

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

June 12, 2012

RECEIVED

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OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

JUL 0 - 2012

Mr. Gary Hooser, Director  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813



Dear Mr. Hooser:

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED CONSTRUCTION OF A SEA WALL AT THE WALTER HESTER RESIDENCE LOCATED AT NAPILI, MAUI, HAWAII; TMK: (2) 4-3-015:003 (EA 2009/0007)**

The County of Maui's Department of Planning has reviewed the Draft EA for the Proposed Construction of a Sea Wall at the Walter Hester Residence and anticipates a Finding of No Significant Impact. Please publish notice in the next available Office of Environmental Quality Control (OEQC) Environmental Notice.

We have attached a completed OEQC Publication Form and one (1) copy of the document in PDF format on a CD; and one (1) hardcopy of the Draft EA.

Thank you for your cooperation. If you have any questions, please contact Coastal Resources Planner James Buika at [james.buika@mauicounty.gov](mailto:james.buika@mauicounty.gov) or at (808) 270-6271.

Sincerely,

A handwritten signature in black ink, appearing to read "Clayton I. Yoshida".

CLAYTON I. YOSHIDA, AICP  
Planning Program Administrator

for WILLIAM SPENCE  
Planning Director

Attachment

xc: James A. Buika, Coastal Resources Planner (PDF)  
Christopher L. Hart, ALSA, Chris Hart & Partners, Inc.  
Walter Hester  
Lahaina Public Library (w/ copy of Report)  
EA Project File (w/ copy of Report)  
General File

WRS:CIY:JAB:sa

K:\WP\_DOCS\PLANNING\EA\2009\0007\_HesterResidence\OEQC GHooser Trans Letter\_DEA.doc

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793

MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634

CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

Draft Environmental Assessment,  
Application for Special Management Area  
Use Permit, and Application for Shoreline  
Setback Variance

Proposed Construction of a Seawall  
**Walter Hester Residence**

TMK (2) 4-3-015:003  
Napili, Maui, Hawaii

October, 2009  
[REVISED July, 2010]  
[REVISED March, 2012]

*Prepared for:*  
Mr. Walter Hester  
PO Box 7900  
Incline Village, NV 89452

*Prepared by:*  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, Maui, Hawaii 96793  
808/242-1955



DRAFT ENVIRONMENTAL ASSESSMENT,  
APPLICATION FOR SPECIAL MANAGEMENT AREA USE  
PERMIT, AND APPLICATION FOR SHORELINE  
SETBACK VARIANCE

Proposed Construction of a Seawall  
**Walter Hester Residence**

**TMK (2) 4-3-015:003**  
**Napili, Maui, Hawaii**

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PROJECT

## **1. APPLICATION FORMS**





COUNTY OF MAUI  
DEPARTMENT OF PLANNING  
250 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793  
TELEPHONE: (808) 270-7735 FAX: (808) 270-7634

APPLICATION TYPE: SHORELINE SETBACK VARIANCE

(Rev. 7/10/03)

DATE: March 2012

PROJECT NAME: Walter Hester Residence Seawall

PROPOSED DEVELOPMENT: Construction of a structurally engineered slope retaining wall system within the shoreline setback area mauka of the certified shoreline

TAX MAP KEY NO.: (2) 4-3-015: 003 CPR/HPR NO.: \_\_\_\_\_ LOT SIZE: 19,214 sq. ft.

PROPERTY ADDRESS: 4855 Lower Honoapiilani Rd., Lahaina, Maui, HI 96761

OWNER: Mr. Walter F. Hester, III PHONE:(B) 808-871-8351 (H) \_\_\_\_\_

ADDRESS: P.O. Box 7900

CITY: Incline Village STATE: NV ZIP CODE: 89452

OWNER SIGNATURE: See Letter of Authorization

APPLICANT: Mr. Walter F. Hester, III

ADDRESS: P.O. Box 7900

CITY: Incline Village STATE: NV ZIP CODE: 89452

PHONE (B): 808-871-8351 (H): \_\_\_\_\_ FAX: 808-871-0732

APPLICANT SIGNATURE: See Letter of Authorization

AGENT NAME: Chris Hart & Partners, Inc.

ADDRESS: 155 N. Market Street

CITY: Wailuku STATE: HI ZIP CODE: 96793

PHONE (B): 808-242-1955 (H): \_\_\_\_\_ FAX: 808-242-1956

EXISTING USE OF PROPERTY: Single family residence

CURRENT STATE LAND USE DISTRICT BOUNDARY DESIGNATION: Urban

COMMUNITY PLAN DESIGNATION: Single Family ZONING DESIGNATION: R-3 Residential

OTHER SPECIAL DESIGNATIONS: Special Management Area

VALUATION: \$ 800,000

## **2. OWNERSHIP DOCUMENTS**



R-1543 STATE OF HAWAII  
 BUREAU OF CONVEYANCES  
 RECORDED  
 OCT 14, 2003 08:02 AM  
 Doc No(s) 2003-224201



/s/ CARL T. WATANABE  
 REGISTRAR OF CONVEYANCES

20 1/2 Z1

CONVEYANCE TAX: \$2550.00

LAND COURT SYSTEM	✓	REGULAR SYSTEM
Return by Mail (✓) Pickup ( ) To:		
WALTER F HESTER III C/O MAUI JIM SUNGLASSES 721 WAINEE STREET LAHAINA, HI 96761		TG: 200320420 - S TGE: A3-202-0265 Kris Klask
Tax Key: (2) 4-3-015-003		Total No. of Pages: <u>9</u>

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS:

That CARL R. EDMUNDSON and JANET L. EDMUNDSON, husband and wife, whose address is 4855 L. Honoapiilani Rd., Lahaina, Maui, Hawaii 96761, hereinafter called the "Grantor," in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration to Grantor paid by WALTER F. HESTER III, married, whose address is c/o Maui Jim Sunglasses, 721 Wainee Street, Lahaina, Maui, Hawaii 96761, hereinafter called the "Grantee," the receipt whereof is hereby acknowledged, does

hereby grant and convey unto the Grantee, as a tenant in severalty, the real property described in Exhibit "A" attached hereto and by this reference incorporated herein; subject, however, to all encumbrances noted on said Exhibit "A".

TO HAVE AND TO HOLD the same, together with any improvements thereon and the rights, easements, privileges, and appurtenances thereunto belonging or appertaining unto the Grantee, the heirs, representatives, administrators, successors and assigns of the Grantee, forever.

AND the Grantor covenants with the Grantee that the former is now seised in fee simple of the property granted; that the latter shall enjoy the same without any lawful disturbance; that the same is free from all encumbrances, except the liens and encumbrances hereinbefore mentioned, and except also the liens and encumbrances created or permitted by the Grantee after the date hereof; and that the Grantor will WARRANT and DEFEND the Grantee against the lawful claims and demands of all persons claiming the whole or any part of the above bargained and granted lands and premises.

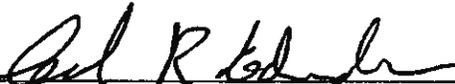
The terms "Grantor" and "Grantee", as and when used herein, or any pronouns used in place thereof, shall mean and include the masculine or feminine, or neuter, the singular or plural number, individuals or corporations, and their and each

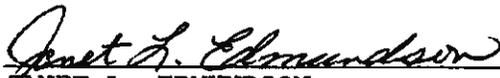
of their respective successors, heirs, personal representatives,  
and permitted assigns, according to the context hereof. If  
these presents shall be signed by two or more Grantors or by two  
or more Grantees, all covenants of such parties shall for all  
purposes be joint and several.

IN WITNESS WHEREOF, the Grantor has executed these  
presents on this 18 day of September 2003.

APPROVED AS TO FORM:  
MANCINI, WELCH & GEIGER

By Paul R. Mancini

  
\_\_\_\_\_  
CARL R. EDMUNDSON

  
\_\_\_\_\_  
JANET L. EDMUNDSON

Grantor

**CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT**

State of California }  
 County of Plumas } ss.

On 9/18/03 before me, LEANNE M. KIBODEAUX  
Date Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared CARL R. EDMUNDSON & JANET L. EDMUNDSON  
Name(s) of Signer(s)

- personally known to me
- proved to me on the basis of satisfactory evidence



to be the person(s) whose name(s) ~~is~~ are subscribed to the within instrument and acknowledged to me that ~~he~~ she/they executed the same in ~~his~~ her/their authorized capacity(ies), and that by ~~his~~ her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Leanne M. Kibodeaux  
Signature of Notary Public

Place Notary Seal Above

**OPTIONAL**

*Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.*

**Description of Attached Document**

Title or Type of Document: WARRANTY DEED

Document Date: 9-18-03 Number of Pages: 8

Signer(s) Other Than Named Above: \_\_\_\_\_

**Capacity(ies) Claimed by Signer**

- Signer's Name: \_\_\_\_\_
- Individual
  - Corporate Officer — Title(s): \_\_\_\_\_
  - Partner —  Limited  General
  - Attorney in Fact
  - Trustee
  - Guardian or Conservator
  - Other: \_\_\_\_\_

Signer Is Representing: N/A



STATE OF ~~HAWAII~~ <sup>CALIF</sup> )  
COUNTY OF ~~MAUI~~ <sup>PLUMAS</sup> ) SS.  
 )

On this 18<sup>th</sup> day of SEPTEMBER, 2003, before me personally appeared CARL R. EDMUNDSON and JANET L. EDMUNDSON, to me personally known, who, being by me duly sworn or affirmed, did say that such person(s) executed the foregoing instrument as the free act and deed of such person(s), and if applicable, in the capacity shown, having been duly authorized to execute such instrument in such capacity.



*Leanne M. Kibodeaux*  
Print Name: LEANNE M. KIBODEAUX  
Notary Public, State of ~~HAWAII~~ CALIF  
My commission expires: 8/05/06



- 288° 47' 23.21 feet; thence;
7. Following along the same, the direct azimuth and distance being;
- 203° 36' 20.52 feet; thence;
8. Following along the same, the direct azimuth and distance being
- 239° 31' 69.98 feet; thence;
9. Following along the same, the direct azimuth and distance being;
- 235° 44' 27.18 feet; thence;
10. Following along the same, the direct azimuth and distance being;
- 257° 01' 3.41 feet to a 1/2 inch pipe (set); thence;
11. 324° 10' 165.46 feet along Lot 44-B-2 of the Mailepai Hui Lands to the point of beginning and containing an area of 19,215 square feet, more or less.

Together with a 23-foot wide easement for foot path purposes, as set forth in that certain Instrument Confirming and Clarifying Easement dated February 11, 1985, recorded in Liber 18460 at Page 456, and being more particularly described as follows:

EASEMENT 1, Smith Subdivision, an easement (23.00 feet wide) for foot path purposes affecting Lot 44B-2, Smith Subdivision in favor of the remainder of Allotment 44B (Tax Map Key 4-3-15:3), situated at Alaeloa, Kaanapali, Lahaina, Maui, Hawaii, being a portion of Royal Patent 1163, Land Commission Award 5524 to L. Konia, being also a portion of Allotment 44B, Mailepai Hui Lands, and being more particularly described as follows:

Beginning at a 1/2" pipe at the westerly corner of this Easement, being also the westerly corner of Lot 44B-2, Smith Subdivision, the coordinates of said point of beginning referred to Government Survey Triangulation Station "MALO" being 13,921.74 feet south and 11,681.10 feet west and running by azimuths measured clockwise from true South:

1. 228° 05' 94.41 feet along the high water mark course described by Robert P. Bruce, Registered Land Surveyor, dated March 6, 1963 and shown on the subdivision map approved by Maui County (County Reference No. 4.82);
2. 209° 26' 58.76 feet along the same;
3. 307° 29' 23.23 feet along Lot 44B-1, Smith Subdivision;
4. 29° 26' 59.28 feet along the remainder of Lot 44B-2;
5. 48° 05' 100.64 feet along the same;
6. 144° 10' 23.13 feet along the remainder of Allotment 44-B to the point of beginning and containing an area of 3,601 square feet, more or less.

Being the premises acquired by Warranty Deed from Michael W. Palazzolo, unmarried, as Grantor, to the Grantor herein, as Grantee, dated January 21, 1987, and recorded in the Bureau of Conveyances of the State of Hawaii in Liber 20311 on Page 251.

SUBJECT, HOWEVER, to the following:

1. Reservation in favor of the State of Hawaii of all mineral and metallic mines.
2. The terms and provisions, including the failure to comply with any covenants, conditions and reservations, contained in the Deed dated April 11, 1949, and recorded in the said Bureau of Conveyances in Liber 2222 on Page 397.

3. Location of the seaward boundary in accordance with the laws of the State of Hawaii and shoreline setback line in accordance with County regulation and/or ordinance and the effect, if any, upon the area of the land described herein.

4. -AS TO THE 23-FOOT WIDE EASEMENT ONLY:-

The terms and provisions, including the failure to comply with any covenants, conditions and reservations, contained in that certain Instrument Confirming and Clarifying Easement dated February 11, 1985, recorded in Liber 18460 on Page 456.

END OF EXHIBIT "A"

Tax Key: (2) 4-3-015-003

### **3. LETTER OF AUTHORIZATION**

July 7, 2009

Mr. Jeffrey S. Hunt, Director  
Department of Planning  
County of Maui  
250 South High Street  
Wailuku, Maui, Hawaii 96793

RECEIVED

JUL 13 2009

CHRIS HART & PARTNERS, INC.  
Landscape Architecture and Planning  
*Original to Jason 061054*

AND

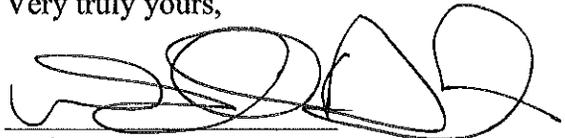
Other Governmental Officials

**Re:** HRS 343 Environmental Assessment (EA), Shoreline Setback Variance, and Special Management Area (SMA) Use Permit Application for the construction of a proposed single-family residence and seawall, to be located on property situated at 4855 Lower Honoapiilani Road, TMK Parcel No (2) 4-3-015:003, Lahaina, Maui, Hawaii.

Dear Mr. Hunt and Other Government Officials:

As the Owner of TMK Parcel No (2) 4-3-015:003, I hereby authorize Chris Hart & Partners, Inc., and their agents and assigns, to prepare, file, process, and obtain all necessary permits and approvals, including but not limited to a HRS 343 Environmental Assessment (EA), Shoreline Setback Variance, and Special Management Area (SMA) Use Permit Application, for the construction of a proposed single-family residence and seawall, to be located on property situated at 4855 Lower Honoapiilani Road, TMK Parcel No (2) 4-3-015:003, Lahaina, Maui, Hawaii.

Very truly yours,

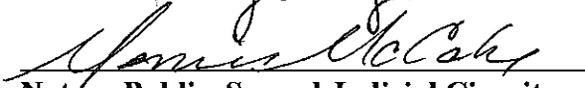


Walter F. Hester, III

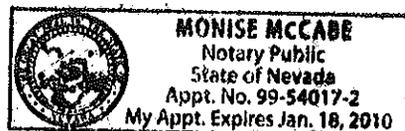
Cc. Mr. Christopher L. Hart, Chris Hart & Partners, Inc.

Subscribed and sworn to before me this

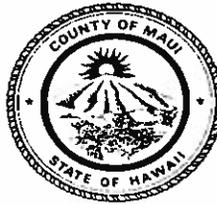
8<sup>th</sup> day of July, 2009

  
Notary Public, Second Judicial Circuit  
State of Hawaii

My commission expires: 2010



**4. ZONING AND FLOOD  
CONFIRMATION FORM**



## ZONING AND FLOOD CONFIRMATION

<b>APPLICANT INFORMATION</b> <i>(To be completed by Applicant)</i>									
<b>APPLICANT'S NAME</b>			Chris Hart & Partners, Inc. for Mr. Walter F. Hester III						
<b>TELEPHONE</b>		242-1955			<b>E-MAIL</b>				
<b>PROJECT NAME</b>		Walter Hester Residence and Seawall							
<b>ADDRESS/LOCATION</b>		4855 LOWER HONOAPIILANI RD LAHAINA							
<b>TAX MAP KEY NO</b>		(2) 4-3-015:003							
<b>ZONING INFORMATION</b> <i>(To be completed by ZAED)</i>									
<b>COMMUNITY PLAN</b>		SF-SINGLE FAMILY RESIDENTIAL							
<b>ZONING</b>		SMA-SPECIAL MANAGEMENT AREA R-3-COUNTY'S R-3 RESIDENTIAL DISTRICT STATE URB-STATE URBAN DISTRICT							
<b>FLOOD INFORMATION</b> <i>(To be completed by ZAED)</i>									
<b>FLOOD HAZARD AREA ZONE(S):</b>				V24/A4/C					
<b>BASE FLOOD ELEVATION:</b>			ELEV 17		mean sea level, 1929 National Geodetic Vertical Datum.				
<b>FOR FLOOD ZONE AO, DEPTH:</b>			N/A						
<b>FLOODWAY</b>		<input type="checkbox"/> Yes	or	<input checked="" type="checkbox"/> No					
<b>FLOOD DEVELOPMENT PERMIT IS REQUIRED:</b>					<input checked="" type="checkbox"/> Yes	or	<input type="checkbox"/> No		
<p>* For flood hazard area zones B or C; a flood development permit would be required if any work is done in any drainage facility or stream area that would reduce the capacity of the drainage facility, river, or stream, or adversely affect downstream property.</p>									
<p>Be advised that with the September 2009 adoption of FEMA's (Federal Emergency Management Agency) Digital Flood Insurance Rate Maps (DFIRMs) the property's flood zone designation will be changed to <u>N/A</u> with a base flood elevation of _____ feet mean sea level, 1929 NGVD. FEMA's new DFIRM will impact the property's flood risk designation and, consequently, require federally-mandated flood insurance for federally-backed mortgages. Properties affected by the change in the FEMA flood zone maps will face increases to their flood insurance when the maps go into effect on September 25, 2009. Some properties will see a significant increase in insurance rates. Properties that are currently in Zone C may secure flood insurance at a discounted rate if obtained prior to 9/25/2009. You may learn more on insurance costs at <a href="http://www.floodsmart.gov/floodsmart/">www.floodsmart.gov/floodsmart/</a>.</p>									
<b>For Flood Zone AO, FLOOD DEPTH</b>								<b>Effective 9/25/2009</b>	
<b>FLOODWAY</b>		<input type="checkbox"/> Yes	<input type="checkbox"/> No				<b>Effective 9/25/2009</b>		
<b>FLOOD DEVELOPMENT PERMIT REQUIRED</b>				<input type="checkbox"/> Yes		<input type="checkbox"/> No		<b>Effective 9/25/2009</b>	
<b>FOR COUNTY USE ONLY</b>									
<b>REMARKS/COMMENTS:</b>									
<input type="checkbox"/> Additional information required					<input type="checkbox"/> Information submitted is correct				
<input type="checkbox"/> Required for Agricultural Subdivisions					<input type="checkbox"/> Correction has been made and initialed				
<b>Agricultural Assessment RFS No.</b>									
<b>Reviewed and Confirmed by:</b>									
						6/30/09			
(Signature)						(Date)			
<p>For AARON SHINMOTO, Planning Program Administrator Zoning Administration and Enforcement Division</p>									

**5. LIST OF REQUIRED SUBMITTALS**

## SM1 PERMIT APPLICATION CHECKLIST

NOTE: Please number all documents and arrange them in the order they are listed below. Incomplete applications may be returned or delay their processing. Any misrepresentation regarding this application may result in a permit denial, permit revocation, and other possible violations and/or fines.

1.  A non-refundable **Filing Fee**, payable to *County of Maui, Director of Finance*. See [Fee Schedule, Table A](#) Special Management Area (SMA) Permits (non-exempt). The current fee schedule is available at the Department of Planning, or at the Department of Planning section of the County of Maui website under "Development Permits, Applications & Reviews". [www.mauicounty.gov](http://www.mauicounty.gov)
2.  YES  NO Has any work already been started or completed for this project?
  - If yes, please describe on a separate sheet of paper and be advised that additional fees may apply.
3.  Completed **SM1 Permit Application Checklist** (*THIS CHECKLIST*) (pg 3).
4.  Completed **APPLICATION Special Management Area Use Permit (SM1)** (pg 7).
5.  The [Zoning & Flood Confirmation Form](#) (pg 8) will need to be completed in its entirety and included in this application. This form needs to first be reviewed, confirmed, and signed by the Department of Planning, Zoning Administration and Enforcement Division (ZAED) prior to submitting this application. (ZAED is located in Wailuku at 250 S. High St, in the Kalana Pakui Bldg.)
6.  Completed [Chapter 343, HRS Checklist](#) (pg 9). If the proposed action triggers Chapter 343, HRS, related to Environmental Impact Statements, submit a completed Environmental Assessment (EA), Environmental Impact Statement (EIS), or a letter of exemption from Chapter 343, HRS, from the proper authority.
7.  Evidence that the applicant is the owner or lessee of record of the real property. – OR – If the applicant is not the owner, a notarized letter from the owner authorizing the applicant to act on the owners behalf, AND evidence that the authorization is from the legal owner.
8.  Complete the information asked for on the [Notice of Application](#) form (pg 10).

NOTE: After the Department reviews the Notice of Application for completeness, it will be returned to the applicant. The applicant shall then submit the Notice of Application for publication to a newspaper within ten days of Departmental approval and submit proof of publication to the Planning Department within fourteen days after the date of publication. The applicant shall of publish the Notice of Application once in a newspaper printed and issued at least twice weekly in the County and which is generally circulated throughout the County. [For projects on Molokai only, the applicant shall publish the notice of application once in a newspaper which is printed and issued at least monthly and generally circulated on the island of Molokai.]
9.  Complete the information asked for on the [Notice of Public Hearing](#) (pg 11), except the section to be completed by the Department of Planning.

NOTE: The Department will notify the applicant of the Public Hearing date at least forty-five days prior to the public hearing. This form shall then be mailed not less than thirty calendar days before the hearing date by certified or registered mail, postage prepaid, to the owners of real property situated within five hundred feet of the boundaries of the parcel that is the subject of the application, as identified in the 500 foot list below. The applicant shall also send notice to all persons who have requested the Commission in writing to be notified of special management area proceedings.
10.  A **500 Foot List**. The 500 foot list should be arranged by tax map key (TMK) numbers. This list shall include all the tax map key (TMK) numbers, names, and addresses of all the owners, lessees of record, and members of the Board of Directors or managing agents to be notified, within 500 feet of the subject property's boundaries. This list shall be obtained from the County of Maui's real property tax roll.
11.  A **Location Map**. This shall be drawn to scale, identifying the location of the subject property within the general area.

On this location map,

  - a. Clearly identify the subject property.
  - b. Clearly identify all lots within 500 feet of the subject property's boundaries.
  - c. Draw a line indicating the 500 foot boundary.
  - d. Include all the tax map key numbers within that area or have an easy way to match each lot with the 500 foot list from above.

Continued on next page...

## SM1 PERMIT APPLICATION CHECKLIST (continued)

12.  **Site Plan\* of the Subject Property** prepared to scale and based upon an accurate instrument survey. The plan shall define and show the design of the proposed activity or development and the existing physical conditions of the land, including but not limited to, property boundaries, topography, all structures, natural and man-made features, trees, shoreline, and shoreline setback line. Said plans shall be signed, dated, drawn to scale, and measured in feet.  
*\*Submit two (2) sets, including one (1) original*
13.  **Plans\* of the Proposed Activity or Development** designating the location and dimensions of the proposed activity or development on the land. If structures are included, the plan of the activity or development should include a dimensioned floor plan, sections, elevations, and other physical features. Provide existing and proposed finished (interior) square footage and existing and proposed covered lanai square footage. Said plans shall be signed, dated, drawn to scale, and measured in feet.  
*\*Submit two (2) sets, including one (1) original*
14.  **A Landscape Planting and Irrigation Plan** defining tree and shrub locations, type of plant materials, sizes, irrigation lines, as well as landscape lighting and graphics. Said plans must be dated.  
Note: For [Landscape Planting and Irrigation Plans](#) that involve [subdivisions](#) or [parking lots](#), please review the respective Landscape Planting Plan Application for more information on what may be required. These applications and guidelines are available at the Department of Planning, or at the Department of Planning section of the County of Maui website under "Development Permits, Applications & Reviews", then under the "Review" section. [www.mauicounty.gov](http://www.mauicounty.gov)
15.  **A Colored Drawing** of proposed buildings.
16.  **Photographs** identifying the area where the proposed activity or development is to occur. The photographs should include the (1) site, (2) surrounding properties, and (3) the relationship of the site to the nearest public roadway.  
For shoreline properties, also include photographs (1) to, (2) from, and (3) along the shoreline.  
(All photographs should be printed on standard sized paper, 8½ by 11.)
17.  Any **Oral or Written Comments** received from governmental or nongovernmental agencies, community organizations or individuals with regard to the proposed action, and a summary of the dates and attendance of public meetings held on the proposed action.
18.  A Preliminary **Drainage Plan**.
19.  YES  NO Are there any known taro patches, burial sites, cemeteries, fish ponds, or other historical features (over 50 years old) on this lot or in the immediate vicinity of the proposed project?  
  - **If YES**, include a scaled map identifying those sites, a description of what you may know about them, and supporting documentation.
20.  YES  NO Will there be any ground alteration, excavation, or digging associated with the proposed project?  
  - **If YES**, include a scaled map identifying the area of land affected, as well as the width, length, and the depth of the activity. If there is a state approved archeological monitoring plan for the site, submit a copy.
21.  YES  NO Are there any rare, threatened, or endangered species of animal or plant, or its habitat within the lot of the proposed project or nearby properties?  
  - **If YES**, include a brief description of the species, animal, and/or the affected habitat, as well as a description of what is being done or proposed to be done to minimize the affect.
22.  YES  NO Are any of the following areas located on this lot or on the properties immediately adjoining the proposed project? These areas include a flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh waters, or coastal waters?  
  - **If YES**, include a scaled map identifying the area(s), in relation to the proposed project.

Continued on next page...

## SM1 PERMIT APPLICATION CHECKLIST (continued)

23.  YES  NO Is the subject property abutting the shoreline?
- **If YES, answer question 23(A)** and submit the required information.
  - **If NO, answer questions 23(B) & 23(C)** and submit any required information.
- 23(A).** Is the shoreline fixed by either (a) a natural stabilized geographic features such as cliffs and rock formations, or (b) by a manmade structure which has been approved by appropriate government agencies and for which engineering drawings exist to locate the interface between the shoreline and the structure?
- YES Submit evidence of these conditions and your most recent State Certified Shoreline Survey, or if one does not exist for the subject property, submit the most recent shoreline survey prepared by a land surveyor who is licensed in the State of Hawaii. The survey shall include the date of the field survey and the surveyor's signature. (Then go to on to 24.)
- NO Submit two (2) sets (one original) of a State Certified Shoreline Survey. The survey shall be the actual field location of the shoreline as prepared by a land surveyor licensed in the State of Hawaii. The survey maps shall bear the surveyor's signature, date of field survey, and the certifying signature and date of the Chairman of the Board of Land and Natural Resources (BLNR). The certification date of State Certified Shoreline Survey shall not be older than one year. (Then go to on to 24.)
- 23(B).**  YES  NO For any lot not abutting the shoreline, is any part of the proposed action to occur WITHIN 150 feet of the shoreline?
- **If YES,** Submit two (2) sets (one original) of a State Certified Shoreline Survey. The survey shall be the actual field location of the shoreline as prepared by a land surveyor licensed in the State of Hawaii. The survey maps shall bear the surveyor's signature, date of field survey, and the certifying signature and date of the Chairman of the Board of Land and Natural Resources (BLNR). The certification date of State Certified Shoreline Survey shall not be older than one year. (Then go to on to 23(C) )
- 23(C).**  YES  NO Is any part of the subject property lot line located WITHIN 150 feet of the shoreline?
- **If YES,** be advised that your SMA Assessment Application will be reviewed to determine if a State Certified Shoreline Survey is required.
24.  Submit **two (2) copies** of a completed **Assessment Report**. The Assessment Report shall thoroughly address each of the items below in the order listed, including all subsections of the HRS, Chapter 205A-26, SMA Guidelines. Subjects which have been addressed earlier in the report but which also need to be addressed in later sections can have more limited treatment in the later sections, including reference to the earlier sections. You may request further guidance from the Department.
- (1) **Written description of the proposed action.** Provide a written description of:
- A) The environmental setting of the property that is the subject of the proposed action, to include existing site and surrounding land uses, land use designations, soils, climate, and topography, as well as site ownership.
- B) The scope of the proposed action, to include the proposed use, length, width, height, depth, building materials, and a statement of objectives of the proposed action.
- (2) **Consistency.** Address and demonstrate how the proposed action is consistent with and/or allowed by the Countywide Policy Plan, any applicable Island Plan and Community Plan, any other applicable State and County plans including functional plans, and applicable land use and development regulations such as zoning, subdivision, special management area rules, and shoreline rules.

Continued on next page...

## SM1 PERMIT APPLICATION CHECKLIST (continued)

- (3) **Potential Environment and Ecology Impacts.** In addressing potential environmental and ecological effects of the proposed action, fully consider every phase of the action, its expected primary and secondary consequences, and its cumulative and short or long-term effects.
- A) Separately address whether and how the proposed action might lead to potential environmental and ecological effects under each of the following twelve (12) criteria:
1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources.
  2. Significantly curtails the range of beneficial uses of the environment.
  3. Conflicts with the county's or the state's long-term environmental policies or goals.
  4. Substantially affects the economic or social welfare and activities of the community, county, or state.
  5. Involves substantial secondary impacts, such as population changes and increased effects on public facilities, streets, drainage, sewage, and water systems and pedestrian walkways.
  6. In itself has no significant adverse effects but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.
  7. Substantially affects a rare, threatened, or endangered species of animal or plant, or its habitat.
  8. Is contrary to the state plan, county's general plan, appropriate community plans, zoning and subdivision ordinances.
  9. Detrimentially affects air or water quality or ambient noise levels.
  10. Affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh waters, or coastal waters.
  11. Substantially alters natural land forms and existing public views to and along the shoreline.
  12. Is contrary to the objectives and policies of chapter 205A, HRS.
- B) Address any probable adverse environmental effects that can be avoided;
- C) Address any irreversible and irretrievable commitment of resources;
- D) Provide a statement and address the sum of effects that adversely affect the quality of the environment and the ecology; and
- E) Address alternatives considered to the proposed action.
- (4) **Hawaii Revised Statutes (HRS), Chapter 205A**
- A) HRS, Chapter 205A-2, Coastal Zone Management Program: Objectives and Policies. Separately address if and, if so, how the project facilitates the implementation of each of the Coastal Zone Management Program Objectives & Policies in all of the following ten (10) categories. See pages 16 and 17 for more information on the following ten (10) categories.
- |                                     |                          |
|-------------------------------------|--------------------------|
| 1. Recreational Resources.          | 6. Coastal Hazards.      |
| 2. Historic Resources.              | 7. Managing Development. |
| 3. Scenic and Open Space Resources. | 8. Public Participation. |
| 4. Coastal Ecosystems.              | 9. Beach Protection.     |
| 5. Economic Uses.                   | 10. Marine Resources.    |
- B) HRS, Chapter 205A-26, Special Management Area Guidelines. Address each of the individual review criteria listed on page 18. In doing so, please explain how the project will enable the Planning Commission to:
1. Ensure that the provisions of Section 1 are met;
  2. Make the findings of Section 2; and
  3. Minimize, where reasonable, the conditions in Section 3.

25.  Any additional information and documentation as may be required by the Planning Department or the appropriate Planning Commission of the County to properly process the application, and/or items you feel will aid the Department in its review of your project, (for example, traffic impact analysis, archaeological study, public transportation analysis, cultural impact assessment, view plane analysis, Urban Design and Review Board review, etc). List all other submitted documents below.

- A) Coastal Engineering Assessment (Appendix F)      C) Cultural Impact Assessment (Appendix H)  
B) Archaeological Site Assessment (Appendix G)      D) Soils Report (Appendix I)

26.  Complete the applicable questions in the Long Range Division Project Database form (pgs. 14 & 15).

**NOTE: After the Department reviews the application submittals for suitability for transmittal to agencies, the Department will notify the Applicant of the need to provide additional copies of the above.**

## CHAPTER 343, HRS, COMPLIANCE CHECKLIST

Complete the following worksheet to determine whether the proposed action triggers Chapter 343, Hawaii Revised Statutes (HRS), relating to Environmental Impact Statements (EIS) within the County of Maui.

- A  YES  NO Do any of the proposed actions listed below apply to your project? The proposed actions listed below trigger Chapter 343, HRS.

If YES, check any that apply and continue with question B below.

If NO, stop here, an Environmental Impact Statement may not be required.

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Use of state or county lands or funds | 6. <input type="checkbox"/> Reclassification of conservation lands  |
| 2. <input type="checkbox"/> Use of conservation district lands    | 7. <input type="checkbox"/> Construction/modification of helicopter facilities  |
| 3. <input checked="" type="checkbox"/> Use of shoreline area      | 8. <input type="checkbox"/> Propose any: (a) wastewater facility, except an individual wastewater system or a wastewater facility serving fewer than fifty (50) single-family dwellings or the equivalent; (b) Waste-to-energy facility; (c) Landfill; (d) Oil refinery; or (e) Power-generating facilities |
| 4. <input type="checkbox"/> Use of historic site or district      |   |
| 5. <input type="checkbox"/> Amendment to county general plan      |   |

B Does the proposed action qualify for one or more of the following exemption classes?

1.  Operations, repairs, or maintenance of existing structures, facilities, equipment, or topographical features, involving negligible or no expansion or change of use beyond that previously existing;
2.  Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have substantially the same purpose, capacity, density, height, and dimensions as the structure replaced;
3.  Construction and location of single, new, small facilities or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification of same, including, but not limited to:
  - a. Single-family residences less than 3,500 square feet not in conjunction with the building of two or more such units;
  - b. Multi-unit structures designed for not more than four dwelling units if not in conjunction with the building of two or more such structures;
  - c. Stores, offices, and restaurants designed for total occupant load of twenty persons or less per structure, if not in conjunction with the building of two or more such structures; and
  - d. Water, sewage, electrical, gas, telephone, and other essential public utility services extensions to serve such structures or facilities; accessory or appurtenant structures including garages, carports, patios, swimming pools, and fences; and, acquisition of utility easements;
4.  Minor alterations in the conditions of land, water, or vegetation;
5.  Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource;
6.  Construction or placement of minor structures accessory to existing facilities;
7.  Interior alterations involving things such as partitions, plumbing, and electrical conveyances;
8.  Demolition of structures, except those structures located on any historic site as designated in the national register or Hawaii register as provided for in the National Historic Preservation Act of 1966, Public Law 89-665, 16 U.S.C. §§470, as amended, or chapter 6E, HRS;
9.  Zoning variances except shoreline set-back variances; and
10.  Continuing administrative activities including, but not limited to purchase of supplies and personnel-related actions.

***If any boxes are checked, submit any letter of exemption you may have received from the proper authority.***

***If no boxes are checked, then an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required. Submit the completed EA or EIS document with the application.***

SHORELINE SETBACK VARIANCE  
REQUIRED SUBMITTALS

1. Evidence that the applicant is the owner or lessee of record of the real property.
2. A notarized letter of authorization from the legal owner if the applicant is not the owner.
3. Original and (2) copies of the shoreline survey certified by the Department of Land and Natural Resources within the preceding (12) months.
4. Ten (10) sets of a site plan showing the location of the shoreline drawn to a minimum scale of 1"=20'. The shoreline and existing conditions along properties immediately adjacent shall also be shown on the site plans. It shall also include contours at a minimum interval of 2 feet, together with all natural and man-made features in the subject area unless otherwise required by the Director.
5. A written justification for the requested variance.
6. Ten (10) sets of a preliminary drainage and erosion control report, and a grading plan.
7. Ten (10) copies of an environmental assessment may be required.
8. Photographs (preferably slides) of the shoreline area.
9. **Non-refundable filing fee** (see Fee Schedule, Table A) payable to *County of Maui, Director of Finance*.
10. High quality and legible transparency vu-graphs (8 ½" x 11") illustrating:  
-Detailed site plan showing shoreline and existing conditions
11. Additional information that may be required by the Planning Director (i.e., Engineering Report, soil's analysis, archaeological report, etc.)

NOTE: Two (2) additional copies for projects located on Lanai.

One (1) additional copy if the project fronts a State Highway.

**6. DRAFT ENVIRONMENTAL ASSESSMENT,  
SMA APPLICATION  
AND SHORELINE SETBACK VARIANCE**



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## ATTACHMENTS

### FIGURES

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Figure No. 2	Tax Map Key (TMK) Map
Figure No. 3	State Land Use Map
Figure No. 4	West Maui Community Plan Map
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Appendix B	Certified Shoreline Survey Map
Appendix C	Shoreline Setback Determination
Appendix D	Conceptual Seawall Design
Appendix E	Preliminary Engineering and Drainage Report
Appendix F	Coastal Engineering Assessment
Appendix G	Archaeological Site Assessment
Appendix H	Cultural Impact Assessment
Appendix I	Soils Report



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## I. PROJECT INFORMATION

### A. PURPOSE OF THE REQUEST

The purpose of this Environmental Assessment (EA) is to analyze the potential impacts related to the proposed construction of a wall along a bluff fronting the shoreline at the *makai* boundary of the subject property. This EA is submitted in support of the following application requests: 1) Special Management Area (SMA) Use Permit; and 2) Shoreline Setback Variance. Preparation of an EA is required in compliance with the provisions of HRS Chapter 343, since the proposed development involves an action within the Shoreline Setback Area. In addition, the site is located within the Special Management Area (SMA), the area of jurisdiction of the Hawaii Coastal Zone Management (CZM) program.

### B. PROJECT PROFILE

Proposed Project:	Slope retaining wall
Project Address:	4855 Lower Honoapiilani Rd. Lahaina, Maui, Hawaii
Project TMK:	(2) 4-3-015:003
Parcel Size:	0.44 acres (19,214 square feet)
Existing Land Use:	Single family residence
Access:	Lower Honoapiilani Road

### C. IDENTIFICATION OF THE APPLICANT/OWNER

Land Owner:	Mr. Walter F Hester, III
Address:	PO Box 7900 Incline Village, NV 89452
Contact:	Mr. Paul Mancini, Esq., Mancini, Welch & Geiger, LLP 33 Lono Avenue, Suite 470 Kahului, HI 96732
Phone:	Voice: (808) 871-8351 Facsimile: (808) 871-0732



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## D. CONSULTANTS

**Land Use Planner & Landscape Architect:**

Phone:

Contact:

Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, Maui, Hawaii 96793  
Voice: (808) 242-1955  
Facsimile: (808) 242-1956  
Mr. Christopher L. Hart, ASLA, President

**Civil Engineer:**

Phone:

Contact:

Meta Engineering  
P.O. Box 4606  
Honolulu, HI 96812  
Voice: (808) 394-1420  
Mr. Paul R. Weber, P.E.

**Civil Engineer:**

Phone:

Contact:

R.T. Tanaka Engineers, Inc.  
871 Kolu St.  
Wailuku, Hawaii 96793  
Voice: (808) 242-6861  
Facsimile: (808) 244-7287  
Mr. Kirk Tanaka, P.E.

**Structural Engineer:**

Phone:

Contact:

Arnold T. Okubo and Associates, Inc.  
94-529 Ukee Street  
Waipahu, HI 96797  
808-671-5184  
Mr. Arnold T. Okubo, P.E.

## E. ACCEPTING AGENCY

Agency:

Phone:

Contact:

Maui Planning Commission  
c/o Department of Planning, County of Maui  
250 South High Street  
Wailuku, Maui, Hawaii 96793  
Voice: (808) 270-7735  
Facsimile: (808) 270-7634  
Mr. William Spence



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## **F. MAJOR LAND USE, DEVELOPMENT & CONSTRUCTION APPROVALS**

1. Grading and Grubbing Permit approval from the Department of Public Works (DPW).
2. Special Management Area Use Permit by the Maui Planning Commission, via the Department of Planning.
3. Shoreline Setback Variance approval by the Maui Planning Commission, via the Department of Planning.

## **G. PRE-CONSULTED AGENCIES & PRIVATE INTERESTS**

### COUNTY OF MAUI

1. Department of Planning
2. Department of Public Works
3. Department of Water Supply
4. Department of Parks and Recreation
5. Department of Fire Control & Public Safety
6. Department of Housing & Human Concerns
7. Department of Environmental Management
8. Police Dept

### STATE OF HAWAII

1. Department of Land & Natural Resources, Historic Preservation Division
2. Department of Land & Natural Resources, Land Division
3. Department of Land & Natural Resources, Office of Coastal Conservation Lands
4. University of Hawaii Sea Grant Extension Service
5. Department of Transportation
6. Department of Health
7. Department of Education
8. Dept of Business, Economic Development & Tourism
9. Department of Hawaiian Homelands
10. University of Hawaii Environmental Center
11. Office of Hawaiian Affairs



FEDERAL

1. USDA, Natural Resources Conservation Service
2. U.S. Fish & Wildlife Service
3. U.S. Army Corps of Engineers

OTHER

1. Maui Electric Company
2. Hawaiian Telcom
3. Neighboring Property Owners and Registered Lessees within 500 feet



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## II. DESCRIPTION OF THE PROPERTY & PROPOSED ACTION

### A. PROPERTY LOCATION AND DESCRIPTION

The subject property is located at 4855 Lower Honoapiilani Road, Napili, Lahaina District, Island of Maui, Hawaii, Tax Map Key (2) 4-3-015:003 (See: Figures No. 1.1 and 1.2, "Regional and Aerial Location Maps," and No. 2, "TMK Map"). Napili is located on the northwest coast of West Maui, approximately 7 miles north of central Lahaina Town and approximately 1.5 miles south of the resort community of Kapalua. The project site is situated along Keonenui Bay, between Haukoe and Alaeloa Points, in an area collectively referred to as Alaeloa. Access to the residence is via Lower Honoapiilani Road.

The 0.44 acre (19,214 square feet) parcel is located at the extreme southwest end of Keonenui Bay and is trapezoidal in shape, with a narrow sliver of land approximately 108 feet long and 5 to 15 feet wide extending onto Haukoe Point (See: Figures No. 1.1 and 1.2, "Regional and Aerial Location Maps," and No. 2, "TMK Map"). The property is situated on a high bluff overlooking Keonenui Bay and ranges in elevation from approximately 25 feet above mean sea level (AMSL) at the top of the bluff to approximately 38 feet at the *mauka* boundary with Lower Honoapiilani Road. The bluff at the property's *makai* boundary is composed of red volcanic clay soil, and has been progressively eroding due to coastal forces as well as sheet flow atop the bluff originating both on and *mauka* of the property.

### B. EXISTING LAND USE

The parcel's original existing and non-conforming single-family residence and detached garage, located partially within the shoreline setback, have been demolished and a new single-family residence is currently under construction located outside of the shoreline setback. An eroding shoreline bluff approximately 196 feet in length and 25 feet in height fronts the property. Land uses on neighboring parcels are characterized largely by single-family residential development and some multi-family development such as the Kahana Sunset Condominiums. With the exception of the subject property, the properties fronting the entirety of the shoreline between Haukoe and Alaeloa Points are armored by individual seawalls that together form a nearly contiguous sea retaining structure *mauka* of the shoreline.



Over the years, each parcel with a sheer bank fronting Keonenui bay has been susceptible to seasonal undermining with the creation of dangerous caves which eventually collapse and endanger the health, safety and welfare of beachgoers and property owners. It has been determined that the seasonal erosion and bank destabilization is caused by a continuous bedrock layer of volcanic clay and cinder that is susceptible to erosion.

### C. LAND USE DESIGNATIONS

The project site lies in the State *Urban* District, is proposed for *Single-Family* use by the West Maui Community Plan and is zoned *R-3 Residential District* by Maui County. The site is located within the *Special Management Area (SMA)*, the area of jurisdiction of the Hawaii Coastal Zone Management (CZM) program.

State Land Use Classification:	Urban ( <u>See</u> : Figure No. 3, "State Land Use Map")
West Maui Community Plan:	SF Single Family ( <u>See</u> : Figure No. 4, "Community Plan Map")
County Zoning:	R-3 Residential ( <u>See</u> : Figure No. 5, "County Zoning Map")
Flood Zone Designation:	X, Areas determined to be outside the 0.2% annual chance floodplain ( <u>See</u> : Figure No. 6, "Flood Hazard Assessment")
Special Designations:	Special Management Area (SMA) ( <u>See</u> : Figure No. 7, "SMA Map")

### D. PROJECT BACKGROUND AND NEED

A Draft Environmental Assessment (EA), Application for Special Management Area (SMA) Use Permit, and Application for Shoreline Setback Variance (SSV) was filed with the Planning Department on November 18, 2009 and subsequently revised and re-filed on August 17, 2010 for the proposed demolition of a single-family residence, construction of a new single-family residence, and construction of a seawall on the subject property.

At a meeting on November 18, 2010, it was mutually agreed upon by Mr. Clayton Yoshida, Current Planning Program Administrator; Ms. Ann Cua, Assistant Administrator; Chris Hart, Chris Hart & Partners; and Mr. Paul Mancini, Esq. of



Mancini, Welch & Geiger, LLP, that in order to expedite the project the proposed actions would be bifurcated into two phases. *Phase 1* includes the demolition of the existing, non-conforming residence located partially within the shoreline setback area and the construction of a new single-family residence located outside of the shoreline setback area. *Phase 2* includes the construction of a structurally engineered slope retaining wall system within the Maui County shoreline setback area *mauka* of the certified shoreline.

To address *Phase 1* of the project, applications for a SMA Assessment Exemption, Shoreline Setback Approval, and EA Exemption were filed with the Planning Department on January 10, 2011. Subsequently, on August 18, 2011 the Planning Department granted a SMA Assessment Exemption (SM5 2011/280), Shoreline Setback Approval (SSA 2011/0026), and an EA Exemption (EAE 2011/0071) for the proposed demolition of the existing residence from within the shoreline setback area and construction of a new single-family residence outside of the shoreline setback area. In November 2011 the single-family residence was demolished and the new residence is now under construction.

This Draft EA, SMA Use Permit Application, and SSV address *Phase 2* of the project which includes the construction of a structurally engineered slope retaining wall system within the shoreline setback area *mauka* of the certified shoreline.

The original single-family residence was constructed on the site in 1976. However, due to erosion of the clay and cinder substrate and the creation of undermining caves, by 2003 the residence was situated roughly 18 feet from the edge of the shoreline cliff at its nearest point. Field books from the Maui County Property Tax office containing information about the subject property show that in 1972, the lot area totaled 21,620 square feet. In 1987, the book notes a "change in area and boundary due to erosion," and the current 19,214-square foot lot size demonstrates that erosion is continuing. Therefore, a retaining structure is proposed in order to stabilize the exposed, 20-foot high bank of the sea cliff upon which this property is situated (See: Figures No. 8, "Site Photographs, and No. 9, "Seawall Location").

Another shoreline parcel at the north end of Keonenui Bay experienced a similar slope collapse in December 2007. At 11 Hale Malia Place, severe winter storm activity resulted in catastrophic slope and seawall failure, raising concerns about public safety along with risk of potential catastrophic property loss for the property owner and damage to neighboring properties. (See: Figure No. 10, "Hale Malia Slope Collapse"). The recurring collapse of sections of the bank along Keonenui Bay indicates that there exists a persistent threat to shoreline properties and public safety.



The adjacent parcels forming the natural shoreline cliff of Keonenui Bay have already been armored with vertical seawalls along the remainder of the shoreline. The effect of wave action on the area below the subject parcel is therefore magnified. Waves continue to pound the cliff and erode the clay substrate at its base, which threatens public safety and adds silt to the adjacent coastal waters.

The purpose of this project is to enhance public safety and create a long-term solution that will stabilize the bank at the shoreline in order to:

- Prevent future erosion of the property and potential undermining of neighboring shoreline protection structures;
- Prevent earthen soils from eroding and causing siltation of the coastal waters; and
- Remove the public hazard associated with upland erosion as well as the formation of sea caves, both of which contribute to an unstable bluff.

## E. ALTERNATIVES

The following alternatives were considered in determining the proposed action:

1. **No Action:** This alternative would forego any improvements associated with the proposed project and would leave the bluff face in its existing condition.

*Positive Impacts:* By leaving the property in its existing state, there would be no immediate construction-related impacts associated with the construction of the wall.

*Negative Impacts:* According to the project's consulting geotechnical and coastal engineers, the bluff is highly unstable and susceptible to erosion by coastal forces. This condition is exacerbated by storm drainage originating *mauka* of the site and overtopping the bluff. At least one significant collapse of a portion of the bluff has occurred, in February of 2003 (**See:** Figure No. 8.5, "Site Photographs"). Without the wall, nearshore water quality and public safety would remain threatened by gradual erosion of the bluff over time or catastrophic collapse due to a heavy storm event. Since this alternative would not mitigate the existing threats to public health, safety and welfare, it was deemed infeasible and dropped from further consideration.



2. **Alternative Wall Designs:** Several alternative designs for the construction of the proposed wall were considered (**See:** Appendix D, “Conceptual Seawall Design”).

**Retaining Wall (Option 1)** (Identified as Scheme No. 1 in Appendix D): This alternative would involve the excavation of a bench to sea level at the base of the cliff, construction of a conventional reinforced concrete cantilever wall 26 feet in height, and backfill behind the wall.

*Positive Impacts:* This alternative would effectively mitigate the existing public safety and environmental hazard, as well as the potential threat to the adjacent seawall, created by ongoing erosion. This option would tie in easily with the adjacent vertical walls, providing aesthetic consistency as well as seamless protection that will not leave the adjacent walls exposed to possible flank erosion and damage.

*Negative Impacts:* This option involves the excavation of approximately 3,000 cubic feet of soil and rock, and the import of nearly the same amount for backfill. The haul-in and haul-out of such a large volume of material presents significant hazards for disruption and sedimentation of the beach and nearshore environment. In addition, this alternative would involve excavation to and below the water level, which presents additional environmental risks and would also trigger the requirement for a Conservation District Use Permit (CDUP). This alternative was deemed infeasible and dropped from consideration.

**Terraced Retaining Wall (Option 2)** (Identified as Scheme No. 3 in Appendix D): This alternative would involve the excavation of a bench to 14 feet above sea level (AMSL), and construction of a CRM wall from elevation 14’ to the top of the bluff. A conventional retaining wall would be constructed from elevation 14’ down to sea level.

*Positive Impacts:* Similar to Option 1 above, this alternative would effectively mitigate the existing public safety and environmental hazard, as well as the potential threat to the adjacent seawall, created by ongoing erosion. This option would tie in easily with the adjacent vertical walls, providing aesthetic consistency as well as seamless protection that will not leave the adjacent walls exposed to possible flank erosion and damage. Terracing the wall could soften the visual effect that a large vertical structure might otherwise create.

*Negative Impacts:* This option involves the excavation of approximately 3,000 cubic feet of soil and rock, and the import of nearly the same amount for backfill. The haul-in and haul-out of such a large volume of material presents significant hazards for disruption and sedimentation of the beach and nearshore environment. In addition, this alternative would involve excavation to and below the water level, which presents additional environmental risks and would also



trigger the requirement for a Conservation District Use Permit (CDUP). This alternative was deemed infeasible and dropped from consideration.

3. **Slope Reconfiguration:** This option would involve the grading of the bluff at an angle of 30 degrees from vertical.

*Positive Impacts:* The short term and peripheral impacts associated with construction of a wall would be avoided. Assuming successful establishment of vegetation on the full area of the slope, coastal erosion of silty clay soils may be partially mitigated. The public safety hazard associated with catastrophic collapse of the unstable vertical bluff may be somewhat diminished.

*Negative Impacts:* This alternative would involve the excavation of several thousand cubic feet of soil. Similar to Alternative 2 above, excavation of such a large volume of material presents significant hazards for disruption and sedimentation of the beach and nearshore environment. Grading the slope in this manner would create over 1,000 square feet of additional exposed soil, increasing the likelihood that silty clay soils will erode into nearshore waters. Furthermore, according to the project's consulting Coastal Engineer, this alternative would not yield any appreciable benefits in terms of beach processes. Finally, this alternative does nothing to address the impacts of stormwater drainage originating on and *mauka* of the site. This alternative was therefore deemed infeasible and dropped from consideration.

## F. DESCRIPTION OF PROPOSED ACTION (PREFERRED ALTERNATIVE)

The Applicant proposes to construct a structurally engineered shoreline armoring system in order to stabilize the shoreline bluff at the *makai* limit of the property. A detailed description of the planned improvements follows.

**Structurally Engineered Terraced Slope Retaining Wall.** Construction of the proposed wall would involve the installation of a poured-in-place, micropile-supported grade beam across approximately 150 feet of the yard area at the top of the cliff. The grade beam would serve as an emergency equipment platform during construction, and would become part of the permanent structure. Two (2) additional micropile-supported grade beams would be installed parallel and slightly seaward of the first grade beam, located midway up the bank and at the base of the bank, respectively. The base of the wall would consist of Dura-Bloc, while a sprayed-on concrete facing would be applied to the face of the 14-foot midsection of the wall. The top six (6) feet would consist of Dura-Bloc with a green wall. The wall will include one five (5) foot wide terrace located



five (5) feet below the top of the bank. The terrace will be planted in fig vine and *Naupaka* which will overgrow the face of the wall, softening its visual impact. This scheme requires a negligible amount of excavation and backfill, eliminating many of the hazards associated with wall design Options 1 and 2 as discussed in Alternative 2 above. Additionally, the proposed wall design is confined to the area above the beach and *mauka* of the shoreline, and the use of grout injection and micropiles to fasten the wall to the bank represents a much less intrusive technology than the other design alternatives (See: Figure No. 11.1, “Preferred Alternate Wall Design” and Appendix D, “Conceptual Seawall Design”).

**Landscape Planting.** The proposed landscape vegetation will include drought tolerant Hawaii native trees, shrubs, and ground cover, such as the Milo tree, *Ilima* (trailing hibiscus), *Naupaka*, and *Pohuehue* (morning glory) (See: Figure No. 11.2, “Concept Landscape Master Plan”). Landscape plants will be watered using an automatic irrigation controller with “rain sensor” shut-off valve to prevent over watering. The project will use 80% drip irrigation to reduce water usage. Landscape water usage will be lowered further by adding crushed red cinder as soil top dressing, to prevent water evaporation from the soil. The existing *naupaka* hedge at the top of the bluff will be preserved and turf grass will be used within the shoreline setback area, to maintain an open view across the *makai* portion of the site (See: Figure No. 11, “Concept Landscape Master Plan”).

## G. SHORELINE SETBACK ASSESSMENT.

The shoreline fronting the parcel was certified by the Department of Land and Natural Resources on May 18, 2009. (See: Appendix B, “Certified Shoreline Survey Map”). Since this consolidated Draft EA, SMA Use Permit, and SSV Application amends the Application which was originally filed with the Planning Department on November 18, 2009, the Certified Shoreline Survey Map is still valid.

Section §12-203-4 of the Shoreline Rules for the Maui Planning Commission, pertaining to the establishment of Shoreline Setback lines, states:

*“(a). All lots shall have a shoreline setback line that is the greater of the distances from the shoreline as calculated under the methods listed below or the overlay of such distances:*

*(i). Twenty-five feet plus a distance of fifty times the annual erosion hazard rate from the shoreline;*



(iii). For irregularly shaped lots, or where cliffs, bluffs, or other topographic features inhibit the safe measurement of boundaries and/or the shoreline, the shoreline setback line will be equivalent to twenty-five percent of the lot's depth as determined by the Director, to a maximum of one hundred fifty feet from the shoreline."

Section §12-203-4 of the Shoreline Rules states,

*"where the shoreline is fixed by (1). artificial structures that are nonconforming or that have been approved by appropriate government agencies and for which engineering drawings exist to locate the interface between the shoreline and the structure; or (2). exposed natural stabilized geographic features such as cliffs and rock formations, the Annual Erosion Hazard Rate shall cease at the interface."*

The subject parcel is fronted by a high cliff, and the shoreline is to be fixed by an "artificial structure" which has "been approved by appropriate government agencies and for which engineering drawings exist to locate the interface between the shoreline and the structure." The Annual Erosion Hazard Rate (AEHR) method of calculating the Shoreline Setback therefore does not apply to the subject property.

Furthermore, the subject parcel is irregularly shaped. A narrow, unusable strip of land 5 to 15 feet wide protrudes approximately 108 feet seaward of the developable portion of the lot, along Haukoe Point.

The proposed Shoreline Setback is therefore equivalent to twenty-five percent of the lot's depth as estimated based on the developable portion of the lot (See: Appendix C, "Shoreline Setback Determination").

Using the Average Lot Depth (ALD) method, the proposed shoreline setback for the parcel is **44.3 feet**, calculated as follows:

$$\begin{aligned} \text{Average Lot Depth: } & N + \text{Mid} + \text{South} = 168.0 + 173.6 + 190.1 = 531.7 \\ & 531.7 / 3 = \sim 177.2 \\ \text{Shoreline Setback: } & 177.2 \times .25 = \mathbf{44.3 \text{ feet}} \end{aligned}$$

The construction of the wall to stabilize the shoreline bluff involves an action within the shoreline setback area. Chapter VII of this application addresses the justification for the Shoreline Setback Variance (SSV).



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### III. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS, & MITIGATION MEASURES

#### A. PHYSICAL ENVIRONMENT

##### 1. Land Use

*Existing Conditions.* The subject property is located in Napili, in an area known as Alaeloa, at TMK: (2) 4-3-015:003 (See: Figures No. 1.1 and 1.2, “Regional and Aerial Location Maps,” and No. 2, “TMK Map”). The parcel is located along Keonenui Bay, situated on the northwest coast of West Maui, seven miles north of Lahaina Town and 1.5 miles south of Kapalua. The parcel and surrounding parcels are zoned for residential use.

The following is a description of zoning, community plan designations, and existing land uses adjacent and in close proximity to the subject property:

<b>North:</b>	<u>Zoning:</u> R-3 Residential <u>Community Plan:</u> Single Family <u>State Land Use:</u> Urban <b>Existing uses:</b> Single-Family Residence.
<b>South:</b>	<u>Zoning:</u> R-3 Residential <u>Community Plan:</u> Single Family <u>State Land Use:</u> Urban <b>Existing uses:</b> Single-Family Residence.
<b>East:</b>	<u>Zoning:</u> R-3 Residential <u>Community Plan:</u> Single Family <u>State Land Use:</u> Urban <b>Existing uses:</b> Lower Honoapiilani Rd.; Single-Family Residences; Vacant Land.
<b>West:</b>	<u>Zoning:</u> N/A <u>Community Plan:</u> N/A <u>State Land Use:</u> N/A <b>Existing uses:</b> Pacific Ocean.



*Potential Impacts and Mitigation Measures.* The site of the proposed project is located within an area that is zoned for residential use and community planned for single family and multi-family residential uses. The proposed long-term residential use of the property is permitted within the zoning district. Chapter VII of this report contains an application for Shoreline Setback Variance to support construction of a wall within the shoreline setback area in order to protect a shoreline bluff from erosion. In the context of the West Maui Community Plan, the proposed wall is consistent with the environmental goals of the Plan, as discussed in Section IV of this report.

## **2. Shoreline Conditions and Processes**

*Existing Conditions.* The subject property is located along Keonenui Bay, between Alaeloa Point and Haukoe Point, approximately 3500 feet south of Napili Bay. The beach in the project vicinity is a pocket beach typical of this stretch of coastline, about 500 - 600 feet long and nestled between the two headlands, which protrude 400 to 500 feet seaward. The properties along the northern half of the bay are occupied by the Kahana Sunset resort and condominiums. Shoreline properties along the southern half of the bay are occupied by single-family residences. The subject property is the last property along the southern end of the bay. Vertical rock and concrete walls protect the properties along the entire bay, with the exception of the subject property.

North of the property, fronting the Kahana Sunset, the shoreline consists of a sandy beach extending approximately 50 feet from the rock walls protecting the properties to the shoreline. To the south, the beach narrows dramatically, transitioning to an irregular, rough, rocky shore in front of the subject property. The substrate at the base of the cliff is a volcanic conglomerate of variable hardness, with remnants of CRM facing in some areas (See: Appendix F, "Coastal Engineering Assessment").

*Potential Impacts and Mitigation Measures.* Construction of the proposed wall should have no significant negative impact on shoreline conditions and processes. The wall will harden approximately 150 feet of shoreline, whereas the remaining 500 to 600 feet of shoreline fronting Keonenui Bay is already armored with vertical walls. The proposed wall will tie in to the existing vertical wall directly to the north. There is little sand fronting the subject property, and the soil substrate on the subject property does not constitute a resource for replenishment of beach sand. The base of the wall will be built landward of the vertical cliff face at the waterline. This vertical cliff face currently acts as a natural wall to reflect wave impact in the absence of a sand beach; therefore, the hardening of the bluff face is not anticipated to significantly impact existing coastal processes, and should not aggravate or contribute to further erosion (See: Appendix F, "Coastal Engineering Assessment").



### 3. Marine Resources

*Existing Conditions.* The nearshore seafloor in Keonenui Bay consists primarily of sand in the central part of the bay, and coral, limestone and rock along the perimeter and beyond about 400 feet offshore. There is a narrow patch of rocky, cobble bottom close to shore in front of the subject property. Turbidity is higher in the southern end of the bay, with waters clearing in the central and northern portions (See: Appendix F, “Coastal Engineering Assessment”).

Nearshore waters adjacent to the project site are classified as open coastal “A,” according to the Water Quality Standards map prepared by the State Office of Environmental Planning and Hawaii Department of Health (See: Figure No. 12, “Water Quality Standards Map”).

*Potential Impacts and Mitigation Measures.* The immediate project area for the wall construction is inland of the waterline, and Best Management Practices (BMPs) will be implemented to mitigate construction-phase impacts on the nearshore environment. In the long term, construction of the wall may serve to improve turbidity conditions in the southern end of the bay, given that hardening of the cliff face will mitigate further erosion of the silty clay substrate.

### 4. Topography and Soils

*Existing Conditions.* The elevation on the project site ranges from 38 feet above mean sea level (AMSL) along Lower Honoapiilani Road to 25 feet AMSL at the edge of the bluff. The ground is generally sloping downward in a westerly direction toward the ocean at a grade of approximately 8%.

According to the “Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii (August 1972),” prepared by the United States Department of Agriculture Soil Conservation Service, the soils within the project site are classified as Kahana Silty Clay, 7 to 15 percent slopes, (KbC) and Rough Broken and Stony Land (rRS). KbC is characterized by slow runoff, slight to moderate erosion hazard, and moderately rapid permeability. The rRS series consists of very steep, stony areas where runoff is rapid (See: Figure No. 13, “Soils Map”).

*Potential Impacts and Mitigation Measures.* The site is suitable for the proposed action. The proposed wall is designed in sympathy with the natural topography of the site to minimize extensive excavation and backfill.



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## 5. Flood and Tsunami Zone

*Existing Conditions.* According to Hawaii National Flood Insurance Program, administered by the Department of Land and Natural Resources (DLNR), the project site is situated in flood Zone X, areas determined to be outside the 0.2% annual chance floodplain. (See: Figure No. 6, “Flood Insurance Rate Map”).

*Potential Impacts and Mitigation Measures.* The proposed wall will be engineered to withstand the design forces calculated in the Coastal Engineering Assessment, thus reducing the likelihood that an extreme event would damage the structure. The proposed project should not be affected by or have adverse impacts upon its neighbors with regards to flood hazard potential. See Section III.D.3 for a discussion on drainage.

## 4. Terrestrial Biota (Flora and Fauna)

*Existing Conditions.* No wetlands are present on or around the subject property. Existing vegetation on the property is primarily grasses and native and non-native trees and shrubs, largely consisting of landscape planting such as plumeria, ti, croton, mulberry, *naupaka*, and ornamental palms. Avifauna typically found in the area includes the common mynah, several species of dove, cardinal, house finch, and house sparrow. Mammals common to this area include cats, dogs, rats, mice, and mongoose. No known rare, endangered, or threatened species of flora or fauna were discovered on the subject property.

*Potential Impacts and Mitigation Measures.* There are no known significant habitats of rare, endangered or threatened species of flora and fauna located on the subject property. Thus, rare, endangered, or threatened species of flora and fauna will not be impacted by the proposed project.

## 5. Air Quality

*Existing Conditions.* Air quality refers to the presence or absence of pollutants in the atmosphere. It is the combined result of the natural background and emissions from many pollution sources. The impact of land development activities on air quality in a proposed development’s locale differs by project phase (site preparation, construction, occupancy) and project type. In general, air quality in West Maui is considered relatively good. Non-point source emissions (automobile) are not significant to generate a high concentration of pollutants. The relatively high quality of air can also be attributed to the region’s exposure to wind, which quickly disperses concentrations of



emissions. West Maui is currently in attainment of all pollutant criteria established by the Clean Air Act, as well as the State of Hawaii Air Quality Standards.

*Potential Impacts and Mitigation Measures.* Air quality impacts attributed to the proposed project could include dust generated by the short-term construction related activities. Site work such as grading and building construction, for example, could generate airborne particulate. Adequate dust control measures that comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust, will be implemented during all phases of construction. Some of these measures will include:

- Providing an adequate water source on site prior to start-up of construction activities.
- Landscape planting and rapid covering of bare areas, including slopes, beginning with the initial grading phase.
- Controlling of dust from shoulders, project entrances, and access roads.
- Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.
- Controlling of dust from debris hauled away from project site.

In the long term, the proposed project is not expected to significantly increase the volume of traffic in the region, which would increase vehicular emissions such as carbon monoxide. Thus, the proposed project is not anticipated to be detrimental to local air quality.

## **6. Noise Characteristics**

*Existing Conditions.* The noise level is an important indicator of environmental quality. In an urban environment, noise is due primarily to vehicular traffic, air traffic, heavy machinery, and heating, ventilation, and air-conditioning equipment. Ramifications of various sound levels and types may impact health conditions and an area's aesthetic appeal. Noise levels in the vicinity of the project area are generally low. Traffic noise from Lower Honoapiilani Road and noise associated with the residential uses nearby are the predominant sources of background noise in the vicinity of the subject property.

*Potential Impacts and Mitigation Measures.* In the short-term, the proposed project could generate some adverse impacts during construction. Noise from heavy construction equipment, such as material-carrying trucks and trailers, would be the dominant source of noise during the construction period. To minimize construction related impacts to the surrounding neighbors, the developer will limit construction



activities to normal daylight hours, and adhere to the Department of Health's Administrative Rules, Chapter 11-46, Community Noise Control." In the longer-term, the proposed project will not significantly impact existing noise conditions in the area.

## **7. Archaeological/Historical/Cultural Resources**

*Existing Conditions.* An Archaeological Field Assessment was conducted on the site in April, 2009 by Scientific Consultant Services, Inc. (See: Appendix G, "Archaeological Site Assessment"). There were no significant material cultural remains or sites identified by the archaeological assessment. The project Archaeologist has recommended that no future work is necessary for the subject parcel.

A Cultural Impact Assessment Report for the proposed project was prepared by Jill Engledow, based upon archival research as well as consultation with individuals knowledgeable about historical and cultural practices associated with the area surrounding the project site (See: Appendix H, "Cultural Impact Assessment"). The CIA concluded that because the subject property has long been developed for residential use, and because the cliff-top lot does not provide shoreline access, armoring of the cliff is unlikely to have an impact on use of the shoreline and/or associate cultural concerns.

*Potential Impacts and Mitigation Measures.* No surface or subsurface cultural remains were identified during the archaeological assessment. The project Archaeologist has recommended that no future work is necessary for the subject parcel.

The CIA concluded that the proposed action does not interfere with any known Hawaiian or non-Hawaiian gathering, practices, protocols or access. It is instead an environmental issue, and decisions about the impact of that action are more properly addressed by experts on the health of the shoreline.

The proposed project is therefore not anticipated to have any impact on significant cultural and historic properties.

## **10. Visual Resources**

*Existing Conditions.* The subject property is situated along the makai side of Lower Honoapiilani Road within a residential area of Napili. The parcel maintains a total of approximately 66 feet of frontage along Lower Honoapiilani Road and has an average lot depth of approximately 177 feet, excluding the narrow strip of land protruding seaward along Haukoe Point. The approximately 197 foot *makai* boundary of the property abuts the certified shoreline.



Napili offers sweeping views of the Pacific Ocean, Lanai, and Molokai. Public views of these resources exist in various locations from Lower Honoapiilani Road and Honoapiilani Highway. Numerous scenic resources have been identified in the Napili area, which are identified and discussed in the Maui Scenic Coastal Resources Study, August 1990 (See: Figure No. 14, “Coastal Scenic Resources Map”). The resource/inventory map in this report identifies the views of the Pacific Ocean as a distinctive scenic resource in the area of the proposed project. The ocean is currently partially visible from Lower Honoapiilani Road fronting the subject property (See: Figures No. 8 “Site Photographs,” and No. 14, “Coastal Scenic Resources Map”).

*Potential Impacts and Mitigation Measures.* The proposed project is not anticipated to significantly impact public view corridors, or the visual character of the site and its immediate environs. The proposed wall will utilize a similar rock/masonry facing to be consistent with the existing seawalls to the north. The terracing of the seawall and growth of the overhanging vegetation at the top of the bluff and on the midway terrace may provide visual mitigation, de-emphasizing the height of the wall. The wall is to be constructed against a vertical bluff face and will not protrude above the existing *mauka* grade of the property, thus by topographic nature it will not block scenic views of the ocean or mountains.

## **B. SOCIO-ECONOMIC ENVIRONMENT**

The proposed sea wall will have no impact on the population of Napili. On a short-term basis, the project will support construction and construction-related employment.

*Potential Impacts and Mitigation Measures.* Because of the limited scope of this project, impacts on the socio-economic environment will be minimal.

## **C. PUBLIC SERVICES**

*Potential Impacts and Mitigation Measures.* Due to its location within an existing residential area, connection to existing infrastructure, and limited scope, the proposed project will not extend the limits of existing public services (recreational facilities, police and fire protection, schools, medical facilities and solid waste); therefore, the impact on public services will be minimal.



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## D. INFRASTRUCTURE

### 1. Water

*Existing Conditions.* The Maui Department of Water Supply (DWS) provides public water service for the West Maui region. In addition to the County, private water utilities such as the Kapalua Water Company and the Hawaii Water Service Company provide domestic water service for the Kapalua Resort and Kaanapali Resort, respectively. Domestic water and fire flow for the proposed project will be provided by the County water system.

The project area is served by 8-inch and 12-inch County waterlines on Lower Honoapiilani Road. The subject property is presently serviced by a 5/8" water meter with a capacity of 20 gpm. Fire protection is provided by two (2) existing fire hydrants on Lower Honoapiilani Road.

*Potential Impacts and Mitigation Measures.* Drought tolerant plants and efficient irrigation, such as drip, will be implemented in order to conserve water. The proposed sea wall will not impact the County's public water system.

### 2. Sewer

*Existing Conditions.* There exists a 21-inch gravity sewerline on Lower Honoapiilani Road, which is part of the County's Napili-Honokowai wastewater transmission system. The lot has an existing sewer lateral which connects to the sewer line. Wastewater collected from the area is transported to the Lahaina Wastewater Reclamation facility located approximately 2¾ miles south of the project site.

*Potential Impacts and Mitigation Measures.* The proposed sea wall will not impact the County's public wastewater system.

### 3. Drainage

The site is generally located within Flood Zone "X" as delineated by Panel No. 150003 0264E of the Flood Insurance Rate Map, September 25, 2009, prepared by the United States Federal Emergency Management Agency (FEMA) (**See:** Figure No. 6, "Flood Hazard Assessment"). At present, surface runoff from the site generally sheet flows in a northeasterly direction to discharge into the shoreline area. There are currently no man-made drainage facilities at the site.



Based upon the preliminary drainage calculations, the new single-family is anticipated to increase the existing runoff rate for a 10-year storm from 1.0 cfs to 1.1 cfs, and the existing 50-year storm runoff volume from 951 cf to 1,041 cf. The increases in runoff are approximately 0.1 cfs and 90 cf, respectively, and are due mainly to the addition of impervious surfaces (**See:** Appendix E, “Preliminary Engineering and Drainage Report”).

***Potential Impacts and Mitigation Measures.*** The planned drainage system (proposed in conjunction with construction of the new residence) will primarily consist of a subsurface retention basin to impound the runoff volume increase that will be generated by the proposed project. In order to ensure that the proposed project will not create any additional adverse drainage impacts on downstream properties, the planned retention basin will be sized to retain runoff amounts in excess of the 50-year, 1-hour runoff volume increase. The conceptual drainage system will consist of perforated pipe with crushed rock envelopes. Preliminarily, the proposed retention basin will consist of 20 linear feet of 30” perforated pipe with a storage capacity of approximately 144 cubic feet (cf), which is 60% greater than the anticipated 50-year storm runoff volume increase of 90 cf. The proposed drainage system also includes a grated drain inlet to collect lawn runoff. Roof drains should be discharged to the proposed retention basin via roof gutters and underground pipes (**See:** Appendix E, “Preliminary Engineering and Drainage Report”).

#### **4. Roadway**

***Existing Conditions.*** Lower Honoapiilani Road, which provides access to the project site, is a two-lane, paved county roadway providing access for local traffic to properties in Napili and Kahana. It begins at its intersection with Honoapiilani Highway near Honokowai Stream in Kaanapali, and continues to its terminus in the Resort Community of Kapalua.

***Potential Impacts and Mitigation Measures.*** It is anticipated that there will be no significant impacts on traffic on Lower Honoapiilani Road because of the limited scope of the project.

#### **5. Electrical, Telephone, Cable and Data Systems**

The proposed sea wall will have no impact on electrical, telephone, cable and data systems.



## **IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES & CONTROLS**

### **A. STATE LAND USE LAW**

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, establishes four major land use districts into which all lands in the State are placed. These districts are designated Urban, Rural, Agricultural, and Conservation. The subject property is within the Urban District.

### **B. STATE AND COUNTY SHORELINE RULES**

Chapter 205A, Hawaii Revised Statutes (HRS), and Title MC-12, Subtitle 02, Chapter 203, Shoreline Rules for the Maui Planning Commission, set forth the requirements for structures and activities taking place within the shoreline setback area.

Chapter VII of this application addresses the justification for the Shoreline Setback Variance (SSV) concerning the construction of the proposed wall within the Shoreline Setback Area.

### **C. MAUI COUNTY ZONING**

The subject property is situated within the County of Maui's R-3 Residential District (See: Figure No. 5, "County Zoning Map").

### **D. GENERAL PLAN OF THE COUNTY**

The General Plan of the County of Maui refers to a hierarchy of planning documents that together set forth future growth and policy direction in the County. The General Plan is comprised of the following documents: 1) County-wide Policy Plan; 2) Maui Island Plan; and 3) nine community plans.



The County-wide Policy Plan was adopted in March 2010 and is a broad policy document that identifies a vision for the future of Maui County. It establishes a set of guiding principles and provides comprehensive goals, objectives, policies and implementing actions that portray the desired direction of the County's future. The County-wide Policy Plan provides the policy framework for the development of the Maui Island Plan and nine Community Plans.

The Maui Island Plan functions as a regional plan and addresses the policies and issues that are not confined to just one community plan area, including regional systems such as transportation, utilities and growth management, for the Island of Maui. Together, the Island and Community Plans develop strategies with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design and other matters related to development. **The draft Maui Island Plan is currently under review by the County Council.**

The proposed action is in accord with the following County-wide Policy Plan objectives and policies:

**A. Protect the Natural Environment**

**Goal:** *Maui County's natural environment and distinctive open spaces will be preserved, managed, and cared for in perpetuity.*

**Objective 2:** *Improve the quality of environmentally sensitive, locally valued natural resources and native ecology of each island.*

**Policy a:** *Protect and restore nearshore reef environments and water quality.*

**Analysis:** The proposed action was evaluated to be the most practical and effective solution for long-term protection of the nearshore coastal resource. The immediate project area for the wall construction is inland of the waterline, and Best Management Practices (BMPs) will be implemented to mitigate construction-phase impacts on the nearshore environment. In the long term, construction of the wall may serve to improve turbidity conditions in the southern end of the bay, given that hardening of the cliff face will mitigate further erosion of the silty clay substrate.

**E. WEST MAUI COMMUNITY PLAN**



Nine community plan regions have been established in Maui County. Each region's growth and development is guided by a community plan, which contains objectives and policies in accordance with the Maui County General Plan. The purpose of the community plan is to outline a relatively detailed agenda for carrying out these objectives.

The subject property is located within the West Maui Community Plan area and has a SF- Single Family designation (See: Figure No. 4, "Community Plan Map"). The West Maui Community Plan was adopted by ordinance No. 2476 on February 27, 1996.

The following West Maui Community Plan goals, objectives, and policies are applicable to the proposed action:

**Goal: Land Use.** *An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.*

**Objectives and Policies:**

1. *Protect and enhance the quality of the marine environment.*

**Analysis:** The proposed action was evaluated to be the most practical and effective solution for long-term protection of the nearshore coastal resource.

**Goal: Environment.** *A clean and attractive physical, natural and marine environment in which man-made developments on or alterations to the natural and marine environment are based on sound environmental and ecological practices, and important scenic and open space resources are preserved and protected for public use and enjoyment.*

**Objectives and Policies:**

11. *Prohibit the construction of vertical seawalls and revetments except as may be permitted by rules adopted by the Maui Planning Commission governing the issuance of Shoreline Area Management (SMA) emergency permits, and encourage beach nourishment by building dunes and adding sand as a sustainable alternative.*

**Planning Standards:**



6. Environmental Aspects

*c. Prohibit the construction of vertical seawalls, except as approved by the Planning Commission of the County of Maui*

**Analysis:** In consideration of the alternatives, the proposed action (structurally engineered terraced slope retaining wall) was judged to be the most practical alternative.

Within the context of the objectives and policies of the West Maui Community Plan discussed above, consideration of a vertical seawall may be allowed if the project meets the criteria set forth in the SMA Emergency Permit process. The purpose of the SMA Emergency Permit is provided in section §205A-22 of the Hawaii Revised Statutes and section §12-202 of the *Special Management Area Rules for the Maui Planning Commission*. The definition provided in HRS §205A-22 states that an emergency permit may allow development in either of two conditions: *“to prevent substantial physical harm to persons or property or to allow the reconstruction of structures damaged by natural hazards.”*

As described in Section II and III of this report, the proposed wall is a long-term solution to address an impending public safety hazard as well as a physical hazard to structures on the subject property and adjacent properties. The project will also help protect the quality of nearshore waters as recommended by the West Maui Community Plan. The proposed wall will aid in the prevention of earthen soils from being eroded and transported to the coastal waters via wave action and runoff from *mauka* portions of the site.



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## V. SPECIAL MANAGEMENT AREA OBJECTIVES & POLICIES

The subject project is located within the Special Management Area (SMA). As such, the proposed improvements require an SMA Use Permit. Pursuant to Chapter 205A, Hawaii Revised Statutes, and the Rules and Regulations of the Planning Commission of the County of Maui, projects located within the SMA are evaluated with respect to SMA objectives, policies, and guidelines. This section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A and the Rules and Regulations of the Planning Commission.

### A. RECREATIONAL RESOURCES

*Objective: Provide coastal recreational resources accessible to the public.*

*Policies:*

- (A) *Improve coordination and funding of coastal recreation planning and management; and*
- (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 placement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or require 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) *Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having standards and conservation of natural resources;*
  - (vi) *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*



- (vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing;*
- (viii) *Encourage 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, HRS.*

**Analysis.** Public beach access exists at Hui Road E, approximately 600 feet to the south of the project site. The subject parcel abuts Keonenui Bay, a small bay located between two rocky headlands. The entire length of the shoreline along the bay is armored with vertical seawalls. The project will enhance safety in the shoreline area immediately beneath the subject property and aid in protection of nearshore waters from erosion-borne sediment. The proposed structure is located along the unstable bank *mauka* of the shoreline and will not protrude further seaward than the adjacent seawall to the north. Therefore, the improvement will not narrow the usable section of the beach and will not inhibit lateral access along the shoreline.

## **B. HISTORICAL/CULTURAL RESOURCES**

*Objective: Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

*Policies:*

- (a) *Identify and analyze significant archeological resources;*
- (b) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (c) *Support state goals for protection, restoration, interpretation, and display of historic structures.*

**Analysis.** As discussed in Section III.A.9 above, an Archaeological Assessment identified no significant material cultural remains or sites on the property, and a Cultural Impact Assessment identified no potential impacts to native Hawaiian cultural resources or practices as a result of the proposed project. Based on these findings, it is unlikely that the improvements will have a significant impact on historical or cultural resources.



## C. SCENIC AND OPEN SPACE RESOURCES

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

*Policies:*

- (a) Identify valued scenic resources in the coastal zone management area;*
- (b) Ensure that new developments are compatible with their visual environment by designing and locating such developments 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; and*
- (c) Encourage those developments that are not coastal dependent to locate in inland areas.*

**Analysis.** As discussed in Section III of this report, numerous scenic resources have been identified in the Napili area, which are identified and discussed in the Maui Coastal Scenic Resources Study, August 1990 (**See:** Figure No. 14, "Coastal Scenic Resources Map"). The resource/inventory map in this report identifies makai views of the Pacific Ocean, Lana'i and Moloka'i as the significant scenic resources in the immediate vicinity of the project site.

The proposed action will not interfere with views toward the ocean (**See:** Figures No. 8, "Site Photographs," and No. 14, "Coastal Scenic Resources Map"). The proposed wall will utilize a similar rock/masonry facing to be consistent with the existing seawalls to the north. Terracing and growth of overhanging naupaka will provide visual mitigation, de-emphasizing the height of the wall.

The wall is to be constructed against a vertical bluff face and will not protrude above the existing *mauka* grade of the property, thus by topographic nature it will not block scenic views of the ocean or mountains.

## D. COASTAL ECOSYSTEMS

*Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

*Policies:*

- (a) Improve the technical basis for natural resource management;*
- (b) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*



- (c) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- (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.*

**Analysis.** The proposed project will protect the quality of the nearshore marine environment by preventing siltation from erosion of the sea cliff. Based upon existing development within the project area, it is unlikely that the proposed improvements will have a significant impact on coastal ecosystems.

## **E. ECONOMIC USES**

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

*Policies:*

- (a) *Concentrate coastal dependent development in appropriate areas;*
- (b) *Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor 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 areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
  - (i) *Use of presently designated locations is not feasible;*
  - (ii) *Adverse environmental impacts are minimized; and*
  - (iii) *The development is important to the State's economy.*

**Analysis.** The existing single-family residential use of the property is consistent with the State's urban land use designation, as well as the Maui County Zoning and West Maui Community Plan designations. As such, the project site is within an area that has been planned for growth and development and provides the supporting infrastructure and services required to service this growth.

The proposed wall will stabilize the erodible sea cliff at the subject property, leading to both public benefits and private benefits to the applicant and neighboring landowners. Public benefits will include the removal of a safety hazard, prevention of soils entering



coastal waters. Private benefits include greater site safety and the prevention of loss of property and structures.

## **F. COASTAL HAZARDS**

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

*Policies:*

- (a) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;*
- (b) Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and non-point pollution hazards;*
- (c) Ensure that developments comply with requirements of the Federal Flood Insurance Program;*
- (d) Prevent coastal flooding from inland projects; and*
- (e) Develop a coastal point and nonpoint source pollution control program.*

**Analysis.** The proposed action will protect the upland portion of the property and associated structures from erosion due to storm waves. Stabilization of the shoreline will provide greater site safety to other residents living along the shoreline. Shoreline stabilization will also protect the beach and nearshore waters from impacts related to eroded soils transported by wave action or inland runoff.

Since the subject area is prone to storm wave action, the project's impact on a potential evacuation of the area should be considered. Considering that the existing site conditions consist of an undermined earthen bank, which cannot be traversed, the proposed action will not obstruct a tsunami evacuation route.

## **G. MANAGING DEVELOPMENT**

*Objective: Improve the development review process, communication, and public participation in the management of coastal resources hazards.*

*Policies:*

- (a) Use, implement, and enforce existing laws effectively to the maximum extent possible in managing present and future coastal zone development;*
- (b) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*



- (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 public to facilitate public participation in the planning process and review process.*

**Analysis.** The proposed action is being conducted in accordance with applicable State and County requirements. Opportunity for review of the proposed sea wall is provided through the County's Special Management Area (SMA) permitting process and the State's Environmental Assessment (EA) review process.

## H. PUBLIC PARTICIPATION

*Objective: Stimulate public awareness, education, and participation in coastal management.*

*Policies:*

- (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.*

**Analysis.** Early Consultation was conducted with applicable government agencies, as well as with neighbors within 500 feet of the subject property, as part of the preparation of this Draft EA. (See: Appendix A "Summary of Public and Agency Consultation").

In conjunction with the submittal of the Special Management Area application, a notice of application will be mailed to property owners within 500 feet. The mail-out describes the proposed project and solicits any issues or concerns that need to be addressed through the permitting process. A number of governmental agencies have also been consulted and copies of this application will be circulated to various agencies by the Department of Planning. During the scheduled public hearings, the public will have an opportunity to review and comment on the proposed project. Landowners located within 500 feet of the project will be notified of the scheduled public hearing dates. Public hearing dates and location maps will also be published in the Maui News on two separate occasions. The public will be allowed to participate in the public hearing portion of the Maui Planning Commission's review process. The Environmental Assessment process also provides an opportunity for public comment.



## I. BEACH PROTECTION

*Objective: Protect beaches for public use and recreation.*

*Policies:*

- (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.*

**Analysis.** The project will involve construction of a wall within the shoreline setback area and therefore requires a Shoreline Setback Variance, which is the subject of Section VII of this report. As the shoreline beneath the project site is fronted by a vertical wall composed of volcanic conglomerate and the silty clay substrate, the project site does not represent a resource for beach replenishment and no impacts on beach protection are anticipated.

## J. MARINE RESOURCES

*Objective: Implement the State's ocean resources management plan.*

*Policies:*

- (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 interest of the state as a partner with federal agencies in the sound management of the ocean resources within the United States exclusive economic zone;*
- (e) Promote research, study, and understanding of ocean processes, marine life, and other ocean development activities relate to and impact upon the ocean and coastal resources; and*
- (f) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

**Analysis.** The proposed project does not involve the direct use or development of marine resources. In addition, with the incorporation of erosion and drainage control measures during construction and after construction as identified in this report, there



should not be significant adverse impacts to nearshore waters from point and non-point sources of pollution. Therefore, the subject project will not produce any significant impacts on any coastal or marine resources.



## VI. ENVIRONMENTAL ASSESSMENT SIGNIFICANCE CRITERIA

Since the proposed project involves an action within the Shoreline Setback Area, an Environmental Assessment is required by Chapter 343, Hawaii Revised Statutes (HRS). A finding of no significant impact (FONSI) is anticipated and therefore an Environmental Impact Statement (EIS) will not be required for the proposed action. In accordance with Title 11, Department of Health, Chapter 200 and Subchapter 6, Section §11-200-12, Environmental Impact Statement Rules, and based on the detailed analysis contained within this document, the following conclusions are supported.

1. **The proposed action will *not* result in an irrevocable commitment to loss or destruction of natural or cultural resources.**

*Analysis.* As documented in this report, the proposed project will not involve the loss or destruction of any natural or cultural resource (See: Section III).

2. **The proposed action will *not* curtail the range of beneficial uses of the environment.**

*Analysis.* The proposed wall will enhance safety in the shoreline area immediately beneath the subject property, and will also aid in protection of nearshore waters from erosion-borne sediment. The location of the proposed structure is not within a section of the beach that is traversed or utilized, but rather is positioned upon a rocky ledge against the face of the sea cliff, and therefore will not narrow the area available for lateral access. Based upon existing development on neighboring properties, it is unlikely the improvements will result in a significant change to the coastal area. Thus, the proposed action will not curtail the range of beneficial uses of the environment.

3. **The proposed action will *not* conflict with State or County long-term environmental policies and goals as expressed in Chapter 344, HRS, and those which are more specifically outlined in the Conservation District Rules.**

*Analysis.* The project is being developed in compliance with the State's long-term environmental goals. As documented in this report, appropriate mitigation measures will be implemented to minimize the potential for negative impacts to the environment, including near and off-shore coastal waters. The project will not have any impact on



flora and fauna, and is not expected to have a negative impact on archaeological or cultural resources.

- 4. The proposed action will *not* substantially affect the economic or social welfare and activities of the community, county or state.**

*Analysis.* The proposed project will improve public safety in the immediate area. Short-term economic impacts will result from the increase in activity associated with the construction of the project. Because of the limited scope of this project, impacts on the socio-economic environment will be minimal (See: Section III.B).

- 5. The proposed action will *not* substantially affect public health.**

*Analysis.* There are no special or unique aspects of the project that will have a direct impact on public health.

- 6. The proposed action will *not* result in substantial secondary impacts.**

*Analysis.* The proposed project is not a population generator nor does it trigger any Maui County residential workforce housing requirements. Increased activity at the site during the construction phase may result in a marginal increase in traffic and associated noise and air pollution at the project driveway. However, as analyzed in Section III of this report, the increase in the level of these impacts is minimal and with the incorporation of mitigation measures will not substantially impact the environment.

Based on existing development in the project vicinity, the wall construction is not expected to cause any secondary effects that would significantly impact the coastal area.

- 7. The proposed action will *not* involve substantial degradation of environmental quality.**

*Analysis.* Mitigation measures will be implemented during the construction phase in order to minimize negative impacts on the environment, especially with regards to construction runoff. The proposed wall will prevent the erosion of earthen, silty soils and associated degradation of coastal waters. Other environmental resources such as endangered species of flora and fauna, air and water quality, and archeological resources will not be significantly impacted by the subject project.

- 8. The proposed project will not produce cumulative impacts and does *not* have considerable effect upon the environment or involve a commitment for larger actions.**



*Analysis.* The proposed project does not involve a commitment for larger action on behalf of the applicant or any public agency. The subject property is State and County zoned and community planned for urban development, and as such, is part of the planned future growth of the region. As described in this report, the project will not significantly impact public infrastructure and services including roadways, drainage facilities, water systems, sewers and educational facilities. In addition, the project is not anticipated to induce an overall significant increase in population growth and will therefore not produce considerable effect on the environment nor require a commitment for larger actions by governmental agencies.

Armoring of a shoreline area is known to lead to successive armoring of adjacent shoreline areas, which creates a larger (cumulative) structure that can have greater impacts. As discussed above, the subject property is the last remaining property along the 500 - 600 feet of shoreline between two rocky headlands that is not armored. Therefore, the erosive effects of wave action and other coastal hazards are magnified at the subject property. Given that near total shoreline armoring exists, construction of the proposed wall will not encourage additional development or require a commitment for larger actions.

**9. The proposed project will *not* affect a rare, threatened, or endangered species, or its habitat.**

*Analysis.* As described in Section III of this report, there are no rare, threatened, or endangered species of flora and fauna at the project site.

**10. The proposed action will *not* substantially or adversely affect air and water quality or ambient noise levels.**

*Analysis.* As described in Section III of this report, there is a potential for negative impacts to air or water quality and ambient noise levels related to short-term construction activities. Air, noise and dust impacts will be mitigated through implementation of standard mitigation measures as identified previously in this report. It is not anticipated that there will be significant long-term impacts to air or water quality and ambient noise levels due to the operation phase of the development.

**11. The proposed action will *not* substantially affect or be subject to damage by being located in an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone areas, estuary, fresh waters, geologically hazardous land or coastal waters.**



*Analysis.* According to Hawaii National Flood Insurance Program, administered by the Department of Land and Natural Resources (DLNR), the project site is situated in flood Zone X, areas determined to be outside the 0.2% annual chance floodplain. The proposed wall will be engineered to withstand the design forces calculated in the Coastal Engineering Assessment, thus reducing the likelihood that an extreme event would damage the structure. The proposed project therefore should not be affected by flood hazard, or have adverse impacts upon its neighbors with regard to flood hazard potential.

**12. The proposed action will *not* substantially affect scenic vistas or view planes identified in county or state plans or studies.**

*Analysis.* There will be no significant change in the project's overall effect on *mauka* or *makai* views from what exists currently, therefore the proposed project is not expected to have any significant adverse effects on visual resources.

**13. The proposed action will not require substantial energy consumption**

*Analysis.* It is not anticipated that any increase in energy consumption resulting from build-out of the project will be significant within the context of existing levels of power consumption or vehicular energy usage in the region, and on Maui.



## VII. APPLICATION FOR SHORELINE SETBACK VARIANCE

*Evidence that the applicant is the owner or lessee of record of the real property.*

**See:** Section 2 at the beginning of this document

*A notarized letter of authorization from the legal owner if the applicant is not the owner.*

**See:** Section 3 at the beginning of this document

*Original and two (2) copies of the shoreline survey certified by the Department of Land and Natural Resources within the preceding twelve (12) months.*

**See:** Appendix "B". The shoreline was certified on May 18, 2009. Since this consolidated Draft EA, SMA Use Permit, and SSV Application amends the Application which was originally filed with the Planning Department on November 18, 2009, the Certified Shoreline Survey Map is still valid. The map indicates that the shoreline follows the base of a rocky cliff that runs along the *makai* boundary of the subject property and adjoining properties.

*Original and 1 set of a site plan showing the location of the shoreline drawn to a minimum scale of 1"=20'. The shoreline and existing conditions along properties immediately adjacent shall also be shown on the site plans. It shall also include contours at a minimum interval of 2 feet, together with all natural and man-made features in the subject area unless otherwise required by the Director.*

**See:** Appendix B, "Certified Shoreline Survey Map."

*A written justification for the requested variance.*

As set forth in the Shoreline Rules for the Maui Planning Commission, §12-203-2, "Purpose,"

*"Due to competing demands for utilization and preservation of the beach and ocean resources, it is imperative:*

*(1) That use and enjoyment of the shoreline area be ensured for the public to the fullest extent possible;*

The proposed project will not prevent the public from full use and enjoyment of the shoreline area to which it is already entitled.

*(2) That the natural shoreline environment be preserved;*



The shoreline area fronting the subject property is composed of rock and cobble, with a ledge composed of volcanic conglomerate extending to approximately 4-6 feet AMSL, transitioning thereafter to a vertical bluff composed of clay and earthen soils. No structures are proposed for construction on the shoreline itself, and no dune or beach resource is present on the site, therefore the proposed project does not alter the natural shoreline environment.

(3) *That man-made features in the shoreline area be limited to features compatible with the shoreline area;*

The proposed action involves the construction of a wall to armor the shoreline, which will connect to an adjacent shoreline armoring structure of similar design to the north (**See:** Figures No. 8, “Site Photographs” and No. 11, “Concept Seawall Design”). The adjacent shoreline armoring structure in turn adjoins a series of similar structures armoring the remaining area of shoreline extending northward to Alaeloa Point. The proposed action therefore does not include any new actions or features that are incompatible with the shoreline as it currently appears.

(4) *That the natural movement of the shoreline be protected from development;*

The proposed action involves the construction of a vertical wall within the shoreline setback area as determined by the Average Lot Depth (ALD) method. However, the steep sea cliffs that front much of the shoreline along Keonenui Bay, and that are especially pronounced in front of the Hester property, act as natural walls to reflect wave impact in the absence of a sand beach. The proposed project is therefore not expected to effect natural movement of the shoreline or other coastal processes in a manner different from existing conditions (**See:** Appendix F, “Coastal Engineering Assessment”).

(5) *That the quality of scenic and open space resources be protected, preserved, and where desirable, restored; and*

As discussed in Section III.A.8, the proposed project will not have a significant effect on the quality of scenic and open space resources. The proposed wall will be constructed in such a way as to blend in with the shoreline area and transition into neighboring walls, in such a way as to minimize visual impacts when viewed from the makai side. Terracing and retention of an overhanging *naupaka* hedge is intended to further soften the visual effect of the wall.

(6) *That adequate public access to and along the shoreline be provided.*

Public access to the shoreline exists approximately 600 feet to the south of the site. The proposed project does not restrict public lateral access along the shoreline.

The variance request meets §12-203-15 “Criteria for approval of a variance” under paragraph (a)(8): *Private facilities or improvements which will neither adversely*



*affect beach processes nor artificially fix the shoreline; provided that, the commission also finds that hardship will result to the applicant if the facilities or improvements are not allowed within the shoreline area;*

*(b) A structure or activity may be granted a variance upon grounds of hardship if:*

*(1) The applicant would be deprived of reasonable use of the land if required to fully comply with the shoreline setback rules;*

The existing condition of the bluff, along with prior documentation of erosion at the site, indicates that if left unchecked, erosion will continue, eventually threatening structures on the property as well as on the neighboring property to the north.

Another shoreline parcel at the north end of Keonenui Bay experienced a similar slope collapse in December 2007. At 11 Hale Malia Place, severe winter storm activity resulted in catastrophic slope and seawall failure, raising concerns about public safety and injury risk, along with risk of potential catastrophic property loss for the property owner and damage to neighboring properties. (**See:** Figure No. 10, "Hale Malia Slope Collapse"). The recurring collapse of the bank along Keonenui Bay indicates that there exists a persistent threat to shoreline properties and public safety.

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

The proposed project does not draw into question the reasonableness of the shoreline setback rules. The purpose of the proposed wall is to prevent future erosion of the property and potential undermining of the neighboring shoreline protection structures; to prevent earthen soils from eroding and entering the coastal waters; and remove the public hazard associated with the unstable bluff.

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

As discussed in the above written justification for the requested variance, and in Section II.E of this document, the preferred alternative is the practicable option which best conforms to the purpose of the Shoreline Setback Rules.

*Original and 1 copy of a preliminary drainage and erosion control report, and a grading plan.*

As discussed in Section III.A.2, "Topography and Soils", the lot slopes east to west toward the shoreline. Grading on the site will be minimal. Drainage is discussed in Section III.D.3 "Drainage" along with proposed erosion control mitigation measures (**See:** Appendix E, "Preliminary Engineering and Drainage Report").

*Original and 1 copy of an environmental assessment may be required.*



This application is part of the Draft Environmental Assessment prepared for the proposed project.

*Photographs of the shoreline area.*

**See:** Figure No. 8, "Site Photographs" and Appendix B.



## VIII. FINDINGS & CONCLUSIONS

This Draft Environmental Assessment examines the environmental and socio-economic impacts associated with the applicant's proposal to construct a wall to stabilize an eroding shoreline bluff. The project site is 0.44 acres located in Napili, Maui, Hawaii.

The proposed development is not anticipated to result in significant environmental impacts to surrounding properties, nearshore waters, natural resources, and/or archaeological and historic resources on the site or in the immediate area. The construction of a vertical wall *mauka* of the State Certified Shoreline, which is the subject of Section VII of this report, "Shoreline Setback Variance," will encroach on the shoreline setback area. Public infrastructure and services, including roadways, sewer and water systems, medical facilities, police and fire protection, parks, and schools are not anticipated to be impacted by the project. The proposed project is not anticipated to negatively impact public view corridors and is not anticipated to produce significant adverse impacts upon the visual character of the site and its immediate environs.

The subject property is situated within the State's Urban District and is County R-3 Residential and community planned for single-family residential. Therefore, the proposed project is in conformance with State and County land use plans and policies including Chapter 205A, HRS, as well as the West Maui Community Plan Land Use Map.

Based on the foregoing analysis and conclusion, the proposed project will not result in significant impacts to the environment, is consistent with the requirements of HRS Chapter 343, and a Finding of No Significant Impact (FONSI) is anticipated.

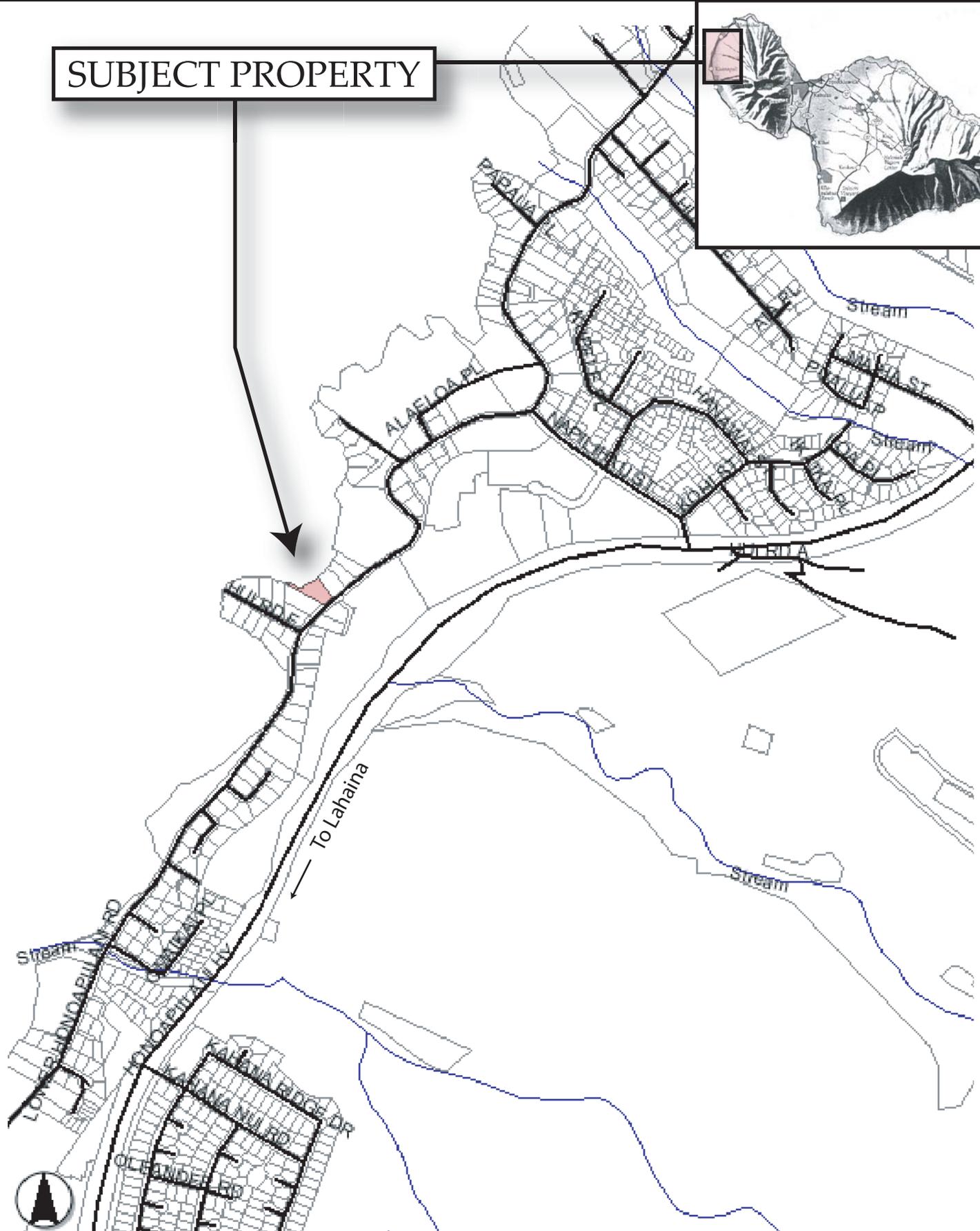


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## **7. FIGURES**

SUBJECT PROPERTY



Copyright 2004, County of Maui

0 474.72ft 0 0.09mi

Figure No. 1.1

Hester Residence
Regional Location Map



SUBJECT PROPERTY

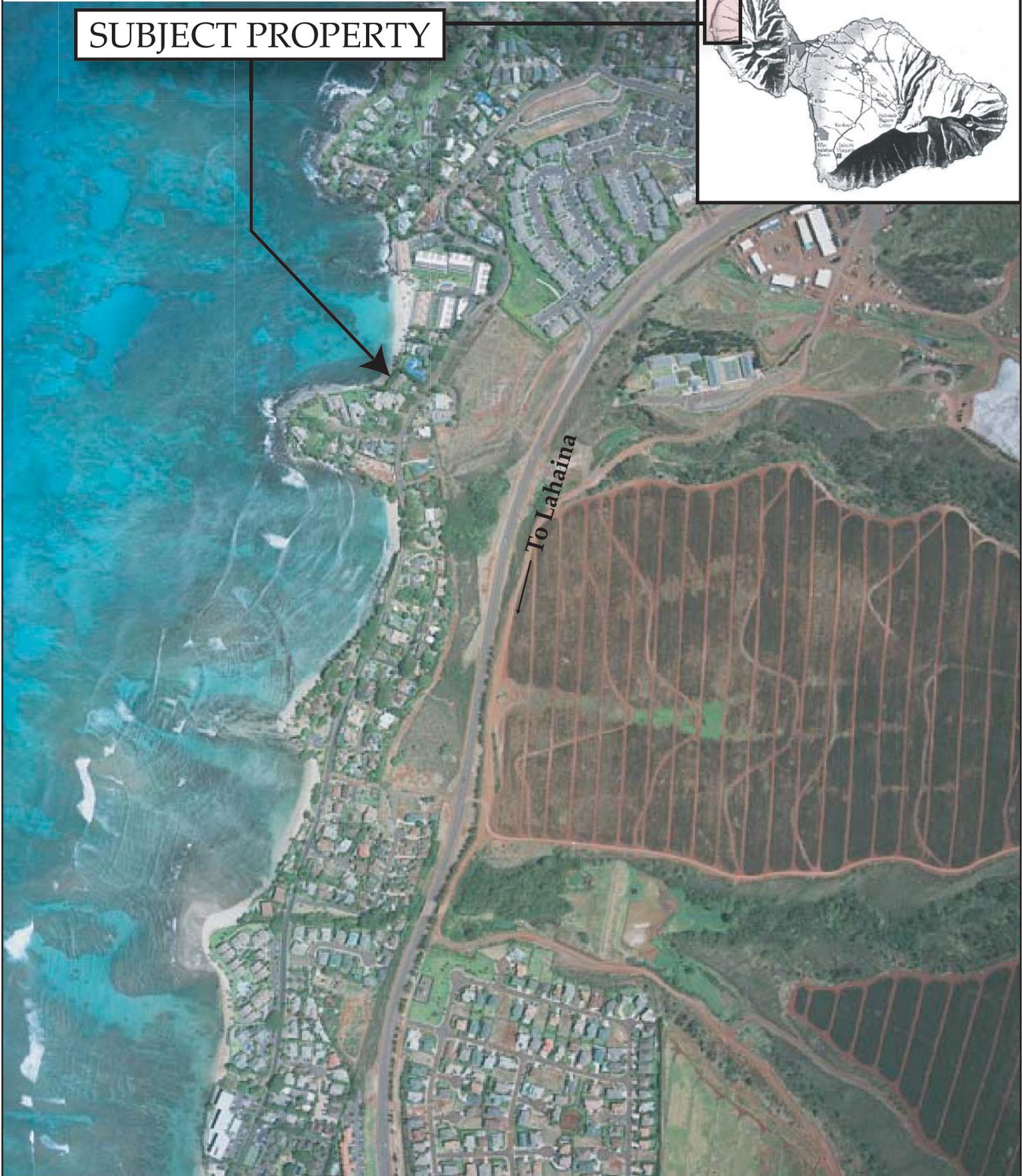
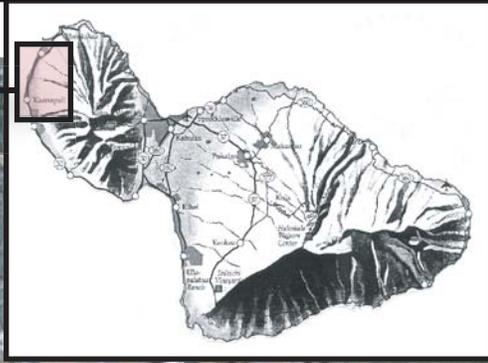


Figure No. 1.2

Hester Residence

Aerial Location Map



DEPARTMENT OF TAXATION  
 PROPERTY TECHNICAL OFFICE  
 TAX MAPS BRANCH  
 STATE OF HAWAII  
**TAX MAP**

2ND TAXATION DISTRICT

ZONE	SEC.	PLAT
4	3	15

SCALE: 1 IN. = 100 FT.

TRUE NORTH  
 Scale: 1 in. = 100 ft.

SUBJECT PROPERTY

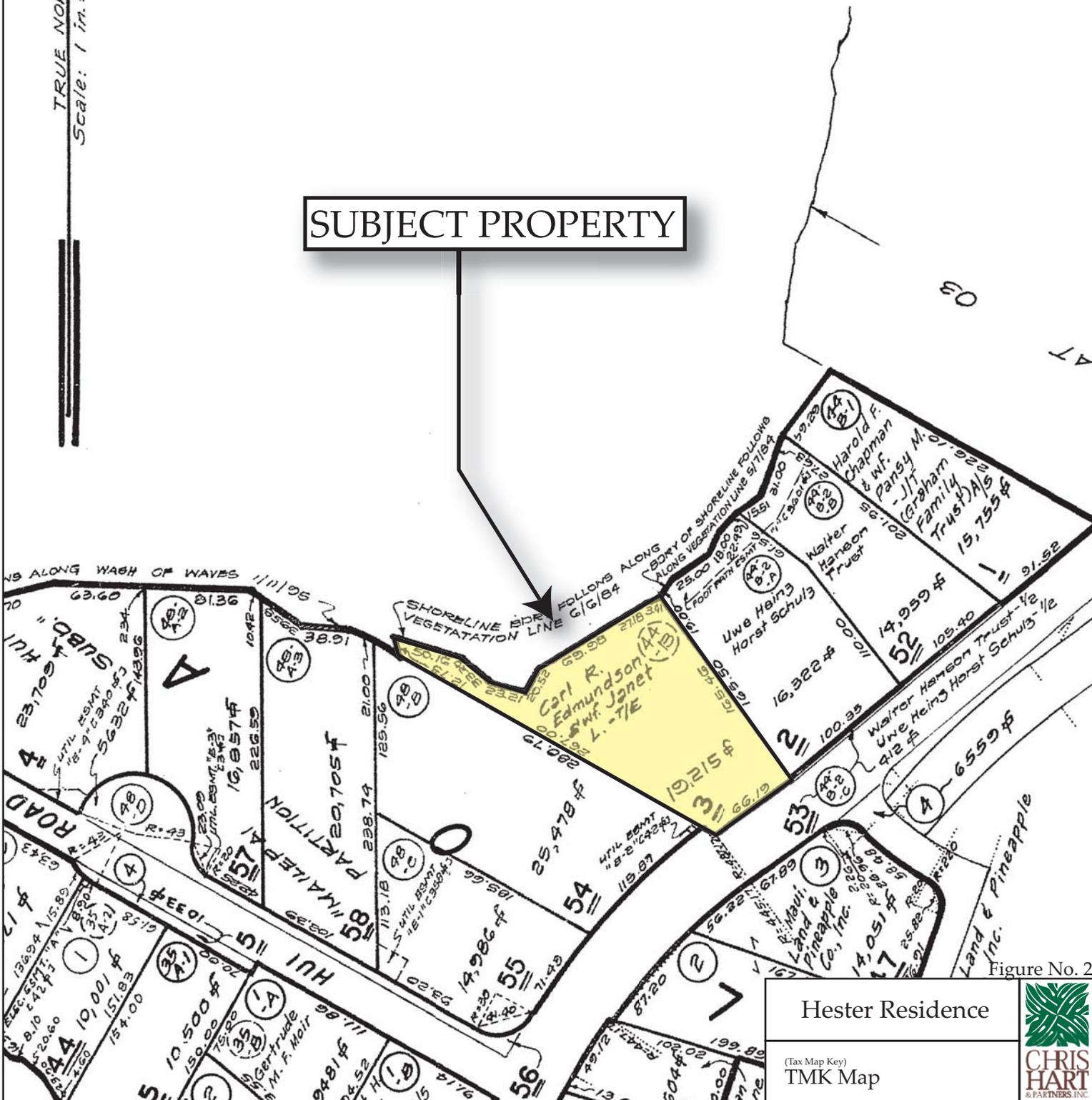
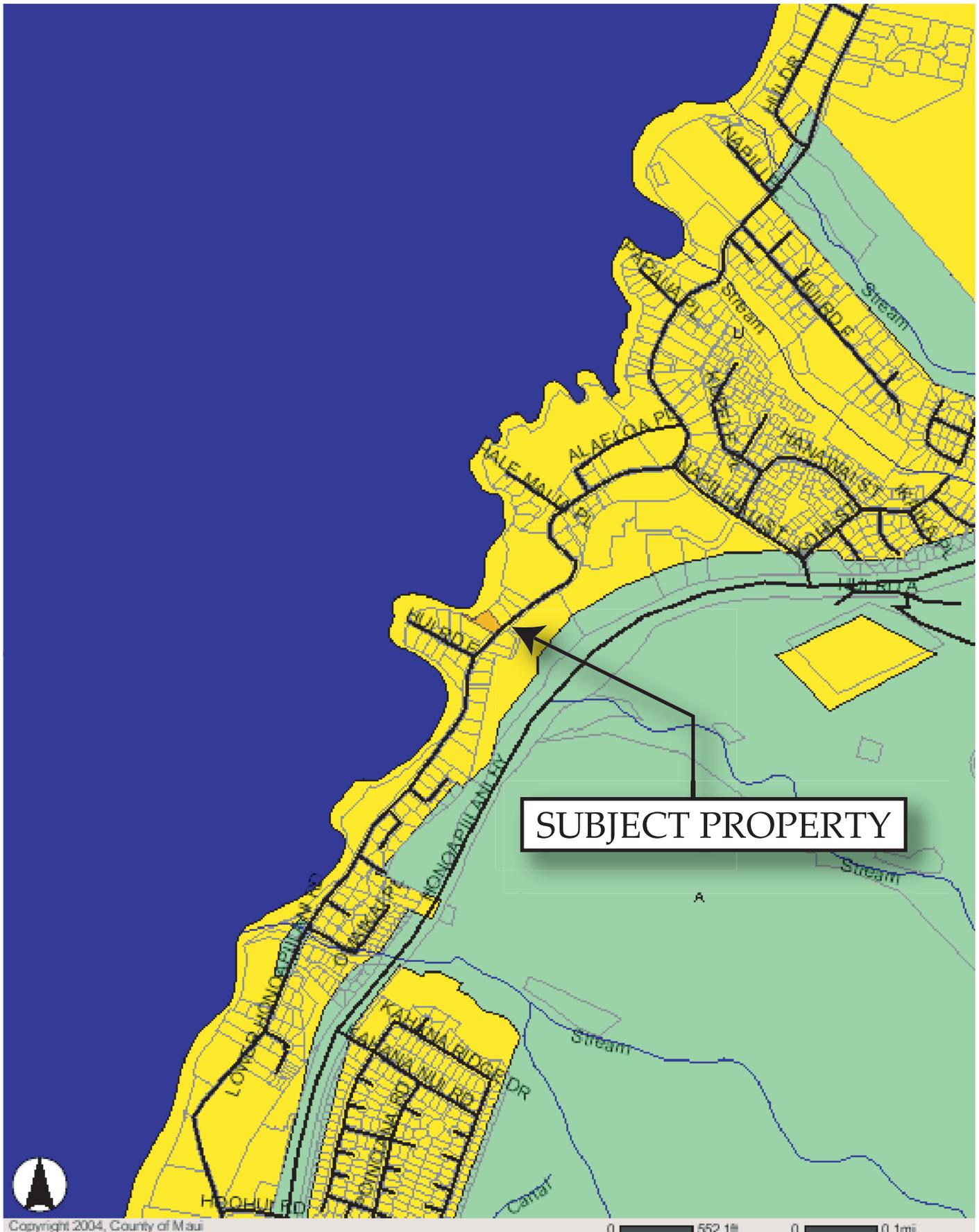


Figure No. 2

Hester Residence

(Tax Map Key)  
 TMK Map





Copyright 2004, County of Maui

0 552.1ft 0 0.1mi

Figure No. 3

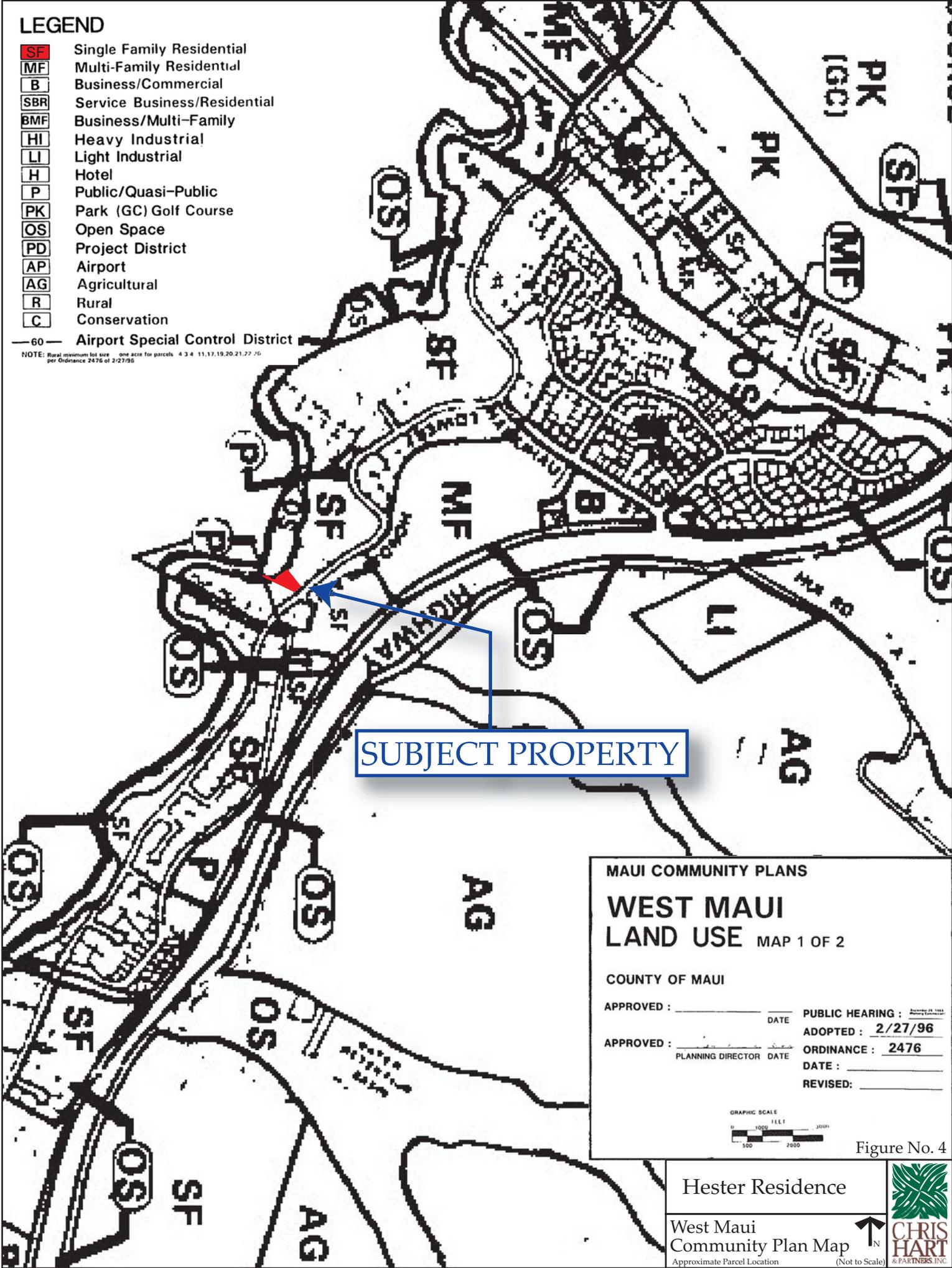
- Agricultural
- Conservation
- Rural
- Urban

Hester Residence	
State Land Use Map	

**LEGEND**

- SF** Single Family Residential
- MF** Multi-Family Residential
- B** Business/Commercial
- SBR** Service Business/Residential
- BMF** Business/Multi-Family
- HI** Heavy Industrial
- LI** Light Industrial
- H** Hotel
- P** Public/Quasi-Public
- PK** Park (GC) Golf Course
- OS** Open Space
- PD** Project District
- AP** Airport
- AG** Agricultural
- R** Rural
- C** Conservation

— 60 — Airport Special Control District  
 NOTE: Rural minimum lot size one acre for parcels 4, 3, 4, 11, 17, 19, 20, 21, 27, 76 per Ordinance 2476 of 2/27/96



**SUBJECT PROPERTY**

**MAUI COMMUNITY PLANS**  
**WEST MAUI**  
**LAND USE** MAP 1 OF 2

COUNTY OF MAUI

APPROVED : \_\_\_\_\_ DATE \_\_\_\_\_ PUBLIC HEARING : \_\_\_\_\_  
 ADOPTED : 2/27/96

APPROVED : \_\_\_\_\_ DATE \_\_\_\_\_ ORDINANCE : 2476  
 PLANNING DIRECTOR DATE DATE : \_\_\_\_\_  
 REVISED : \_\_\_\_\_

GRAPHIC SCALE  
 0 1000 2000 3000  
 1" = 1000'

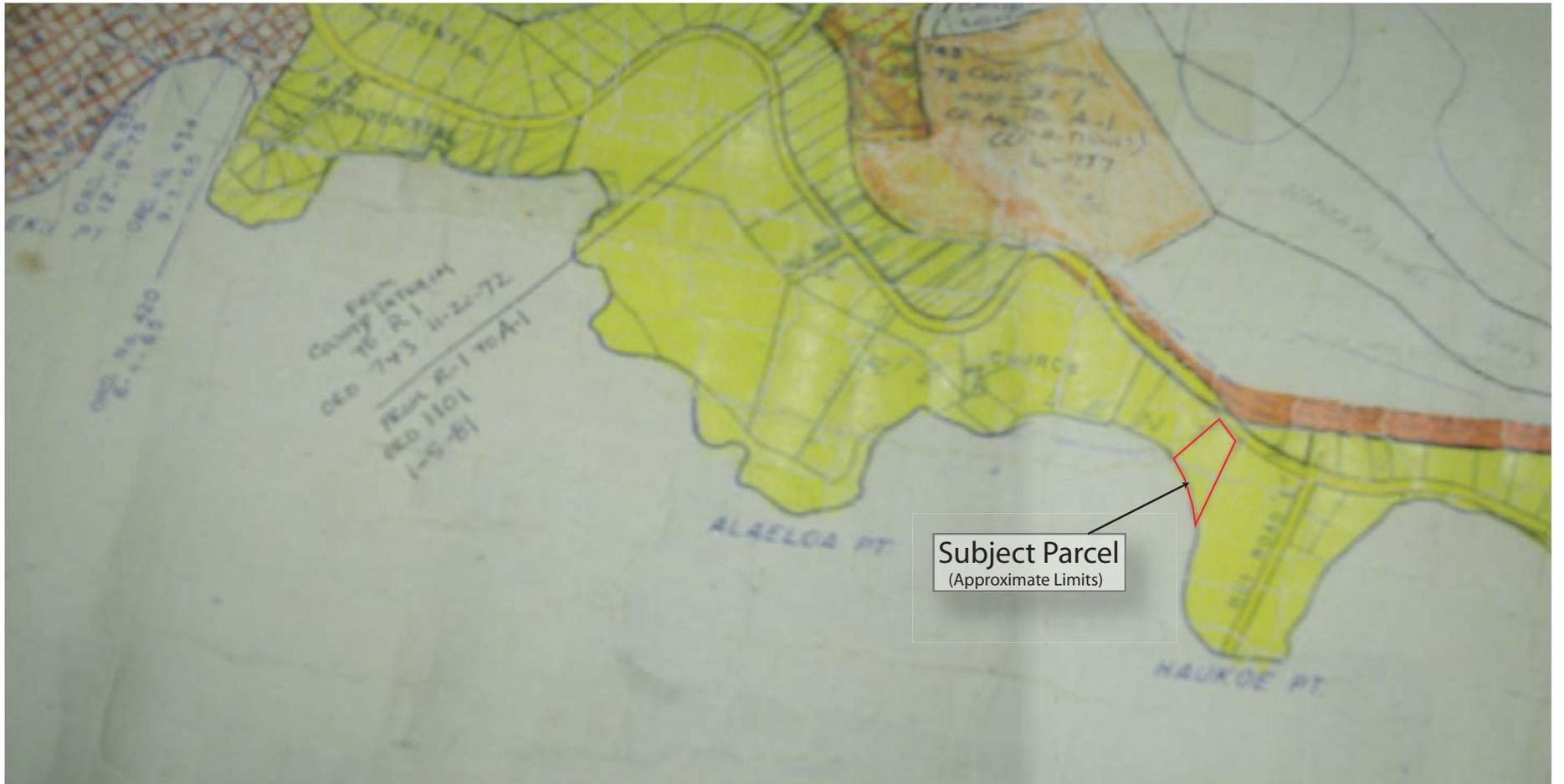
Figure No. 4

Hester Residence

West Maui  
 Community Plan Map

Approximate Parcel Location (Not to Scale)

**CHRIS HART**  
 & PARTNERS, INC.



R-3 Residential District

Figure No. 5

Hester Residence	
County Zoning Map	



# FLOOD HAZARD ASSESSMENT REPORT



## NATIONAL FLOOD INSURANCE PROGRAM

### FLOOD ZONE DEFINITIONS

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD** – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- Zone A:** No BFE determined.
- Zone AE:** BFE determined.
- Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

**NON-SPECIAL FLOOD HAZARD AREA** – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

### OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

### PROPERTY INFORMATION

**COUNTY:** MAUI  
**TMK NO:** (2) 4-3-015-003  
**PARCEL ADDRESS:** 4855 LOWER HONOAPIILANI RD  
**FIRM INDEX DATE:** SEPTEMBER 25, 2009  
**LETTER OF MAP CHANGE(S):** NONE  
**FEMA FIRM PANEL(S):** 1500030264E  
**PANEL EFFECTIVE DATE:** SEPTEMBER 25, 2009

**PARCEL DATA FROM:** AUGUST 2010  
**IMAGERY DATA FROM:** MAY 2005

### IMPORTANT PHONE NUMBERS

County NFIP Coordinator  
 County of Maui  
 Francis Cerizo, CFM (808) 270-7771  
State NFIP Coordinator  
 Carol Tyau-Beam (808) 587-0267

*Disclaimer: The Department of Land and Natural Resources assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the Department of Land and Natural Resources from any liability, which may arise from its use.*

*Preliminary DFIRM Disclaimer: If this map has been identified as "PRELIMINARY", please note that it is being provided for commenting purposes only and is not to be used for official/legal decisions or regulatory compliance.*

Figure No. 6

Hester Residence

Flood Hazard Assessment







1. View through subject property and original residence (demolished) from Lower Honoapiilani Road, facing *makai*



2. View through subject property (current) from Lower Honoapiilani Road, facing *makai*



3. *Makai* yard area of subject property, showing distance from demolished residence to edge of cliff

Figure 8.1

Site Photographs

Hester Residence





5. View of Pacific Ocean and Lana'i from *makai* yard area of subject property



6. View of shoreline cliff and existing residence from Haukoe Point



7. Existing residence and shoreline cliff, facing *mauka* from Keonenui Bay



8. Neighboring property to the south, above Haukoe Point

Figure 8.2

Site Photographs	 <b>CHRIS HART</b> & PARTNERS, INC.
Hester Residence	



9. View along shoreline at base of sea cliff, facing south



10. Remnants of CRM facing along the base of the bluff



11. Undermining sea cave along shoreline at southern end of subject property



12. Facing south toward subject parcel from shoreline fronting neighboring parcel to the north. Note transition from adjacent seawall to silty clay bluff face.

Figure 8.3

Site Photographs	
Hester Residence	



13. Seawall two properties to the north of subject parcel



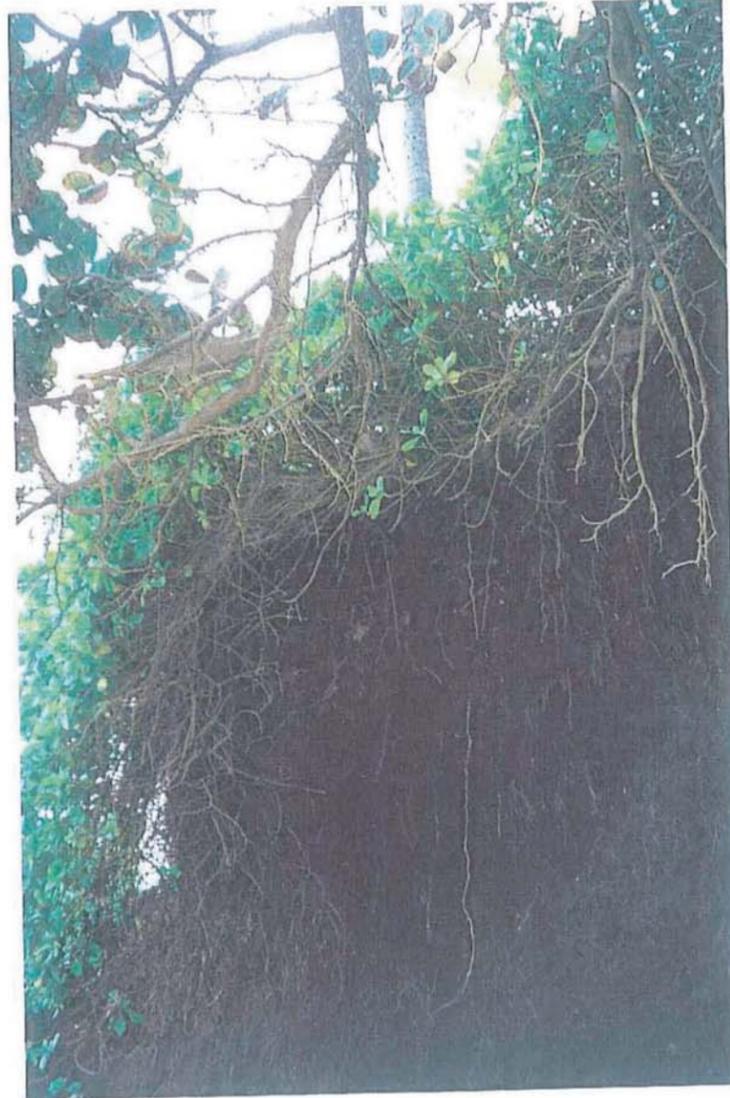
14. Shoreline armoring characteristic of neighboring properties fronting Keonenui Bay



15. Seawall fronting adjacent property to the north. Note transition to silty clay bluff face at property line

Figure 8.4

Site Photographs	
Hester Residence	



Collapse of Shoreline Bluff at Subject Property, February, 2003

Figure 8.5

Site Photographs	
Hester Residence	



Hester Residence  
Figure No. 9

Sea Wall Location





View of slope failure from above facing south

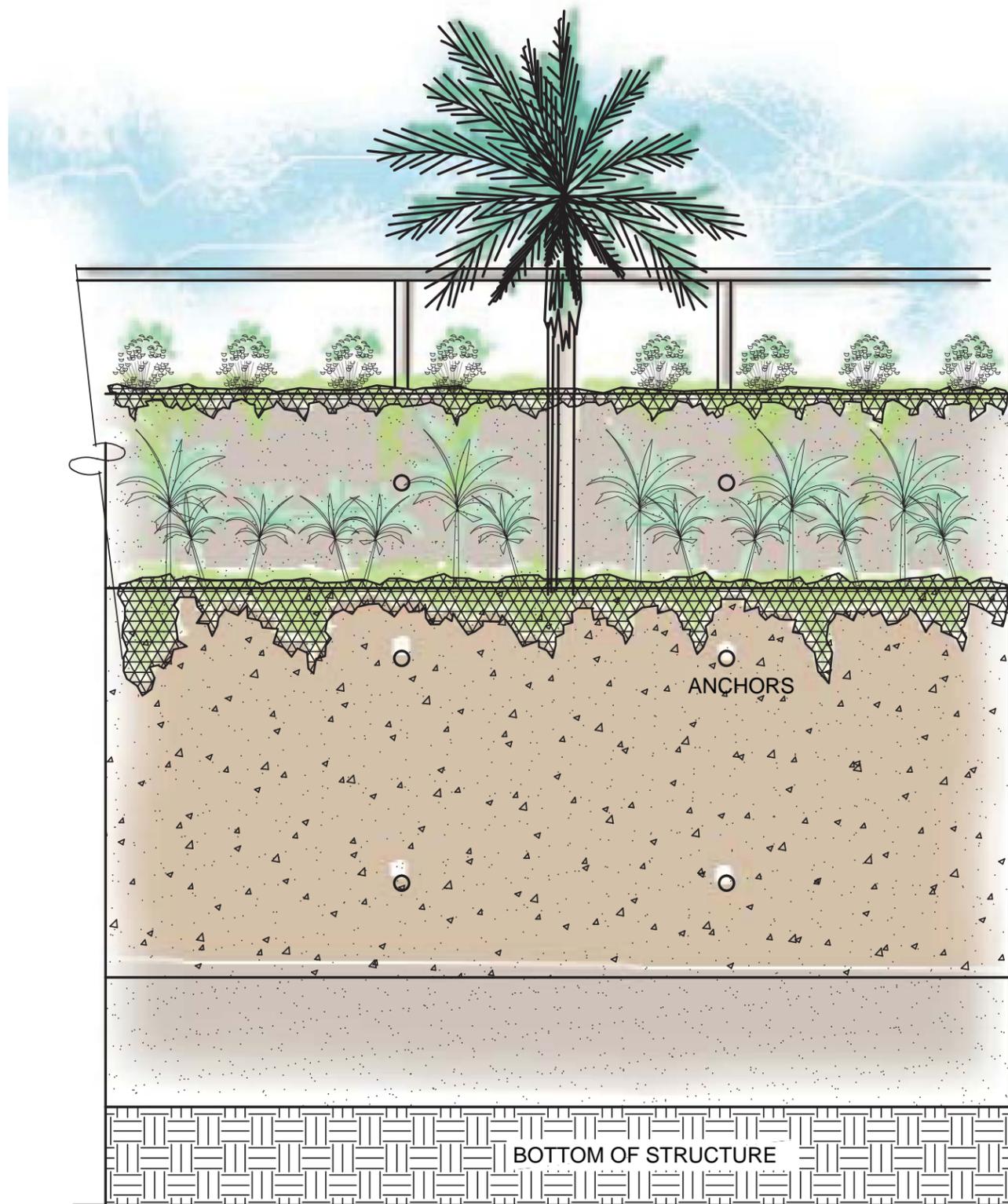


View from above showing top of failed slope

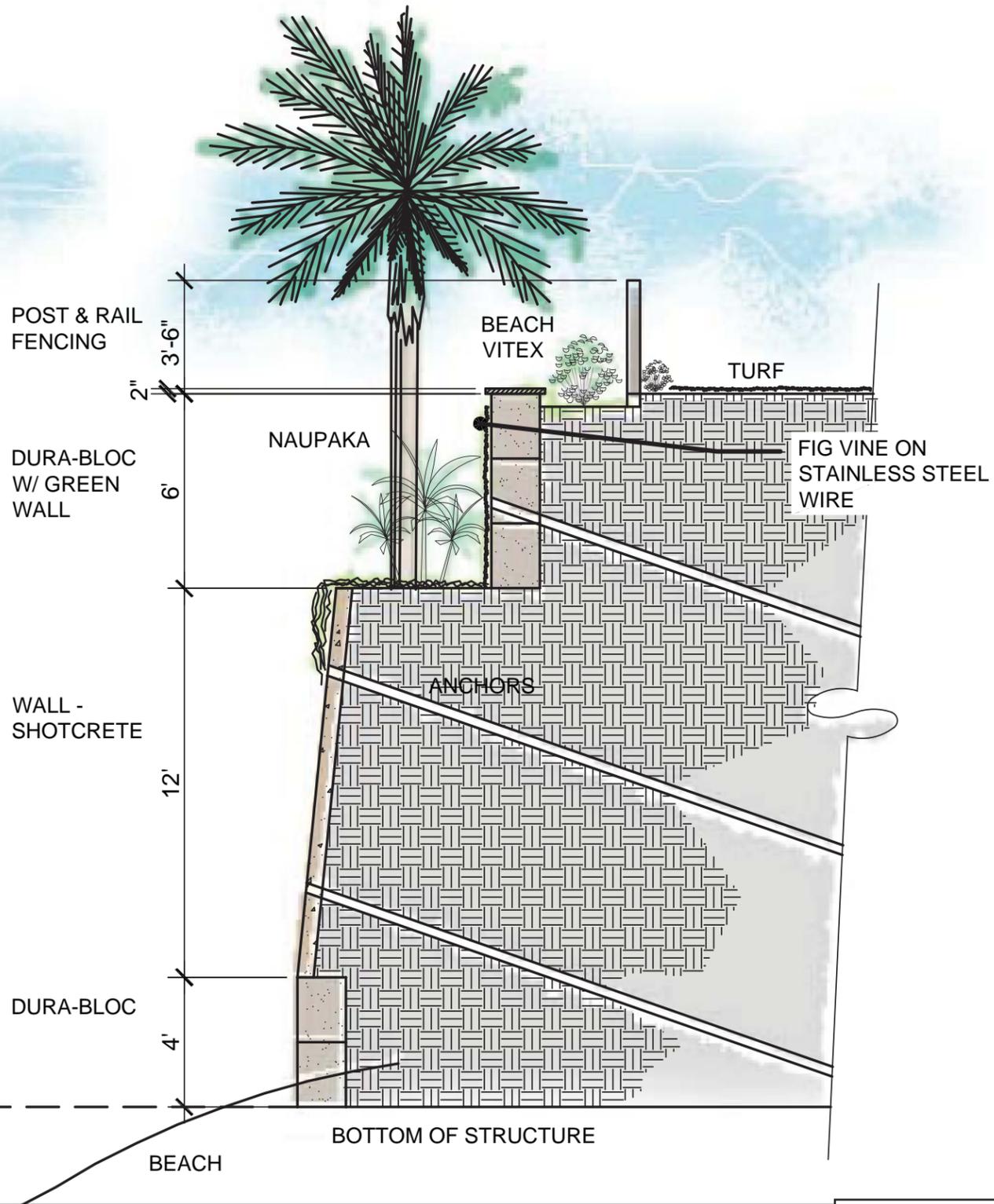


View from below facing south

Figure 10



ELEVATION



SECTION

Figure 11.1

Hester Residence	Scale 1 1 ft.	
Preferred Alternate Wall Design		

**LANDSCAPE LEGEND**

**TREES**

- FISHTAIL PALM  
- 25 Gallon, Min. 8' Trunk H.
- MILO TREE \*\*\*  
- 25 Gallon, Min. 8' Trunk H.
- PLUMERIA TREE  
- 18 Gallon, Min. 6' Trunk H.
- PYGMY DATE PALM  
- 15 Gallon
- ALPHONSE KARR BAMBOO  
- 7 Gallon
- RELOCATED TANGERINE TREE

**SHRUBS**

- MONSTERA
- AKA \*\*\*
- UKUI \*\*\*
- AFRICAN IRIS
- GOLDEN DURANTA
- RHAPSIS PALM
- DWARF NATAL PLUM
- ELDERADO
- ALPHONSE KARR
- QUEEN EMMA LILY
- RED GINGER
- MAO \*\*\*
- LIRIOPE

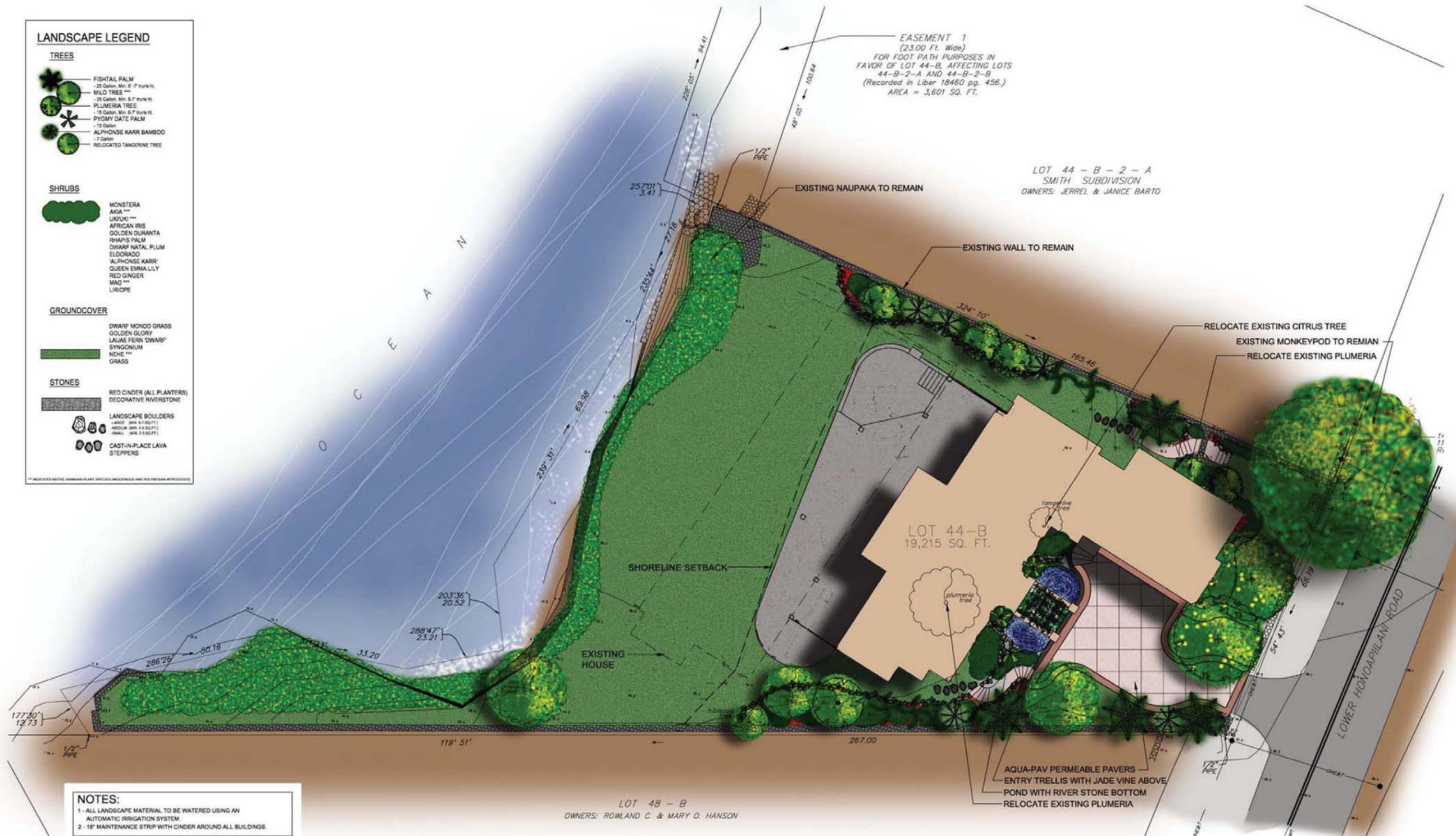
**GROUNDCOVER**

- DWARF MONDO GRASS
- GOLDEN GLORY
- LAIUS FERN DWARF
- SYNONYMIUM
- NEHI \*\*\*
- GRASS

**STONES**

- RED CINDER (ALL PLANTERS)
- DECORATIVE RIVERSTONE
- LANDSCAPE BOULDERS  
- LARGE (W/ 2' SQ FT)  
- MEDIUM (W/ 4' SQ FT)  
- SMALL (W/ 3' SQ FT)
- CAST-IN-PLACE LAVA STEPPERS

\*\*\* INDICATES NATIVE HAWAIIAN PLANT SPECIES, INDIGENOUS AND POLYNESIAN INTRODUCED



**NOTES:**  
1 - ALL LANDSCAPE MATERIAL TO BE WATERED USING AN AUTOMATIC IRRIGATION SYSTEM.  
2 - 18" MAINTENANCE STRIP WITH CINDER AROUND ALL BUILDINGS.



**HESTER RESIDENCE**

NAPILI, MAUI, HAWAII  
TMK: (2) 4-3-15: 03

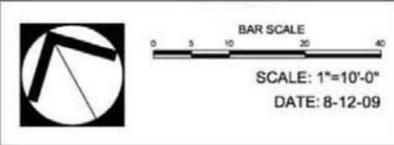


Figure 11.2

Hester Residence	
Concept Landscape Site Plan	

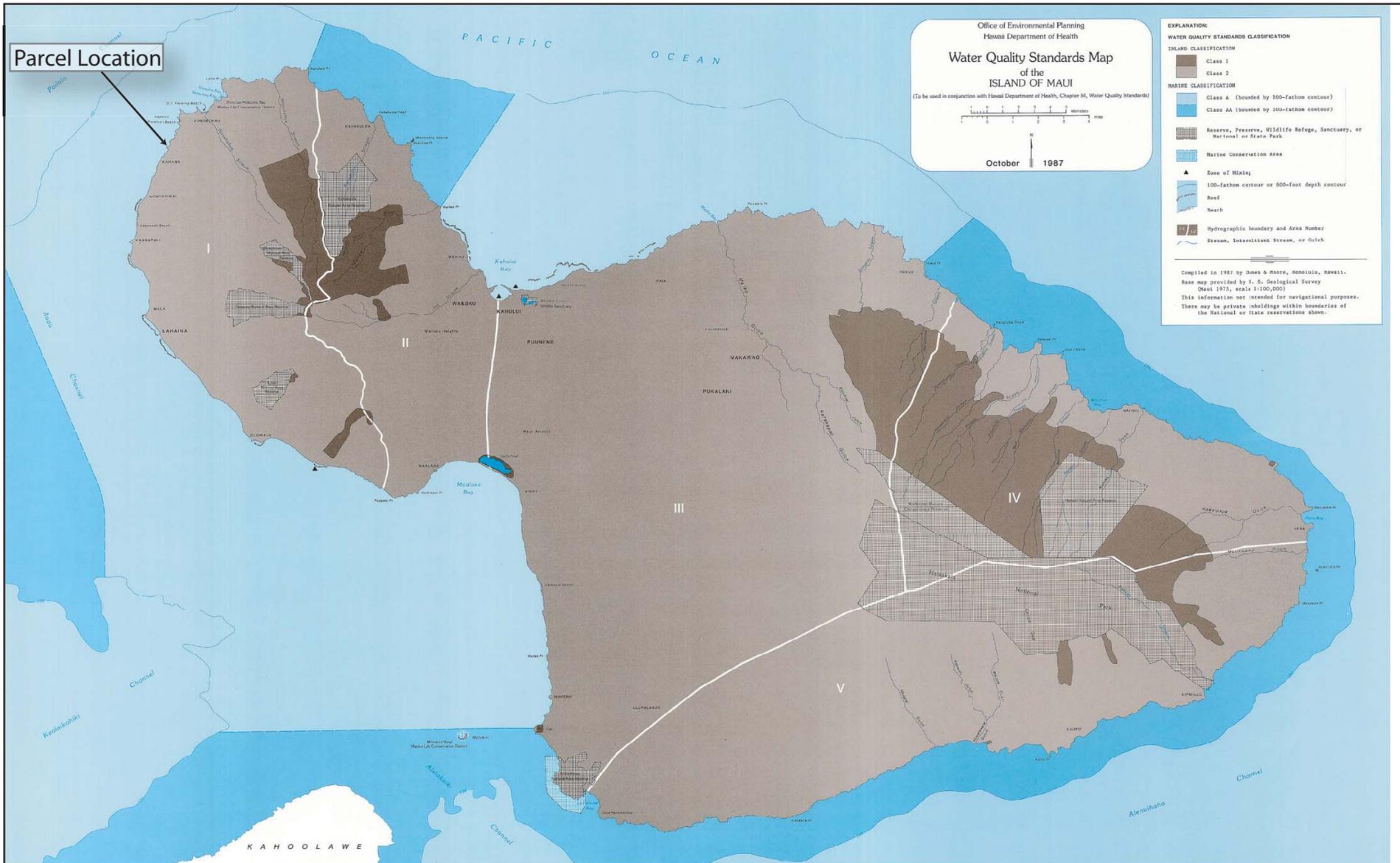


Figure No. 12

Hester Residence	<p><b>CHRIS HART &amp; PARTNERS, INC.</b></p>
Maui Water Quality Standards Map	

Soil Map—Island of Maui, Hawaii

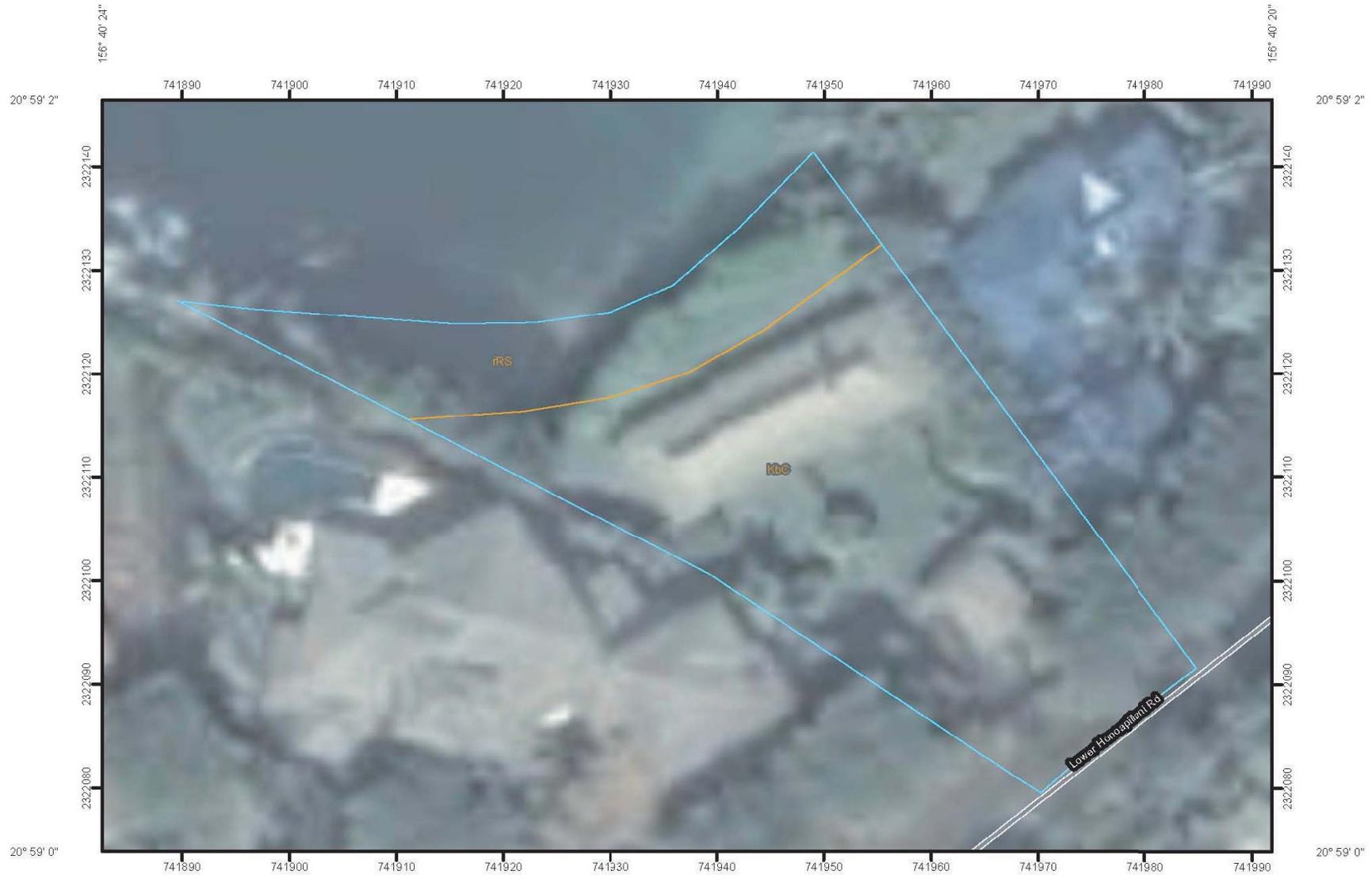


Figure No. 13



Map Scale: 1:519 if printed on A size (8.5" x 11") sheet.



Web Soil Survey 2.1  
National Cooperative Soil Survey

Hester Residence

Soils Map



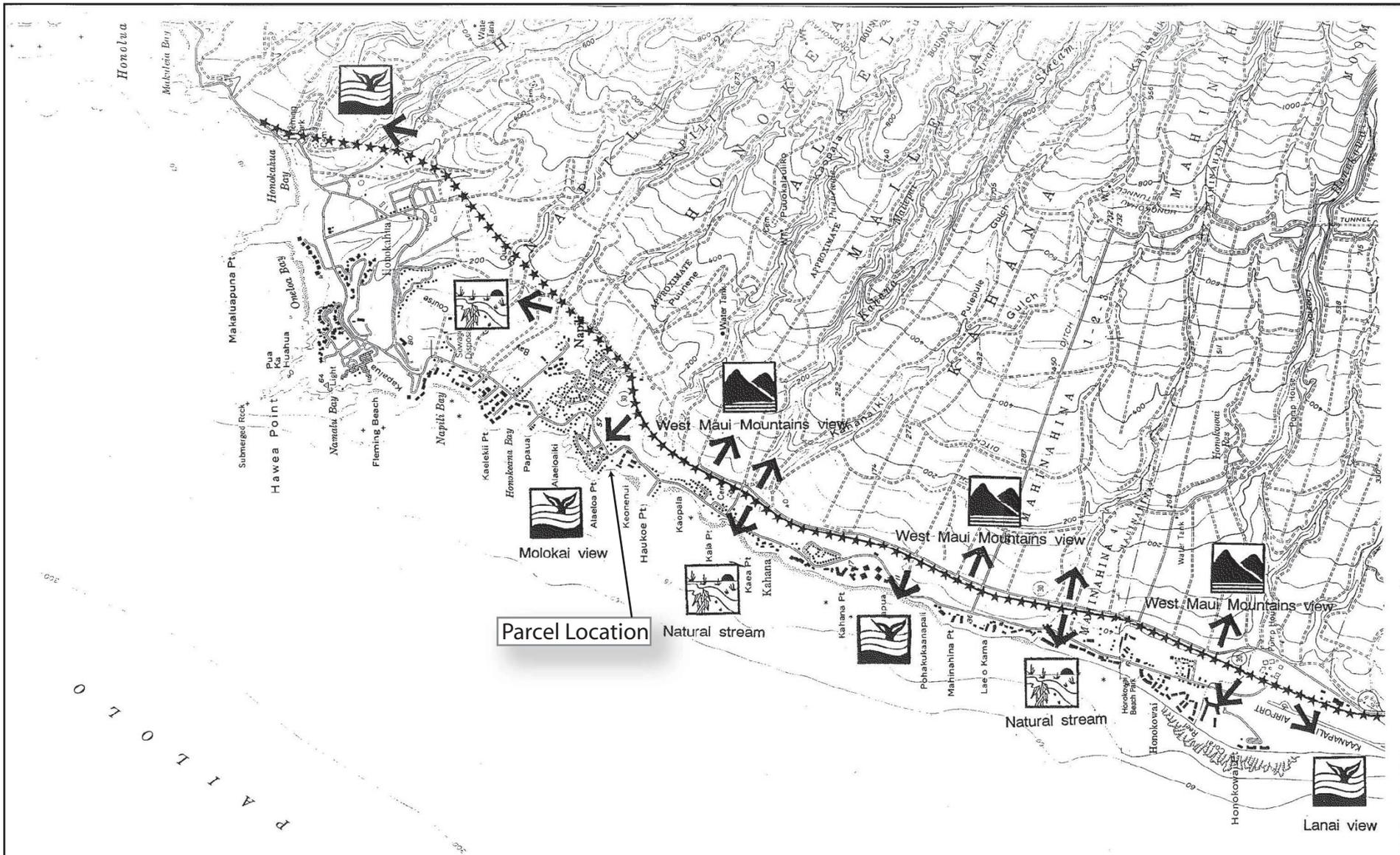
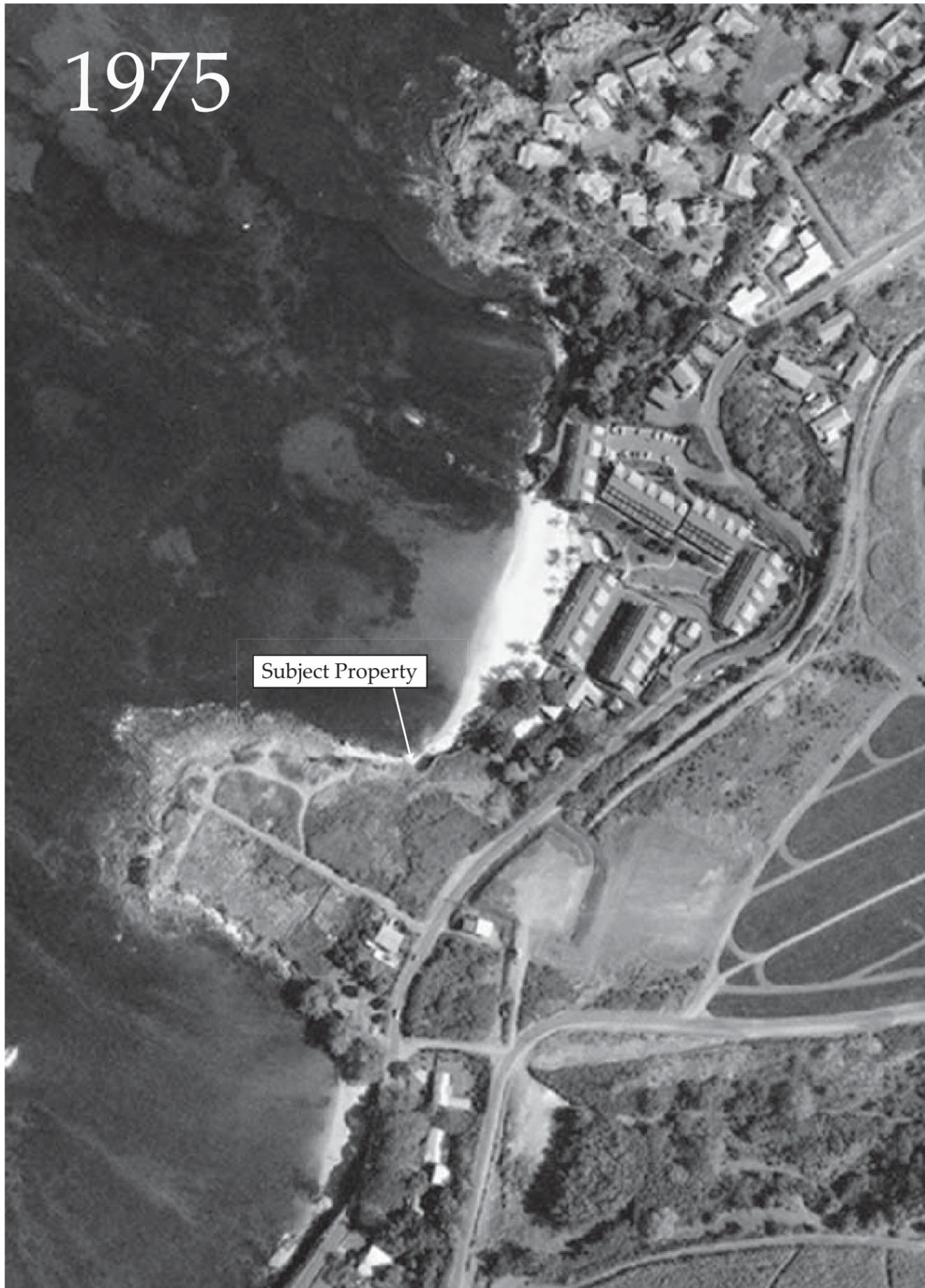


Figure No. 14

Hester Residence	 <b>CHRIS HART</b> & PARTNERS, INC.
Coastal Scenic Resources Map	

1975



1988



Figure No. 15.1

Hester Residence	
Historic Shoreline Photographs	

1992



1997

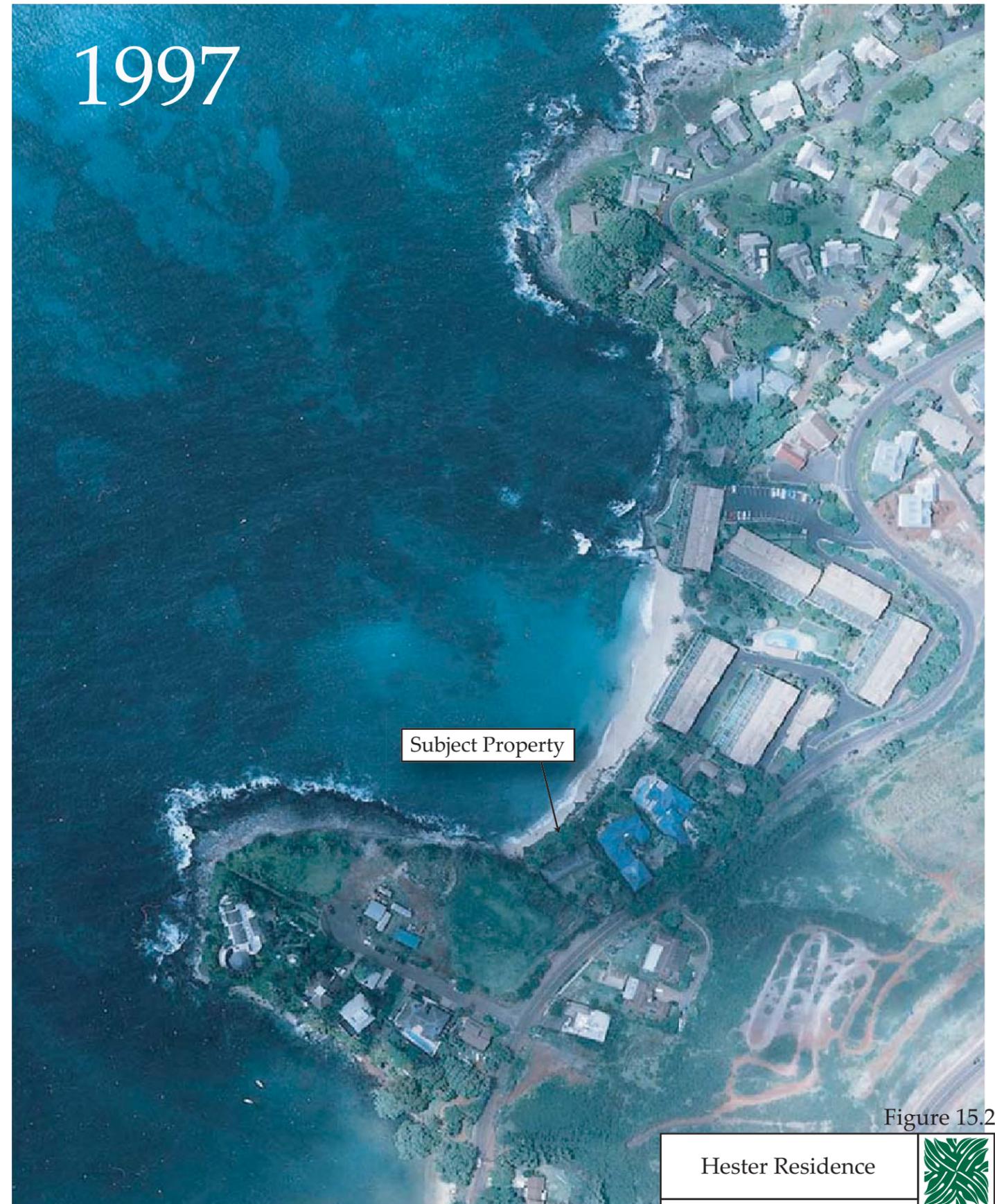


Figure 15.2

Hester Residence	
Historic Shoreline Photographs	

2007

Subject Property



Figure 15.3

Hester Residence

Historical Shoreline  
Photographs



## **8. APPENDICES**

**APPENDIX A:**  
**Summary of Public and Agency Consultation**

PHONE (808) 594-1888

FAX (808) 594-1865



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

HRD09/4253B

April 9, 2009

Chris Hart & Partners  
115 N. Market Street  
Wailuku, Maui, 96793-1706

**RE: Request for comments on early consultation for proposed single family residence and shoreline work, Nāpili, Maui, TMK: 4-3-015:003.**

Aloha e Chris Hart,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated March 16, 2009. OHA has reviewed the project and offers the following comments.

OHA sees that this proposal involves the demolition and re-building of a single family residence as well as the construction of, "permanent erosion mitigation and bank stabilization measures." From the scant details provided with the invitation to comment it is difficult for us to offer substantial comments at this time. We appreciate the early invitation to comment; however, OHA will expect more details in a forthcoming environmental review or permit application.

We can clearly say that these types of proposals can and do raise perennial and oftentimes serious concerns over such things as beach processes, impacts to neighboring shorelines, access in the area, reasonable application of project design and location, as well as permitting issues for projects that fall within the shoreline setback and special management area. Therefore, we look forward to receiving more information and offering further consultation regarding this proposal.

*CC: Jason Obloszi*  
**RECEIVED**

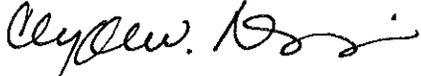
**APR 15 2009**

CHRIS HART & PARTNERS, INC.  
Landscape Architecture and Planning

Chris Hart  
April 9, 2009  
Page 2

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold by phone at (808) 594-0263 or e-mail him at [granta@oha.org](mailto:granta@oha.org).

'O wau iho nō me ka 'oia'i'o,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o". The signature is fluid and cursive, with a long horizontal stroke at the end.

Clyde W. Nāmu'o  
Administrator

C: Maui CRC



Landscape Architecture  
City & Regional Planning

May 13, 2009

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

Dear Mr. Namu'o:

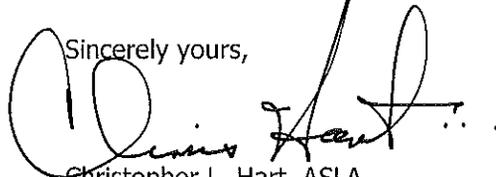
**RE:** Early Consultation Request for proposed construction of a single-family residence, along with permanent shoreline erosion mitigation and bank stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK: (2) 4-2-015:003 (approx. 0.44 acres).

Thank you for your April 9, 2009 letter regarding the above referenced project. We are pleased to respond to your comments as follows.

We note your concern regarding potential impacts to Native Hawaiian cultural resources, in addition to other concerns related to Project Permitting and Shoreline Access. The proposed project is the subject of an Environmental Assessment (EA), Special Management Area Use Permit (SMA), and Shoreline Setback (SSV) application, which will address in greater detail the project's potential impacts, if any, on beach processes, shoreline access, and other such issues.

A Cultural Impact Assessment (CIA) is currently being prepared to assess the project's potential impacts on Native Hawaiian cultural resources and activities, if any. The CIA will be included in the Draft EA/SMA/SSV for the proposed action, a copy of which will be transmitted to your office for review and comment.

Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,  
  
Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. Paul Mancini, Esq., Mancini, Welch & Geiger LLP  
Project File



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

April 9, 2009

Mr. Christopher L. Hart, President  
Chris Hart & Partners Inc.  
115 N. Market Street  
Wailuku, Hawai'i 96793-1717

Dear Mr. Hart:

Subject: Early Consultation Request for the Hester Residence  
Napili, Maui, TMK 4-3-015:003

The Department of Education (DOE) has reviewed your request for preliminary comments on plans for residential construction, erosion mitigation and bank stabilization. We do not have any comment or concern about the project.

DOE appreciates the opportunity to offer early comments. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at (808) 377-8301.

Very truly yours,

A handwritten signature in cursive script that reads "Patricia Hamamoto".

Patricia Hamamoto  
Superintendent

PH:jmb

c: Randolph Moore, Assistant Superintendent, OSFSS  
Lindsey Ball, CAS, Hana/Lahainaluna/Lanai/Molokai Complex Areas

*cc: Jason Oblose*

RECEIVED

APR 14 2009

CHRIS HART & PARTNERS  
Landscape Architects



Landscape Architecture  
City & Regional Planning

May 13, 2009

Ms. Patricia Hamamoto  
Superintendent  
Department of Education  
State of Hawaii  
P.O. Box 2360  
Honolulu, HI 96804

Dear Ms. Hamamoto:

**RE:** Early Consultation Request for proposed shoreline erosion mitigation and bank stabilization, located on property situated at 11 Hale Malia Place, Napili, Maui, Hawaii, TMK: (2) 4-2-003:096 (approx. 0.29 acres).

Thank you for your March 31, 2009 letter regarding the above referenced project. We understand that you have no comments at this time.

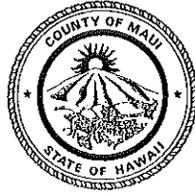
Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. John Edwards, AIA, Edwards Design Group, Inc.  
Project File

CHARMAINE TAVARES  
Mayor



TAMARA HORCAJO  
Director

ZACHARY Z. HELM  
Deputy Director

(808) 270-7230  
FAX (808) 270-7934

**DEPARTMENT OF PARKS & RECREATION**

700 Hali'a Nako'a Street, Unit 2, Wailuku, Hawaii 96793

April 15, 2009

Christopher L. Hart, ASLA  
Chris Hart & Partners Inc.  
115 N. Market Street  
Wailuku, HI 96793

**SUBJECT:** Early Consultation Request for the Proposed Construction of a Single-Family Residence, along with Permanent Shoreline Erosion Mitigation and Bank Stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK 4-3-015:003 (approximately 0.44 acres)

Dear Mr. Hart:

We have reviewed the proposed project and have no comments or objections to submit at this time.

Thank you for the opportunity to review and comment on this matter. Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development at 270-7387 should you have any other questions.

Sincerely,

TAMARA HORCAJO  
Director of Parks & Recreation

xc: Patrick Matsui, Chief of Parks Planning and Development

TH:PM:do

CC: Jason 06/05/09  
RECEIVED

APR 17 2009

CHRIS HART & PARTNERS  
Landscape Architecture



Landscape Architecture  
City & Regional Planning

May 13, 2009

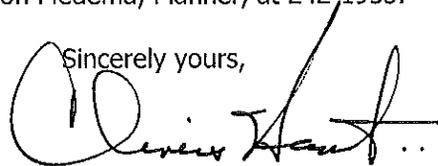
Ms. Tamara Horcajo  
Director  
Department of Parks and Recreation  
County of Maui  
700 Hali'a Nakoia Street, Unit 2  
Wailuku, HI 96793

Dear Ms. Horcajo:

**RE:** Early Consultation Request for proposed construction of a single-family residence, along with permanent shoreline erosion mitigation and bank stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK: (2) 4-2-015:003 (approx. 0.44 acres).

Thank you for your April 15, 2009 letter regarding the above referenced project. We understand that you have no comments at this time.

Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,  


Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. Paul Mancini, Esq., Mancini, Welch & Geiger LLP  
Project File



DEPARTMENT OF  
**HOUSING AND HUMAN CONCERNS**  
COUNTY OF MAUI

CHARMAINE TAVARES  
Mayor

LORI TSUHAKO  
Director

JO-ANN T. RIDAO  
Deputy Director

---

2200 MAIN STREET • SUITE 546 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165  
MAILING ADDRESS: 200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • EMAIL [director.hhc@mauicounty.gov](mailto:director.hhc@mauicounty.gov)

March 23, 2009

Mr. Christopher L. Hart, ASLA  
President  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, Hawaii 96793

Dear Mr. Hart:

**SUBJECT: Early Consultation Request for Proposed Construction of a Single-Family Residence, along with Permanent Shoreline Mitigation and Bank Stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK (2) 4-3-015:003 (approximately 0.44 acres)**

The Department has reviewed the Early Consultation Request for the above subject project. Based on our review, we have determined that this project is not subject to Chapter 2.96, Maui County Code. At the present time, the Department has no additional comments to offer.

Please call Mr. Oshiro of our Housing Division at 270-7355 if you have any questions.

Sincerely,

LORI TSUHAKO, LSW, ACSW  
Director of Housing and Human Concerns

xc: Housing Division

cc: Jason Oshiro  
**RECEIVED**

MAR 25 2009

CHRIS HART & PARTNERS, INC.  
Landscape Architecture and Planning



Landscape Architecture  
City & Regional Planning

May 13, 2009

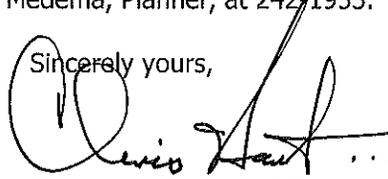
Ms. Lori Tsuhako, LSW, ACSW  
Director  
Department of Housing and Human Concerns  
County of Maui  
200 South High Street  
Wailuku, HI 96793

Dear Ms. Tsuhako:

**RE:** Early Consultation Request for proposed construction of a single-family residence, along with permanent shoreline erosion mitigation and bank stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK: (2) 4-2-015:003 (approx. 0.44 acres).

Thank you for your March 23, 2009 letter regarding the above referenced project. We understand that you have no comments at this time.

Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,  
  
Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. Paul Mancini, Esq., Mancini, Welch & Geiger LLP  
Project File

LINDA LINGLE  
GOVERNOR  
STATE OF HAWAII



MICAH A. KANE  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION  
  
KA ULANA H. PARK  
DEPUTY TO THE CHAIRMAN  
  
ROBERT J. HALL  
EXECUTIVE ASSISTANT

STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879  
HONOLULU, HAWAII 96805

March 30, 2009

Mr. Christopher L. Hart, ASLA  
CHRIS HART & PARTNERS INC.  
115 N. Market Street  
Wailuku, Maui, Hawaii 96793-1717

Dear Mr. Hart:

Subject: Early Consultation Request for the Proposed  
Construction of a Single-Family Residence, along with  
Permanent Shoreline Erosion Mitigation and Bank  
Stabilization located on property situated at 4855  
Lower Honoapiilani Road, Napili, Maui, Hawaii TMK (2)  
4-3-015:003 (approximately 0.44 acres)

Thank you for the opportunity to review the subject proposal.  
The Department of Hawaiian Home Lands has no comment to offer at  
this time. If you have any questions, please contact our  
Planning Office at 620-9480.

Aloha and mahalo,

*for*  


Micah A. Kane, Chairman  
Hawaiian Homes Commission

RECEIVED

MAR 31 2009  
DK

CHRIS HART & PARTNERS, INC.  
Landscape Architects and Planners



Landscape Architecture  
City & Regional Planning

May 13, 2009

Mr. Micah A. Kane, Chairman  
Hawaiian Homes Commission  
Department of Hawaiian Homelands  
State of Hawaii  
P.O. Box 1879  
Honolulu, HI 96805

Dear Mr. Kane:

**RE:** Early Consultation Request for proposed construction of a single-family residence, along with permanent shoreline erosion mitigation and bank stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK: (2) 4-2-015:003 (approx. 0.44 acres).

Thank you for your March 30, 2009 letter regarding the above referenced project. We understand that you have no comments at this time.

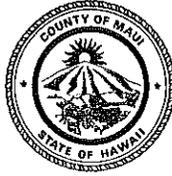
Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,

Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. Paul Mancini, Esq., Mancini, Welch & Geiger LLP  
Project File

CHARMAINE TAVARES  
MAYOR



JEFFREY A. MURRAY  
CHIEF

ROBERT M. SHIMADA  
DEPUTY CHIEF

**COUNTY OF MAUI**  
**DEPARTMENT OF FIRE AND PUBLIC SAFETY**  
**FIRE PREVENTION BUREAU**

780 ALUA STREET  
WAILUKU, HAWAII 96793  
(808) 244-9161  
FAX (808) 244-1363

March 24, 2009

Mr. Christopher L. Hart  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, HI 96793

**Subject: Early Consultation for 4855 L. Honoapiilani Road, Napili, HI  
TMK (2)4-3-015:003**

Dear Mr. Hart,

I have had the opportunity to review the subject correspondence. Our office has no specific concerns at this time.

Please feel free to contact me if there are any questions or concerns about this project..

Sincerely,

A handwritten signature in black ink, appearing to read "Valeriano F. Martin".

Valeriano F. Martin  
Captain  
Fire Prevention Bureau

*cc: Jason 081039*

**RECEIVED**

**MAR 26 2009**

CHRIS HART & PARTNERS, INC.  
Landscape Architecture and Planning



Landscape Architecture  
City & Regional Planning

May 13, 2009

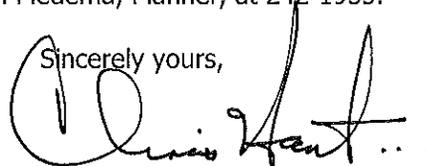
Mr. Valeriano F. Martin  
Captain  
Department of Fire and Public Safety  
County of Maui  
780 Alua Street  
Wailuku, HI 96793

Dear Mr. Martin

**RE:** Early Consultation Request for proposed construction of a single-family residence, along with permanent shoreline erosion mitigation and bank stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK: (2) 4-2-015:003 (approx. 0.44 acres).

Thank you for your March 24, 2009 letter regarding the above referenced project. We understand that you have no comments at this time.

Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,  


Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. Paul Mancini, Esq., Mancini, Welch & Geiger LLP  
Project File



March 20, 2009

Mr. Christopher L. Hart, ASLA  
Chris Hart & Partners Inc.  
115 N. Market Street  
Wailuku, Hawaii 96793

Dear Mr. Hart,

Subject: Early Consultation Request for Proposed Construction of a Single-Family Residence, along with Permanent Shoreline Erosion Mitigation and Bank Stabilization  
4855 Honoapiilani Road  
Napili, Maui, Hawaii  
TMK: (2) 4-3-015:003

Thank you for allowing us to comment on the Early Consultation Request for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) has no objections to the subject project at this time.

Should you have any questions or concerns, please call me at 871-2340.

Sincerely,

A handwritten signature in dark ink, appearing to read 'R. Okazaki'. The signature is fluid and cursive.

Ray Okazaki  
Staff Engineer

CC: JWSM 08/03/09  
RECEIVED

MAR 24 2008

CHRIS HART  
Landscape A.



Landscape Architecture  
City & Regional Planning

May 13, 2009

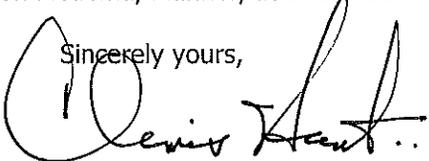
Mr. Ray Okazaki  
Staff Engineer  
Maui Electric Company  
210 West Kamehameha Ave.  
P.O. Box 398  
Kahului, HI 96733-6898

Dear Mr. Okazaki:

**RE:** Early Consultation Request for proposed construction of a single-family residence, along with permanent shoreline erosion mitigation and bank stabilization, located on property situated at 4855 Lower Honoapiilani Road, Napili, Maui, Hawaii, TMK: (2) 4-2-015:003 (approx. 0.44 acres).

Thank you for your March 20 2009 letter regarding the above referenced project. We understand that you have no comments at this time.

Thank you for your consideration of this application. Should you have any further questions, please contact myself, or Mr. Jason Medema, Planner, at 242-1955.

Sincerely yours,  


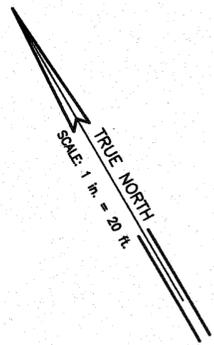
Christopher L. Hart, ASLA  
President  
Landscape Architect / Planner

cc. Mr. Paul Mancini, Esq., Mancini, Welch & Geiger LLP  
Project File

**APPENDIX B:**  
**Certified Shoreline Survey Map**

The shoreline as delineated in red is hereby certified as the shoreline as of  
MAY 18 2009

*[Signature]*  
Chairperson, Board of Land and Natural Resources



O  
C  
E  
A  
N

EASEMENT 1

LOT 44 - B - 2 - A  
SMITH SUBDIVISION  
TMK (2) 4-3-15:02  
JERREL C. BARTO  
JANICE D. BARTO  
(Owners)

ERODED  
AREA=24 SQ. FT.

SHORELINE FOLLOWS BASE OF CLIFF  
LOCATED ON JANUARY 26, 2009.

SHORELINE CERTIFIED BY DEPARTMENT OF  
LAND AND NATURAL RESOURCES - MARCH 24, 1992.

KONIA

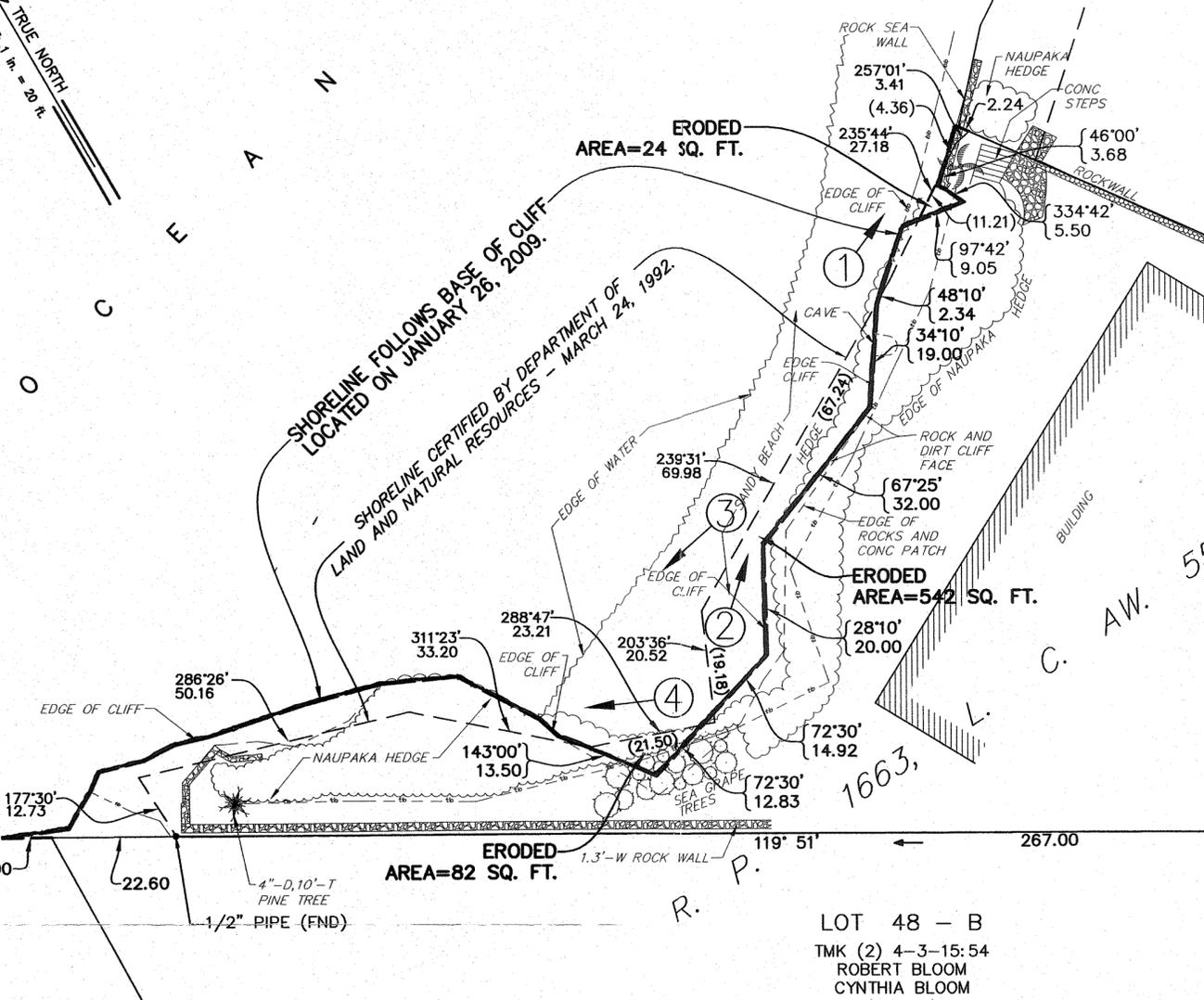
LOT 44-B

DEEDED AREA = 19,215 SQ. FT.  
ERODED AREA = 648 SQ. FT.  
NET AREA = 18,567 SQ. FT.

14.064.03 S  
11,578.35 W  
Ref. "MALO" A

AW. 5524

TO KAPALUA  
TO LAHAINA  
LOWER HONOAPILANI ROAD



ERODED  
AREA=82 SQ. FT.

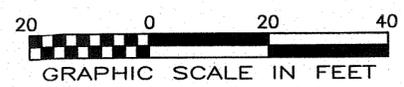
LOT 48 - B  
TMK (2) 4-3-15:54  
ROBERT BLOOM  
CYNTHIA BLOOM  
(Owners)

LEGEND :

- 24.8 SPOT ELEVATION
- tb--- TOP BANK
- bb--- BOTTOM BANK
- ① LOCATION AND DIRECTION OF PHOTOS
- ✕ PALM TREE
- TREE (TYPICAL)
- SEA GRAPE TREE

NOTES:

1. ADJOINING OWNERS AS SHOWN TAKEN FROM TAX MAP.
2. SHORELINE PHOTOS TAKEN ON JANUARY 26, 2009 AT 11:00 AM.



# SHORELINE SURVEY MAP OF LOT 44-B MAILEPAI HUI PARTITION

Being a Portion of Royal Patent 1663, Land Commission  
Award 5524 to L. KONIA

AT ALAELOA, KAAPALI, LAHAINA, MAUI, HAWAII

Owner: WALTER F. HESTER III  
Address: 721 WAINEE STREET  
LAHAINA HAWAII 96761

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION



*[Signature]* 04/03/09

KIRK T. TANAKA  
Licensed Professional Land Surveyor  
Certificate No. 7223  
License Expires: APRIL 30, 2010

DATE

Revised: APRIL 01, 2009  
JANUARY 30, 2009

JOB NO. 03-020

Z:\DRAWING\2003\03-020\MANCINI\_MWG\_APRIL2009.dwg 01-APR-2009 : Revised BY:Nancy  
DRAWN BY: JOY E.F.B. No. #88468 CRD FILENAME: HEST0320.crd LAYOUT: LAYOUT1

Tax Map Key (2) 4-3-15: 03  
871 KOLU STREET, SUITE 201  
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.  
LAND SURVEYORS - CIVIL & STRUCTURAL ENGINEERS



①

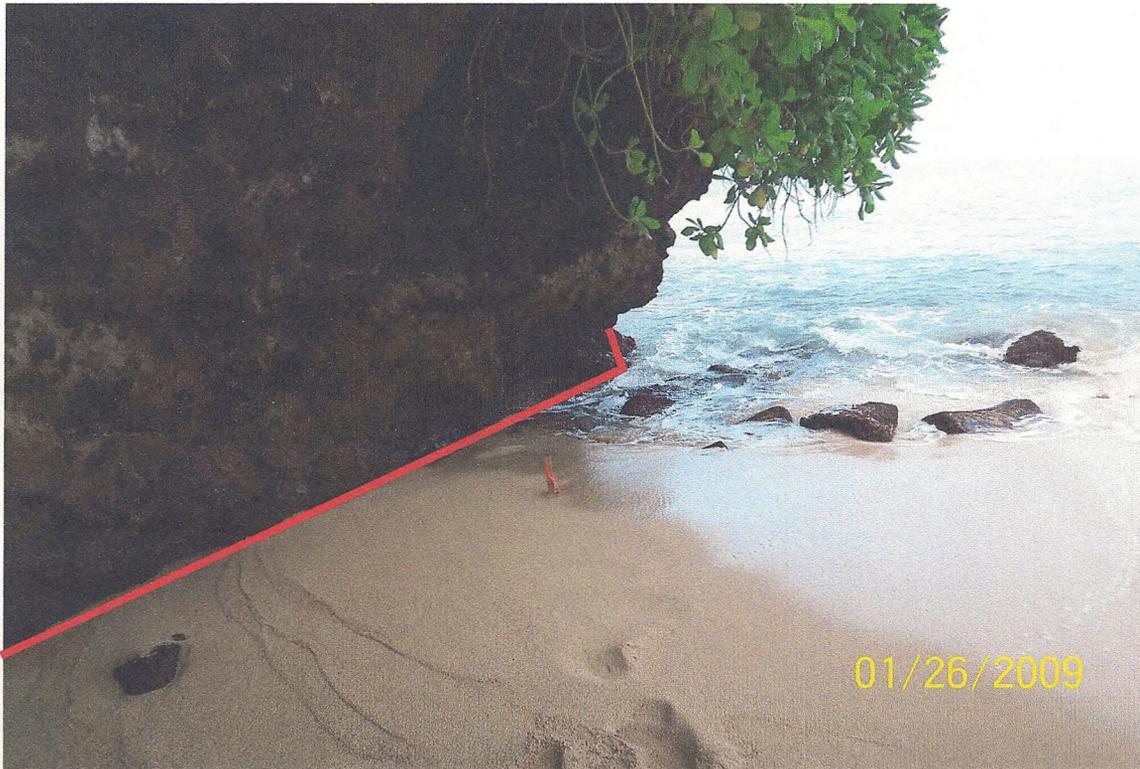


②

Shoreline Survey  
Lot 44-B, Mailepai Hui Partition  
Photos Taken on January 26, 2009 at 11:00 a.m.



3



4

Shoreline Survey  
Lot 44-B, Mailepai Hui Partition  
Photos Taken on January 26, 2009 at 11:00 a.m.

**APPENDIX C:**  
**Shoreline Setback Determination**

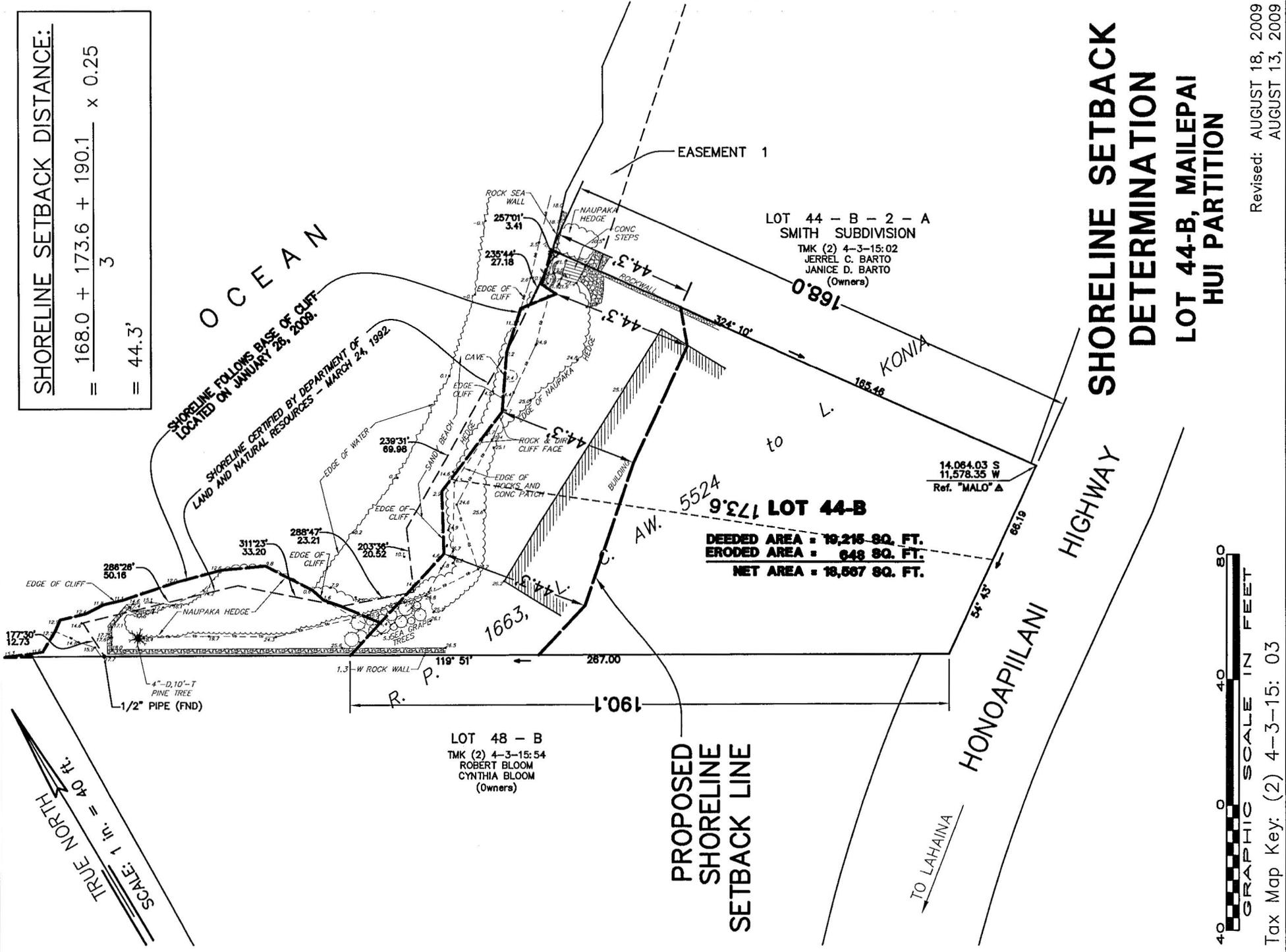
**SHORELINE SETBACK DISTANCE:**

$$= \frac{168.0 + 173.6 + 190.1}{3} \times 0.25$$

$$= 44.3'$$

SHORELINE FOLLOWS BASE OF CLIFF  
LOCATED ON JANUARY 28, 2008.

SHORELINE CERTIFIED BY DEPARTMENT OF  
LAND AND NATURAL RESOURCES - MARCH 24, 1992.



**PROPOSED  
SHORELINE  
SETBACK LINE**

**SHORELINE SETBACK  
DETERMINATION  
LOT 44-B, MAILEPAI  
HUI PARTITION**

LOT 44 - B - 2 - A  
SMITH SUBDIVISION  
TMK (2) 4-3-15:02  
JERREL C. BARTO  
JANICE D. BARTO  
(Owners)

**DEEDED AREA = 18,215 SQ. FT.  
ERODED AREA = 648 SQ. FT.  
NET AREA = 18,567 SQ. FT.**

LOT 48 - B  
TMK (2) 4-3-15:54  
ROBERT BLOOM  
CYNTHIA BLOOM  
(Owners)

14.064.03 S  
11,578.35 W  
Ref. "MALO" Δ

TRUE NORTH  
SCALE: 1 in. = 40 ft.



Tax Map Key: (2) 4-3-15: 03

Revised: AUGUST 18, 2009  
AUGUST 13, 2009

**APPENDIX D:**  
**Conceptual Seawall Design**



August 31, 2009

TO: Jordan Hart, Planner  
RE: Hester Bank Protection  
Napili, Maui

FROM: Paul R. Weber, P.E.

*Paul*

### THREE DESIGN SCENARIOS

Enclosed are three design scenarios for bank protection at the subject project.

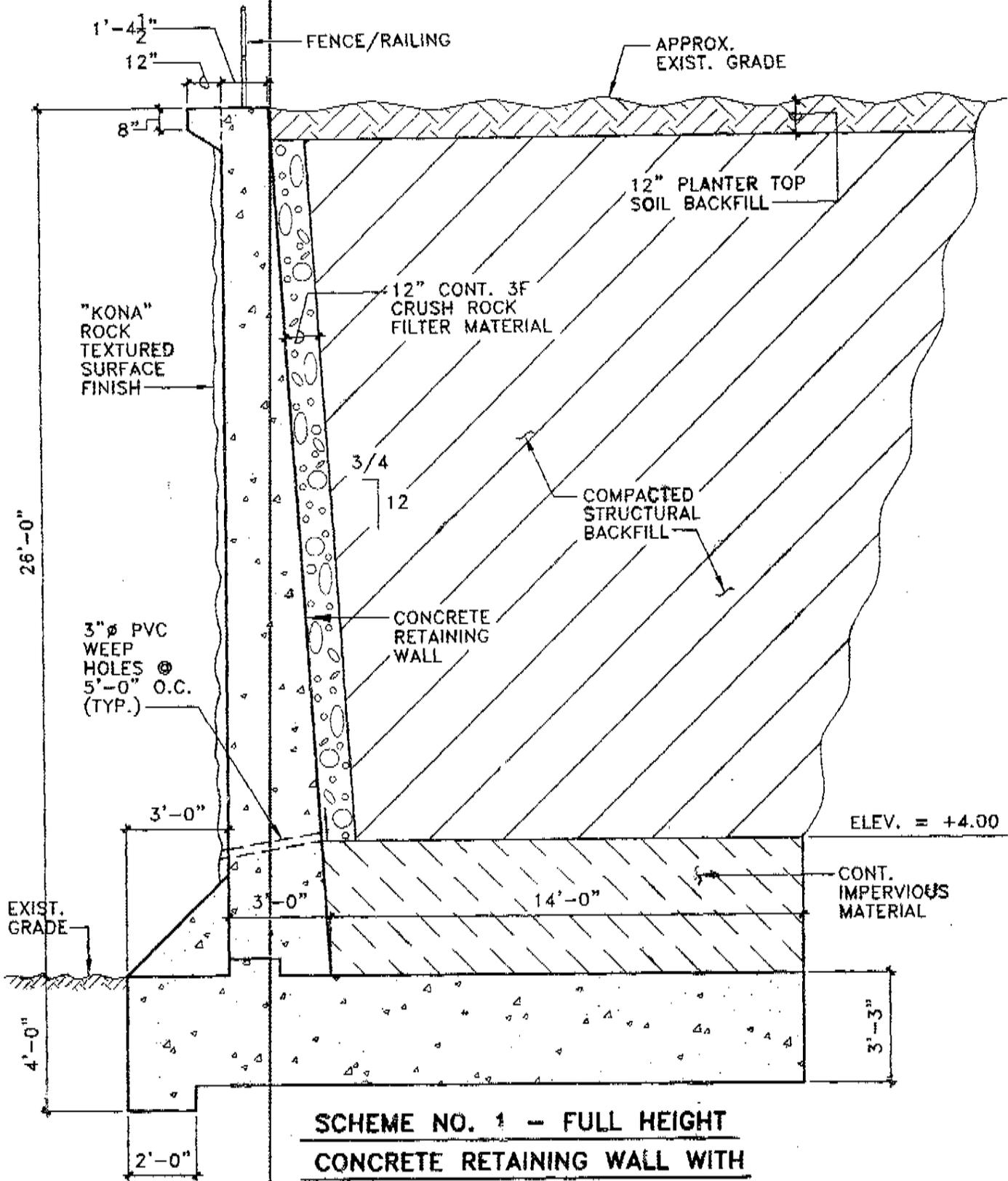
- I. a. Excavation of a bench to sea level for a concrete retaining wall.  
b. A conventional reinforced concrete cantilever wall 26 feet in height.  
c. Backfill behind the wall with select borrow.
  
- II. a. A micro pile-supported grade beam across 150 feet of the yard in front of the naupaka at the top of slope. This measure would be installed as emergency equipment platform and would become part of the permanent structure.  
b. A second micropile-supported grade beam parallel and seaward of the first  
c. shotcrete applied to the face of the exposed 26 foot high.  
d. ground anchors fastening the shotcrete to the bank.
  
- III. a. Excavation of a bench to Elev 14 to support a CRM wall on the mudstone.  
b. Construction of a conventional reinforced concrete retaining wall from Elev 14 to sea level. .

Our preferred choice of bank protection system is Scheme No. 2. Schemes No. 1 and 3 involve the excavation of 3,000 cubic yards of soil and rock and the import of nearly the same amount.

The impacts of this haul-out and haul-in are sizeable and avoidable. In addition, Schemes No. 1 and 3 involve intrusive construction below the tide level. This is difficult work and presents many opportunities for disruption and sedimentation of the beach.

Scheme No. 2 requires very little excavation and backfill; is confined mostly above the beach, and uses very non-intrusive technology (i.e. grout injection micropiles).

Cc: Walter Hester  
David Weber, Pacific Ground Systems  
Arnold Okubo, S.E.



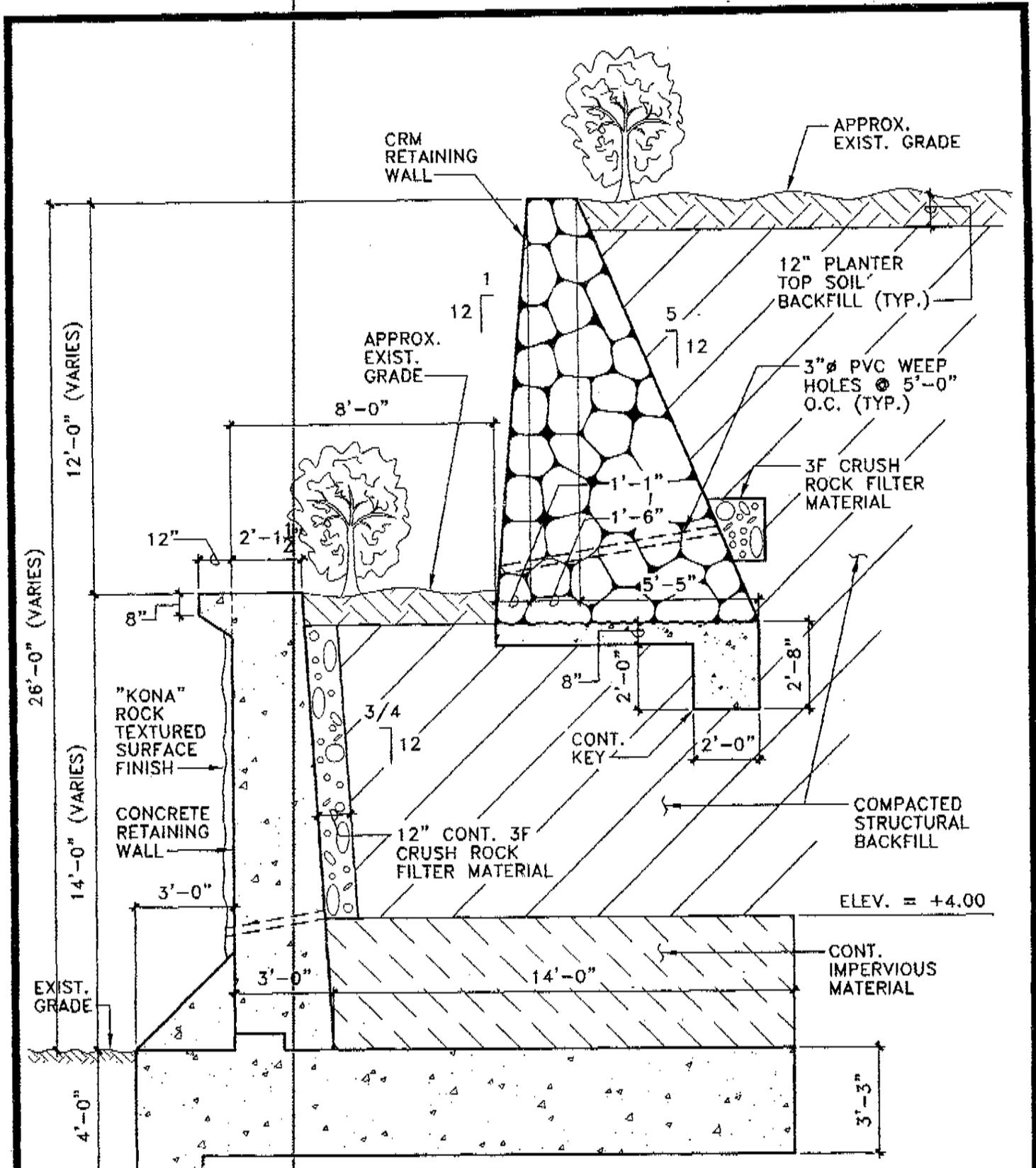
**SCHEME NO. 1 - FULL HEIGHT  
CONCRETE RETAINING WALL WITH  
"KONA" TEXTURED SURFACE FINISH**

SCALE: 1/4" = 1'-3"

**SEAWALL FOR HESTER RESIDENCE**

SCHEME NO. 1

DATE: JUNE 26, 2007



**SCHEME NO. 3 - CRM  
RETAINING WALL WITH  
CONCRETE RETAINING WALL**  
SCALE: 1/4" = 1'-0"

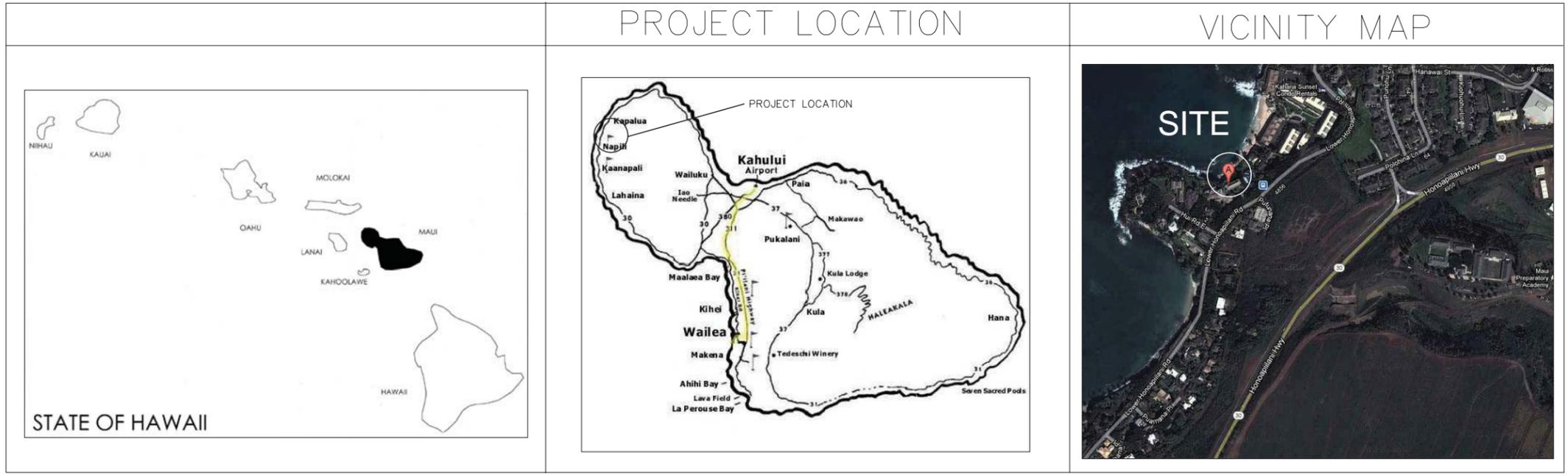
<b>SEAWALL FOR HESTER RESIDENCE</b>
SCHEME NO. 3
DATE: JUNE 26, 2007

**Walter Hester**  
**4855 L. Honoapiilani Rd.**  
**Lahaina, HI 96761**  
**T.M.K. 4-3-015: 003**

THIS WORK WAS PREPARED BY ME  
 OR UNDER MY SUPERVISION, AND  
 CONSTRUCTION OF THIS PROJECT WILL  
 BE UNDER MY OBSERVATION.  
 EXP  
 4/30/12

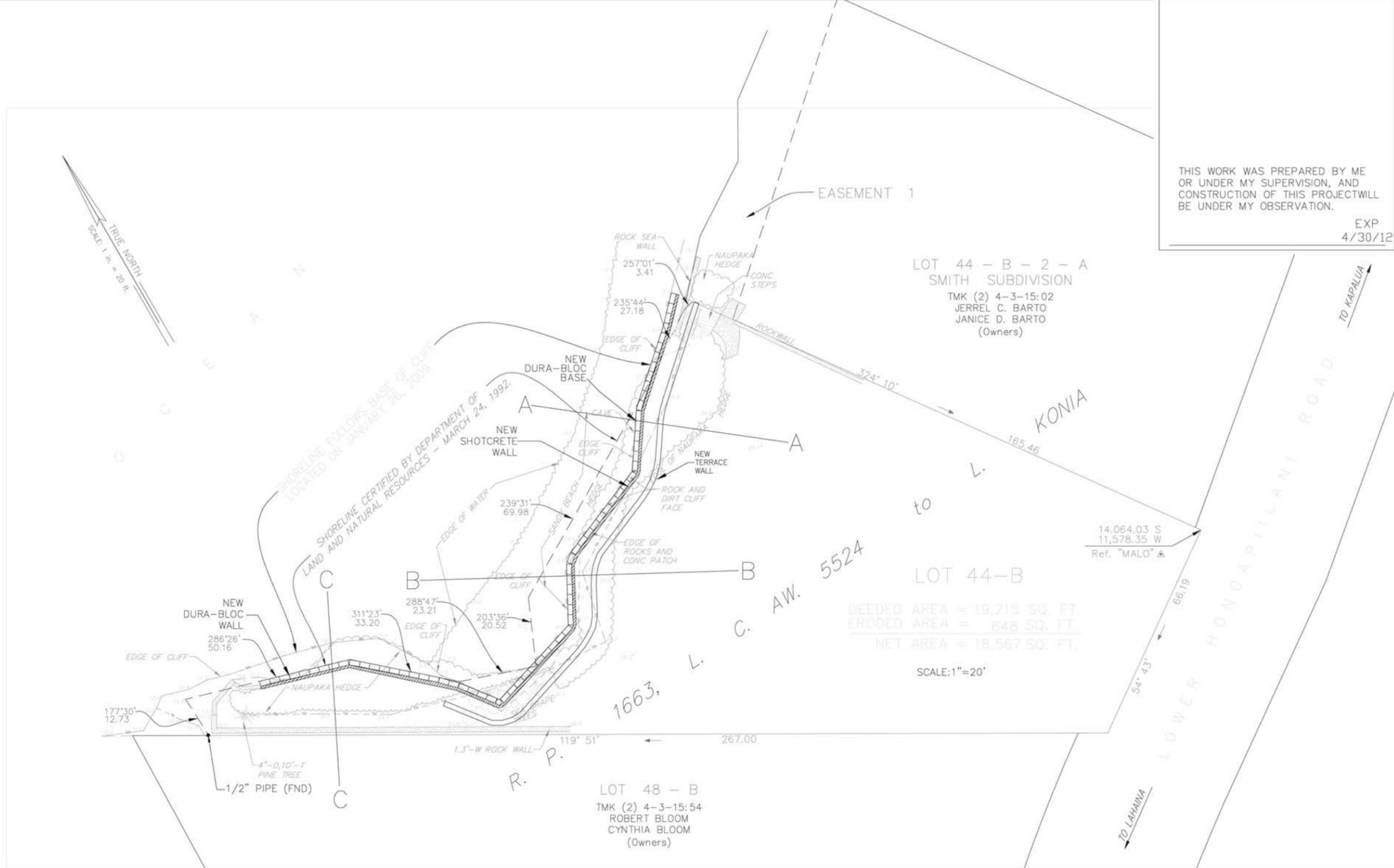
WALTER HESTER  
 HONOAPIILANI RD. LAHAINA  
 BANK PROTECTION  
 TMK: 4-3-015:003

DATE: 28 MAR 2012  
 DESIGN: P.R.W.  
 DRAWING: S.E.T.  
 JOB NO.: 1154 RT 01  
 FILE:



META ENGINEERING  
 PAUL R. WEBER, P.E.  
 PO BOX 4606 HONOLULU, HI 96812  
 808-394-1420 metaeng@gmail.com

TRUE NORTH  
SCALE: 1" = 20'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
EXP 4/30/12

NEW SEA WALL  
WALTER F. HESTER III  
4855 L. HONOAPILANI RD.  
NAPILI, MAUI, HI

DATE: 28 MAR 2012  
DESIGN: P.R.W.  
DRAWING: S.E.T.  
JOB NO.: 1154 RT 01  
FILE:



META ENGINEERING  
PAUL R. WEBER, P.E.  
PO BOX 4606 HONOLULU, HI 96812  
808-394-1420 metaeng@gmail.com

SHEET 2 OF 7

LOT 44 - B - 2 - A  
SMITH SUBDIVISION  
TMK (2) 4-3-15:02  
JERREL C. BARTO  
JANICE D. BARTO  
(Owners)

LOT 44-B  
DEEDED AREA = 19,215 SQ. FT.  
ERODED AREA = 648 SQ. FT.  
NET AREA = 18,567 SQ. FT.  
SCALE: 1" = 20'

LOT 48 - B  
TMK (2) 4-3-15:54  
ROBERT BLOOM  
CYNTHIA BLOOM  
(Owners)

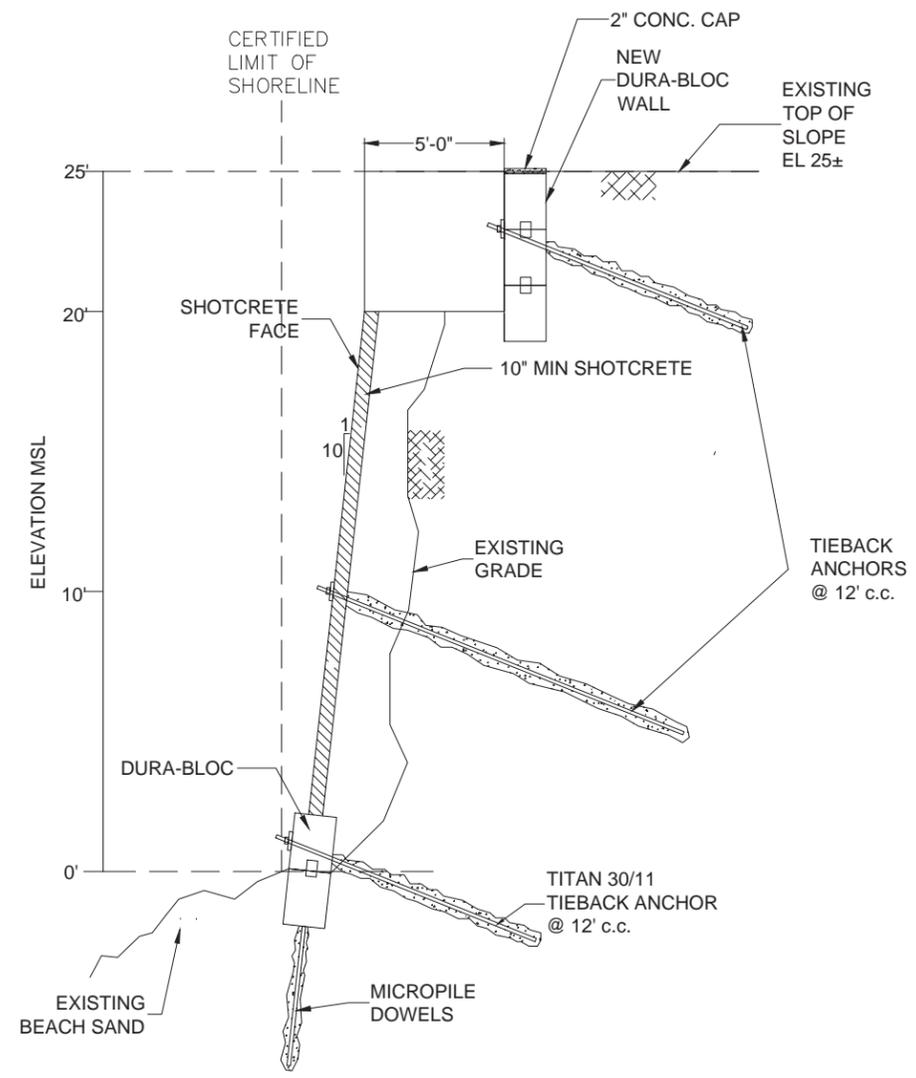
TO KAPALUA  
TO LAHAINA

LOWER HONOAPILANI ROAD

L. KONIA

AW. 5524

SHORELINE CERTIFIED BY DEPARTMENT OF LAND AND NATURAL RESOURCES - MARCH 24, 1992.  
SHORELINE FOLLOWS BASE OF CLIFF LOCATED ON JANUARY 26, 2009.



**SECTION AA**  
SCALE: 1/4" = 1'-0"

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

EXP  
4/30/12

GROUND ANCHORS AND GRADE BEAMS:

1. ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE 2003 INTERNATIONAL RESIDENTIAL CODE AS ADOPTED AND AMENDED BY THE COUNTY OF MAUI.
2. DESIGN CRITERIA
  - A. LATERAL PRESSURE: DESIGN LATERAL SOIL PRESSURE,  $P_A=45$  PCF,  $P_P=N.A.$
  - B. GROUND ANCHORS: TITAN 30/16 GROUDED INJECTION RODS; ROCK/GROUT BOND STRENGTH = 15 PSI.
  - C. MICROPILES: TITAN 30/11 GROUDED INJECTION RODS ADVANCED INTO ROCK; ROCK/GROUT BOND STRENGTH: 15 PSI
  - D. HYDROSTATIC PRESSURE: WATER TABLE ASSUME BELOW THE BOTTOM OF WALL.
3. STRUCTURAL STEEL
  - A. ALL MATERIALS SHALL CONFORM TO ASTM 441 OR BETTER,  $F'S=33$  KSI
  - B. REINFORCING STEEL: GRADE 60 DEFORMED BARS.
  - C. WELDING SHALL CONFORM TO AWS D1-1 'STRUCTURAL WELDING CODE'. WELDING ELECTRODES SHALL BE E70XX. ALL WELDS TO BE PERFORMED BY WABO AND AWS CERTIFIED WELDERS.
4. CONCRETE
  - A. ALL METHODS AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
  - B. STRUCTURAL CONCRETE SHALL BE MIN. 5 1/2 SACK MIX  $F'C=3,000$  PSI.
  - C. GROUT SHALL BE NEAT CEMENT AND WATER WITH A W/C RATIO OF 0.60 OR LESS,  $f_c=4,000$  PSI.
5. MICROPILES
  - A. MICROPILES SHALL BE INSTALLED TO A DEPTH SUFFICIENT TO DEVELOP A DESIGN VERTICAL LOAD OF 18 KIPS.
  - B. MICROPILES SHALL BE DRILLED VERTICALLY ( $\pm 5$  DEGREES OF VERTICAL) AT THE LOCATION SHOWN ON THE PLANS AND TO WITHIN  $\pm 3$  INCHES IN PLAN.
  - C. GROUT INJECTION SHALL PRODUCE A CONTINUOUS RETURN OF GROUT FROM THE MICROPILE HOLE. IF GROUT RETURN IS LOST, THE DRILLING ADVANCE SHALL CEASE AND GROUT PUMPING SHALL CONTINUE UNTIL GROUT RETURNS. THEN DRILLING ADVANCE CAN CONTINUE. IF GROUT RETURN STILL DOES NOT OCCUR, THE PILE HOLE SHALL BE FILLED WITH THICKER GROUT AND RE-TOPPED OFF THE NEXT DAY TO COMPLETELY FILL THE MICROPILE HOLE.
6. GROUND ANCHORS
  - A. GROUND ANCHORS SHALL BE INSTALLED TO THE DEPTH SUFFICIENT TO DEVELOP A DESIGN PULLOUT RESISTANCE OF 18 KIPS. EACH ANCHOR SHALL BE PROOF TESTED TO 18 KIPS UNDER THE OBSERVATION OF THE ENGINEER. ANCHORS THAT FAIL TO MEET THE PROOF TEST LOAD SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
  - B. ALL STEEL SURFACES EXPOSED TO CORROSION SHALL BE GALVANIZED OR OTHERWISE PROTECTED FROM CORROSION.
  - C. GROUT INJECTION SHALL PROCEED AS DESCRIBED ABOVE IN 5.C.
7. LAGGING
  - A. CONCRETE FILLED DURA-BLOC MODULES
8. GRADE BEAMS
  - A. GRADE BEAMS SHALL BE CONSTRUCTED OF CAST-IN-PLACE REINFORCED CONCRETE WITH THE BOTTOM OF THE GRADE BEAM RESTING IN CONTACT WITH OR BURIED IN THE EXISTING GROUND.
  - B. THE DIMENSIONS OF THE GRADE BEAMS SHALL BE AS NOTED ON THE DRAWINGS.
  - C. REBAR SHALL BE SET TO THREE INCHES FROM THE BOTTOM AND THE SIDES OF THE GRADE BEAM.
9. CONCRETE PLASTERS
  - A. NOT USED
10. SPECIAL INSPECTION
  - A. CRITICAL ELEMENTS OF THE RETAINING SYSTEM SHALL BE INSPECTED IN A TIMELY MANNER. THESE ELEMENTS INCLUDE THE DEPTH OF THE ANCHOR RODS, THE CONNECTION OF THE ANCHOR RODS TO THE CONCRETE WALL, AND THE ANCHOR PROOF TESTING.
  - B. SPECIAL INSPECTION SHALL BE PROVIDED BY A QUALIFIED TECHNICIAN UNDER THE DIRECTION OF THE ENGINEER.
11. PROJECT COMPLETION
  - A. THE ENGINEER SHALL VIEW THE FINISHED WORK AND SIGN OFF AFTER CERTIFYING THE ANCHOR PROOF TESTING.

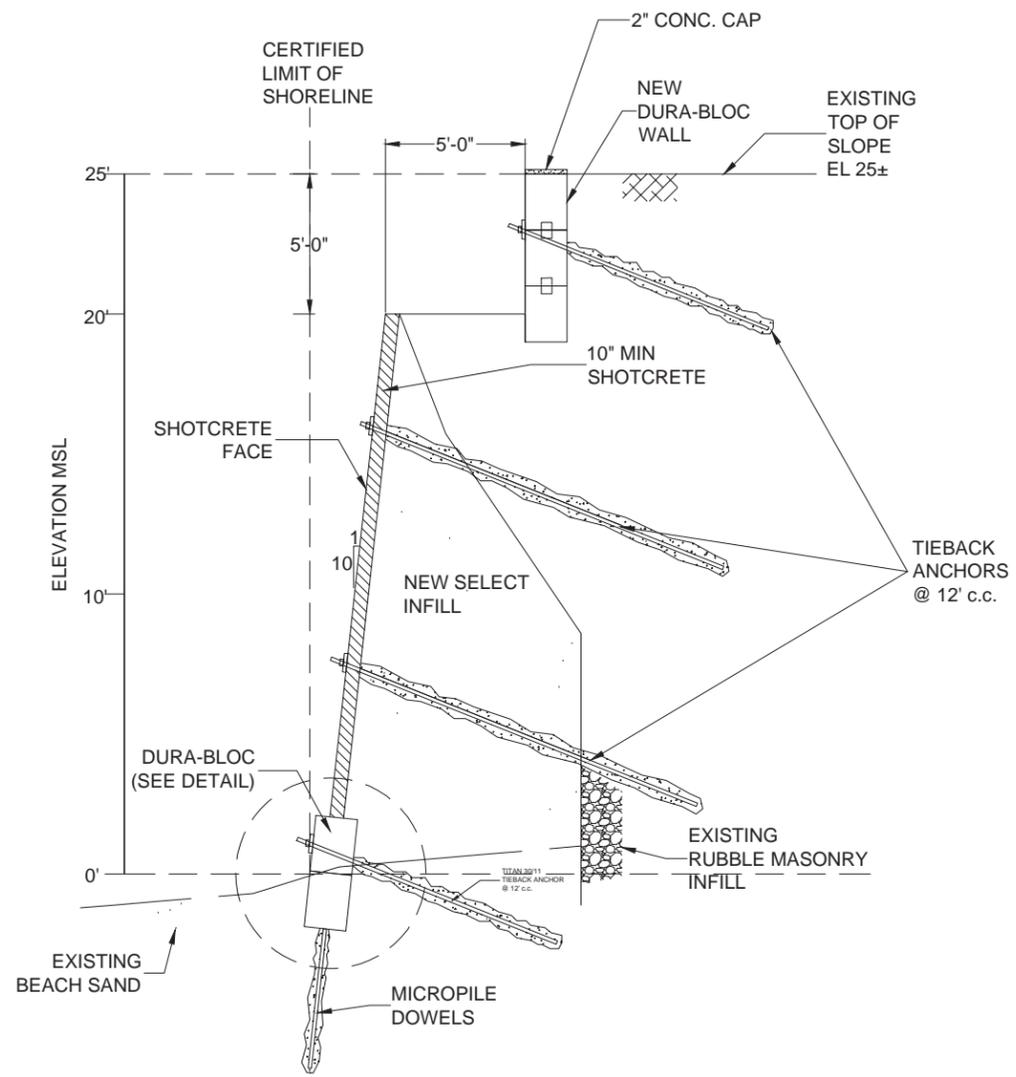
NEW SEA WALL  
WALTER F. HESTER III  
4855 L. HONOAPILANI ROAD  
NAPILI, MAUI, HI

DATE: 28 MAR 2012  
DESIGN: PRW  
DRAWING: SET  
JOB NO.: 1154 RT 01  
FILE:

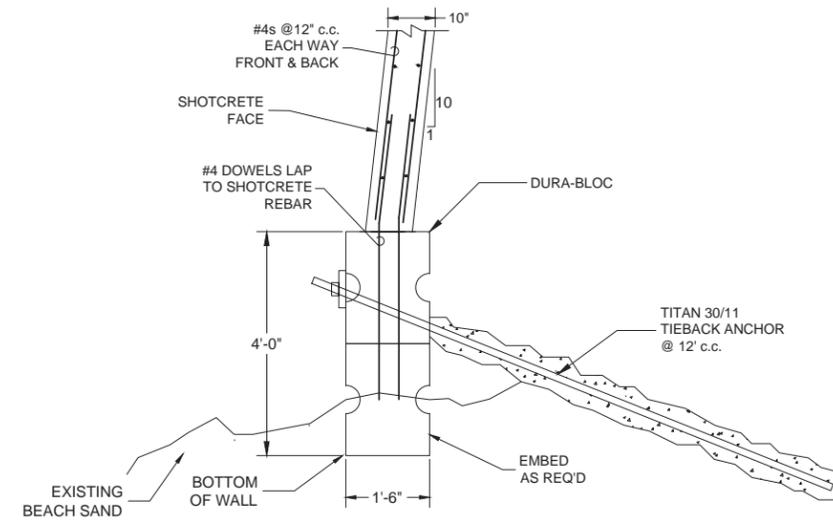


META ENGINEERING  
PAUL R. WEBER, P.E.  
PO BOX 4606 HONOLULU, HI 96812  
808-394-1420 metaeng@gmail.com

SHEET 3 OF 7



**SECTION BB**  
SCALE: 1/4" = 1'-0"



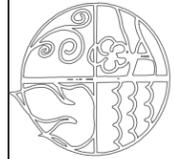
**DURA-BLOC DETAIL**  
SCALE: 1/2" = 1'-0"

THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION, AND  
CONSTRUCTION OF THIS PROJECT WILL  
BE UNDER MY OBSERVATION.

EXP  
4/30/12

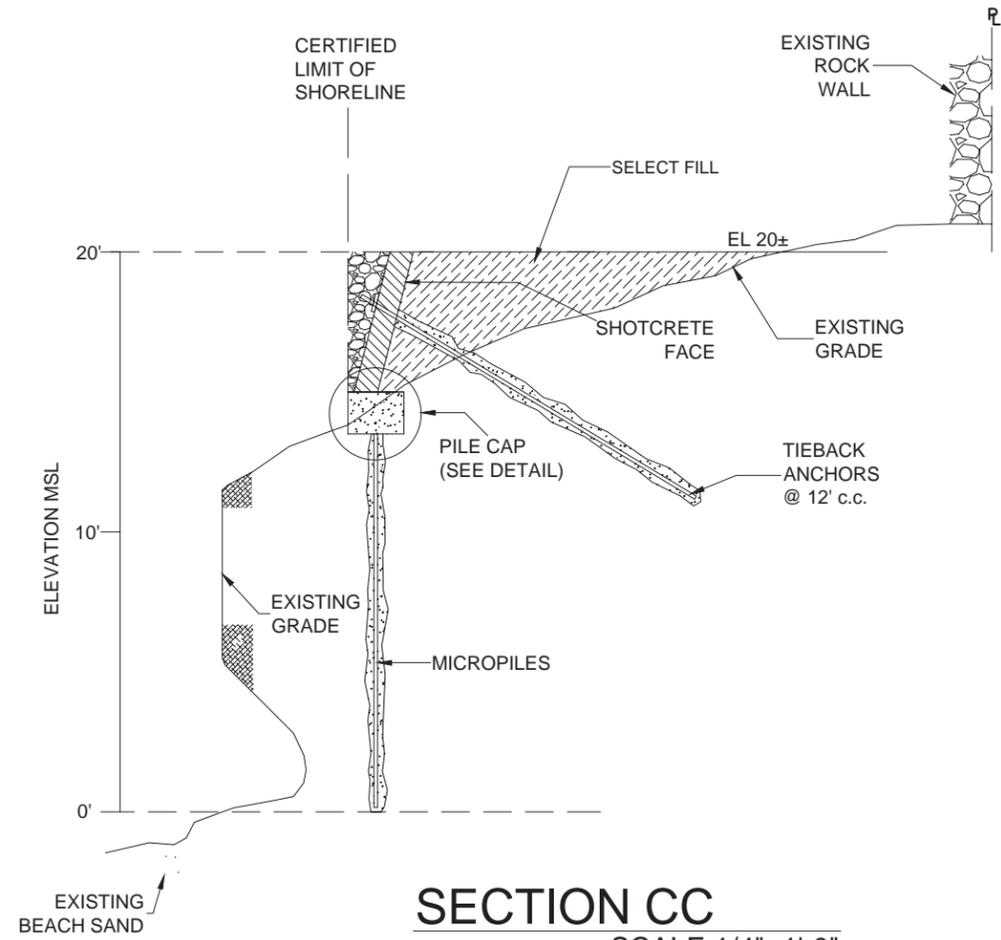
NEW SEA WALL  
WALTER F. HESTER III  
4855 L. HONOAPIILANI ROAD  
NAPILI, MAUI, HI

DATE: 28 MAR 2012  
DESIGN: PRW  
DRAWING: SET  
JOB NO.: 1154 RT 01  
FILE:

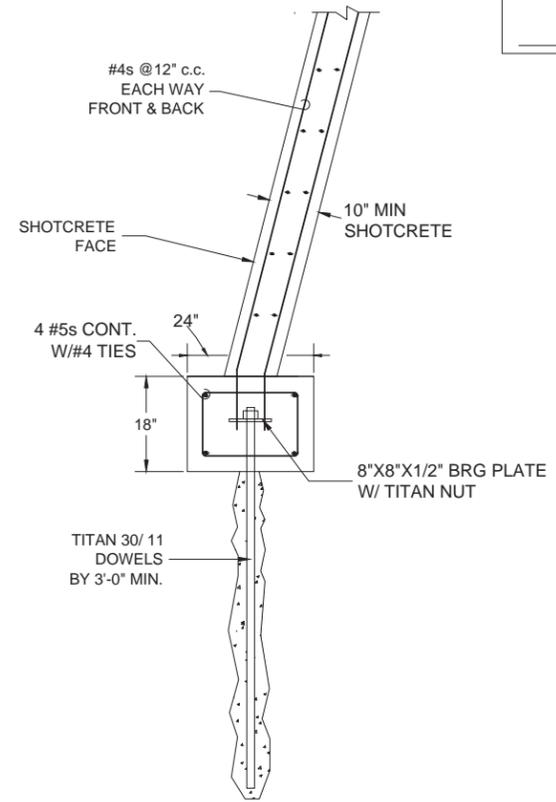


META ENGINEERING  
PAUL R. WEBER, P.E.  
PO BOX 4606 HONOLULU, HI 96812  
808-394-1420 metaeng@gmail.com

SHEET  
4 OF 7



**SECTION CC**  
SCALE: 1/4" = 1'-0"



**PILE CAP DETAIL**  
SCALE: 1/2" = 1'-0"

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

EXP  
4/30/12

NEW SEA WALL  
WALTER F. HESTER III  
4855 L. HONOAPILANI ROAD  
NAPILI, MAUI, HI

DATE: 28 MAR 2012  
DESIGN: PRW  
DRAWING: SET  
JOB NO.: 1154 RT 01  
FILE:



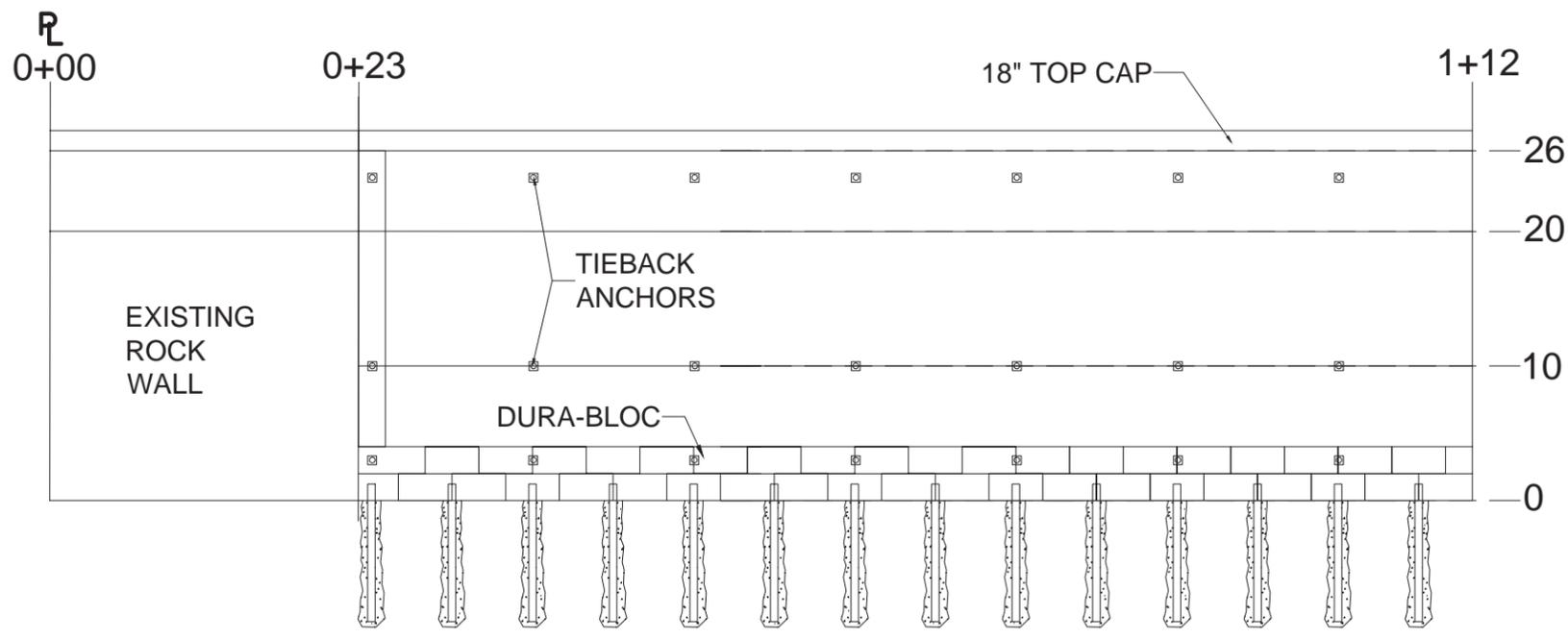
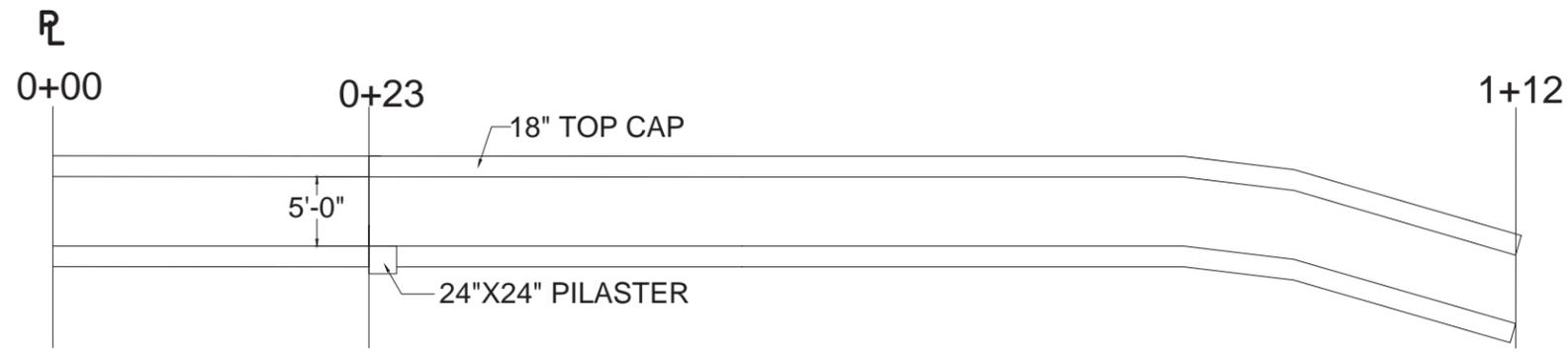
META ENGINEERING  
PAUL R. WEBER, P.E.  
PO BOX 4606 HONOLULU, HI 96812  
808-394-1420 metaeng@gmail.com

SHEET

5

OF

7



**ELEVATION**  
SCALE: 1/8"=1'-0"

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
EXP 4/30/12

NEW SEA WALL  
WALTER F. HESTER III  
4855 L. HONOAPILANI ROAD  
NAPILI, MAUI, HI

DATE: 28 MAR 2012  
DESIGN: PRW  
DRAWING: SET  
JOB NO.: 1154 RT 01  
FILE:



META ENGINEERING  
PAUL R. WEBER, P.E.  
PO BOX 4606 HONOLULU, HI 96812  
808-394-1420 metaeng@gmail.com

SHEET 6 OF 7

1+12

5'-0"

24"X24" PILASTER

2+28

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION, AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

EXP  
4/30/12

NEW SEA WALL  
WALTER F. HESTER III  
4855 L. HONOAPIILANI ROAD  
NAPILI, MAUI, HI

1+12

2+28

TOP OF WALL

26

TIEBACK ANCHORS

EXISTING GRADE

20

16

DURA-BLOC

10

END OF WALL

0

ELEVATION

SCALE: 1/8"=1'-0"

DATE: 28 MAR 2012  
DESIGN: PRW  
DRAWING: SET  
JOB NO.: 1154 RT 01  
FILE:



META ENGINEERING  
PAUL R. WEBER, P.E.  
PO BOX 4606 HONOLULU, HI 96812  
808-394-1420 metaeng@gmail.com

SHEET

7 OF 7

**APPENDIX E:**  
**Preliminary Engineering and Drainage Report**

**PRELIMINARY**  
**CIVIL ENGINEERING AND DRAINAGE REPORT**  
**FOR**  
**PROPOSED RESIDENCE**

**AT**  
**4855 LOWER HONOAPIILANI ROAD**

**ALAELOA, MAUI, HAWAII**

**TAX MAP KEY: (2) 4-3-15:03**

**PREPARED FOR:**

**MR. WALTER HESTER  
C/O CHRIS HART & PARTNERS, INC.  
115 N. MARKET STREET  
WAILUKU, HI 96793**

**PREPARED BY:**



**CIVIL ENGINEERING • LAND SURVEYING • CONSTRUCTION MANAGEMENT & INSPECTIONAL SERVICES**

**871 KOLU STREET, SUITE 201  
WAILUKU, MAUI, HAWAII - 96793  
JOB 03-020**

**APRIL 3, 2009**

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**I. INTRODUCTION:**

This Preliminary Engineering and Drainage Report was prepared in support of an Environmental Assessment and Application for SMA Permit for the replacement of an existing dwelling on Lot 44-B of Mailepai Hui Partition at Alaeloa (Kahana), Maui, Hawaii.

The purpose of this report is to provide a brief description of the existing infrastructural and drainage conditions at the project site and vicinity. It will also provide a brief discussion of probable site improvements to support the project; define the requirements for grading; and proposed measures to control soil erosion during construction.

**II. PROJECT DESCRIPTION:**

The proposed project involves the construction of a 2-story, 5-bedroom residence occupying a land area of about 4,095 square feet. The Conceptual Site Plan is shown on Figure 7.

Related site work generally includes demolition of existing residence, grading, water, sewer and drainage systems.

**III. LOCATION:**

The project site is located in Alaeloa that lies on the west side of the island. It is particularly situated along the seashore and on the west side of Lower Honoapiilani Road. It is about 1½ miles north of Kapalua Airport. Refer to Figures 1 and 2.

**IV. ACCESS:**

Present access to the project site is directly from Lower Honoapiilani Road that connects to Honoapiilani Highway which links West Maui to other parts of the island.

**V. EXISTING SOILS AND TOPOGRAPHY:**

Soils at the project site are classified as Kahana Silty Clay, 7 to 15 percent slopes (KbC) and Rough Broken and Stony Land (rRS) [2]. KbC occupies most of the lot area while rRS is found on a narrow strip along the seashore. Refer to Figure 3. KbC belongs to Kahana Soil Series that consist of well-drained soils on uplands of the island of Maui. It is characterized by slow runoff, no more than slight to moderate erosion hazard and moderately rapid permeability.

rRs consists of very steep, stony gulches where runoff is rapid.

The existing topography of the project parcel is shown on Figure 6. The site is improved containing a residence and related improvements such as walls, driveway, landscaping, etc. The ground is generally sloping down in a westerly direction towards the ocean at about eight (8) percent. The ocean frontage of the property consists of rocky and sandy shore and a rocky cliff as high as 21 feet. A naupaka hedge lines the top bank of the bluff.

**VI. WASTEWATER SYSTEM:**

There is a 21-inch gravity sewerline on Lower Honoapiilani Road (Figure 7) that presently provide service to the project site and surrounding properties. The existing system is part of the County's Napili-Honokowai Sewerage system

that collects and transmits wastewater to the Lahaina Wastewater Reclamation Facility (LWWRF) which is about 2¾ miles south of the project site. Refer to Figure 2.

Based on the Wastewater Flow Standards [8] the existing residence could generate an average flow of 350 gallons per day (gpd). This flow is expected to remain the same after the construction of the new residence.

## **VII. WATER SYSTEM:**

There are County waterlines (8-inch and 12-inch) on Lower Honoapiilani Road that presently serve the project site and surrounding properties. An existing 5/8" water meter with capacity of 20 gpm currently serves the project site. Refer to Figures 4 and 7.

Based on Table 100-18 - Domestic Consumption Guidelines of the Water System Standards [7], the existing single family residence has an average daily demand of 600 gallons. This demand is not anticipated to change after completion of the new residence. However, the final domestic flow requirement and water meter size will be determined during the design stage for the proposed residence. A water meter sizing worksheet indicating the type and number of plumbing fixtures (existing or new) will be submitted to the Dept. of Water Supply as part of the application for building permit.

Currently, fire protection for the project site and vicinity is provided by two (2) fire hydrants on Lower Honoapiilani Road. Refer to Figure 4.

The existing water meter is inside the property. The Dept. of Water Supply might require the relocation of the water meter to within the road right-of-way in conformance with the current standards.

**VIII. DRAINAGE:**

A. General:

The preliminary Drainage Study, in general, is based on the requirements, formulas, charts and tables of the Rules of the Design of Storm Drainage Facilities of the County of Maui [1] hereinafter referred to as County Drainage Standards.

B. Flooding Hazard:

The site is generally located within Flood Zone "C" as plotted on Panel 15003-0138B of the Flood Insurance Rate Map for the County of Maui. Refer to Figure 5. Zone "C" is a designation for areas where the potential of flooding is minimal.

C. Existing Drainage Conditions:

At present, surface runoff from the site generally sheet flows in a northeasterly direction to discharge into the shoreline area. There is no man-made drainage facilities at the site.

D. Storm Runoff Quantities:

Hydrologic calculations are given in Exhibit A - Preliminary Drainage Calculations. Based on the County Drainage Standards, the 10-year, 1-hour storm is used for the design of surface drainage facilities

while the 50-year, 1-hour duration is used for the design of retention basin and culverts.

Based on the preliminary drainage calculations, the proposed project is anticipated to increase the existing 10-year runoff rate of 1.0 cfs to 1.1 cfs and the existing 50-year runoff volume of 951 cf to 1,041 cf, an increase of about 0.1 cfs and 90 cf, respectively. The runoff increases are due mainly to addition of impervious surfaces.

E. Conceptual Drainage Plan:

The Maui County Drainage Standards allows onsite retention of the additional runoff generated by the development when there is no existing drainage system or adequate outlet to connect the development's drainage system. Therefore, the planned drainage system includes subsurface retention basin to impound the runoff volume increase that will be generated by the proposed project. The storage capacity of the retention basin must be at least equal to the 50-year, 1-hour runoff volume increase in accordance with the Maui County Drainage Standards. However, to ensure that the proposed project will not create any additional adverse drainage effects on downstream properties, the planned retention basin will be sized to retain more than the runoff volume increase.

The conceptual drainage plan will primarily consist of subsurface perforated pipe with crushed rock envelopes. It is schematically laid out on Figure 8, while the typical section is shown on Exhibit A. Preliminarily, the proposed retention basin will consist of 20 linear feet of 30" perforated

pipe with storage capacity of about 144 cubic feet (cf) which is greater than the anticipated 50-year storm runoff volume increase of 90 cf.

The proposed drainage system also includes a grated drain inlet to collect lawn runoff.

Roof drains should be discharged to the proposed retention basin via roof gutters and underground pipes.

F. OPERATION AND MAINTENANCE PLAN:

The operation and maintenance of the onsite drainage system will be handled by the owner. The recommended operation and maintenance activities will include, but not limited to:

1. Inspection of the drainage facilities annually and after major storms. Repair damages, if any. Remove debris, if any, at grated drain inlet to permit unimpeded flow.
2. Periodic inspection of the drainage system. Remove debris and sediment build-up.
3. Preventing grass and landscape cuttings from entering the drainage system.
4. Maintaining healthy growth of grass lawns and landscaping to prevent soil erosion; thereby, reducing sediments that might enter the drainage system.

G. CONCLUSION:

The proposed development will increase the existing storm runoff due to addition of impervious surfaces as a result of a larger dwelling unit. Despite the increase in runoff, the proposed replacement of the existing

residence is not anticipated to create additional adverse drainage effects on adjacent and downstream properties. The proposed drainage improvements include the impoundment of runoff volume greater than the anticipated 50-year, 1-hour runoff volume increases generated by the proposed project. The proposed retention basin will also have the effect of reducing the potential for sediments contained in the runoff from entering the nearby shoreline.

**IX. GRADING REQUIREMENTS:**

The site will be graded to properly receive the proposed improvements. Site grading will be in conformance with the applicable requirements of Chapter 20.08, Soil Erosion and Sedimentation of the Maui County Code. A grading and grubbing permit must be obtained from the Development Services Administration prior to grading and grubbing work. Along with the Grading and Best Management Practices (BMPs) plans, the following are to be submitted for grading permit application:

1. Verification if a coastal dune exists on the property by a Coastal Scientist. Grading of coastal dune is prohibited.
2. Copy of SMA permit. All construction related conditions of the SMA permit shall be included in the grading plans.
3. Limits of shoreline setback area as determined by the Department of Planning. The importation and placement of soil within the shoreline area is prohibited.

**X. BEST MANAGEMENT PRACTICES:**

The conceptual plan for the temporary control of soil erosion and dust during site improvement is shown on Figure 9. Some of the requirements will be as follows:

1. Control dust by sprinkling the exposed areas.
2. Graded areas shall be thoroughly watered (but not over watered to cause water runoff to the shoreline) after construction activity has ceased for the day and for weekends and holidays.
3. All exposed areas shall be paved, grassed, or permanently landscaped as soon as finished grading is completed.
4. Storm runoff will be diverted away from graded areas to natural and/or existing drainageways during construction by means of gravel bag berms or other approved methods.
5. Time of construction will be minimized.
6. Only areas that are needed for new improvements will be cleared.
7. Early construction of drainage control features.
8. Excavate pit for drainage basin prior to grading of project site. Use pit temporarily as sediment catchment during construction.
9. Installation of dust control fence surrounding the project site.
10. Installation of silt fence, gravel bag berms or other approved sediment trapping devices at the downstream side of the grading area and sediment pit.

11. Temporary control measures shall be in place and functional prior to construction and shall remain operational throughout the construction period or until permanent controls are in place.

The Contractor will also be required to submit a satisfactory soil erosion control plan to minimize soil erosion prior to an issuance of a grubbing and grading permit by the Development Services Administration. Best Management Practices shall be in compliance with Section 20.08.035 of the Maui County Code (Ord. No. 2684) and "Construction Best Management Practices (BMPs) for the County of Maui" of the Department of Public Works & Waste Management, May 2001.

## **XII. REFERENCES:**

1. Rules for the Design of Storm Drainage Facilities in the County of Maui, Title MC-15, Department of Public Works and Waste Management, County of Maui, Chapter 4.
2. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, August 1972.
3. Flood Insurance Rate Maps for the County of Maui, June 1981.
4. Rainfall-Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43, U. S. Department of Commerce, Weather Bureau, 1962.
5. Erosion and Sediment Control Guide for Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, March 1981.
6. Construction Best Management Practices (BMPs) for the County of Maui, Dept. of Public Works and Waste Management, County of Maui, May 2001.
7. Water System Standards, Department of Water Supply, County of Maui, 2002.

8. Wastewater Flow Standards, Wastewater Reclamation Division, Department of Public Works & Environmental Management, February 2, 2000.

**EXHIBIT A**

**DRAINAGE CALCULATIONS**

## EXHIBIT A

### DRAINAGE CALCULATIONS

I. Reference: Rules for the Design of Storm Drainage Facilities in the County of Maui, 1995

II. Recurrence Interval:

A. 10-Year, 1-Hour: for design of surface drainage facilities

1-Hr. Rainfall Value = 2.4" (Plate 3)

B. 50-Year, 1-Hour: for design of retention basin/culverts

1-Hr. Rainfall Value = 2.7" (Plate 4)

III. Runoff Quantity:

A. Runoff Discharge Rate & Volume:

1. Methodology:

Rational Method,  $Q = CIA$

Where  $Q$  = Flow rate in cubic feet per second (cfs)

$C$  = Runoff Coefficient

$I$  = Rainfall intensity in inches per hour for a duration equal to the time of concentration

$A$  = Drainage Area in Acres

= 0.37 Ac. (Figure 10)

Calculations employing this method were performed on computer using hydrologic software "Hydraflow Hydrographs 2004" by Intelisolve.

2. Runoff Coefficient, C:

C Values (Table 2): Lawn = 0.35

Impervious (roofs, etc.) = 0.95

a. Existing Condition:

Lawn Area = 0.26 Ac.

Impervious Area = 0.11 Ac.

$$\text{Weighted C} = \frac{0.26 \times 0.35 + 0.11 \times 0.95}{0.37}$$

$$= 0.53$$

b. Future Condition:

Lawn Area = 0.23 Ac.

Impervious Area = 0.14 Ac.

$$\text{Weighted C} = \frac{0.23 \times 0.35 + 0.14 \times 0.95}{0.37}$$

$$= 0.58$$

3. Time of Concentration, T<sub>c</sub>:

(Typical for Existing and Future Condition)

Length of Flow = 160 ft.

Average Slope = 8%

T<sub>c</sub> = 9 min. (Poor Grass) (Plate 2)

4. Runoff Peak Rate and Volume (1-Hour Rainfall):

(See Hydrograph Plots)

10-Year Storm:

	Existing	Future	Increase
Q <sub>Peak</sub> (cfs)	1.0	1.1	0.1
Volume (cf)	843	923	80

50-Year Storm:

	Existing	Future	Increase
Q <sub>Peak</sub> (cfs)	1.2	1.3	0.1
Volume (cf)	951	1,041	90*

\*(Minimum volume to be retained onsite to prevent additional drainage adverse effect on the seashore.

IV. Retention Basin:

In accordance with the County Drainage Standards, storage volume of a retention basin shall at least equal to the anticipated 50-year storm volume increase generated by developments with areas less than 100 acres.

Typical section of the proposed subsurface retention basin is shown on the attached drawing while the location is shown on Figure 10. In keeping with the County Drainage Standards, the storage capacity of the retention basin were determined without taking into account the soil percolation and that only 50% of the void volume of the rock envelope will be included.

Proposed basin capacity versus volume is as follows:

Proposed Basin:

1 - 30" Perforated Pipe @ L = 20 linear feet

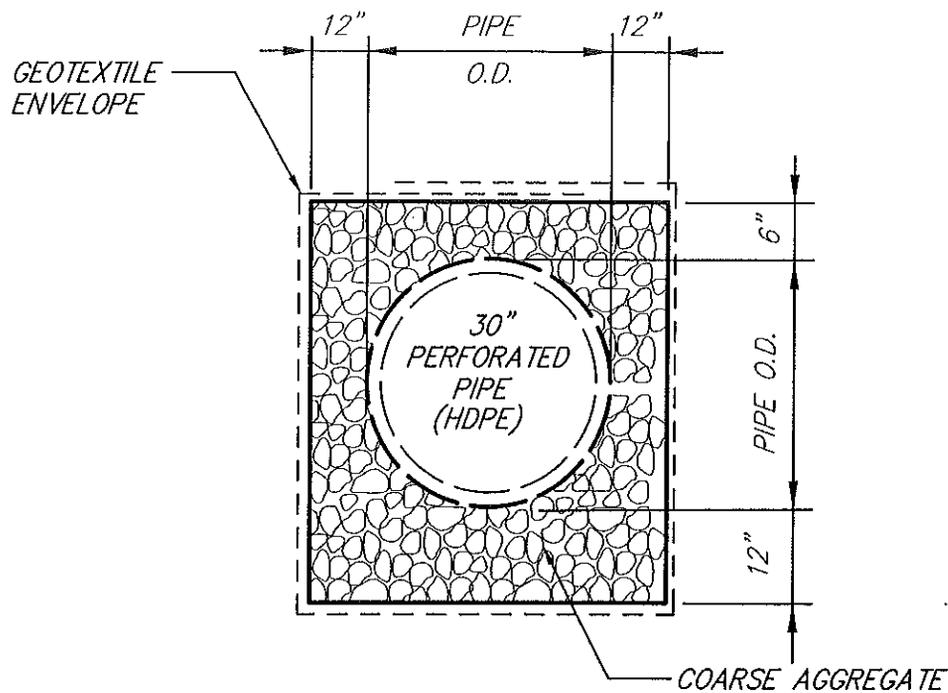
Capacity = 20 x 7.2 cf/lf

= 144 cf

$V_{50}$  Inc. = 90 cf

Extra Cap. = 54 cf

Z:\2004\04-083\MONTESSORI CONSTRUCTION PLAN\_NOV2005\_BACKUP\construction\_plan2\_retention\_capacity.dwg 25-SEP-2008 Revised BY:R.J.M



**Determine Holding Capacity:**

Stone Void Ratio = 35%

Capacity per Linear Foot:

$$\begin{aligned}
 \text{Pipe Capacity} &= 3.146 \times R^2 \\
 &= 3.1416 \times 1.25^2 \\
 &= 4.9 \text{ cf}
 \end{aligned}$$

$$\begin{aligned}
 \text{Stone Void Volume} &= (4.5 \times 4.0 - 4.9) \times 35\% \\
 &= (18.0 - 4.9) \times 35\% \\
 &= 4.6 \text{ cf}
 \end{aligned}$$

$$\begin{aligned}
 \text{Effective Stone Capacity} &= 4.6 \times 50\% \\
 &= 2.3 \text{ cf}
 \end{aligned}$$

$$\begin{aligned}
 \text{Capacity/LF} &= 4.9 + 2.3 \\
 &= 7.2 \text{ cf}
 \end{aligned}$$

**TYPICAL SECTION**  
**RETENTION BASIN**  
**(SINGLE BARREL)**

NOT TO SCALE

# Hydraflow IDF Report

Return Period (Yrs)	Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-----
2	0.0000	0.0000	0.0000	-----
3	0.0000	0.0000	0.0000	-----
5	0.0000	0.0000	0.0000	-----
10	32.7922	10.0000	0.6184	-----
25	0.0000	0.0000	0.0000	-----
50	40.7916	11.2000	0.6383	-----
100	0.0000	0.0000	0.0000	-----

H:\Lucas 06-019.IDF

**Intensity = B / (Tc + D)^E**

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	█	5.14	█	4.00	3.64	█	3.11	2.92	2.75	2.61	2.48	█
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	█	5.81	█	4.54	4.13	█	3.53	3.31	3.12	2.95	2.81	█
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tc = time in minutes

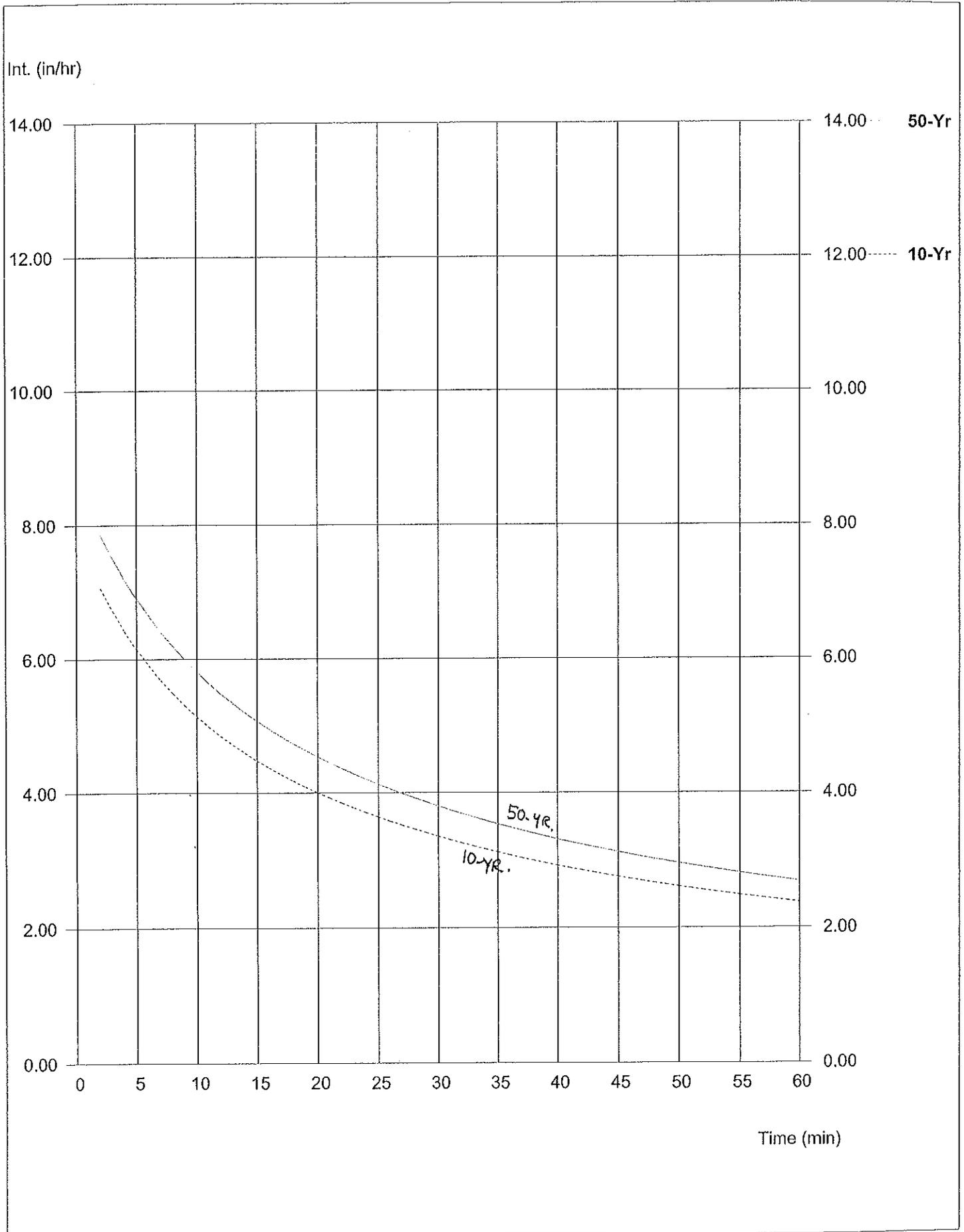
I<sub>10</sub> = 2.4"

I<sub>50</sub> = 2.7"

█ TAKEN FROM PLATE 2

# Hydrograph IDF Curves

IDF file: Lucas 08-019.IDF



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Mar 27 2009, 2:32 PM

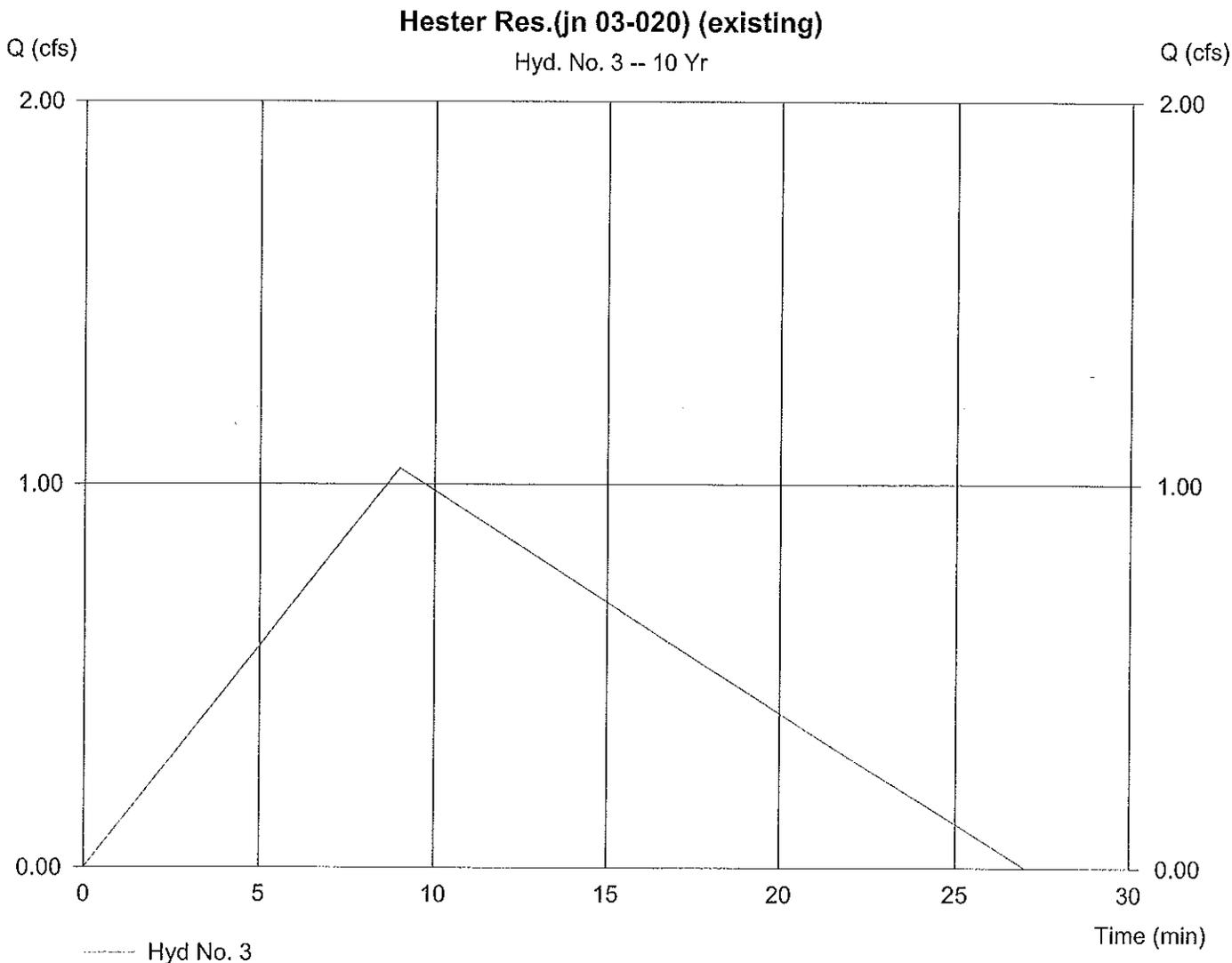
## Hyd. No. 3

Hester Res.(jn 03-020) (existing)

Hydrograph type = Rational  
Storm frequency = 10 yrs  
Drainage area = 0.370 ac  
Intensity = 5.309 in/hr  
IDF Curve = Lucas 08-019.IDF

Peak discharge = 1.04 cfs  
Time interval = 1 min  
Runoff coeff. = 0.53  
Tc by User = 9.00 min  
Asc/Rec limb fact = 1/2

Hydrograph Volume = 843 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Mar 27 2009, 2:32 PM

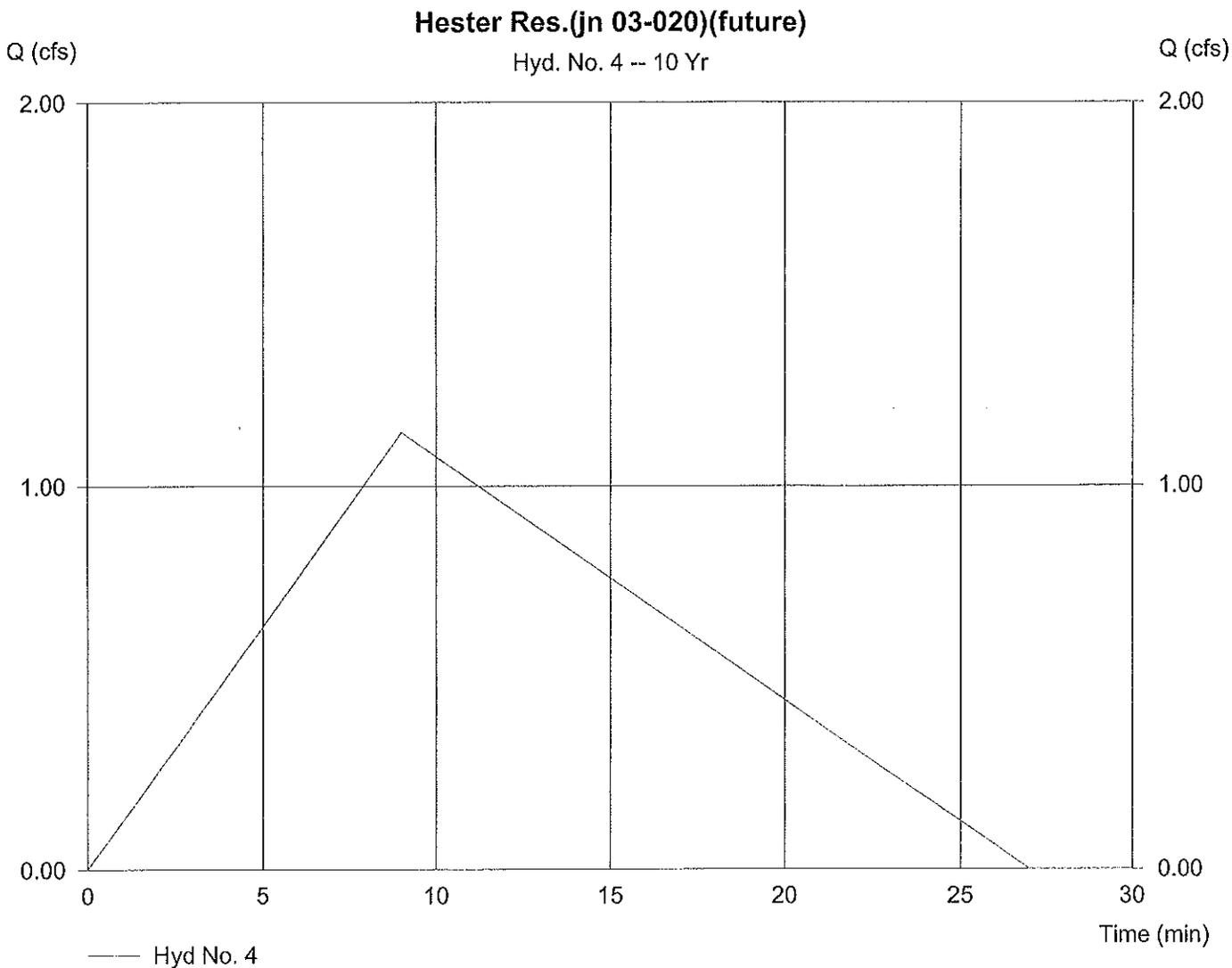
## Hyd. No. 4

Hester Res.(jn 03-020)(future)

Hydrograph type = Rational  
Storm frequency = 10 yrs  
Drainage area = 0.370 ac  
Intensity = 5.309 in/hr  
IDF Curve = Lucas 08-019.IDF

Peak discharge = 1.14 cfs  
Time interval = 1 min  
Runoff coeff. = 0.58  
Tc by User = 9.00 min  
Asc/Rec limb fact = 1/2

Hydrograph Volume = 923 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Mar 27 2009, 2:32 PM

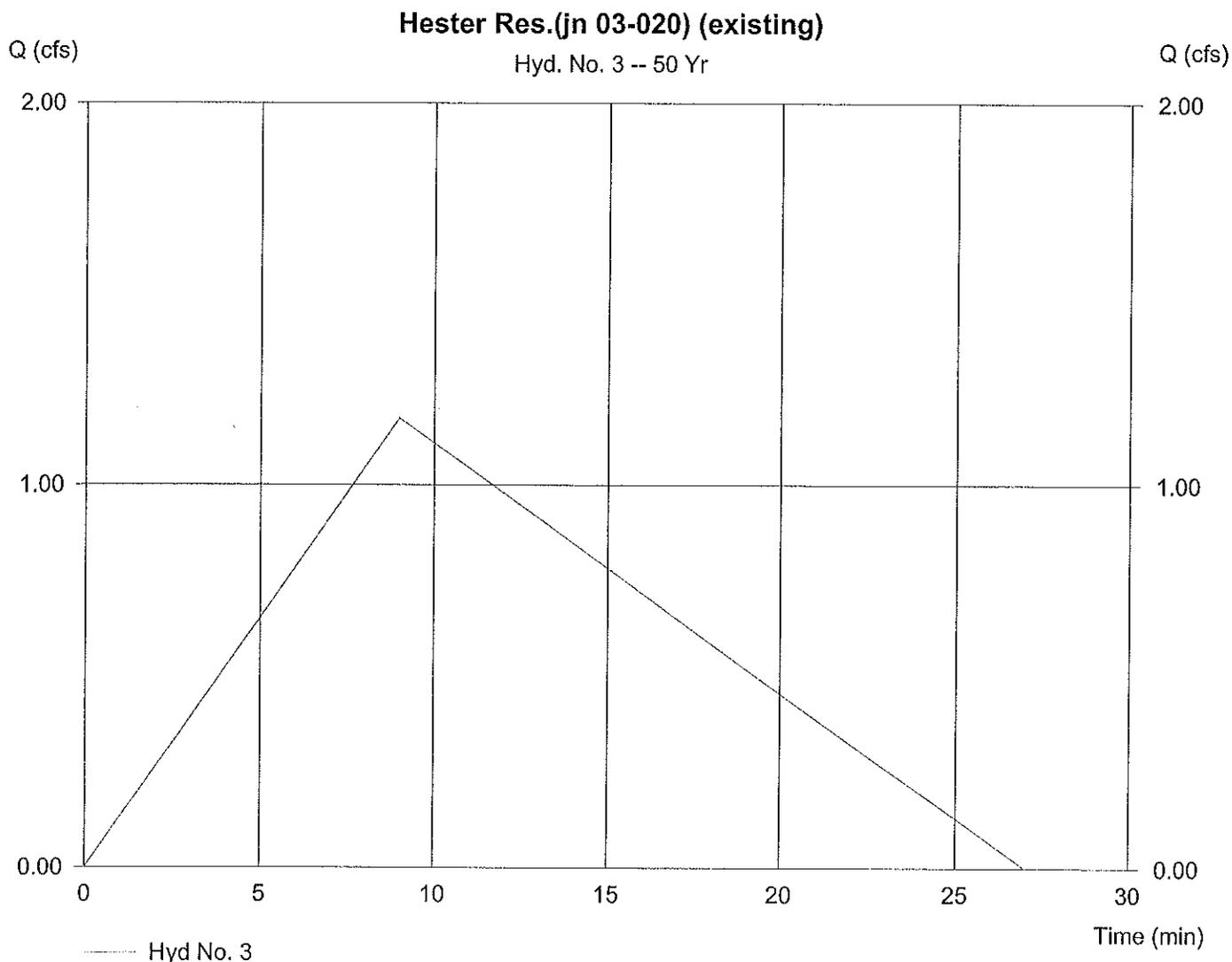
## Hyd. No. 3

Hester Res.(jn 03-020) (existing)

Hydrograph type = Rational  
Storm frequency = 50 yrs  
Drainage area = 0.370 ac  
Intensity = 5.989 in/hr  
IDF Curve = Lucas 08-019.IDF

Peak discharge = 1.17 cfs  
Time interval = 1 min  
Runoff coeff. = 0.53  
Tc by User = 9.00 min  
Asc/Rec limb fact = 1/2

Hydrograph Volume = 951 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Mar 27 2009, 2:32 PM

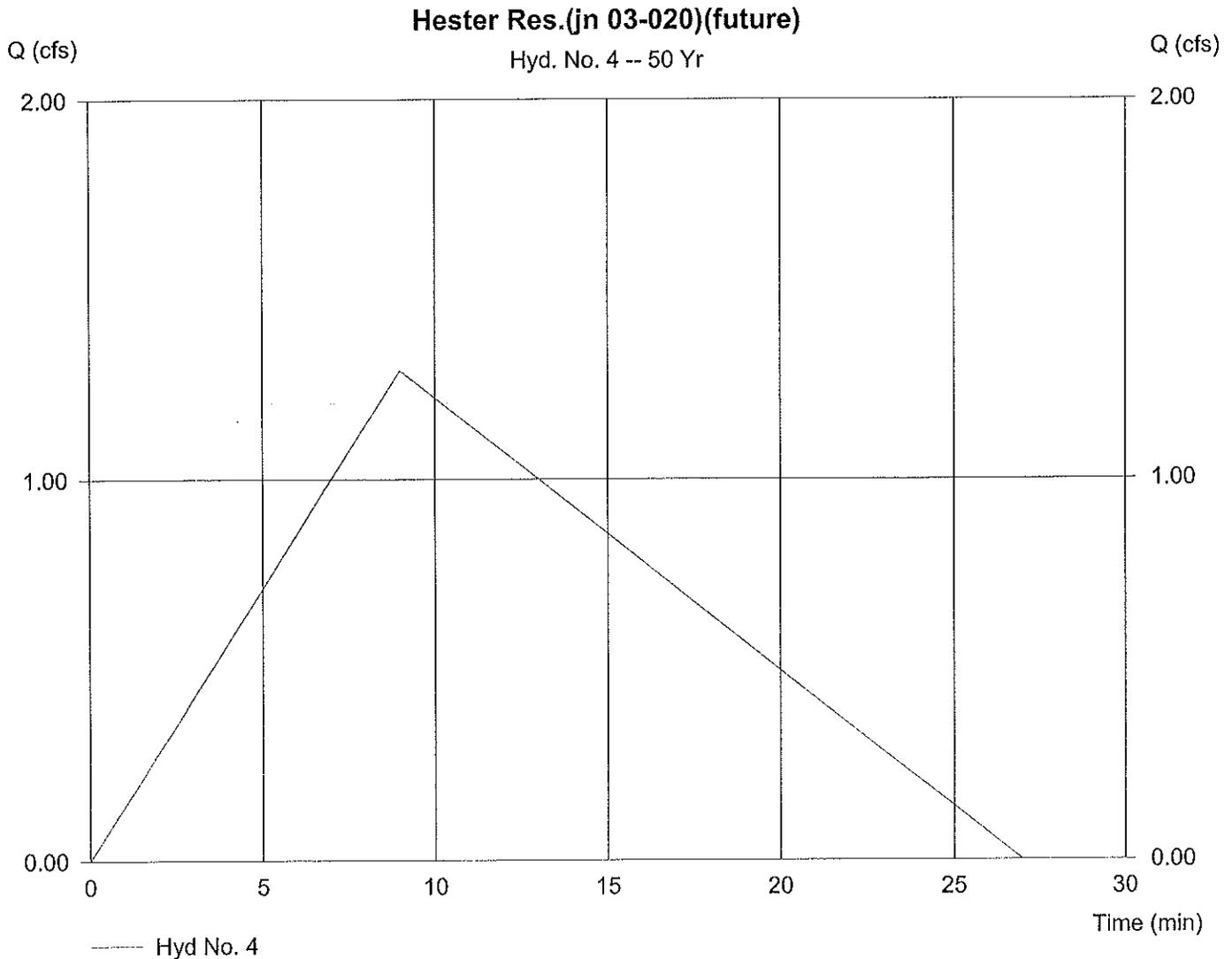
## Hyd. No. 4

Hester Res.(jn 03-020)(future)

Hydrograph type = Rational  
 Storm frequency = 50 yrs  
 Drainage area = 0.370 ac  
 Intensity = 5.989 in/hr  
 IDF Curve = Lucas 08-019.IDF

Peak discharge = 1.29 cfs  
 Time interval = 1 min  
 Runoff coeff. = 0.58  
 Tc by User = 9.00 min  
 Asc/Rec limb fact = 1/2

Hydrograph Volume = 1,041 cuft



GUIDE FOR THE DETERMINATION OF RUNOFF COEFFICIENTS FOR BUILT-UP AREAS\*

WATERSHED CHARACTERISTICS	EXTREME	HIGH	MODERATE	LOW
INFILTRATION	NEGLIGIBLE 0.20	SLOW 0.14	MEDIUM 0.07	HIGH 0.0
RELIEF	STEEP (> 25%) 0.08	HILLY (15 - 25%) 0.06	ROLLING (5 - 15%) 0.03	FLAT (0 - 5%) 0.0
VEGETAL COVER	NONE 0.07	POOR (< 10%) 0.05	GOOD (10 - 50%) 0.03	HIGH (50 - 90%) 0.0
DEVELOPMENT TYPE	INDUSTRIAL & BUSINESS 0.55	HOTEL - APARTMENT 0.45	RESIDENTIAL 0.40	AGRICULTURAL 0.15

\*NOTE: The design coefficient "c" must result from a total of the values for all four watershed characteristics of the site.

Table 2

RUNOFF COEFFICIENTS

Type of Drainage Area	Runoff Coefficient C
Parks, cemeteries	0.25
Playgrounds	0.35
Railroad yard areas	0.40
Unimproved areas	0.30
Streets:	
Asphaltic	0.95
Concrete	0.95
Brick	0.85
Driveway and walks	0.85
Roofs	0.95
Lawns:	
Sandy soil, flat, 2%	0.10
Sandy soil, avg., 2-7%	0.15
Sandy soil, steep, 7%	0.20
Heavy soil, flat, 2%	0.17
Heavy soil, avg., 2-7%	0.22
Heavy soil, steep, 7%	0.35

Table 3

MINIMUM RUNOFF COEFFICIENTS FOR BUILT-UP AREAS

Residential areas	C=0.55
Hotel, apartment areas	C=0.70
Business areas	C=0.80
Industrial areas	C=0.80

The type of soil, the type of open space and ground cover and the slope of the ground shall be considered in arriving at reasonable and acceptable runoff coefficients.

Table 4

APPROXIMATE AVERAGE VELOCITIES OF RUNOFF FOR CALCULATING TIME OF CONCENTRATION

TYPE OF FLOW	VELOCITY IN FPS FOR SLOPES (in percent) INDICATED			
	0-3%	4-7%	8-11%	12-15%
<b>OVERLAND FLOW:</b>				
Woodlands	1.0	2.0	3.0	3.5
Pastures	1.5	3.0	4.0	4.5
Cultivated	2.0	4.0	5.0	6.0
Pavements	5.0	12.0	15.0	18.0
<b>OPEN CHANNEL FLOW:</b>				
Improved Channels	Determine Velocity by Manning's Formula			
Natural Channel* (not well defined)	1.0	3.0	5.0	8.0

\*These values vary with the channel size and other conditions so that the ones given are the averages of a wide range. Wherever possible, more accurate determinations should be made for particular conditions by Manning's formula.

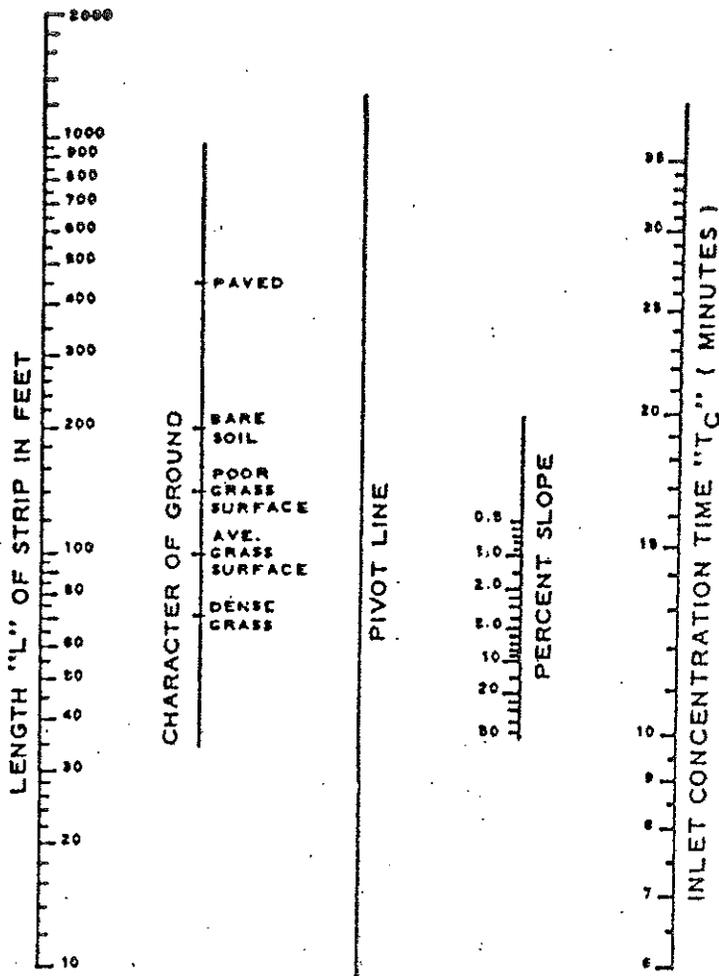
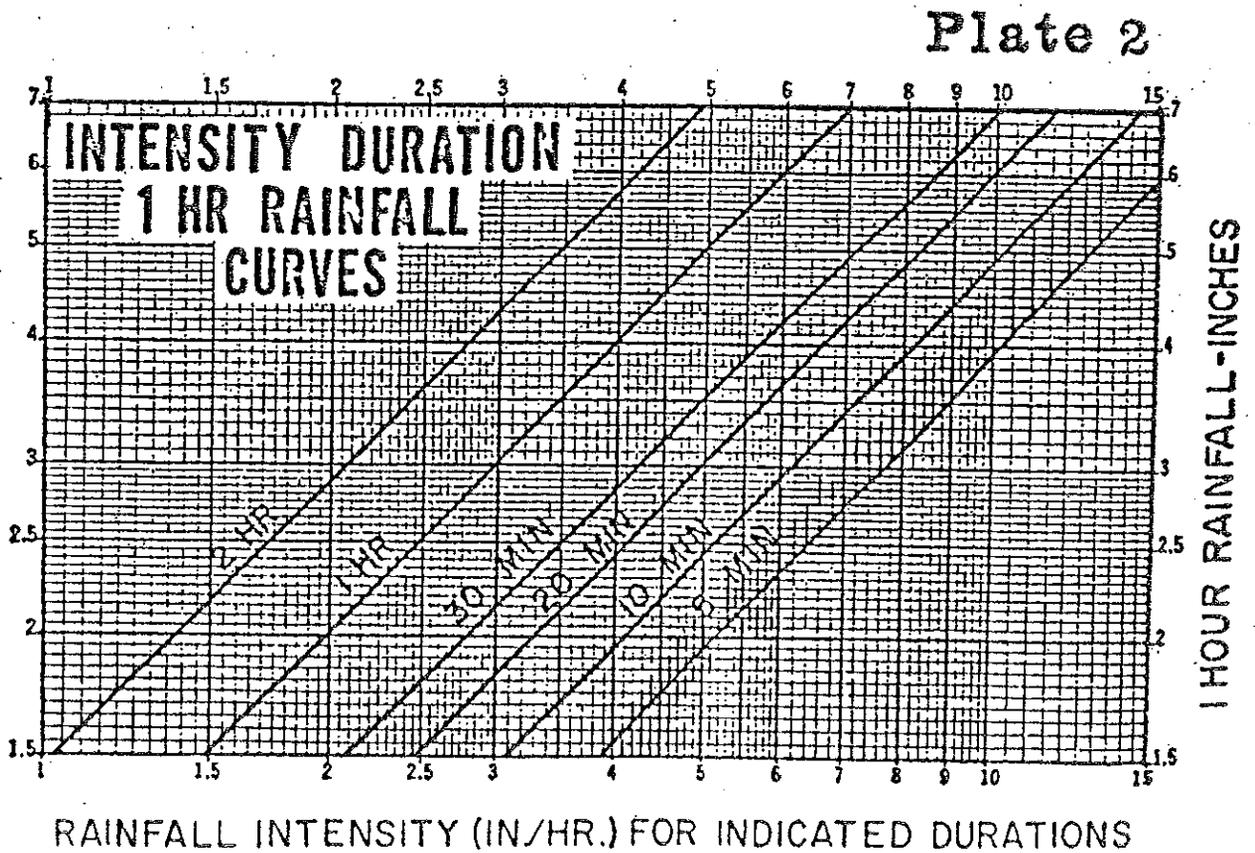
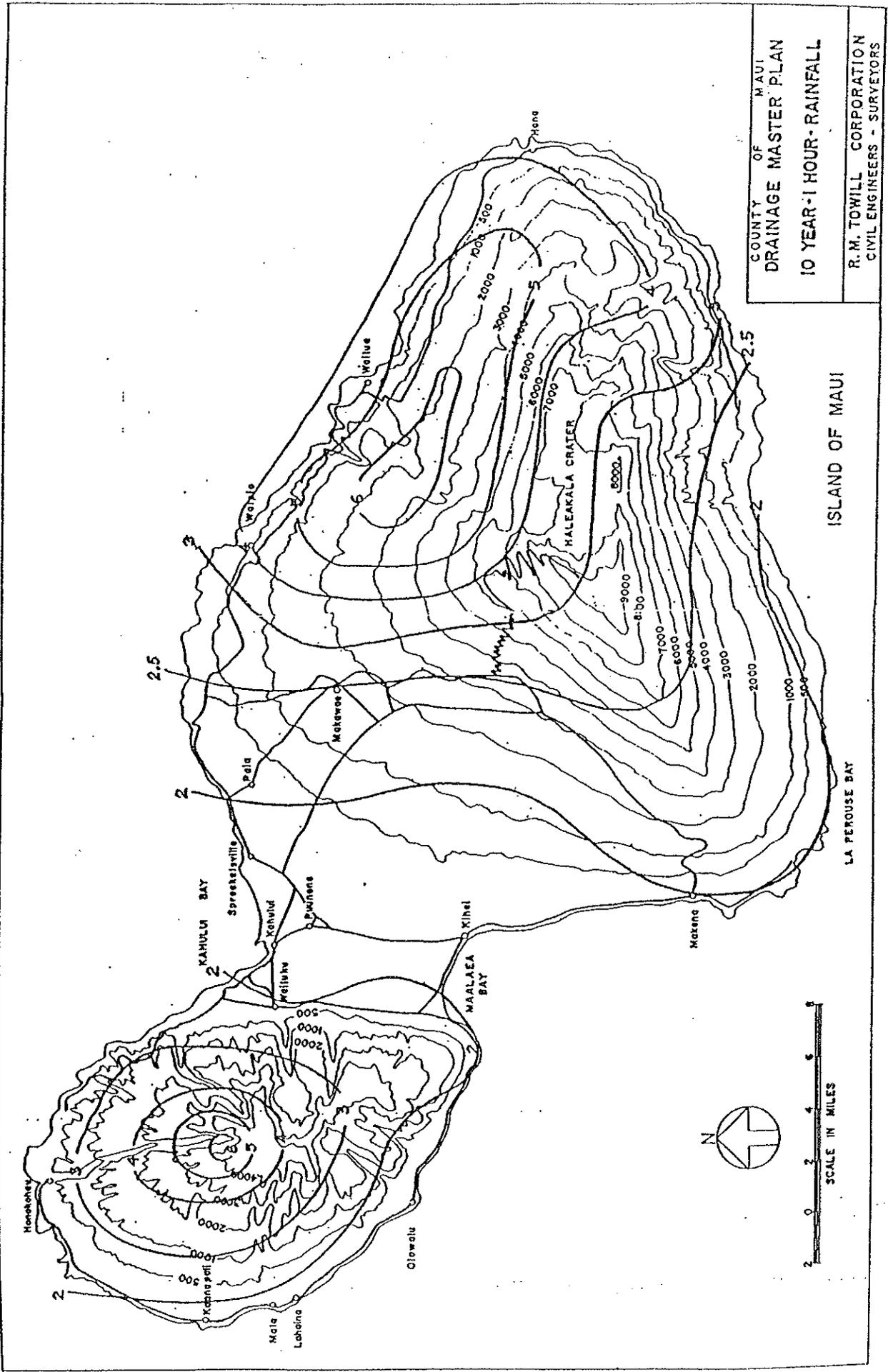


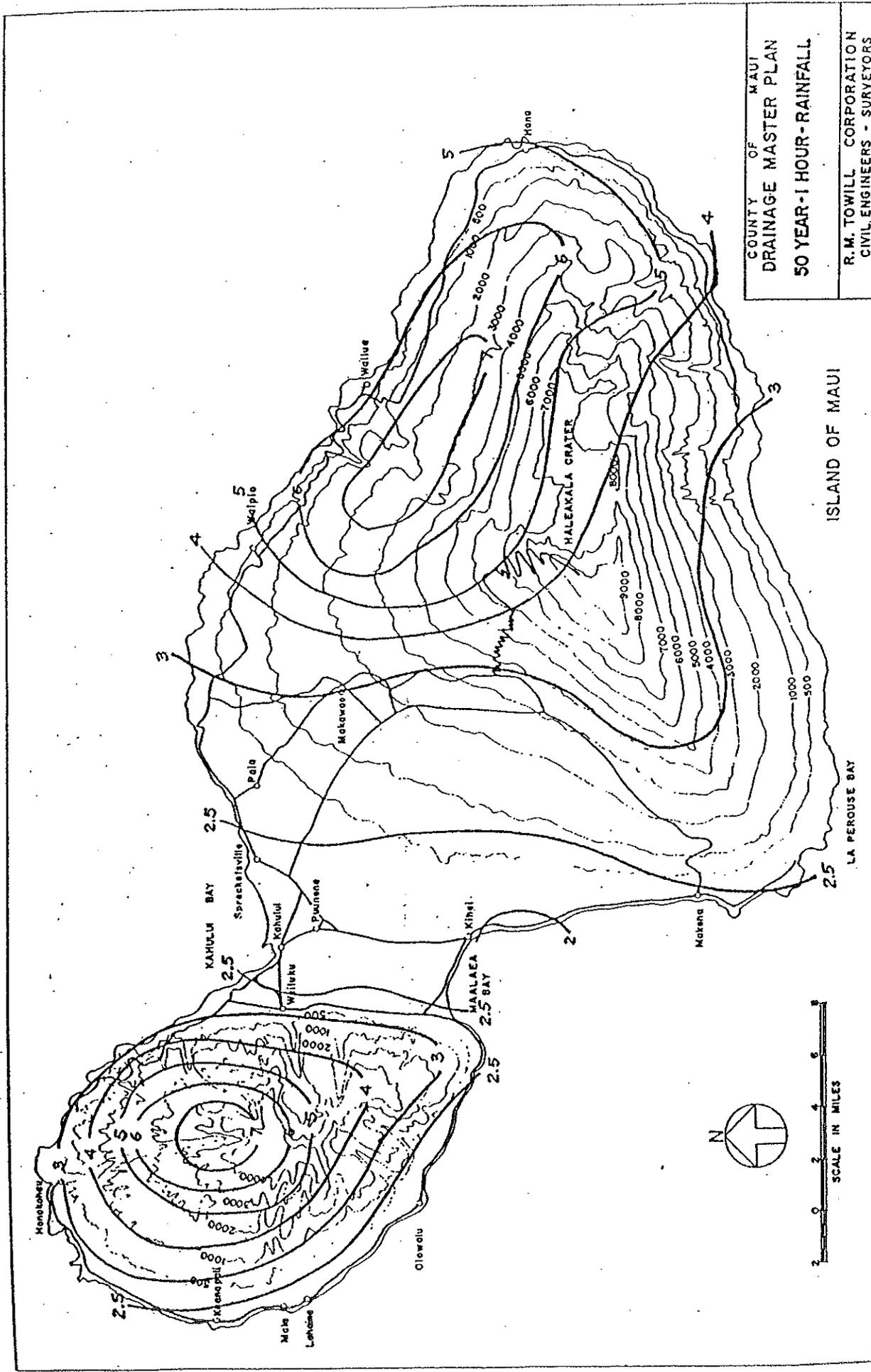
Plate 1  
Overland  
Flow  
Chart





COUNTY OF MAUI  
 DRAINAGE MASTER PLAN  
 10 YEAR-1 HOUR-RAINFALL  
 R.M. TOWILL CORPORATION  
 CIVIL ENGINEERS - SURVEYORS

ISLAND OF MAUI

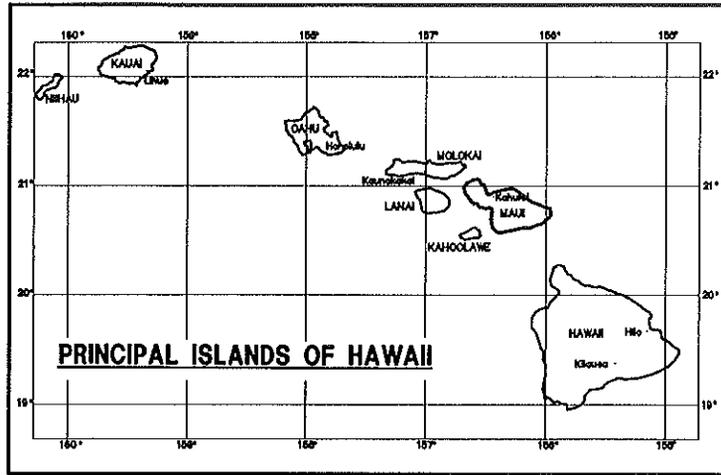


COUNTY OF MAUI  
 DRAINAGE MASTER PLAN  
 50 YEAR-1 HOUR-RAINFALL

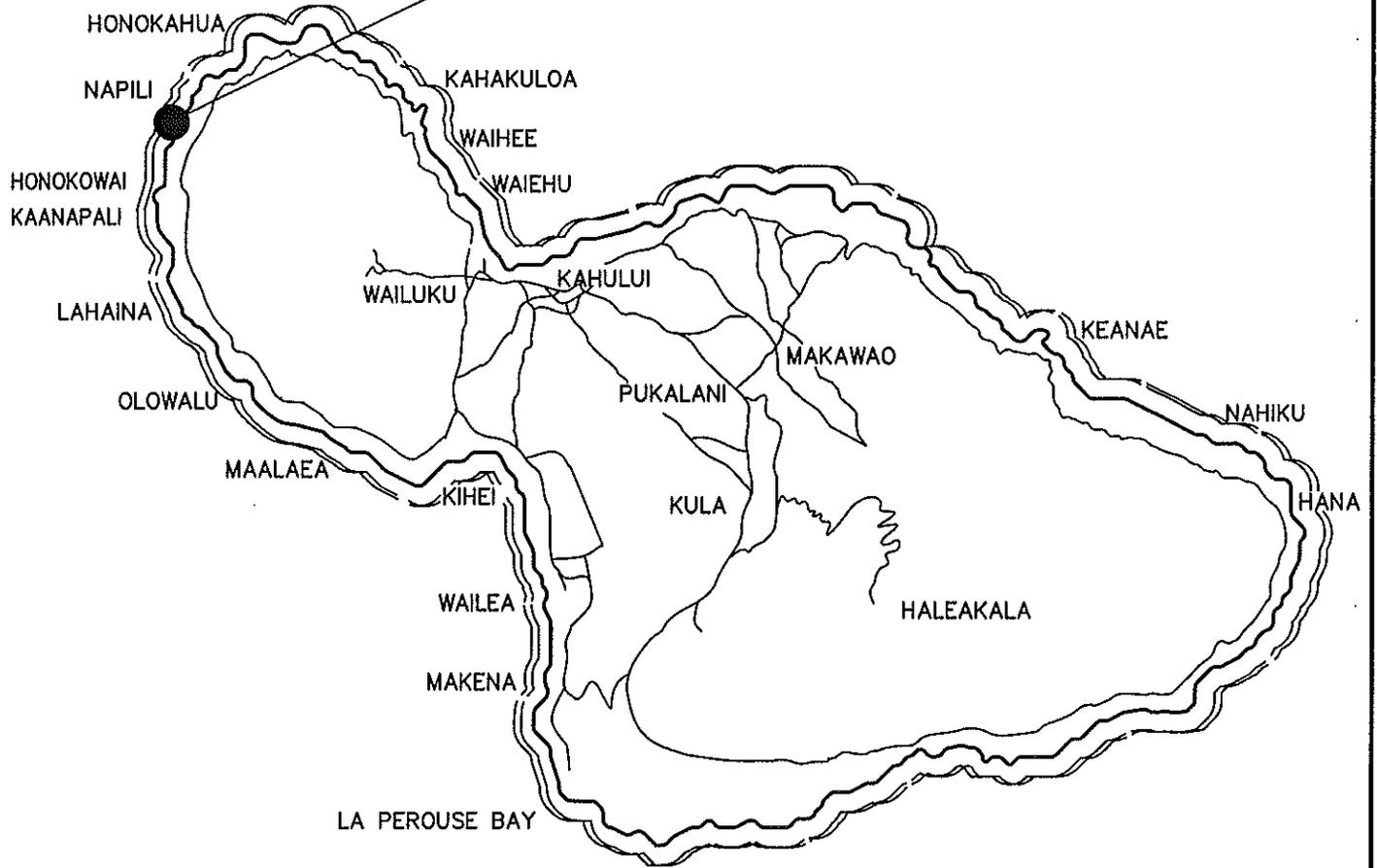
R. M. TOWILL CORPORATION  
 CIVIL ENGINEERS - SURVEYORS

ISLAND OF MAUI

Plate 4



**PROJECT  
SITE**

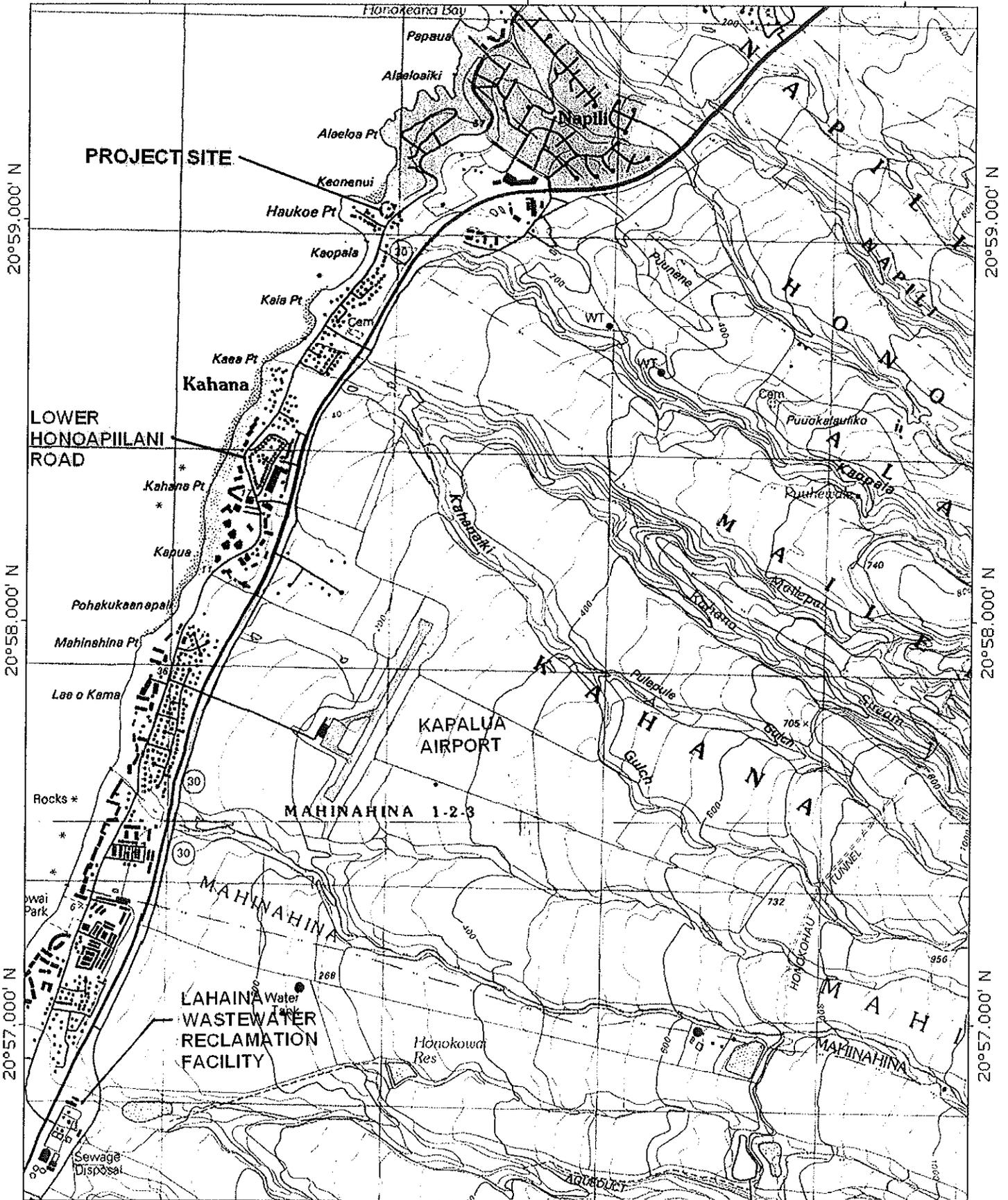


**LOCATION MAP  
ISLAND OF MAUI**

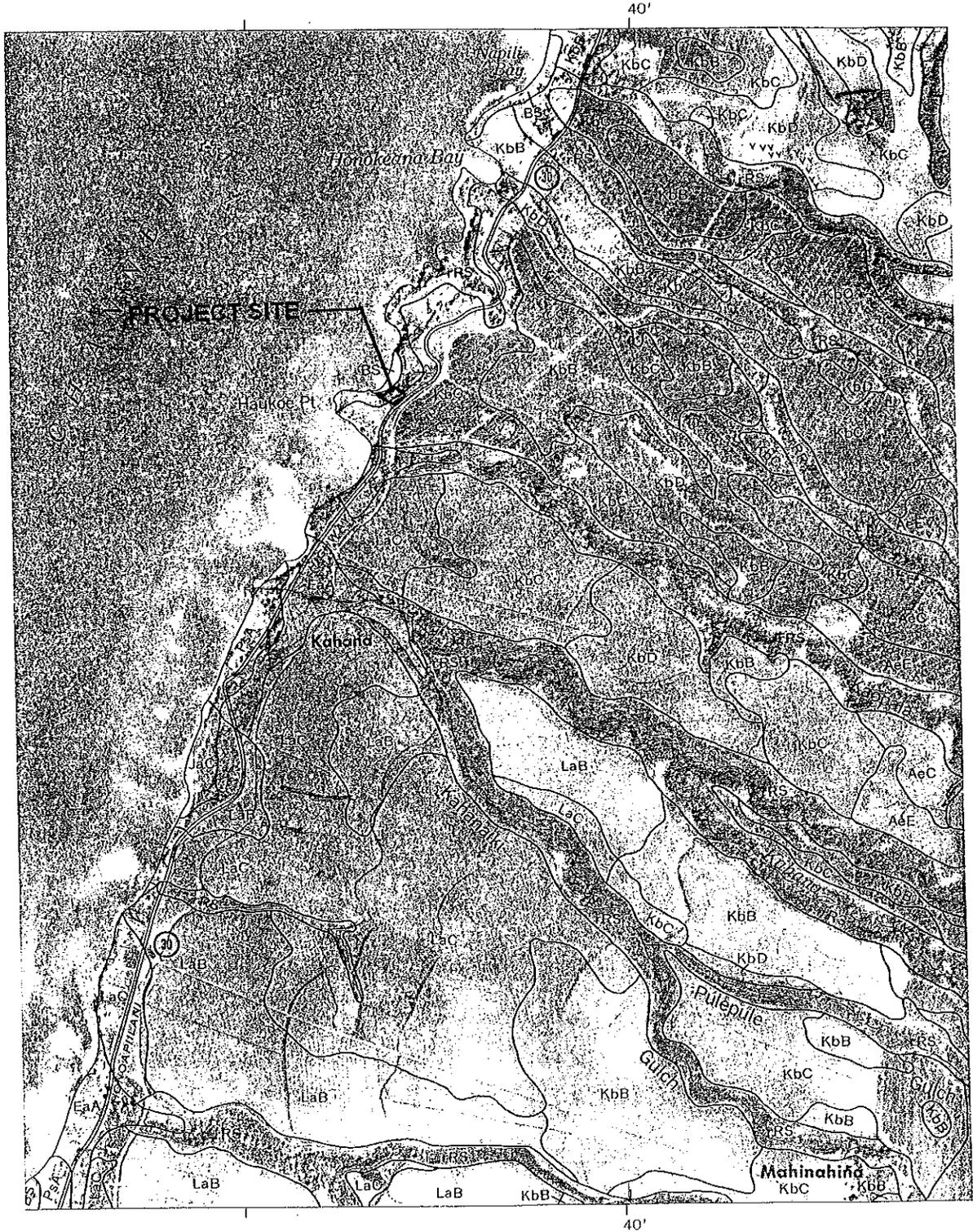
Tax Map Key (2) 4-3-15: 03

**FIGURE 1**

(Layout2)  
 Z:\DRAW1\2003\03-020\03-2009\_HESTER-VICINITY LOCATION MAPS.dwg 02-APR-2009 : Revised BY:Nancy

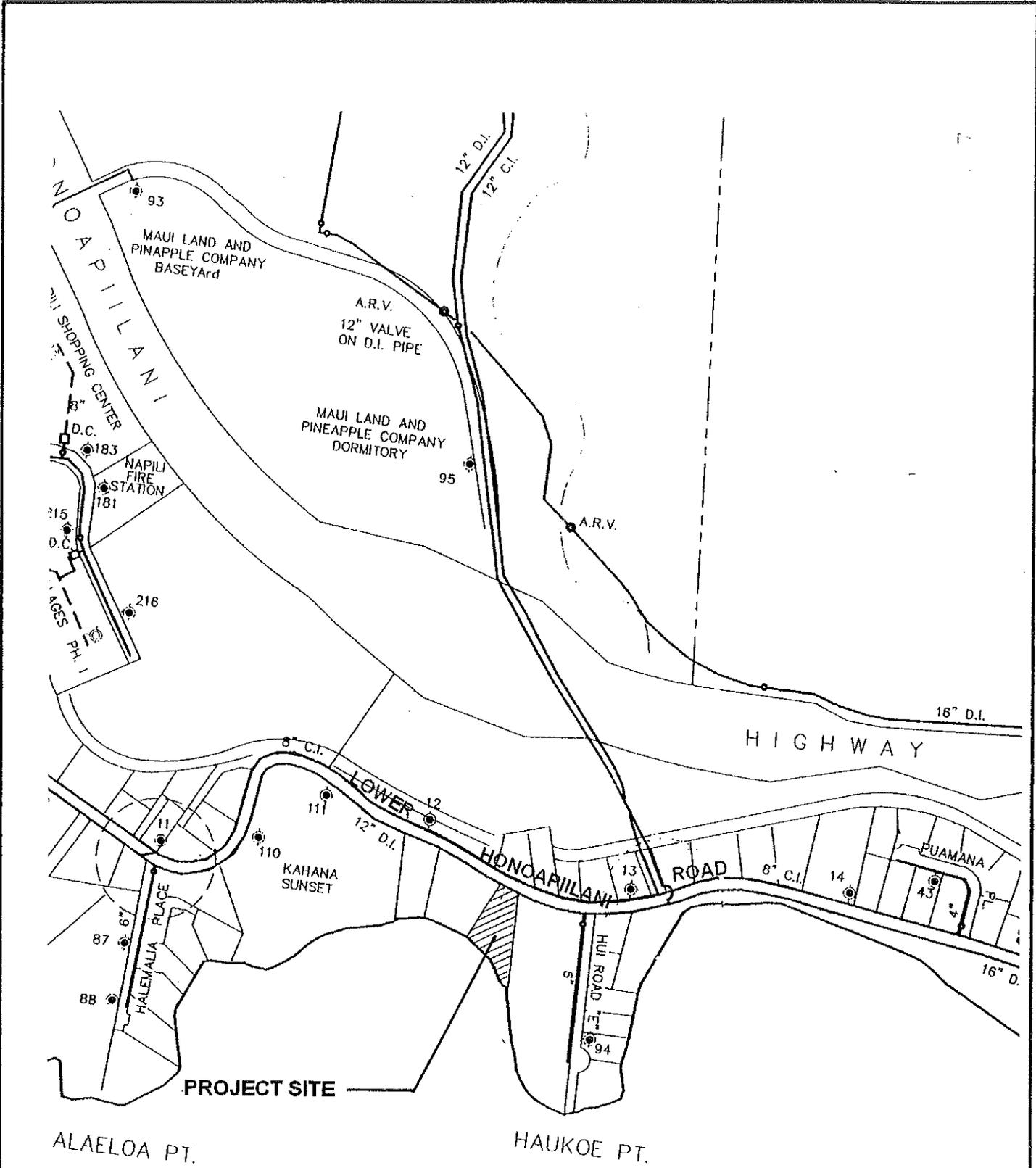


Source: Soil Survey of the Islands of  
Kauai, Oahu, Maui, Molokai  
and Lanai, State of Hawaii,  
August 1972  
(Map 92)



**SOILS MAP**  
Scale: 1" = 2,000'

FIGURE 3



**EXISTING COUNTY WATER SYSTEM**

Scale: 1" = 400'

Source: DWS Fire Protection Map  
February 2000

**FIGURE 4**

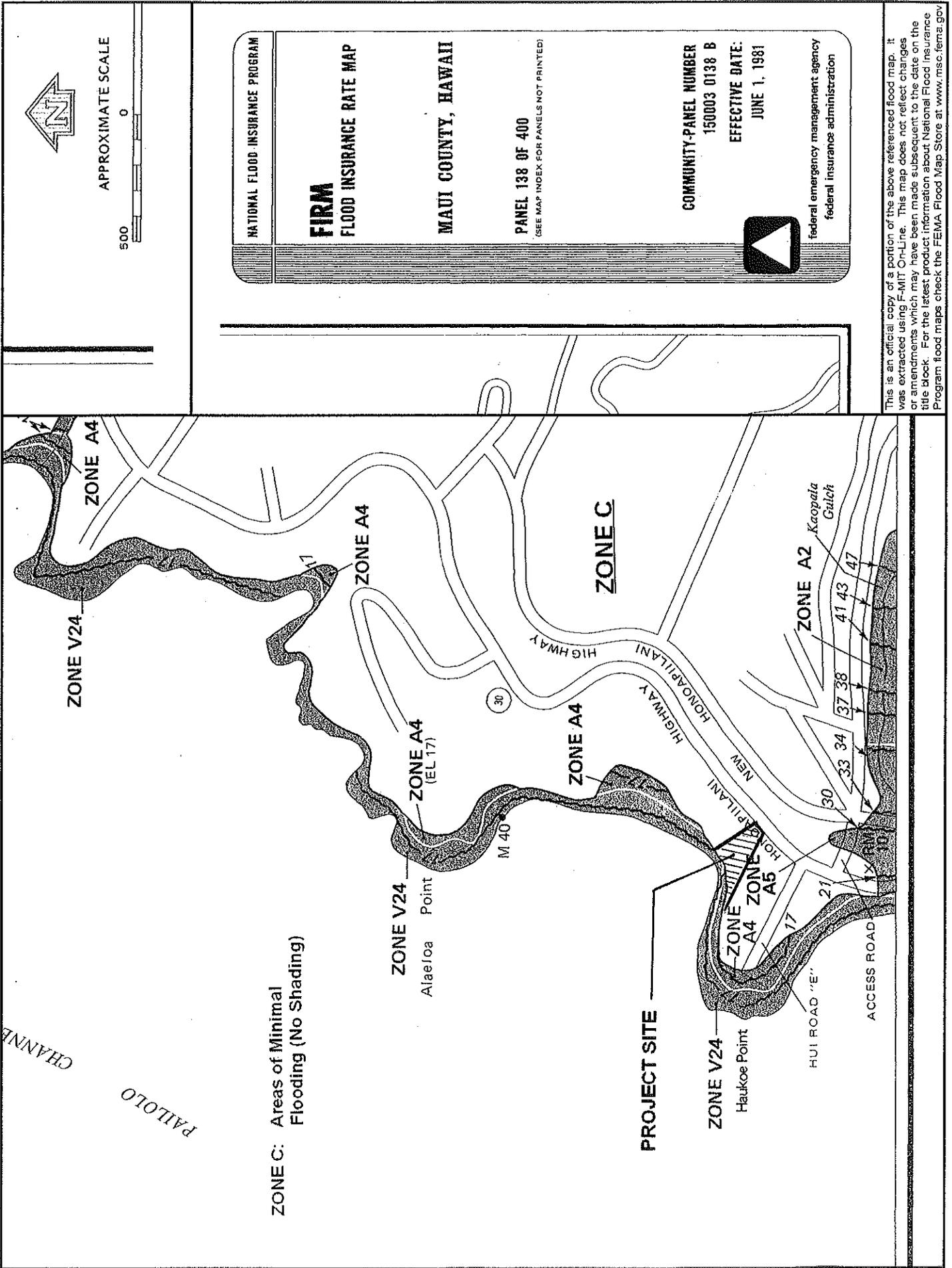


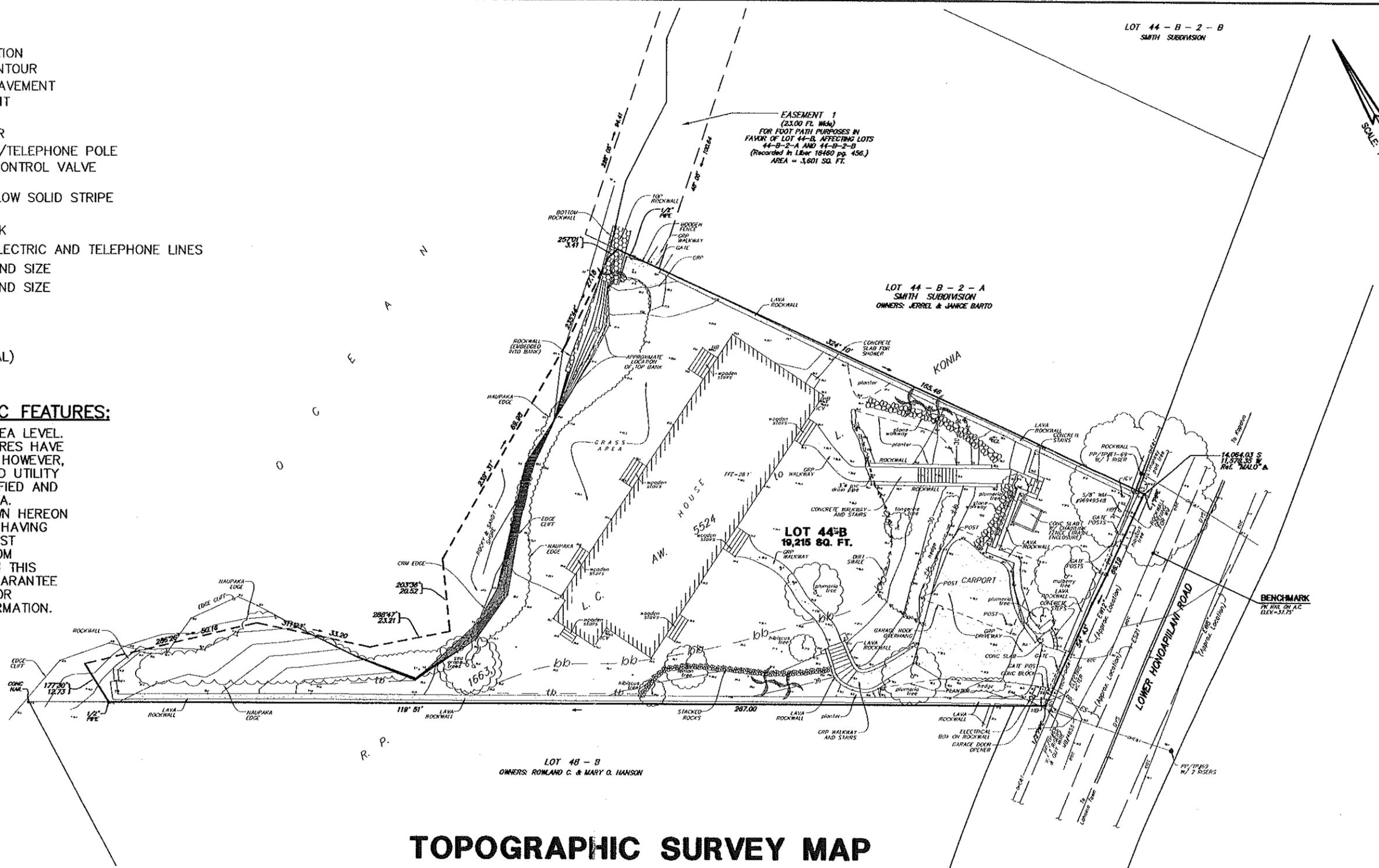
FIGURE 5

**LEGEND:**

- 26.2 SPOT ELEVATION
- 10--- EXISTING CONTOUR
- cac EDGE A.C. PAVEMENT
- GL GROUND LIGHT
- HB HOSE BIBB
- WM WATER METER
- PP/TP POWER POLE/TELEPHONE POLE
- ICV IRRIGATION CONTROL VALVE
- MB MAILBOX
- DYS DOUBLE YELLOW SOLID STRIPE
- tb--- TOP BANK
- bb--- BOTTOM BANK
- OHE&T--- OVERHEAD ELECTRIC AND TELEPHONE LINES
- EW12"--- WATERLINE AND SIZE
- ES21"--- SEWERLINE AND SIZE
-  PALM TREE
-  TREE (TYPICAL)

**NOTES FOR TOPOGRAPHIC FEATURES:**

1. ELEVATION DATUM = MEAN SEA LEVEL.
2. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD, HOWEVER, CONNECTION OF UNDERGROUND UTILITY LINES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES, BUT FROM OTHERS NOT CONNECTED WITH THIS COMPANY. THEREFORE, NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.



**TOPOGRAPHIC SURVEY MAP**  
**OF**  
**LOT 44-B, MAILEPAI HUI PARTITION**  
 Being a Portion of Royal Patent 1063, Land Commission Award 5524 to L. KONIA  
 AT ALAELOA, KAAPALI, LAHAINA, MAUI, HAWAII

**R. T. TANAKA ENGINEERS, INC.**  
 LAND SURVEYORS - CIVIL & STRUCTURAL ENGINEERS

(TOPO MAP) "FILE: WHESTER.crd" F.B.#884pg.02-15  
 Z:\DRAW1\2003\03-020\03-2009\_HESTER-EXHIBITS.dwg 31-MAR-2009 : Revised BY:Nancy

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871 KOLU STREET, SUITE 201  
 WAILUKU, MAUI, HAWAII 96793

**FIGURE 6**

JOB NO. 03-020

# CONCEPTUAL SITE PLAN



LOT 44 - B - 2 - A  
SMITH SUBDIVISION  
OWNERS: JERREL & JANICE BARTO

PROPOSED SUBSURFACE  
RETENTION BASIN  
(30" x 20' LONG  
PERFORATED PIPE)

REMOVE EXISTING GATE AND  
CLOSE OPENING WITH CRM WALL  
SIMILAR TO EXISTING WALL

EXISTING HOUSE TO BE DEMOLISHED

NEW RESIDENCE

NEW GARAGE

NEW DRIVEWAY

LOT AREA: 19,215 Sq. Ft.

LOT 48 - B  
OWNERS: ROWLAND C. & MARY O. HANSON

PROVIDE OPENING  
AND GATE FOR  
NEW WALKWAY

"SITE PLAN" FILE: WHESTER.crd F.B.#884pg.02-15  
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**FIGURE 7**

JOB NO. 03-020

# CONCEPTUAL DRAINAGE PLAN



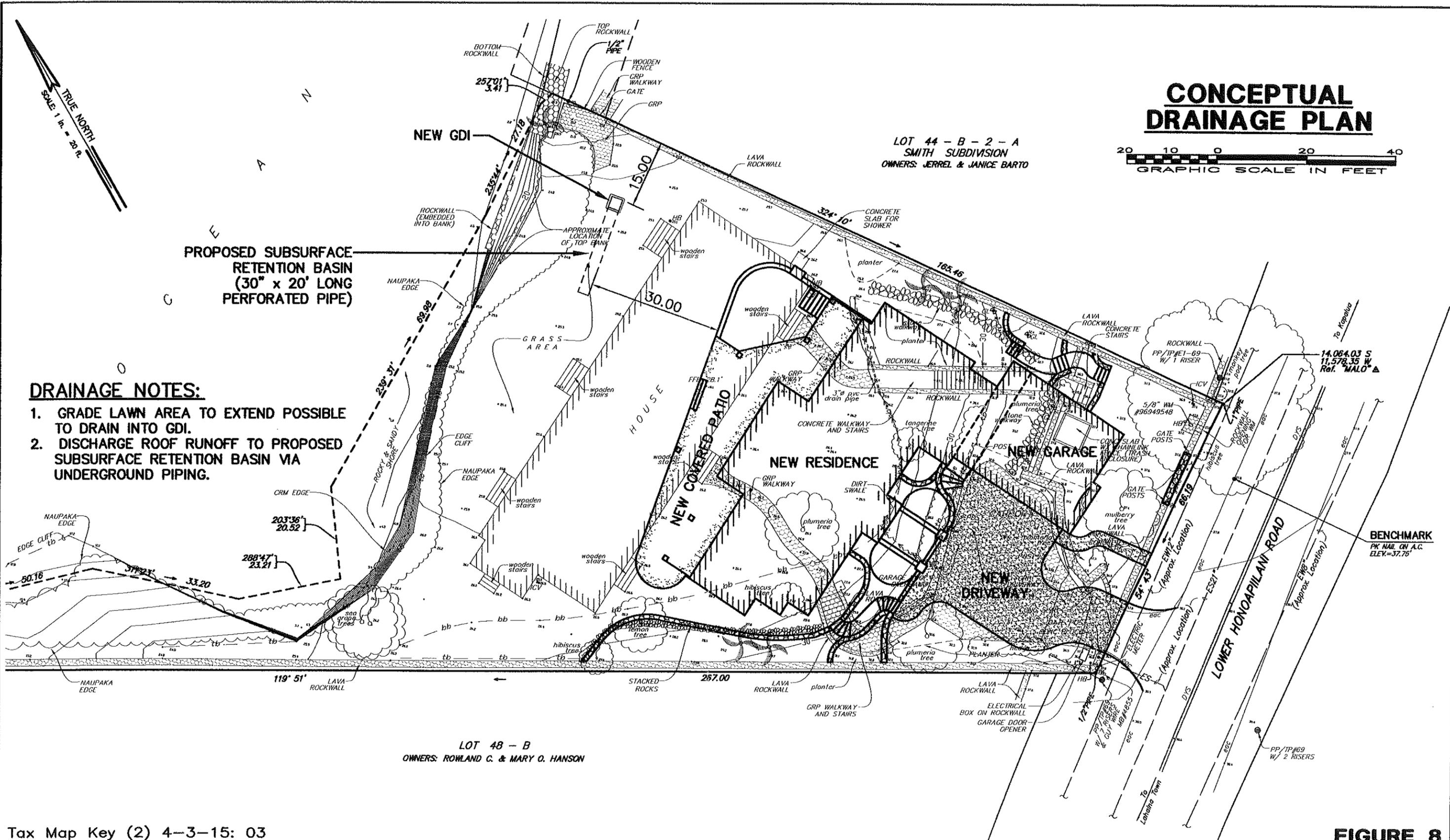
LOT 44 - B - 2 - A  
SMITH SUBDIVISION  
OWNERS: JERREL & JANICE BARTO

LOT 48 - B  
OWNERS: ROWLAND C. & MARY O. HANSON

PROPOSED SUBSURFACE  
RETENTION BASIN  
(30' x 20' LONG  
PERFORATED PIPE)

## DRAINAGE NOTES:

1. GRADE LAWN AREA TO EXTEND POSSIBLE TO DRAIN INTO GDI.
2. DISCHARGE ROOF RUNOFF TO PROPOSED SUBSURFACE RETENTION BASIN VIA UNDERGROUND PIPING.



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**FIGURE 8**

JOB NO. 03-020

**SOIL EROSION AND DUST CONTROL NOTES:**

**A. PERMITTEE NOTES TO CONTROL DRAINAGE AND SOIL EROSION:**

- CONTROL DUST BY MEANS OF WATER TRUCKS OR BY INSTALLING TEMPORARY SPRINKLER SYSTEMS OR BOTH IF NECESSARY.
- GRADED AREAS SHALL BE THOROUGHLY WATERED AFTER CONSTRUCTION ACTIVITY HAS CEASED FOR THE DAY AND FOR THE WEEKEND AND HOLIDAYS.
- ALL EXPOSED AREAS SHALL BE PAVED, GRASSED, OR PERMANENTLY LANDSCAPED AS SOON AS FINISHED GRADING IS COMPLETED.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR THE WATER NECESSARY FOR DUST CONTROL AND IRRIGATION PURPOSES.
- CONTRACTOR TO CONSTRUCT TEMPORARY DIVERSION DITCHES OR SWALES AWAY FROM GRADED AREAS TO NATURAL GROUND OR DRAINAGEWAYS DURING CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT A SATISFACTORY SOIL EROSION CONTROL PLAN TO MINIMIZE SOIL EROSION PRIOR TO AN ISSUANCE OF A GRADING PERMIT. EROSION CONTROL MEASURES SHALL BE IN COMPLIANCE WITH SECTION 20.08.035 OF THE MAUI COUNTY CODE (ORD. NO. 2684). SEE ALSO GRADING NOTES NO. 2. THE FOLLOWING ADDITIONAL MEASURES SHALL BE TAKEN TO CONTROL SOIL EROSION DURING THE SITE DEVELOPMENT PERIOD:
  - MINIMIZE TIME OF CONSTRUCTION.
  - RETAIN EXISTING GROUND COVER UNTIL LATEST DATE TO COMPLETE CONSTRUCTION.
  - EARLY CONSTRUCTION OF DRAINAGE CONTROL FEATURES.
  - ALL GRADED AREAS, UNLESS TO PAVED, SHALL BE PROVIDED WITH SOIL EROSION CONTROL MATTING AND BE SODED OR PLANTED IMMEDIATELY AFTER GRADING WORK HAS BEEN COMPLETED.
  - INSTALLATION OF SILT AND DUST CONTROL FENCE.
- THE CONTRACTOR IS THE SOLE PARTY RESPONSIBLE FOR THE ADEQUACY OF ALL TEMPORARY CONTROL MEASURES TO PROTECT THE WORK FROM THE EFFECTS OF DUST AND EROSION. HE SHALL BE RESPONSIBLE FOR RESPONDING TO COMPLAINTS FROM NEIGHBORING PROPERTIES AND WILL PROVIDE ADDITIONAL MITIGATION MEASURES AS NECESSARY AT NO ADDITIONAL COST TO OWNER.
- OIL OR PETROLEUM-BASED PRODUCTS SHALL NOT BE USED FOR DUST CONTROL.
- STORM WATER CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO CONSTRUCTION AND SHALL REMAIN OPERATIONAL THROUGHOUT THE CONSTRUCTION PERIOD OR UNTIL PERMANENT CONTROLS ARE IN PLACE.
- DISCHARGES ASSOCIATED WITH THE OPERATION AND MAINTENANCE OF EQUIPMENT SHALL BE FIELD MONITORED BY THE CONTRACTOR. ANY MECHANICAL AND HYDRAULICS FLUID LEAKAGE SHALL BE REPAIRED AS SOON AS IT IS IDENTIFIED AND LOCATED. LEAKAGE OF MECHANICAL FLUIDS SHALL BE CONTAINED, PROPERLY DISPOSED AND NOT ALLOWED TO IMPACT THE OCEAN.
- PRIOR TO ISSUANCE OF THE GRADING PERMIT, THE CONTRACTOR SHALL MEET WITH THE DEVELOPMENT SERVICES ADMINISTRATION AND PROVIDE INFORMATION ON THE SOURCE OF WATER FOR DUST CONTROL, AND JUSTIFY THE NUMBER OF WATER TRUCKS TO BE USED FOR THE CLEARING, GRUBBING AND LOADING OPERATIONS.
- IF THE CONTRACTOR IS NOT ABLE TO SATISFACTORILY CONTROL DUST EMISSIONS FROM THE PROJECT SITE, ALL CONSTRUCTION WORK SHALL CEASE EXCEPT FOR WATERING AND OTHER STABILIZATION EFFORTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY CLEANING THE ROADWAY OF MUD OR SILT TRACKED FROM THE PROJECT SITE.

**B. RECOMMENDED GENERAL SCHEDULE FOR IMPLEMENTING BMP's:**

- ERECT SILT AND DUST FENCE.
- EXCAVATE PIT FOR SUBSURFACE RETENTION BASIN. USE PIT AS TEMPORARY SILING BASIN DURING CONSTRUCTION TO EXTENT POSSIBLE.
- CONSTRUCT TEMPORARY DRAINAGE SWALES AND BERMS TO DIRECT STORM RUNOFF AWAY FROM GRADED AREAS TO NATURAL DRAINAGEWAYS OR GROUND OR TO DRAINAGE BASIN PIT.
- INSTALL DRAINAGE FACILITIES. PROVIDE SEDIMENT BARRIERS ON NEW GDI's.
- GRADE PROJECT AREA AS PLANNED.
- GRASS GRADED AREAS UNLESS TO BE PAVED. PROVIDE BIODEGRADABLE SOIL EROSION CONTROL MATTING AS REQUIRED.

**C. NOTES FOR BMP's:**

- THE CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE "CONSTRUCTION BEST MANAGEMENT PRACTICES (BMP's) FOR THE COUNTY OF MAUI" MAY 2001 (STD. BMP's) TO EXTENT POSSIBLE DURING THE DEVELOPMENT OF THIS PROJECT. CONTROL OF EROSION, SEDIMENT AND CONSTRUCTION WASTE MANAGEMENT WILL BE IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE FOLLOWING SECTIONS OF THE STANDARD BMP's:
  - SECTION 6.10 SEEDING
  - SECTION 6.30 MATS, NETS AND BLANKETS
  - SECTION 6.31 MULCHING
  - SECTION 6.32 PRESERVATION OF EXISTING VEGETATION
  - SECTION 6.33 PROTECTION OF STOCKPILES
  - SECTION 6.62 SEDIMENT FENCE (SILT FENCE)
  - SECTION 6.70 DUST CONTROL
  - SECTION 6.71 GOOD NEIGHBOR BARRIERS
  - SECTION 6.91 SOLID WASTE MANAGEMENT
  - SECTION 6.92 CONCRETE WASTE MANAGEMENT
  - SECTION 6.93 VEHICLE FUEL AND MAINTENANCE MANAGEMENT
- SWEEPING OR FLUSHING OF DEBRIS OR SEDIMENT INTO THE OCEAN IS STRICTLY PROHIBITED.

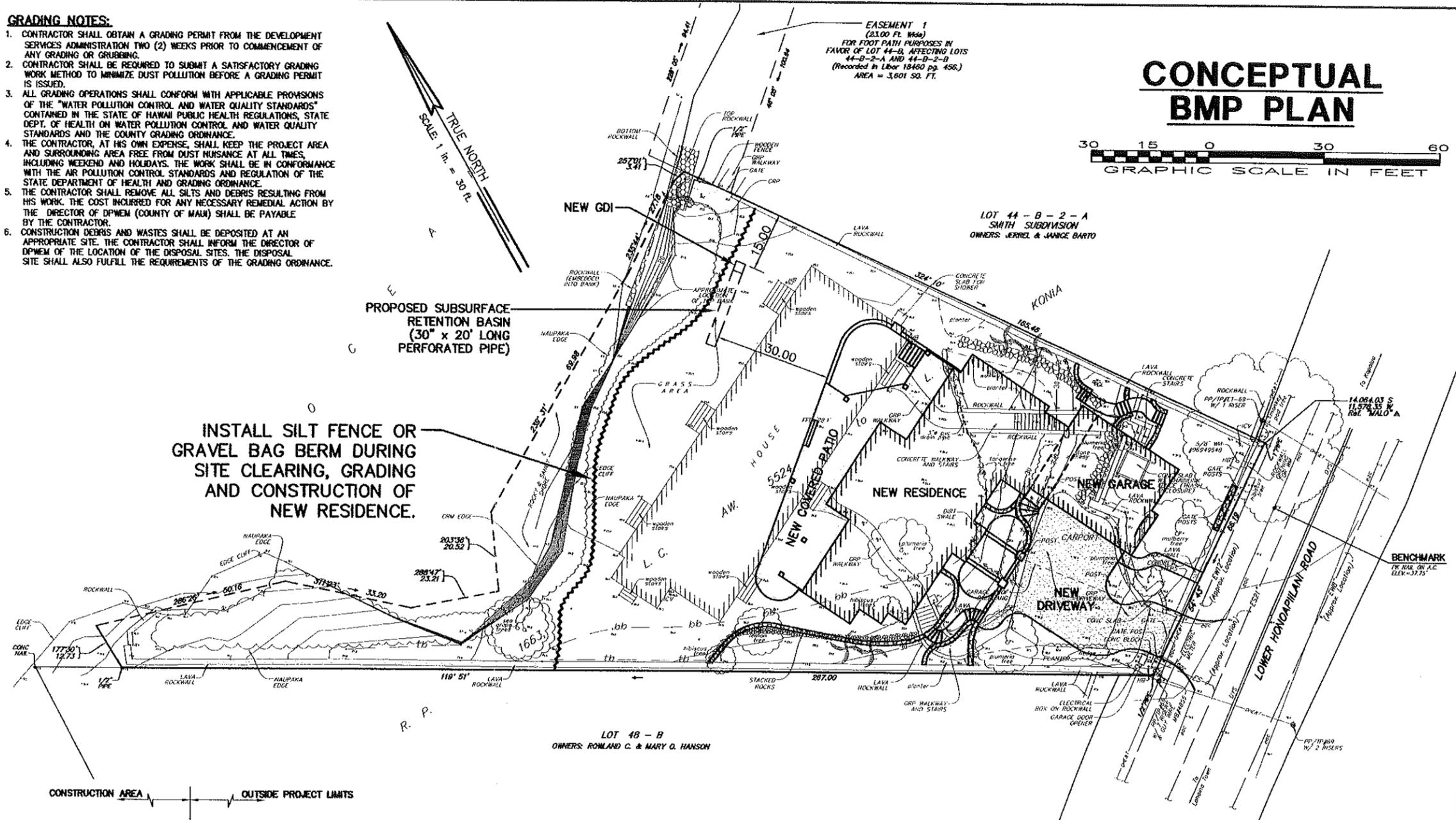
**NOTE REGARDING DISCOVERIES OF ARCHAEOLOGICAL INTEREST:**

SHOULD HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS AND MOUNDS, OR REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATION OF CHARCOAL OR SHELLS ARE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR AND/OR LANDOWNER SHALL IMMEDIATELY CONTACT THE STATE HISTORIC PRESERVATION DIVISION (243-5169, MAUI OR 692-8023, OAHU), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE, IF NECESSARY.

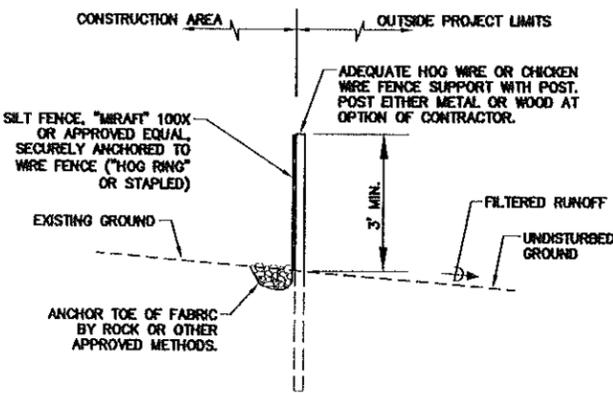
**GRADING NOTES:**

- CONTRACTOR SHALL OBTAIN A GRADING PERMIT FROM THE DEVELOPMENT SERVICES ADMINISTRATION TWO (2) WEEKS PRIOR TO COMMENCEMENT OF ANY GRADING OR GRUBBING.
- CONTRACTOR SHALL BE REQUIRED TO SUBMIT A SATISFACTORY GRADING WORK METHOD TO MINIMIZE DUST POLLUTION BEFORE A GRADING PERMIT IS ISSUED.
- ALL GRADING OPERATIONS SHALL CONFORM WITH APPLICABLE PROVISIONS OF THE "WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS" CONTAINED IN THE STATE OF HAWAII PUBLIC HEALTH REGULATIONS, STATE DEPT. OF HEALTH ON WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS AND THE COUNTY GRADING ORDINANCE.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE AT ALL TIMES, INCLUDING WEEKEND AND HOLIDAYS. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATION OF THE STATE DEPARTMENT OF HEALTH AND GRADING ORDINANCE.
- THE CONTRACTOR SHALL REMOVE ALL SILTS AND DEBRIS RESULTING FROM HIS WORK. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DIRECTOR OF DPWEM (COUNTY OF MAUI) SHALL BE PAYABLE BY THE CONTRACTOR.
- CONSTRUCTION DEBRIS AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE SITE. THE CONTRACTOR SHALL INFORM THE DIRECTOR OF DPWEM OF THE LOCATION OF THE DISPOSAL SITES. THE DISPOSAL SITE SHALL ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.

**CONCEPTUAL BMP PLAN**



**INSTALL SILT FENCE OR GRAVEL BAG BERM DURING SITE CLEARING, GRADING AND CONSTRUCTION OF NEW RESIDENCE.**



**TYPICAL INSTALLATION - SILT FENCE**

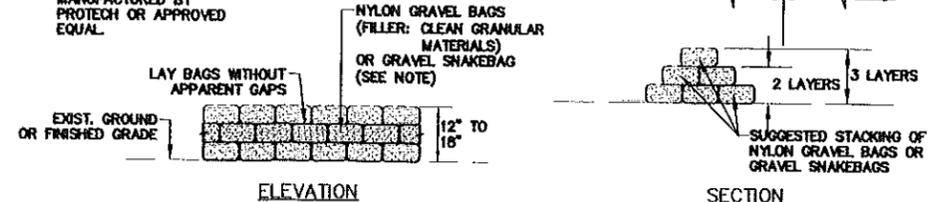
NOT TO SCALE

**MAINTENANCE NOTES:**

- SILT FENCES OR FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SHOULD THE FABRIC ON THE SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

**NOTE:**

GRAVEL SNAKEBAG AS MANUFACTURED BY PROTECH OR APPROVED EQUAL.



**PLACEMENT OF TEMPORARY GRAVEL BAG BERM**

NOT TO SCALE

(BMP PLAN) "FILE: WHESTER.crd" F:\B\884pg.02-15  
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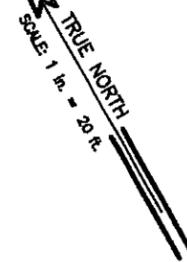
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 LAND SURVEYORS - CIVIL & STRUCTURAL ENGINEERS

**FIGURE 9**

JOB NO. 03-020

# HYDROLOGY MAP



LOT 44 - B - 2 - A  
SMITH SUBDIVISION  
OWNERS: JERREL & JANICE BARTO

PROPOSED SUBSURFACE  
RETENTION BASIN  
(30' x 20' LONG  
PERFORATED PIPE)

**DRAINAGE AREA**

**0.37 Acre**

**DRAINAGE AREA  
BOUNDARY**

LOT 48 - B  
OWNERS: ROWLAND G. & MARY O. HANSON

BENCHMARK  
PK NAL ON A.C.  
ELEV. = 37.75'

"FILE: WHESTER.crd" F.B.#884pg.02-15  
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**FIGURE 10**

JOB NO. 03-020

**APPENDIX F:**  
**Coastal Engineering Assessment**

***DRAFT COASTAL ENGINEERING ASSESSMENT  
HESTER PROPERTY, KEONENUI BAY, MAUI***

*August, 2009*



**Prepared for:**

Chris Hart and Partners  
115 N. Market Street  
Wailuku, Maui, HI 96793

**Prepared by:**

Sea Engineering, Inc.  
Makai Research Pier  
Waimanalo, HI 96795



*SEI Job No. 7-30*



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## 1. INTRODUCTION

The Hester Property is located on Keonenui Bay in the Napili area of Maui. The property is located on a high bluff overlooking the bay at an elevation of approximately 25 feet. The bluff is composed of red volcanic clay soil, and has been progressively eroding. The erosion is caused by undermining of the soft clay by wave action at the base of the bluff, and also by sloughing of the overlying clay substrate.

As part of a home and property remodeling effort, the property owners would like to stabilize the property shoreline and prevent any further property loss. This report is a coastal engineering evaluation for the proposed construction, including a description of oceanographic and shoreline conditions, a coastal hazard analysis, an evaluation of possible environmental impacts, and an analysis of alternatives.

The project location and study area are shown in Figure 1-1, an aerial photograph and schematic of the project area. Figure 1-2 shows the property location on a TMK map. The property is located at the extreme southwest end of Keonenui Beach, with a narrow sliver of land extending onto Haukoe Point.

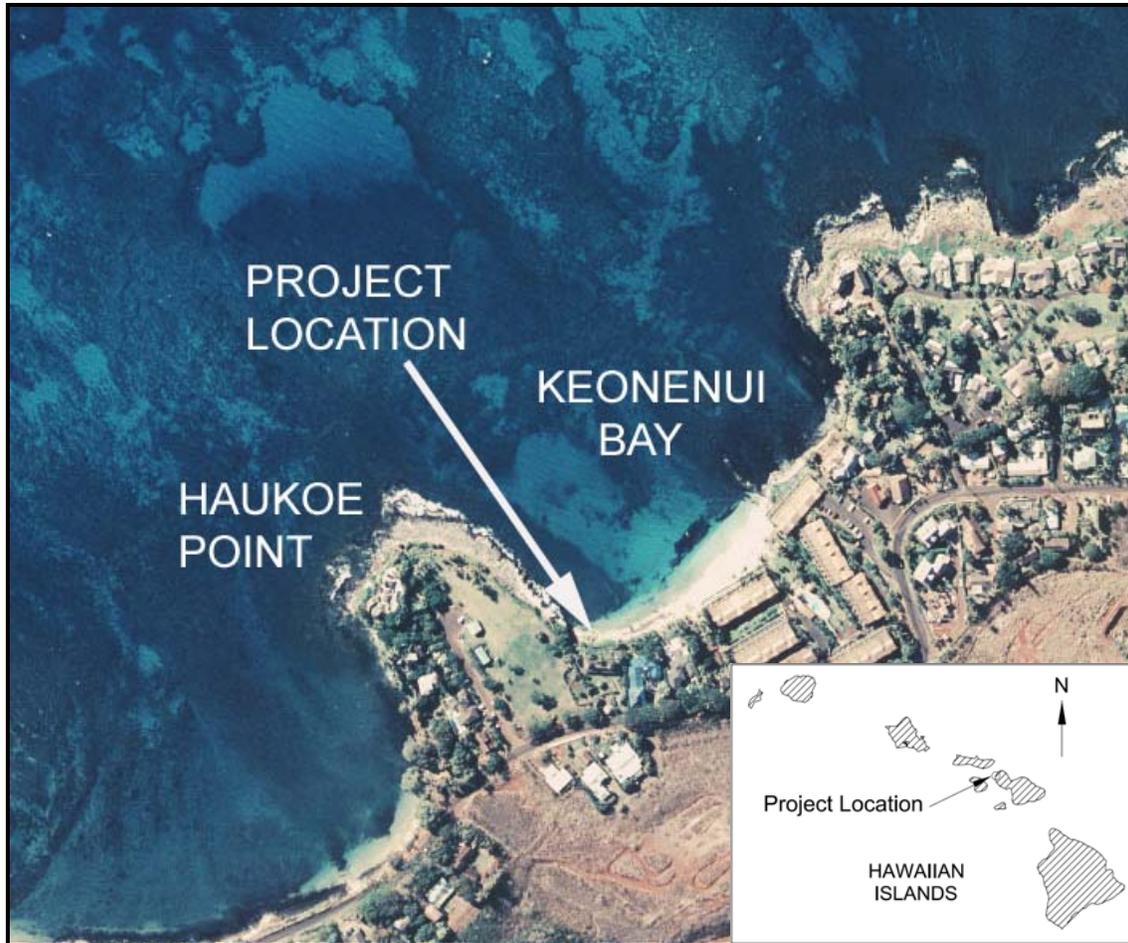


Figure 1-1. Project location on the northwest coast of Maui

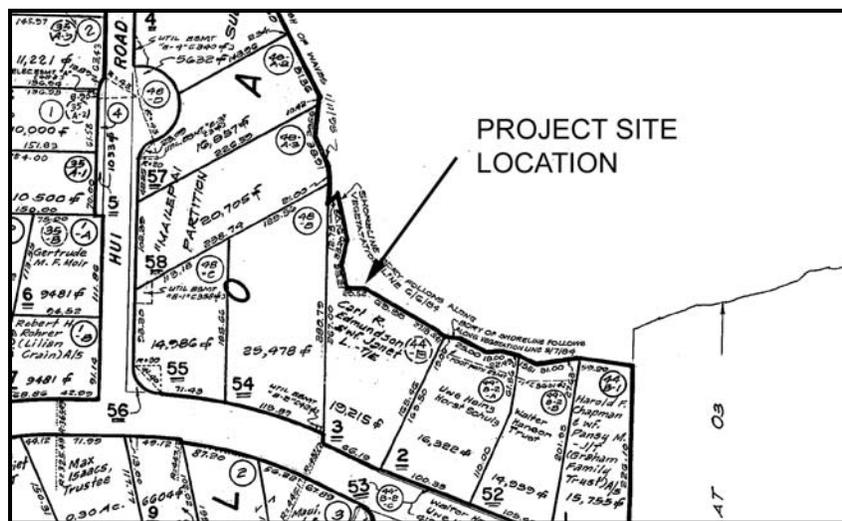


Figure 1-2. TMK map of the project site

## 2. OCEANOGRAPHIC SETTING

The project site is on the northwest coast of the island at the foot of the West Maui Mountains. The site is protected from prevailing tradewinds by the mountains, and is somewhat sheltered from waves by the surrounding islands of Molokai, Lanai, and Kahoolawe.

### 2.1 Winds

The predominant winds in the Hawaiian Islands are the northeast tradewinds. During the summer months of April through October, the tradewinds occur 80-95 percent of the time with average speeds of 10-20 mph. The tradewind frequency decreases to 50-60 percent of the time during the winter months, when southerly or “Kona” winds may occur. Kona winds are generally associated with local low pressure systems. Kona conditions occur about 10 percent of the time during a typical year, with winds ranging from light and variable to gale strength. A severe, relatively long duration Kona storm which occurred in January 1980 produced sustained wind speeds of 30 mph, with gusts in excess of 50 mph, from the southwest. Winds of hurricane strength occur infrequently in Hawai‘i, but they are important for design purposes because of their intensity.

The blocking effect of the West Maui mountains decreases the influence of tradewinds in the Kahana-Nāpili area. As a result, a land-sea breeze condition caused by the diurnal heating and cooling of the land often predominates in coastal areas.

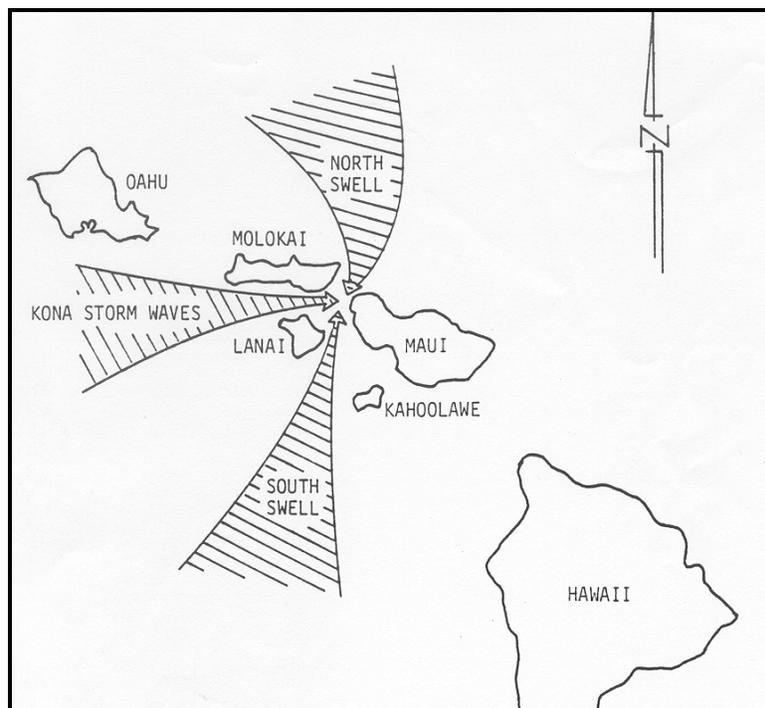
### 2.2 Waves

The general Hawaiian wave climate can be described by five primary wave types: 1) northeast tradewind waves generated by the prevailing northeast winds; 2) North Pacific swell generated by mid-latitude low pressure systems; 3) southern swell generated by mid-latitude storms of the southern hemisphere; 4) Kona storm waves generated by local low pressure storm systems; and 5) hurricane waves generated by nearby tropical storms and hurricanes. Northeast tradewind waves occur throughout the year, but the other wave types have seasonal distributions. North Pacific swell and Kona storm waves typically occur from October through March during the northern hemisphere winter. Conversely, southern swell typically occurs from April through September during the southern hemisphere winter. Hurricanes and tropical storms are also summer and fall phenomena.

Figure 2-1 shows the wave exposure of the project area. The shorelines within the study area are directly exposed to deepwater waves from the sector 170° clockwise to 220°, and also from approximately due north and approximately due west. The study area is well protected from the northeast tradewind waves by the island of Maui itself.

North Pacific swell approaches from both west and north. Typical deepwater heights are 5 to 15 feet, but higher waves can occur, and 20-foot waves occur on at least an annual basis. Although the project coast is partially sheltered from northwest swells by the island of Molokai, some swell energy refracts and diffracts around the east end of Molokai to reach the area. Wave heights are typically one-third to one-half that of waves on fully exposed coasts.

Southern swell is generated from mid-latitude winter storms in the southern hemisphere. These waves must travel long distances in order to reach the Hawaiian Islands, and are characteristically long and low, with deep water wave heights of 1 to 6 feet and wave periods of 12 to 20 seconds. Their approach can vary from southeast through southwest. Kona storm waves are locally generated by southerly and westerly winds associated with nearby winter storms. They may have wave heights over 10 feet, with periods of 8 to 10 seconds. Kona storm waves approach from the south to the west, with the largest waves usually coming from the southwest. Deepwater wave heights during the severe Kona storm of January 1980 were about 17 feet with a period of 9 seconds. The islands of Lanai and Kahoolawe partially block both southern swell and Kona storm waves from reaching the study area.



**Figure 2-1. Wave approach to the project area**

## 2.3 Storms

There are two distinct types of storms that typically affect the Hawaiian Islands. These are Kona storms and tropical cyclonic storms. Kona storms occur when the winter low pressure systems that travel across the North Pacific Ocean dip south and approach the islands. Southerly winds generated by these storms not only cause Kona storm waves, but bring considerable precipitation to the normally dry leeward coasts. Hurricanes, the worst-case tropical cyclonic storms, are caused by intense low pressure vortices that are usually spawned in the eastern tropical Pacific Ocean and travel westward. While they typically pass south of the Hawaiian Islands, their paths are unpredictable and they will occasionally pass near or over the islands. In recent years Hurricane Iwa (1982) and Hurricane Iniki (1992) directly hit the island of Kauai. Damage from these hurricanes was extensive, not only on Kauai, which was subject to both high wind and waves, but also along coastal areas of other islands exposed to the large hurricane storm waves.

## 2.4 Tides

The tides in the Hawaiian Islands are semi-diurnal in nature, with pronounced diurnal inequalities ( i.e. two tidal cycles per day with the range of water level movement being unequal). The nearest official tide station to the project site is at Lahaina. Based on National Oceanic and Atmospheric Administration (NOAA) tide prediction tables, the tides at Lahaina are:

Highest Tide (estimated)	1.6 feet
Mean Higher High Water	1.2 feet
Mean High Water	0.7 feet
Mean Tide Level	0.0 feet
Mean Low Water	-0.7 feet
Mean Lower Low Water	-1.0 feet

These values are referenced to the Mean Tide Level datum, which is approximately equal to Mean Sea Level (MSL). The MSL datum is used for the reference elevation in this report.

## 2.5 Currents and Circulation

Local currents in the Hawaiian Islands are generally driven by the semi-diurnal tides. Current measurements conducted by SEI off Kaanapali in 1986 showed ebb tide currents flowing to the north and flood tide currents directionally inconsistent, flowing both north and south. The change in current direction lags the tide change by one to two hours. North flowing currents are stronger than south flowing currents with average speeds of about 0.25 knots (0.29 mph). Flood tide currents flow at about half the speed of ebb tide currents.

Nearshore circulation is greatly affected by the presence of reefs and breaking waves. The bay and headland morphology of the coastline along the study area is also characterized by the presence of fringing reefs lying 400 to 1000 feet offshore. Circulation near the reefs is probably vigorous due to the presence of breaking waves. However, circulation near the shoreline appears to be generally poor.

## **2.6 Tsunamis**

About 85 tsunamis have been observed in Hawaii since 1813, with 15 resulting in serious damage. Four tsunamis have occurred in recent history, occurring in 1946, 1957, 1960, and 1964. The 1946 tsunami was the most destructive to ever hit Hawai'i. Tsunami wave runup heights at nearby Kaia Point were reported by Loomis (1976) for the 1946, 1957, and 1960 tsunamis. Runup heights were 24 feet, 9 feet, and 10 feet, respectively.

### **3. COASTAL SETTING AND SITE DESCRIPTION**

#### **3.1 Site Survey**

A shoreline survey was conducted by surveyor Kirk Tanaka in January, 2009 (Figure 3-1). The survey shows the shoreline located at the base of the cliff and is as close as 21 ft from the southwest corner of the existing house. The base of the cliff is at an elevation of approximately 2.75 ft (MSL) and rises steeply to an elevation of approximately 25 ft at the top. Figure 3-2 is profile of the site from the top of the cliff to approximately 60 ft offshore into the bay.

#### **3.2 Site Description and Coastal Morphology**

The shoreline along the Kahana-Napili coast is governed by the underlying volcanic rock formations. The coastal processes along the shoreline within the study area are complicated by the bay and headland morphology, the presence of offshore fringing reefs, and a seasonal wave climate with two opposing wave approach directions.

The project area is at the west corner of Keonenui Bay, nestled at the base of the rocky headland of Haukoe Point. A few large shorefront properties exist on Haukoe Point, but it is largely undeveloped. The shorefront of Keonenui Bay is developed with single-family homes and the extensive Kahana Sunset condominium complex.

Keonenui Bay lies between Haukoe Point and Alaeloa Point on the northwest coast of Maui (see Figure 1-1). The beach is a pocket beach typical of this stretch of coastline. It is about 500 feet long and contained between the headlands which protrude about 400 to 500 feet seaward. Figure 3-3 is a photographic overview of the bay. The backshore along the north half of the beach is occupied by the Kahana Sunset condominium development. The backshore along the southern half of the beach is occupied by four single-family homes, including the Hester property (see TMK map, Figure 1-2).

The north section of beach, by the Kahana Sunset condominiums, has a relatively wide beach, about 70 feet wide. Beach elevation is about 10 feet in front of the rock wall protecting the resort buildings, and slopes at about 1 to 10, vertical to horizontal, to the water.

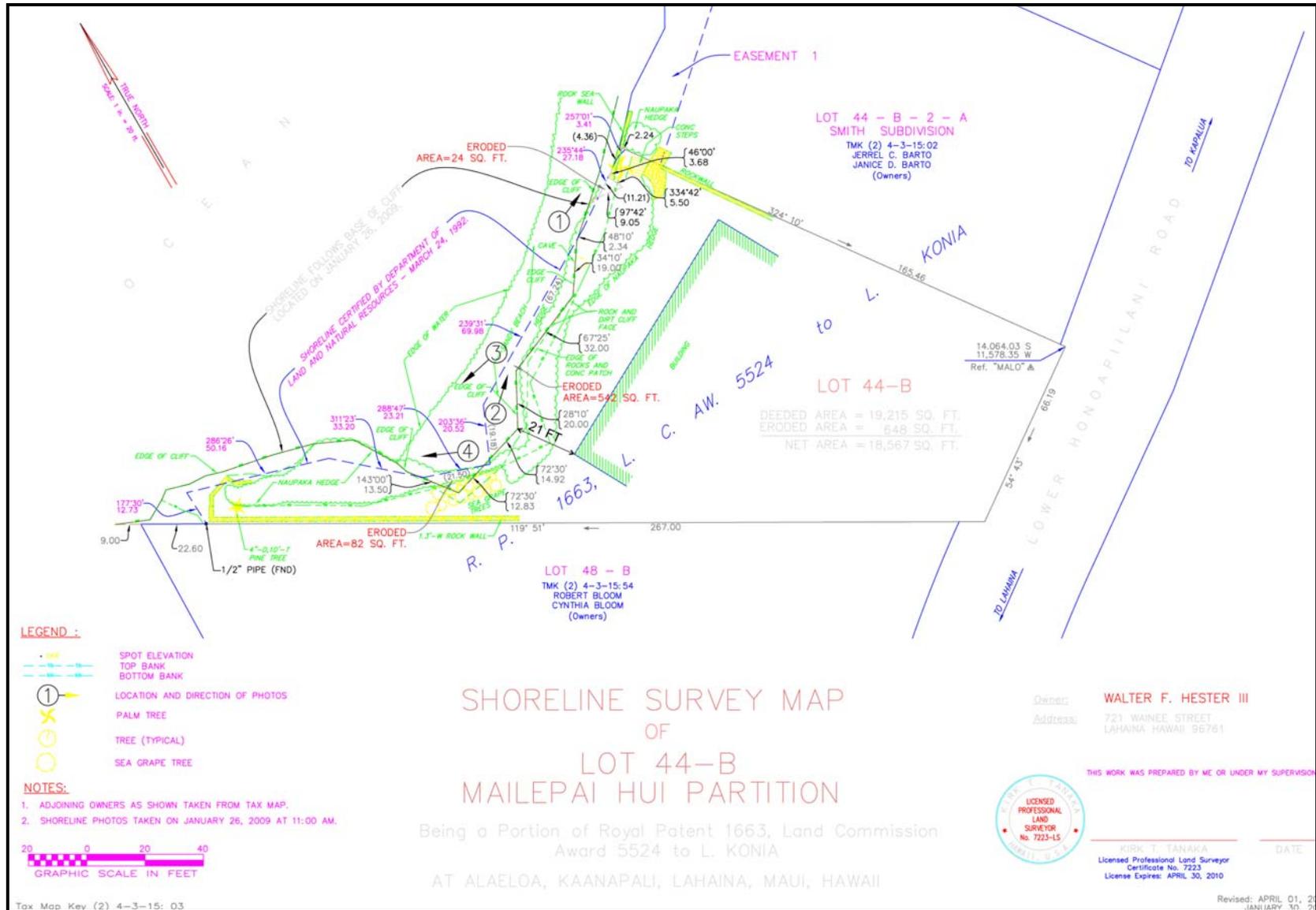


Figure 3-1. Shoreline survey of the Hester Property

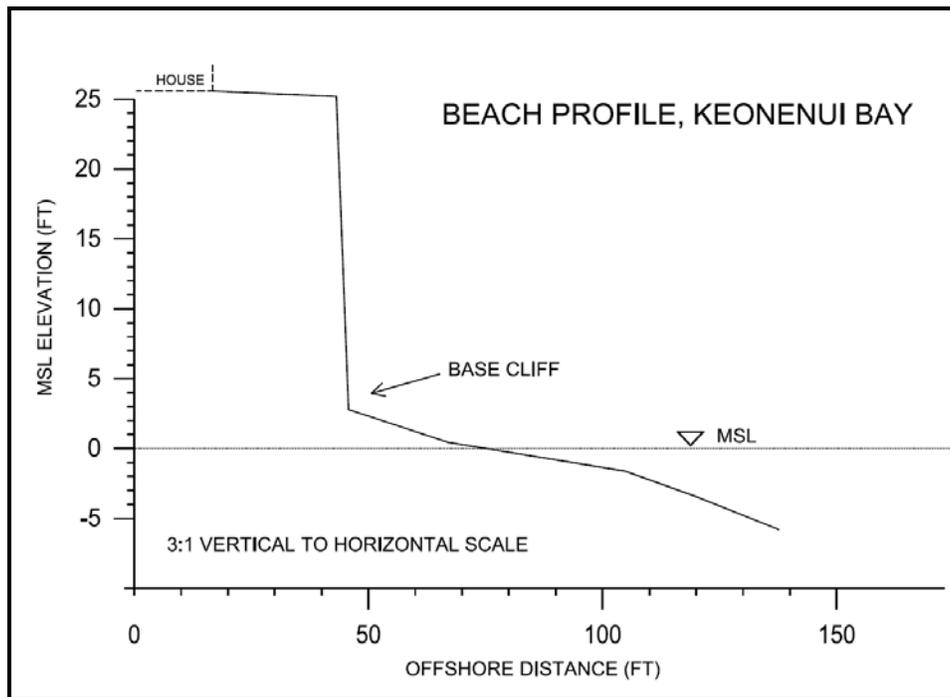


Figure 3-2. Profile of the project site

South of the condominiums, the beach narrows and transitions to an irregular, rough rocky shore. The transition from sandy shore is shown in Figure 3-4. In many places what appears to be rock has actually weathered to a softer material. The original rock appeared to have been a volcanic conglomerate – an ash flow containing fragments of hard basalt. The ash matrix of the unit has weathered to a soft clay or silt (note: the project soils report describes the unit as “silty gravel and sand”). Hard to soft transitions occur in several places, and are not always obvious. The variability in substrate hardness has resulted in a sculpted shoreline with overhangs and cave formations. Some of the soft material is the red clay soil typical of the area. The red clay could be seen actively eroding during wave uprush, resulting in the formation of a small turbidity plume (Figure 3-5).

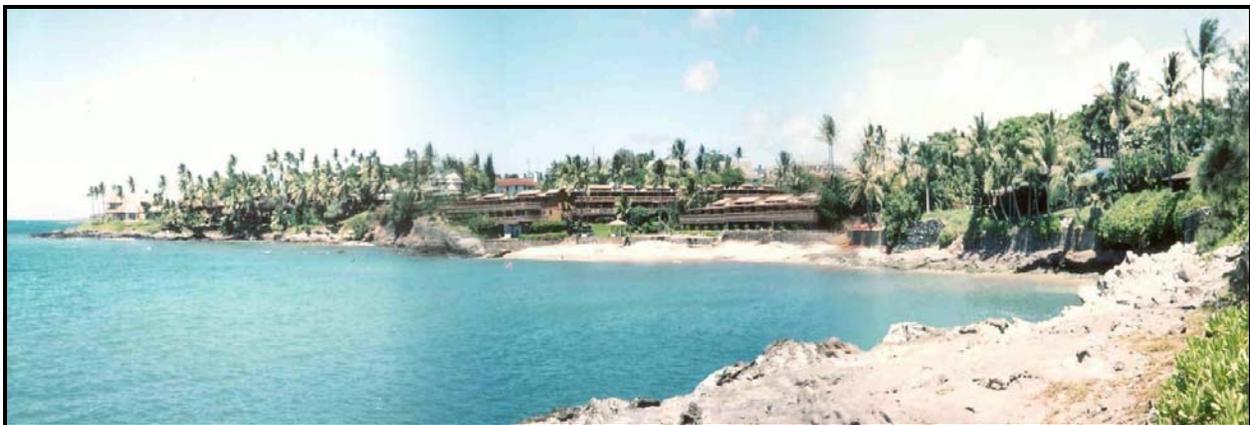
According to local residents, turbidity can become a problem during high runoff conditions. Turbid conditions improve when large winter waves arrive and flush the bay. The beaches are also dynamic, and change with the sea conditions. A recent shoreline erosion study by SEI using aerial photographs was inconclusive, showing mostly that the beach has periods of both erosion and accretion. However, anecdotal accounts by long-time residents indicate slow long term net erosion.

The nearshore seafloor in the bay consists primarily of sand in the central part of the bay, and coral, limestone and rock along the perimeter and beyond about 400 feet offshore. Turbidity is higher at the southern end of the bay, with waters clearing in the central and northern portions. Isolated basalt outcrops were generally covered with *limu*. The *limu* was generally full of sediment, and would cloud the water when disturbed.

Vertical seawalls protect the properties along the entire length of the sand beach except at the Hester location. Figure 3-6 shows a recently constructed seawall on the Lusardi property, and Figure 3-7 shows the transition from walled shoreline to the un-walled shoreline that fronts the Hester property.

Portions of the bluff fronting the Hester property show the remnants of CRM facing. The clay, silt and gravel material comprising the bluff is easily eroded during high wave conditions, leading to undermining and potential collapse of overlying material. Application of a durable facing to the bluff to resist wave induced erosion is one solution to the existing problem. Durability of the facing is an issue, however, as any weaknesses such as small cracks in the cement can lead to eventual failure. Figure 3-8 is a close-up of the transition area in Figure 3-7, and Figure 3-9 shows a remnant of the CRM facing.

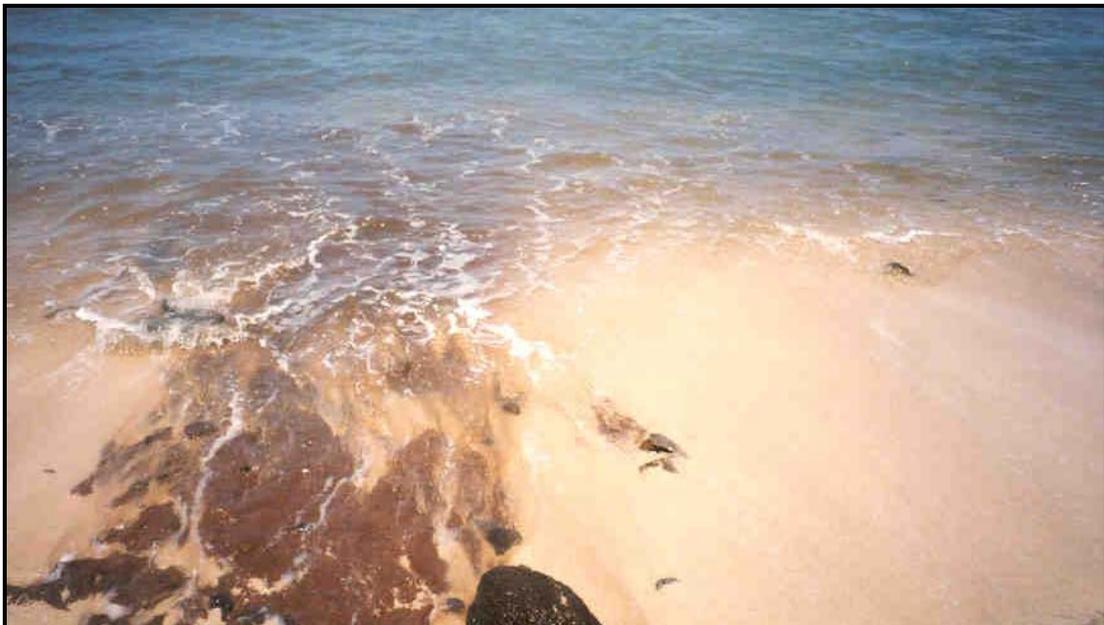
Some of the undermined areas have been filled and buttressed with grout to help prevent further collapse of the overlying bluff. Figure 3-10 is an example of one such area.



**Figure 3-3. Overview of Keonenui Bay**



**Figure 3-4. Sand and rock shoreline at Keonenui Bay**



**Figure 3-5. Erosion of the soft red clay substrate**



Figure 3-6. Recently constructed seawall near the Hester property



Figure 3-7. Transition to unprotected cliff at the Hester property



**Figure 3-8. Transition area with remnants of CRM facing**



**Figure 3-9. CRM facing of the weathered volcanic substrate**



**Figure 3-10. Undermined area filled and buttressed with grout**

## 4. COASTAL HAZARDS AND SHORELINE EROSION HISTORY

### 4.1 Coastal Hazards

A comprehensive report by the UH Coastal Geology Group and the U. S. Geological Survey gave a regional Overall Hazard Assessment for the project area as moderate to high (Fletcher *et al* 2002)). The regional assessment is shown in cartographic form in Figure 4-1, taken from the report. The high tsunami hazard is due to the 1946 tsunami inundation of 15 ft (reported as 24 ft by Loomis, 1976). The Flood Insurance Rate Map (FIRM) designation for the project site is V24 with a base elevation of 17 feet. This designation corresponds to “areas of 100-year coastal flood with velocity (wave action)”.

Other hazards include flash flooding caused by the steep terrain of the West Maui Mountains and the potential for heavy precipitation, as well as the chronic erosion conditions that are prevalent along the coast. Exposure to storms (in particular Kona storms), and moderately high wave conditions is intensified by projected global sea level rise. Undermining of the cliff face and potential collapse are hazards specific to the project site. The region is also seismically active and is classified as a seismic hazard zone 2.

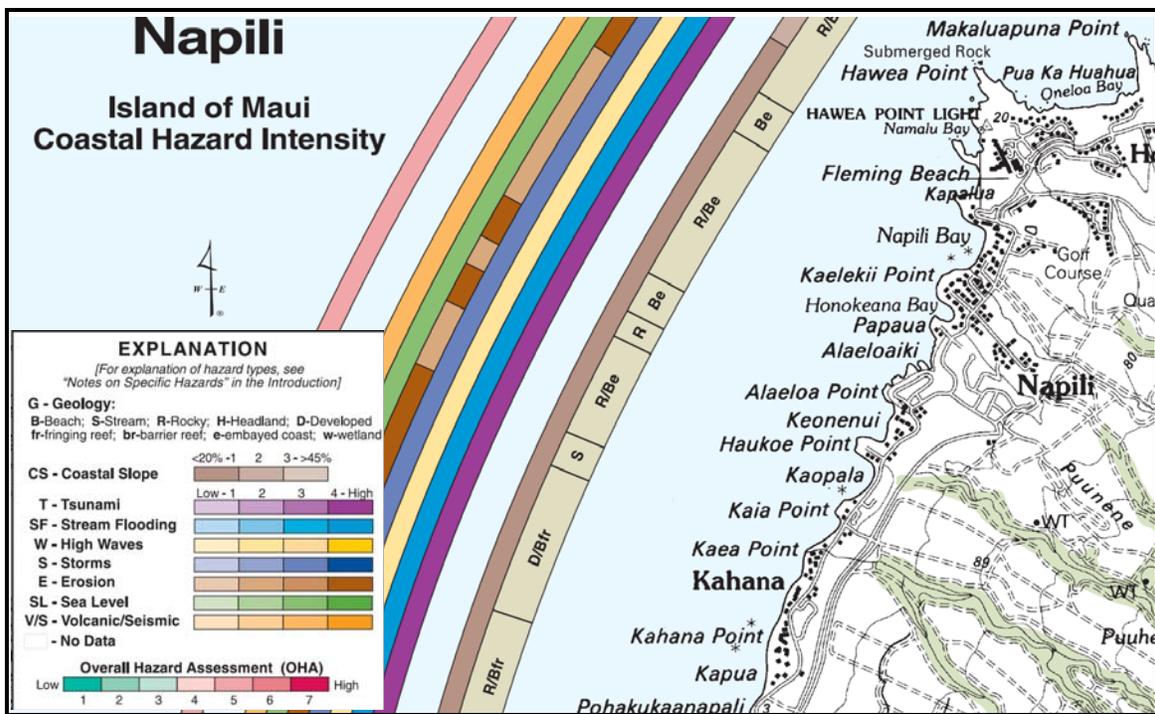


Figure 4-1. Coastal Hazards in the Napili region of West Maui (modified from Fletcher *et al*, 2002)

## 4.2 Shoreline Erosion Studies

Keonenui Beach is dynamic in nature, with periods of both beach erosion and accretion. It is a pocket beach bound by prominent headlands, and beach sand is essentially trapped between these headlands during periods with moderate wave conditions. Extreme conditions may result in sand moving offshore. In that event the headlands may slow the beach recovery by inhibiting sand movement back into the bay.

The University of Hawaii Coastal Geology Group conducted an island-wide study of coastal erosion as determined from aerial photographs. The results for Keonenui Beach are shown in Figure 4-2 and show approximately 1 ft average yearly erosion.

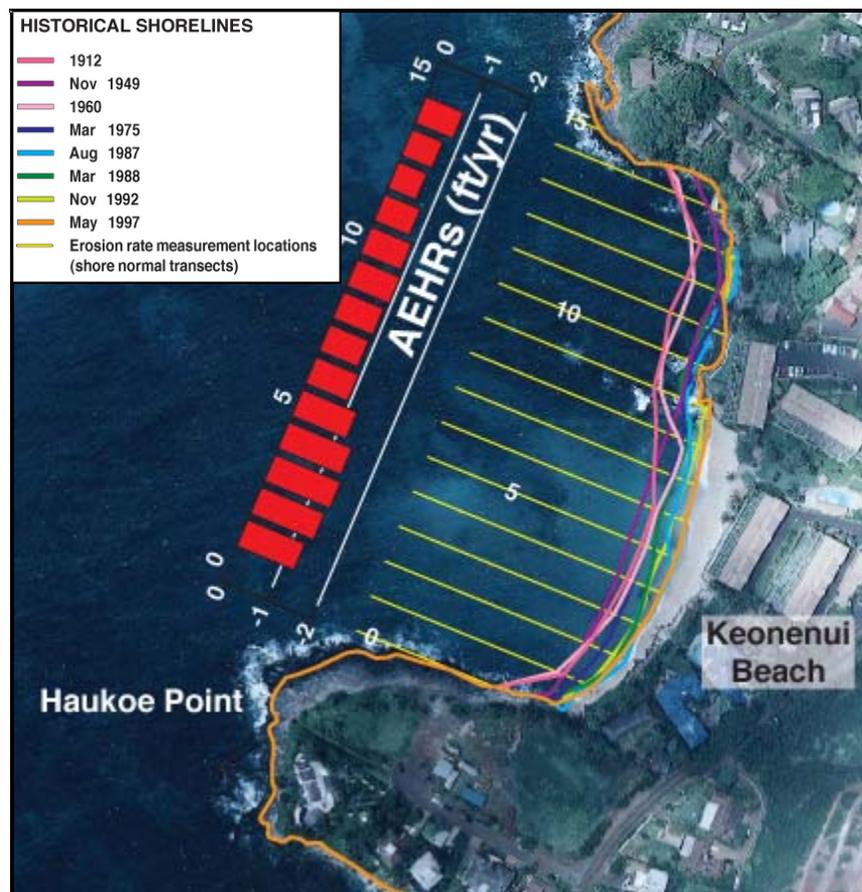


Figure 4-2. UH Coastal Geology Group analysis of shoreline erosion at Keonenui Beach

Figures 4-3 and 4-4 are aerial photographs from 1949 and 1987, respectively that show a dramatic change in the sand beach shoreline.



**Figure 4-3. 1949 aerial photograph of Keonenui Beach**



**Figure 4-4. 1987 aerial photograph of Keonenui Beach**

Sea Engineering also completed an historical aerial photographic analysis for Keonenui Beach as part of an environmental assessment of the nearby Lusardi property. The study is essentially an update of a previous study conducted in 1988 (cite). Vertical aerial photographs taken in

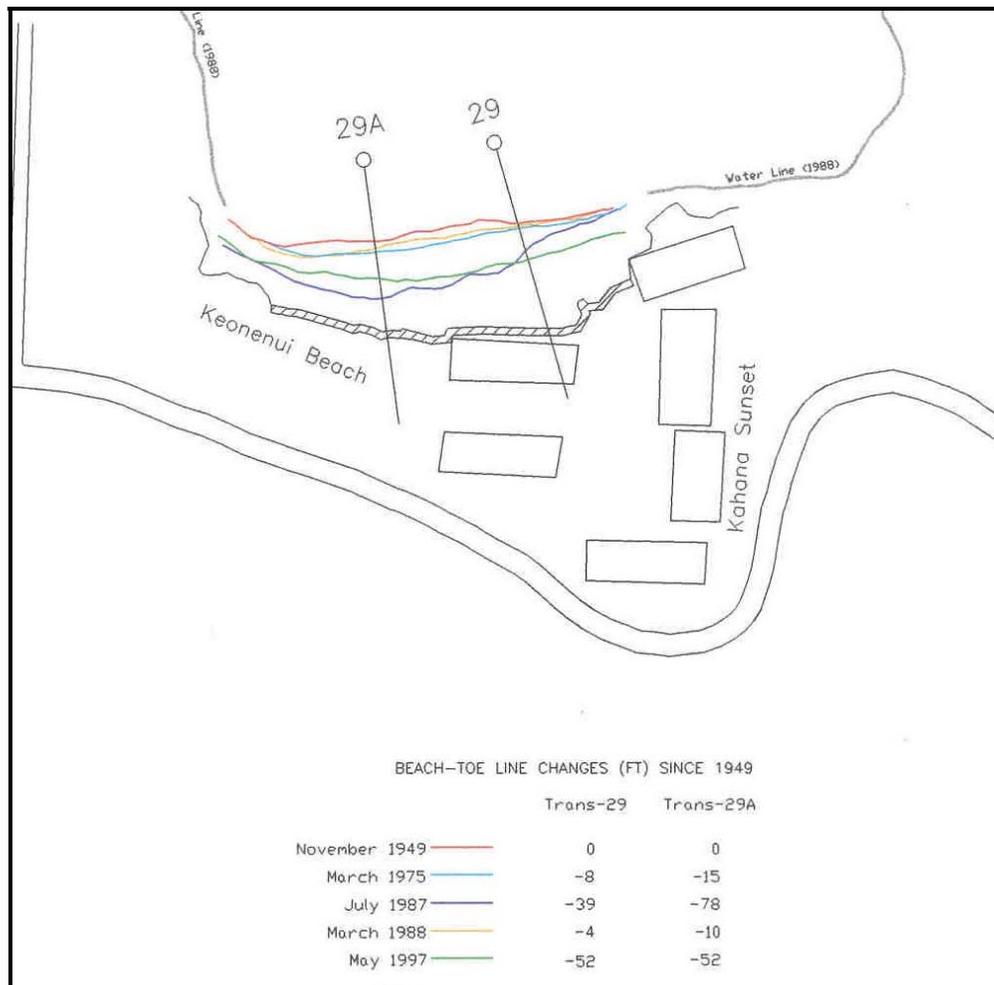
November 1949, March 1975, July 1987, March 1988 and May 1997 were digitized at a scale of 1 inch = 200 feet. The photographs were registered to Hawaii State Plane Coordinate System, and common reference points were selected in each photo to correct for scale and rotation distortion. The vegetation line and beach toe position were digitized to assess shoreline changes over the years. Along Keonenui Beach, the vegetation line is not a good indicator of beach processes because it has been stabilized artificially by the construction of seawalls along the beach. The beach toe is defined as the change in slope at the transition between the nearshore and foreshore regions of the beach. It appears as a change in color or tone in vertical aerial photographs. The beach toe is a good indicator of shoreline position; however, it can also vary with seasonal or short term erosion or accretion, or changes in beach slope and width, and thus may also indicate the dynamic nature of a beach, rather than long term erosion or accretion trends.

The results of the digitizing are shown in Figure 4-5. Each colored line represents the location of the beach toe for the particular year. A beach toe position that is further seaward indicates a wider, accreted beach, while a beach toe position closer to the buildings and walls indicates a narrow, eroded beach. To quantitatively assess the shoreline movement, the specific locations of the beach toe relative to the position in 1949 were measured along two transects: 29A in front of the Lusardi property, and 29 in front of the Kahana Sunset. The numerical values of the beach toe positions at these two transects are listed on Figure 4-4. The results show that the beach is dynamic with periods of erosion and accretion. Along transect 29A, the beach toe eroded 78 feet between 1949 and 1987, then accreted 68 feet in the following year, and has eroded 42 feet between 1988 and 1997. Similarly, at transect 29, the beach toe eroded 39 feet between 1949 and 1987, then accreted 35 feet in the following year, then eroded 48 feet between 1988 and 1997. Net erosion between 1949 and 1997 has been 52 feet at both transects. The beach toe movements may in part be attributable to seasonal changes in surf and current conditions. The beach toe was in an accreted position during photos taken in November and March, which may indicate response to winter conditions. Conversely, the beach toe was in an eroded (landward) position in the photos taken in May and July, which may indicate response to summer surf conditions.

Projection of the 30-year erosion hazard is not considered valid because of the dynamic nature of the beach, with large shifts in the beach toe position possible on a seasonal basis (see the July 1987 and March 1988 beach toe positions in Figure 4-4), and the limited number of data points available for the analysis. On a dynamic beach such as Keonenui Beach, the computed erosion rate depends largely on whether the beginning and end points of the analysis are during seasonally accreted or eroded states. If the first photograph is during an accreted state, and the last photograph is during an eroded state, then a large erosion rate may be indicated which is

misleading; conversely, if the first photograph is during an eroded state, and the last photograph is during an accreted state, then net accretion may be indicated. The five photographs used in the analysis are not sufficient to pinpoint the seasonal patterns of beach toe movement, or the existence or cause of any long term erosion trend, and therefore could result in a misleading 30-year erosion prediction. The analysis does indicate that the beach is dynamic, with large possible seasonal shifts in the beach toe position, and that a net erosion trend is possible.

Accounts from long-time residents in the area are consistent with net erosion occurring on Keonenui Beach. Locals remember palm trees further seaward on the beach (visible in the 1949 photograph, Figure 4-3), that were eventually undercut by progressive erosion.



**Figure 4-5. Sea Engineering erosion analysis of Keonenui Beach**

### **4.3 Effect of shoreline structures**

The presence of seawalls on a sand shoreline is often blamed for the disappearance of sand from the beach. Vertical surfaces cause waves to reflect back out to sea, and this reflection can cause scour in front of the wall and inhibit the accretion of sand. Conversely, the influence of the walls is minimized when a beach is established that prevents wave runup (or “swash”) from encountering the wall.

Analysis of the effects of walls on the Keonenui shoreline is not conclusive. During the eight months between the 1987 and 1988 photos, with walls already lining the shoreline, there was accretion of 35 feet and 68 feet along the beach. Yet between 1988 and 1997, the beach appeared to erode.

The steep sea cliffs that front much of the shoreline, and that are especially pronounced in front of the Hester property, act as natural walls to reflect wave impact in the absence of a sand beach. It is apparent that the cliffs have had a rock and mortar facing in the past (see Figure 3-7). It is not likely that the hardening of the cliff face would measurably change wave reflection or affect coastal processes differently than the steep naturally occurring rock and clay material.

## **5.0 SHORE PROTECTION ALTERNATIVES**

### **5.1 No Action / Retreat Inland**

Erosion at the site is apparently ongoing and has resulted in a hazardous overhanging bank, and risks damaging the adjacent seawalls. No action or retreat inland will increase the hazards to beach users and may result in damage or failure of the adjacent seawall to the south. The unprotected cliff face is also a source of environment degrading turbidity during high wave conditions.

### **5.2 Revetment**

A revetment is a sloped structure built of wave resistant material. The most common method of revetment construction is to place an armor layer of stone, sized according to the design wave height, over an underlayer and bedding layer designed to distribute the weight of the armor layer and to prevent loss of the shoreline material through voids in the revetment. In Hawaii, almost all revetments are constructed of basalt boulders. Limestone boulders can be used, but the lesser density of limestone requires a larger boulder size for a given site. Toe protection can be provided by excavating to place the toe on solid substrate where possible, constructing the foundation as much as practicable below the maximum depth of anticipated scour, or extending the toe to provide excess stone and extra wave protection. Properly designed rock revetments are durable, flexible, and highly resistant to wave damage. Should toe scour occur, the structure can settle and readjust without major failure. Damage from large waves is typically not catastrophic, and the revetment can still function effectively even if damage occurs. The rough and porous surface and flatter slope absorb more wave energy than smooth vertical walls, thus reducing wave reflection, runup, and overtopping.

The steepest practical revetment slope is 1V on 1.5H, therefore revetments have a larger footprint than vertical seawalls. A revetment at the project site would extend back about 15 to 20 feet into the property, may require significant bank excavation, and would be incongruous with the vertical walls lining the beach.

### **5.3 Beach Nourishment**

Beaches are an effective way of minimizing wave impacts on the shoreline. Wave energy is absorbed by bed shear and resulting turbulence, the transport of sediment by wave swash, and percolation into the beach. Unlike hard structures, beaches will adjust to different incident wave conditions by shifting orientation, changing slope, and by hydraulic sorting of beach sediment. Beach nourishment, to be effective, would have to occur along the entire beach, not just in front of the Hester property. This would greatly increase costs, and would require the planning and

financial commitment of all property owners. In addition, beach nourishment is not a guaranteed solution, and would require periodic maintenance.

There are also possible environmental impacts from beach nourishment. Fine particles may be washed from the emplaced sand, increasing nearshore turbidity. Sand may also be washed offshore, and could bury portions of the hard substrate that are nearshore.

#### **5.4 Seawalls**

Seawalls are vertical or sloping reinforced concrete or grouted masonry walls used to protect the land from wave damage, with use as a retaining wall a secondary consideration. Seawalls have a stepped, vertical, or re-curved seaward face. A seawall, if properly designed and constructed, is a proven, long lasting, relatively low maintenance shore protection method. They have the advantage of requiring limited horizontal space along the shoreline. However the near vertical seaward faces of seawalls result in very little wave energy dissipation. The walls are often stepped or recurved to reduce resulting problems of wave overtopping and spray. Wave energy is deflected both upward and downward, and also a large amount of wave energy is reflected seaward. The downward component can cause scour at the base of the wall, particularly in shallow waters, and the reflected waves can inhibit beach formation in front of the wall.

Seawalls are not flexible structures, and their structural stability is dependant on the stability of their foundation. Vertical walls protect properties along the entire length of Keonenui Beach, with the exception of Hestor property. The structure proposed for the site would be located behind rock outcrops on the beachface, and during typical tradewind and summer conditions would be above the normal reach of the water.

#### **5.5 Selected Alternative**

A vertical wall is the preferred alternative for this site for a number of reasons. First, the entire backshore of the sand beach is lined with vertical walls. The exposed earthen bank along the Hestor property represents the only segment along the entire sand beach without a vertical wall. A vertical wall will tie in easily with the adjacent vertical walls, providing seamless protection that will not leave the adjacent walls exposed to possible flank erosion and damage. Also, a vertical wall will be aesthetically consistent with the walls protecting the other properties. A revetment – typically the preferred alternative on sandy shoreline – will have little benefit at this location because it will be adjacent to vertical walls and located landward of the rock outcrops on the beach. At a slope of 1V:1.5H, a revetment will also require 15 to 20 of horizontal space which will significantly cut into the property and which may require a significant amount of excavation due to the height bank. No action or retreat are not feasible alternatives at the site because the erosion has created a hazard and threatens the adjacent seawall.



## 6.0 REFERENCES

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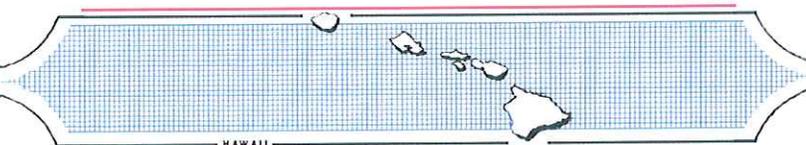
**APPENDIX G:**  
**Archaeological Field Assessment**

**AN ARCHAEOLOGICAL ASSESSMENT FOR  
PROPOSED CONSTRUCTION ACTIVITIES AT  
4855 L. HONOAPI'ILANI HIGHWAY IN NAPILI,  
'ALAELOA AHUPUA'A, LAHAINA DISTRICT,  
ISLAND OF MAUI, HAWAII,  
[TMK; (2) 4-3-015:003]**

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April 2009

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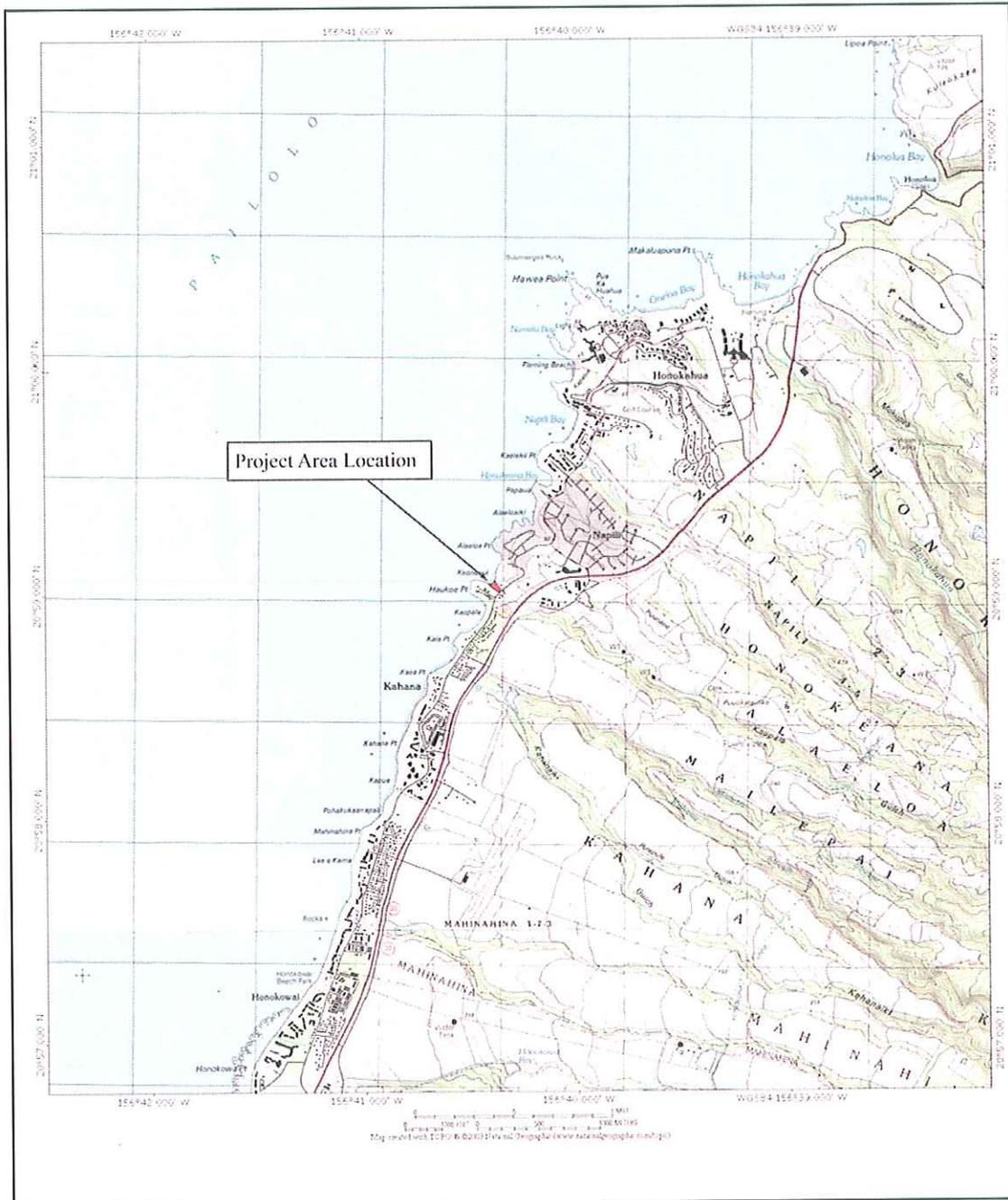
## INTRODUCTION

At the request of Chris Hart and Partners, Scientific Consultant Services, Inc. (SCS) conducted an archaeological Field Inspection of the proposed development site for a single-family residence and seawall on a 0.44 acre site at 4855 L. Honoapi`ilani Highway in Napili, `Alaeloa Ahupua`a, Lahaina District, Island of Maui, Hawai`I [TMK: (2) 4-3-015:003]. (Figures 1 and 2). The Field Inspection was conducted by SCS archaeologist David Perzinski, B.A, on April 17, 2009 under the direction of Michael Dega, Ph.D.

The request for Field Inspection was made to satisfy State of Hawai`i Historic Preservation Division (SHPD) review requirements. A surface reconnaissance survey was previously conducted by SCS Archaeologist Dr. Allison Chun and no surface sites or sand deposits were observed. Extensive alteration by modern residential construction appears to have significantly altered the natural topography and any possible previously existing surface sites or Jaucus sand deposits no longer exist. The purpose of the Field Inspection was to determine the presence or absence of architecture, midden deposits, and artifact deposits on the surface of the project area, as well as assess the potential for the presence of subsurface cultural deposits.

### Location and Current Status

The project area is a 0.44-acre (19,214 ft<sup>2</sup>) lot that is bounded by existing residential lots to the northeast and southwest, the shoreline to the northwest, and L. Honoapi`ilani Highway to the southeast. The parcel has a slight slope (less than 5°) and is tiered with the *mauka* side approximately 2 meters higher than the *makai* side. A single-family house is located on the *makai* side of the lot and a single car garage occupies the *mauka* tier. The lot is almost entirely vegetated with domestic grasses and the perimeters are landscaped with plumeria, ti, croton, mulberry, naupaka and ornamental palms.



**Figure 1:** Portion of USGS Topographic Map Showing the Location of the Project Area

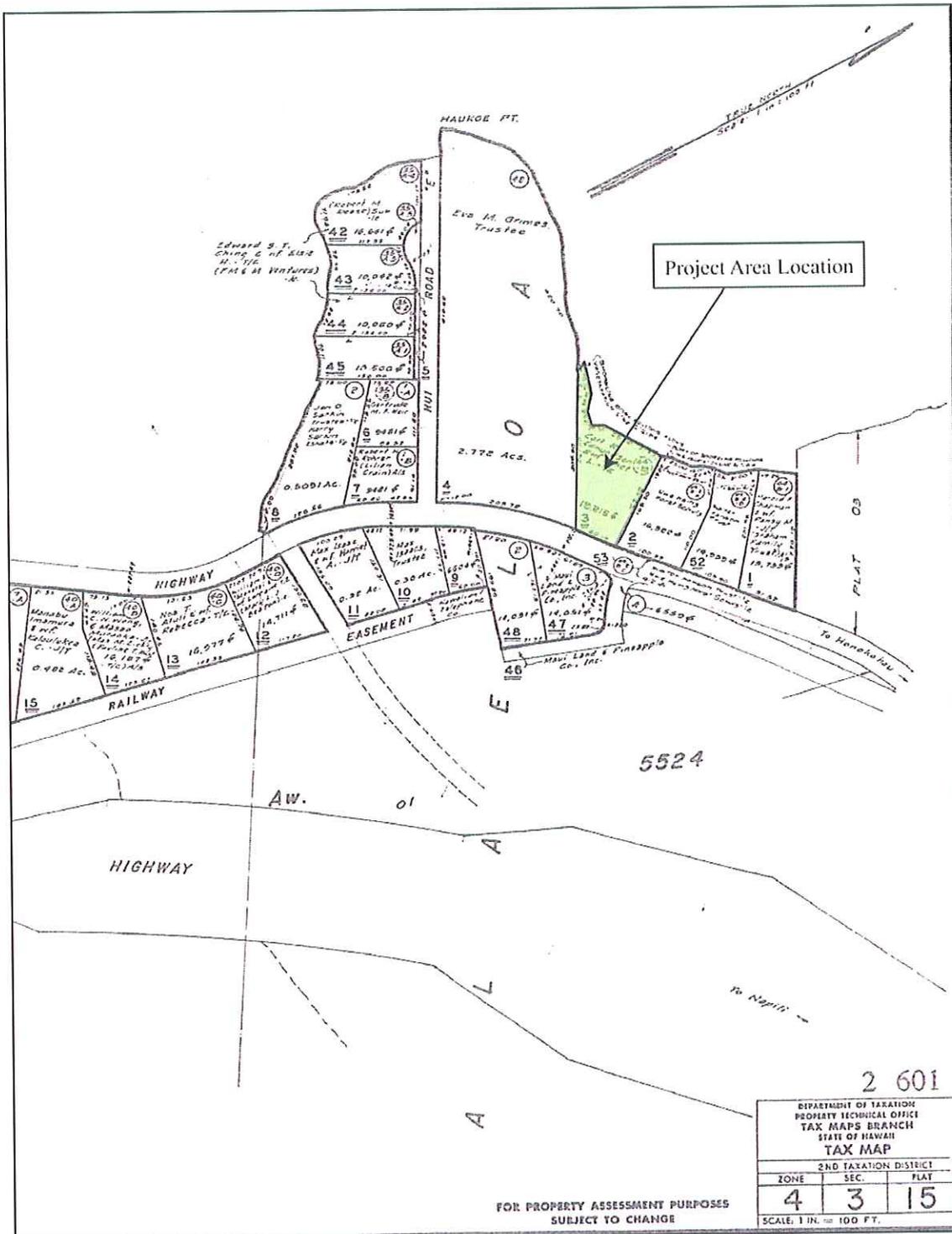


Figure 2: Tax Map Key [TMK: (2) 4-3-015] Showing Project Area.

## ENVIRONMENTAL SETTING

### Project Area Description

The property is a pentagon shaped parcel located on the coastline just south of `Alaaloa Point and north of Haukoe Point and covers an area of 0.29-acres (12,624 ft<sup>2</sup>). The parcel is bounded on the north and south by residential housing, on the east by Hale Malia Road and to the west by the sea.

### Natural Setting

Coastal Nāpili, in general, is classified as a 'Kiawe and Lowland Shrubs' vegetation zone, and common, local plants include: *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), finger grass, and *pili* grass, (the latter is a native species) (Armstrong 1983). In traditional times, *i.e.*, before the historic-era introduction of *kiawe* and *koa haole*, the project area was probably covered with indigenous grasses (Kirch 1973a). Today, vegetation in the project area includes beach *naupaka* (*Scaevola taccada*), coconut palm (*Cocos nucifera*), beach heliotrope (*Heliotropium* sp.), plumeria (*Plumeria acuminata*), *wiliwili* (*Erythrina sandwicensis*), yellow hibiscus (Family, *Malvaceae*), and bougainvillea (*Bougainvillea spectabilis*) as well as various other introduced tropical flowering plants and extensive grassy lawns.

The project area receives an average amount of precipitation, compared with other settled parts of Maui and the Hawaiian Islands, in general. According to Armstrong (1983), mean annual rainfall in the Nāpili area is approximately 76 cm (30 in.). Giambelluca *et al.* (1986) report *median* annual rainfall for the area of approximately 100 cm (40 in.). Part of the discrepancy between these rainfall data is probably due to the steeply increasing precipitation gradient east and southeast of the project area, as one moves up into the relatively wet flanks of West Maui. Regardless of which of these (30 or 40 in.) numbers is more typical of the local rainfall, a tremendous amount of through-flowing water from the West Maui uplands would have been available in traditional times in the Honokahua Stream and the (smaller, but much closer) Napili Stream.

The topography of the parcel is flat with the *makai* side bounded by a steep cliff. The topsoil of the property consisted of brown (7.5 YR 4/2) silt loam mixed with abundant debris from the current construction. The natural soils in the area are generally classified as Kahana Silty Clay (KbB) (Foote *et al.*, 1972) that are derived from igneous rock and deposited as alluvium.

## PREVIOUS ARCHAEOLOGICAL RESEARCH

A fair number of archaeological investigations have been conducted over the years in the Napili in Lahaina District, Maui, resulting almost unanimously in the documentation of both pre-contact and historic deposits. The majority of these cultural deposits were identified as burials, habitation plots, or refuse pits. Classes of artifacts midden found in association with these features included coral abraders, basalt flakes, volcanic glass debitage, and marine shell debris.

North of the project area, remnants of a pre-historic *ala loa* (trail) have been recorded. Traditional accounts attribute the construction of this trail to chief Kiha-a-Pi'ilani during the early 1500s (Sterling 1998). In 1973 the Bishop Museum conducted archaeological research at Hawea Point. A site complex (Site 50-50-01-1346) comprised of eight features was identified and recorded. This site was interpreted to be a temporary Hawaiian settlement for marine exploitation and was dated to c. A.D. 1500 (Kirch 1973a). Additional sites were located and recorded by Kirch (1973a), including a cave shelter on the cliff face of Hawae Point (Site 50-50-01-1347) and a stone terrace platform, which was located on a promontory overlooking Oneloa Bay (Site 50-50-01-1348). During this survey the Honokahua Burial Site (Site 50-50-01-1342) was first recorded. Several additional sites were located by Kirch at Fleming Beach Park along Honokahua Stream; these included a house site, terrace, enclosure, and midden deposits (Site 50-50-01-1345).

Archaeological work conducted by Griffin and Lovelace (1977) in conjunction with the realignment of Honoapi'ilani Road was concentrated in the gulches of Honokowai, Mahinahina, Kahana, Mailepai, and Alaeloa. The survey resulted in the identification of four sites, a buried midden deposit, a trail segment, a stone wall, and three retaining wall segments. It was concluded that this site represented a prehistoric, repetitively occupied, temporary habitation site (Griffin and Lovelace 1977). In Kahana, work conducted in conjunction with U.S. Department of Agriculture's Soil Conservation Service to create a desilting basin resulted in the identification of a prehistoric inland agricultural area that had been reused during historic times for commercial sugarcane and pineapple cultivation (Walker and Rosendahl 1985).

Based on previous archaeological work in the area, it was anticipated that pre-Western Contact cultural layers associated with permanent habitation and/or burials could be encountered. It was noted however that extensive ground altering activities associated with the construction of the residence and surrounding parcels likely altered the natural sediment deposits in this area.

## METHODS

The Field Inspection of the parcel was conducted by SCS archaeologist David Perzinski, B.A., on April 17, 2009, under the direction of Michael Dega, Ph.D. The project area is located along the *makai* side of L. Honoapiʻilani Highway and based on the topography and landscaped condition of the lot it was clear that extensive grading activities had occurred (Figures 3 and 4).

The landscaped lot is clearly demarcated by modern stone walls and the property was subjected to a 100% pedestrian survey. The property was then documented with photographs and the topography and vegetation was noted.

Following the surface survey, a shovel test unit was manually excavated on the northeast and southwest portion of the parcel to better understand the nature of the subsurface deposits. Documentation of the subsurface sediments included screening of all excavated material through 1/8<sup>th</sup>-inch mesh screen and profiling and recording the stratigraphic sequence with scale drawings and photographs. Once the material was evaluated for any cultural content it was returned to the test pits and manually compacted.

## RESULTS OF FIELDWORK

No new sites, surface features or undisturbed surface sediments were identified during the Field Inspection. The two shovel tests that were manually excavated had nearly identical stratigraphic sequences (Figures 5 and 6). Stratum I (0-5 cmbs) consisted of dark brown (7.5 YR 3/2) imported clay loam. The thin layer was likely imported after grading the lot to support the grass lawn. Stratum II (5-45 cmbs) consisted of dark reddish brown (2.5 YR 3/4) silty clay. The matrix has a blocky structure and is slightly plastic. Stratum II contained few uniformly dispersed charcoal flecks (flecks < 1 mm in diameter) that are likely the result of historic agricultural runoff. No cultural layers or materials were encountered in either shovel test pit.

## CONCLUSIONS

No surface or subsurface cultural remains were identified during the archaeological assessment. A full pedestrian inspection and manually excavated shovel test pits within the parcel failed to lead to the identification of historic surface features or subsurface sites or layers. Repeated instances of modern era clearing and grading in and area the parcel have extensively

disturbed portions of the area, further making the likelihood of encountering any remaining surface features non-existent.

It is our estimation, based on this field inspection, that the proposed undertaking would not have an adverse impact on any significant historic properties. No further work is needed for this land parcel. However, should the inadvertent discovery of significant cultural materials and/or burials occur during construction, all work in the immediate area of the find must cease and the SHPD be notified to discuss mitigation, if necessary.



**Figure 3:** View North Showing *Makai* Portion of Project Area



**Figure 4:** View North Showing *Mauka* Portion of Project Area



**Figure 5:** View North of Shovel Test 1 Showing Stratigraphy



**Figure 6:** View North of Shovel Test 2 Showing Stratigraphy

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**APPENDIX H:**  
**Cultural Impact Assessment**

**JILL ENGLEADOW**

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June 25, 2009

Mr. Walter Hester  
c/o Paul Mancini, Esq.  
Mancini, Welch & Geiger, LLP  
33 Lono Avenue, Suite 470  
Kahului, HI 96732

Dear Mr. Hester,

Here is a new version of the Cultural Impact Assessment on your house and sea wall project. It took a while to get information releases from Mrs. Lutey and Ms. Kalua, but they finally returned them, and Ms. Kalua also had a few corrections, which I incorporated into the text summarizing the interview with these two ladies. I have attached an appendix that includes their information release forms, an e-mail message from Alan Yabui indicating that he had read and corrected a summary of his interview, and a copy of the Affidavit of Publication from the *Maui News*. This final version should replace the one I previously dropped off at Paul Mancini's office.

Aloha,



Jill Engledow

**Walter Hester Residence**  
**Cultural Impact Assessment**

for

4855 Lower Honoapi'ilani Highway  
'Alaeloa, Maui, Hawai'i  
TMK (2) 4-3-015:003

by

Jill Engledow  
Historical Consultant  
Wailuku, Maui

May 2009

Prepared for  
Mr. Walter Hester

**Walter Hester Residence  
Cultural Impact Assessment  
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- Gwen Lutey information release**
- Frances Kalua information release**
- E-mail note from Alan Yabui**
- Maui News* Affidavit of Publication**





Fig. 2. Hester residence is at center of photo, past palm trees, with overhanging *naupaka* hedge. Engledow photo 4/09



**Fig. 3. Fishers on Haukoe Point, south of the subject property. Engledow photo 4/09**



**Fig. 4. Hester residence, seen from Haukoe Point. Note armored cliff on both sides of property. Engledow photo 4/09**



Fig. 5. West Maui *ahupua'a* map, on display at Kapalua Resort's Kukui Room.

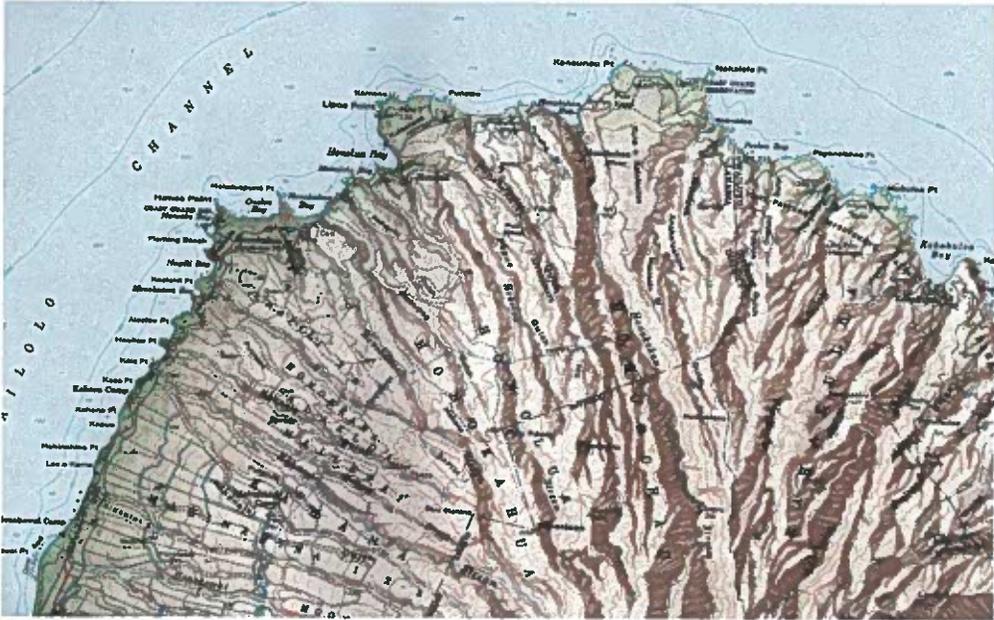


Fig. 6. Portion of U.S. Geological Survey map showing Ka'anapali District.



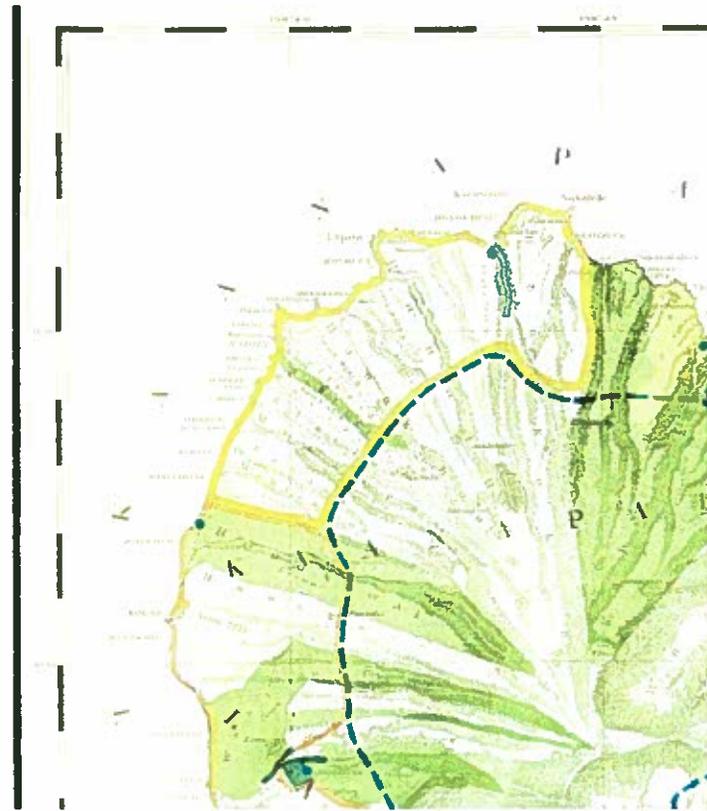


Fig. 8. Hawaiian Government Survey Map, 1885/1903. Yellow outline indicates grazing land.

**Walter Hester Residence**  
**Cultural Impact Assessment**

**I. Introduction**

At the request of Chris Hart & Partners, Inc., researcher and writer Jill Engledow prepared this Cultural Impact Assessment of the property owned by Walter Hester at 4855 Lower Honoapi'ilani Highway, TMK (2) 4-3-015:003. This 19,214-square-foot property faces northwest on a cliff that drops to a small beach. It is backed on the southeast by Lower Honoapi'ilani Highway and flanked on either side by developed residential properties. An existing single-family house on the site was built in 1976. The proposed project will include demolition of this house, along with construction of a new single-family residence and a seawall. The proposed action that requires this Cultural Impact Assessment is an HRS Chapter 343 Environmental Assessment in support of an application for a Special Management Area Permit and a Shoreline Setback Variance. See project location in Figure 1.

The seawall is planned to stabilize the exposed bank of the cliff upon which this property stands. The bank has been eroding for some time. The Field Books containing information about this property in the Maui County Property Tax office show that in 1972, the lot totaled 21,620 square feet. In 1973, it was 21,340 square feet. In 1987, the book noted a "change in area and boundary due to erosion," and the current 19,214-square-foot size clearly demonstrates that the erosion is continuing. Landowners have attempted to slow this erosion by planting a thick naupaka hedge along the cliff's edge, but the lot is set high above the shore, and waves continue to pound the cliff at its base, potentially threatening public safety and silting up the water with earth and clay. The cliff already has been stabilized by vertical stone reinforcement along the rest of the bay, leaving the area under this parcel to bear the brunt of wave action. (Figures 2 and 4)

**II. Report Methodology/Resource Materials Reviewed**

Sources sited in archival research are listed in the attached bibliography. Additional searches included the Internet and the indexes of a variety of books on Hawaiian culture and history which were searched for the words 'Alaeloa, Mailepai and Nāpili. A number of commonly used texts about Hawaiian history included no specific references to 'Alaeloa and very few to the surrounding area. Among the works consulted without success were:

- *Ruling Chiefs of Hawaii, The People of Old, The Works of The People of Old, Tales and Traditions of the People of Old* (all by Samuel M. Kamakau)
- *Nānā I Ke Kumu, Volumes I and II* (Mary Kawena Pukui, E.W. Haertig, and Catherine A. Lee)
- *Hawaiian Antiquities* (David Malo)
- *Ke Alaloa O Maui* (Inez Ashdown)
- *Faith in Paradise* (Maggie Bunson)
- *Sugar Trains Pictorial* (Jesse C. Conde)
- *Sugar Water* (Carol Wilcox)
- *The Index to The Maui News* (Gail Bartholomew)
- *Hawaiian Almanac and Annual, 1875-1878* (Thomas G. Thrum)
- [www.ulukau.org](http://www.ulukau.org), which includes digital copies of old Hawaiian-language newspapers
- The Windley Files of the Lahaina Restoration Foundation
- The archives of Maui Historical Society

Engledow also conducted interviews with residents who remember uses in the area over the past 50 years.

### III. Study Area Description

This site is a small residential parcel overlooking a small bay between 'Alaeloa and Haukoe Points. The property sits on a coastline that is highly developed, with much of Lower Honoapi'ilani Highway lined with walls and gates. The Hester residence is one of several private homes on the south side of the bay, while the Kahana Sunset condominium is on the northern end. The bay's small beach is accessible to the public only through the Kahana Sunset property, but a beach access path on Hui Road E leads out onto Haukoe Point at the south end of the bay, where a rocky point provides a platform for fishing. (Figure 3) A white sand beach fronts the Kahana Sunset, formerly called Keonenui, "the big sand," and later Yabui Beach (Young 1980:63)

While informant Alan Yabui recalls an intermittent stream that ran during Kona storms, a 1913 USGS drainage map reprinted in *Sugar Water* (Figure 7) shows no permanent waterway in this *ahupua'a*. Honokōhau Ditch (also known as Honolua Ditch) was completed in 1904 and rebuilt in 1913, but apparently did not tap any sources in the 'Alaeloa area. The ditch, constructed by Honolua Ranch, supplied water to Pioneer Mill. (Rice 1996:126-130)

### IV. Study Area History

The subject property is located within the *ahupua'a* of 'Alaeloa in the district once

known as Kā'anapali, but now known as Lahaina. In the Civil Code of 1859, "the twelve ancient districts of the island of Maui were reduced to four by combining Kaanapali with Lahaina. . ." (King, quoted in Sterling 1998:3). Prior to this time, the district of Lahaina extended to Keka'a, in the area that now is the Kā'anapali Resort. The district of Kā'anapali extended from Keka'a around the north coast of West Maui, past Kahakuloa, to near Hulu Island. (Figure 6)

Two Hawaiian proverbs seem to apply to this area of the Kā'anapali district. *Kā'anapali wāwae 'ula'ula* (red-footed Kā'anapali) is "a term of derision for the people of Kā'anapali. The soil there is red, and so the people are said to be recognizable by the red soles of their feet." A second seems to indicate that this was a productive area: *Ka ua leina hua o Kā'anapali* (the rain of Kā'anapali that leaps and produces fruit). (Pukui, 'Ōlelo No'eau 1983:1280, 1581)

This area includes the famous Honoapi'ilani--the bays of Pi'ilani, including the major bays of Honokōwai, Honokeana, Honokahua, Honolua and Honokōhau. 'Alaeloa is just south of Honokeana. This name for the bays refers to the chief Pi'ilani, who controlled all of Maui Nui in the 15th century. While Pi'ilani is remembered for the peace and prosperity he brought to his kingdom, his sons, Lono-a-Pi'ilani and Kiha-a-Pi'ilani, fought each other, and succeeding generations fought battles in this West Maui neighborhood, some of which are described below.

Rich with fish, fed by streams that watered *lo'i kalo* in their valleys, the bays drew admiring attention in the song *Moloka'i Nui A Hina*. This song about Moloka'i, whose people view West Maui from across the channel, begins with the line *Ua nani nā hono a Pi'ilani*: How beautiful are the bays of Pi'ilani. These lovely bays are a symbol of Maui in other songs as well, such as *Maui Nani* by Johanna Koana Wilcox and *Lei Lokelani* by Charles E. King. Although the small coves of 'Alaeloa are not listed among the famous bays, they are certainly junior members of the family, tucked between Honokōwai and Honokeana.

The name 'Alaeloa translates as "distant mudhen," according to Pukui, but some contemporary informants related the word "alae" to the area's red dirt. According to the *Hawaiian Dictionary*, 'alaea is "the water-soluble colloidal ochreous earth used for coloring salt, for medicine, for dye and formerly in the purification ceremony called *hi'uwai*." (Pukui and Elbert 1974:16) Silla Kaina, cultural resources coordinator for Kapalua Land Company, grew up in Honolua, and remembers her grandmother (from Hāna) collecting red dirt from 'Alaeloa cliffs which she boiled to make an iron-rich tea. Ms. Kaina says the dirt from this *ahupua'a* is redder than that in other *ahupua'a*.

W.M. Walker, in his notes on *Archaeology of Maui*, describes a *heiau* "on bluff at south side of rocky cove between 'Alaeloa and Papaua Points." He says this simple structure is a "small rectangular enclosure measuring 50 x 66 ft. . . . Use unknown. Several people

thought it was a cattle pen.” (Walker, Maui Historical Society)

Handy, in *Hawaiian Planter*, says that:

On the south side of western Maui the flat coastal plain all the way from Kihei and Maalaea to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fishermen's houses, where sweet potatoes were grown in a sandy soil or red *lepo* near the shore. For fishing, this coast is the most favorable on Maui, and although a considerable amount of taro was grown, I think it reasonable to suppose that the large fishing population which presumably inhabited this leeward coast ate more sweet potatoes than taro with their fish. (Handy, quoted in Sterling 1998:17)

A 1985 archaeological study agrees with this opinion, finding few signs of irrigated *lo'i kalo* in the area near the subject parcel. The study, titled "Testing of Cultural Remains Associated with the Kahana Desilting Basin," says:

An examination of the L.C.A. documents for the various *ahupua'a* of the general area, and field inspection of the gulch area immediately *mauka* of the project area strongly suggest that irrigation systems were not in use at Kahana. . . indeed for the three *ahupua'a* north of here, only two L.C.A. parcels with *lo'i* were recorded, and both were very small, presumably springfed, systems several miles inland . . . thus the Kahana settlement pattern in A.D. 1848 consisted ofouselots, and at least one small fishpond, extending several miles inland along the banks of Kahana Stream. Noouselots were claimed beyond a few hundred feet inland. This pattern also appears to hold for at least the next three *ahupua'a* to the north of Kahana --Mailepai, 'Alaeloa and Honokeana. (Walker and Rosendahl 1985:A-3)

However sparsely populated, the area around the subject parcel played its part in the great battles of the 1700s. Here is Sterling's summary of battles at Lahaina and Ka'anapali, taken from Fornander's *Account of the Polynesian Race*:

[Alapainui, on his return from Oahu, hears of the uprising of Kauhaimokuakama against his brother Kamehamehanui. Kamehamehanui is defeated in Lahaina and flees with Alapainui to Hawaii.]

In the following year, say 1738, Alapainui returned to Maui with a large fleet, well-equipped, accompanied by Kamehamehanui. With headquarters at Lahaina, his forces extended from Ukumehame to Honokowai. . .

[Kauhi sends to Peleioholani, moi of Oahu, for help] . . . which that restless and warlike prince accepted, and landing his fleet at Kekaha, encamped his soldiers about Honolua and Honokahua.

It is said that Alapai proceeded with great severity against the adherents of Kauhi in Lahaina, destroying their taro patches and breaking down the watercourses out of the Kauaula, Kanaha, and Mahoma [*Kahoma*] valleys.

*[Alapai reaches Lahaina before Peleioholani can get there from Oahu, and Kauhi retreats to the uplands and ravines behind Lahaina. Peleioholani lands and attacks Alapainui's forces in the hopes that he can form a junction with Kauhi's forces.]*

To this effect Peleioholani advanced to Honokowai where he found a detachment of Alapai's army, which he overthrew and drove back with great loss to Keawawa. Here they rallied upon the main body of the Hawaii troops. The next morning Alapai had moved up his whole force, and a grand battle was fought between the Oahu and Hawaii armies. The fortune of the battle swayed back-and-forth from Honokowai to near into Lahaina . . . (Fornander, quoted in Sterling 1998:19)

Kamakau also describes this battle in *Ruling Chiefs*. He says that Alapa'i, in addition to drying up the streams in the Lahaina area, also "kept close watch over the brooks of Olowalu, Ukumehame, Wailuku and Honokowai." The hardest fighting, he says, "even compared with that at Napili and at Honokoua in Kaanapali," took place at Pu'unēnē. (Kamakau 1961:74) It may be that, rather than the better-known Pu'unēnē on the Central Maui isthmus, this refers to Pu'unēnē *mauka* of 'Alaeloa, which can be seen on a U.S. Geological Survey map (Figure 6).

More than a century later, when Western contact had greatly changed Hawaiian society, 'Alaeloa as well as other 'āina across the islands began a transition that eventually led to the resort/residential neighborhood it is today. Before the *Māhele* of the 1840s and 1850s, 'Alaeloa was part of a large piece of land controlled by Laura Kanaholo Konia (c. 1807-1857). Laura Konia was an *ali'i nui* and was either a granddaughter or a grandniece of Kamehameha I; the identity of her father's father is uncertain. She married Abner Pākī and became the mother of Bernice Pauahi. Laura Konia held 22 'āina prior to the *Māhele*, almost all on Maui in the Kā'anapali district. She relinquished half to the king and was left with 11, of which eight were on Maui. 'Alaeloa was among them. With neighboring lands of Mahinahina, Napili, Mailepai and a portion of Honokeana, it became part of Land Commission Award 5524 and later Royal Patent 1663. (Kame'eleihiwa 1992:228, 246)

When Laura Konia died in 1857, her daughter Bernice Pauahi inherited this land. Documents on file in the state Bureau of Conveyances show that, in June 1860, Bernice Pauahi and Charles Bishop deeded this land to a number of individuals. This was the *Hui 'Āina o Mailepai*, an early example of a system Native Hawaiians established in order to maintain their traditional lifestyle, with residents of an *ahupua'a* having access to the resources of a much larger area than the small homestead of a *kuleana* lot. "A *hui* was a native cooperative, established to buy and manage *ahupua'a* (land divisions), using a modicum of Western legal structure to establish a very Hawaiian cooperative land-tenure social system." (Stauffer 2004:2) In 1932, the *Honolulu Star-Bulletin* published a series of essays by Leslie Watson, a civil engineer who worked for Alexander & Baldwin, Inc., in which he described this system. Because he worked for a Maui corporation, many of his examples are Maui-based, including details about the Mailepai Hui. Regarding the impetus for establishing *hui 'aina*, he wrote in the December 13 edition:

The communal ideas, which had been developed through the course of centuries, were so deeply a part of the life of the Hawaiians as to make it but natural that the urge to continue such ideas should manifest itself; so shortly after 1850 the Hawaiian land *hui* was born. Thus it is evident that the fundamental reason for the *huis* was that ownership of an undivided interest in a large tract of land was far more adaptable to the Hawaiians' needs and background than ownership in entirety of small parcels.

In his December 14 article, Watson went into detail about the Mailepai Hui:

Mailepai *hui* land consisted of a 2,825 acre tract in the district of Kaanapali, Maui, running from the sea up into the forest. The land was originally owned by L. Konia and was inherited by Bernice Pauahi Bishop. A certain Naiapaakai formed "Mailepai *hui*" for the purpose of acquiring the land. In 1860, the land was conveyed to Naiapaakai and 105 others.

An unusual feature was that Naiapaakai gave "deeds" in the form of printed slips which bear his signature to members as they paid in their \$25 contributions to the purchase price. The Hawaiians received title, however, under the deed from Bernice Pauahi Bishop. These slips, which came to be known as Naiapaakai certificates, read substantially as follows: "Know all men by these presents that ----- of ----- is possessed of a share in fee simple in the land of Bernice Pauahi Bishop at Kaanapali as described in the deed now in my possession. On account of his paying \$25 towards the purchase price of the land he is entitled to a 1-113th undivided interest in the land. (Signed) D. K. Naiapaakai, agent for the people of the *hui*."

Naiapaakai's own certificate shows a contribution of \$200 and gives 8-

113th as his share. [His eight shares brought the total of shares from 105 to 113.]

These interesting certificates were, in many cases, transferred by one individual to another . . . Thus title to a considerable number of the shares was passed from one individual to another without having deeds prepared and recorded. In the partition of the hui in 1930-1931 these certificates, if properly endorsed, were given the status of recorded deeds.

In many cases Baldwin Packers Ltd., the largest shareholder, had what appeared to be perfect record title to shares but the company recognized title transfers as evidenced by the endorsed certificates as having priority over record titles originating in deeds of a later date. . .

Mailepai hui was a well-organized hui and had regular meetings until about 20 years ago when interest in the hui waned. The allotment system was well established, however, and had a prominent part in the partition proceedings.

Baldwin Packers was the petitioner in this 1931 partition. Henry Perrine Baldwin acquired most of the company's land (when it was known as Honolua Ranch) by the end of the 19th century through a series of land grants and purchases. (Cameron et al 1987:7) According to Laurel Murphy, who is writing a history of the Baldwin family, Baldwin bought many small pieces of land from members of the Mailepai Hui before his death in 1911. Originally used for grazing, the ranch gradually switched over to planting various crops in the early 20<sup>th</sup> century. (Figure 8) A map in the book *Plantation Days* shows plantings of aloe vera, mangoes, avocados and lychees *mauka* of the subject property, across the road that would become Lower Honoapi'ilani Highway and railroad tracks that transported pineapple to the company's Lahaina cannery in the early 1900s. (Figure 9) (Cameron et al. 1987:5)

Pineapple was planted by manager David T. Fleming, hired by Baldwin in 1911 to oversee Honolua Ranch. Fleming, who experimented with many crops in addition to pineapple, also owned assorted parcels of land along this coast, including some in the neighborhood of the subject parcel. His granddaughter, Ginger Gannon, said he had a beach house at 'Alaeloa. In 1932, Fleming planted 10 acres of aloe (apparently the field depicted in Figure 9), which he attempted to develop as a marketable product. Though he was before his time, and the project was never commercially successful, Ginger Gannon recalls that "We always had creams and salves" made by her grandfather, and "they worked!" Possibly this field was the source for the aloe vera plants which are ubiquitous in home gardens all over Maui. Over the years, the ranch (renamed Baldwin Packers in 1924) gradually replaced its grazing land with pineapple plantings, which totaled 3,500 acres when *Plantation Days* was written in 1987. Baldwin Packers merged with Maui

Pineapple Company in 1962, and the Honolua area which was its headquarters became the Kapalua Resort, while the land south of Honolua, including the Mailepai Hui land, was developed as a residential and resort neighborhood.

## **V. Oral Interviews**

### ***Methodology, Procedures, and Interviewee Biographical/Organizational Information***

In addition to personal contact with individuals listed below, letters briefly outlining the development plans along with a map of the project site were sent to organizations whose jurisdiction includes knowledge of the area, asking for input on this report. Letters were sent to the headquarters of the Office of Hawaiian Affairs, to Thelma Shimaoka, coordinator of the Maui branch of the Office of Hawaiian Affairs, and to the Lahaina Hawaiian Civic Club. A legal ad in The Maui News requested information from anyone with knowledge of cultural practices around this parcel; no replies were received.

OHA Administrator Clyde W. Nāmu‘o responded for that agency, saying in a May 6, 2009 letter: “While OHA understands the specific intent of this proposed seawall is to prevent further erosion of the shoreline cliffs fronting the subject parcel, we generally do not support the construction of seawalls because they often lead to increased shoreline erosion such as the effects mentioned in your letter. Increased erosion contributes to environmental damage and inhibits beach access for traditional and customary practices.”

The Napili Canoe Club, which is headquartered in Kā‘anapali at Hanaka‘ō‘ō Beach, does paddle along the shore as far north as this cove. Contacted by phone on May 11, 2009, club president Jeanne Gonzalez declined to comment on the subject property, saying that the club does not take an official stand on anything political because it is a 501(c)3 organization, and they view anything having to do with development issues as political.

Several individuals were interviewed, only one of whom actually lived in ‘Alaeloa. Others lived in the general area and were able to talk about the lifestyle of this part of West Maui a generation ago.

Two women who formerly lived in the Nāpili area shared memories of the lifestyle they enjoyed during their youth. Gwen Lutey and Frances Kalua were interviewed in an informal meeting at the Hale Mahaolu Eono senior housing in Lahaina March 31. Also present was historical author Katherine Smith.

Frances Kalua lived in Nāpili. Her family had lived in the area for generations. Her grandfather, August Reimann, had a little ranch, with a windmill to draw water from a well for the animals. [August Reimann and other family members are listed in the Mailepai partition document and in census documents of the area from 1900.] Ms. Kalua does not recall hearing that there used to be a fishing village in the area, and no one

talked much about it. In her childhood, her aunt was the *kilo i'a*, watching from above Honolua Bay to find schools of fish. This aunt was adept at making throw nets. People would lay net and share the fish they caught. There was also plenty of the *limu* known as *lipo'e*. The shellfish known as *pipipi* were big and plentiful. They were boiled and then picked out of their shells with a pin, a process Ms. Kalua said was tedious but worth it because the *pipipi* were tasty. Another shellfish, the *kupe'e*, lived in the sand and could be found only on starry nights, and people went down to the beach to catch sand crabs as well. Her aunt delivered mail in the area, and picked up goods from Lahaina for anyone in the neighborhood who asked, dropping them off when they delivered the mail.

Gwen Amaral Lutey grew up on Nāpili Bay. Like Ms. Kalua, she remembered a rural, traditional cooperative lifestyle, in which families lived off the land. They raised chickens, pigs and ducks and shared with others. Her grandmother made 300 loaves of bread at a time and the family worked together to make and sell the bread. David Fleming loved fishing, and set up a commercial operation to catch the large schools of *akule* in Honolua Bay, where the best fishing was. Some of the fish were divided among families, who would take them home to eat or dry.

Native plants were used to some extent. *Noni* was easily available, and Ms. Kalua and her brothers used to ride horses to collect *koko'olau* and pick mountain apples. Both Ms. Kalua and Mrs. Lutey recalled seeing *akualele* [defined in Pukui's *Hawaiian Dictionary* as meteors] during the day and night.

Both women praised David Fleming, saying that he sold parcels in the lower portion of Mailepai Hui to local families for \$500. "He never forgot the people," Mrs. Lutey said.

Asked about potential cultural impacts of the proposed project, Ms. Kalua commented that she believes putting a stone retaining wall along the cliff desecrates the area.

Alan Yabui, interviewed April 13, 2009, by telephone, spent some of his childhood living at the site of the present Kahana Sunset. He is now a resident of Bothell, Washington, where he teaches classes in Hawaiian history, intercultural communication and history of the Japanese internment camps. He and his wife visit Maui often.

Mr. Yabui's grandfather, Yoshimatsu Yabui, was the Lahaina Cannery supervisor, and his son Yoshihara Yabui (Alan's father) also worked as a cannery supervisor. Yoshimatsu Yabui was a good friend of D.T. Fleming, who often visited the Yabui family home to relax with his friend under a hau tree. Because this home was on the site of the current Kahana Sunset, Keonenui Beach is often called Yabui Beach. Mr. Fleming also gave his friend a piece of land (less than an acre) in exchange for Mr. Yabui allowing Baldwin Packers to remove some sand from the dunes on his property in order to make a concrete floor for an expansion at the Lahaina Cannery in the space now occupied by the ABC

Store and the *mauka* space with several stores, a restaurant, and Starbucks.

Mr. Yabui said his grandfather brought this property in 1939 from a Chinese merchant in Lahaina who had decided to go back to China. The Mailepai Hui partition document includes Allotment 16 to Ah Cheen of Lahaina, with a boundary description that seems to match that of the Yabui property. Mr. Yabui said he remembers that the name began with the letter "C." Mr. Yabui thinks there must have been a Hawaiian village there at one time--rocks that his grandfather dug up, now used in the walls around the Kahana Sunset, were weathered when his grandfather found them, so they might have come from that village. Some of the rocks were dark-blue basalt, adze-quality stone. His grandfather planted ti plants and mango trees that are still growing on the Kahana Sunset property. His grandfather also had poi pounders and *'ulu maika* stones, but Mr. Yabui is not sure whether his grandfather found these artifacts or whether David Fleming gave them to him.

The tsunami of April 1, 1946, turned a neighbor's home near Yoshimatsu Yabui's family home on the Lahaina shoreline (now the parking lot near the entrance to Lahaina Luau) upside down, so Mr. Yabui's grandfather bought the house structure and moved it to Alaeloa and fixed it up over the next four years.

Alan's mother contracted TB in 1943 was sent to Kula Sanatorium (before penicillin, to recover) and he was raised by his grandparents and lived with them after the April 1, 1946, tidal wave in a house in "Cannery Camp," now the location of the Lahaina Lū'au. Later, after 1946, his grandparents moved to another house in "Cannery Camp," which is now the site of the main performance stage at Lahaina Lū'au. His grandfather retired in 1950 and at age 10 he moved to the now Kahana Sunset. He lived there until he left for college at age 18.

Mr. Yabui remembers that Dr. William Dunn lived on the lot that is the site of the Hester residence. Dr. Dunn retired from his position at the Pioneer Mill Co. hospital in 1948. (*The Maui News*, June 30, 1948) Dr. Dunn's daughter (who was a teacher at Kamehameha III School) and her daughter lived adjacent in a Quonset hut, next to the Dunn home. Other neighbors were well-known Maui hula teacher Emma Sharpe and her husband, David. [Mrs. Sharpe's mother, Annie Farden, is mentioned in the Mailepai Hui partition document.] David Sharpe used a World War II-era landing boat to spread fishing nets with Hawaiian residents in the Kahana area. Mr. Yabui and his father helped in a hukilau-type fishing event near Kahana Sunset.

Mr. Yabui said there was a stream that ran intermittently; a dip in the road crossing the stream bed (between the Dunn and Sharpe properties), that intermittently flowed when heavy Kona rain came onshore from the ocean side. He used to go up into the valley above his home, walking on the pineapple field roads, where some native plants still grew. In those days, however, "Hawaiian culture was submerged," he said, and there was

little discussion or practice of native cultural matters.

#### **VII. Confidential information withheld; Conflicts in information or data**

No confidential information was withheld. There were no conflicts in information or data within the reports consulted for this Cultural Impact Assessment.

#### **VIII. Conclusion**

After making site inspections, interviewing knowledgeable people of the area and conducting documentary research on the subject property and the area around it, it appears that the proposed action does not interfere with any known Hawaiian or non-Hawaiian gathering, practices, protocols or access.

Because the subject property has long been developed for residential use and because this cliff-top lot does not provide access to the shoreline, construction of a new house is unlikely to have an impact on use of the shoreline. There appear to be few if any other cultural resources that might be impacted by the building on the site. Other than one negative opinion from Mrs. Frances Kalua and a comment from OHA, armoring of the cliff below the property does not seem to be a cultural issue with anyone interviewed for this report. It is instead an environmental issue, and decisions about the impact of that action are more properly addressed by experts on the health of the shoreline.

###

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## Appendices

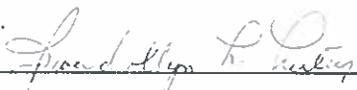
### INFORMATION RELEASE FORM

I, the undersigned, participated in an interview in Lahaina with Jill Engledow, representing Walter Hester, on March 31, 2009.

I understand that the information I provided to Jill Engledow will be submitted as part of a Cultural Impact Assessment report on the building of the seawall and Hester residence at TMK: (2) 4-3-015:003.

I have read Engledow's summary of the interview, and the information is true and accurate to the best of my knowledge. The summary contains no confidential information. By signing this release form, I am providing my approval for the release of the information to Walter Hester for the purpose outlined above.

Print name: Erin Doherty L. Lutey

Signature: 

Release dated: 5-20-2009

**INFORMATION RELEASE FORM**

I, the undersigned, participated in an interview in Lahaina with Jill Engledow, representing Walter Hester, on March 31, 2009.

I understand that the information I provided to Jill Engledow will be submitted as part of a Cultural Impact Assessment report on the building of the seawall and Hester residence at TMK: (2) 4-3-015:003.

I have read Engledow's summary of the interview, and the information is true and accurate to the best of my knowledge. The summary contains no confidential information. By signing this release form, I am providing my approval for the release of the information to Walter Hester for the purpose outlined above.

*With corrections in original copy*

Print name: FRANCES L. KAHAHA

Signature: *Frances L. Kahaha*

Release dated: 06-01-09

*COPY KEPT ON THIS!*

**AFFIDAVIT OF PUBLICATION**

STATE OF HAWAII, }  
County of Maui. } ss.

Rhonda M. Kurohara being duly sworn  
deposes and says, that she is in Advertising Sales of  
the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a  
newspaper published in Wailuku, County of Maui, State of Hawaii;  
that the ordered publication as to \_\_\_\_\_  
Information Wanted for Cultural Impact Assessment

of which the annexed is a true and correct printed notice, was  
published 2 times in THE MAUI NEWS, aforesaid, commencing  
on the 29th day of March, 2009, and ending  
on the 31st day of March, 2009, (both days  
inclusive), to-wit: on \_\_\_\_\_  
March 29, 31, 2009

and that affiant is not a party to or in any way interested in the above  
entitled matter.

*Rhonda M. Kurohara*

This 1 page Information Wanted, dated  
March 29, 31, 2009,  
was subscribed and sworn to before me this 31st day of  
March, 2009, in the Second Circuit of the State of Hawaii,  
by Rhonda M. Kurohara

*Leila Ann L. Leong*  
Notary Public, Second Judicial  
Circuit, State of Hawaii  
LEILA ANN L. LEONG  
My commission expires 11-23-11



**Information Wanted  
for Cultural Impact  
Assessment**  
Maui Island Press requests information on  
culture resources or activities on or near  
this parcel in Napili, Maui:  
TMK (2) 4-3-015-003.  
Please contact MIP within 30 days  
at (808)242-5459.  
(MNI, Mar. 29, 31, 2009)

**APPENDIX I:**  
**Soils Report**

REPORT  
SOILS INVESTIGATION

PROPOSED  
HESTER RESIDENCE SEAWALL  
4855 LOWER HONOAPIILANI ROAD

KAHANA, MAUI, HAWAII  
TMK: (2) 4-3-15: 03

for

MR. WALTER HESTER

Project No. 071179-FM  
November 28, 2007

# ISLAND GEOTECHNICAL ENGINEERING, INC.

*Geotechnical Consultants*

330 Ohukai Road, Suite 119  
Kihei, Maui, Hawaii 96753  
Phone: (808) 875-7355  
Fax: (808) 875-7122

---

November 28, 2007  
Project No. 071179-FM

Mr. Walter Hester  
c/o Mr. Paul R. Mancini  
Mancini, Welch & Geiger  
33 Lono Avenue, Suite 470  
Kahului, Hawaii 96732

The attached report presents the results of a soils investigation at the site of the proposed Hester Residence Sea Wall to be located at 4855 Lower Honoapiilani Road in Kahana, Maui, Hawaii.

A summary of the findings is as follows:

- 1) The subsurface conditions at the site were explored by drilling 3 test borings to depths of 32 to 36 feet below existing grade. The general subsurface conditions at each test boring location are as follows:

Boring 1 encountered very soft to moderately stiff SILT & CLAY from the surface to a depth of 10.5 feet below existing grade followed by loose silty SAND with gravel to a depth of 14.5 feet below existing grade followed by moderately dense to very dense silty SAND with gravel & silty GRAVEL with sand (alternating layers) to the final depth of the boring at 35.5 feet below existing grade.

Boring 2 encountered soft to very stiff SILT & CLAY from the surface to a depth of 10 feet below existing grade followed by soft CLAY with sand and gravel to a depth of 13.5 feet below existing grade followed by very dense silty GRAVEL with sand to a depth of 17 feet below existing grade followed by CONCRETE/GROUT to a depth of 19 feet below existing grade followed by moderately dense to dense silty SAND with gravel & silty GRAVEL with sand (alternating layers) to the final depth of the boring at 36 feet below existing grade.

Boring 3 encountered stiff to hard CLAY from the surface to a depth of 10 feet below existing grade followed by very dense silty SAND with gravel to a depth of 14.5 feet below existing grade followed by very dense GRAVEL with sand and silt to a depth of 24.5 feet below existing grade followed by moderately hard to hard BASALT ROCK to the final depth of the boring at 32 feet below existing grade.

Mr. Walter Hester  
November 28, 2007  
Page Two

- 2) Groundwater was encountered in all of the explorations at depths of 23.1 to 24.3 feet below existing grade.
- 3) The proposed retaining wall may be supported on footings bearing on the very dense GRAVEL soil layer located at 13.5 to 14.5 feet below existing grade.
- 4) Moderately hard to hard ROCK was encountered at Boring 3 at a depth of 24.5 feet below existing grade. In addition, a layer of grout/concrete was encountered at Boring 2 at a depth of 17 to 19 feet below existing grade. Excavations into these materials will be difficult to accomplish and will likely require heavy equipment or hoe-ramming for removal.

Details of the findings and recommendations are presented in the attached report.

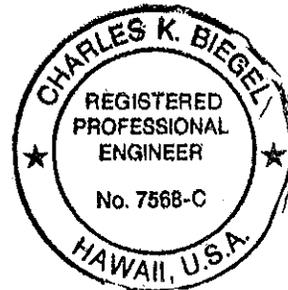
This investigation was made in accordance with generally accepted engineering procedures and included such field and laboratory tests considered necessary for the project. In the opinion of the undersigned, the accompanying report has been substantiated by mathematical data in conformity with generally accepted engineering principles and presents fairly the design information requested by your organization. No other warranty is either expressed or given.

Respectfully submitted,

ISLAND GEOTECHNICAL ENGINEERING, INC.



Charles K. Biegel, P.E.  
President



This work was prepared by  
me or under my supervision.

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## INTRODUCTION

This investigation was made for the purpose of obtaining information on the subsurface conditions from which to base recommendations for foundation design for the proposed Hester Residence Sea Wall to be located at 4855 Lower Honoapiilani Road in Kahana, Maui. The location of the site, relative to the existing streets and landmarks, is shown on the Vicinity Map, Plate 1.

## SCOPE OF WORK

The services included drilling 3 test borings to depths of 32 to 36 feet below existing grade, obtaining samples of the underlying soils, performing laboratory tests on the samples, and performing an engineering analysis from the data gathered. In general, the following information is provided for use by the Architect and/or Engineer:

1. General subsurface conditions, as disclosed by the test borings.
2. Physical characteristics of the soils encountered.
3. Recommendations for foundation design, including bearing values, embedment depth and estimated settlement.
4. Recommendations for placement of fill and backfill.
5. Special considerations.

## PLANNED DEVELOPMENT

From the information provided, the project will consist of constructing a 16 foot high retaining wall on the site. A conceptual drawing of the wall was provided to IGE and is attached as the last page of this report.

## SITE CONDITIONS

### Surface

The property, designated by Tax Map Key (2) 4-3-15: 03, is located at 4855 Lower Honoapiilani Road in Kahana, Maui, Hawaii.

At the time of the field investigation, a one-story house occupied the lot. No structures were present at the location of the proposed retaining wall. The ground cover consisted of manicured grass and Naupaka plants.

From the topographic survey map provided (see Plate 2), surface elevations (msl) at the site of the proposed retaining wall range from +22 feet at the northeast side of the property to +26 feet at the southwest side of the property.

### Subsurface

Three (3) test borings were drilled to depths of 32 to 36 feet below existing grade to determine the subsurface conditions at the site. The locations of the explorations are shown on the Plot Plan, Plate 2. Detailed logs of the explorations are presented in the Appendix to this report.

Boring 1 encountered very soft to moderately stiff SILT & CLAY from the surface to a depth of 10.5 feet below existing grade followed by loose silty SAND with gravel to a depth of 14.5 feet below existing grade followed by moderately dense to very dense silty SAND with gravel & silty GRAVEL with sand (alternating layers) to the final depth of the boring at 35.5 feet

below existing grade.

Boring 2 encountered soft to very stiff SILT & CLAY from the surface to a depth of 10 feet below existing grade followed by soft CLAY with sand and gravel to a depth of 13.5 feet below existing grade followed by very dense silty GRAVEL with sand to a depth of 17 feet below existing grade followed by CONCRETE/GROUT to a depth of 19 feet below existing grade followed by moderately dense to dense silty SAND with gravel & silty GRAVEL with sand (alternating layers) to the final depth of the boring at 36 feet below existing grade.

Boring 3 encountered stiff to hard CLAY from the surface to a depth of 10 feet below existing grade followed by very dense silty SAND with gravel to a depth of 14.5 feet below existing grade followed by very dense GRAVEL with sand and silt to a depth of 24.5 feet below existing grade followed by moderately hard to hard BASALT ROCK to the final depth of the boring at 32 feet below existing grade.

Groundwater was encountered in all of the explorations at depths of 23.1 to 24.3 feet below existing grade.

From the USDA Soil Conservation Service "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii", the site is located in an area designated as Rough broken and stony land (rRS). This type land consist of very steep, stony gulches. Runoff is rapid and geologic erosion is active. Elevations range from nearly sea level to 3,000 feet (USDA, 1972, Plate 92 and pg.119).

### Geology

The site is located on the west/northwest flank of the West Maui Mountains. The island of Maui is a volcanic doublet believed to have formed during the late Tertiary (between 1 and 12 million years ago).

The West Maui Mountains were built by lavas flowing from rift zones trending north and south and a central vent. The lava flows which form the mountain have been separated into three groups: Wailuku, Honolua, and Lahaina Volcanic Series (Stearns and MacDonald, 1942). The main lava mass that makes up the West Maui Mountains is known as the Wailuku Volcanic Series which consist of primitive olivine basalts and associated pyroclastic and intrusive rock.

## CONCLUSIONS AND RECOMMENDATIONS

### General

Based on the findings and observations of this investigation, it is concluded that the proposed retaining wall may be supported on the very dense GRAVEL soils located a minimum of 15 feet below existing grade.

### Special Considerations

Moderately hard to hard ROCK was encountered at Boring 3 at a depth of 24.5 feet below existing grade. In addition, a layer of grout/concrete was encountered at Boring 2 at a depth of 17 to 19 feet below existing grade. Excavations into these materials will be difficult to accomplish and will likely require heavy equipment or hoe-ramming for removal.

The ROCK is not likely to be encountered during the retaining wall excavation but will likely be encountered during construction of the Grouted Rubble Protection.

The extent and location of the concrete encountered at Boring 2 is unknown. The depths of the concrete may vary. From the information provided, this concrete was pumped into a void years ago; the pumping operation was performed from the beach side. The concrete is likely to be encountered during construction of the retaining wall, especially during excavation of the proposed key-way for the wall footing.

#### Foundations

An allowable bearing value of 3,000 pounds per square foot may be used for retaining wall footings bearing on the very dense GRAVEL soils that are first encountered at 13.5 to 14.5 feet below existing grade. The project geotechnical engineer should verify the bearing material during construction.

For footings located adjacent to new or existing utility trenches, the bottom of the footing shall be deepened below a 1 horizontal to 1 vertical plane projected upwards from the edge of the utility trench.

For footings located on or adjacent to slopes, the footing shall be deepened such that there is a minimum horizontal distance of 5 feet from the edge of the footing to the slope face.

The bearing values are for dead plus live loads and may be increased by one-third for

momentary loads due to wind or seismic forces. If any footing is eccentrically loaded, the maximum edge pressure shall not exceed the bearing pressure for permanent or for momentary loads.

All loose and disturbed soil at the bottom of footing excavations shall be removed to firm soil and/or the bottom of the footing excavation shall be compacted to produce a dense/firm surface.

#### Settlement

Under the fully applied recommended bearing pressure, it is estimated that settlement of continuous footings bearing on the very dense GRAVEL soils will be less than 3/4 inch.

Differential settlement between footings will vary according to the size, bearing pressure and bearing material of the footing.

#### Lateral Resistance

For resistance of lateral loads, such as wind or seismic forces, an allowable passive resistance equivalent to that exerted by a fluid weighing 200 pounds per cubic foot may be used for footings, or other structural elements, provided the vertical surface is in direct contact with undisturbed soil or properly compacted fill.

Frictional resistance between footings and the underlying GRANULAR materials may be assumed as 0.5 times the dead load for the gravelly/sandy soils.

Lateral resistance and friction may be combined.

Retaining Wall Backfill

Depending on the type of backfill material within a 1H:2V plane projected upwards from the bottom edge of the retaining wall footing, the following active earth pressures may be used for design of free-standing retaining walls:

Imported granular soil (3" minus) as retaining wall backfill material:

<u>Backfill Slope</u>	<u>Horizontal Component</u>	<u>Vertical Component</u>
Level Backfill	30 pcf	0
3H:1V Backfill	35 pcf	10 pcf
2H:1V Backfill	40 pcf	20 pcf

The granular backfill shall be non-expansive and contain less than 20% passing the #200 sieve.

Free-standing walls are defined as walls that are allowed to rotate between 0.005 to 0.01 times the wall height. The rotation of the wall away from the backfill develops "active earth pressures". If the wall is not allowed to move as in the case of basement walls or walls that are restrained at the top, the soil pressure that will develop is known as an "at rest" pressure; for restrained walls, the above active earth pressures shall be increased by 50 percent for "at-rest" conditions.

For granular retaining wall backfill, the top 1 foot of the backfill shall be "capped" with an clay or silt type soil, or capped by an impervious surface such as concrete or asphaltic concrete.

The wall designer should consider whether or not to provide weepholes in this wall due to the fact that ocean waves could possibly insert water through the weepholes into the backfill. If weepholes are desired, 4-inch diameter weepholes spaced 8-feet on-center (horizontally as well as vertically) can be used or a minimum 4-inch diameter perforated PVC footing drain pipe. A 2-foot thick layer of crushed gravel, which is wrapped with geotextile filter fabric, shall be placed above the pipe; the crushed gravel shall be continuous from weephole to weephole, or in the case of a footing drain pipe, laid throughout the full length of the pipe. Geotextile fabric shall be AMOCO 4545 or similar.

The backfill for the retaining wall shall be properly compacted in accordance with the Site Preparation and Grading section to this report. Site grading should be designed to drain surface water away from the backfill area.

The above active pressures do not include surcharge loads such as footings located within a 45 degree plane projected upwards from the heel of the footing, fine-grained soil as backfill and/or from hydrostatic pressures. If such conditions occur, the active pressure shall be increased accordingly.

#### Site Preparation and Grading

It is recommended that the retaining wall site be prepared in the following manner:

1. All vegetation, weeds, brush, roots, stumps, rubbish, lumber, debris, soft soil and other deleterious material shall be removed and disposed of off-site.
2. In areas to receive fill and at finished subgrade in cut areas, the exposed surface shall then be scarified to a depth of 6 inches, moisture conditioned to near optimum moisture and then compacted to at least 90 percent of the maximum dry density (ASTM D1557). If soft or loose spots are encountered, the loose/soft areas shall be removed to firm material and the resulting depression shall be filled with properly compacted fill.
3. Where fill is placed on existing ground that is steeper than 5 horizontal to 1 vertical, the existing ground surface shall be benched into firm soil as the fill is placed.

4. Retaining Wall Backfill

Retaining wall backfill material shall consist of soil which is free of organics and debris. The material shall be well-blended with no particle larger than 3 inches in greatest dimension. The backfill material shall contain less than 20% passing the #200 sieve.

Each layer shall be placed in lifts not exceeding 8 inches in loose thickness. Prior to compacting the soil, the soils moisture content shall be adjusted to near optimum moisture content. Each layer shall be thoroughly compacted to at least 90 percent of the maximum dry density (ASTM D1557) prior to placing of any subsequent lifts.

5. During construction, drainage shall be provided to minimize ponding of water adjacent to or on the foundation. Ponded areas shall be drained immediately or water pumped out without damaging adjacent structures and property. If water accumulation softens the subgrade materials, the affected soils shall be removed and replaced with properly compacted fill.

It is particularly important to see that all fill and backfill soils are properly compacted in order to maintain the recommended design parameters provided in this report.

#### ON-SITE OBSERVATION

During the progress of construction, so as to evaluate general compliance with the design concepts, specifications and recommendations contained herein, a representative from this office should be present to observe the following operations:

1. Site preparation.
2. Placement of fill and backfill.
3. Footing excavations.

#### REMARKS

The conclusions and recommendations contained herein are based on the findings and observations made at the boring locations. If conditions are encountered during construction which appear to differ from those disclosed by the explorations, this office shall be notified so as to consider the need for modifications.

This report has been prepared for the exclusive use of Mr. Walter Hester and his respective design consultants. It shall not be used by or transferred to any other party or to another project without the consent and/or thorough review by this facility. Should the project be delayed beyond the period of one year from the date of this report, the report shall be reviewed relative to possible changed conditions.

Samples obtained in this investigation will deteriorate with time and will be unsuitable for further laboratory tests within one (1) month from the date of this report. Unless otherwise advised, the samples will be discarded at that time.

The following are included and complete this report:

Vicinity Map ----- Plate 1

Plot Plan ----- Plate 2

Appendix: Field Investigation and Laboratory Testing

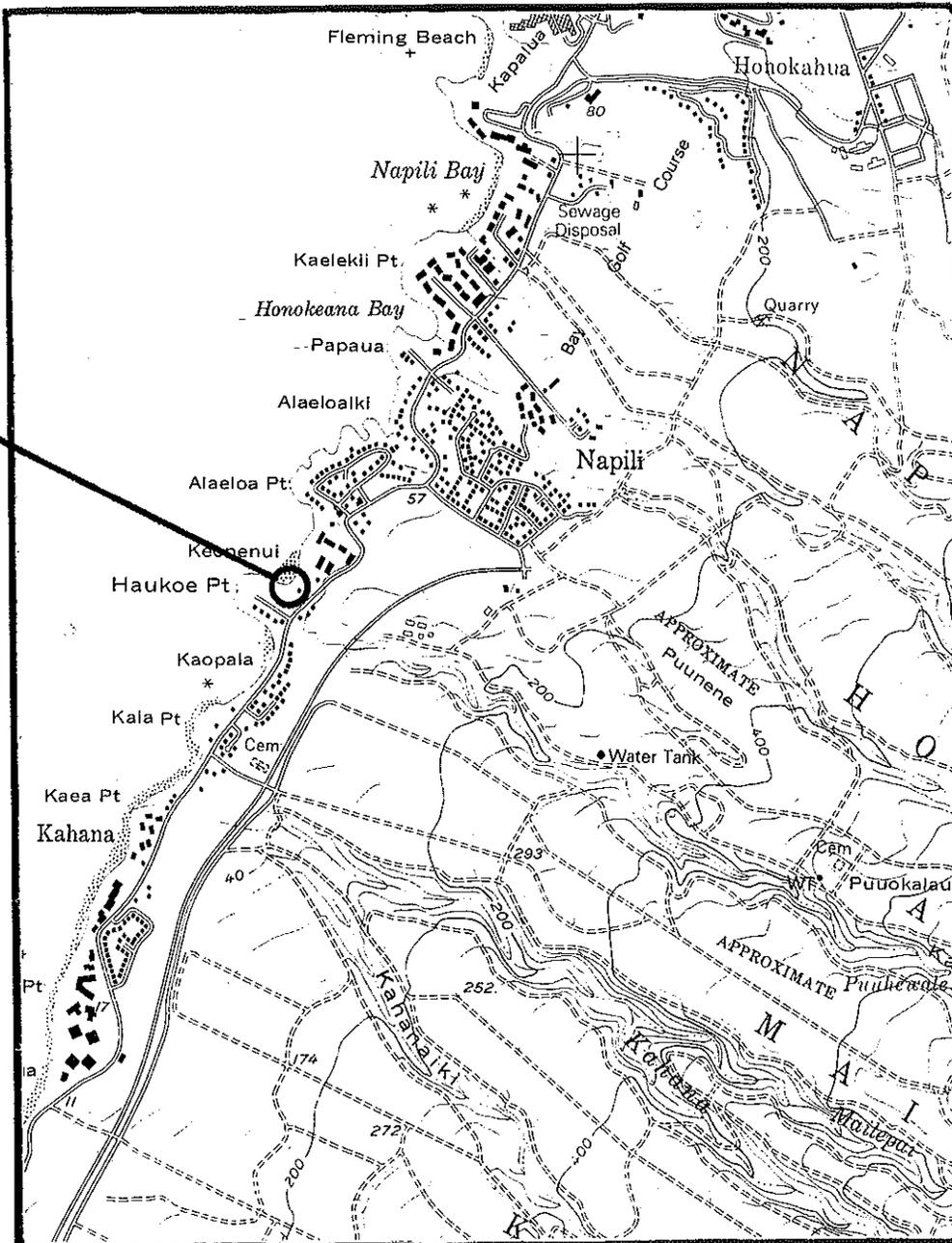
Logs of Test Borings

Laboratory Test Results

Proposed Retaining Wall Diagram

# VICINITY MAP

SITE LOCATION



**REFERENCE:**

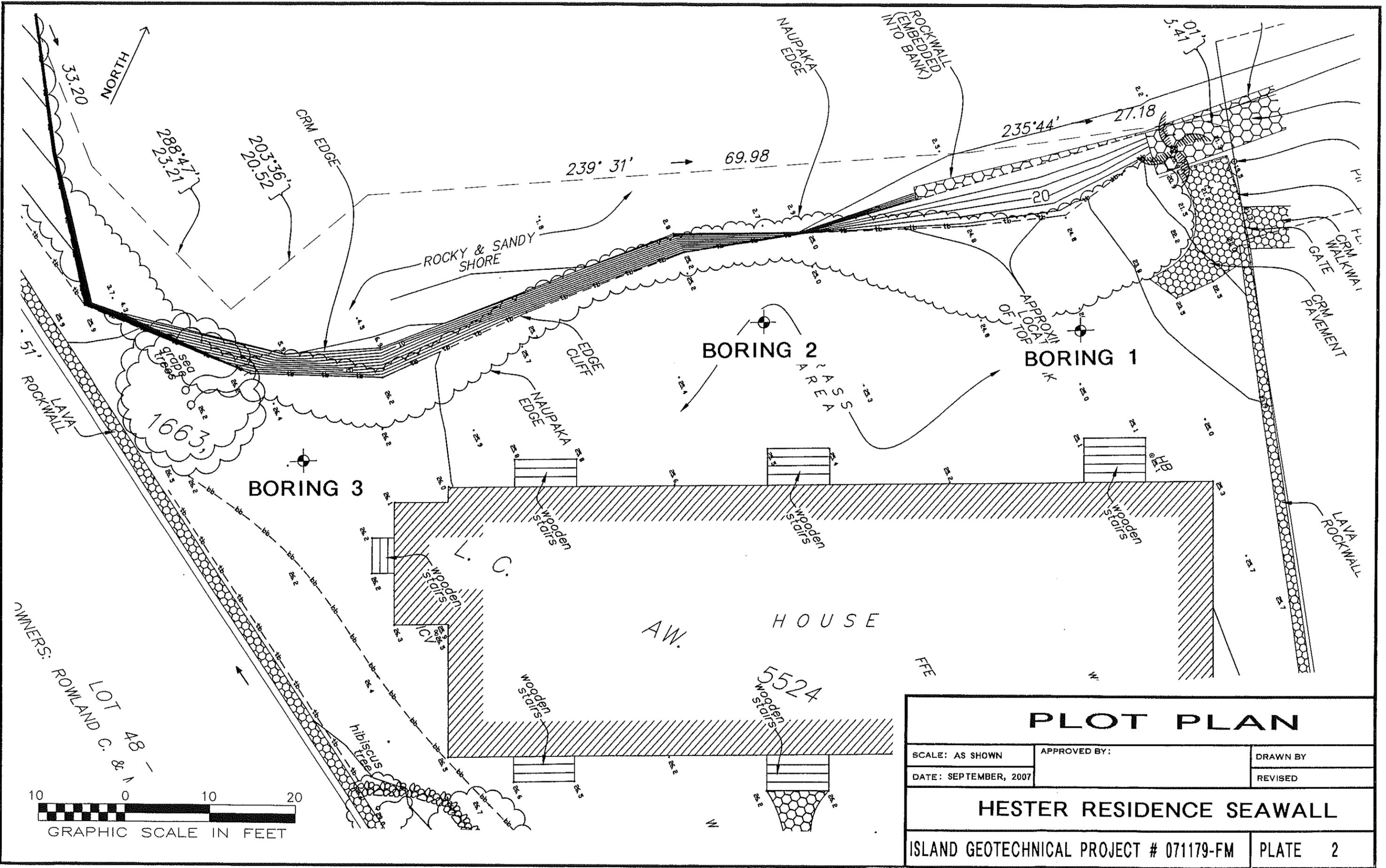
USGS TOPOGRAPHIC MAP  
NAPILI QUADRANGLE

Dated: 1983

**HESTER RESIDENCE SEAWALL**

ISLAND GEOTECHNICAL ENGINEERING, INC.  
*Geotechnical Consultants*

PROJECT NO.	071179FM
DATE	Sep. 2007
SCALE	1" = 2000'
PLATE	1



<b>PLOT PLAN</b>		
SCALE: AS SHOWN	APPROVED BY:	DRAWN BY
DATE: SEPTEMBER, 2007		REVISED
<b>HESTER RESIDENCE SEAWALL</b>		
ISLAND GEOTECHNICAL PROJECT # 071179-FM		PLATE 2

**APPENDIX**

**FIELD INVESTIGATION AND LABORATORY TESTING**

## FIELD INVESTIGATION

### General

The field investigation consisted of performing explorations at the locations shown on the Plot Plan. The method used for the exploratory work is shown on the respective exploration log. A description of the various method or methods used is presented below.

### Test Borings Using Truck-Mounted Drilling Equipment

Truck-mounted borings are drilled using a gas-powered drilling rig. The hole is advanced using continuous flight augers, wash boring and/or NX coring.

Auger drilling is used in soils where caving does not occur. The augers are 4-1/2 inch diameter continuous helical flight augers with the lead auger having a head equipped with changeable cutting teeth. Soil cuttings are brought to the surface by the continuous flights. After the bore hole is advanced to the required depth and cleaned of cuttings by additional rotation of the augers, the augers are retracted for soil sampling or in-situ testing.

In soils where caving of the bore hole occurs, the hole is advanced by wash boring or hollow-stem augering. Wash boring consists of advancing steel casing by rotary action and water pressure to flush the soil from the casing. The lead section of the casing is equipped with a carbide or diamond casing bit. After the casing has been advanced to the required depth, soil samples are obtained through the inside of the casing. Hollow-stem drilling consists of advancing the hole with 7-5/8 inch outside diameter and 4-1/4 inch inside diameter augers. The leading drill bit is connected to drilling rods through the central portion of the auger. At the required sampling depth, the interior drill rods and lead bit are removed, and the soil sample is taken by driving a sampler

through the "hollow" section of the augers.

Coring is used for hard formations such as rock, coral or boulders. The core barrel, consisting of a 5-foot long double tube, hardened steel barrel with either a carbide or diamond bit, is attached to drilling rods and set on the hard formation. The core barrel is advanced through the formation by rotation of the core barrel. Water is used to flush out the cuttings. Upon completion of the core run, the sample is removed from the core barrel and inspected. The total core recovery length and the sum of all intact pieces over 4-inch in length are measured. The length of core recovery divided by the length of the core run is the recovery ratio. The combined length of the 4-inch or longer pieces divided by the length of core run is the Rock Quality Designation (RQD). The values provide an indication of the quality of the formation.

#### Test Borings Using Portable Drilling Equipment

In areas inaccessible to truck-mounted equipment, portable drilling equipment is used to drill the test boring. The boring is advanced by either 1) continuous drive sampling or by 2) using a small gas-powered drill rig with continuous flight augers, wash boring or NX coring.

Soil samples are obtained with a tripod and cathead assembly using soil sampling methods described below.

#### Test Pits Using Excavators/Backhoes

Test pits are excavated using an excavator or backhoe. Material excavated from the pit and the sides and bottom of the pit are visually inspected and a continuous log of the hole is kept.

### Explorations Using Hand Tools

In inaccessible areas requiring only shallow explorations, borings and test pits are made using hand equipment. Borings are drilled using hand augers. Test pits are excavated using hand tools. Cuttings from the boring and/or pit are inspected and visually classified.

### Soil Sampling

Relatively undisturbed samples of the underlying soils are obtained from borings by driving a sampling tube into the subsurface material using a 140-pound safety hammer falling from a height of 30 inches. Ring samples are obtained using a 3-inch outside diameter, 2.5 inch inside diameter steel sampling tube with an interior lining of one-inch long, thin brass rings. The tube is driven approximately 18 inches into the soil and a section of the central portion is placed in a close fitting waterproof container in order to retain field conditions until completion of the laboratory tests. Standard Penetration Test (SPT) values and disturbed soil samples are obtained with a 2-inch (outside diameter) split-barrel sampler instead of the 3-inch sampler. The number of blows required to drive the sampler into the ground is recorded at 6-inch intervals. The blow count for the last 12-inches is shown on the boring logs.

From test pit excavations, relatively undisturbed soil samples are obtained by pushing the 3 inch outside diameter sampling tube (mentioned above) into the ground with the backhoe bucket. In addition, undisturbed bulk samples are retained from cohesive type soil formations and disturbed bulk samples are retained from friable and cohesionless soil formations.

The soil samples are visually classified in the field using the Unified Soil Classification System. Samples are packed in moisture proof containers and transported to the laboratory for testing.

### Dynamic Cone Penetrometer (DCP)

There are two types of DCP test used in the field. One test is generally used for pavement design and the other test is generally used for foundation design.

The DCP test for pavement design is an in-place test generally performed on the near surface soils. The DCP consist of a steel rod with a steel cone attached to one end which is driven into the soil by means of a sliding hammer. The angle of the cone is 60 degrees. The depth of the cone penetration is recorded at selected penetration or hammer drop intervals. The standard DCP test is designed to penetrate soils to a total depth of 1 meter (39.4 inches), however, extension rods may be used to reach greater depths. The recorded data from the DCP test can be converted to CBR values for use in pavement design.

The DCP test for foundation design (aka Wildcat DCP) is used to evaluate the consistency of the subsurface soils to depths of 25 feet. The test is performed by driving a 1.4 inch diameter (10 square centimeter area) steel cone (cone is connected to 1.1" diameter steel rods) into the ground using a 35 pound slide hammer that is dropped from a height of 15 inches. The number of blows required to drive the steel cone 10 centimeters is recorded and the process is continued until the desired depth is reached.

### LABORATORY TESTING

#### General

Laboratory tests are performed on various soil samples to determine their engineering properties.

Description of the various tests are listed below.

### Unit Weight and Moisture Content

The in-place moisture content and unit weight of the samples are used to correlate similar soils at various depths. The sample is weighed, the volume determined, and a portion of the sample is placed in the oven. After oven-drying, the sample is again weighed to determine the moisture loss. The data is used to determine the wet-density, dry-density and in-place moisture content.

### Direct Shear

Direct shear tests are performed to determine the strength characteristics of the representative soil samples. The test consists of placing the sample into a shear box, applying a normal load and then shearing the sample at a constant rate of strain. The shearing resistance is recorded at various rates of strain. By varying the normal load, the angle of internal friction and cohesion can be determined.

### Consolidation Test

Consolidation tests are performed to obtain data from which time rates of consolidation and amounts of settlement may be estimated. The test is performed by placing a specimen in a consolidation apparatus. Loads are applied in increments to the circular face of a one (1) inch high sample. Deformation or changes in thickness of the specimen are recorded at selected time intervals. Water is introduced to or allowed to drain from the sample through porous disks placed against the top and bottom faces of the specimen. The data is then used to plot a stress-volume strain curve which is used in estimating settlement.

### Expansion Index Test

Expansion Index of fine-grained soils is determined in accordance with ASTM D 4829-88 test

procedure. The soil specimen is compacted into a metal ring so that the degree of saturation is between 40 and 60 percent. The specimen and the ring are placed in a consolidometer. A vertical confining pressure of 1 psi is applied to the specimen and then the specimen is inundated with water. The deformation of the specimen is recorded for 24 hours. The data is used to determine the expansion potential of the soil.

#### One-Dimensional Swell Test

Another procedure for determining the expansion potential of fine-grained soils is ASTM D 4546-90 (Method B) test procedure. The soil specimen is compacted into a 2.5 inch diameter (1 inch height) metal ring using a 10 pound hammer. The specimen and the ring are placed in an expansion apparatus. A vertical confining pressure of 155 psf is applied to the specimen and then the specimen is inundated with water. The deformation of the specimen is recorded for 24 hours.

This test is similar in principle to the Expansion Index Test (see above) with the primary difference being the soil specimen in the One-Dimensional Swell Test is usually compacted to a higher dry density than the Expansion Index and, therefore, generally produces a higher degree of expansion.

#### Classification Tests

The soil samples are classified using the Unified Soil Classification System. Classification tests include sieve and hydrometer analysis to determine grain size distribution, and Atterberg Limits to determine the liquid limit, plastic limit and plasticity index.

#### California Bearing Ratio Test

California Bearing Ratio (CBR) tests are performed on materials to determine the bearing strength

of the soil for determination of pavement sections. The sample is compacted into a 6-inch diameter mold in 5 equal layers. Each layer is compacted with a 10-pound hammer falling from a height of 18-inches, with each layer receiving 56 blows. The mold is then placed in a water bath for 4-days and the vertical swell is measured under a surcharge weight of 10 pounds. After the soaking period, the sample is placed in a CBR apparatus that has a 3-square inch penetrometer. The penetrometer is pressed vertically into the soil at constant strain and the loads required to press the penetrometer are recorded. A plot of the load-strain relationship is made to determine the CBR value.

#### Maximum Dry Density/Optimum Moisture Content

The maximum dry density and optimum moisture content of the material is determined in accordance with the ASTM D1557-91 test procedure. The sample is compacted into a mold in 5 equal layers using a 10 pound hammer falling from a height of 18 inches. The diameter of the mold is either 4-inches or 6-inches depending on the proportion of gravel in the sample. The sample is compacted at various moisture contents to develop a compaction curve for the soil. The curve is usually bell-shaped with a peak indicating the maximum dry density and optimum moisture content.

#### Penetrometer Test

Penetrometer tests are performed on clayey soils to determine the consistency of the material and an approximate value of the unconfined compressive strength.

#### Torvane

Torvane tests are used to determine the approximate undrained shear strength of clayey soils.

The torvane apparatus consists of a torque device with a small diameter plate that has vanes situated perpendicular to the plate. The vanes are pushed into the soil and torque is applied until failure occurs. The torque required to cause failure is converted to approximate undrained strength of the soil.

# LOG OF BORING NO. 1

ELEVATION: see Plate 2

EQUIPMENT USED: Concore Drill Rig

DEPTH OF BORING (FT.): 35.5

DATE DRILLED: August 13, 2007

DEPTH OF GROUNDWATER: 23.1'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)
0		MH	SILT		2	black	very moist	very soft		55.0	
5		CL	CLAY		8	dark reddish brown		mod. stiff		34.3	
10		SM	silty SAND with gravel		4	very dark gray		soft loose		36.6 39.6	
15		GM-SM	alternating layers of silty SAND with gravel and silty GRAVEL with sand	16/1"		dark gray		very dense		23.5	
20					16			mod. dense		23.0	
25					36		sat.	dense		22.9	
30					71			very dense		23.3	
35					52					21.9	
			END OF TEST BORING								

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PLATE

PROJECT NO.: 071179-FM

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# LOG OF BORING NO. 2

ELEVATION: see Plate 2

EQUIPMENT USED: Concore Drill Rig

DEPTH OF BORING (FT.): 36

DATE DRILLED: August 13, 2007

DEPTH OF GROUNDWATER: 23.2'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)
0	[Diagonal Hatching]	MH	SILT	[Black]	11	black	very moist	soft		42.3	
		CL	CLAY			dark reddish brown		stiff			
5	[Diagonal Hatching]			[Black]	20			very stiff		28.5	
10	[Diagonal Hatching]	CL	CLAY with sand & gravel	[Black]	3	very dark gray		soft		47.0	
15	[Stippled]	GM-SM	silty GRAVEL with sand	[Black]	100/6"	grayish brown	moist to very moist	very dense		13.0	
			GROUT/CONCRETE			white					
20	[Stippled]	GM	silty GRAVEL with sand	[Black]	27	dark gray		mod. dense		16.8	
		SP	SAND (coral/beach sand)			yellow brown					
		GM	silty GRAVEL with sand			dark gray					
25	[Stippled]			[Black]	46	very dark gray	sat.	dense		17.8	
30	[Stippled]	SM	silty SAND with gravel	[Black]	30	dark gray				19.3	
35	[Stippled]			[Black]	40					20.5	
			END OF TEST BORING								

PROJECT NAME: HESTER RESIDENCE

ISLAND GEOTECHNICAL ENGINEERING, INC.

PLATE

PROJECT NO.: 071179-FM

Geotechnical Consultants

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# LOG OF BORING NO. 3

ELEVATION: see Plate 2

EQUIPMENT USED: Concore Drill Rig

DEPTH OF BORING (FT.): 32

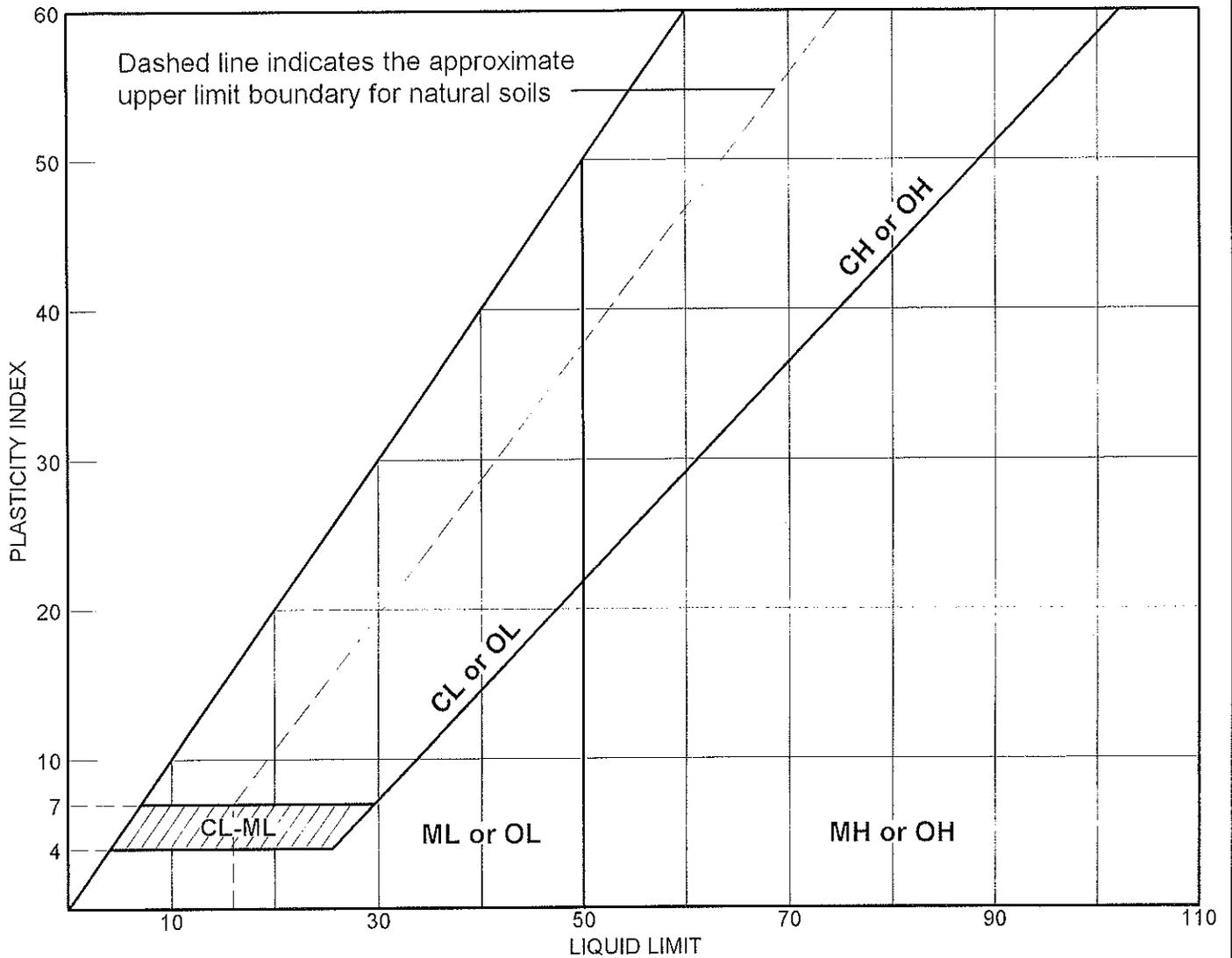
DATE DRILLED: August 15 & 16, 2007

DEPTH OF GROUNDWATER: 24.3'

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)
0		CL	CLAY	-	13	dark brown	moist	stiff		20.2	
5					54			hard			
					33	dark gray brown	mod. moist to moist				
10					68	dark gray		very dense			
15		SM	silty SAND with gravel	-	40/6"				13.4		
20					53	very dark gray			6.5		
25		GP-GM	GRAVEL with sand and silt	-	10/0"		sat.	mod. hard to hard rock	5.9		
30											
		rock	BASALT ROCK	-							
			---Core Run from 28' to 32': Rec. = 79% RQD = 8%								
			END OF TEST BORING								
35											

PROJECT NAME: HESTER RESIDENCE	ISLAND GEOTECHNICAL ENGINEERING, INC. <i>Geotechnical Consultants</i>	PLATE
PROJECT NO.: 071179-FM		5

# LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring 1	8	29.75-30.5'	23.3	NP	NV	NP	SM

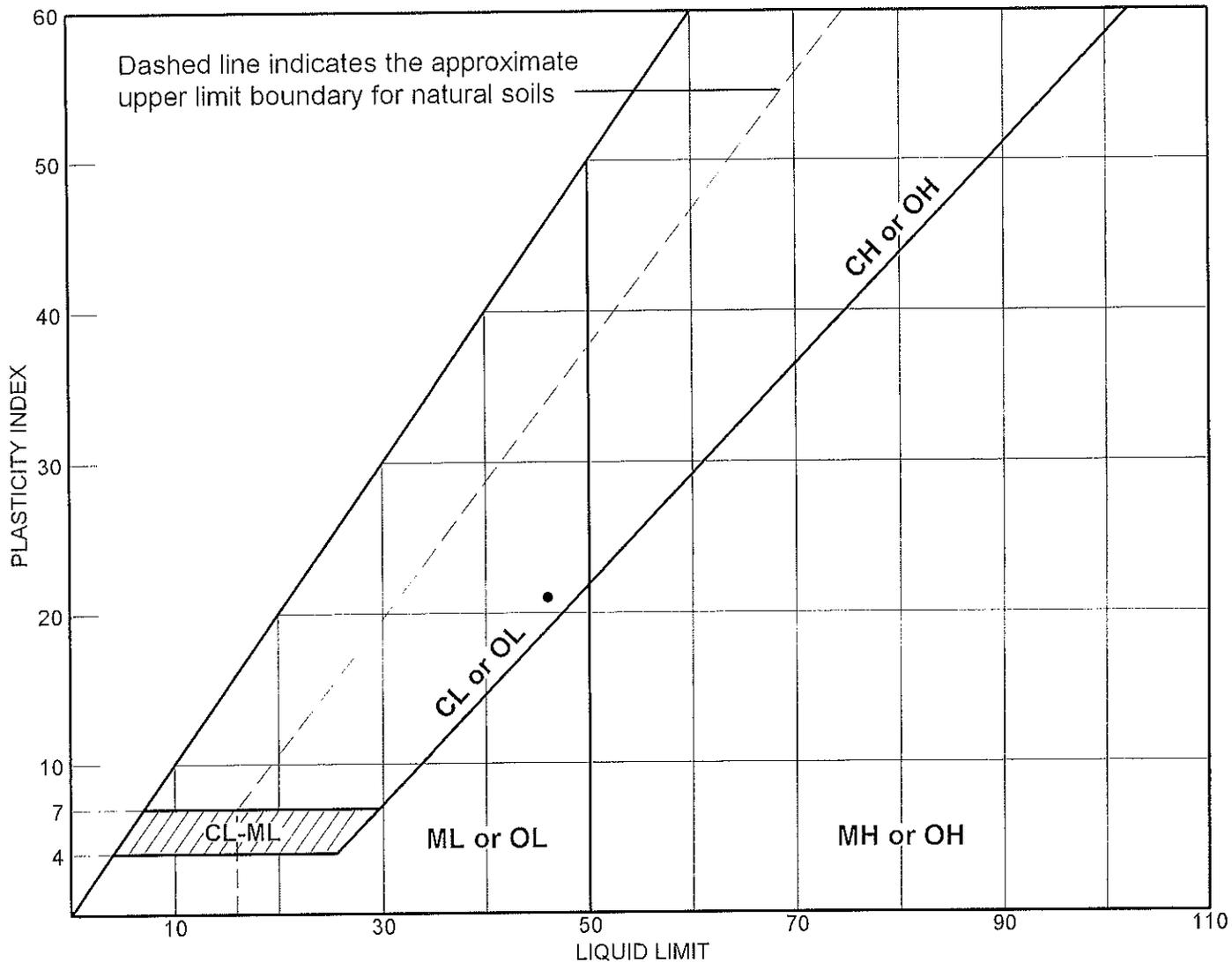
LIQUID AND PLASTIC LIMITS TEST REPORT  
**Island Geotechnical Engineering, Inc.**  
 Wailuku, Hawaii

Client:  
 Project: Hester Residence Seawall

Project No.: 071179-FM

Plate 6

# LIQUID AND PLASTIC LIMITS TEST REPORT

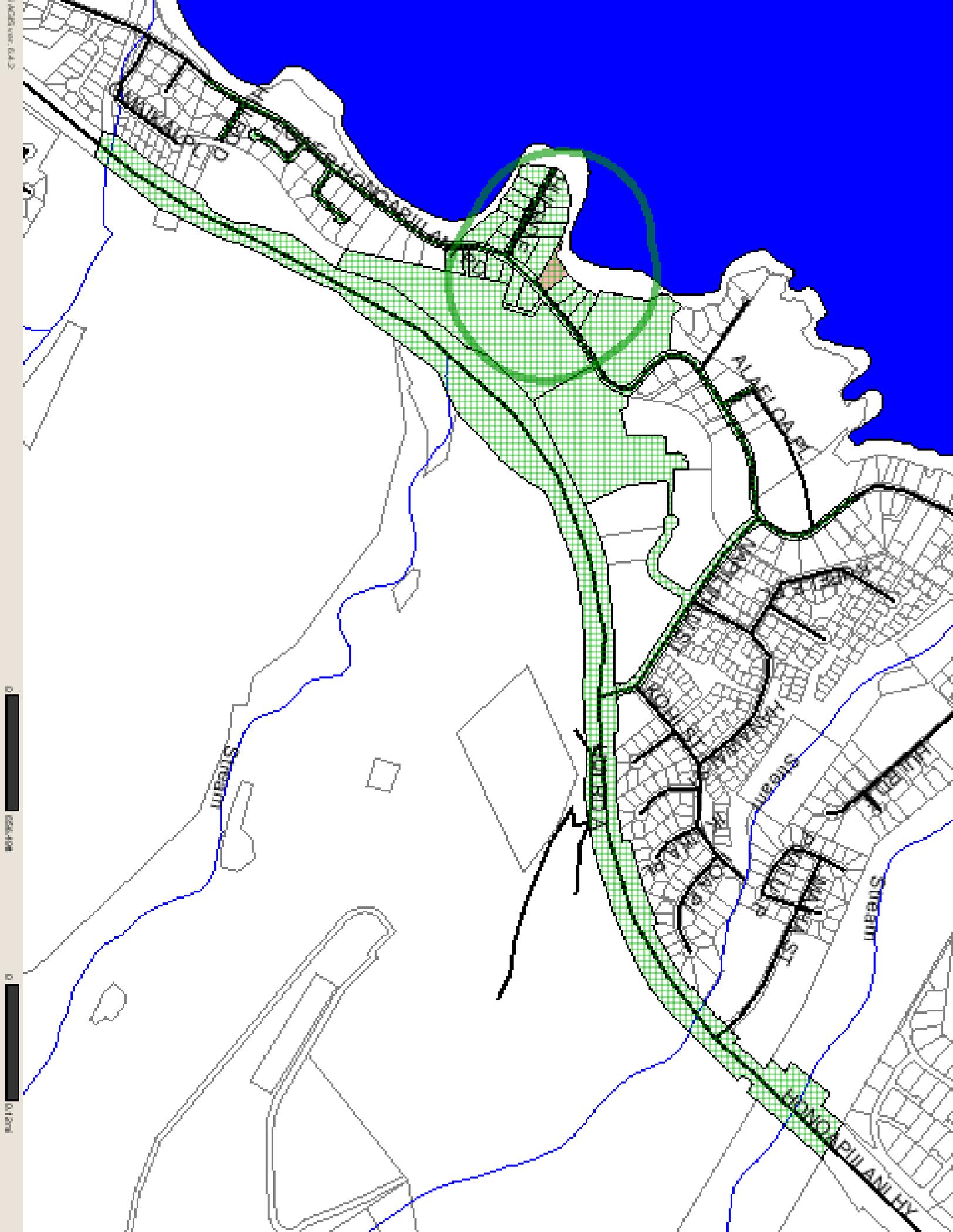


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring 2	2	0.75-1.5'	27.3	25	46	21	CL

LIQUID AND PLASTIC LIMITS TEST REPORT  
**Island Geotechnical  
 Engineering, Inc.**  
 Wailuku, Hawaii

Client:  
 Project: Hester Residence Seawall  
 Project No.: 071179-FM

**9. LIST OF OWNERS AND  
LESSEES WITHIN 500 FEET**



25070000

0 1000 2000

0 1000 2000

URBAN

ALABEICA

URBAN

URBAN

HONGAPILAN HY

TMK	CPR	NAME	C/O	ADDRESS	CSZ	COUNTRY
243001039	0	PINEAPPLE RIDGE, LLC	C/O DAISY ROQUE	P O BOX 880216	PUKALANI HI 96788	
243003015	0	KAHANA SUNSET		CONDO MASTER	00000 0000	
243003015	72	MACINTOSH,LORAH W TRUST		P O BOX 383	ACME MI 49610 0000	
243003015	65	GLADDEN,ROYCE THOMPSON & BETTY CAROLE TR		550 PALACE CT	ALAMEDA CA 94501	
243003015	66	PERRY,ROBERT C		US EMBASSY MONTEVIDEO 4517	APO AA 34035 0000	
243003015	26	CURTO,GARY PETER		1320 DELL AVE,STE F	CAMPBELL CA 95008 0000	
243003015	6	NEILL, GILBERT M		P O BOX 5862	CARMEL CA 93921 0000	
243003015	10	NEILL,GILBERT M ETAL		P O BOX LL	CARMEL CA 93921 0000	
243003015	24	PARKIN,TRUST	PARKIN,NEILL R/JO A TRS	3234 SHALLOW SPRINGS TERRACE	CHICO CA 95928	
243003015	30	MILLS,MARK J		4581 MOUNTAIN DANCE DR	COLORADO SPRINGS CO 80908 0000	
243003015	28	MEYER FAMILY LIVING TR		7650 NE MEYER LN	CORVALLIS OR 97330	
243003015	57	WILLIAMS,ROBERT D REV TR		5721 SW BOULDER LN	CULVER OR 97734 0000	
243003015	19	JOHNSON,GLEN T TR ETAL		P O BOX 3077	DILLON CO 80435 0000	
243003015	46	ASHLING,SUSAN P TRUST	681 POINSETTIA PARK SOUTH		ENCINITAS CA 92024	
243003015	38	YUSHMANOV,PETER N	3418 LAREDO LN		ESCONDIDO CA 92025	
243003015	63	YUSHMANOV,PETER N		3418 LAREDO LN	ESCONDIDO CA 92025	
243003015	49	AGNEW,JOSEPH L CREDIT SHELTER TRUST	AGNEW,MARY C TRS	1108 QUEETS DR	FOX ISLAND WA 98333 9628	
243003015	12	JAYSWAL,BIRENDRA K/FRANCES V TRUST	JAYSWAL,BIRENDRA K/FRANCES V TRS	437 GREENBRIER RD	HALF MOON BAY CA 94019	
243003015	39	BROOKS,STEPHEN JESS ETAL		11160 LOS AMIGOS RD	HEALDSBURG CA 95448 0000	
243003015	47	KING,JOHN WILLIAM	KING,JOHN W/KATHRYN A	P O BOX 987	HEALDSBURG CA 95448 0000	
243003015	2	WALCHLI JOHN F/MARJORIE		79937 S EDWARDS RD	HERMISTON OR 97838 0000	
243003015	58	BULLER,RICHARD E	1435 OAK RIM DR		HILLSBOROUGH CA 94010	
243003015	3	BARTA,STEVEN T		1212 NUUANU AVE, #3907	HONOLULU HI 96817 0000	
243003015	56	MARSHALL,FAMILY TRUST	MARSHALL,JOHN W/BETTY K TRS	8885 PLUMAS CIR #1116-C	HUNTINGTON BEACH CA 92646	
243003015	27	NICOLA-LAMPKIN,FAMILY TRUST	C/O NICOLA-LAMPKIN TTEES	16521 CHANNEL LN	HUNTINGTON BEACH CA 92649 2807	
243003015	48	NICOLA-LAMPKIN FAMILY TRUST	C/O NANCY NICOLA. ETAL	16521 CHANNEL LN	HUNTINGTON BEACH CA 92649 2807	
243003015	13	STICE,GARY D		46-535 PLANTATIONS PL	KANEOHE HI 96744	
243003015	60	PHILLIPS,LAWRENCE/RACHEL FAMILY TRUST	M/M LAWRENCE PHILLIPS,TTEES	29 UPU PL	KULA HI 96790	
243003015	18	OLIPHANT,FAMILY TR	OLIPHANT,JUDY F TRS	919 HAWTHORNE DR	LAFAYETTE CA 94549 0000	
243003015	7	D & B INVESTMENTS		1187 CAMINO VALLECITO	LAFAYETTE CA 94549 2844	
243003015	17	ENTRUST OF COLORADO FBO JASON MAPLES	C/O ENTRUST OF COLORADO, INC	1300 PLAZA CT NORTH, #103	LAFAYETTE CO 80026	
243003015	40	OSBORN,TAMI J TRUST	6 KIOHUOHU LN APT 5		LAHAINA HI 96761	
243003015	44	SHARPE,PAMELA J	4909 L HONOAPIILANI RD UNIT D4		LAHAINA HI 96761	
243003015	53	DESOTO,CRAIG		PO BOX 12283	LAHAINA HI 96761	
243003015	74	PUTNEY,JOHN A JR	4909 L HONOAPIILANI RD UNIT F7		LAHAINA HI 96761	
243003015	21	TROY,DALE F	TROY,DALE/JENNI FER	60 S PIKI PL	LAHAINA HI 96761 2214	
243003015	33	SILARD,STEPHEN A		PO BOX 13089	LAHAINA HI 96761 8089	
243003015	69	DRAPER,RONALD	DRAPER,RONALD/JUDITH ETAL	975 235TH ST	LANGLEY, BC, V2Z 2Y1	CANADA

TMK	CPR	NAME	C/O	ADDRESS	CSZ	COUNTRY
243003015	41	KAHANA SUNSET D-1 ASSOCIATE	C/O W BISBEE 1800 STARVIEW LN	1800 STARVIEW LANE	LINCOLN CA 95648 8482	
243003015	45	LOCHNER,JOHN B		150 CREFFIELD HEIGHTS	LOS GATOS CA 95030 0000	
243003015	79	CASNER,CLYDE L	CASNER,CLYDE L/EVA M	1201 SIXTH ST	MANHATTAN BEACH CA 90266	
243003015	9	RANDOM ASSOCIATES INC		2-13-3-204, MEGUROHONCHO	MEGUROKU, TOKYO 152-0002	JAPAN
243003015	78	BELLAMY,KAREN/PETE RSON,ANN BELLAMY TRUST		4354 92ND AVE SE	MERCER ISLAND WA 98040	
243003015	30	KNIGHT FAMILY TRUST	M/M MARLIN B KNIGHT, TRUSTEES	4125 E GREENWAY CIRCLE	MESA AZ 85205	
243003015	77	BALESTRERI,THEODOR E J TRUST	555 ABREGO ST		MONTEREY CA 93940	
243003015	76	BALESTRERI,THEODOR E J REVOC TRUST	555 ABREGO ST		MONTEREY CA 93940 3229	
243003015	32	WAKEN,EUGENE	1145 OLIVE HILL LN C/O		NAPA CA 94558 0000	
243003015	23	ASHER,TODD	ASHER,TODD/CAT HY ET AL 4525 A	12927 WOODSTOCK DR	NEVADA CITY CA 95959	
243003015	71	SAUNDERS FAMILY TRUST	MACARTHUR BLVD		NEWPORT BEACH CA 92660	
243003015	34	STERN,RICHARD		638 MIDDLEFIELD RD	PALO ALTO CA 94301 0000	
243003015	14	LARSEN,JOAN W TRUST		484 S EUCLID, #109	PASADENA CA 91101	
243003015	30	BENNETT,HAROLD R/BETTY P TR		635 JAMES DR	PLACERVILLE CA 95667 3471	
243003015	51	LAURENCE,DENNIS & MAUREEN TRUST		438 EWING DR D-11	PLEASANTON CA 94566 0000	
243003015	11	DELLER, JO ANN		2020 HARRIMAN LN	REDONDO BEACH CA 90278	
243003015	50	FILIPCIK,STEFAN	FILIPCIK,STEFAN/JANA	707 UPTON ST	REDWOOD CITY CA 94061	
243003015	67	DEDMAN,KAREN S REVOC TRUST	DEDMAN,KAREN S TRS	3325 SIERRA OAKS DR	SACRAMENTO CA 95864 0000	
243003015	15	SATHER,BRUNHILD T TRUST	SATHER, BRUNHILD T	1845 FAIRGROUND RD NE	SALEM OR 97301	
243003015	64	PINE LANE ASSOCIATES LLC	C/O BERHOLD,CORI	PMB 781 704 228TH AVE NE	SAMMAMISH WA 98074	
243003015	42	THOMPSON, THOMAS W/CAROL E	63 MAGNOLIA AVE		SAN ANSELMO CA 94960	
243003015	59	PHILLIPS-MARCROFT FAM TR	MARCROFT,D/PHILLIPS,J TRS	1368 GENEVA AVE	SAN CARLOS CA 94070 0000	
243003015	62	COLMAN FAMILY TRUST	1304 OPAL ST		SAN DIEGO CA 92109	
243003015	55	WILSON,JOSEPH P III		58 BLAIR TERRACE	SAN FRANCISCO CA 94107	
243003015	55	KEEGAN,REVOC TRUST 2004		P O BOX 460730	SAN FRANCISCO CA 94146	
243003015	16	KEEGAN,REVOC TRUST 2004		P O BOX 460730	SAN FRANCISCO CA 94146 0000	
243003015	20	MCPHON,KELLY B	MCPHON,KELLY B/DEBBIE K	6690 MOUNT PAKRON DR	SAN JOSE CA 95120	
243003015	5	MCNEAR,MILLER B/BEVERLY TRS		48 PEACOCK DR	SAN RAFAEL CA 94901 0000	
243003015	31	OMA MINOR FAMILY 2000 REVOC TRUST	C/O OMA MINOR FAMILY 2000 TRUST	2236 S BROADWAY #M	SANTA MARIA CA 93454	
243003015	4	MAURITSON,LINDA	271 OAK TREE DR		SANTA ROSA CA 95401	
243003015	8	SCHEIBEL,ROBERT L TRUST	SCHEIBEL,DR & MRS ROBERT	5775 FOOTHILL RANCH RD	SANTA ROSA CA 95404 0000	
243003015	1	FOSTER,JAMES D		2201 E WILLOW #AA	SIGNAL HILL CA 90755 0000	
243003015	68	ANDERSON,R O/MARIANNE J TR	MARIANNE J. ANDERSON TR	6624 S. BEN BURR ROAD	SPOKANE WA 99223 1817	
243003015	36	STANGE,STEPHEN L/GLORIA TR	STANGE,STEPHEN L/GLORIA TRS	4230 HERON LAKES DR	STOCKTON CA 95219	
243003015	46	MCHALE,VERTINA	3754 LOVINA LN C/O M/M ERIC ROBERTS	870 W EVELYN AVE	STOW OH 44224	
243003015	37	ROBERTS,ERIC ALLAN		870 W EVELYN AVE	SUNNYVALE CA 94086	
243003015	25	ROBERTS BROTHERS INVESTMENTS,LLC		870 W EVELYN AVE	SUNNYVALE CA 94086 0000	
243003015	29	MAHON,JOHN B/CLAUDINE Z		843 RUBIS DR	SUNNYVALE CA 94087 0000	
243003015	73	SCHROCK FAMILY LTD PTNRSH		631 E NORTH SHORE DR	SYRACUSE IN 46567	

TMK	CPR	NAME	C/O	ADDRESS	CSZ	COUNTRY
243003015	61	O'LEAR,MICHAEL D		PO BOX 194	TAHOE VISTA CA 96148 0194	
243003015	43	COLLINS,TALMA B TRUST	ATTN DIANNE FELTON	23106 PETROLEUM AVE	TORRANCE CA 90502	
243003015	35	JORDAN, JANICE K.	1101 HOLLY DR		TRACY CA 95376	
243003015	52	TEELE,ERIC G	TEELE,ERIC/JACQ UELINE	13097 PINNACLE LP	TRUCKEE CA 96161 0000	
243003015	54	KOCH,NOLA J REVOC LIVING TRUST	KOCH,NOLA J TTEE	9909 NE 103RD CIR	VANCOUVER WA 98665	
243003015	75	CORBETT DRAW FARMS		8505 DOUGLAS ROAD EAST	WILBUR WA 99185 0000	
243003015	22	PERKINS,COLLEEN TR ETAL		6040 PAT AVE	WOODLAND HILLS CA 91367 0000	
243003015	70	CAPPS,GERALD K	CAPPS,GERALD K/SUSAN K	P O BOX 238	ZEPHYR COVE NV 89448	
243003110	88	WEISBERGER,JASON	PO BOX 9729		AVON CO 81620 9701	
243003110	38	ROGERS REVOC TRUST	DANIEL & MILLICENT CHAN TTEES	2131 PULLMAN AVE	BELMONT CA 94002	
243003110	24	RODRIGUES,ELVA	2604 B EL CAMINO REAL UNIT 275		CARLSBAD CA 92008	
243003110	61	ANTES,ROBERT STEVEN	ANTES,VERA W	1500 ORANGE AVE	CORONADO CA 92118	
243003110	59	GROSSO,DOMINICK A	GROSSO,DOMINIC K A ETAL	1 ANGELA DR	CROTON ON HUDSON NY 10520	
243003110	8	CHELSETH,SUSAN OSTRANDER	2214 CYPRESS POINT		DISCOVERY BAY CA 94505	
243003110	27	AMSTERDAM,RICHARD M	AMSTERDAM,RIC HARD M ETAL	15952 VALLEY VISTA BLVD	ENCINO CA 91436	
243003110	100	MITCHELL,JOHN A	58 MONTECILO		FOOTHILL RANCH CA 92610 1742	
243003110	41	MOORE,FAMILY TRUST	C/O KEVER,WAYNE/CA THERINE	4101 CLAYTON CT	FORT COLLINS CO 80525	
243003110	56	SAMPSON,KEVIN C		1976 PALMETTO TERRACE	FULLERTON CA 92831	
243003110	91	FORAN,PATRICK N		13725 QUAIL RUN CT	HOMER GLEN IL 60491	
243003110	88	WEISBERGER,EDWARD C.	8145 TRADERS POINT LN		INDIANAPOLIS IN 46278	
243003110	2	GUTIERREZ,JUAN F	8 POLOHINA LN 2		LAHAINA HI 96761	
243003110	3	PRAVER,VICTORIA	VICTORIA PRAVER	8 POLOHINA LN #3	LAHAINA HI 96761	
243003110	4	KASTAN,STUART D	KASTAN,STUART D/CHERYLL L	8 POLOHINA LN #4	LAHAINA HI 96761	
243003110	5	TRUST B OF STEPHEN DYER/FLORENCE DYER TR	C/O MARGO FANCHER TRS	100 RIDGE RD #1923	LAHAINA HI 96761	
243003110	9	DAVIS,MARGARET ELISABETH	6 ORCHID PL		LAHAINA HI 96761	
243003110	14	SOLER,ALICE KAGAYA	185-4 PUALEI DR		LAHAINA HI 96761	
243003110	21	BELLIN,JULIAN	C/O TAMBA,AKIKO	107 PUNOHU LN #4-1	LAHAINA HI 96761	
243003110	22	PENNINGTON,TERRIS L	107 PUNOHU LN APT 2		LAHAINA HI 96761	
243003110	23	MILNE,JOAN D LIVING TRUST	MILNE,JOAN D TRS	107 PUNOHU LANE #3	LAHAINA HI 96761	
243003110	25	OLEIWAN,YASSIN	107 PUNOHU LN APT 5		LAHAINA HI 96761	
243003110	26	MASTERSON,MICHAEL C	MASTERSON,MIC HAEL C/VERONICA A	107 PUNOHU LN,#6	LAHAINA HI 96761	
243003110	29	ARCHER,SOLEDAD ALEJANDRA		P O BOX 10012	LAHAINA HI 96761	
243003110	30	HANKEN,DAVID LOUIS		49 POLOHINA LN #12-2	LAHAINA HI 96761	
243003110	31	SALES,JOCK P	SALES,JOCK P ETAL	P O BOX 10762	LAHAINA HI 96761	
243003110	32	LEE,ROBIN E	C/O ROBIN & VICTORIA LEE	160 KAHANA RIDGE DR	LAHAINA HI 96761	
243003110	33	OCEGUEDA,ROBERT CARLOS	49 POLOHINA LN 5		LAHAINA HI 96761	
243003110	34	POLLOCK,SUNSHINE MARISHA	49 POLOHINA LN APT 12-6		LAHAINA HI 96761	
243003110	35	BRODY,STANFORD JR		49 POLOHINA LN,#7	LAHAINA HI 96761	
243003110	36	DE COLIBUS,MARK A		49 POLOHINA LN,#8	LAHAINA HI 96761	
243003110	40	LEMONT,KIMBERLY MELISSA	43 POLOHINA LN APT 4		LAHAINA HI 96761	
243003110	42	SMITH,DALE L		P O BOX 1705	LAHAINA HI 96761	

TMK	CPR	NAME	C/O	ADDRESS	CSZ	COUNTRY
243003110	43	MANN,LAURIE MARIE		43 POLOHINA LN #13-7	LAHAINA HI 96761	
243003110	45	LUNDBORG,STEVE R	LUNDBORG,STEVE R/SANDRA I	37 POLOHINA LN,#1	LAHAINA HI 96761	
243003110	46	TAVAKOLI,NADER		37 POLOHINA LANE, #2	LAHAINA HI 96761	
243003110	50	KAAHUI,KEAKA K	37 POLOHINA LN #6		LAHAINA HI 96761	
243003110	51	GASKINS,KATHY LYNN TRUST	GASKINS,KATHY L TTEE ETAL	37 POLOHINA LN,#7	LAHAINA HI 96761	
243003110	52	BLOOM,ROBERT	7 PLUMERIA PL		LAHAINA HI 96761	
243003110	54	ROSATI,LINDA KAY TRUST	16 POLOHINA LN 15-2		LAHAINA HI 96761	
243003110	55	ISODA,ANDREW YUKIO	PO BOX 13029		LAHAINA HI 96761	
243003110	58	AMARAL,BEATRIZ		222 PAPALAUA ST #112	LAHAINA HI 96761	
243003110	62	STARR,JACK		395 PAEOHI ST #11	LAHAINA HI 96761	
243003110	64	BEAM,JEFFREY CROSBY	22 POLOHINA LN #4		LAHAINA HI 96761	
243003110	65	AMERIO,LAURA D	22 POLOHINA LN #16-5		LAHAINA HI 96761	
243003110	67	LAMBERT,RONALD C SR		22 POLOHINA LANE, #7	LAHAINA HI 96761	
243003110	68	DOFA,CHARLES E.		22 POLOHINA LANE #8	LAHAINA HI 96761	
243003110	72	BROOKS,KEVIN KENNEY	BROOKS,KEVIN K ETAL	28 POLOHINA LN #17/4	LAHAINA HI 96761	
243003110	74	CANDERLE,TINA M	28 POLOHINA LN 6		LAHAINA HI 96761	
243003110	75	THOMAS,AARON R		28 POLIHINA LN #7	LAHAINA HI 96761	
243003110	77	LEE,CHUL K		P O BOX 11673	LAHAINA HI 96761	
243003110	79	BERG,JAMES R		32 POLOHINA LN #3	LAHAINA HI 96761	
243003110	81	WEAVER,PAUL D MAUI PROP TRUST	32 POLOHINA LN #5		LAHAINA HI 96761	
243003110	82	OTA,KENJI		32 POLOHINA LN #6	LAHAINA HI 96761	
243003110	83	MCDONALD,JAMES	32 POLOHINA LN APT 8		LAHAINA HI 96761	
243003110	84	MCDONALD,JAMES V	32 POLOHINA LN #8		LAHAINA HI 96761	
243003110	86	MORELLI,CARL WILLIAM JR	MORELLI,CARL W JR/CATHERINE M	38 POLOHINA LN,#2	LAHAINA HI 96761	
243003110	89	BACHMAN,BRAD C		380 KULUI WAY	LAHAINA HI 96761	
243003110	92	KUDLATY,LARRY E		38 POLOHINA LN,#8	LAHAINA HI 96761	
243003110	93	LOSVAR,NICHOLAS B		127 HAKUI LOOP	LAHAINA HI 96761	
243003110	94	BROWN,JOSEPH PAUL	BROWN,JOSEPH P/JACKLINE B	500 BAY DR,#16G2	LAHAINA HI 96761	
243003110	95	WILCOX,ROBERT STEVEN	46 POLOHINA LN #3		LAHAINA HI 96761	
243003110	97	LOMBARDI,MICHAEL TRUST	LOMBARDI,MICHAEL TRS	P O BOX 12741	LAHAINA HI 96761	
243003110	98	DEBRUNNER,JAMIE TRUST	DEBRUNNER,JAMIE TRS	P O BOX 11717	LAHAINA HI 96761	
243003110	99	WASIELESKI,LONNIE	WASIELESKI,LONNIE ETAL	46 POLOHINA LN,#20-7	LAHAINA HI 96761	
243003110	1	JELLISON,WILLIAM EUGENE	JELLISON,WILLIAM E ETAL	8 POLOHINA, #1-1	LAHAINA HI 96761 0000	
243003110	17	OSBORN,TAMI J TRUST	C/O OSBORN,TAMI	6 KIOHUOHU LN	LAHAINA HI 96761 0000	
243003110	20	PASS,GEOFFREY A		101 PUNOHU LANE #8	LAHAINA HI 96761 0000	
243003110	39	WALDROP,RANDY	WALDROP,RANDY /MARY A	43 POLOHINA LN,#3	LAHAINA HI 96761 0000	
243003110	70	REUSS,NIKOLAI J	REUSS,NIKOLAI J ETAL	28 POLOHINA LN,#2	LAHAINA HI 96761 0000	
243003110	85	BARRON,SUSAN		P O BOX 11177	LAHAINA HI 96761 0000	
243003110	69	LINDER,SUSAN MAREE	249 FRONT ST		LAHAINA HI 96761 1111	
243003110	63	BAYLY,RICHARD CAMERON	22 POLOHINA LN APT 3		LAHAINA HI 96761 6004	
243003110	73	MASTERS,ROBERT S		28 POLOHINA LN #5	LAHAINA HI 96761 6006	
243003110	15	YIP,LUCILLE N	98 OLEANDER RD		LAHAINA HI 96761 6021	
243003110	66	GILROY,THOMAS	GILROY,THOMAS/ JANET	10 HEATHER LN #232	LAHAINA HI 96761 6042	

TMK	CPR	NAME	C/O	ADDRESS	CSZ	COUNTRY
243003110	90	GOLDSMITH,BRYAN & ELIZABETH TRUST	GOLDSMITH,BRYAN & ELIZABETH TRS	29 POINCIANA RD	LAHAINA HI 96761 8326	
243003110	78	MORGAN,JOHN THOMAS IV		32 POLOHINA LN #18-2	LAHAINA HI 96761 8381	
243003110	11	SULLIVAN,JOSEPH A ,JR		10 POLOHINA LN APT 3	LAHAINA HI 96761 8394	
243003110	48	WATTENBERG,CLAUDIA	4007 LWR HONOAPIILANI RD APT 116		LAHAINA HI 96761 8927	
243003110	6	ROSENQUIST,MARTHA	500 BAY DR APT 16-B3		LAHAINA HI 96761 9034	
243003110	29	ARCHER,DONALD JAMES	ARCHER,DONALD J/SOLEDAD A	19 KAHANA PL #A	LAHAINA HI 96761 9225	
243003110	47	WAGNER,ROGER B TRUST	3543 L HONOAPIILANI RD APT 14-3		LAHAINA HI 96761 9416	
243003110	57	STRAKA,ELIZABETH D	C/O ELIZABETH D STRAKA	PO BOX 442	LAHAINA HI 96767	
243003110	7	DIAZ,HUGO C		PO BOX 583	LAHAINA HI 96767 0000	
243003110	71	HUND,ROBERT ANTHONY	HUND,ROBERT A/DIANNA L	25011 MAMMOUTH CIR	LAKE FOREST CA 92630	
243003110	49	SOMMERS,THERESE MARIE	10059 PERCEVAL ST		LAS VEGAS NV 89183 6984	
243003110	44	GARZA,GABRIEL		325 NORTH 18TH ST	MONTEBELLO CA 90640	
243003110	87	MASON,BURTON JR/YVONNE TR	SCOTT MASON, SUCCESSOR TTEE	19790 INDIAN SUMMER LANE	MONUMENT CO 80132	
243003110	18	THOME,RICHARD		92 VILLAGE PARKWAY	NAPA CA 94558 0000	
243003110	28	MASSON,WESTON CHARLES	MASSON,WESTON C/MARTA M	3903 CALLE LOMA VISTA	NEWBURY PARK CA 91320	
243003110	12	GRAY,DAVID R	GRAY,DAVID R/KELLY M	27167 PHOENIX WAY	OLMSTED FALLS OH 44138 4299	
243003110	10	TATE,GAIL	765 DIAMOND VISTA DR		PORT ANGELES WA 98363	
243003110	19	LASKI,KAREN E	335 STONEY RIDGE CIR		PRESCOTT AZ 86303	
243003110	75	THOMAS,GRAHAM C		187 HAULANI ST	PUKALANI HI 96768	
243003110	13	STRYKER,MICHAEL/CATHERINE TR	STRYKER,MICHAEL T/CATHERINE A TRS	10286 COPPER CLOUD DR	RENO NV 89511	
243003110	64	BEAM,KENNETH MARTIN	BEAM,KENNETH M ETAL	14 CAMINO LOZANO	SAN CLEMENTE CA 92673	
243003110	16	DONAHUE,WILLIAM		PO BOX 190404	SAN FRANCISCO CA 94119 0404	
243003110	37	NGUYEN,HOANG HUY		4454 MCKINNON DR	SAN JOSE CA 95130	
243003110	60	KATZ,JEFFREY LEE	KATZ,JEFFREY L/ANNE T	3761 BENTON ST	SANTA CLARA CA 95051	
243003110	80	FORUSZ,JILLIAN ELIZABETH		880 E FREMONT AVE #102	SUNNYVALE CA 94087	
243003110	53	JACKSON,RICHARD R.	C/O RICHARD JACKSON ETAL	37 SELVAGE AVE	TEANECK NJ 07666	
243003110	96	UNTALAN,WILFREDO O JR	UNTALAN,WILFREDO O JR ETAL	22122 KENWOOD AVE	TORRANCE CA 90502	
243003110	76	WILLIAMS,NATHAN		23 OHIA LAKA PL	WAILUKU HI 96793 2168	
243015001	0	SCHWEITZER HENRY H/DIANE A		4885 L HONOAPIILANI	LAHAINA HI 96761 0000	
243015002	0	BARTO,JANICE D NAPILI QPRT		4869 L HONOAPIILANI RD	LAHAINA HI 96761 0000	
243015003	0	HESTER,WALTER F III		PO BOX 7900	INCLINE VILLAGE NV 89452	
243015004	0	KAI PALI LLC	708 CANYON RD STE 3		SANTA FE NM 87501 2751	
243015006	0	KRUPNICK,MICHAEL EDWARD		15 HUI RD E	LAHAINA HI 96761	
243015007	0	CURRIER,RANDOLPH GOODWIN		1722 MONTANE DR E	GOLDEN CO 80401 0000	
243015008	0	JEWEL OF KAHANA LLC	C/O MELINDA WALSH	PO BOX 1396	CAMARILLO CA 93011	
243015009	0	GTE HAW'N TEL CO INC		1130 ALAKEA ST	HONOLULU HI 96813	
243015010	0	PARIS,CAROLYN E		1 NORTHSTAR ST,PH-5	MARINA DEL REY CA 90292	
243015011	0	NELSON FAMILY TRUST	C/O MICHAEL/MARSHA NELSON TRS	3350 L HONOAPIILANI RD STE 215 BOX 138	LAHAINA HI 96761	

TMK	CPR	NAME	C/O	ADDRESS	CSZ	COUNTRY
243015012	0	MCCARTNEY,FREDERIC K DANA		4800 L HONOAPIILANI HWY	LAHAINA HI 96761	
243015042	0	MAIA FINN LLC	708 CANYON RD		SANTA FE NM 87506	
243015043	0	MAIA FINN LLC	708 CANYON RD STE 3		SANTA FE NM 87501 2751	
243015044	0	VALLEJO HUI LP	C/O ZIMMERMAN, M/M ALAN	PO BOX 470068	SAN FRANCISCO CA 94147	
243015045	0	CARR,JAMES ERNEST		25 HUI RD E	LAHAINA HI 96761 0000	
243015046	0	MAUI LAND & PINEAPPLE CO		P. O. BOX 187	KAHULUI HI 96732	
243015047	0	NALEIEHA,NATALIE M		4856 L HONOAPIILANI HWY	LAHAINA HI 96761 0000	
243015048	0	LUM,DAYTON M	4842 L HONOAPIILANI RD		LAHAINA HI 96761	
243015048	0	LUM,ALLYN E		4852 LOWER HONOAPIILANI RD	LAHAINA HI 96761 9216	
243015052	0	LUSARDI,WARNER C FAMILY TR		1570 LINDA VISTA DR	SAN MARCOS CA 92069 0000	
243015054	0	ISLAND GIRL HOLDINGS LLC	C/O HARRIS MYCFO INC	PO BOX 19019	ATLANTA GA 31126	
243015055	0	SALEM,CHRISTOPHER		8 HUI RD E	LAHAINA HI 96761	
243015056	0	ANKA INC	HUGH FARRINGTON	P O BOX 1516	KIHEI HI 96753 0000	
243015057	0	DOSHAY,FAMILY TRUST OF 1999	DOSHAY,GLENN R/KAREN E TRS	PO BOX 675210	RANCHO SANTA FE CA 92067	
243015058	0	MAASS,THOMAS H JR REVOC LIVING TRUST	C/O THOMAS MAASS, TTEE	1450 RIDGEWAY DR	ACWORTH GA 30102	