sandy and well-drained. Excavation for the wall found all subsurface material to be clean, coarse-grained calcareous beach sand. Vegetation on this site primarily consists of introduced landscaping including Bermuda grass, several coconut palms and naupaka. There are no known significant habitat areas for either terrestrial or aquatic flora or fauna directly found at the project site.

Beach and offshore conditions are summarized in this section, based on the detailed assessment provided in TNWRE (March 1995) (Exhibit C).

Adjacent to the rock revetment is the coastal nearshore environment off Laie. There is a partially emerged sill which runs parallel to the shoreline about 60 to 80 feet offshore. It is comprised primarily of lithified sand and coralline algae. Its top is 15 to 20 feet wide, and is exposed during most low tides. There is a drop of 3 to 4 feet on the land and seaward sides of the sill. Based on the sill's orientation and composition, it is the former location of the shoreline. The nearshore sill and the protruding rock revetments to the north and south enclose a shallow area of the nearshore waters which is almost entirely covered by sand.

The nearshore area has very good water quality. The bottom offshore is a shallow (less than 6 feet) and gently sloping reef platform with bottom cover comprised of dead coral, coralline algae and cemented sand. Ocean waves from trade wind swell and longer period waves from distant sources typically break in two to four feet of water along this sloping reef platform. Only a few live corals were observed in several transects of the reef platform to 500 feet offshore. Sand deposits are few and generally only a few inches deep with insignificant volume. This is typical of the nearshore area. Extending offshore about 1,500 to 3,000 feet the reef drops to 6 feet and 18 feet, respectively. General offshore bathymetry is shown in Figure 1 and Exhibit C.

The offshore reef and the inner beachrock sill provide excellent natural protection from wave attack. As a consequence, the largest wave which can break on or just in front the shoreline revetment is constrained by the available water depth. Using the most critical combination of the highest tide level and a generous allowance of wave set-up, the highest wave that could strike the revetment is about 2.7 feet. All waves larger than this break further offshore, dissipating most of their energy before reaching the revetment. There have been significant shoreline changes along this section of the Laie shoreline. The fast lands are comprised of well sorted, medium to coarse-grained calcareous beach sand which is easily eroded. Despite the natural protection from waves provided by the offshore reef platform and nearshore sill, substantial shoreline retreat has occurred over the past 50 years.

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Review of historical aerial photographs from 1949 to 1995 verify the shoreline changes during this period. Exhibit C presents a series of these photographs are presented with overlays showing the past and present shoreline positions.

The 1949 aerial photograph shows a smooth arcuate-shaped shoreline without any structural protection for this 1,100 foot section of coast. Nine years later in 1958, the pattern of erosion which continues into the 1990's is demonstrated. Rock revetment at the north and south ends of the photo are in place, and these portions of the shoreline have remained stable to the present. The 900 feet of shoreline between these two protruding revetments has retreated inland. The wall offshore of the subject property and neighbor was in place at the time of the 1958 photo, as were the loose boulders to the south of this structure. Despite these actions, shoreline retreat continued along this stretch.

Additional shoreline revetment construction occurred in the 1972 to 1982 period, with more occurring between 1982 and 1995. The few lots frontages which remain unprotected have been subjected to further erosion, including recent storms such as November 1996.

(6) Identification and Summary of Major Impacts and Alternatives Considered

Potential Short-term Impacts. The construction of the shoreline revetment along the frontage of this lot had some minor short-term effects on vegetation, water quality and noise conditions. Some landscaping vegetation (grass and bushes) was removed by the construction activity. Naupaka bush was replanted following construction. During construction, there is always the potential for soils to erode from the upland area and cause silt runoff to ocean waters. Soils were protected to avoid runoff to the ocean, and there has been no apparent soil erosion due to the construction. Lastly, construction noise may have been noticeable to residents at neighboring properties. Construction activity took place during allowed daytime periods for construction and did not cause excessive noise levels off-site.

Potential Long-term Impacts.

Shoreline Processes. The effect of the shoreline revetment on shoreline processes at this location is considered, given that there are existing walls and revetments on adjacent properties to the north and south. The subject revetment structure has been in place for about seven years. The impact on shoreline processes of the revetment has been negligible due to the presence of a series of shoreline structures on adjoining lots.

For more than a 1,500 foot stretch of the Laie shoreline in this area, only a 10-foot wide section to the north and three contiguous lots to the south remain unprotected. All other lots in this stretch are protected by boulder revetments or vertical seawalls. Shoreline retreat of the remaining unprotected lot frontages is definitely occurring. Over a record period of 38 years, the Oahu Shoreline Study (Sea Engineering, 1989) found a shoreline retreat of 52 feet in this sector of the Laie coastline where there are no protective structures (Laniloa 2, Transects 4/5). With the pattern of shoreline protection which has been established, an

individual lot owner has little choice but to protect his property with a structure similar to the one existing along the frontage of the subject property.

Aesthetics: The sloping limestone boulder revetment at the subject property is similar in aesthetic condition to the surrounding lots with shoreline structures. The subject property's frontage is actually more attractive than some of the other frontages. This is due to the open spaces which remain between the limestone boulders which allow the naupaka plant to grow down the slope and intersperse with the hard structure. This tends to soften the appearance of the shoreline structure and allow it to blend with the landscape in the area mauka of the wall and makai of the residential structure.

(7) Proposed Mitigative Measures

Several mitigative measures have been taken and are proposed to reduce or eliminate the potential impacts of the sloping revetment construction at the subject lot.

Best Management Practices. Water quality was protected during construction of the revetment structure. Measures were taken during the construction activities to avoid erosion and silt runoff to surface water in the ocean. Soils on the mauka side of the structure were stabilized to prevent silt runoff to the beach and ocean water.

Aesthetic Effects. The owner has agreed to retain and encourage the naupaka bushes along the mauka side of the revetment and maintain them so they grow over the top of the wall. This will essentially maintain a more appealing visual condition at this site, nullifying any potential aesthetic change resulting from the construction of the revetment.

(8) Alternatives to the Proposed Action & Evaluation of Hardship

There are several issues which must be considered in the evaluation of hardship for the application for Shoreline Setback Variance at the subject property. Four alternative approaches are considered possible at this time, including:

- (a) No-action alternative - require removal of the revetment,
- (b) Construct a vertical seawall in place of the revetment,
- (c) Modify the revetment through reconstruction, and
- (d) Attempt a non-structural approach to protect this property.

These options are discussed individually in terms of their potential impacts, including hardship to the applicant.

(a) No action – Remove revetment structure

The no-action scenario would involve removal of the revetment and leave the shoreline frontage of the lot unprotected. This action would expose the property to storm wave erosion, causing the makai 20 to 30 feet of the property to erode, as witnessed two lots to the south. The residence on the subject property would potentially be exposed to storm wave run-up and damage.

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Shoreline structures fronting parcels on either side of the subject lot could also potentially be back-cut by the erosional activity. The no-action alternative would potentially cause damage and property loss to the subject lot, and is not considered feasible. The historical trend of this stretch of shoreline is steady erosion on the order of one to two feet per year.

(b) Construct a vertical seawall in place of the revetment

A vertical seawall at this location match the seawall on the adjoining property to the north. However, a seawall is not the best type of structure for the shoreline situation at the subject property. There is space to accommodate a sloping boulder revetment as it exists. The revetment causes less energy reflection to the nearshore shallow water area, causing less erosion forces. Construction of the vertical seawall would cause short-term environmental effects and incur expense for the landowner that is unwarranted.

(c) Modify the revetment structure through reconstruction

The boulder revetment at this location could be reconstructed to provide additional structural strength and provide a greater slope for wave energy dissipation. This would require removal of the existing revetment structure that is structurally stable and reconstruction with corresponding short-term environmental effects.

A reconstructed revetment would potentially take up some of the owner's usable lot area in the place of the new revetment rock slope. The construction of the new revetment would only add economic hardship to the owner. The owner would have to demolish and reconstruct a functioning shore protection structure. There is no environmental benefit, such as reduced shoreline erosion, that could be anticipated from such a reconstructed revetment in this situation.

(d) Attempt "soft structure" and non-structural solutions along this property

There are a number of non-structural approaches to curbing shoreline erosion that have been suggested for the shoreline of Oahu. These options include the use of sand-filled sea bags, offshore sand mining for beach replenishment, and moving structural improvements further mauka to avoid ocean wave damage. Sea bags have shown to provide some effectiveness in curbing shoreline property loss to erosion at some location. In this situation, the sea bags would interfere with lateral access in front of the subject property. The sea bags would temporarily take the place of the revetment, and would be a short-term solution to an obviously long-term erosion problem at this location. The owner would need to continually maintain the bags and periodically replace them at continuing cost. There would be no real environmental benefit from this option.

Offshore sand mining and beach replenishment has been proposed for a number of locations in Hawaii. The intent of beach replenishment is to offset erosion activity along a coastline by providing sand material from offshore sand reserves or other nearby sources. Sand replenishment can be used in an attempt to re-create the beach and dune structure. This

alternative could be potentially feasible in areas where offshore sand reserves exist (not present at this location) and a government agency or large private entity can fund this activity. This type of area-wide massive beach replenishment project would not be a practical solution for a small single property owner. Formation of an improvement district would be a possible long-term approach to solving erosion problems along this coastal section. This solution would take extensive time to plan the program and assemble the government approvals and resources to complete the project. In the current situation at the subject property, this would not be a practical way to satisfy an urgent need to protect against imminent property loss and damage.

Another alternative to the shoreline structure would be to move the structural improvement (residence) further mauka placing it outside of the erosion and ocean wave hazard. At this location, moving the residence mauka to avoid erosion activities would not be practical, since there is no space on the lot to shift the building.

(9) Consistency with Coastal Management Objectives and Policies.

The objectives of the Hawaii Coastal Zone Management Program, Section 205A-2, HRS, are to protect valuable and vulnerable coastal resources such as coastal ecosystems, scenic and cultural values and recreational opportunities. The objectives of the program are also to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone. Described below are the ten objectives and policies of the Hawaii Coastal Zone Management Program and an assessment of the project impacts relative to the CZM objectives and policies.

- (1) **Recreational Objective:** "Provide coastal recreational opportunities accessible to the public."
- (a) Improve coordination and funding of coastal recreation planning and management.
 - (b) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
 - (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
 - (ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites and sandy beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;
 - (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
 - (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
 - (v) Encouraging expanded public recreational use of county, State, and federally owned or controlled shoreline lands and waters having recreational value.
 - (vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect and where feasible, restore the recreational value of coastal waters.

- (vii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of section 46-6.

Discussion: Public access to the beach fronting the property is not affected by the shoreline structure. Children in the area make regular use of the shallow lagoon waters and narrow beach fronting the property. Recreational uses will not be diminished by the proposed action.

- (2) **Historic Resources Objective.** "Protect, preserve and, where desirable, restore those natural and man made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture."
 (a) Identify and analyze significant archaeological resources.
 (b) Maximize information retention through preservation of remains and artifacts or salvage operation.
 (c) Support State goals for protection, restoration, interpretation and display of historic resources.

Discussion: Archaeological resources are not affected by the shoreline structure at this property. The action to stem erosion of the shoreline at this location could actually avoid exposure of any unknown buried cultural deposits and remains.

- (3) **Scenic and Open Space Resources Objective:** "Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources."
 (a) Identify valued scenic resources in the coastal zone management area.
 (b) Insure that new developments are compatible with their visual environment by designing and locating such development to minimize the alteration of natural landforms and existing public views to and along the shoreline.
 (c) Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources.
 (d) Encourage those developments which are not coastal dependent to locate in inland areas.

Discussion: The shoreline structure at the subject property is built of limestone boulders which have a natural appearance. The boulder pile has openings and crags which allow for the naupaka plants to grow down and across the face of the upper portion of the structure. These features serve to soften the structure and create a natural looking shoreline transition that is more visually appealing than a standard shoreline structure.

- (4) **Coastal Ecosystems Objective.** "Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems."
 (a) Improve the technical basis for natural resource management.
 (b) Preserve valuable coastal ecosystems of significant biological or economic importance.

- (c) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversion, channelization, and similar land and water uses, recognizing competing water needs.
- (d) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

Discussion: The project will have no adverse effect on coastal ecosystems. Runoff will be controlled at the project site. Mitigative measures to reduce runoff for the short-term construction and long-term use of the site are planned. Best management practices will be applied in site construction activities.

- (5) **Economic Uses Objective:** Provide public or private facilities and improvements important to the State's economy in suitable locations."
- (a) Concentrate in appropriate areas the location of coastal dependent development necessary to the state's economy.
 - (b) Insure that coastal dependent development such as harbors and ports, visitor industry facilities, and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area.
 - (c) Direct the location and expansion of coastal dependent developments to area presently designated and used for such development and permit reasonable long-term growth at such area, and permit coastal dependent development outside of presently designated area when:
 - (i) Utilization of presently designated locations is not feasible;
 - (ii) Adverse environmental effects are minimized;
 - (iii) Important to the State's economy.

Discussion: The subject property has no economic activity at present. The proposed action will generate short-term economic benefits from construction activity.

- (6) **Coastal Hazards Objective:** "Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion and subsidence."
- (a) Develop and communicate adequate information on storm wave, tsunami, flood, erosion, and subsidence hazard.
 - (b) Control development in areas subject to storm wave, tsunami, flood, erosion, and subsidence hazard.
 - (c) Ensure that developments comply with requirements of the Federal Flood Insurance Program.
 - (d) Prevent coastal flooding from inland projects.

Discussion: The subject property is located in the flood hazard area and complies with the Federal Flood Insurance Program. The shoreline structure at this property serves to stem erosion along this shoreline, which protects the residence on this property, adjoining properties and inland areas.

(7) **Managing Development Objective.** "Improve the development review process, communication, and public participation in the management of coastal resources and hazards."

- (a) Effectively utilize and implement existing law to the maximum extent possible in managing present and future coastal zone development.
- (b) Facilitate timely processing of application for development permits and resolve overlapping or conflicting permit requirements.
- (c) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the general public to facilitate public participation in the planning and review process.

Discussion: The landowner has commissioned the preparation of this application and environmental assessment in part to provide the public with details about their shoreline structure and shoreline setback variance request. The applicant has been in contact with the City Department of Land Utilization and State Department of Land and Natural Resources. Agencies, organizations and individuals will be notified of this proposed action in the Environmental Notice published by the Office of Environmental Quality Control. A public hearing will be held by the Department of Land Utilization.

(8) **Public Participation Objective.** "Stimulate public awareness, education, and participation in coastal management."

- (a) Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program.
- (b) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and
- (c) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion: Refer to discussion for Objective 7.

(9) **Beach Protection Objective.** "Protect beaches for public use and recreation."

- (a) Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;
- (b) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
- (c) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion: The shoreline structure at this property is located inland of the certified shoreline. There is loss of public recreation space and open space as a result of this structure. Erosion of property and improvements is minimized by this shoreline structure. The design of the rock revetment structure and landscaping is an aesthetically pleasing

solution to offset the erosion activity at this property, as compared to more massive structures fronting some adjoining lots to the north.

- (10) **Marine Resources Objective.** “Implement the State’s ocean resources management plan.”
- (a) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
 - (b) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
 - (c) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;
 - (d) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
 - (e) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
 - (f) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources. [L 1977, c 188, pt of f3; am L 1993, c 258, f1; am l 1994, c 3, f1; am l 1995, c 104 f5]

Discussion: A conservation ethic is applied in the protection of this property with an aesthetically pleasing limestone boulder revetment. Naupaka plant growth along the top section of this wall serves to soften the appearance of this structure and creates a more natural transition at the shoreline.

CONCLUSION AND DETERMINATION

DETERMINATION, FINDINGS AND REASONS FOR SUPPORTING DETERMINATION

- (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources:
The existing rock revetment, wood fence and walkway, does not impact the scenic views of the ocean or any ridge lines in the area.
- (2) Curtails the range of beneficial uses of the environment:
The existing revetment, wood fence and walkway, is located entirely within the property of the owner, and does not adversely affect the public area of the beach at the adjoining and nearby properties.
- (3) Conflicts with the State’s long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders:
The proposed action is consistent with the Environmental Policies established in Chapter 344, HRS.

- (4) Substantially affects the economic or social welfare of the community or state:
The existing revetment, wood fence and walkway will not affect the economic or social welfare of the community or state, because the action is located entirely within the owner's property.
- (5) Substantially affects public health:
Impacts to public health may be affected by air and noise associated with the repair of the action; however, these will be insignificant or not detectable because all action will be within the owner's property.
- (6) Involves substantial secondary impacts, such as population changes or effects on public facilities:
The action will not itself generate new population growth, and will not affect public facilities in this area.
- (7) Involves a substantial degradation of environmental quality:
The addition of naupaka landscaping will greatly improve the area, and also provide protection to the existing wood fence.
- (8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions.
At the present time, the existing revetment, wood fence and walkway does not involve a commitment for larger actions.
- (9) Substantially affects a rare or endangered species or its habitat:
There is no known endangered plant or animal species located within the property.
- (10) Detrimentially affects air or water quality or ambient noise levels:
Any possible impact to near-shore ecosystems will be mitigated by establishment of the Best Management Practice required by state and county agencies.
- (11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.
The existing revetment, wood fence and walkway is compatible with the above criteria (AE ZONE 9) and therefore, provides protection from wave attack.
- (12) Substantially affects scenic vistas and view planes identified in county or state plans or studies:
The action does not affect the scenic vistas and view planes identified in county or state plans or studies.
- (13) Requires substantial energy consumption.
The action will not require substantial energy consumption.

The subject shoreline revetment structure at 55-321C Kamehameha Highway, Laie, was constructed around 1989. The findings of this Environmental Assessment indicate that no significant environmental impacts have been associated with the action. The proposed action is found to be a reasonable activity when considering other possible alternative actions at this location. In terms of oceanographic processes, the revetment does not cause adverse effects to the beach at the adjoining and nearby properties. The preparers of this assessment recommend that a Finding of No Significant Impact (FONSI) be issued for this action.

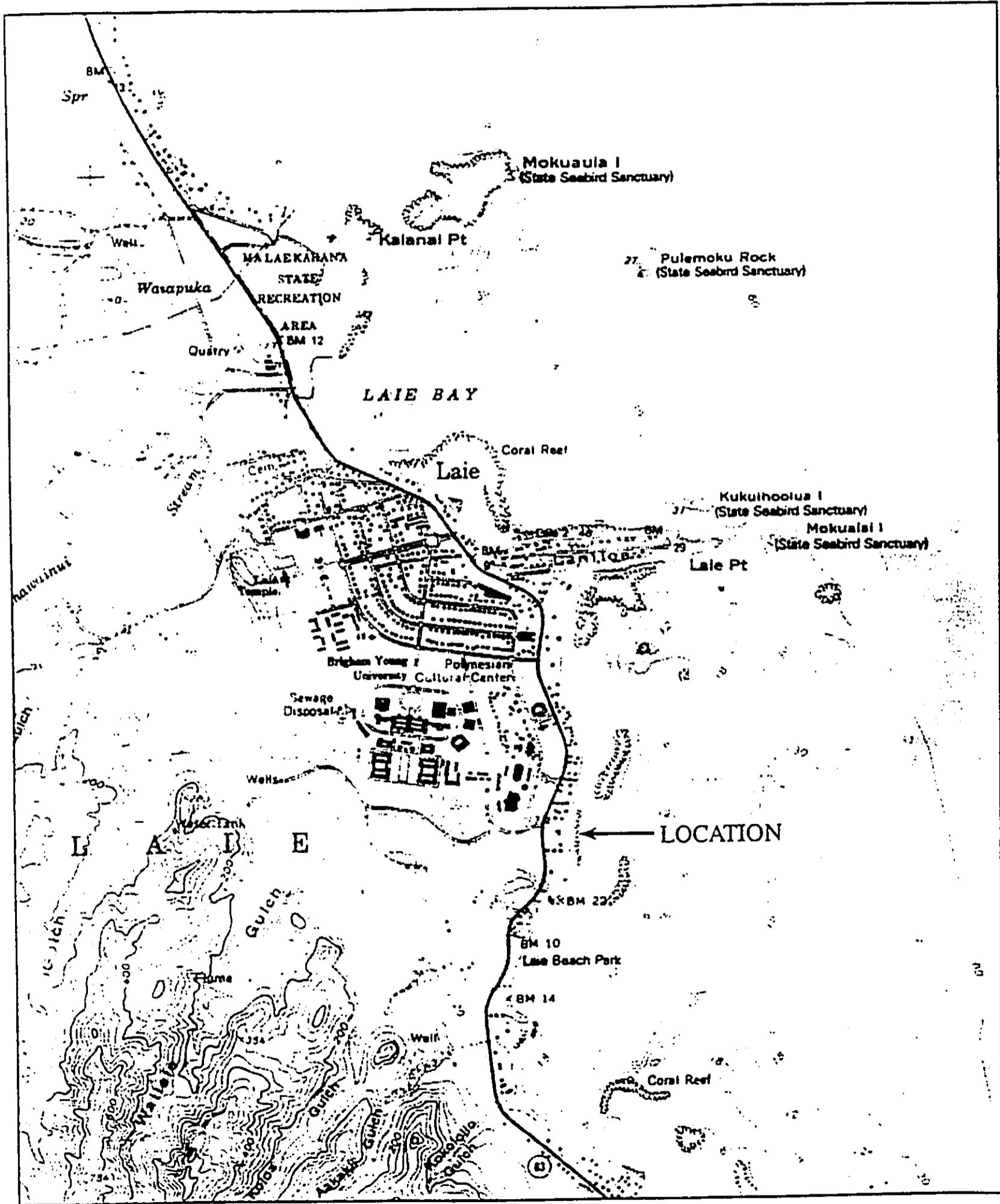
0000 0026 2735

ACKNOWLEDGMENTS:

Source of Reference:

- (1) EA & Supplemental Info. Prepared by Gray, Hong, Bill, & Associates, Inc. (Lot 116-A)
- (2) EA & Shoreline Setback Variance for 55-321B Kam Hwy
TMK: 5-5-2:86 (After-the-fact) (Lot 116-B)
- (3) Dept. Of Army

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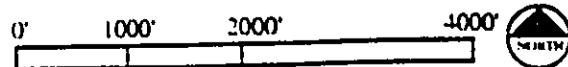


Source: USGS 1983

Figure 1

Location Map

Shoreline Setback Variance



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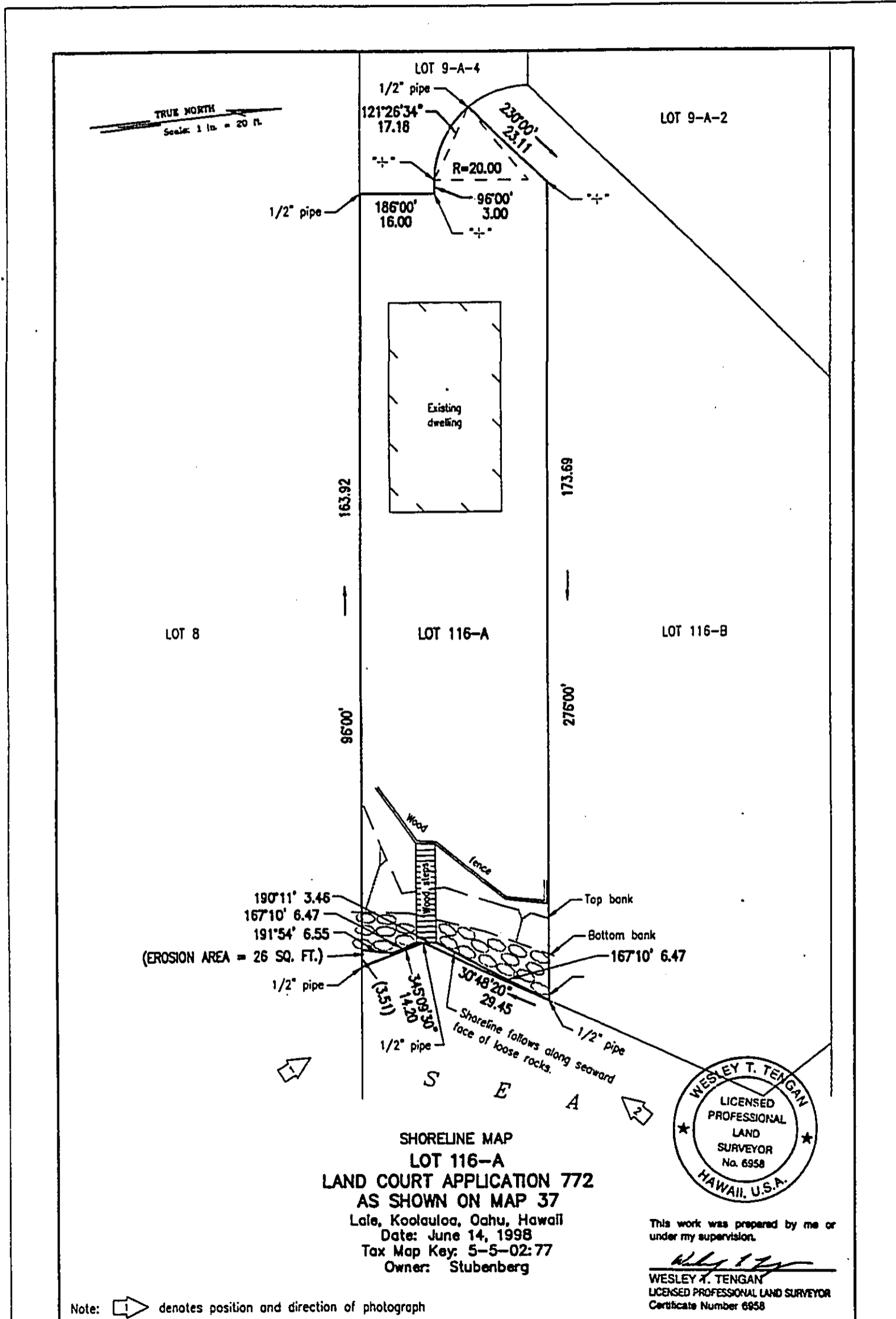
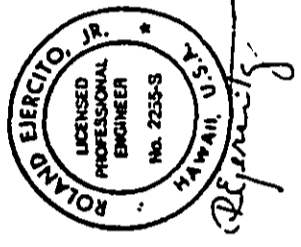
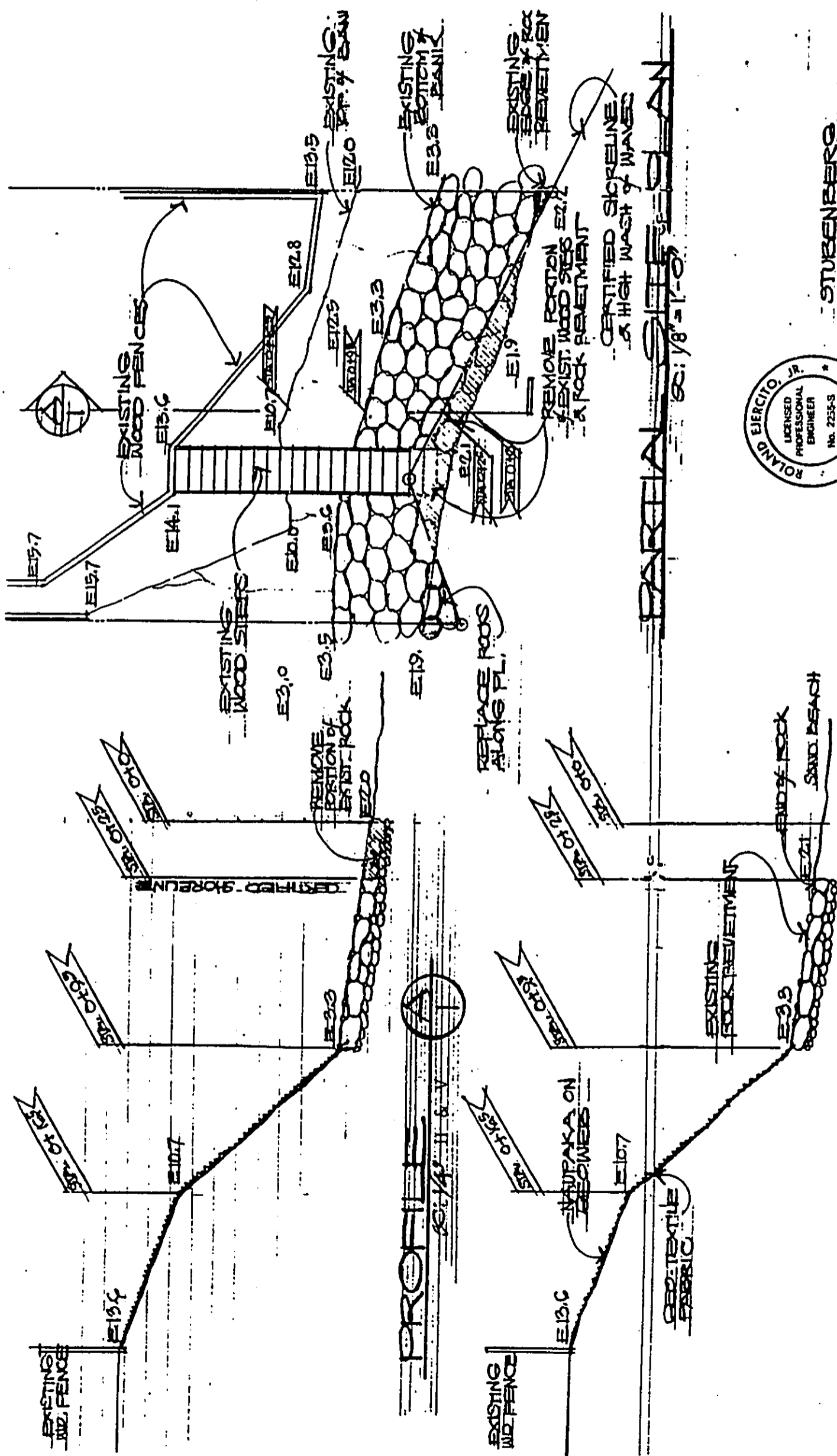


Figure 2
NTS

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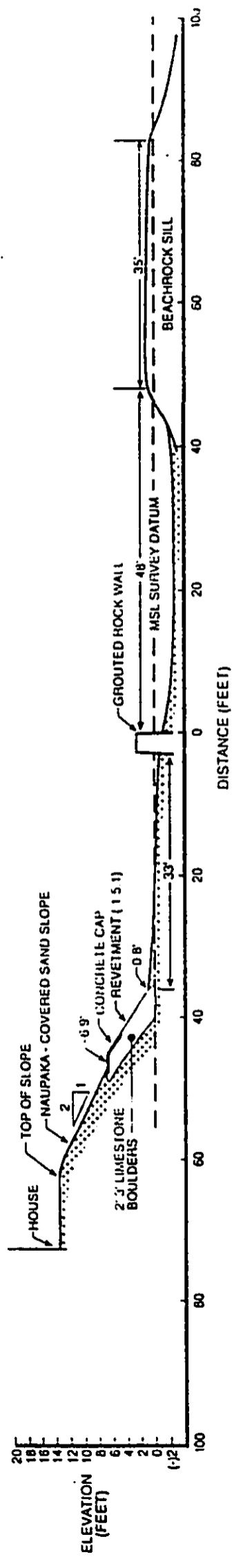


STUBENBERG
 55-821 C KAM. HWY.
 TMK: 5-5-02:77

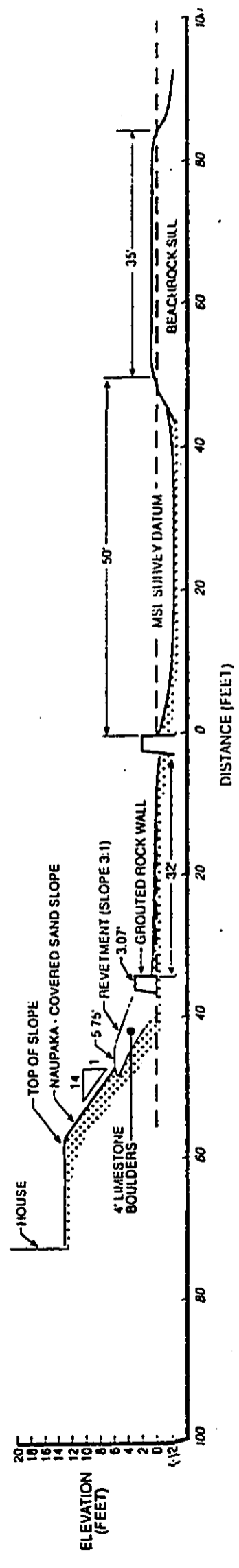
APR 27 1988

Figure 3

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SECTION A-A'



SECTION B-B'

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**APPLICATION FOR SHORELINE SETBACK VARIANCE AND FINAL
ENVIRONMENTAL ASSESSMENT**

**Shoreline Revetment, Wooden Fence and Walkway at
55-321C Kamehameha Highway, Laie**

**COMMENT LETTERS RECEIVED ON THE
DRAFT ENVIRONMENTAL ASSESSMENT**

RESPONSES TO COMMENTS

0000 0026 2741

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

October 30, 1998

University of Hawai'i at Manoa
Environmental Center
Crawford 817, 2550 Campus Road
Honolulu, Hawaii 96822

Gentlemen:

Subject: Stubenberg Property
55-321C Kam Hwy
Response to comments on Draft EA

Thank you for your comments on the DEA dated June 25, 1998, a copy which I recently received from the Office of Environmental Quality Control.

In accordance with the procedural provision of Chapter 343, HRS, we offer this response to your comment on the DEA.

The Stubenberg and Amjadi's shoreline structure was built without permits in 1989, and was cited in 1996 as an illegal structure lacking both a Building Permit and a Shoreline Setback Variance. The owner has the choice of removing the structure or seek "after-the-fact" permit.

General Comments:

The subject parcel is relatively level and improved with a single family dwelling built in 1972, and an existing wooden fence at the front, back and side yards.

In 1985, the County approved the subdivision of Lot 9-A-3-A into two lots; Lot 9-A-3-A-1 (Stubenberg) and Lot 9-A-3-A-2 (Amjadi).

Structures built to protect shoreline properties from ocean wave erosion are common along many of Oahu's shoreline. It has been our experience that the County addresses each request for permits for shoreline structures on a case-by case basis.

The hardening of the shoreline is generally not a preferred

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solution if other reasonable options are available to avoid loss of property due to coastal erosion. In certain situations, however, there is a clear hardship to the applicant that justifies the placement of a protective structure along the shoreline. It is the responsibility of each individual applicant to demonstrate hardship through the application process, including an ocean engineering evaluation of past and current shoreline trends.

The potential impacts of shoreline hardening on the beach and shoreline habitats are considered in an Environmental Assessment required for the variance application. A variance for a shoreline structure is granted only in cases where hardship is demonstrated and the variance carries conditions that mitigate potential environmental impacts.

This particular structure does not prevent public access to coastal marine resources. There is an existing public beach access located about 400 feet to the north. Lateral coastal access is not interrupted by this structure, and it does not protrude beyond the certified shoreline into the public open space shoreline area. Therefore, this structure does not privatize the shoreline. In fact, a sizable portion of this property (over 3,000 sq. ft.) has actually become public land due to the shoreline retreat since 1949. The County has no jurisdiction over structures or fill placed makai of the certified shoreline, as this authority rests with the State Board of Land and Natural Resources.

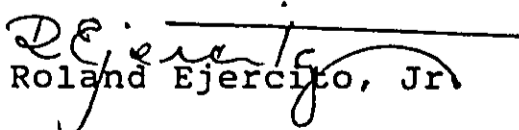
Our decision to apply for an after-the-fact Shoreline Variance was because the conditions placed upon the owner for a previous Shoreline Setback Minor Structure and Activities Permit (to secure an approved sand source for seabags) was not possible.

Comments on Engineering:

Exhibit C (TNWRE) clearly describes the design parameters for the existing shoreline revetment. A copy is included in the FINAL EA.

Thank you again for commenting on the Draft EA. Please contact me if you have any questions or require additional information.

Respectfully,


Roland Ejercito, Jr.

cc: Steve Tagawa (10) copies
Nancy Heinrich OEQC

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JUL- 8-98 WED 14:13

UH ENVIRONMENTAL CENTER

FAX NO. 8089563980

P. 01



University of Hawai'i at Mānoa

RECEIVED

Environmental Center

A Unit of Water Resources Research Center

'98 JUL -8 P 304

1000 Crawford 817 • 2550 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3080

U.F.
00...

Post-It™ brand fax transmittal memo 7871		# of pages ▶
To DEQC	From E. Center	
Co.	Co.	
Dept.	Phone #	
Fax # 586-4186	Fax #	

June 25, 1998
EA:00176

Roland Ejercito,
PO Box 2681
Honolulu, Hawaii 96803

Dear Mr. Ejercito:

Draft Environmental Assessment
Lā'ie Seawall,
Lā'ie, Oahu

The applicant/owner of the subject parcel which contains a single-family dwelling, proposes to retain a shoreline boulder revetment bordering the entire seaward boundary. Ranging in height from 5 to 8 feet, the revetment consists of half ton armor and 150-200 pound filter stones. The applicant is requesting a after-the fact shoreline Setback Variance for the City and County of Honolulu Department of Land Utilization for the stone revetment.

We reviewed this draft Environmental Assessment (EA) with the assistance of David Smith, Ocean Engineering; and Victoria Cullins of the Environmental Center.

General Comments

The document fails to describe the urgent need for the revetment, i.e., a discussion of why the landowner felt it was necessary to build the revetment before obtaining the proper permits. The conclusion states that the residence is likely to be undermined in 3 to 5 years without the revetment. This time frame should have allowed ample time to obtain the necessary permit.

Armoring the shoreline usually protects property and structures. However on shorelines undergoing long term retreat, it often leads to beach loss. The impact that

0000 0026 2744

Mr. Ejercito
June 25, 1998
Page 2

revetments have on the adjoining beaches creates a conflict between the rights of coastal property owners to protect their land and the rights of the public to utilize the beach resource. Furthermore, as the beach narrows and perhaps disappears, structures are even more prone to hurricanes.

The document fails to provide the date the residential structure was constructed. Studies published in 1980 (Dennis Hwang, 1980. Beach Changes on O'ahu as Revealed by Aerial Photographs) determined that the beach of Lā'ie had been steadily eroding for at least 20-25 years. With inherent erosional qualities of the beach apparent, sufficient building setbacks should have been employed, rather than compromising public access.

Photos depicting the project site fail to identify clearly which revetment is the subject of the proposed application. Reference is made in the text (p.7) to an oceanographic study by TNWRE (1195), however this study is not contained in the reference list.

Comments on Engineering

The factors involved in determining the design characteristics of the revetment are not discussed, except for the tide and "a generous allowance of wave set-up (p. 7)." There was no indication of the procedure used to determine the proper size of stone. Calculations used to determine the construction of the revetment should be included in the EA. These should indicate the amount of tide, wave set-up, wind set-up, hurricane effects and the design life of the structure.

The revetment appears to be only a couple of feet high, sitting at the top of the beach and at the base of the shore cliff. The cliff is covered with *naupaka* to help stabilize the slope. This actually makes the system a *naupaka* revetment with boulder toe armor. This system may be a preferable alternative to the vertical seawalls found throughout other areas of the windward side. As the *naupaka* spreads down the slope, the boulders could be removed.

Exhibit shows a blanket of geo-textile fabric along Profile B-1, however B-1 is not marked in the Plan View, and use of geo-textiles is not mentioned in the text.

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UH ENVIRONMENTAL CENTER

FAX NO. 8089563980

P. 03

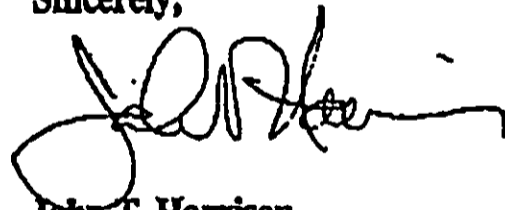
Mr. Ejercito
June 25, 1998
Page 3

Conclusion

Neighboring properties without revetment protection have been cited as continually eroding. Did these properties have *naupaka* growing? Exhibit 8, bottom photo, shows that *naupaka* does not provide as complete coverage on the neighboring property as on the project site. The slopes where *naupaka* grows may now have become stable. It could be possible to remove the rock revetments without compromising the stable backshore. This should be added to the EA as an alternative. Conversely, if the system works, it may be best to leave it as is. The City and County may find it worthwhile to sponsor a study to determine the effect of removing the revetments that have *naupaka* or other natural plants stabilizing the land and planting *naupaka* in the eroding areas. Other native plants commonly found in healthy dune areas include 'aki 'aki, *pōhuehue*, and 'akulikuli. These plants are salt-tolerant, have dense root systems and are effective windbreaks and wind buffers.

Thank you for the opportunity to comment on this draft EA.

Sincerely,



John T. Harrison
Environmental Coordinator

cc: OEQC
Roger Fujloka
City and County of Honolulu, Department of Land Utilization
David Smith
Victoria Cullins

0000 0026 2746

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

August 14, 1998

Ms. Jan Naoe Sullivan
Director of Planning & Permitting
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Attn: Mr. Steve Tagawa

Re: Stubenberg Property-55-321C Kam Hwy
Comment on Draft EA

In response to your letter of July 8, 1998, we offer the following response to your comments.

The FINAL EA has been prepared in compliance with section 343-5(a) (3), HRS, for use of areas within the shoreline setback.

SECTION I. GENERAL INFORMATION

We acknowledge that the accepting agency for the FINAL EA is the Department of Planning & Permitting.

SECTION II. DESCRIPTION OF PROPOSED ACTION

A. General Description

The FINAL EA depicts the rock revetment, wood fence and walkway located within the 40-foot setback area.

Information of the existing SFD and approval dates of the original subdivision are included in the FINAL EA.

B. Information for Projects Affecting the Shoreline

A report prepared by TNWRE (EXHIBIT C) addresses the overall dynamics of the shoreline in this area, and the report is included in the FINAL EA.

All maps and plans included in the FINAL EA will show a useful scale or otherwise indicated as NTS.

The grout cap mentioned in the DEA will not be included in the FINAL EA.

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D. Socio-Economic Characteristics

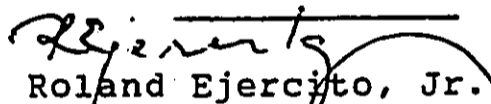
The distance between the existing SFD and the certified shoreline is 90 ft.

Table 1 & 2 (DEA) describes the changes to the LAIE shoreline from 1949 to 1995.

A general estimate of the time-frame in which the existing SFD could be undermined, in the absence of shoreline protection, is not a true determination which can be measured quantitatively.

The rate of recession or change in the shoreline in the general area has been dormant in the recent years because many existing properties within the area were permitted to protect their shoreline properties with either a seawall or a revetment.

Respectfully,


Roland Ejercito, Jr.
Agent

0000 0026 2748

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
Phone: (808) 523-4414 • Fax: (808) 527-6743

JEREMY HARRIS
MAYOR



JAN NAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

July 8, 1998

98/SV-004 (ST)

Mr. Roland Ejercito, Jr.
P. O. Box 2681
Honolulu, Hawaii 96803

Dear Mr. Ejercito:

Draft Environmental Assessment (EA):
After-the-Fact Shoreline Setback Variance (SV) at
55-321/C Kamehameha, Highway
Laie, Oahu, Tax Map Key: 5-5-02: por. 77

We have reviewed the Draft EA for the above-referenced application filed on May 6, 1998, and have the following comments:

Section I - GENERAL INFORMATION

This section should disclose that the accepting agency for the Draft EA is the Department of Planning and Permitting, City and County of Honolulu and that this document has been prepared in compliance with Section 343-5(a)(3), Hawaii Revised Statutes (HRS), use of areas within the shoreline setback.

Section II - DESCRIPTION OF PROPOSED ACTION

A. General Description

This section should describe all of the improvements that are located within 40-foot shoreline setback area. Clearly, portions of the wooden fence and stairwell are also within the setback area and should be addressed in the Final EA.

Also, a very brief summary of the property should be provided, including the approval date of the original subdivision and construction date of the existing dwelling.

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Mr. Roland Ejercito, Jr.
Page 2
July 8, 1998

B. Technical Characteristics

This section of the Draft EA should be expanded to provide details such as the size and location of the existing residence relative to the shoreline. A scaled site plan illustrating these characteristics should also be included.

C. Information for Projects Affecting the Shoreline

This section of the Draft EA does not discuss the existing shoreline protection structures which lie just off shore of the project site. The role of these structures in the overall dynamic of the shoreline in this area is a relevant discussion that should be addressed.

Similarly, Exhibit 6, Typical Beach Profile, also fails to illustrate this significant shoreline feature. This exhibit should be redrawn with a useful scale, both horizontal and vertical. Also, a vertical scale should be provided for Exhibit B (the engineer stamped plans of the revetment).

8. Structure Description: Although this section mentions a grout cap on the existing revetment which was not damaged during the storm surf of November 1996, this feature is not described or shown elsewhere in the Draft EA (including on the engineer stamped plans, "Exhibit B"). The Final EA should clarify this matter.

D. Socio-Economic Characteristics

This section should provide a general estimate of the time-frame in which the residence could be undermined in the absence of a shoreline revetment (i.e., the rate of recession inches/year divided by the distance to the existing dwelling). A discussion of the urgency and potential hardship faced by the applicant is an essential one in the consideration of this after-the-fact approval.

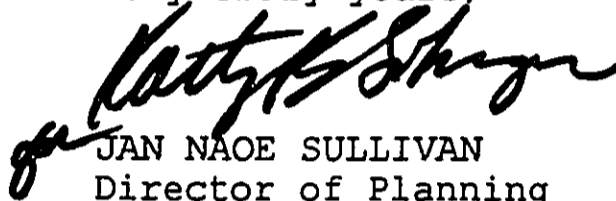
On an editorial note, there are a number of apparent typographical and consistency errors which detract from clear presentation of information. We suggest that the Final EA be carefully edited to prevent this situation.

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Mr. Roland Ejercito, Jr.
Page 3
July 8, 1998

Should you have any questions, please contact Steve Tagawa of our Coastal Lands Branch at 523-4817.

Very truly yours,



JAN NAOE SULLIVAN
Director of Planning
and Permitting

JNS:am

cc: Office of Environmental Quality Control

g:zd\deastub2.sht

0000 0026 2751

ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639
808-841-5113

August 12, 1998

Guy P. D. Archer
Deputy Attorney General
State of Hawai'i
Department of the Attorney General
Commerce and Economic Development Division
425 Queen Street
Honolulu, Hawaii 96813

Gentlemen:

Re: Stubenberg property - Comments on DEA
TMK: (1) 5-5-02:77

This is in response to your letter of August 11, 1998.

Please accept my sincere apology for omitting certain information which is important in supporting the variance.

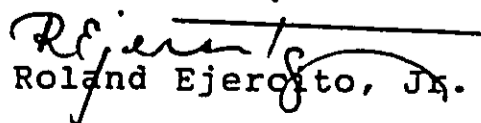
The following information, which will be included in the FINAL EA should clarify any misunderstanding.

- 1) Copy of letter to DLU dated May 11, 1998 informing the City that the subject rock revetment and wooden stairway within the State jurisdiction has been removed.
- 2) Copy of letter to James A. Stubenberg dated April 27, 1998 instructing him to initiate the removal of the portion of the existing rock revetment within the State jurisdiction.

Our decision to apply for an After-the-Fact Shoreline Variance was because the conditions placed upon the owner for a previous Shoreline Setback Minor Structure and Activities Permit (to secure an approved sand source for seabags) was not possible.

Please be advised that a Certified Shoreline Application prepared by Mr. Westly T. Tengan has been submitted and is presently being processed.

Respectfully,


Roland Ejercito, Jr.

Attached: Letters (1) & (2)

0000 0026 2752

ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639
808-841-5113

TRANSMITTAL LETTER

DATE: May 11, 1998
TO: D L U Attn: Mr. Art Challacombe
FROM: ROLAND EJERCITO JR.
RE: Shoreline Set Back Variance After-the-fact
.James Stubenberg
TMK: 5-5-2:77

TRANSMIT HEREWITH IS :

Photo of the existing revetment subject the above.
Please be advised that the existing revetment
and wooden stair is landward of the certified
shoreline.
State certification of the shoreline will be
submitted as soon as possible.
Should you require additional information do not
hesitate to contact me.

SIGNED:


ROLAND EJERCITO JR.

ATTACHED

cc: James Stubenberg (photo)

0000 0026 2753



PHOTO OF REVETMENT

55-321C KAM HWY

TMK: 5-5-2:77

MAY 9 1998

0000 0026 2754

MEMO

DATE: April 27, 1998

ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: (808) 842-4419
(808) 841-5113

TO: James A. Stubenberg

ATTN: _____

PROJECT: Shoreline Setback Variance PROJECT NO.: RE110
PARTICIPANTS: _____ LOCATION: Laie

- MEMO FIELD REPORT MINUTES FIELD WORK ORDER
- INVOICE ENGINEER'S PROPOSAL

Attached is a copy of the plan showing encroachment of the existing reventment and wood walkway.

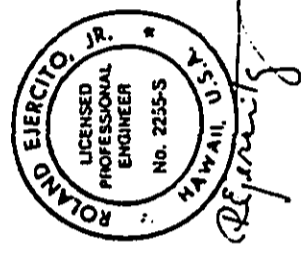
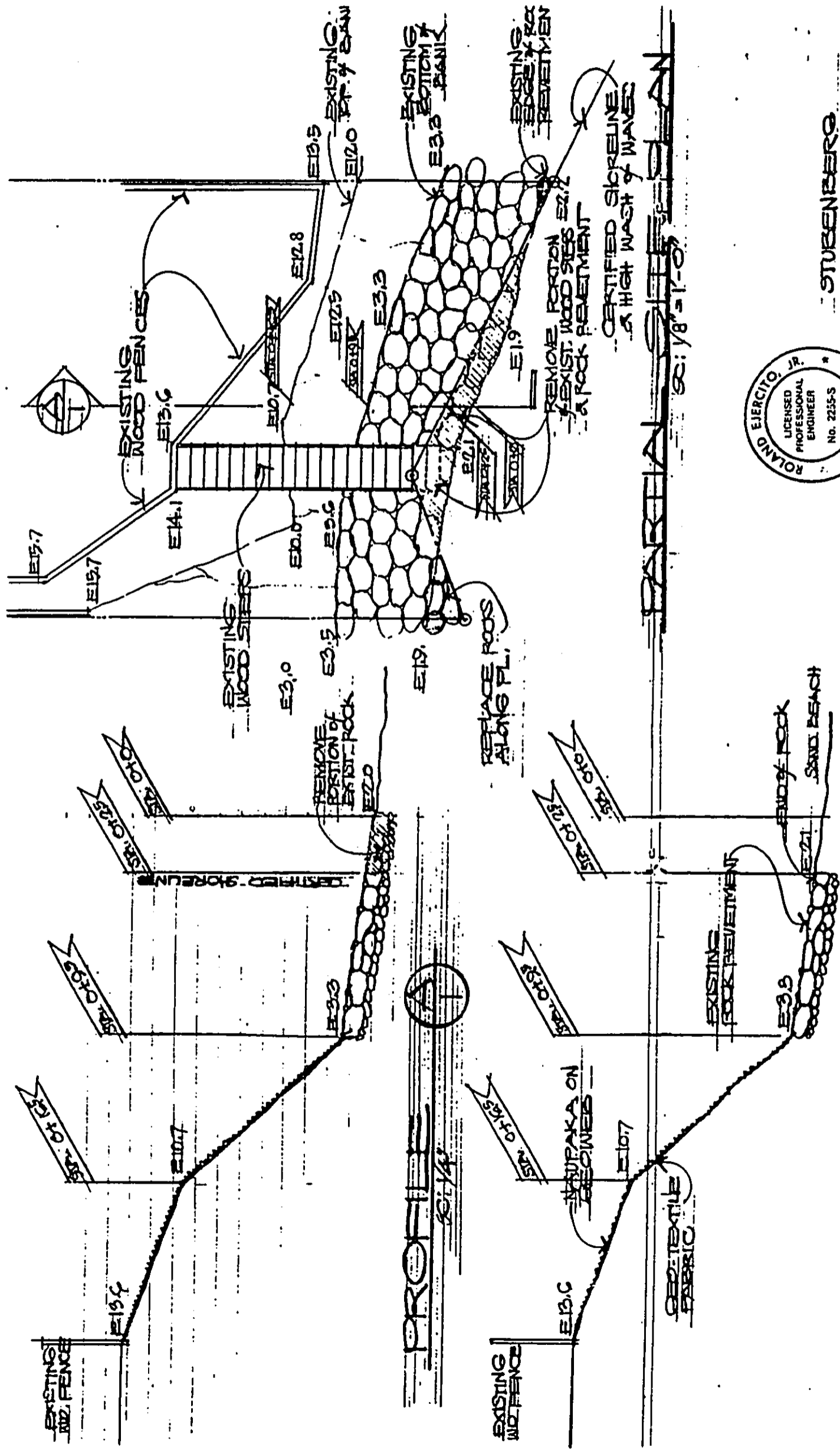
Please instruct Mr. Joe Correa to remove the portion of the existing revetment and wood walkway.

Joe Correa
Westly T. Tengan

COPIES TO:
rolland3.doc

BY: *R. Ejercito*

0000 0026 2755



STUBENBERG
 55-821 C KAM. HNY.
 TMK: 5-5-02:77

APR 27 1998

0000 0026 2756

BENJAMIN J. CAYETANO
GOVERNOR



MARGERY S. BRONSTER
ATTORNEY GENERAL

JOHN W. ANDERSON
FIRST DEPUTY ATTORNEY GENERAL

STATE OF HAWAII
DEPARTMENT OF THE ATTORNEY GENERAL
COMMERCE AND ECONOMIC DEVELOPMENT DIVISION
425 QUEEN STREET
HONOLULU, HAWAII 96813
(808) 586-1180
FAX (808) 586-1205

August 11, 1998

Mr. Roland Ejercito, Jr.
Consulting Engineer
P. O. Box 2681
Honolulu, Hawaii 96803

Dear Mr. Ejercito:

Re: Comments Regarding Draft Environmental Assessment for Stubenberg
After-the-Fact Seawall at Laniloa Beach in Laie, Oahu, Hawaii, TMK: 5-5-02:77

In response to your letter dated August 7, 1998, I'm surprised that you have not revised the draft EA to address the problem of rocks and boulders that obstruct both lateral access to and use of the existing sandy beach. The draft EA should clearly document all rocks and boulders that encroach makai of the certified shoreline and describe how the landowners propose to remove the same. At this juncture, all we have is your diagram showing in schematic form a portion of wood steps and existing revetment designated for removal.

You might address this issue by spending a few hours in the field identifying the boulders and rocks from the illegal revetment that have fallen into the sandy beach area. Photos should be taken and a short narrative prepared to identify exactly what needs to be removed from the sandy beach. The existing revetment was built without permits and encroaches on land owned by the people of the State of Hawaii. The draft EA should clearly identify the extent of the encroachment and describe how the problem will be corrected.

Very truly yours,

A handwritten signature in black ink that reads "Guy P. D. Archer".

Guy P. D. Archer
Deputy Attorney General

GPDA:mo
c: Steve Tagawa
a:laniloa2

0000 0026 2757

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

August 10, 1998

MICHAEL D. WILSON, Chairperson
of the Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
Honolulu, Hawaii 96803

Attn: Mr. Nicholas Vaccaro

Gentlemen:

Subject: Stubenberg Property, 55-321C Kam Hwy
TMK: (1) 5-5-02:77 (Lot 116-A)
Response to your comment of DEA
Ref.: 98SV004:RCM

Thank you for your comment dated June 12, 1998, subject the above.

Please be advised that a Certified Shoreline Application prepared by Mr. Westly T. Tengan has been submitted and is presently being processed .

Your comment on the DEA is appreciated, and our response to your comment is a step towards finalizing the After-the-Fact variance.

Should you require additional information, do not hesitate to contact me.

Respectfully,


Roland Ejercito Jr.

0000 0026 2758

9804724



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

June 22, 1998

- AQUACULTURE DEVELOPMENT PROGRAM
- AQUATIC RESOURCES
- BOATING AND OCEAN RECREATION
- CONSERVATION AND ENVIRONMENTAL AFFAIRS
- CONSERVATION AND RESOURCES ENFORCEMENT
- CONVEYANCES
- FORESTRY AND WILDLIFE
- HISTORIC PRESERVATION
- LAND MANAGEMENT
- STATE PARKS
- WATER AND LAND DEVELOPMENT
- WATER RESOURCE MANAGEMENT

LD-NAV
REF.: 98SV004.RCM

Honorable Jan Naoe Sullivan
Director of Land Utilization
City and County of Honolulu
650 S. King Street 7th Floor
Honolulu, Hawaii 96813

Dear Ms. Sullivan:

SUBJECT: Draft Environmental Assessment File No.: 98/SV-004
Shoreline Setback Variance After-The-Fact Shoreline
Revetment - 55-321/C Kamehameha Highway, Laie, Oahu
Tax Map Key: 1st/ 5-5-02: 77


Thank you for the opportunity to review and comment on the subject Draft Environmental Assessment.

Attached herewith is our Land Division's Oahu District Land Office, Planning and Technical Services and Shoreline Certification Processing Services' comments.

Should you have any questions, please contact Nicholas Vaccaro of our Land Division's Support Services Branch at 587-0438 or Sam Lemmo of the Planning and Technical Services at 587-0381.

HAWAII: Earth's best!

Aloha,

for 
MICHAEL D. WILSON, Chairperson
of the Board of Land and
Natural Resources

c: Oahu Land Board Member
Oahu District Land Office

0000 0026 2759



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

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

MEMORANDUM:

JUN 12 1998

TO: Nick Vacarro
Land Agent

FROM: *Cecil Santos*
Cecil Santos
Oahu District Land Agent

Subject: Stubenbery EA, Laie, Oahu

They need to clarify where the seaward deedline is. Also a shoreline certification needs to be processed to determine what the resolution in this case would be for an after the fact setback variance.

cc matsumoto

0000 0026 2760

MEMORANDUM:

TO: Nick Vaccaro, Central

FROM: Sam Lemmo, Planning S.L.

Subject: After-the-Fact Shore Protection Structure at Laie, Oahu
(TMK: 5-5-02:77)

The Department of Land and Natural Resources (DLNR) does not generally support the approval of after-the-fact requests for seawalls or revetments where such action would result in the narrowing or loss of sandy beaches. To allow such actions to occur would be contrary and inconsistent with our program objectives to protect and conserve the State's natural resources, including beaches. Although seawalls and revetments protect fast land, they contribute to beach loss, especially on shorelines undergoing long-term retreat.

This is supported by information contained in a 1986 report by the U.S. Army Corps of Engineers which states as follows, "A seawall or revetment prevents the sediment contained behind it from entering the littoral system, thereby modifying the sand transport rate along the beach and possibly starving the adjacent beach through the elimination of potential littoral material (sand)". Hanson, H., and KRAUS, N.C., 1986. Seawall Boundary Condition in Numerical Models of Shoreline Evolution. U.S. Army Corp of Engineers, Coastal Engineering Research Center, Technical Report. CERC-86-3, 59 pgs.

In this situation, there appears to be a small beach at the toe of the revetment which has probably stabilized due to the nearshore structures that appear to trap sand, although this could change at any time.

With respect to the construction of a seawall on the mauka side of the shoreline, the DLNR is not directly involved as this area falls within the regulatory purview of the County. However, this being said, we still have serious concerns about the impacts of hardened structures on beaches even if the structures are built within the County's jurisdiction.

Although construction of the revetments and walls in this area was probably a response to rapid erosion rates, the reason for which is not entirely clear, but may have to do with shoreline modifications in the immediate area, DLU should consider developing, with the input and participation of the DLNR, a more comprehensive process for dealing with illegal shoreline structures, whether on State or on private land.

Finally, please do not approve this request until the encroaching portion of the wall is first removed from State land.

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JUN 4 10 12 1998

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii

June 2, 1998

Ref.: 98SV004.COM
Suspense Date: 6/18/98

MEMORANDUM:

TO:
FROM

Aquatic Resources, Forestry & Wildlife, State Parks,
Historic Preservation, Water Commission, Natural Area
Reserves System, Land Division Branches of: Planning and
Technical Services, Engineering Branch, Oahu District
Land Office, Shoreline Certification Processing Service

To

FROM: Dean Y. Uchida, Administrator
Land Division

Linda Murray

SUBJECT: Review : Draft Environmental Assessment
File No. : 98/SV-004
Project : Shoreline Setback Variance
After-The-Fact Shoreline Revetment
Location : 55-321/C Kamehameha Highway, Laie, Oahu
TMK : 1st/ 5-5-02: 77

Please review the attached:

(X) DRAFT ENVIRONMENTAL ASSESSMENT

and submit your comments on division letterhead within the time
requested above. Should you need more time to review the subject
matter, please contact Nick Vaccaro at 7-0438.

If this office does not receive your comments on or before the
suspense date, we will assume there are no comments.

() We have no comments.

(x) Comments attached below.

Signed: *Linda Murray*

Date: JUN -3 1998

Review of DAGS, Survey Division files indicates that the subject property was previously identified as
a portion of TMK: 5-5-02:35 which was subdivided in 1986 and is now identified as TMK: 5-5-02:77
and 86. Prior to this subdivision, the shoreline for area was certified on 1/28/81, 5/17/82 and 5/6/85.

Our shoreline files indicates from 1988 to current no certified shoreline application has been
received/processed for the subject property. However, the neighboring property TMK: 5-5-2:86 was
certified 12/30/96.

0000 0026 2762

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

August 10, 1998

Department of The Army
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 968-5440

Attn: Ms. Lolly Silva

Subject: Stubenberg Property, 55-321C Kam Hwy
TMK: (1) 5-5-02:77 (Lot 116-A)
Response to your comment of DEA
File No. 980000217

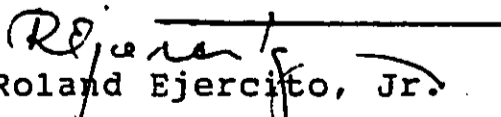
Thank you for your letter of June 12, 1998, subject
the above.

We agree that the existing structure is not located
within the Corps jurisdiction. Therefore a DA permit is
not required.

Your comment on the DEA and our response to you comment
is a step towards finalizing the requirements for the
After-the-Fact variance.

Should you require additional information, do not
hesitate to contact me.

Respectfully,


Roland Ejercito, Jr.

0000 0026 2763

98-04340



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

REPLY TO
ATTENTION OF

June 12, 1998

Operations Branch

JUN 1 1998
U.S. ARMY ENGINEER DISTRICT
HONOLULU, HAWAII

Jan Naoe Sullivan
Director of Land Utilization
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Ms. Sullivan:

This is in response to your request for comments regarding the After-the-Fact (ATF) Stubenberg Shoreline Project located at 55-321/C Kamehameha Highway, TMK 5-5-02:77, Laie, Oahu.

Based on a review of the Environmental Assessment, it appears that the existing revetment was constructed in 1989 and 1990. A search of our files indicate that no application for a Department of the Army (DA) permit was received. However during that timeframe, the placement of the revetment may have been out of the Corps jurisdiction. Should my office receive an application for a ATF authorization, we will process the application accordingly. Whether a DA permit is required depends on a site inspection to determine if the revetment is located within the Corps jurisdiction

Hub
w/col
who
been require
in the area

File number 980000217 is assigned to this project. Please refer to this number in any correspondence with our office. Should you need additional information, you may contact Ms. Lolly Silva of my staff at 438-9258, extension 17.

Sincerely,

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

0000 0026 2764

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

August 7, 1998

Guy P. D. Archer
Deputy Attorney General
Dept. of the Attorney General
Commerce and Economic Development Division
425 Queen Street
Honolulu, Hawaii 96813

Subject: Stubenberg property, 55-321C Kam Hwy
TMK: 5-5-02:77 (Lot 116-A)
Response to your comment of Draft EA

This follows our recent phone conversation concerning the subject matter.

Please be advised that the owner of the property is fully aware of the fines for the violation, and that the fines can only be settled when the conditions for an After-the-fact Shoreline Set-back Variance is approved and a building permit issued.

The comments provided by you and the response to your comment is a step towards finalizing the requirements for the variance.

Respectfully,


Roland Ejercito, Jr.

cc: Stubenberg

0000 0026 2765

98-01848

BENJAMIN J. CAYETANO
GOVERNOR



MARGERY S. BRONSTER
ATTORNEY GENERAL

JOHN W. ANDERSON
FIRST DEPUTY ATTORNEY GENERAL

STATE OF HAWAII
DEPARTMENT OF THE ATTORNEY GENERAL
COMMERCE AND ECONOMIC DEVELOPMENT DIVISION
425 QUEEN STREET
HONOLULU, HAWAII 96813
(808) 586-1180
FAX (808) 586-1205

June 29, 1998

Mr. Steve Tagawa
Department of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Tagawa:

Re: Comments Regarding Draft Environmental Assessment for Stubenberg
After-the-Fact Seawall at Laniloa Beach in Laie, Oahu, Hawaii, TMK: 5-5-02:77

In 1996, Mr. James Stubenberg proposed a temporary sand bag revetment where his property fronts Laniloa Beach to replace an existing rock revetment built in 1989. The existing revetment was built without any permits. Mr. Stubenberg also agreed to remove all the rocks and boulders in the shoreline setback area (city jurisdiction) and makai of the certified shoreline (state jurisdiction). Based on the proposed settlement, the City & County postponed a pending appeals hearing before the department of land utilization in 95/SLV-003.

The draft environmental assessment (EA) filed on behalf of Mr. Stubenberg in May 1998 requests approval of the existing rock revetment built in 1989. The draft EA concludes that there is "no real environmental benefit" from sand bags because they "would interfere with lateral access in front of the subject property" and "would be a short-term solution to an obviously long-term erosion problem at this location."

Although the text of the draft EA fails to mention existing rocks and boulders in the beach area, an exhibit prepared by Roland Ejercito, Jr., licensed professional engineer, shows in diagram form a portion of some existing wood steps and rocky revetment designated for removal. But the diagram does not accurately depict the portion of the rock revetment and other loose boulders that crowd the sandy beach at Laniloa. Moreover, photographs attached to the draft EA are not marked to show the wood steps or rocks located makai of the certified shoreline.

0000 0026 2766

Mr. Steve Tagawa
June 29, 1998
Page 2

The draft EA acknowledges that there is a public beach access located nearby.

There is a public beach access located approximately 400 feet to the north. The shallow sand-bottom waters inside of the nearshore sill is [sic] used by people for wading and shallow swimming. The sill is exposed at low tides, and provides opportunities for ocean gathering.

It is obvious from the large photograph attached to the draft EA that the sandy beach is used frequently because at least four adjacent landowners have erected wooden stairways that run directly to Laniloa Beach.

My objection to the draft EA is that it does not address the problem of rocks and boulders that obstruct both lateral access to and use of the existing sandy beach. The draft EA should clearly document all rocks and boulders that encroach makai of the certified shoreline and describe how the landowners propose to remove same. In an effort to preserve the recreational amenities at Laniloa Beach, I strongly urge the City & County to require the landowners to remove all offending encroachments on the sandy beach before granting any permit approvals.

I understand that substantial civil penalties are accruing in favor of the City & County as a result of the landowner failing to obtain the required revetment permit. If the landowners will remove the encroachments from the sandy beach at their own expense before permit approval, the City & County should consider mitigating the civil penalty to the extent that the landowners can document payments for removal of illegal rocks and boulders at Laniloa Beach. The only way the public will be served is to require the rock removal prior to permit approval.

Very truly yours,


Guy P. D. Archer
Deputy Attorney General

GPDA:mo
c: Office of Environmental Quality Control

a:laniloa

0000 0026 2767

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

August 7, 1998

Mr. Colin Kippen, Officer, LNR
Office of Hawai'ian Affairs
State of Hawai'i
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hi. 96813

Subject: Stubenberg property, 55-321C, Kam Hwy
TMK: 5-5-02:77 (Lot 116-A)
Responses to comments on Draft EA

Gentlemen:

In-accordance with the procedural provisions of Chapter 343, HRS, we offer this response to your comment on the DEA.

Application for a Structure Built in 1989: Shoreline structures built since 1970 without a Building Permit and a Shoreline Setback Variance are illegal.

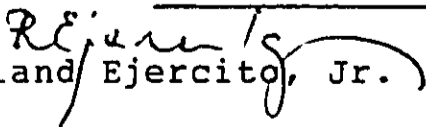
The Stubenberg shoreline structure was built without County permits, and was cited in 1996 as an illegal structure lacking both a Building Permit and a Shoreline Setback Variance. The owner has the choice of removing the structure or seeking "after-the-fact" permits.

Also, the owner is subjected to fines for the violation.

In this instance, the owner and the owner's consultant are actively seeking approval of an After-the-fact Shoreline Setback Variance.

The comments provided by you and the response to your comment is a step towards finalizing the requirements for the variance.

Respectfully,


Roland Ejercito, Jr.

cc: Stubenberg

0000 0026 2768

98-04129



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813-5249

PHONE (808) 594-1888

FAX (808) 594-1865

June 03, 1998

Ms. Jane Sullivan
Director of Land Utilization
City & County of Honolulu
650 South King St., 7th Floor
Honolulu, HI 96813

Doc. EIS 184

Subject: Environmental Assessment (EA) for After-the-Fact Stubenberg Shoreline
Revetment, Laie, Island of Oahu

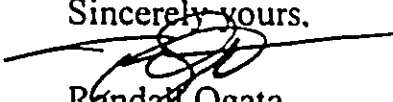
Dear Ms. Sullivan:

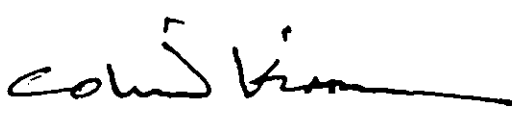
Thank you for the opportunity to review the EA for the After-the-Fact Stubenberg Shoreline Revetment, Laie, Island of Oahu. The applicant, who owns a single-family residence on a parcel with an existing stone revetment along the entire shoreline boundary, is requesting an after-the-fact shoreline setback variance.

The Office of Hawaiian Affairs (OHA) has reviewed the EA and has no concerns at this time. Stone revetments are common in the area and are built to protect properties against wave erosion. OHA recognizes that without such a structure, the subject property could have been irreversibly lost to wave erosion. But OHA is concerned about the after-the-fact application. This revetment was initially built in 1989 and took the applicant nine years to apply for a post-construction shoreline setback variance.

Please contact Colin Kippen (594-1938), LNR Officer, or Luis A. Manrique (594-1758), should you have any questions on this matter.

Sincerely yours,


Randall Ogata
Administrator


Colin Kippen
Officer, LNR

cc Board of Trustees

0000 0026 2769

**ROLAND EJERCITO, JR.
CONSULTING ENGINEER
P.O. BOX 2681
HONOLULU, HAWAII 96803
PHONE: 808-488-4639 808-841-5113**

August 7, 1998

Gary Gill, Director
OEQC
State of Hawaii
235 South Beretania Street
Honolulu, Hawaii 96813

Subject: Stubenberg property, 55-321C Kam Hwy
TMK: 5-5-02:77 (Lot 116-A)
Response to comments on Draft EA

Attn: Ms. Nancy Heinrich:

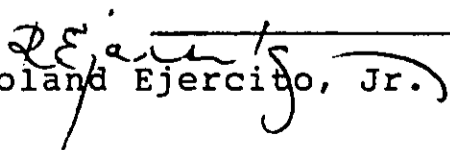
This follows my recent conversation concerning the subject matter.

In-accordance with the procedural provisions of Chapter 343, HRS, we offer this response to your comment on the DEA.

1. Contacts: All relevant information and documents will be included in the Final EA.
2. TNWRE study: A copy of the study will be included in the Final EA.
3. Significance criteria: To support the anticipated Finding of NO Significant Impact (FONSI) determination, the information is presented in the DEA, beginning at page 4 and ending at page 16.
4. FIRM ZONE: AE is the flood fringe designation for the lot, and this data is provided by the Federal Government. The elevation 9 means that the flood elevation on the lot is 9' above MSL.

Should you require additional information, do not hesitate to contact me at (808) 842-4063.

Respectfully,


Roland Ejercito, Jr.

cc: Stubenberg

0000 0026 2770

98-04368

BENJAMIN J. CAYETANO
GOVERNOR



GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4186
FACSIMILE (808) 586-4186
June 12, 1998

Jan Nace Sullivan, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Attention: Steve Tagawa

Dear Ms. Sullivan:

RE: Draft Environmental Assessment (EA) for an After-the-fact Seawall Application, Stubenberg Residence, Laie

Please evaluate this project according to the questions on page 2. In addition we have the following comments to offer:

1. Contacts: In the final EA document all contacts with the Department of Land Utilization regarding this seawall, including the application for the shoreline setback variance, and include copies of any correspondence.
2. TNWRE study: Pages 6 and 7 of the draft EA reference the TNWRE study but do not indicate what this acronym stands for. Please include more detailed information about this study.
3. Significance criteria: Include a discussion of findings and reasons, according to the significance criteria listed in HAR 11-200-12, that support the anticipated Finding of No Significant Impact (FONSI) determination. You may use the enclosed sample entitled "Determination, Findings and Reasons for Supporting Determination" as a guideline.
4. FIRM zone: The firm zone is listed as "AE, elevation 9." In the final EA indicate what this zoning and elevation stand for, and evaluate this portion of the coast according to flooding and inundation potential.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Gary Gill".

Gary Gill
Director

Enc.

c: Roland Ejercito
James & Lynne Stubenberg

0000 0026 2771

Jan Naoe Sullivan
June 12, 1998
Page 2

It is the policy of the State of Hawaii under HRS Chapter 205A to discourage all shoreline hardening that may affect access to, or the configuration of, our island beaches.

Any EA prepared in conjunction with an application regarding a seawall, revetment or similar structure, or any structure within the shoreline setback area, should be accompanied by appropriate justification and detailed studies including, but not limited to, the following:

1. A Historical Shoreline Analysis of coastal erosion and accretion rates. This should include a description of all movements of the neighboring shoreline over at least the past 30 years. This analysis should be based, at least in part, on aerial photographs available through government agencies and private vendors. The analysis should provide a detailed history of erosion and accretion patterns using all available evidence.
2. A description of the nature of the affected shoreline, whether sandy, rocky, mud flats or any other configuration. The history and characteristics of adjoining sand dunes and reefs should be included.
3. Site maps that clearly show the current certified shoreline, previous certified shorelines, the private property line and the location of the proposed structure. Any nearby public access right-of-way should also be depicted.
4. Beach profiles that extend off shore at appropriate intervals along the beach indicating the width and slope of both the submerged and dry portions of the beach.
5. An analysis of any existing nearby walls or revetments and their cumulative impacts on the shoreline.
6. A description of structures and improvements (such as homes or swimming pools) on the subject property, their distance from the property line and shoreline, and how they may be affected by the hardening structure.
7. A wave and storm frequency analysis for the area in question. This should include any relevant coastal processes such as longshore currents and seasonal wave patterns.
8. An analysis that predicts the location of future shorelines with and without the proposed wall at least 30 years into the future or over the expected life of the hardening project.
9. Photos of the site that illustrate past and present conditions and the location of the structure.
10. All alternatives to shoreline hardening should be thoroughly researched and analyzed. These alternatives should include beach replenishment, dune-scaping, retreat from the shoreline by moving existing structures inland, and a no action alternative.

The inclusion of this information will help make an Environmental Assessment complete and meet the requirements of Chapter 343, HRS. Only after thorough study and analysis should any permit for shoreline hardening be considered. If you have any questions please call us at 586-4185.

0000 0026 2772

Roland Ejercito, Jr.
Consulting Engineer
P. O. Box 2681
Honolulu, HI 96803
Telephone: (808) 842-4063

August 7, 1998

Mr. Rick Egged, Director
Office of Planning
Department of Business, Economic
Development & Tourism
235 South Beretania Street, 6th Flr.
Honolulu, Hawai'i 96813

**Subject: Stubenberg Property, 55-321C Kamehameha Highway, Laie, Oahu
TMK 5-5-02:77 (Lot 1:6-A) Responses to Comments on Draft EA**

Gentlemen:

Thank you for providing comments on the Draft Environmental Assessment in your letter of June 3, 1998 to Ms. Jan Sullivan, Director of Land Utilization. As the applicant's agent, we have prepared this response to your comments.

County Position on Shoreline Structures. Structures built to protect shoreline properties from ocean wave erosion are common along many sections of Oahu's shoreline. It has been our experience that the County addresses each request for permits for shoreline structures on a case-by-case basis. The hardening of the shoreline is generally not a preferred solution if other reasonable options are available to avoid loss of property due to coastal erosion. In certain situations, however, there is a clear hardship to the applicant that justifies the placement of a protective structure along the shoreline. It is the responsibility of each individual applicant to demonstrate hardship through the application process, including an ocean engineering evaluation of past and current shoreline trends.

The potential impacts of shoreline hardening on the beach and shoreline habitats are considered in an Environmental Assessment required for the variance application. A variance for a shoreline structure is granted only in cases where hardship is demonstrated, and the variance carries conditions that mitigate potential environmental impacts.

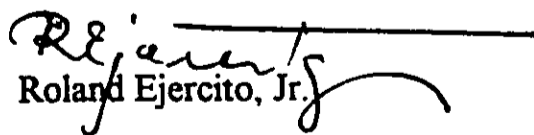
0000 0026 2773

This particular structure does not prevent public access to coastal marine resources. There is an existing public beach access located about 400 feet to the north. Lateral coastal access is not interrupted by this structure, and it does not protrude beyond the certified shoreline into the public open space shoreline area. Therefore, this structure does not privatize the shoreline. In fact, a sizable portion of this property (over 3,000 sq. ft.) has actually become public land due to the shoreline retreat of 40 to 50 feet since 1949. The County has no jurisdiction over structures or fill placed makai of the certified shoreline, as this authority rests with the State Board of Land and Natural Resources.

Application for a Structure Built in 1989. Shoreline structures built since 1970 without a Building Permit and a Shoreline Setback Variance are illegal. There are a great number of illegal shoreline structures built along Oahu's shoreline. Many of these structures do not come to the attention of the DLU until someone makes a complaint. The Stubenberg's shoreline structure was built without County permits, and was cited in 1996 as an illegal structure lacking both a Building Permit and a Shoreline Setback Variance. The owner has a choice of removing the structure or seeking "after-the-fact permits. The applicant has been fined for these violations, and the fines continue to accrue on a daily basis until the permits have been obtained. The final Building Permit is not issued until the outstanding fines have been settled with the County. In this instance, the applicant and the applicant's consultants are actively seeking approval of these permits. This Final Environmental Assessment has been prepared to meet County requirements for the Shoreline Variance request.

Thank you for providing your comments on the Draft EA. Please contact me if you have any questions or require additional information.

Respectfully,


Roland Ejercito, Jr.

0000 0026 2774

98-04190



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

BENJAMIN J. CAYET,
GOVERNOR
SEIJI F. NAKA,
DIRECTOR
BRADLEY J. MOSS,
DEPUTY DIRECTOR
RICK EGAN,
DIRECTOR, OFFICE OF PLANNING

OFFICE OF PLANNING

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

Tel.: (808) 587-2111

Fax: (808) 587-2111

Ref. No. P-7473

June 4, 1998

Ms. Jan Naoe Sullivan
Director
Department of Land Utilization
City and County of Honolulu
650 S. King St., 7th Floor
Honolulu, Hawaii 96813

Dear Ms. Sullivan:

**Subject: Environmental Assessment for After-the-Fact Stubenberg Revetment at
55-321/C Kamehameha Highway, Laie, Oahu**

As an application requirement for a shoreline setback variance, the above-referenced draft Environmental Assessment (EA) has been prepared for a stone revetment built in 1989 to protect the applicant's shoreline property from coastal erosion.

The draft EA correctly states that there is loss of public recreation space and open space as a result of this structure (p.15). Due to the high rate of long-term coastal erosion affecting this stretch of shoreline, shoreline hardening is likely to continue to promote significant narrowing and eventual loss of the fronting beach. Therefore, we do not agree with the conclusion in the EA (p. 16) that the proposed action will not have any significant impact. Beach loss resulting from revetments is a significant environmental impact that our Coastal Zone Management (CZM) beach protection objective is intended to prevent.

The EA may be correct in asserting that by stemming shoreline erosion (as opposed to beach erosion), the revetment protects the residence on the property from structural damage. However, none of the policies that support or clarify the CZM coastal hazards objective recommends shoreline hardening as an acceptable means of hazard reduction. In addition, evaluating the consistency of the revetment is further complicated by the existence of the residence, which itself appears to be inconsistent with coastal hazard policy (b), to control development in high coastal hazard areas.


We understand that local environmental factors and the development history of this section of the shoreline have contributed to a situation whereby ensuring consistency with all State CZM objectives may be difficult. The draft EA should be revised to reflect a more accurate assessment of the revetment's environmental impacts and relevance to the objectives and policies of the CZM Program, as discussed above, in order to provide a better basis for evaluating the shoreline setback variance application.

0000 0026 2775

Ms. Jan Naoe Sullivan
Page 2
June 4, 1998

If there are any questions or concerns, please contact Jeffrey Walters of our CZM Program at 587-2883.

Sincerely,



Rick Egged
Director
Office of Planning

0000 0026 2776

98-04360

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714



June 16, 1998

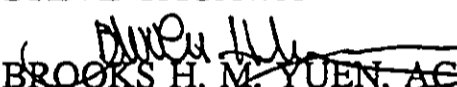
JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman
EDDIE FLORES, JR.
KAZU HAYASHIDA
JAN M. L. Y. AMII
FORREST C. MURPHY
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON

BROOKS H. M. YUEN, Acting
Manager and Chief Engineer

TO: JAN SULLIVAN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

ATTN: STEVE TAGAWA

FROM: 
BROOKS H. M. YUEN, ACTING MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF MAY 22, 1998 ON THE DRAFT
ENVIRONMENTAL ASSESSMENT, CHAPTER 343, HRS, FOR THE
STUBENBERG AFTER-THE-FACT REVETMENT, LAIE, OAHU,
TMK: 5-5-02: 77

Thank you for the opportunity to review and comment on the application for a variance for the shoreline revetment.

We have no objections to the existing revetment. We have no water system facilities in the project area.

If you have any questions, please contact Barry Usagawa at 527-5235.

0000 0026 2777

BENJAMIN J. CAYITANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

June 5, 1998

Jan Naoe Sullivan, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

98-04396
MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

GILBERT COLOMA-AGARAN

AQUACULTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

RESOURCES ENFORCEMENT

CONVEYANCES

FORESTRY AND WILDLIFE

HISTORIC PRESERVATION

DIVISION

LAND DIVISION

STATE PARKS

WATER AND LAND DEVELOPMENT

LOG NO: 21658 ✓
DOC NO: 9806EJ02

Dear Ms. Sullivan:

**SUBJECT: Chapter 6E-42 Historic Preservation Review -- After-the-Fact Stubenberg
Shoreline Revetment; 55-321/C Kamehameha Highway
Laie, Ko'olauloa, O'ahu
TMK: 5-5-02:77**

Thank you for the opportunity to review the Environmental Assessment for this after-the-fact shoreline setback variance. A review of our records shows that there are no known historic sites at the project location although cultural deposits including human burials have been recorded in sandy deposits in nearby areas. Because the revetment was constructed around 1989 to stabilize the eroding section of the beach fronting this property and no further ground disturbance will occur, if the after-the-fact variance is approved we believe that this project will have "no effect" on historic sites.

If you have any questions please call Elaine Jourdane at 587-0014.

Aloha,

Don Hibbard, Administrator
Historic Preservation Division

EJ:jk

CITY & COUNTY OF HONOLULU
JUN 10 1998

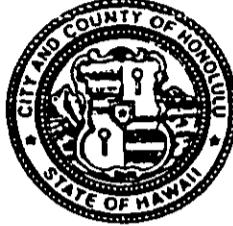
0000 0026 2778

98-04265

PARTMENT OF PARKS AND RECREATI
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: (808) 523-4054

JEREMY HARRIS
MAYOR



WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. AMI
DEPUTY DIRECTOR

June 5, 1998

TO: JAN NAOE SULLIVAN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: ENVIRONMENTAL ASSESSMENT, CHAPTER 343, HRS
PROJECTS WITHIN THE SHORELINE SETBACK AREA
AFTER-THE-FACT STUBENBERG SHORELINE REVETMENT
55-321/C KAMEHAMEHA HIGHWAY, LAIE, OAHU, HAWAII
TAX MAP KEY 5-5-002:077
PROJ. REF. NO. 98/SV-004 (ST)

JUN 12 1998
CITY AND COUNTY OF HONOLULU

We have reviewed the environmental assessment for the above-described project and have no comment to offer.

Thank you for the opportunity to review the project.

Please have your staff contact Mr. Lester Lai, Planner, of our Advance Planning Branch, at extension 4696 if you have any questions.

W.D. Balfour, Jr.

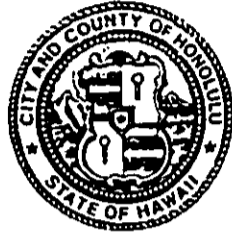
WILLIAM D. BALFOUR, JR.
Director

WDB:ei

0000 0026 2779

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4341 • FAX: (808) 527-5857



JEREMY HARRIS
MAYOR

JONATHAN K. SHIMADA, PhD
DIRECTOR AND CHIEF ENGINEER

ROLAND D. LIBBY, JR.
DEPUTY DIRECTOR

ENV 98-123

June 1, 1998

MEMORANDUM:

TO: JAN NAOE SULLIVAN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: *for* JONATHAN K. SHIMADA, PhD
DIRECTOR AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
STUBENBERG SHORELINE REVETMENT
TMK: 5-5-02: 77

RECEIVED
CITY & COUNTY OF HONOLULU
JUN 1 4 PM 2 01

We have reviewed the subject DEA and have no comments to offer at this time.

Should you have any questions, please contact Alex Ho at Local 4150.

0000 0026 2780

EXHIBIT A
CERTIFIED SHORELINE

0000 0026 2781



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

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

SEP 29 1998

Ref.:LD-PEM

Mr. Wesley Tengan
P. O. Box 240953
Honolulu, Hawaii 96824

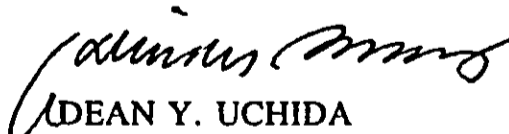
Dear Mr. Tengan:

Subject: Shoreline Certification Request
Applicant: Wesley Tengan
Property Owner: James Stubenberg
Location - Island: Oahu District: Koolauloa
Tax Map Key: 5-5-02:77
Property Description: Lot 116-A, Ld Ct App 772 as shown on Map 37, Laie, Koolauloa, Oahu
Land Division No.: OA-679

This is to inform you that the subject shoreline certification request has been certified and no appeal has been received. Four (4) certified copies of the map are enclosed herewith.

Should you have any questions regarding this matter, please feel free to contact Patti Miyashiro of our Honolulu Office at 587-0430.

Very truly yours,

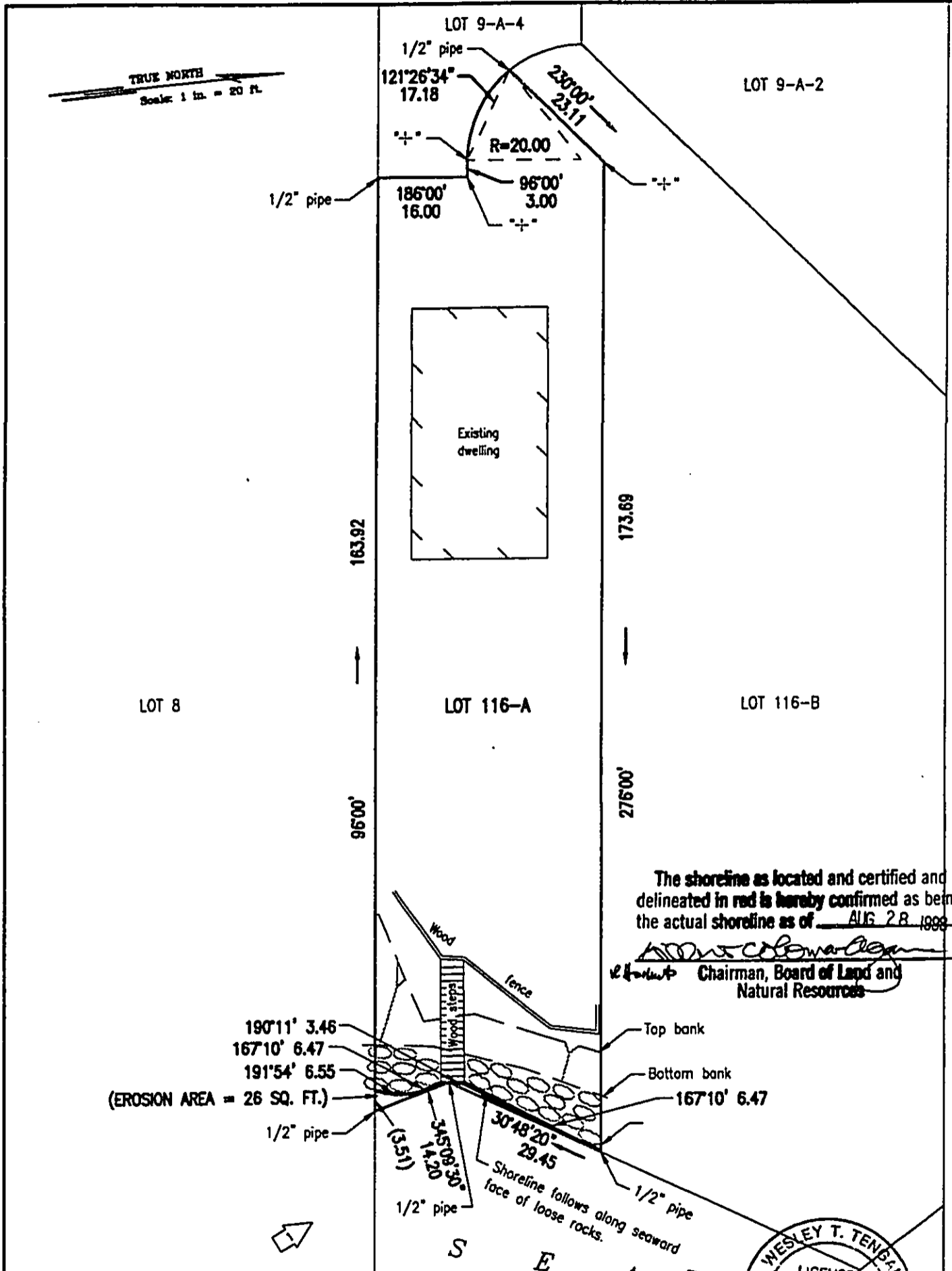

DEAN Y. UCHIDA
Administrator

Enclosures

c: Oahu District Land Office (w/enclosures)
Survey Div., DAGS (w/enclosures)

0000 0026 2782

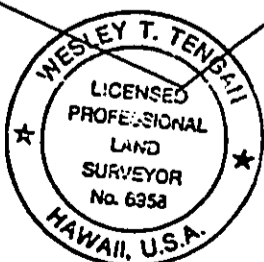
TRUE NORTH
Scale: 1 in. = 20 ft.



The shoreline as located and certified and delineated in red is hereby confirmed as being the actual shoreline as of AUG 28 1998

Wesley T. Tengan
Chairman, Board of Land and Natural Resources

SHORELINE MAP
LOT 116-A
LAND COURT APPLICATION 772
AS SHOWN ON MAP 37
Lāie, Koolāoua, Oahu, Hawaii
Date: June 14, 1998
Tax Map Key: 5-5-02:77
Owner: Stubenberg



This work was prepared by me or under my supervision.

Wesley T. Tengan
WESLEY T. TENGAN
LICENSED PROFESSIONAL LAND SURVEYOR
Certificate Number 6958

Note: denotes position and direction of photograph

0000 0026 2783

EXHIBIT B

PLAN & ELEV. & SECTIONS

FOR

EXISTING REVETMENT, WOOD

FENCE & WALKWAY

0000 0026 2784

**Shoreline Revetment, Wooden Fence and Walkway at
55-321C Kamehameha Highway, Laie**

FOR

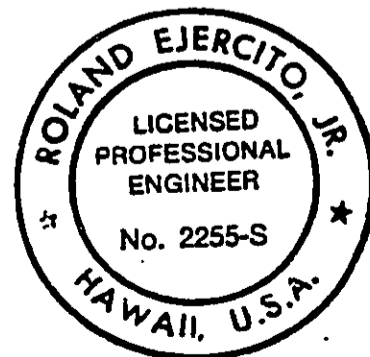
TAX MAP PARCEL 5-5-2:77

LAIE, OAHU, HAWAII

Applicant: James A. Stubenberg
Lynne E. Stubenberg
55-321C Kamehameha Highway
Laie, Hawaii

Agent: Roland Ejercito, Jr.
P. O. Box 2681
Honolulu, HI 96803

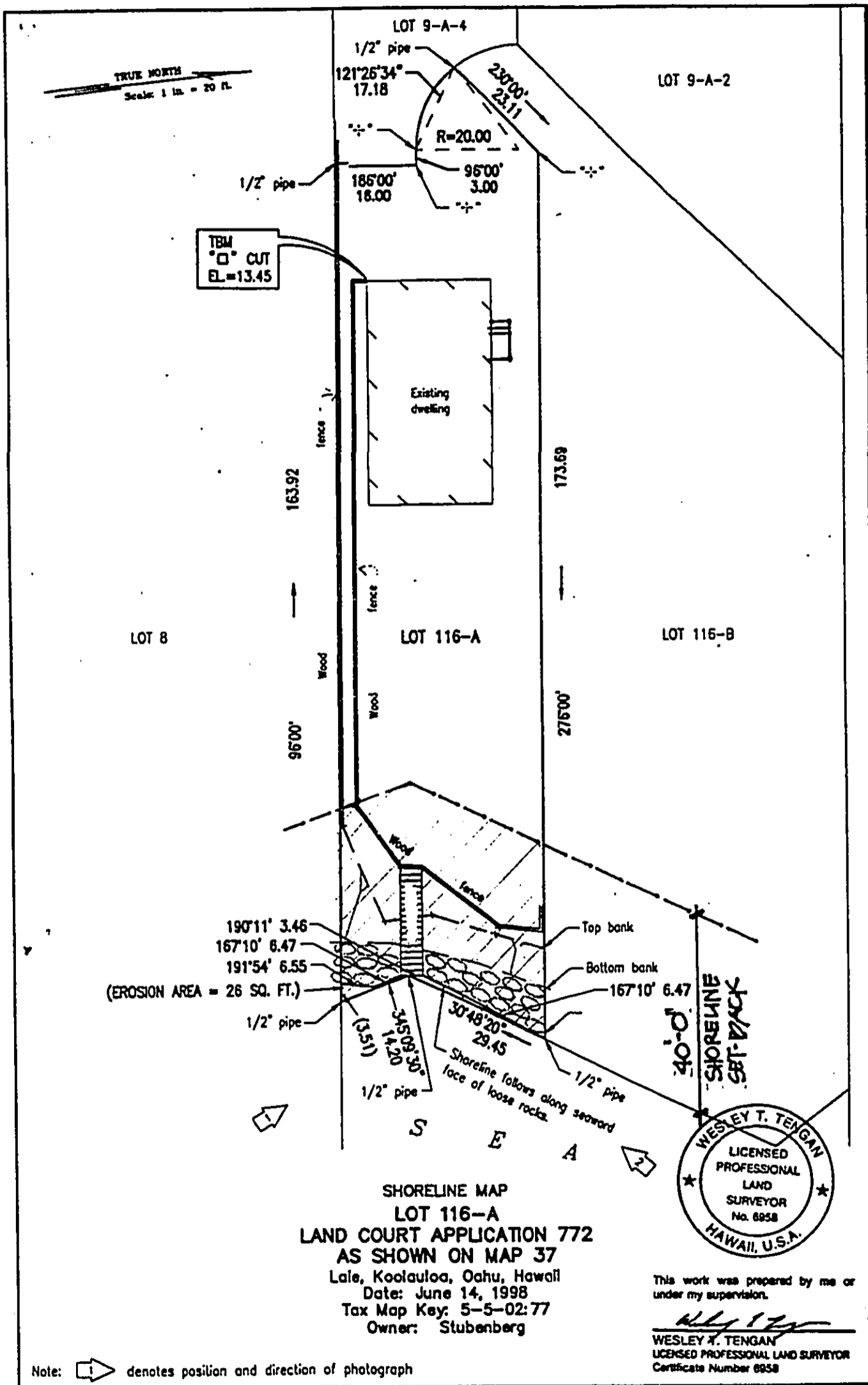
MAY 1998



This work was prepared by me or
under my supervision and con-
struction of this project will be
under my observation.

Roland Ejercito, Jr.

0000 0026 2785



SHORELINE MAP

SCALE: 1" = 20'-0"

MR & MRS JAMES STUBENBERG

AT: 55-321 C KAM HWY

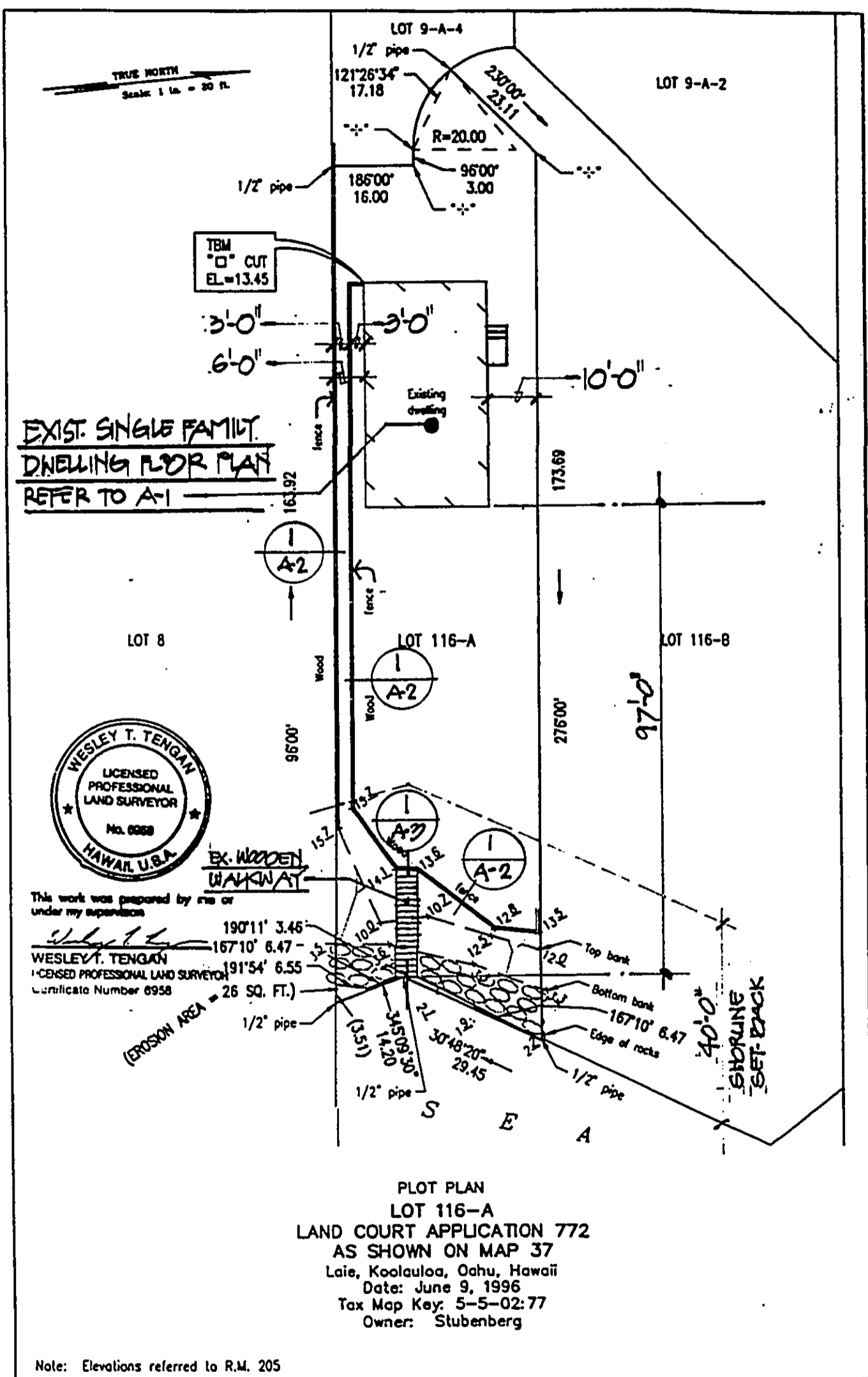
T.M.K. 5-5-2:77

SHEET No.

P.I.

IF B SHTS.

0000 0026 2786

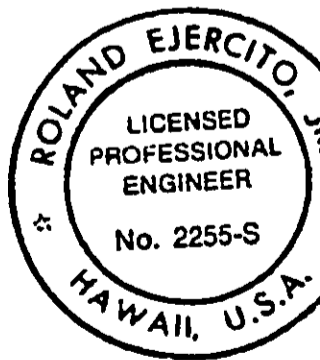
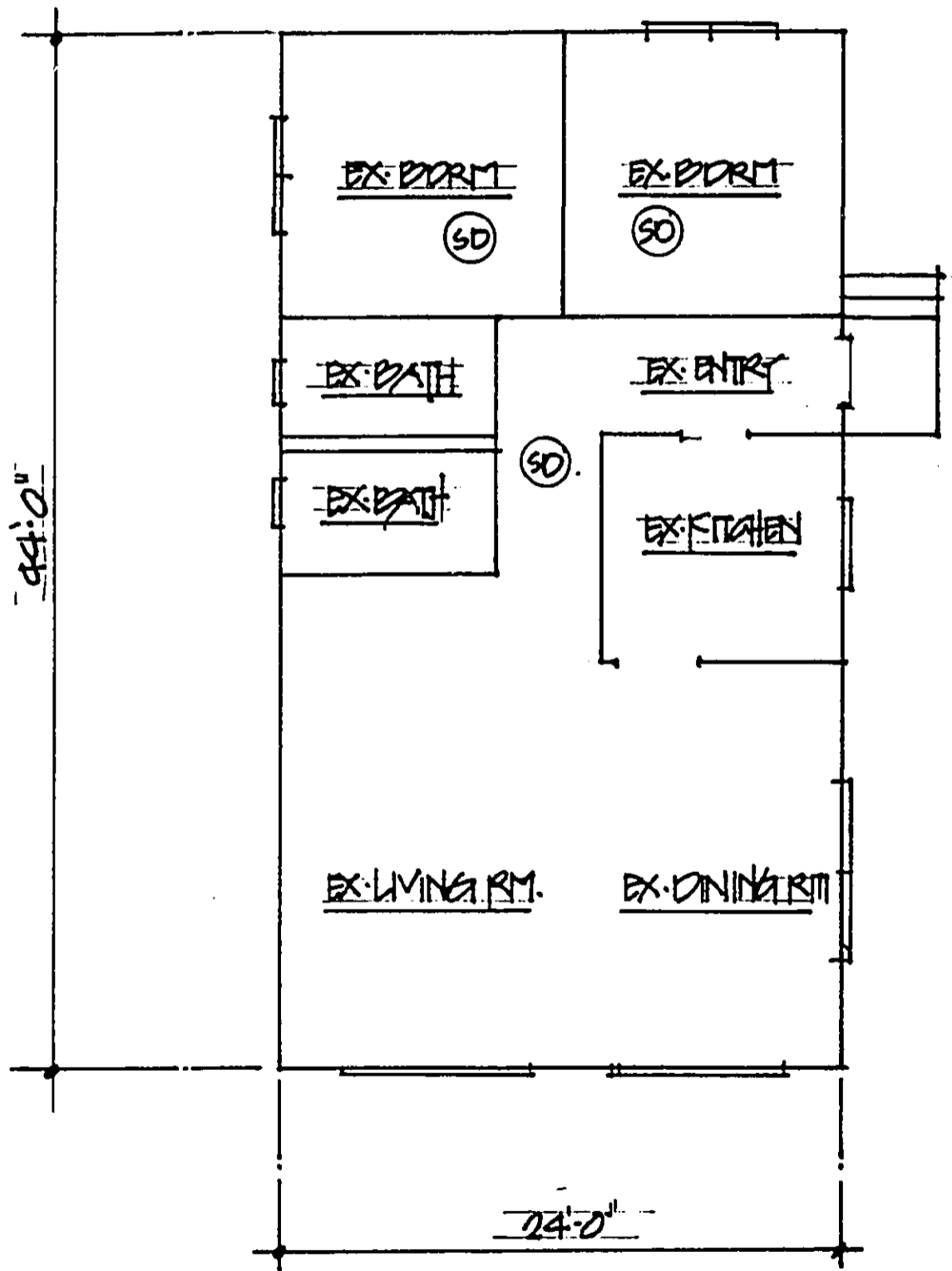


① PLOT PLAN
 SCALE: 1" = 30'-0"

MR & MRS JAMES STUBENBERG
 AT: 55-321 C KAM HWY
 T.M.K. 5-5-0:77

SHEET No
P-2
 OF 5 SHEETS

0000 0026 2787



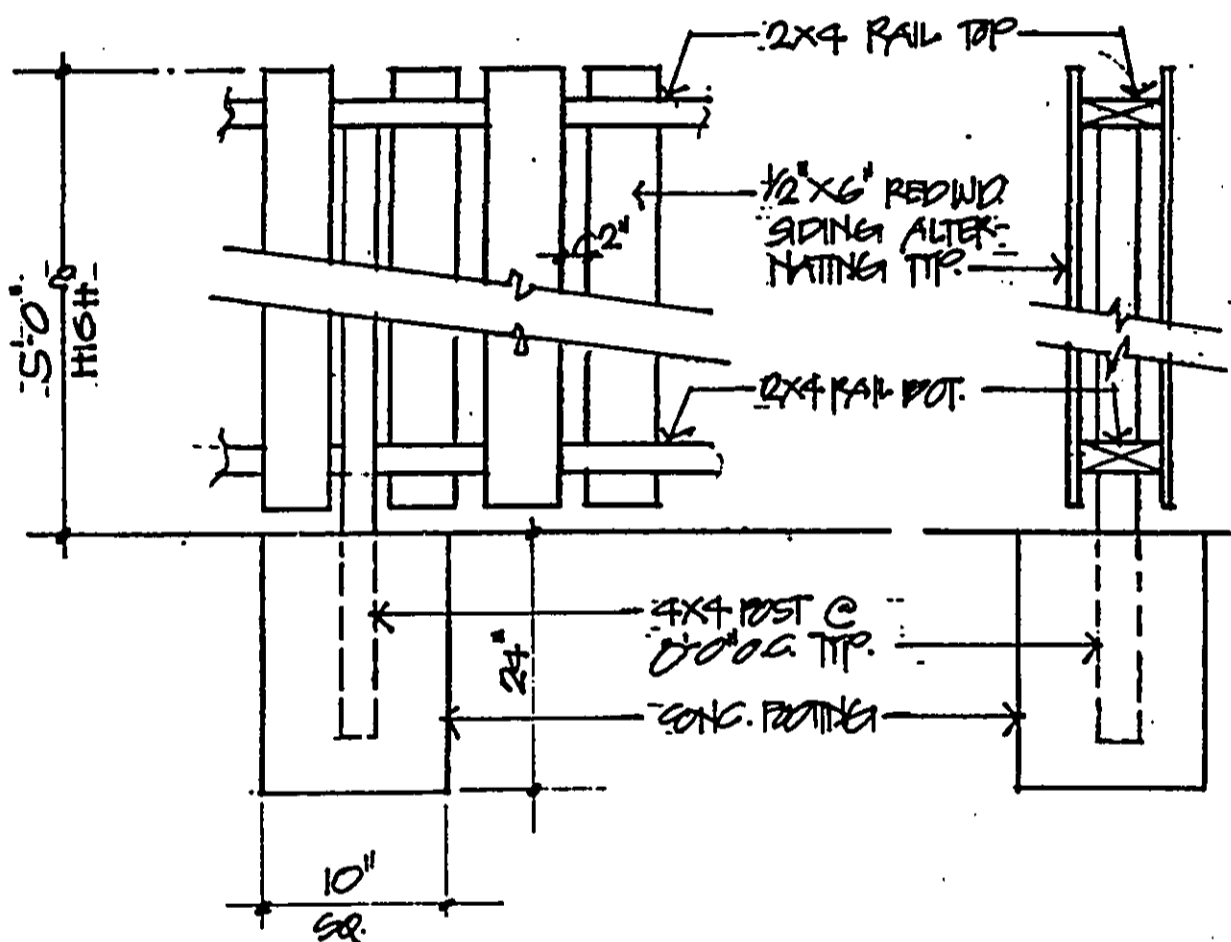
1 EXIST. SINGLE FAMILY DWELLING FLOOR PLAN
A-1 SCALE: 1/8" = 1'-0"
AUG. 17 1998

MR & MRS JAMES STUBENBERG
AT: 95-921 C KAM HWY
T.M.K. B-9-2:77

AUG. 17 1998

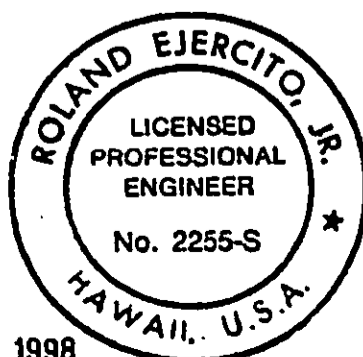
SHEET No
A-1
OF 5 SHEETS

0000 0026 2788



1 - TYP. FENCE DETAIL
 A-2 SCALE: N. I. S.

MR & MRS JAMES STUBENDERS
 AT: 55-921 C KAM. HWY
 T.M.K. 5-5-2:77

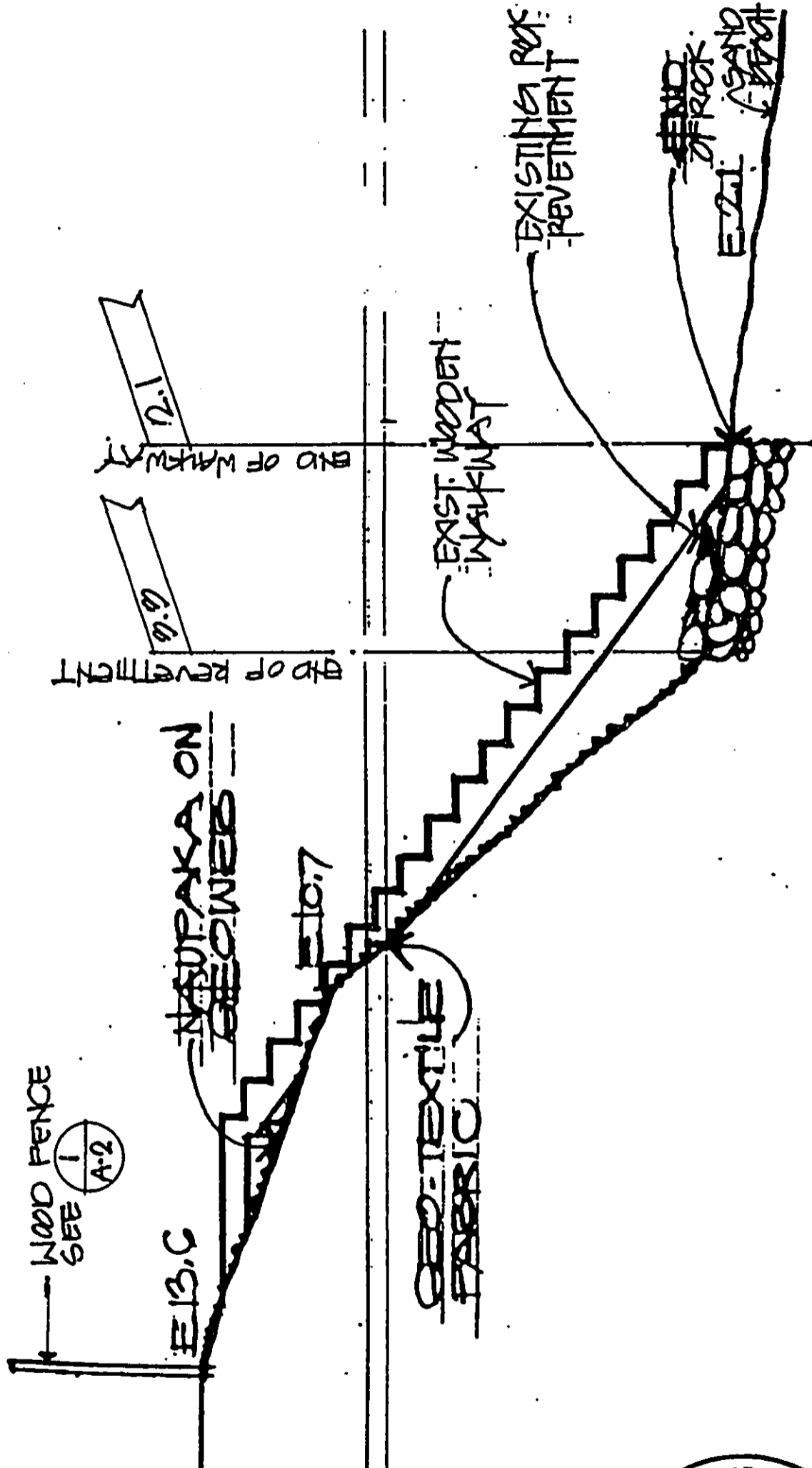


AUG. 17 1998

SHEET

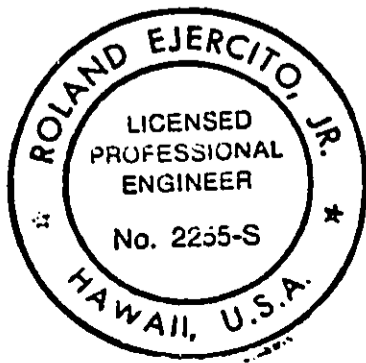
A-2
 OF 5

0000 0026 2789



SECTION @ WALKWAY
 SCALE: 1/4" (HORIZONTAL & VERTICAL) = 1'-0"

MR & MRS JAMES STUBENDERS
 AT: 55-921 C KAM. HWY
 T.M.K. 5-5-2:77



SHEET

A-1 OF 5

AUG. 17 1977

0000 0026 2790

EXHIBIT C

**TOM NANCE WATER RESOURCE
ENGINEERING**

**EVALUATIONS OF SHORELINE
TMK: 5-5-02:86 (LOT 116-B)**

0000 0026 2791

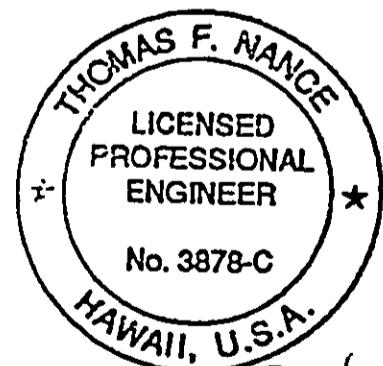
Evaluation of the
Existing Shoreline Revetment at
TMK 5-5-02:86 (Lot 116-B)
Laie, Oahu, Hawaii

Prepared for

Dr. Darius Amjadi
1380 Lusitana Street - Suite 511
Honolulu, Hawaii 96813

Prepared by

Tom Nance Water Resource Engineering
680 Ala Moana Boulevard - Suite 406
Honolulu, Hawaii 96813



Thomas F. Nance

December 1996

0000 0026 2792

Table of Contents

	<u>Page</u>
Introduction	1
Shoreline Setting	1
Shoreline Changes, 1949 to 1995	3
Shoreline Revetment at TMK 5-5-02:86 (Lot 116-B)	7
Summary Conclusions	12

Appendix

- A Ground Level Photographs
- B May 7, 1949 Aerial Photo With Overlay of the 1995 Shoreline
- C June 19, 1958 Aerial Photo With Overlay of the 1995 Shoreline
- D April 23, 1967 Aerial Photo With Overlay of the 1995 Shoreline
- E May 26, 1972 Aerial Photo With Overlay of the 1995 Shoreline
- F December 5, 1982 Aerial Photo With Overlay of the 1995 Shoreline

List of Figures

<u>No.</u>	<u>T i t l e</u>	<u>Page</u>
1	September 14, 1995 Aerial Photo	2
2	Shoreline Segments and Parcels of TMK 5-5-02	4
3	Topographic Survey Worksheet	8
4	Shoreline Survey	9
5	10

List of Tables

<u>No.</u>	<u>T i t l e</u>	<u>Page</u>
1	Shoreline Segments in the Vicinity of TMK 5-5-02:86	5
2	Changes of the Laie Shoreline in the Near Vicinity of TMK 5-5-02:86, 1949 to 1995	6

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Introduction

This report has been prepared to provide technical and environmental information to support a Shoreline Setback Variance application for an existing revetment across the shoreline frontage of TMK 5-5-02:86 (Lot 116-B) in Laie, Oahu. The 10,565-square foot lot has a 60-foot shoreline frontage. The lot is located directly across Kamehameha Highway from the south entrance to the Polynesian Cultural Center's parking lot.

Information on which this report is based includes the following: discussions with the owner of the lot, Dr. Amjadi, on dates of the revetment's construction; a topographic survey worksheet and a shoreline survey, both prepared by Engineers Surveyors Hawaii (ESH); a series of six aerial photographs which span from 1949 to 1995 and delineate shoreline movement during this 46-year period; and a number of site visits made from September through November of 1996.

Shoreline Setting

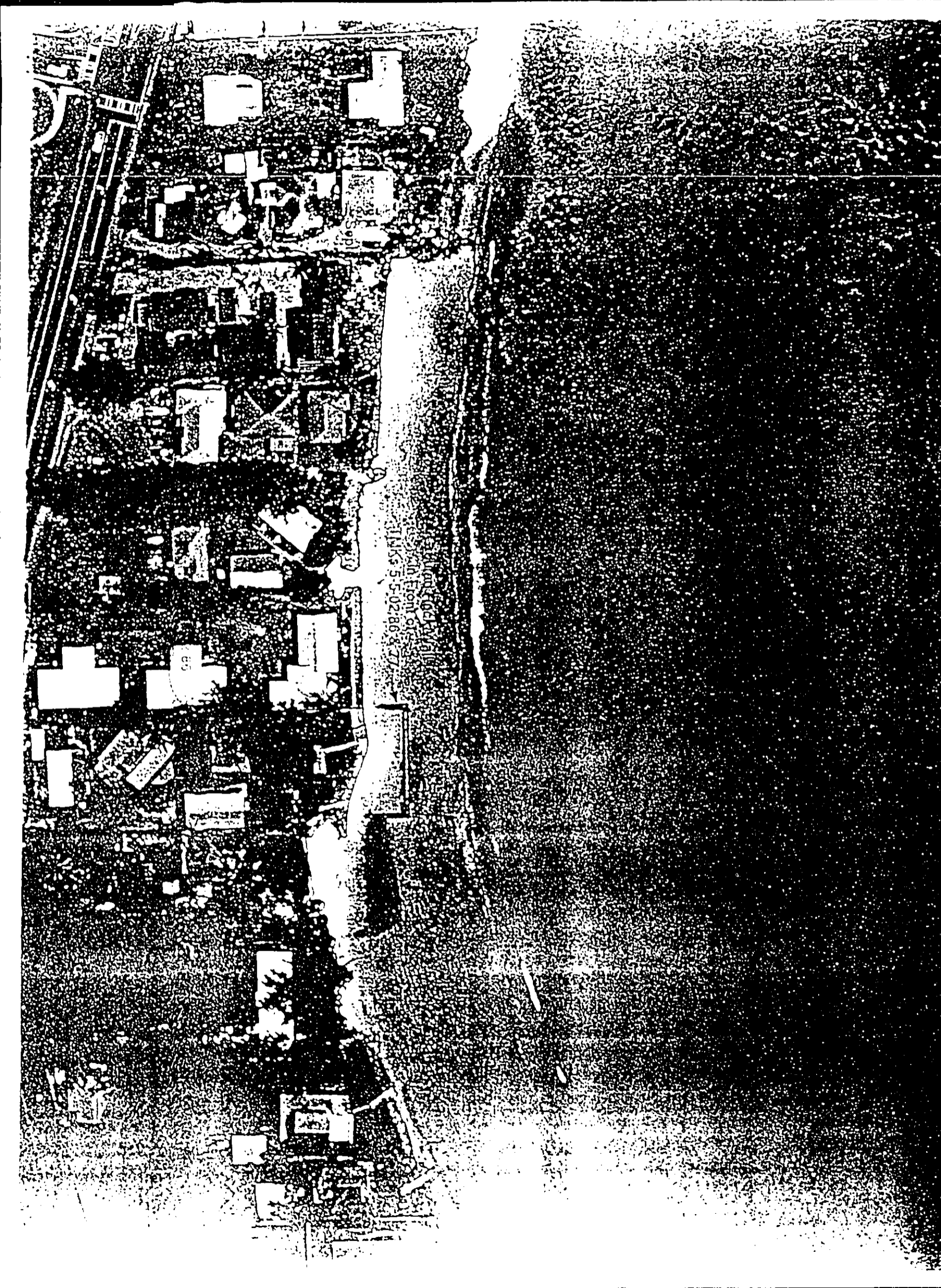
Figure 1 is an aerial photograph taken in September 1995 and reproduced here at an approximate scale of 1 inch equals 100 feet. Significant features of the shoreline are identified on the acetate overlay and are described below.

- With a few exceptions which are described subsequently, the shorelines of lots to the north and south of Lot 116-B have been stabilized by rubble revetments, rubble masonry walls, and vertical concrete walls. Ground level photographs in Appendix A illustrate many of these shoreline structures.
- Directly offshore of Lot 116-B and the adjacent lot to the south (TMK 5-5-02:77 or Lot 116-A), there is a low-lying, grouted rock wall. Based on the aerial photographs in Appendices B and C, the wall was constructed sometime between 1949 and 1958, making it at least 38 years old. Photo Nos. 2, 3, and 5 in Appendix A show the wall from various ground level views. The top of the wall is 1.6 to 2.5 feet above the mean sea level datum used for the survey by ESH. It lies between 32 and 41 feet seaward of the toe of the revetment which is the subject of this report.
- Immediately to the south of the offshore wall and directly in front of TMKs 5-5-02:92 and 93, there is a line of loose basalt boulders in the nearshore waters (Photo Nos. 6 and 7). Available aerial photographs indicate that these boulders were also placed sometime between 1949 and 1958.
- A partially emerged sill runs parallel to the shoreline (Photo Nos. 12, 13, and 16). For the 400 feet to the north of Lot 116-B, the sill is 60 to 80 feet offshore. For the 400 feet to the south, the sill is generally 120 to 140 feet offshore. It is comprised primarily of lithified sand and coralline algae. Its top is 15 to 20 feet wide and most high tides, the top is entirely submerged. Conversely, on most low tides, it is fully emerged. There is a relatively abrupt drop of 3 to 4 feet on the land and seaward sides of the sill. Based on the sill's orientation and composition, it undoubtedly is a former location of the shoreline.

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- The nearshore sill and the protruding rock revetments at TMK 5-5-02:95 to the north and TMK 5-5-02:05 to the south enclose a shallow area of the nearshore waters which is almost entirely covered by sand. The enclosed area is shallower on the north end and the sill there is very close to shore. This means that on mid-mean to low tides, most of the water which is carried across the sill by waves drains out the south end of the enclosed area. This wave-driven current is of relatively slow velocity except during very high waves.
- The bottom offshore of the sill is a shallow (less than 5 feet), gently sloping (less than 1:100) reef platform. The platform is remarkably devoid of topographic relief, either as raised features or depressions. Only a few live corals were seen in several transects made across the platform to 500 or 600 feet offshore. Sand deposits are few in number, generally only a few inches deep, and contain insignificant volumes. For this study, only the innermost 600 feet of the platform was examined. Bathymetry on the USGS' Kahuku quadrangle map suggest that the reef platform has ledges at the 6- and 18-foot depths, about 1500 and 3000 feet offshore, respectively.

Shoreline Changes, 1949 to 1995

Fast lands along this section of the Laie shoreline are comprised of well sorted, medium to coarse-grained calcareous beach sand which is highly erodible. Despite the natural protection from waves which is provided by the shallow offshore reef platform and nearshore sill, substantial shoreline retreat has occurred over the last 40 to 50 years. To discuss these shoreline changes, it is convenient to divide the shoreline into the five segments identified on Figure 2 and detailed in Table 1. As a point of reference, the revetment which is the subject of this report is in Segment 3.

In addition to the September 1995 aerial photo which is the base for Figures 1 and 2, five other aerial photos were used to identify shoreline changes over the last 40 to 50 years. Dates of these photos are as follows: May 1949; June 1958; April 1967; May 1972; and December 1982. The photos, each with an acetate overlay of the shoreline in 1995, can be found in Appendices B to F. Changes to each of the five shoreline segments in the years between each of the six aerial photos are summarized on Table 2.

In general, the 1949 aerial photo in Appendix B depicts a smooth, arcuate-shaped shoreline which is devoid of any protective structures for the 1100-foot length of the shoreline covered by the photo. Nine years later in the 1958 photo (Appendix C), the pattern of erosion which has continued into the 1990s had been set in motion. The rock revetments at TMKs 5-5-02:95 and 05, which are at the north and south ends of the 1958 photo, were in place. These revetments have held those portions of the shoreline in place until the present time, while the 900 feet of shoreline between these two protruding revetments has retreated progressively inland. Notably, the low-lying, rectangular-shaped wall offshore of TMKs 5-5-02:86 & 77 (Segment 3) was in place at the time of the 1958 photo. Also the loose boulders in the nearshore waters in front of TMKs 5-5-02:92 and 93 (Segment 4) were in place in 1958. Despite these modest efforts at shoreline protection, erosion continued to occur at these four lots at about the same rate as the lots to the north and south.

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The progressive retreat of the unprotected 900-foot stretch of shoreline between TMKs 5-5-02:95 and 05 is clearly shown by the aerial photos in Appendices B to F. To arrest this trend, lot owners began shoreline revetment construction in the interval between the 1972 to 1982 aerial photos. However, it appears that most of the revetments were installed between 1982 and 1995. At present, only the few lot frontages listed below remain unprotected and all of these are subjected to further erosion such as occurred during November 1996. Particularly given the current mix of hardened and natural shorelines, revetments are necessary to stop further shoreline retreat.

Tax Map Key	Photo No.
5-5-02:67	14 & 15
5-5-02:92, 93, & 37	9, 10, & 11
5-5-02:05 (North half)	22

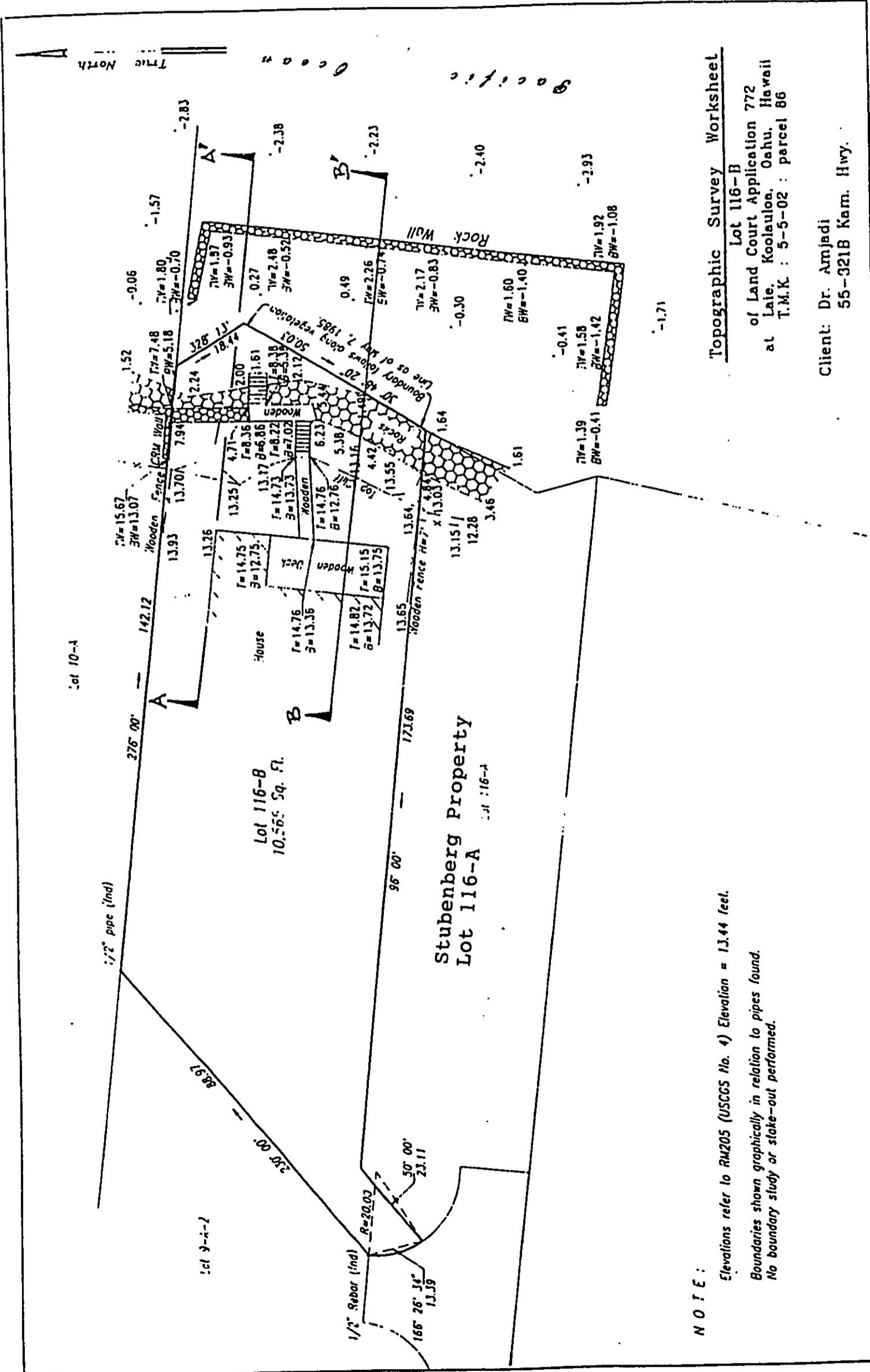
Shoreline Revetment at TMK 5-5-02:86 (Lot 116-B)

The "Topographic Survey Worksheet" and "Shoreline Survey", both prepared by ESH, are reproduced here as Figures 3 and 4. Details of the revetment's construction are illustrated in Photo Nos. 1, 2, 3, and 4 in Appendix A. According to Dr. Amjadi, the 2-1/2- to 3-foot high grouted rock wall, which is now cracked into several lengths and sits at the foot of the revetment, was built in September or October of 1988. On the northern third of the present revetment, broken pieces of this wall are actually beneath the revetment. There is no evidence that this wall had a footing or grout base on which it was constructed. Being without adequate foundation and quite low, it did not provide the necessary protection from shoreline erosion during high wave events.

In February 1989, limestone boulders were placed behind and on top of the rock wall and was also placed in front of the adjacent lot (Lot 116-A, TMK 5-5-02:77), creating the revetment which is in place today. Two cross sections of this composite "structure" are shown on Figure 5. One of the sections is typical for the north end which has a grout cap. The other section is of the south end, where the boulders are larger but there is no grout cap. Clearly, the revetment is not an engineered structure. However, as illustrated by high wave events such as occurred in November 1996, its performance in the past seven and a half years has been quite credible:

1. At the north end of the revetment where the top of the grout cap is at 7 to 8 feet (msl), there was no loss of sand on the inland side of the revetment during the high waves of November 1996.
2. Beginning at the wooden stairs and proceeding to the south end, the top of the revetment declines from 6.2 to 4.8 feet. At the lower end, overtopping by the November 1996 waves did scour the sand behind the boulders. The top of the revetment continues to decline further moving south in front of TMK 5-5-02:77. The loss of sand behind this lower portion of the revetment was more substantial in November 1996 (Photo No. 8).

0000 0026 2798



Topographic Survey Worksheet
 Lot 116-B
 of Land Court Application 772
 at Laie, Koolauloa, Oahu, Hawaii
 T.M.K. : 5-5-02 : parcel 86

Client: Dr. Amjadi
 55-321B Kam. Hwy.

NOTE:
 Elevations refer to RM205 (USCGS No. 4) Elevation = 13.44 feet.
 Boundaries shown graphically in relation to pipes found.
 No boundary study or stake-out performed.

1020 Auahi Street
 August 8, 1996

ENGINEERS SURVEYORS HAWAII, INC.
 CIVIL ENGINEERS - LAND SURVEYORS - PLANNERS

Honolulu, Hawaii
 PE 988/Per. 55-63 & 1059/28-29
 96-71

Figure 3

0000 0026 2799

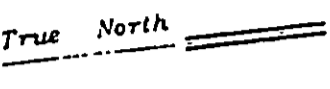
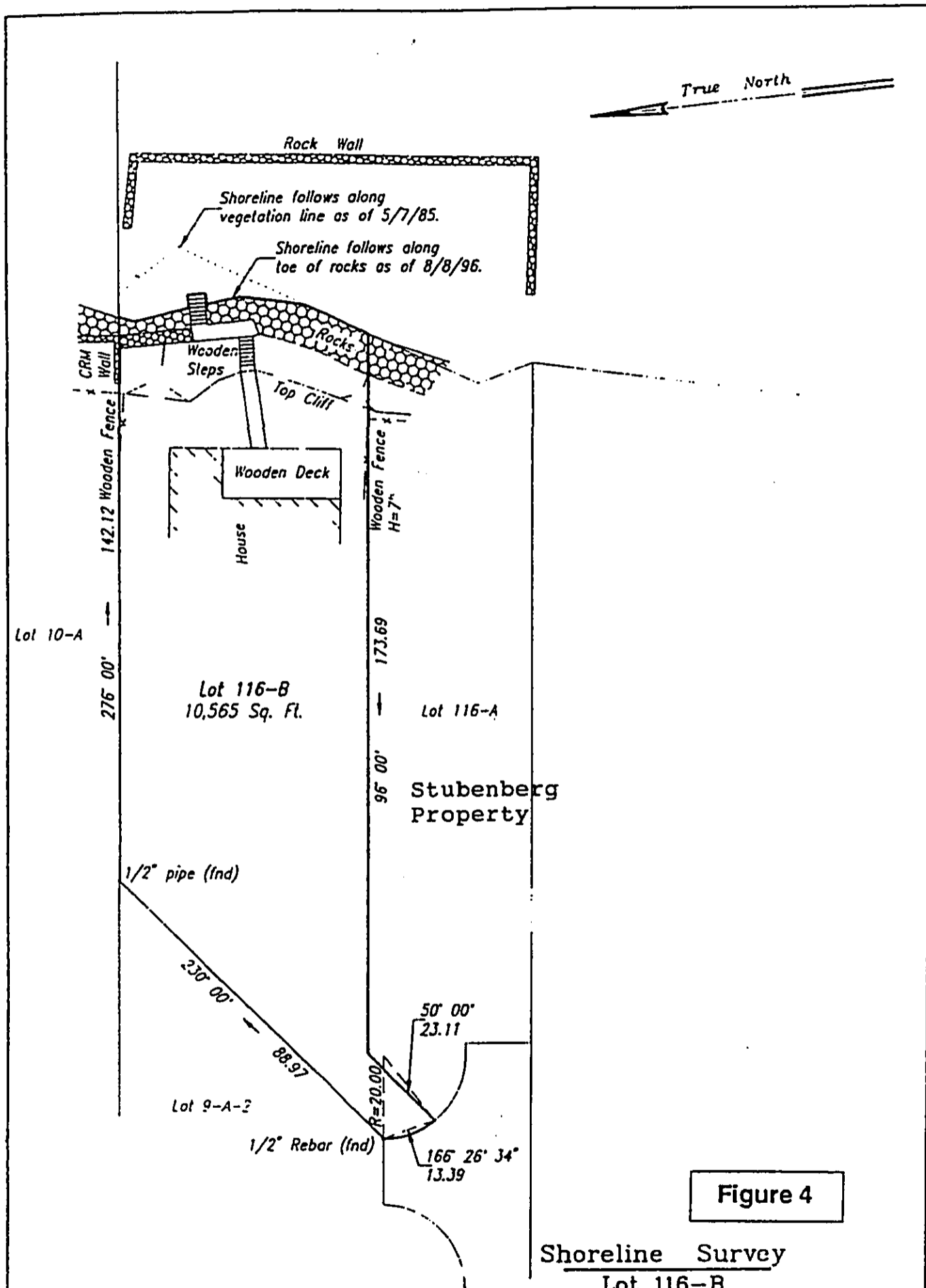


Figure 4

Shoreline Survey

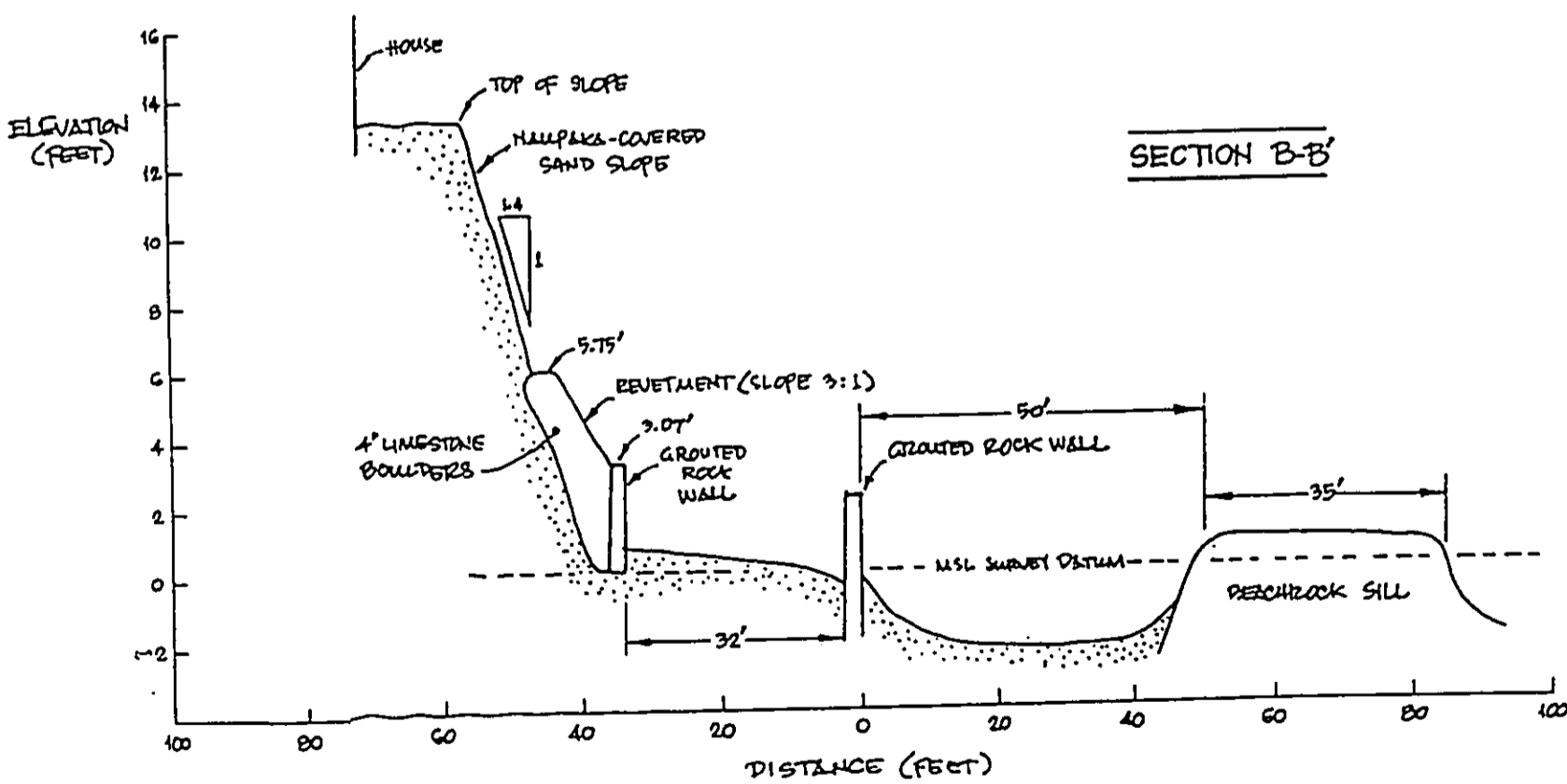
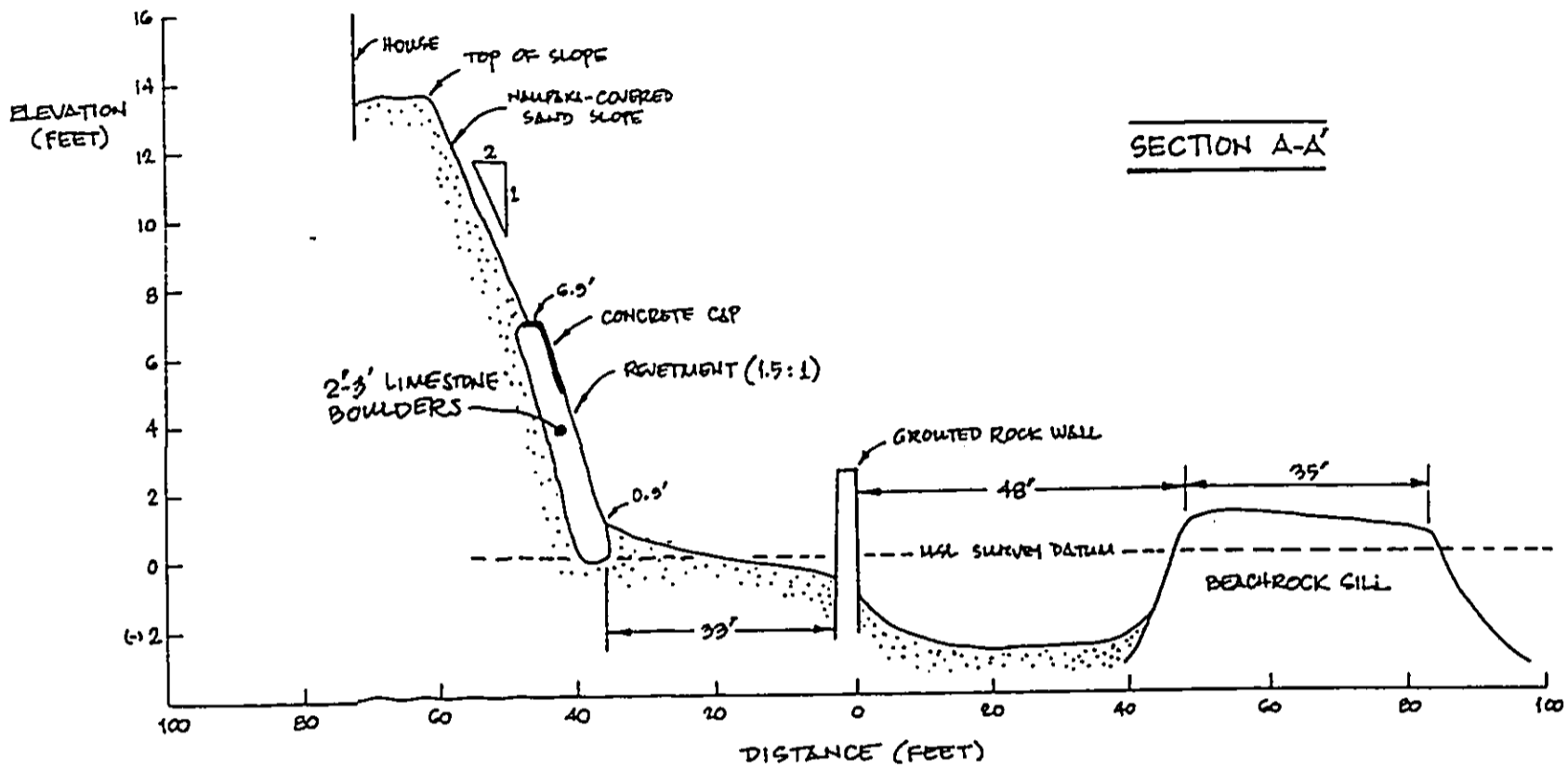
Lot 116-B
 of Land Court Application 772
 at Laie, Koolauloa, Oahu, Hawaii
 T.M.K. : 5-5-02 : parcel 86

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

Kendall H. Hea
 Licensed Professional Land Surveyor
 Certificate Number 5848

Client: Dr. Amjadi
 Site Address: 55-321B Kam. Hwy.
 Purpose: x

0000 0026 2800



- Notes:
1. Refer to Figure 3 for the locations of the cross sections.
 2. Topographic survey by ESH was supplement with spot elevations by TNWRE.
 3. Both cross sections are shown with a five-fold vertical exaggeration.

Figure 5
Cross Sections of the Shoreline
Revetment at TMK 5-5-02:86

3. Although there was a loss of several inches of sand at the toe of the revetment in November 1996, the structure itself was completely stable. No boulders were dislodged and the grout cap was not cracked or moved. Loss of the bottom rung of the wooden stairs was the only damage.

The width and limited depth of the offshore reef shelf and the presence of the inner beachrock sill provide excellent natural protection from wave attack. As a consequence, the largest wave which can break on or just in front of the shoreline revetment at TMK 5-5-02:86 is constrained by the available water depth. Using the most critical combination of the highest tide level (1-foot above the beachrock sill), a generous allowance of 2.5 feet for wave set-up, the existing offshore slope (approximately 0.01 as defined by the slope from 6-foot depth to the shoreline), and incoming wave periods of 5 to 10 seconds, the depth-limited, maximum breaking wave height which could strike the revetment is 2.7 feet. All waves larger than this would break further offshore, dissipating most of their energy before reaching the revetment. For sizing of boulders for shoreline revetments, the design should be based on the maximum breaking wave height.

The Hudson formula is an empirical equation used to determine the weight of boulder necessary to withstand a breaking wave of a particular height. For the depth-limited, maximum breaking wave height of 2.7 feet, the formula indicates that armor stones should be in the range of 200 to 400 pounds:

$$W = \frac{w_r H^3}{K_D (S_r - 1)^3 \cot\theta} = \frac{(150) (2.7)^3}{(2.0) (2.34 - 1)^3 (1.5 \text{ to } 3.1)} = 200 \text{ to } 400 \text{ lbs.}$$

w_r = unit weight of armor stone (150 lbs/ft³ for limestone)

H = wave height in feet

K_D = stability coefficient (2.0 for breaking waves and randomly placed, rough angular stone)

S_r = specific gravity of armor unit compared to seawater (150 + 64 = 2.34)

$\cot\theta$ = angle of the structure measured from the horizontal (ranges from 1.5 to 3.1 for the existing revetment)

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Limestone boulders between 200 and 400 pounds with a specific weight of 150 lbs/ft³ are typically about 1.4 to 1.8 feet in size. North of the wooden stairs, rock size of the revetment varies between one and four feet with an average of about two feet. South of the wood stairs, the boulders range from three to five feet with an average of four feet. In both locations, the revetment rock is larger than the armor stone weight computed by the Hudson formula.

Some confidence regarding the weight of armor stone computed by the Hudson formula is provided by the line of boulders piled in the shallow water in front of TMKs 5-5-02:92 and 93 (Photo Nos. 6 and 7). These boulders were placed prior to 1958 and have generally remained in place for more than 38 years. Although they are basalt (which has a higher specific gravity than limestone), they are generally smaller than the size computed by the Hudson formula. They are also smaller than the rocks used for the revetment in front of TMK 5-5-02:86.

Summary Conclusions

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 to Stop Further Erosion. As detailed by the aerial photos from 1949 to 1995, retreat of unprotected shorelines in this area has been occurring for more than 40 years. Without a protective revetment, erosion of the beach frontage of TMK 5-5-02:86 would subject the house on the lot to wave damage in the foreseeable future. The revetment that was constructed in 1989 has stabilized the lot's frontage, preventing further property damage.
2. Revetment Protection is the Best Alternative. Several lot owners installed boulder revetments. In the last two decades, most of the other lots along this shoreline also had revetments installed. The several remaining lots which have been left unprotected continue to experience erosion and shoreline retreat. With the number of revetments in place today, the only practical alternative to protect the house on TMK 5-5-2:86 was to construct a revetment. Although the revetment is not an engineered structure and its south end should have been extended higher up the slope, it is stable for the depth limited, maximum breaking wave height expectable. This is indicated by the empirical Hudson Formula and confirmed by the performance of the revetment since 1989.
3. Effect on the Adjacent Shoreline. For a more than 1500-foot long stretch of the Laie shoreline, only a 10-foot wide section to the north (TMK 5-5-02:67) and three contiguous lots to the south (the 200-foot frontage of TMKs 5-5-02:02: 92, 93 and 37) remain unprotected. All other lots are protected by boulder revetments or vertical seawalls. Shoreline retreat of the remaining unprotected lot frontages is definitely occurring. With the pattern of shoreline protection which has been established over the last several decades, an individual lot owner has little choice but to protect his property with a structure similar to the one in front of TMK 5-5-02:86.

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Appendix A

Ground Level Photographs

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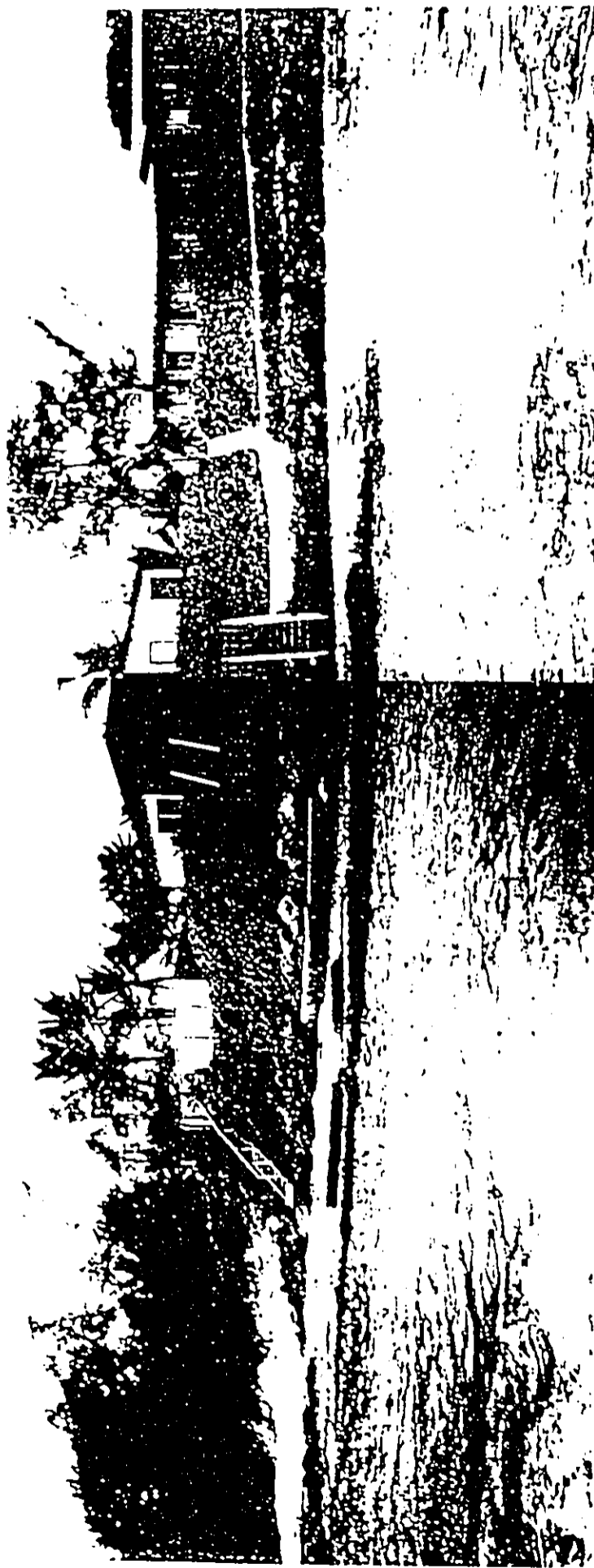
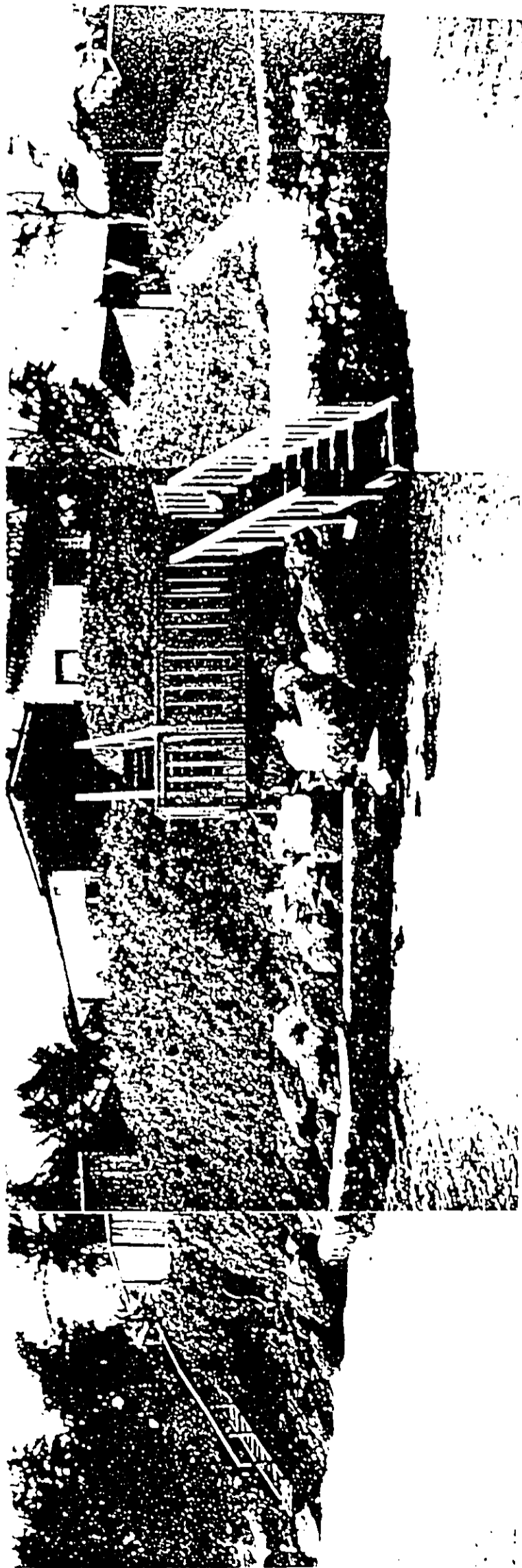


Photo Nos. 1 & 2. Frontal views of the revetment at TMK 5-5-02:86. The top picture was taken from the wall which is 30 to 40 feet offshore. The bottom photo was taken from the sill which is 80 to 100 feet offshore.

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Photo No 3. This view of the revetment at TMK 5-5-02:86 shows the relationship of the collapsing wall at the foot of the revetment and boulders behind it.

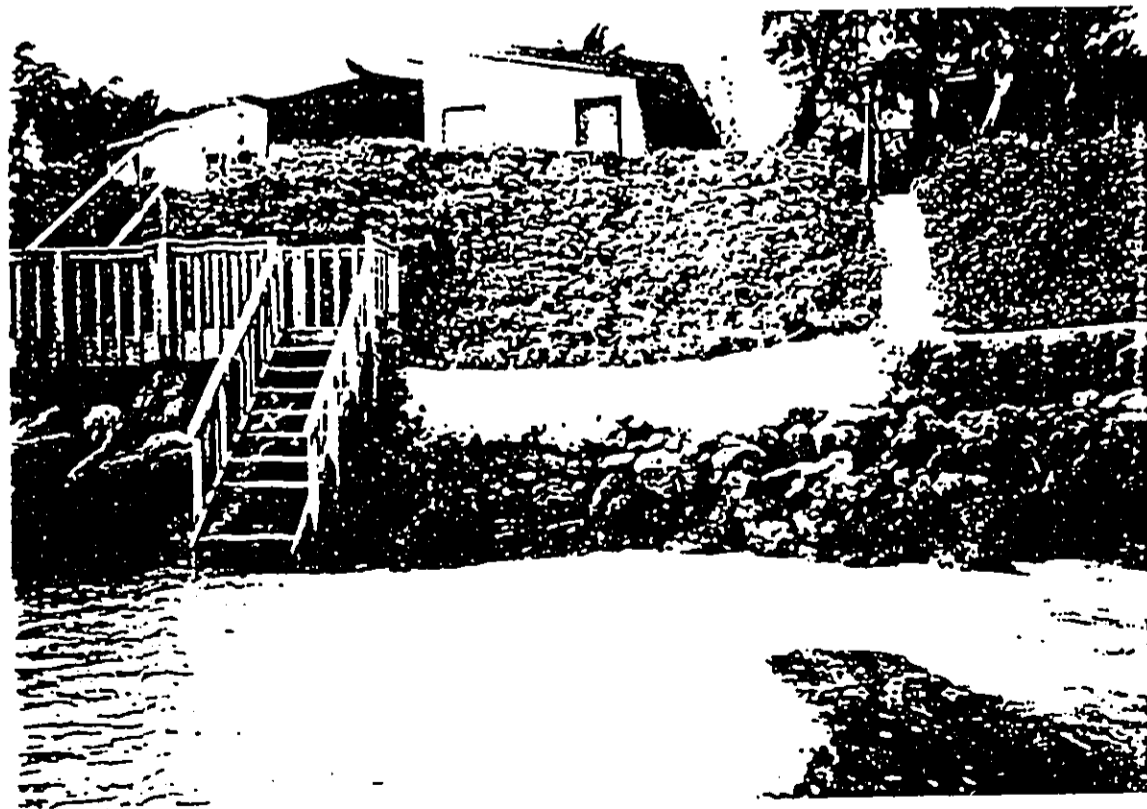


Photo No 4. The north end of the revetment at TMK 5-5-02:86 has a grout cap.

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Photo No 5 The offshore wall, constructed sometime before 1958, creates a shallow pool in front of TMKs 5-5-02 86 & 77 which is a favorite spot of neighborhood kids

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Photo No 6. View of the basalt boulders in front of TMKs 5-5-02:92 & 93 taken at mid-tide.



Photo No. 7. Close up of the basalt boulders at low tide. These were placed sometime prior to 1958.

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Photo No. 3. This erosion behind the revetment in front of TMK 5-5-02:77 occurred in November 1996.



Photo No. 9. Most of this erosion at the north end of TMK 5-5-02:92 also occurred in November 1996.

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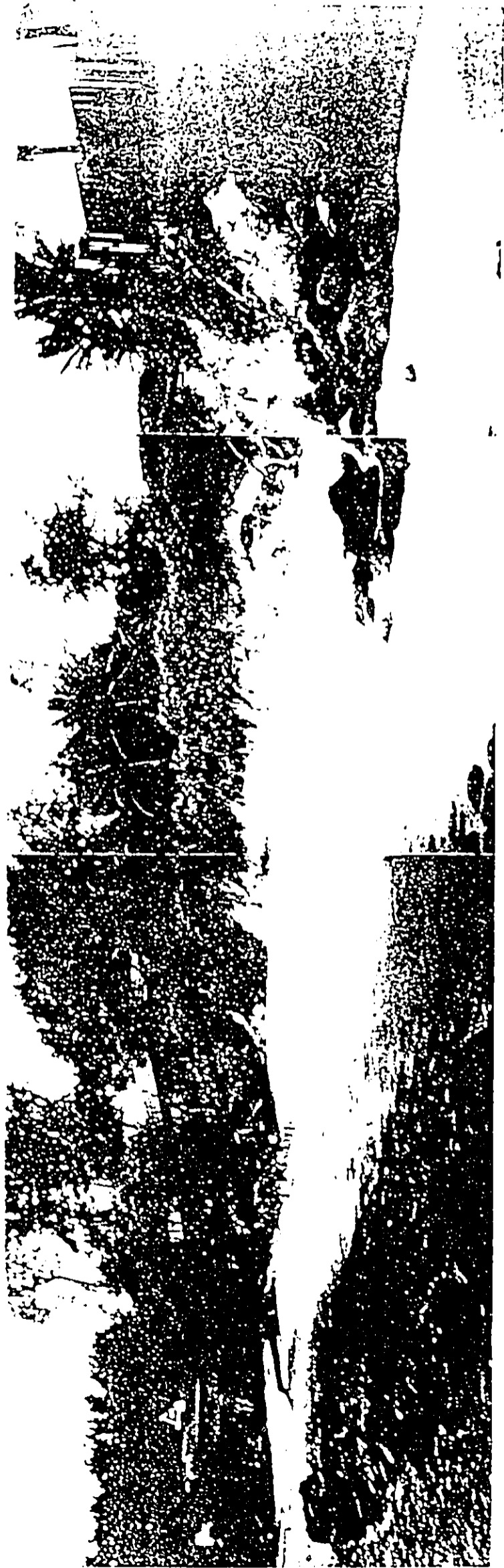


Photo Nos. 103 H These photos show the shoreline retreat of the 200-foot length of the shoreline which is without revegetment protection. The 103 H includes three lots. HAK 5-5-02 92 is at right, 5-5-02 37 is on the left, and 5-02 93 is in the middle.

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Photo Nos. 12 & 13. These views of the nearshore sill were taken at mid-tide. The top photo is looking north and the bottom is looking south. At low tide, the sill is fully emerged.

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Photo Nos. 14 & 15. This gap in the shoreline revetments is for the 10-foot wide shoreline access for TMK 5-5-02:67. TMK 5-5-02:34 is on the left and TMK 5-5-02:32 is on the right. This is the only break in shoreline protection to the north of the subject property.

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Photo No 16 Views of the shoreline to the n
of the subject property. The s
almost of the shoreline in fro
TMK 5-5-02:95

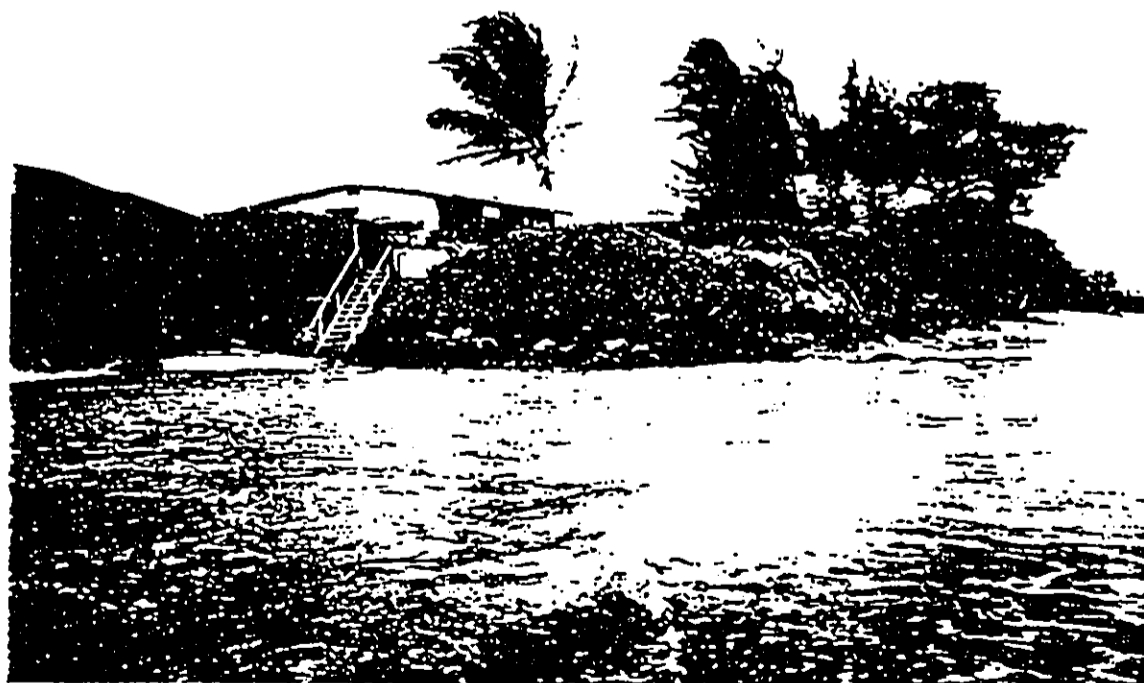


Photo No 17. Boulder revetment in front of TMK 5-5-02:95 which was con-
structed sometime prior to 1958.

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Photo No 18 Grouted boulder revegetation in front of TMK 5-5-02:35.

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Photo Nos. 19 & 20. Views of the collapsed wall in front of TMK 5-5-02:81. Heavy rains during the week of November 5, 1996 created cracks. Subsequent high waves caused the wall to collapse.

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Photo No 21 From right to left, this photo shows the shoreline frontages of TMKs 5-5-02.35, 80, 81 (the collapsed wall) and the north end of TMK 5-5-02.05



Photo No 22. The north end of TMK 5-5-02:05 is without the boulder revetment which protects the southern half of the lot

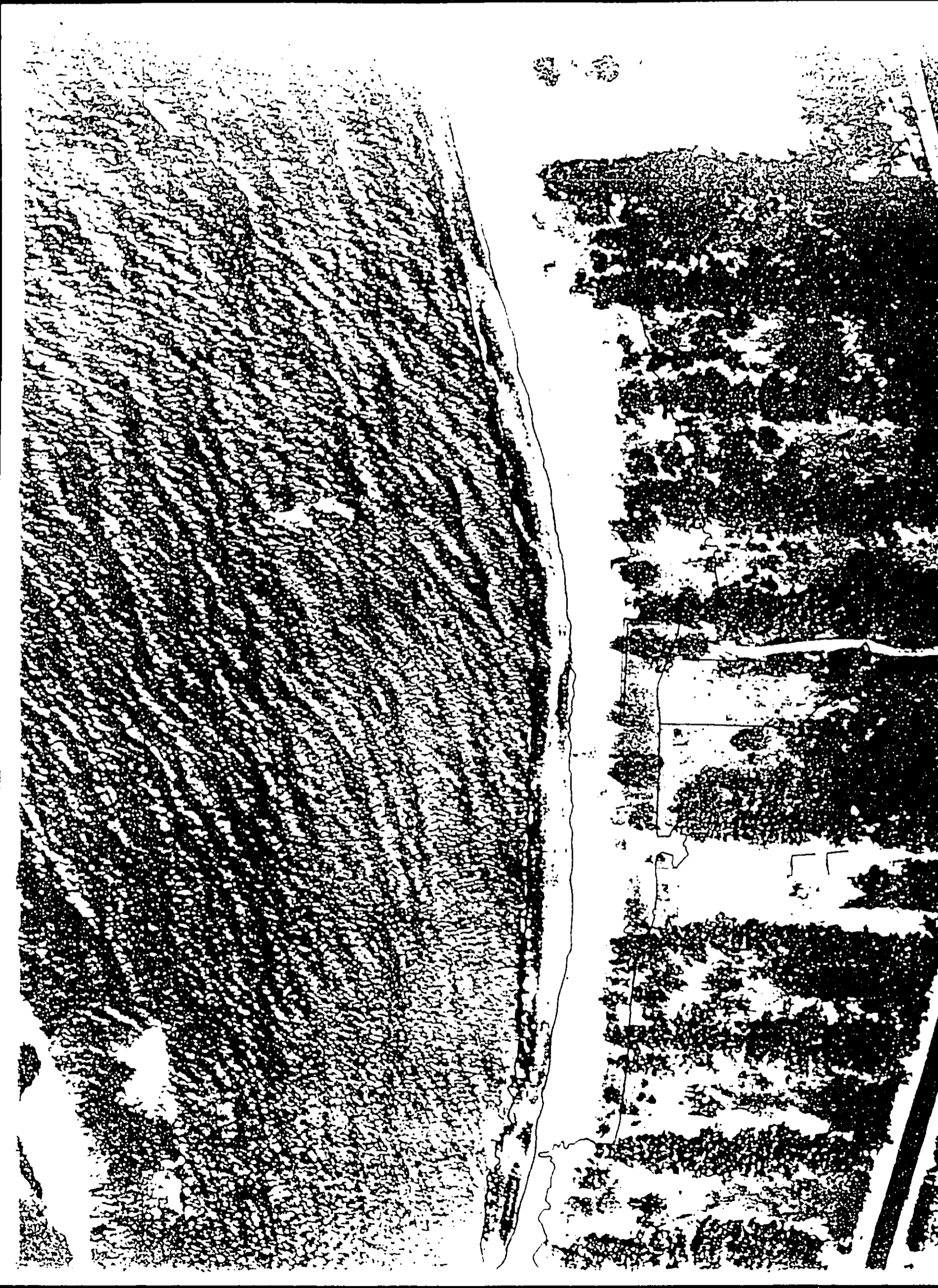
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Appendix B

May 7, 1949 Aerial Photo With
Overlay of the 1995 Shoreline

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Handwritten mark

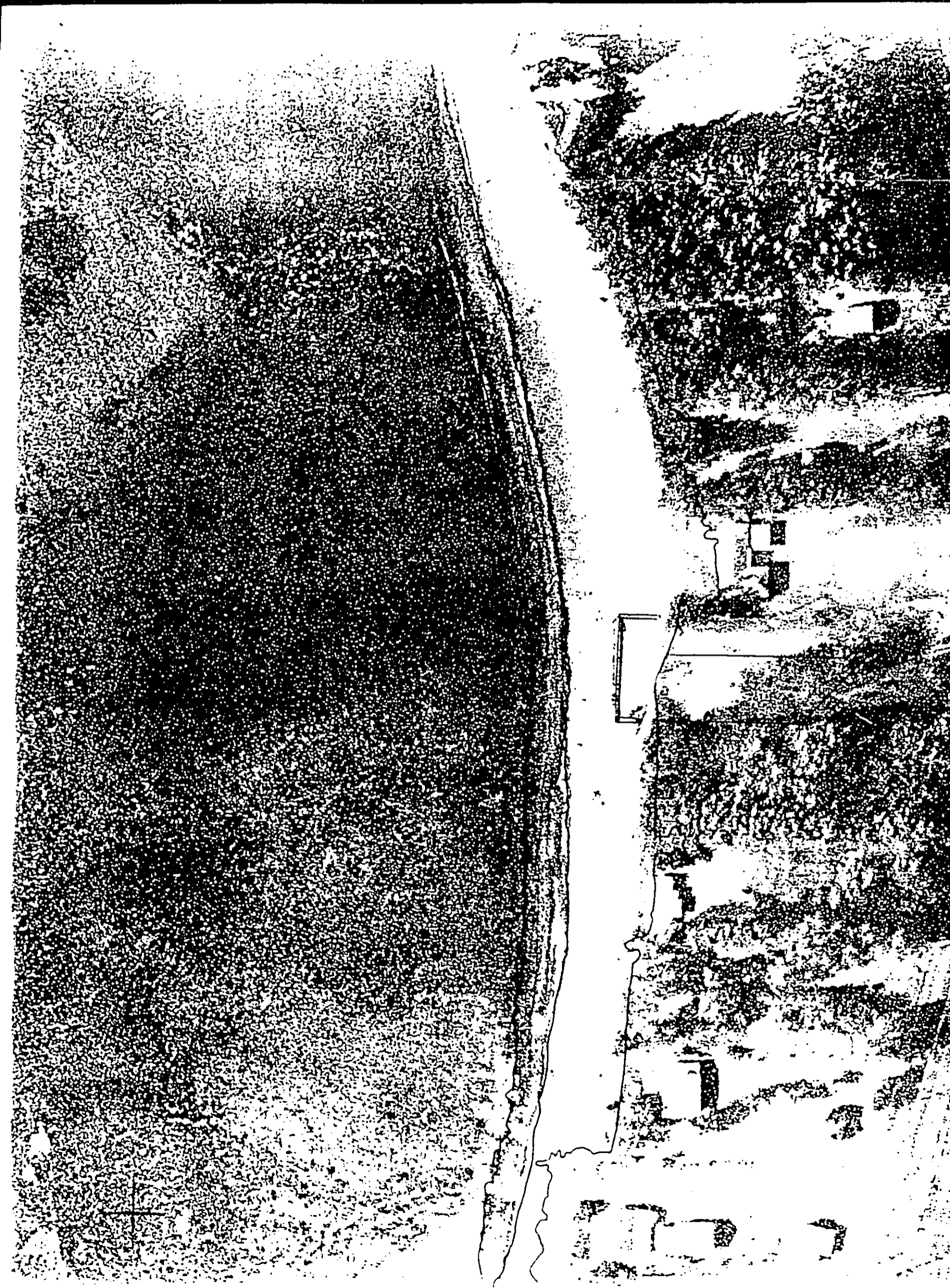


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Appendix C

June 19, 1958 Aerial Photo With
Overlay of the 1995 Shoreline

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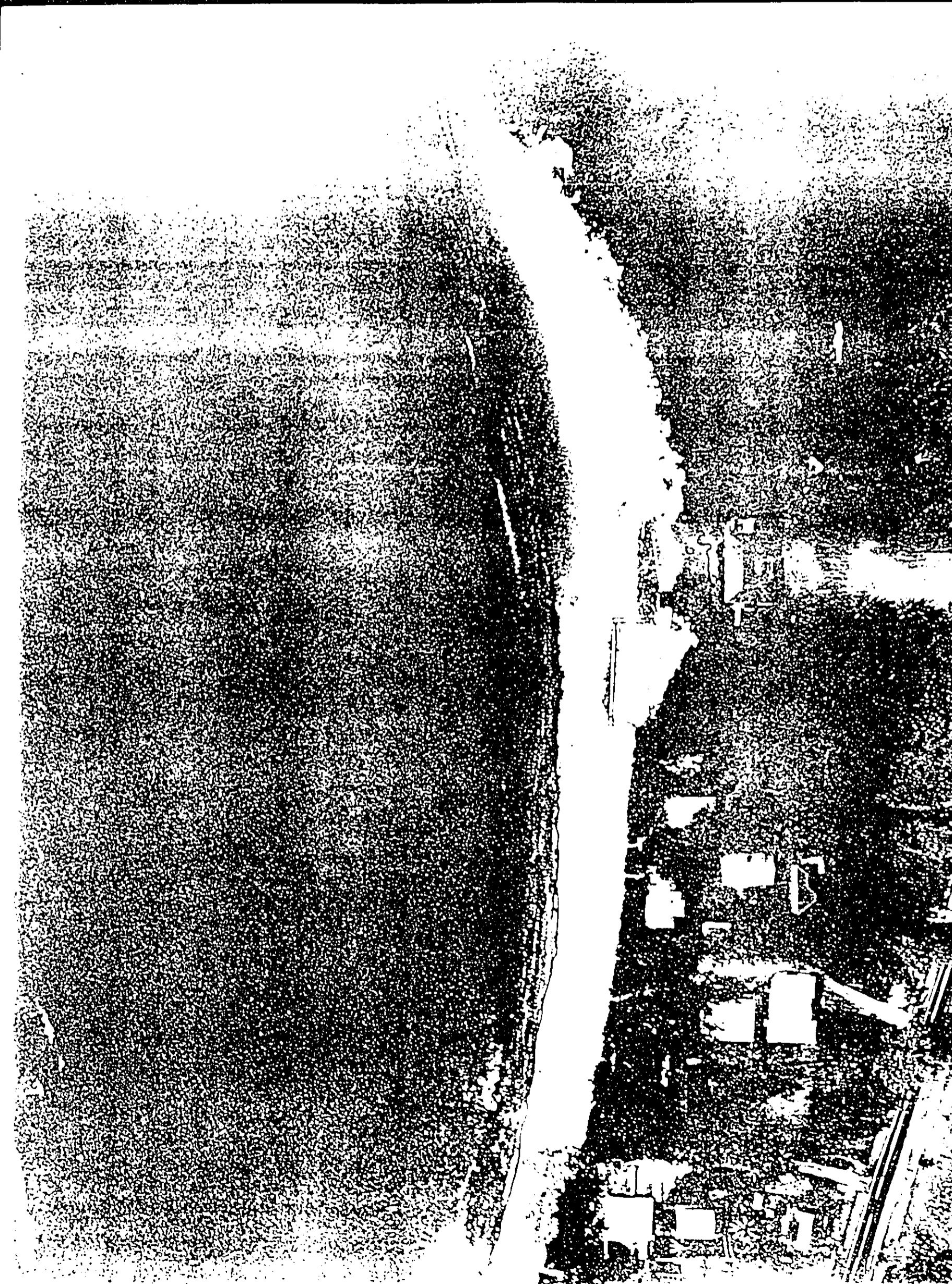


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Appendix D

April 23, 1967 Aerial Photo With
Overlay of the 1995 Shoreline

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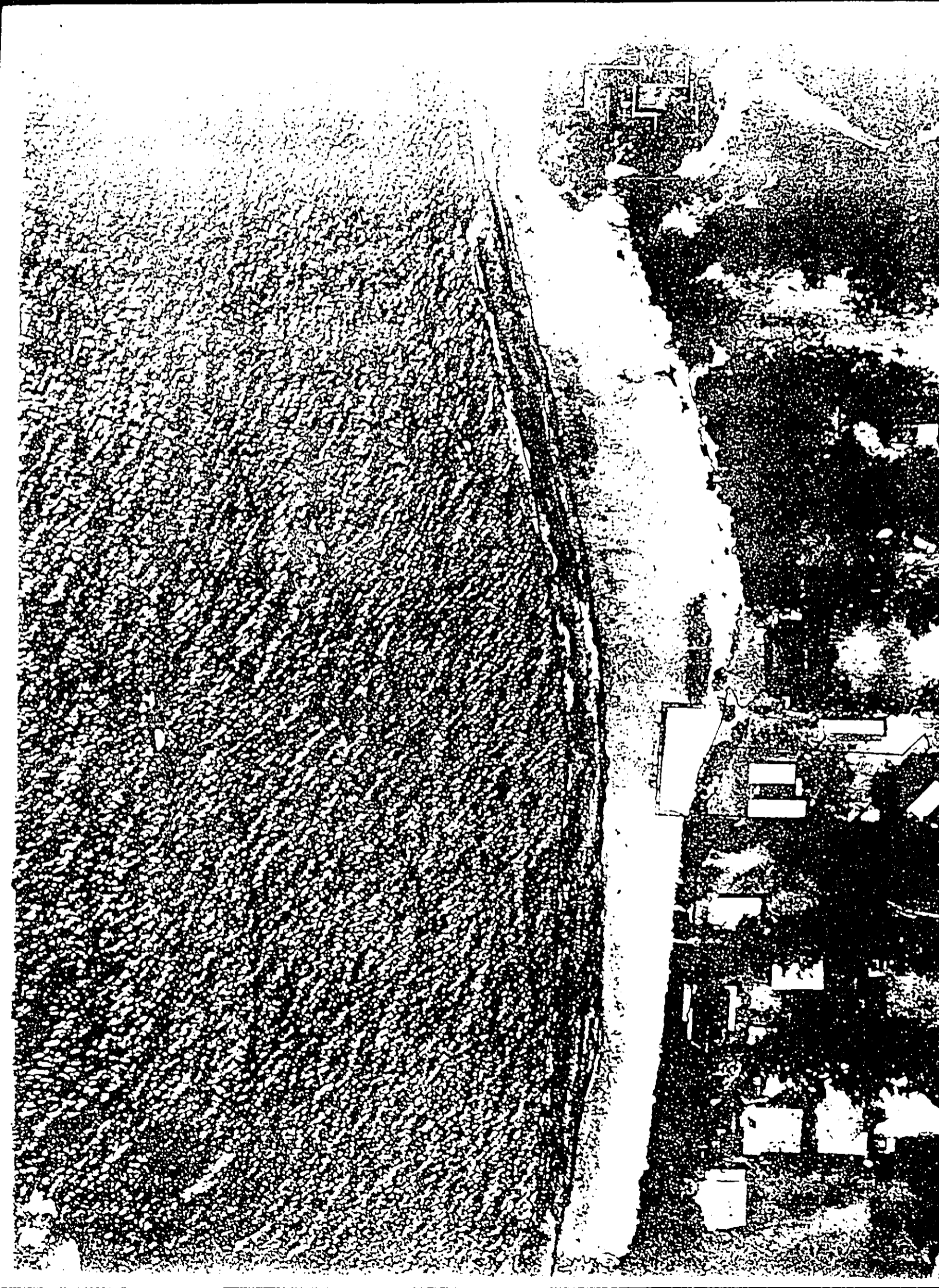


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Appendix E

May 26, 1972 Aerial Photo With
Overlay of the 1995 Shoreline

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Appendix F

December 5, 1982 Aerial Photo With
Overlay of the 1995 Shoreline

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