Wainiha Water Tank
Site Land Acq.

DEPARTMENT OF WATER

County of Kauai

"Water has no Substitute -- Conserve It!"

November 6, 1998

RECEIVED

'98 NOV 18 P2:52

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

Dear Mr. Gill:

FINDING OF NO SIGNIFICANT IMPACT

Having reviewed the comments received on the draft Environmental Assessment for Land Acquisition of the Wainiha Water Tank Site, located at Wainiha, Kauai, Hawaii, TMK:5-8-02:por. 3, during the thirty-day review period which began on October 23, 1995, the Department of Water, County of Kauai has determined that this project will have no significant environmental effect, and with this letter, issues a finding of no significant impact.

We request that you publish notice of this determination in the next issue of the Environmental Notice. Enclosed are four copies of the Final EA and a completed Bulletin publication form. Please call Keith Fujimoto of my staff at (808) 245-5449 if there are any questions.

Sincerely,

Ernest Y. W. Lau
Manager and Chief Engineer

KF:ls
Enclosures

xc: Portugal & Associates, Inc. (w/o enclosures)

C:\..\ls\gill

— 4398 Pua Loke Street, Lihue, Kauai, Hawaii or P. O. Box 1706, Lihue, HI 96766-5706 —
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

148

1998-12-08-KA-FEA-Wainiha Water Tank Site Land Acquisition

DEC - 8 1998

~~MAR 2 3 1997~~

FILE COPY

FINAL

ENVIRONMENTAL ASSESSMENT

LAND ACQUISITION OF THE WAINIHA WATER TANK SITE

Wainiha, Kauai, Hawaii

TMK: 5-8-02: Por. 3

Prepared For

DEPARTMENT OF WATER

County of Kauai

By

PORTUGAL AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1840 Leleiona St.,Lihue, HI 96766

February 1997

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VIII	Land Acquisition	Page 4

ATTACHMENTS

Exhibit "A"	Conservation District Map
Exhibit "B"	Location Map
Exhibit "B-1"	Kauai Island Map
Exhibit "C"	Tank Site Lot and Easement "D"
Exhibit "D"	Technical Description, Lot 1
Exhibit "E"	Technical Description, Easement "D"
Exhibit "F"	-Ditto-
Exhibit "G"	Letter from County Attorney to Warren Robinson
Exhibit "H"	Letter from County Attorney to Bruce Robinson
Exhibit "L"	Letter from William Paty to Ray H. Sato, Manager-Chief Engineer, Department of Water, County of Kauai
Exhibit "M"	Letter from Gary Gill, OEQC to Murl Nielsen, Manager-Chief Engineer, Department of Water, County of Kauai Letter to Gary Gill, OEQC from Ernest Y.W. Lau, Manager-Chief Engineer, Department of Water, County of Kauai

APPENDIX

Botanical Survey for the Proposed Land Acquisition of the Wainiha Water Tank Site by David H. Lorence, Ph.D., Botanist and Timothy W. Flynn, Botanist

Archaeological Investigation of Land Proposed for Acquisition by County of Kauai at Wainiha, Kauai (TMK: 5-8-02: Por. 3) by Hallet H. Hammatt, Ph.D. and Gerald Ida, B.A.

LIST OF GOVERNMENTAL AGENCIES, PRIVATE ORGANIZATIONS, AND INDIVIDUALS CONSULTED IN THE PREPARATION OF THIS ASSESSMENT

I. AUTHORITY

This Environmental Assessment is being prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes, and the Regulations for Environmental Impact Statements of the Environmental Quality Commission, State of Hawaii.

II. PROPOSING AGENCY

Department of Water, County of Kauai, Lihue, Kauai, Hawaii.

III. DESCRIPTION OF PROJECT

A. Background:

In 1977, the Department of Water constructed a 100,000-Gallon water storage steel tank in Wainiha, Kauai, Hawaii (See EXHIBIT "B") on land owned by the Estate of Lester B. Robinson. Prior to the construction of the tank, there was some discussion as to the purchase of the land , but no formal agreement was ever reached between the parties involved.

In September 1991,the Department of Water offered to purchase the tank site from the Estate of Lester B. Robinson and obtain at the same time,an access and utility easement through the property owned by the estate of Lester B. Robinson, beginning at the Powerhouse Road, owned by the County of Kauai, to the tank site. See EXHIBIT "C". The tank site lot is identified as Lot 1, with an area of 6,000 square feet. The easement is identified as Easement D, and the area is 15, 769 square feet.

However, the tank site and the access and utility easement thereto, are within the State Conservation District, and any subdivision within the Conservation District requires a Conservation District Use Application, which further requires that an Environmental Assessment be prepared, and approval thereof obtained prior to the filing of the Conservation District Use Application. See EXHIBIT "L"

The purpose of this assessment is to address and fulfill that CDUA requirement.

B. Site Description:

The site is identified as TMK: 5-8-02: Por. Parcel 3, Wainiha, Kauai, Hawaii. It is on the right side of the PowerHouse Road, approxi- mately 1000 feet mauka of Kuhio Highway.

C. Existing Tank Structure:

The water tank is above-ground . It has a storage capacity of 100,000 gallons, made of steel, and was constructed in 1977.Maintenance is being conducted by County of Kauai Department of Water personnel on a monthly basis. The last time the tank was re-painted was in 1986 according to Mr. Les Yoshioka, the Department of Water Operations Chief.

The water tank is cylindrical, with a diameter of 32 feet, and 18 feet in height. The existing tank floor elevation is 126.50 feet above MSL. It is painted green and not visible from the main highway.

It is the main water storage tank for the Wainiha-Haena water system.

D. Access:

Access to the tank site is through an existing dirt road, which starts from the Powerhouse Road, at an approximate elevation of 53 feet, and winds and rises to an elevation of 126 feet at the site.Theapproximate grade is 18 percent.

IV DESCRIPTION OF THE AFFECTED ENVIRONMENT:

A. Site and Location:

The tank site is located within the State Conservation District. It is adjacent to a single family residential development

The existing soil is classified as rough broken land, mountainous and steep, well-drained , and not suited for machine tillability. The Ag productivity rating is E, meaning that it has the lowest productivity, A being the highest.

B. Vegetation and Rainfall:

Except for a few mango trees, the area is primarily vegetated with haole koa, wild guavas, lantanas, and molasses grass. A flora and fauna survey of the project site has been conducted by qualified professionals as required, and made a part of this assessment.

The annual average rainfall is 60 to 200 inches.

V. IMPACTS ON THE ENVIRONMENT:

a. Flora and Fauna:	None
b. Noise and Air Quality	None
c. Archaeological and Historical Sites:	None
d. Agricultural :	None
e. Existing Utility Services:	None
f. Fire and Police Protection:	None
g. Vehicular Traffic:	None

VI. DETERMINATION:

The project will not have any adverse impact to the environment. Therefore, an Environmental Impact Statement is not required, and a finding of no significant impact is considered enough and sufficient disclosure of potential environmental impacts.

VII FINDINGS AND REASONS SUPPORTING DETERMINATION:

A. Flora and Fauna: The land has been considerably disturbed during the construction of the tank and the access dirt road. There are no known endangered species of wildlife and plantlife within the tank site, nor any listed exceptional trees within. A flora and fauna survey by qualified professionals is included as part of this assessment.

B. Air and Noise Quality: There is no planned construction activity to be undertaken by the Department of Water within the site, other than routine for routine maintenance and repair.

C. Archaeological and Historical Sites: There are no known archaelogical and historical sites within the project area. An archaelogical survey is included as part of this assessment.

D. Utilities, Fire and Police Protection, Vehicular Traffic: All these services are not impacted at all by the tank site acquisition project.

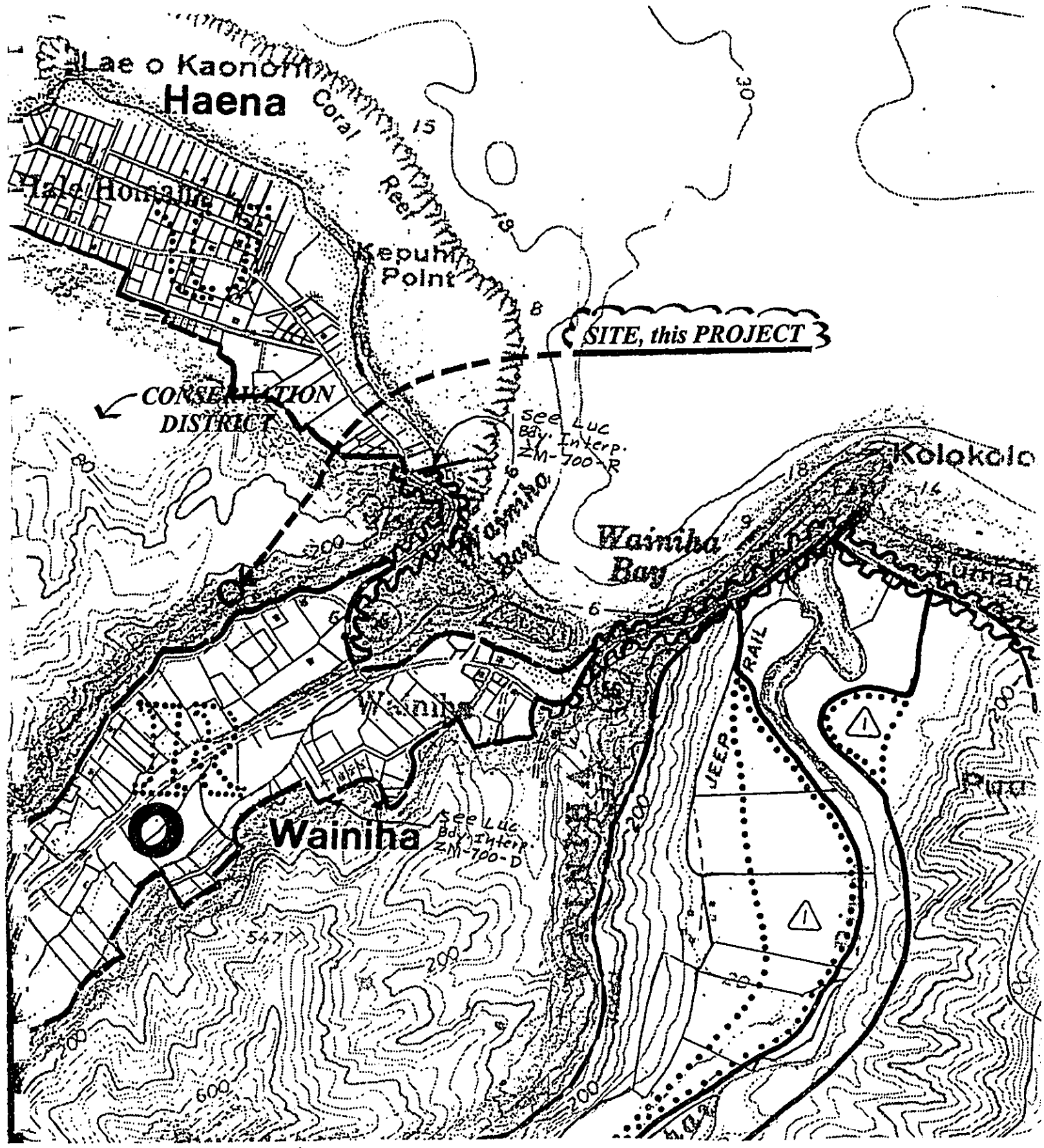
VIII LAND ACQUISITION

The Department of Water proposes to acquire the property fee simple. Initial discussions with the owners of the property indicate willingness by the Owners to convey the land to the County of Kauai at a fair and reasonable value. The County proposes to have the land appraised at current market value by an independent and reputable Appraiser, and offer to purchase the property at appraised value from the Owners. If the Owners feel that the value is less than what they feel is the fair and reasonable market value, the Owners can have the subject property appraised by at least (3) independent and reputable Appraisers, and get back to the Department of Water, who shall decide at that time whether to accept the average of the appraised values as fair and reasonable, or not, and proceed accordingly.

The fair and reasonable purchase price is indeterminable at this stage simply because the subdividibility of the tank parcel depends on whether a Conservation District Use Permit is granted or not. This Environmental Assessment is a pre-requisite for obtaining approval of the Conservation District Use Application. No CDUA has been filed yet for this particular reason.

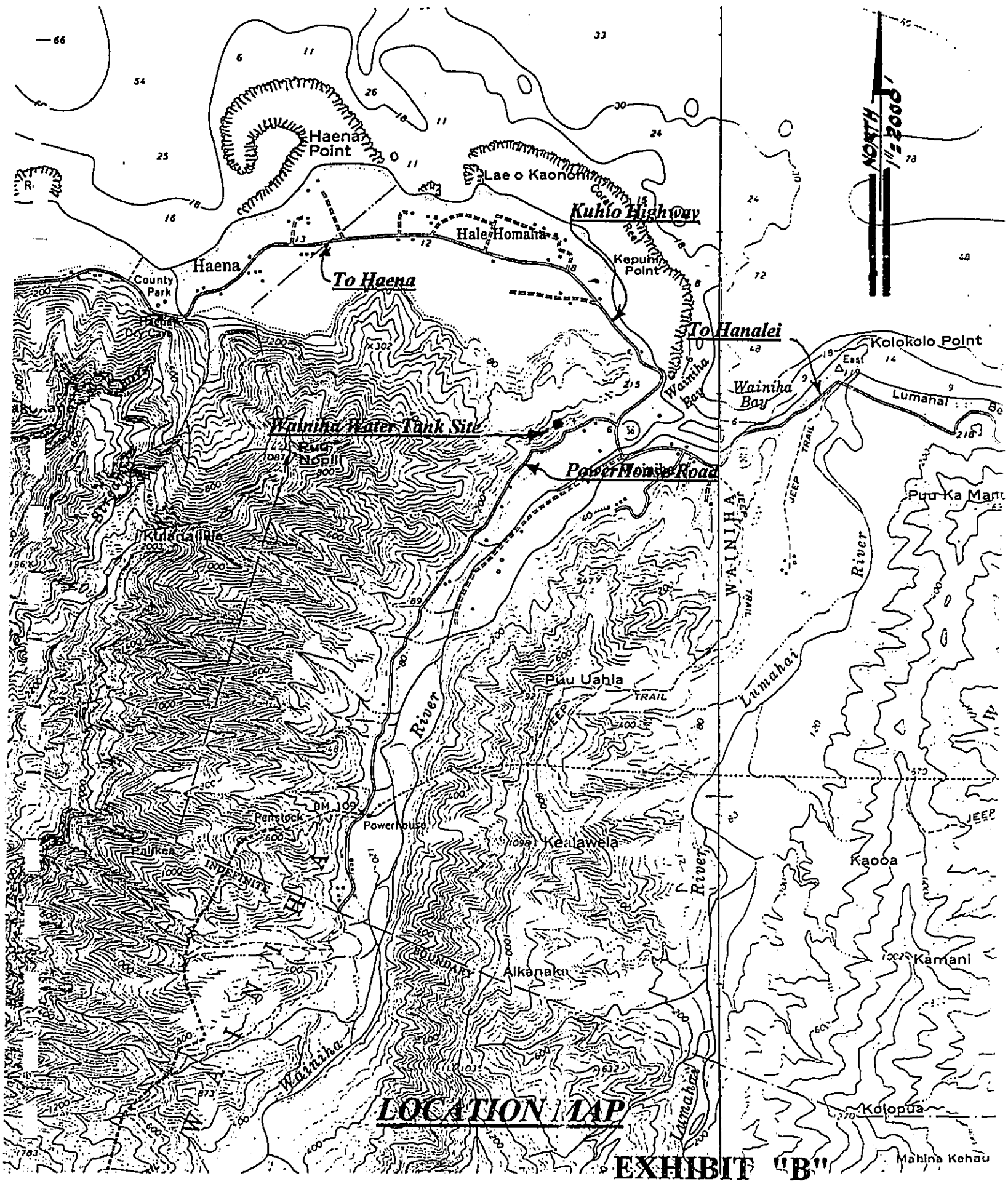
LIST OF GOVERNMENTAL AGENCIES, PRIVATE ORGANIZATIONS, AND INDIVIDUALS CONSULTED IN THE PREPARATION OF THIS ASSESSMENT

1. Department of Water, County of Kauai
2. Planning Department, County of Kauai
3. Public Works Department, County of Kauai
4. Department of Land and Natural Resources
   Division of Forestry and Wildlife
5. Tropical Botanical Garden, Kauai
6. Wayne Hinazumi, Department of Water, County of Kauai
7. Murl T. Nielsen, Department of Water, County of Kauai
8. Galen K. Kawakami, DLNR, Div. of Forestry and Wildlife
9. Keith Nitta, Planning Department, County of Kauai
10. Oscar C. Portugal, Department of Public Works, County of Kauai
11. Hallett H. Hammatt, Ph.D, Cultural Surveys Hawaii
12. Gerald Ida, Cultural Surveys Hawaii
13. David H. Lorence, Ph.D., Botanist
14. Timothy W. Flynn, Botanist



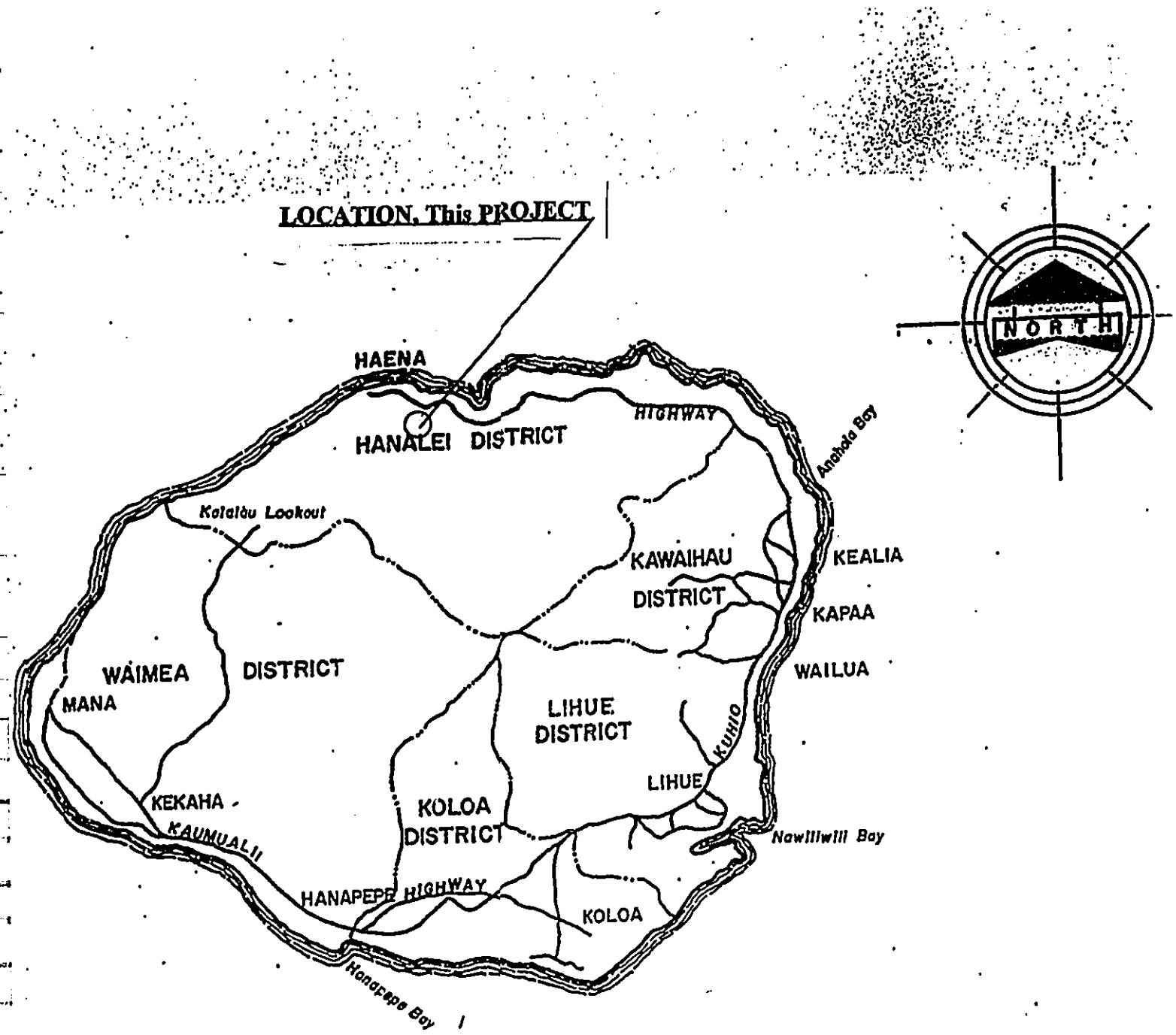
CONSERVATION DISTRICT MAP

EXHIBIT "A"



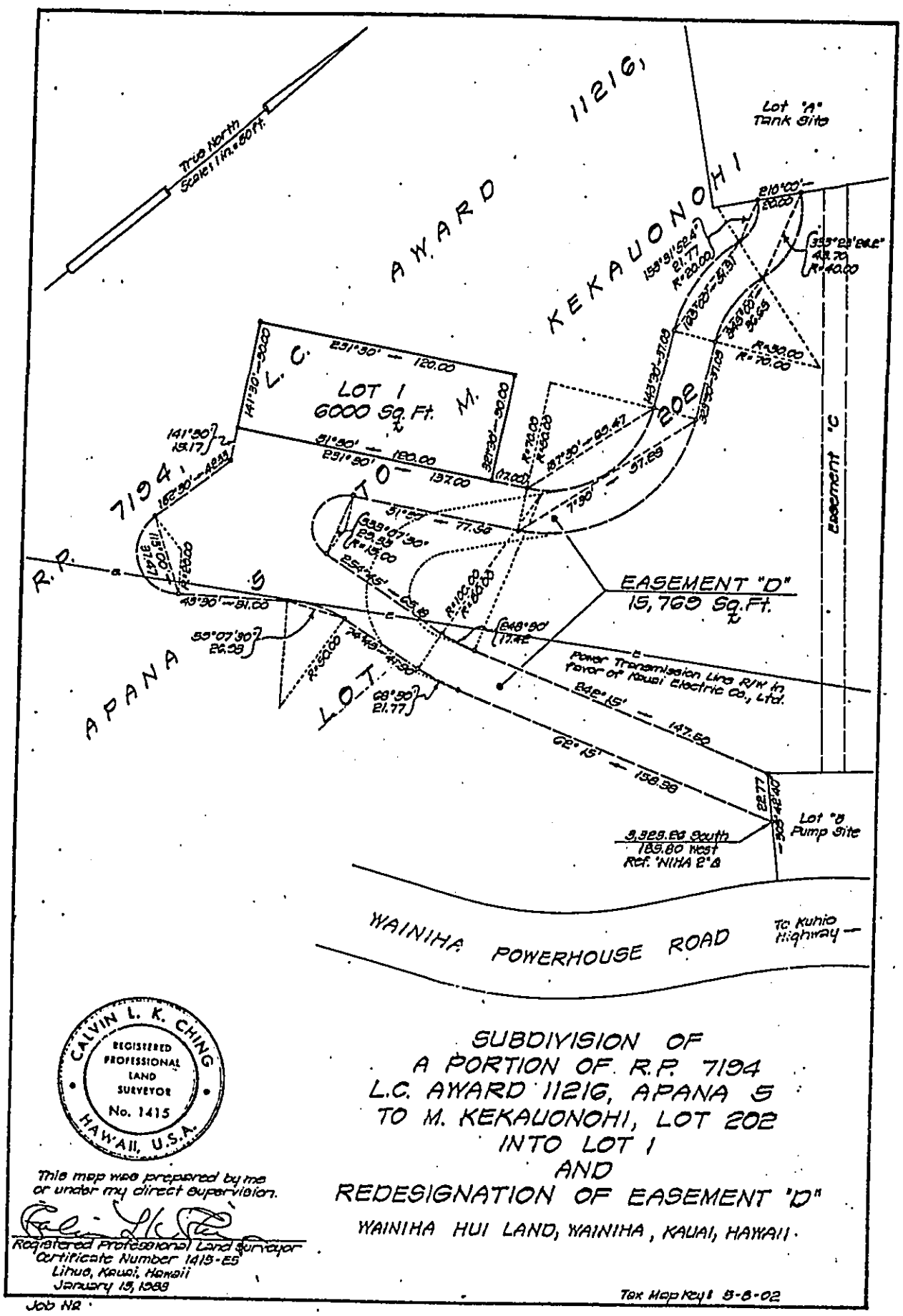
LOCATION MAP

EXHIBIT "B"



MAP OF THE ISLAND OF KAUAI
Not To Scale

EXHIBIT "B-1"



CALVIN L. K. CHING
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 1415
HAWAII, U.S.A.

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

Registered Professional Land Surveyor
Certificate Number 1415-ES
Lihue, Kauai, Hawaii
January 15, 1988

SUBDIVISION OF
A PORTION OF R.P. 7194
L.C. AWARD 11216, APANA 5
TO M. KEKAUONOHI, LOT 202
INTO LOT 1
AND
REDESIGNATION OF EASEMENT "D"

WAINIHA HUI LAND, WAINIHA, KAUAI, HAWAII

Job No.

Tax Map Key: 5-8-02

EXHIBIT "C"

DESCRIPTION

Lot 1

All of that parcel of land situate at Waihiha, Halelea, Kauai, Hawaii being a portion of Lot 202, Wainiha Hui Land, being also a portion of R.P. 7194, L.C. Award 11216, Apana 5 to Kekauonohi and being more fully described as follows:

Beginning at the South corner of this Lot, the coordinates of said point of beginning referred to Government Survey Triangulation Station "NIHA-2" being 3,399.91 feet South and 486.57 feet West, thence running by azimuths *measured clockwise from True South:*

1.	141° 30'	50.00	feet along the remainder of Lot 202;
2.	231° 30'	120.00	feet along same;
3.	321° 30'	50.00	feet along same;
4.	51° 30'	120.00	feet along Easement D to the point of beginning and containing an area of 6,000 square feet.

CALVIN L. K. CHING
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 1415
HAWAII, U.S.A.

January 17, 1988
Lihue, Hawaii

Prepared By:

Calvin L. K. Ching
Registered Professional Land Surveyor
Certificate Number 1415 ES

EXHIBIT "D"

D E S C R I P T I O N

EASEMENT D

All of that parcel of land situate at Wainiha, Halelea, Kauai, Hawaii being a portion of Lot 202, Wainiha Hui Land, being also a portion of R.P. 7194, L.C. Award 11216, Apana 2 to Kekauonohi and being more fully described as follows:

Beginning at the Easternmost corner of this Easement and on the Southwest boundary of Lot B, the coordinates of said point of beginning referred to Government Survey Triangulation Station "NIHA-2" being 3,325.26 feet South and 155.80 feet West, thence running by azimuths measured clockwise from True South:

Along the remainder of Lot 202 for the first eight (8) courses, the azimuths and distances being:

1. 62° 15' 158.38 feet;
2. Thence on a curve to the right having a radius of 100.00 feet, the chord azimuth and distance being: 68° 30' 21.77 feet;
3. 74° 45' 41.50 feet;
4. Thence on a curve to the left having a radius of 50.00 feet, the chord azimuth and distance being: 59° 07' 30" 26.93 feet;
5. 43° 30' 51.00 feet;
6. Thence on a curve to the right having a radius of 20.00 feet, the chord azimuth and distance being: 113° 00' 37.47 feet;
7. 182° 30' 42.33 feet;
8. 141° 30' 15.17 feet;
9. 231° 30' 137.00 feet along Lot 1 and the remainder of Lot 202;
10. Thence along the remainder of Lot 202 on a curve to the left having a radius of 50.00 feet, the chord azimuth and distance being: 187° 30' 69.47 feet;
11. 143° 30 37.03 feet along same;
12. Thence along same on a curve to the right having a radius of 70.00 feet, the chord azimuth and distance being: 165° 00' 51.31 feet;

EXHIBIT "E"

EASEMENT D (Sheet 2)

13. Thence along same on a curve to the left having a radius of 20.00 feet, the chord azimuth and distance being: 153° 31' 52.4" 21.77 feet;

14. 210° 00' 20.00 feet along Lot A;

Thence along the remainder of Lot 202 for the next nine (9) courses, the azimuths and distances being:

15. On a curve to the right having a radius of 40.00 feet, the chord azimuth and distance being: 333° 23' 26" 43.70 feet;

16. Thence on a curve to the left having a radius of 50.00 feet, the chord azimuth and distance being: 345° 00' 36.65 feet;

17. 323° 30' 37.03 feet;

18. Thence on a curve to the right having a radius of 70.00 feet, the chord azimuth and distance being: 7° 30' 97.25 feet;

19. 51° 30' 77.56 feet;

20. Thence on a curve to the left having a radius of 15.00 feet, the chord azimuth and distance being: 333° 07' 30" 29.33 feet;

21. 254° 45' 65.18 feet;

22. Thence on a curve to the left having a radius of 80.00 feet, the chord azimuth and distance being: 248° 30' 17.42 feet;

23. 242° 15' 147.50 feet;

24. 303° 42' 40" 22.77 feet along Lot B to the point of beginning and containing an area of 15,769 square feet.

CALVIN L. K. CHING
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 1415
HAWAII, U.S.A.

January 17, 1988
Lihue, Hawaii

Prepared by:

Calvin L. K. Ching
Registered Professional Land Surveyor
Certificate Number 1415 ES

EXHIBIT "F"

1- Eng'rg - 2. Pane
3- Jury -
4- mgt. Files

JOANN A. YUKIMURA
MAYOR

KATHLEEN N. A. WATANABE
COUNTY ATTORNEY

91 SEP 6 P3:50

AN EQUAL OPPORTUNITY EMPLOYER

COUNTY OF KAUAI
OFFICE OF THE COUNTY ATTORNEY
4396 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766
TEL. NO. (808) 245-3688
FAX NO. (808) 246-0525

September 5, 1991

Mr. Warren Robinson
c/o Gay & Robinson
P.O. Box 88
Makaweli, Hawaii 96769

Dear Mr. Robinson:

The Department of Water wishes to purchase land and obtain an easement through property owned by the Robinson family. The land is known as the Wainiha Water Tank Site and is identified under TMK: 5-8-02-03 (See Attachment). The property is currently being used by the Department of Water and there was some discussion as to the purchase of the land in 1975 but no agreement was ever reached.

The Department of Water is offering to purchase the land and the easement for the currently appraised value of $25,001.00 (Attached hereto). The acquision of the land could be through a sale or a "friendly" condemnation action.

Please notify or call me at 245-3688 regarding your decision or the need for further negotiations.

Sincerely,

James K. Tagupa
Deputy County Attorney

Attachment

cc: Department of Water

EXHIBIT "G"

wgt-file

JOANN A. YUKIMURA
MAYOR

KATHLEEN N. A. WATANABE
COUNTY ATTORNEY

92 MAY 2 P1:17

AN EQUAL OPPORTUNITY EMPLOYER

COUNTY OF KAUAI
OFFICE OF THE COUNTY ATTORNEY
4396 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766
TEL. NO. (808) 245-3688
FAX NO. (808) 246-0525

June 1, 1992

Bruce Robinson
P.O. Box 11
Makaweli, Hawaii 96769

Dear Mr. Robinson:

I have not yet received a copy of the Deed for the Wainiha Tank Site identified under TMK: 5-8-02-03. Please send me a copy as soon as possible so that I can prepare the necessary documents to enable the Department of Water to acquire the tank site from you.

If you have any questions, please do not hesitate to contact me at the above address or phone at 245-3688.

Sincerely,

James K. Tagupa

James K. Tagupa
Deputy County Attorney

cc: Ray Sato, Department of Water

EXHIBIT "H"

JOHN WAIHEE
GOVERNOR OF HAWAII

Wayne
pls. begin
processing
Pay

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
John P. Keppeler, II
Dona L. Hanaike

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

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

93 JAN 8 P3:13

COUNTY OF KAUAI

REF:OCEA:SKK

JAN 6 1993

FILE NO.: 93-324
DOC. NO.: 1983

Mr. Raymond H. Sato
Manager and Chief Engineer
Department of Water Supply
County of Kauai
P.O. Box 1706
Lihue, Hawaii 96766-5706

Dear Mr. Sato:

SUBJECT: Subdivision and Acquisition of the Wainiha Water Tank Site, Wainiha, Kauai, TMK: 5-8-2: 3

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed your letter dated December 2, 1992 and have the following comments.

A Conservation District Use Application is required for the proposed subdivision of State zoned Conservation District land. There are no exceptions to this requirement.

We have enclosed a Conservation District Use Application form and a copy of our Administrative Rules for your convenience.

Should you have any questions, please feel free to contact our Office of Conservation and Environmental Affairs, at 587-0377.

Very truly yours,

John P. Keppeler II

for WILLIAM W. PATY

Enclosure

EXHIBIT "L"

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE [redacted]
FACSIMILE [redacted]

October 20, 1995

Murl Nielsen, Manager & Chief Engineer
Kauai Department of Water
PO Box 1706
Lihue Hawaii 96766

Attn: Wayne Hinazumi

Dear Mr. Nielsen:

RE: Draft Environmental Assessment (EA) for Wainiha Water Tank Site Land Acquisition, Wainiha, TMK: 5-8-2: por. 3

Please include the following in the final EA for this project:

1. Please include a full discussion of how the land will be acquired. There is no indication in the draft EA that the current landowner is willing to sell. If the County of Kauai intends to purchase the property in question, the purchase price needs to be disclosed. If this is the case, the use of County funds would be an additional trigger to the EIS law for this project.

2. A map of the island with the project site indicated is required.

3. Include the status of the Conservation District Use Permit application.

4. Please list all State and county agencies consulted as well as all private organizations and individuals.

5. Exhibits E, F, H and L are missing from the draft EA. Please be sure they are included in the final EA.

EXHIBIT "M"

Please keep in mind that if no activity is proposed for this property, the land acquisition may be exempt from Chapter 343 requirements and an environmental assessment may not be needed. The document submitted does not contain the information required to determine Chapter 343 applicability. Our office would be happy to assist you in clarifying this matter.

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

Sincerely,

Gary Gill

GG/nh

c: Cesar Portugal, Portugal & Associates

EXHIBIT "M"

DEPARTMENT OF WATER
County of Kauai

"Water has no Substitute – Conserve It!"

MAILED
OCT 23 1998

October 21, 1998

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

Dear Mr. Gill:

Subject: Environmental Assessment (EA) for Wainiha Water Tank Site Land Acquisition, Wainiha, Kauai, Hawaii (TMK: 5-8-2; por.3)

The County of Kauai, Department of Water (DOW), is ready to submit for publication the Final Environmental Assessment (EA) for the subject land acquisition. This letter addresses the comments on the Draft EA submitted by the Office of Environmental Quality Control (OEQC) in your letter dated October 20, 1995. Your comments are summarized as follows, along with the DOW's response.

1. *Provide a discussion of how the DOW will acquire the property..*

As discussed in Section VIII of the Final EA, the DOW intends to purchase the property from the current landowner, at the fair market price. The fair market price has not as yet been established and agreed upon with the current property owner, but when established, the purchase is a public action of the Board of Water Supply. At present, we anticipate that the land acquisition cost will be approximately $30,000.

In the event that a purchase agreement with the property owner is not achieved, the Department may pursue the land acquisition by exercising our power of eminent domain. This process also involves establishment of the fair market price for the property being acquired.

2. *Provide a map of the island that indicates the project site.*

Please refer to Exhibit B-1 in the Final EA.

3. *Indicate the status of the Conservation District Use Permit Application.*

As discussed in Section VIII of the Final EA, the Conservation District Use Permit Application required for the subdivision of land associated with this property acquisition has not as yet been filed, pending the completion of this EA process.

– 4398 Pua Loke Street, Lihue, Kauai, Hawaii or P. O. Box 1706, Lihue, HI 96766-5706 –
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

EXHIBIT "M"

4. *Provide a list of State and County agencies, private organizations and individuals consulted during the preparation of the EA.*

A list of agencies, organizations and individuals consulted during the EA process is attached following page four of the EA.

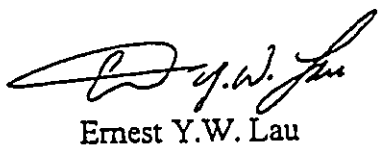
5. *Include Exhibits E, F, H and L in the Final EA.*

The referenced exhibits are included in the Final EA.

The DOW appreciates your comments, and will attach your comment letter and this response to the Final EA, which will be submitted for publication under separate cover. Based on our recent discussions with your staff, we understand that we should provide a listing of any permits that are required for the project. For this land acquisition project, a CDUA is required from the State Department of Land and Natural Resources. Subdivision approval from the County of Kauai is also required.

In the event that you have any further questions on this project, please contact Mr. Keith Fujimoto at (808) 245-5449.

Sincerely,



Ernest Y.W. Lau
Manager and Chief Engineer

ET:et

c: Portugal & Associates
Estate of Lester B. Robinson

EXHIBIT "M"

Botanical Survey for the Proposed Land Acquisition of the Wainiha Water Tank Site

David H. Lorence, Ph.D.
Botanist

and

Timothy W. Flynn
Botanist

May 1995

Botanical Survey for the Proposed Land Aquisition of the Wainiha Water Tank Site

Timothy W. Flynn and David H. Lorence

A botanical survey of the vegetation found on the **Waniha water tank site** (TMK: 5-8-02: Por. Parcel 3, Wainiha, Kauai, Hawaii) was conducted on 13 May 1995. This parcel lies just north of the Powerhouse Road, approximately 1000 ft. from the junction of the Powerhouse Road and Highway 56.

Access to the site is along a gently sloping road that rises some 40-50 feet through secondary vegetation dominated by the naturalized tree species **Psidium cattleianum** (waiawi, or strawberry guava), **Psidium guajava** (common guava), and **Syzygum cumini** (java plum). Overgrowing all of these trees are the naturalized vines **Passiflora ligularis** (sweet granadilla) and **Canavalia cathartica** (maunaloa). The understory and edges of the road are dominated by **Stachytarpheta urticifolia, Elephantopus mollis** (elephant's foot), **Nephrolepis multiflora** (Boston fern), and **Schizachyrium condensatum**, all naturalized species. Scattered individuals of the indigenous fern **Odontosoria chinensis** (pala'a) are also found here, being most common on the north side of the road cut. As the road climbs and turns onto the tank "pad", **Schizachyrium** dominates the roadside.

The graded tank "pad" is dominated by the water tank itself, occupying a mown "lawn" of various introduced herbs and grasses including **Desmodium incanum** (spanish clover), **Desmodium tortuosum** (Florida beggarweed), **Sida rhombifolia**, and **Paspalum conjugatum** (Hilo grass). Two plants of the possibly indigenous grass **Paspalum scorbiculatum** (ricegrass) were also found in this area. The pad is bordered on the east-southeast by five large mango trees that are replaced first by strawberry guava and then **Schizachyrium** as one heads down slope to the access road. The west and northwest sides of the pad abut the cut slope and are clothed with a mixture of boston fern, pala'a, **Spathoglottis plicata** (Philippine ground orchid), elephant's foot, and **Schizachyrium.**

On the ridge above the tank alien species, with one exception, again dominate the vegetation. Strawberry guava and java plum are the most common tree species, and they are almost uniformly overgrown with sweet granadilla. The open areas between the trees are clothed with a mixture of the native fern pala'a, elephant's foot, **Schizachyrium**, and Philippine ground orchid. In some areas of the slope pala'a forms small, pure stands. Three other native species, **Psilotum nudum** (moa), **Metrosideros polymorpha** var. **glaberrima** ('ohi'a lehua), and **Wikstroemia oahuensis** var. **oahuensis** ('akia), were also seen on this slope. Single individuals of 'akia and moa were seen while two individuals of 'ohi'a lehua were found.

The vegetation of the site is overwhelmingly dominated by naturalized, alien (introduced) species, although five species that are either endemic or indigenous to the Hawaiian Islands were found. With the exception of the fern **Odontosoria chinensis** (pala'a), all of the native species were represented by one or two individual plants. Pala'a was abundant and in fact dominant in some areas of the slope above the tank as well as being found along the access road. **Paspalum scorbiculatum** (ricegrass), a questionably indigenous species, was represented by two individuals found near the tank. A single plant of **Psilotum nudum** (moa) was found growing in the crotch of a java plum on the lower southwest slope above the tank pad. A single individual of **Wikstroemia oahuensis** var. **oahuensis** ('akia) and two individuals of **Metrosideros polymorpha** var. **glaberrima** ('ohi'a lehua) were seen on the slope above tank, all at

least 25 feet from the rim. All of the native species found are relatively common and widespread and are not considered to be rare, threatened, or endangered by either the State of Hawaii (Division of Forestry & Wildlife) or the U. S. Fish and Wildlife Service. A list of all of the species seen on the site follows below.

VASCULAR PLANT SPECIES LIST
Wainiha Watertank site survey, 13 May 1995
(*Native species are in **Bold Face** type)

FAMILY *Scientific name*	*Common name*
ANACARDIACEAE	
Mangifera indica L.	Mango
APIACEAE	
Centella asiatica (L.) Urb.	Asiatic pennywort
ARALIACEAE	
Schefflera actinophylla (Endl.) Harms	Octopus tree
ASTERACEAE	
Elephantopus mollis Kunth	Elephant's foot
Emilia fosbergii Nicolson	Flora's paintbrush
Pluchea carolinensis (Jacquin) G. Don	Sourbush
CASUARINACEAE	
Casuarina equisetifolia L.	Ironwood
DRYOPTERIDACEAE	
Nephrolepis multiflora (Roxb.) F. M. Jarret ex C. V. Morton	--
FABACEAE	
Canavalia cathartica Thouars	Maunaloa
Chamaecrista nictitans (L.) Moench subsp. patellaria (DC ex Collad.) H. Irwin & Barneby var. glabrata (Vogel) H. Irwin & Barneby	Partridge pea
Desmodium incanum DC	Spanish clover
Desmodium tortuosum (Sw.) DC	Florida beggarweed
Leucaena leucocephala (Lam.) de Wit	Koa haole
Mimosa pudica L. var. unijuga (Duchass. & Walp.) Griseb.	Sensitive plant
Paraserianthes falcataria (L.) I. Nielsen	--
LINDSAEACEAE	
***Odontosoria chinensis** (L.) J. Sm.	Pala'a
MALVACEAE	
Sida rhombifolia L.	--

MELASTOMATACEAE	
Clidemia hirta (L.) D. Don var. hirta	Koster's curse
MYRTACEAE	
***Metrosideros polymorpha** Gaud. var. **glaberrima** (H. Lèv.) St. John	'Ohi'a lehua
Psidium cattleianum Sabine	Waiawi, strawberry guava
Psidium guajava L.	Common guava
Syzygium cumini (L.) Skeels	Java plum
ORCHIDACEAE	
Spathoglottis plicata Blume	Philippine *ground orchid*
PASSIFLORACEAE	
Passiflora ligularis Juss.	Sweet granadilla
PLANTAGINACEAE	
Plantago major L.	Broad-leaved plantain, laukahi
POACEAE	
Paspalum conjugatum Bergius	Hilo grass
***Paspalum scorbiculatum** L.	Ricegrass
Pennisetum clandestinum Chiov.	Kikuyu
Pennisetum cf. setaceum (Forssk.) Chiov.	Fountain grass
Sacciolepis indica (L.) Chase	Glenwood grass
Schizachyrium condensatum	--
POLYPODIACEAE	
Phymatosorus grossus (Langsd. & Fisch.) Brownlie	Lauae
PROTEACEAE	
Grevillea robusta A. Cunn. ex R. Br.	Silk oak
PSILOTACEAE	
***Psilotum nudum** (L.) P. Beauv.	Moa
THELYPTERIDACEAE	
Thelypteris parasitica (L.) Fosberg	--
THYMELAEACEAE	
***Wikstroemia oahuensis** (A. Gray) Rock var. **oahuensis**	'Akia
VERBENACEAE	
Lantana camara L.	Lantana
Stachytarpheta urticifolia (Salisb.) Sims	--

GLOSSARY

Endemic: Plants native and confined to a particualr geographic area. In this case it refers to the Hawaiian Islands.

Indigenous: Plants native to more than one geographical area, i.e. native to the Hawaiian Islands as well as other areas in the tropical Pacific.

Introduced: Plants that were brought to the Hawaiian Islands by man. Also referred to as weedy or alien species.

Native: Plants that arrived and/or became established in the Hawaiian Islands without the aid of man (they can be either endemic or indigenous). These species are generally regarded as having been in the islands before the arrival of the Polynesians.

Naturalized: Plants that are thoroughly established and reproducing by vegetative or sexual means, but originally coming from another area. These species were introduced, intentionally or unintentionally, by man or human activities.

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Archaeological Investigation of Land Proposed for Acquisition by County of Kaua'i at Wainiha, Kaua'i (TMK 5-8-02:Por.3)

by

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and
Gerald Ida, B.A.

for

Portugal and Associates

Cultural Surveys Hawaii
August 1995

ABSTRACT

An archaeological survey was conducted of the project area on August 3, 1995. The project area of approximately 21,000 sq. feet, includes an existing water tank and a road easement. No archaeological sites were encountered. The water tank site itself has been cut from the hillside to form a level platform well below the natural slope. Previously, (May 5, 1993) a survey was conducted by Cultural Surveys Hawaii on Lot 3 of TMK 5-8-02:3 (50' X 50' lot) in an area adjacent area to the water tank. The properties lie on the west side of Wainiha Valley above the flood plain above the Old Wainiha Power House Road. Neither the 1993 survey or the present survey located any archaeological sites or any potential subsurface cultural materials. Therefore no further archaeological research is recommended.

ACKNOWLEDGEMENTS

Fieldwork for this project was performed by Mr. Kaipo Akana of Cultural Surveys Hawai'i on August 3, 1995. Maps for the present study were provided by Mr. Caesar Portugal of Portugal and Associates.

All historical research and writing was conducted by Mr. Gerald Ida of Cultural Surveys Hawai'i on Kaua'i, utilizing the resources of Kaua'i Community College, the Kaua'i Museum and *The Garden Island* newspaper. Computer help was provided by Dr. Vicki Creed of Windword Processing, Kailua, O'ahu.

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GLOSSARY

Aeolian	-deposited by the wind
A-horizon	-a soil layer characterized by the accumulation of organic matter at the ground surface
Ahu	-heap, pile, collection, mass, altar, shrine; a traplike stone enclosure made by fishermen for fish
Ahupua'a	-a traditional Hawaiian land unit extending from the mountain to the sea
Ali'i	-chief, chiefess, nobility
Archaeological feature	-the discrete remains of post activity preserved in the ground
Artifact	-any object made by man
'auwai	-irrigation ditch
B-horizon	-a subsurface soil layer characterized by clay accumulation
Carbonate	-Calcium carbonate
cmbs	-centimeters below soil surface
Flake	-a piece of stone struck from a larger piece
Historic	-in Hawaii, the period after the landing of (post contact) Captain Cook in 1778.
hui	-association or organization
'ili	-a small land unit, a subdivision of an ahupua'a
'ili kūpono	-a nearly independent 'ili within an *ahupua'a*, paying tribute to the ruling chief and not the chief of the *ahupua'a,*
in situ	-the place of original deposition
kalo	-taro
ko'ele	-small land unit farmed by a tenant for the chief
konohiki	-headman of an *ahupua'a* under the chief

kula	-unirrigated field
kuleana	-a small land claim inside another's land
lei	-garland, wreath, necklace of flowers, leaves, shells, ivory, feathers, or paper, given as a symbol of affection
lo'i	-a wetland taro field
loko	-fishpond.
makai	-towards the sea
mauka	-towards the mountains
Menehune	-legendary race or small people who worked at night, building fish ponds, roads, temples;
midden	-faunal and floral remains from archaeological deposits, usually food remains
moku	-district, island, section
mo'o (mo'o kalo)	-a narrow strip of land; a division of land next less than an *'ili* (a strip of wetland taro)
mū	-Legendary people of Lāau-haele-mai, Kaua'i
ohana	-a kin group of extended families
pali	cliff, precipice, steep hill
pedogenic	-related to soil forming processes
pedogenic carbonate	-naturally occurring carbonate precipitated in a soil horizon
poi	-Hawaiian staff of life, made from cooked taro corms, see also *kalo*
profile	-the vertical section of the ground
soil texture	-describes the size of the mineral grains in soil
soil structure	-describes the aggregates of soil particles
stratigraphic boundary	-the contact between two distinct strata

stratum	-a visually distinct layer of sediment
volcanic glass	-a structureless cooled lava which occurs naturally in lava flows and was used by Hawaiians as small cutting tools.

I. INTRODUCTION

The present study area contains a County water tank located in TMK 5-8-02:Por Parcel 3, (Lot 3) Wainiha, Kaua'i. It is on the right side of the PowerHouse Road, approximately 1,000 feet *mauka* of Kuhio Highway. This survey area is also in the same general area explored in the survey of May 1993 by Cultural Surveys Hawaii, in conjunction with an archaeological survey for the proposed construction of a GTE telecommunication hut for Wainiha, Kaua'i in the same parcel (TMK 5-8-02:3) but in the adjacent Lot (Lot 1). The presently proposed acquisition of the water tower in Lot 1 requires an environmental assessment of the 6,000 sq. foot area (Lot 1) where a 100,000-Gallon water storage steel tank now exists and an 15,769 sq. feet utility easement on land owned by the Estate of Lester B. Robinson.

The historical background and previous archaeology sections of this report includes material from the earlier report by Gerald Ida, Hallett H. Hammatt and Ed Duncan (1993) and the previous work on Wainiha Valley by Ida and Hammatt (1992). The 1992 study revealed that the land section most heavily utilized in both pre-historic and historic times is concentrated in the flood plain section nearest the Wainiha River as opposed to the steep ridge sections of the valley slopes, such as the present location. It was therefore considered unlikely that the survey of the present parcel would encounter archaeological elements. The field survey included examination of stratigraphic layers in the cut behind the water tank as well as along the access road. No archaeological sites or cultural material were observed.

A. Project Area Description

The study area is located on the west side of the old PowerHouse Road, ft. upslope from the shoreline and the northwest flood plain of Wainiha Stream (Fig. 3) and 1,000 feet from Kuhio Highway and 126.5 ft. above mean sea level. The water tank parcel

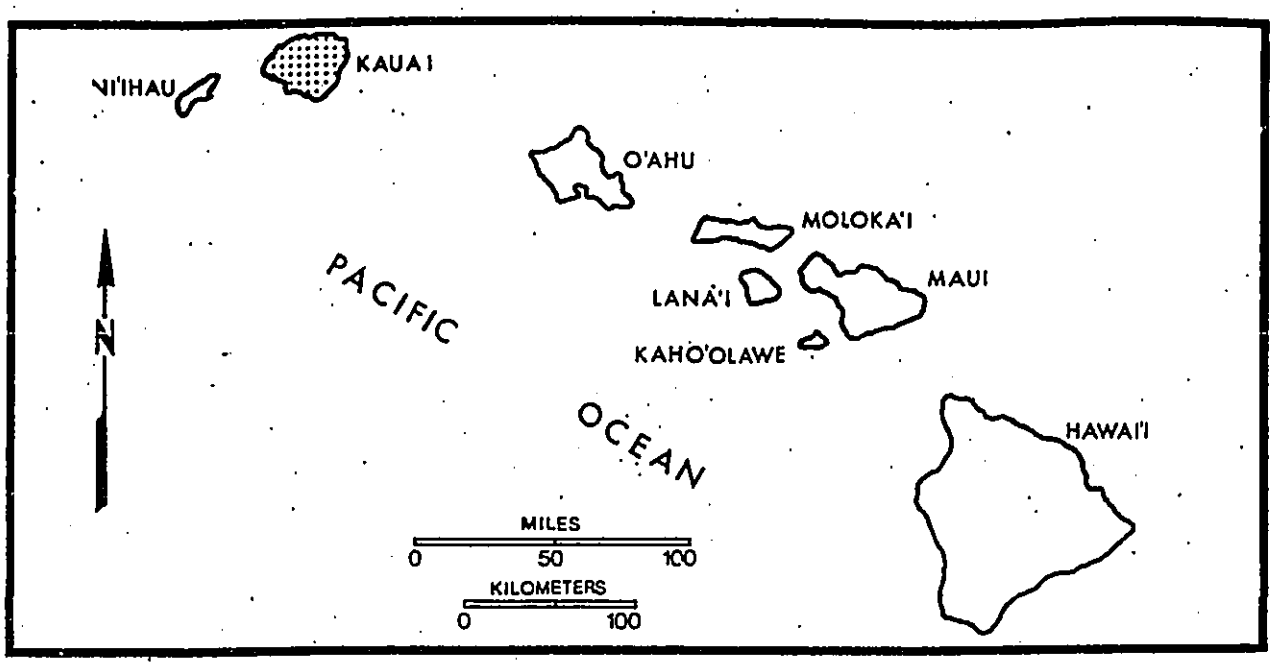


FIGURE 1
State of Hawai'i

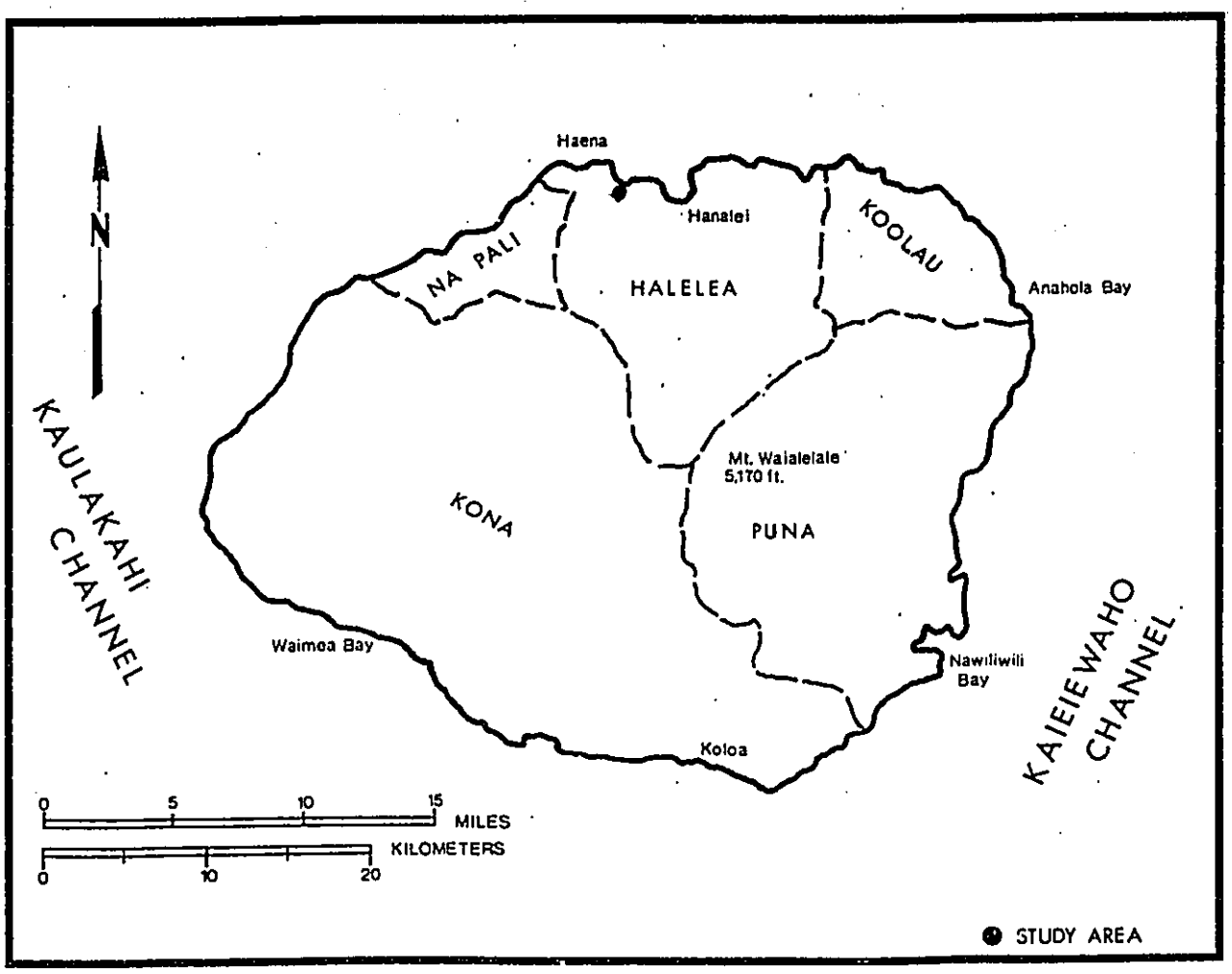


FIGURE 2
General Location Map, Kaua'i Island

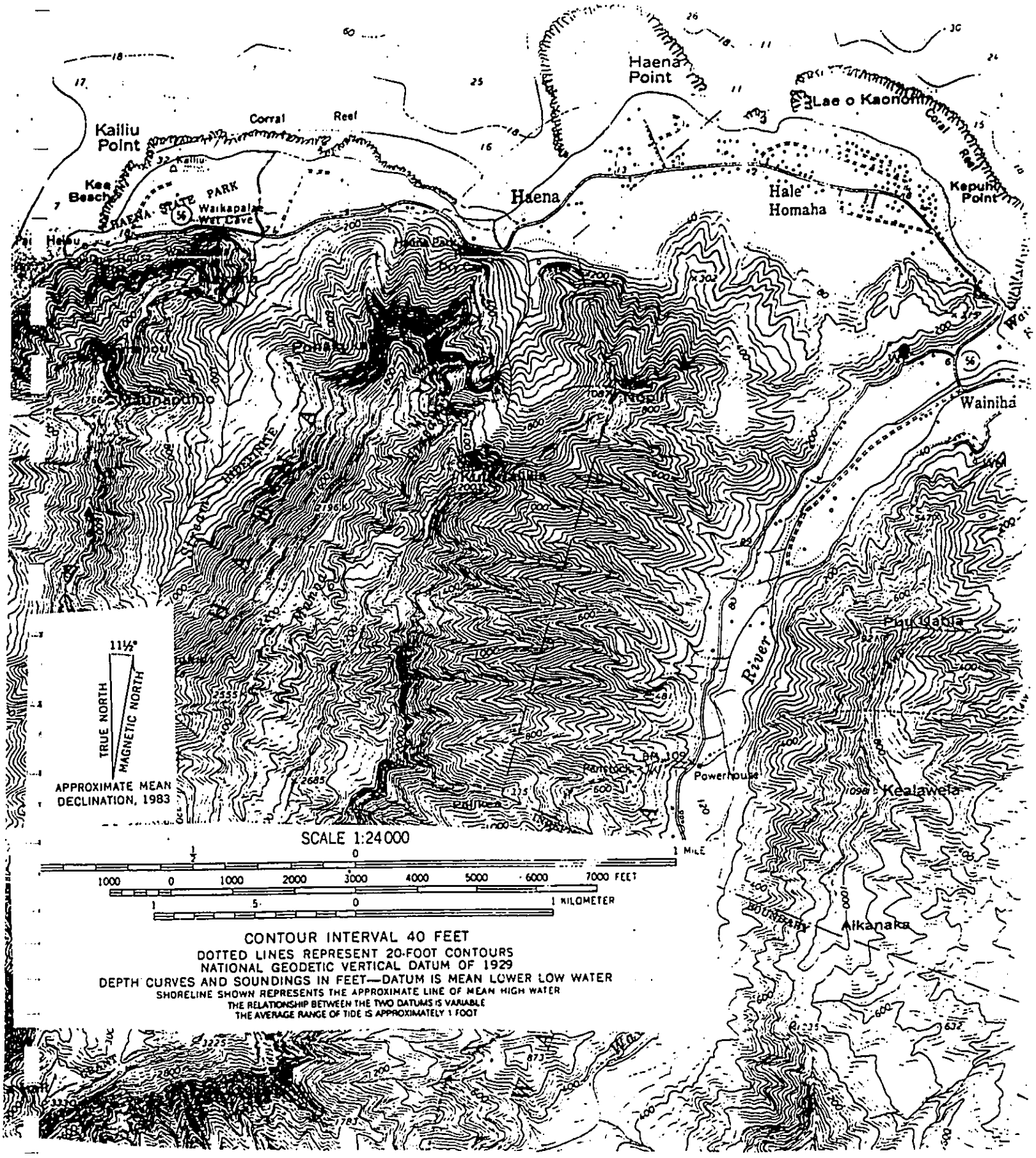


Fig. 3 USGS Topographic Map 7.5 Minute Series, Ha'ena Quad, Showing Project Location

comprises 6,000 sq. feet and the access and utility road comprises 15,769 sq. feet.

Present vegetation consists of Hau growth, with wild guava, lantana and molasses grass. There are five mango trees growing in a line on the downside of the water tank. The average rainfall in this area is between 60 and 200 inches per year.

B. Scope of Work and Methods

The archaeological fieldwork was conducted on August 3, 1995 by Mr. Kaipo Akana and took approximately 2 hours. This survey included examination of stratigraphic profiles in and adjacent to the property. One brief oral history interview of a *kama'āina* resident was conducted during the fieldwork. Historical background research of Wainiha Valley was conducted mostly as the result of previous surveys. The report for this project is a component of the required Environmental Assessment for the land acquisition. No construction or land alteration is anticipated.

C. Work Accomplished

During the survey, Mr. Kaipo Akana interviewed Mr. Ipo Haumea, 77-year old *kama'āina* of Wainiha. Mr. Haumea related that he and his father have no knowledge of sites in this immediate area and knows the land well because of activity as a pig hunter.

The cut banks of the Wainiha Powerhouse Road as well as the access road and the water tank site itself provided an adequate stratigraphic profile for the purpose of evaluating the soil distinctions of both the former and the present study areas. Photos were taken of the water tank site (Appendix B). Laboratory and report preparation consisted of historical research on Wainiha, a summary of previous archaeology and the written documentation of field results.

II. CULTURAL AND HISTORICAL BACKGROUND

Setting

Wainiha, literally "unfriendly water" (Pukui, 1974:226), is a valley and *ahupua'a* on the north shore of the island of Kaua'i. It is part of the old land district or *moku* of Halele'a which also includes the *ahupua'a* of Kalihiwai, Kalihikai, Hanalei, Wai'oli, Waipā, Waikoko, Lumaha'i and Hā'ena.

Of these, Wainiha is second in size only to Hanalei. The valley, though relatively narrow, is approximately 13 miles long, stretching from the ocean well into the interior of the island where its steep walls reach over 4,000 feet high (Handy & Handy, 1972:419).

The Wainiha River is fed by many small tributary streams, some of which drain directly off of the Alaka'i Swamp on the north side of Wai'ale'ale. Fertile alluvial areas exist along the river and on islands created as the waterway splits and criss-crosses as it flows towards the sea. There is, however, no alluvial plain at the mouth of the river valley (Earle, 1978:32).

A well-formed reef exists off-shore which undoubtedly provided valley residents with a wealth of resources. However, Wainiha is vulnerable to inundation by tsunamis originating in the north Pacific Ocean. A 1957 tsunami caused a 38 foot rise in sea level at Wainiha and low-lying areas as far as 4,000 feet inland were inundated (DLNR, 1975).

Flooding due to heavy rainfall is a frequent occurrence in Wainiha and results from stream-channel overflow and ponding which is due to overland flow. The valley has recorded rainfall as high as 24 inches in 24 hours this century. Beginning in 1956, there have been at least 8 damaging floods in Wainiha, one of which caused loss of life (*Ibid.*). The flooding of Wainiha is even mentioned in folklore (Pukui, 1951:67). Perhaps it is this natural characteristic of the valley which explains the origin of the name "unfriendly

water."

Wainiha in Legends and Myths

Perhaps the most popular mention of Wainiha in the folklore of Hawai'i is as the home of the legendary *menehune* and *mū* people. Described as shy and dwarf-like, some say they were the original inhabitants of Kaua'i, driven to the interior of the island by the arrival and flourishing of the Hawaiians.

A census of Wainiha taken by the *konohiki* of the *ahupua'a* during the time of Kaumuali'i lists in part, 65 men of Lā'au as *menehune* (Lydgate, 1913:126).

J.H. Kaiwi, Thrum's informant for the "Story of the Race of Menehunes," says his grandparents became familiar with the *menehune* while spending time collecting sandalwood in an area called Waineki in the Alaka'i Swamp, overlooking Wainiha (Thrum, 1923:219).

The upper reaches of the valley were also where the bird-catchers or *po'e hahai manu* practiced their skill at collecting the colorful feathers of forest birds which adorned capes, helmets, *lei*(s) and other objects usually associated with the *ali'i* class. In "A maiden from the Mu," Pukui (1951:67-75) relates the tribulations of Kiamanu, a bird-catcher of Wainiha, who marries a *mū* girl.

Wainiha bird-catchers also figure into the tales of "Kanaloa-huluhulu" and Lau-haka" by Wichman (1985:114-124).

Many of these stories mention a well-traveled trail from Waimea on the southwest coast of the island, up through Kōke'e and across the Alaka'i Swamp, finally dropping down into Wainiha. In historic times, politician and outdoorsman Eric Knudsen (1946:202) traversed the island along this ancient trail on an annual basis.

Wainiha is briefly mentioned in the epic myth of Pele and Hi'iaka as the place

where Malaeha'akoa, the lame fisherman and seer was raised. When Hi'iaka arrived on Kaua'i during her mission to bring Pele's lover Lohi'au back to the island of Hawai'i, it was Malaeha'akoa who met her at Hā'ena and eventually told her of Lohi'au's death (Emerson, 1978:109-131).

Finally, the famous "Legend of Kuapakaa" when Kuapaka'a chants the names of the winds of Kaua'i, Lūpua is given as the wind of Wainiha (Fornander, 1918-1919:96).

Settlement and Land Use

Literary sources give only an incomplete picture of the aboriginal settlement of Wainiha, but a degree of insight may be gained from their examination.

Lydgate (1913:126), as mentioned before, reported on a census taken by the *konohiki* of Wainiha during Kaumuali'i's time. Kaumuali'i was the reigning chief of Kaua'i from 1794-1825 (Kamakau, 1961:169, 265).

At this time "upward of 2,000 souls" resided in the valley in the villages of (listed *makai* to *mauka*) Naue, Pā'ie'ie, Maunaloa, Pali'ele'ele, Maunahina, Pōhakuloa, Opaikea, Hōmaikalani and Lā'au. Lydgate goes on:

> ...Laau, the hamlet farthest mauka in the depths of the mountains, where the valley contracts to a narrow gorge, with a brawling stream running white in the bottom...All along up the river, wherever the encroaching palis on either side leave the least available space, the land has been terraced and walled up to make 'lois.' And so the whole valley is a slowly ascending stairway of steps, broad in tread and low in the rise, all the way to Laau, where the last available space was won, if not by dwarfs, at least by someone who understood this kind of agricultural engineering. These artificial lands have long since reverted to the wilderness from which they came, and it is only by chance that the traveler stumbles upon them, beating his way through the jungle. But they bear witness to a large population...

A check of the USGS map shows that La'au (ridge) is more than 7 miles inland.

Lydgate's (or the *konohiki*'s) population count was likely exaggerated, however his

statement does point to an extensive and well developed agricultural system.

A census taken by the missionaries in 1834-35 gave the population of Wainiha as a more reasonable 216 (Schmitt, 1973). A count by the Dept. of Public Instruction in the spring of 1847 showed a decline to 154 residents (Schmitt, 1969:229).

Bennett (1931:136), during his survey of Kaua'i in 1928-29, observed the remains of many terraced house sites and irrigated fields at Maunahina Ridge (Site 153), about 4½ miles from the sea.

Interestingly, Maunahina is said to be the location of the ancient trail (Wichman, 1985:114) which leads out of Wainiha, up to Kilohana at the north edge of the Alaka'i Swamp, through Kōke'e and down to Waimea on the southwest side of the island. Undoubtedly, the trail was used to take advantage of the resources of Alaka'i and as a shorter (however, more difficult) overland alternative route to Waimea. The use of this thoroughfare tempers the perception of Wainiha as simply a high-walled valley, open only at the shoreline, and perhaps was at least part of the incentive for habitation and development in the valley's upper reaches.

Earle's analysis of the Land Commission Awards of 1850 (1978:58-67, 126) shows by that time, far inland sites were already abandoned and active use of the valley extended only about 1½ miles from the sea. In this area of activity, Earle's field survey identified six separate irrigation systems.

Besides the irrigated fields of *kalo*, it can be assumed that all of the common Hawaiian agricultural crops were raised in Wainiha. Handy and Handy (1972:420) state:

> There were, of course, house sites all through the valley on ground not suitable for irrigation. On such land sweet potatoes were planted. Bananas flourished: in 1931 mai'a Poloapola (Borabora banana, musa pehi) was found in gulches. This Tahitian banana, which bears its fruit on an upright stalk, is said by local Hawaiians to be indigenous to Wainiha. 'Awa of several varieties was growing there also, and undoubtedly the economic

staples wauke and olona were planted. Specimens of yams were collected in 1931.

The Foreign Testimony before the Land Commission (1850) indicates that Hawaiians were also raising more recently introduced crops such as oranges and coffee.

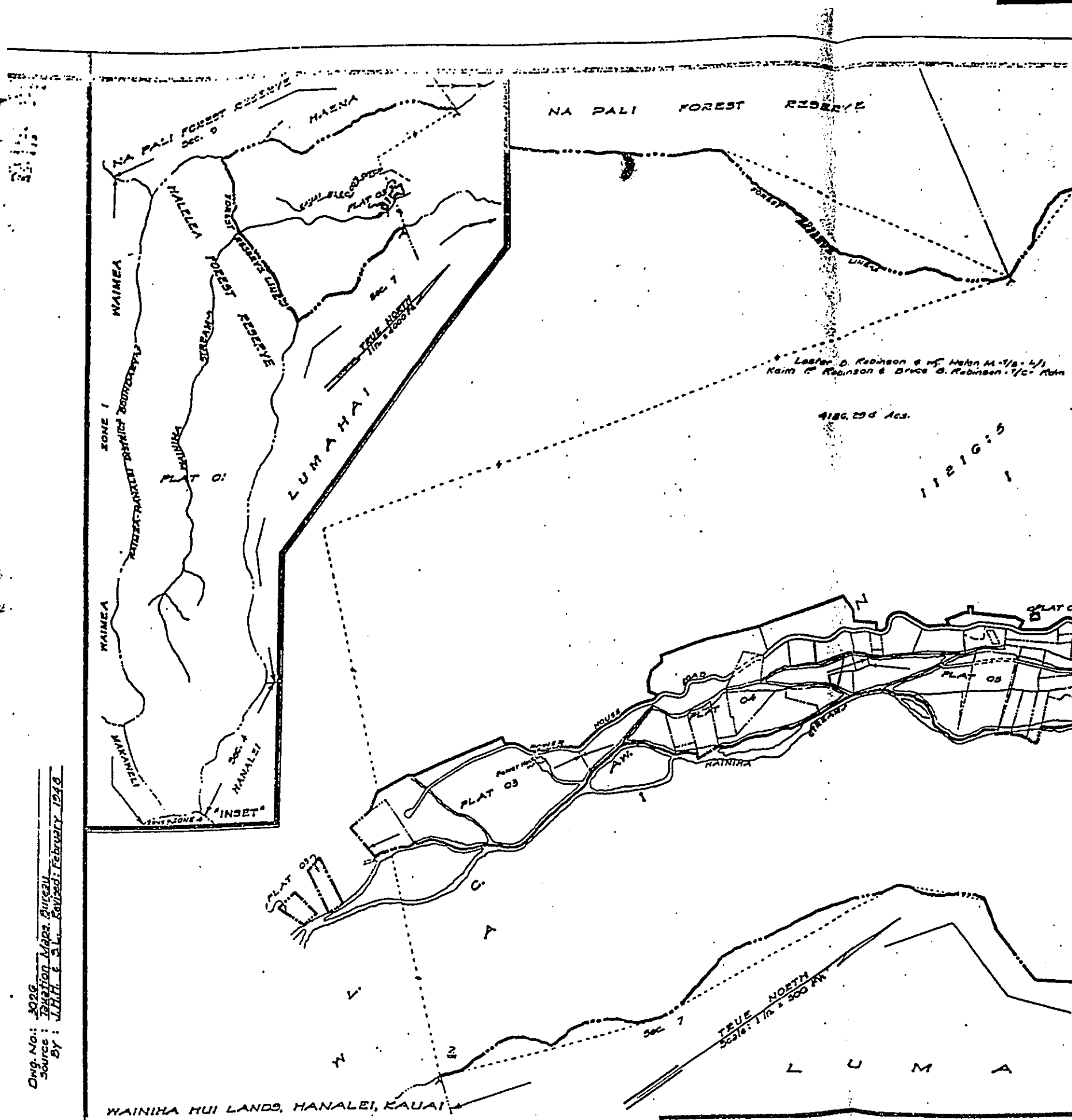
LCAs in the Project Area

No individual Land Commission Awards or Kuleana were awarded specific to the project area, however it is part of a larger LCA of M. Kekauonohi, great granddaughter of Kekaulike, King of Maui and granddaughter of Kamehameha the Great (Fig. 4). The commission to Quiet Land Titles (commonly referred to as simply the Land Commission) was formed as a result of the Great Mahele in 1848 which revolutionized Hawai'i's land system and for the first time allowed private ownership of parcels. Hawaiian farmers could initiate a claim for lands they cultivated and lived on, and after proving their tenancy through third-party testimonies before the Land Commission, and paying surveying and processing fees, they would be granted title to the land. These parcels were known as *kuleana*.

A study of all the claims and their supporting testimony for Wainiha shows a typically well-developed land system in place. Many of the names of *'ili*, *'ili kūpono*, *kō'ele*, *mo'o*, as well as man-made and natural geological features are mentioned. A complete list of place names culled from these documents are presented as Appendix A.

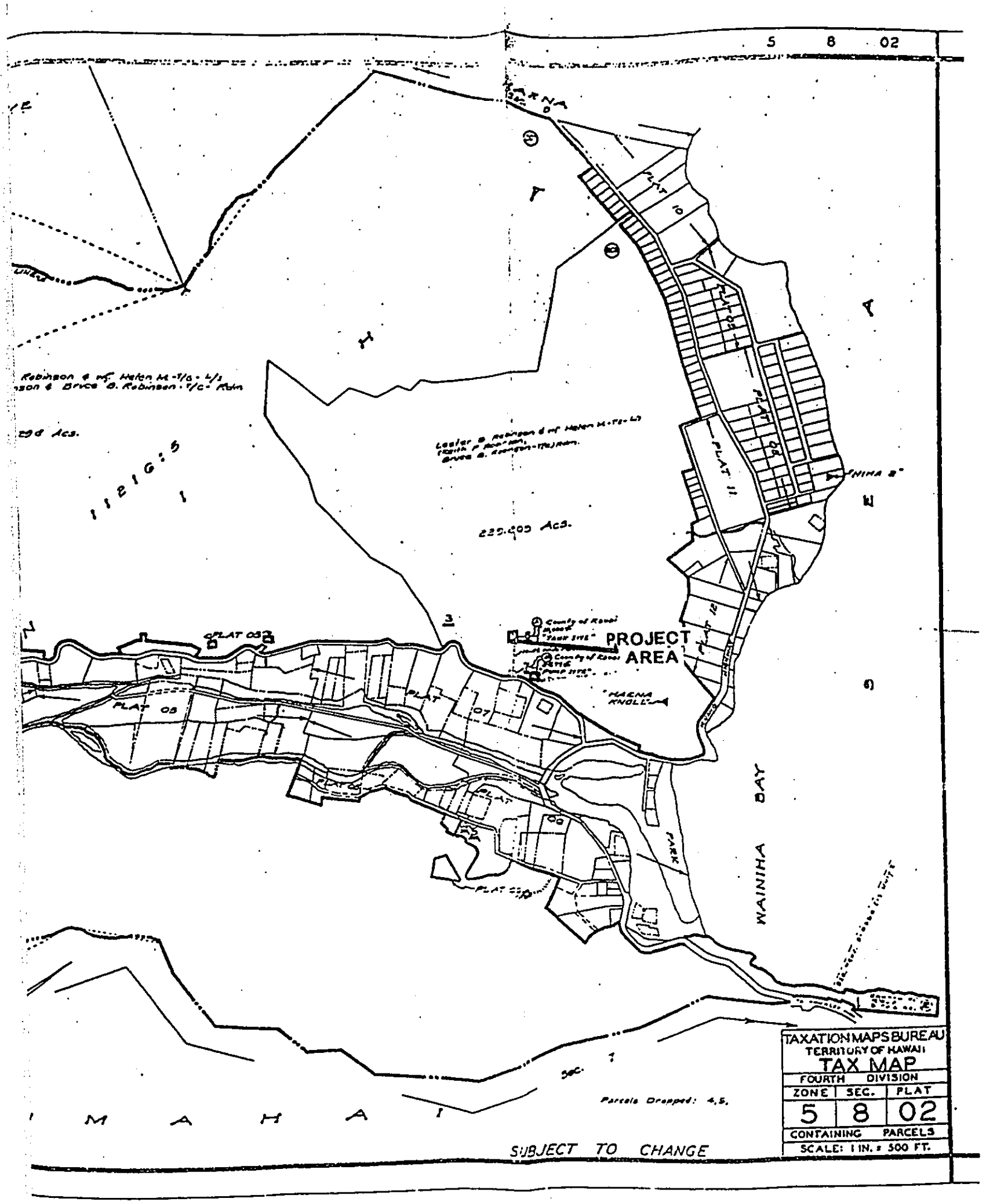
Rice Cultivation

The cultivation of rice came to Wainiha like many other *kalo*-growing areas in Hawai'i, during the late 1800s. Immigrant Chinese rice growers took over former *lo'i*



Orig. No.: 3026
Source: Taxation Maps, Bureau
By: J.H.H. & S.L. Revised: February 1948

Fig. 4 TMK Map Showing Project Area in Wainiha, 5-8-02.


5 8 02
PROJECT AREA
WAINIHA BAY
PLAT 10
PLAT 11
PLAT 05
PLAT 07
PLAT 06
PLAT 12
PARK
HARNA KNOLL
Parcels Dropped: 4,5.
SUBJECT TO CHANGE
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP
FOURTH DIVISION
ZONE SEC. PLAT
5 8 02
CONTAINING PARCELS
SCALE: 1 IN. = 500 FT.

devoted to *kalo* and founded a major cash crop industry catering to Hawai'i's growing Asian population.

By the early 1900s Wainiha had its own Chinese community which included not only the rice farmers, but also merchants and other business people (*The Garden Island*, 1/12/15).

The rice industry eventually went into decline due to disease, pests, and competition from outside of Hawai'i, and rice lands reverted back to *kalo*. Rice cultivation probably served the unintended purpose of keeping the ancient irrigation systems and *lo'i* operational throughout this period. In the 1930s Handy (1940:73) reported both crops being grown simultaneously in Wainiha with actually recent shoreline more land seemingly devoted to *kalo* than rice. The valley even had its own commercial *poi* mill at the time.

The cultivation of *kalo* remains till this day, the biggest active agricultural activity in the still rural Wainiha Valley.

The Wainiha Hui

No history of the valley would be complete without at least a mention of the Wainiha Hui. A detailed and sometimes colorful account of the *hui*'s origins and dealings is given by Lydgate (1913) and continued by Thrum (1924). The story gives an understanding of the changing socio-economic aspects of land ownership in Wainiha following the Great Mahele and entering into the 20th century. What follows is a greatly abbreviated version.

Sometime after the Mahele, Kekau'onohi[1], a chief, held the *konohiki* lands of Wainiha, those being all of the remaining lands in the valley not awarded to the tenant farmers as *kuleana*.

Seeking a quick profit on a sandalwood deal, Kekau'onohi convinced Aldrich & Co. of Honolulu to back his venture to the amount of $10,000. He purchased a schooner, the *Manuokawai*, hired a captain and crew, filled the ship with sandalwood and sent it off to the far east. Whether the ship was wrecked at sea or as Lydgate implies, was stolen by the captain who had less than a pristine reputation, she was never seen in Hawai'i again and the chief lost everything in the uninsured venture.

Able to raise $1,000 on his own, Kekau'onohi still needed $9,000 to pay off Aldrich & Co. His plan was to sell his land at Wainiha to the *kuleana* owners there.

The chief arranged a meeting with the valley residents and amidst promises of the prestige and power that came with being the owners of a large tract of land, tried to convince them to make the purchase. He thought that if 90 residents could put up $100 each, his problems would be solved.

---

[1] According to Kamakau (1961), Keahikuni Kekau'onohi was a high-status chiefess from Maui, granddaughter of Kamehameha the Great and wife of (among others) Keli'iahonui, the son of Kaumuali'i. She was appointed governor of Kaua'i in 1842. The chief in Lydgate's story is referred to as a male and is probably a descendant of Keahikuni Kekau'onohi and heir to her lands.

The residents agreed to the plan but most of them were still basically subsistence farmers and did not have the cash on hand to close the deal. Kekau'onohi gave them one year to raise the capital.

By the time the year was up, 71 people of Wainiha had convinced Princeville Plantation of Hanalei to underwrite their venture at $100 each with the residents signing notes for the future delivery of agricultural goods, services and labor to the plantation. This only amounted to $7,100 but Kekau'onohi persuaded his creditor to let the residents assume the rest of the debt with interest, of course (Lydgate, 1913).

And so it was in 1877 that the Hui Kū'ai 'Āina O Wainiha, the "group to purchase the land of Wainiha" was officially formed. The Wainiha Hui, as it was commonly called, now owned approximately 15,000 acres of the valley (*The Garden Island* 11/25/47).

A plan was instituted to give each shareholder 10 acres of arable land - 5 acres *mauka* and 5 acres *makai*. The land was never formally surveyed nor legally partitioned and disputes were settled by an executive committee. In the coming years the *hui* members, in debt and paying property taxes, found that being large landowners was not at all like what Kekau'onohi had promised. Shares in the *hui* had essentially become a liability.

Around the turn of the century, McBryde Sugar Co. was looking for a source of electrical power to run its irrigation pumps and mill operations at 'Ele'ele on the southwest side of the island. They proposed to build a hydro-electric power plant at Wainiha and pay the *hui* $1,500 a year for the water rights (Thrum, 1924:95-112). The Kauai Electric Co. was formed to construct and operate the power plant. They built a landing and warehouse on Wainiha Bay with a light rail system to carry materials up the valley, along with roads, trails, and laborers' camps, not to mention the plant itself and

the transmission line that traversed the island (Gartley, 1908:141-146).

The power plant was completed in 1908 and the revenue from the water rights lease finally afforded the paying of dividends to the shareholders of the *hui*. In 1911 the annual dividend was $10 per share (*The Garden Island* 9/12/11). In 1915 it was $15 (*Ibid.* 9/16/15). The *hui* also initiated other business activities such as the exporting of *'awa* from Wainiha (*Ibid.* 6/27/11).

While there were other similar groups formed on Kaua'i, most notably at Hā'ena and Moloa'a, the Hui Kū'ai 'Āina O Wainiha remained a singular success story.

The lands of Wainiha were finally partitioned and the *hui* dissolved in 1947 after legal action was initiated by McBryde Sugar Co. Each of the original 71 shares was then worth about $5,000. Through the years McBryde had bought up most of the shares and owned 48. The Robinson brothers, Aylmer and Sinclair, held 10 and 6⅓ shares respectively. Only the remaining few shares were still in the hands of the heirs of the original *hui* members (*Ibid.* 11/25/47).

III. PREVIOUS ARCHAEOLOGY

Bennett, 1931

Bennett in his systematic, but not exhaustive survey of archaeological sites on Kaua'i describes a number of sites in Wainiha as follows:

> Site 148. *heiau* on Popoki knoll. Popoki knoll is located next to the road (inland side) in front of Site 149 near the Wainiha river. It is said to have been a *heiau* site, but nothing remains to mark it.
>
> Site 149. Kaunupepeiao *heiau*, back of the first house on the first pali east of the mouth of the Wainiha river. A flat place about 30 feet wide and 20 feet deep with stones along the front edge meet the description given by Thrum: "A 12-foot open-paved *heiau* of husbandry class; probably simply a place of offering."
>
> Site 150. Laumaki *heiau*, on a knoll west of the "Power House" road~ about one mile from the government road, in Wainiha valley. Thrum describes this *heiau* as " A small, open platform, paved *heiau*, 2 feet high, of husbandry class." The platform measures 20 feet wide and 10 feet deep and faces the sea. It is paved with river stone.
>
> Site 151. Apaukalea *heiau*, adjoining the "Power House" road on the east side, inland from Site 150 in Wainiha valley.
>
> The remains of recent occupation together with modern stone platforms, walks, graves with tombstones. and other such work, make the distinction of this *heiau* difficult. The *heiau* consists of a small, square, paved area about 35 feet on a side. The east wall is 15 feet wide, and badly tumbled on the outside, though 3 feet high on the inside. The north wall is irregular, about 15 feet wide, and 2 feet high. A projection inwards forms a platform 10 by 15 feet. The west wall is just a trace of stone, but seems to have been 15 feet wide. The south wall is of varying width and runs from the road to the bluff, a distance of 130 feet. It is about 3 feet high. To the west of this enclosure is a flat space with two lines of stone traversing it, while on the east are two paved house sites about 10 feet square.
>
> Site 152. Taro terraces, about one mile above the Wainiha powerhouse on the intake trail.
>
> This interesting taro section is high on the side of the valley utilizing a little stream and a small flat area. The hill is on one side and the stream and a bluff on the other, leaving

a fairly steep section in between. At one place above the terraces stones are built across the stream as an intake, which could, with the addition of a few more stones, shunt the water into a ditch which runs between large rocks and dirt walls. All along the edge of the stream is a wall built to keep the water from running back. The terraces are from 6 inches to 3 feet high.

Site 153. House sites, on Mauna Hina ridge in Wainiha Valley. Remains of many old house sites and much irrigated land. The house sites are mostly of the terraced type and 10 to 15 feet wide (Bennett, 1931: 135, 136).

Bennett's listing shows 2 *heiau* near the mouth of Wainiha Stream (Sites 148-149) and two *heiau* slightly upstream (Fig. 5).

Of greatest interest are the two upriver sites (152-153) both of which contain taro *lo'i* and the upper of which contains house sites at Mauna Hina.

Clearly, the flat portions of the upper reaches of the valley were modified for terracing and associated habitation. The trail from Kōke'e across the Alaka'i Swamp and down Wainiha Valley could well have traversed one of the three ridges of Mauna Hina descending down the *pali* from Kilohana Ridge.

Earle, 1978

One of the classic archaeological/anthropological studies done in the Hawaiian Islands concerns irrigated taro cultivation systems in the Halale'a District and their implications for traditional social structure (Earle, 1978).

As one of the nine separate *ahupua'a* of the district, Earle documents irrigated taro systems in Wainiha and locates them on a map of the valley (Fig. 6).

He describes an abandoned system (Site KaD6-11) (System 13) as an island in Wainiha Stream which was abandoned in the 1950s. This system comprises approximately 3.7 hectares (Earle, 1978:96-100). Systems 11 and 12 are small up valley

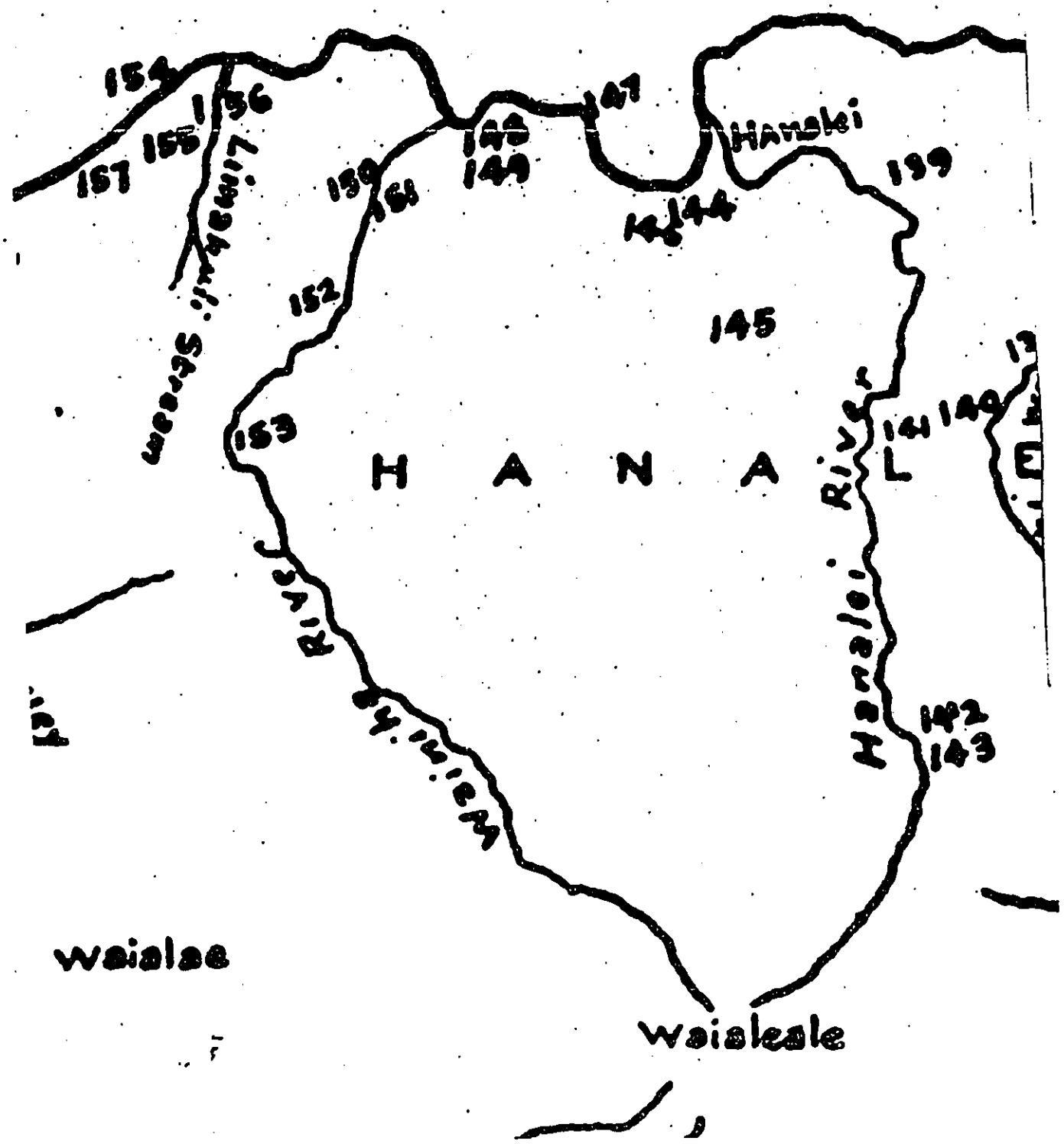


Fig. 5 Map Showing Bennett's Sites in Wainiha (Sites 148-153) (from Bennett, 1931:98)

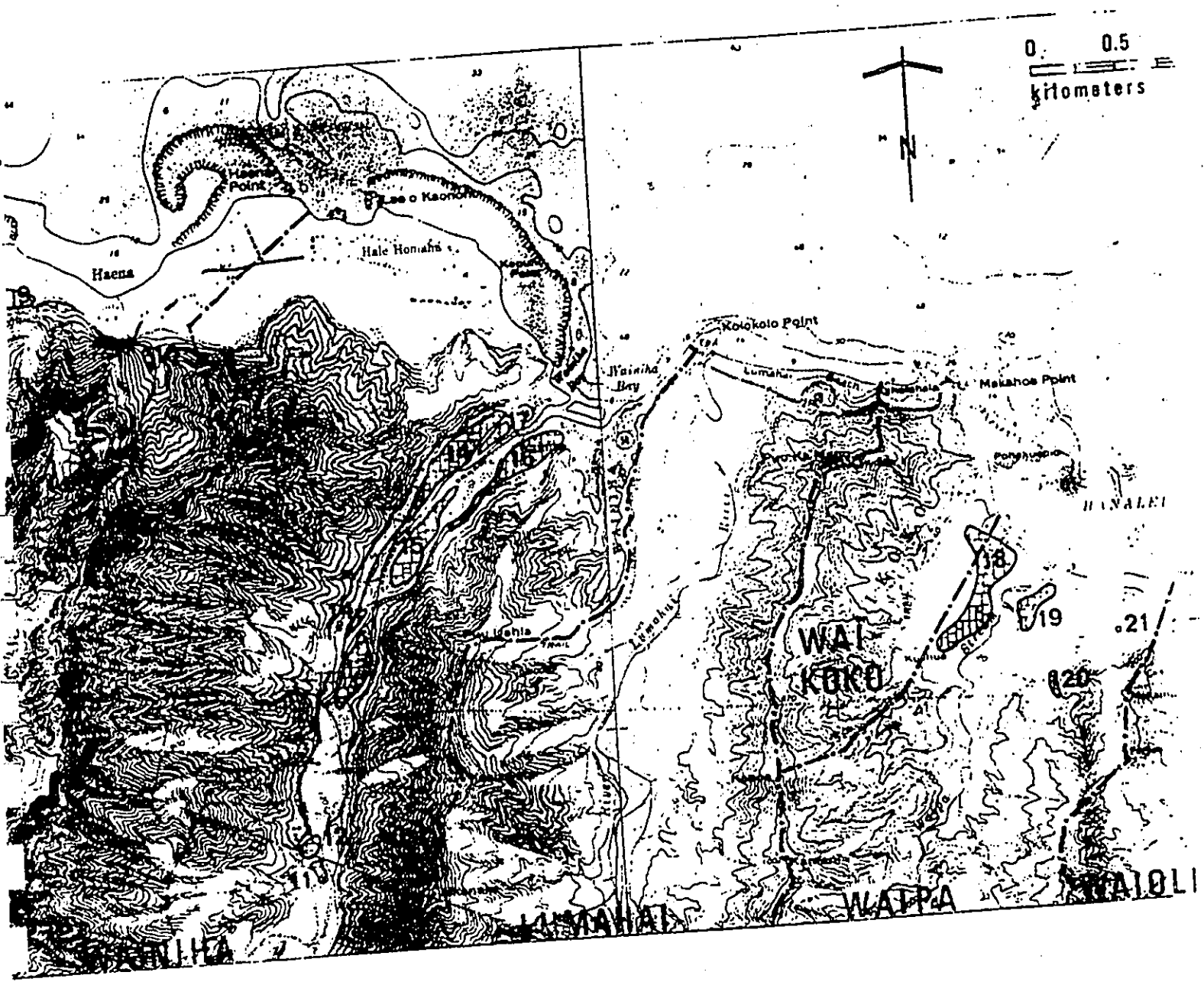


Fig. 6 USGS Map of Halale'a Showing Agricultural Systems in Wainiha Valley, From Earle 1978:196

systems fed by tributary streams.

Systems 14 and 15 are downstream alluvial flats and were in use in the 1970s when Earle did his fieldwork. All of these systems comprise a total of 15 hectares and over 100 separate *lo'i*. Generally, the field boundaries and terrace berms were of earthen construction with occasional stone reinforcement (Earle, 1978:56-66).

Earle observed that the lower portion of Wainiha Valley was extensively used for taro cultivation through the 1850s (presumably on the basis of Land Commission Awards) (Earle, 1978:32).

Many small systems existed in the interior of the valley and its tributaries but were apparently abandoned before the 1850s.

Barrera, 1982-1984

William Barrera of Chiniago, Inc. conducted three separate archaeological studies in conjunction with environmental study for a proposed hydroelectric power house and access road (Barrera, 1982; 1984a; 1984b).

The three separate studies consisted of reconnaissance survey, and mapping, followed by selective excavation.

During these various studies, Barrera located three archaeological sites: Site 1500 – an extensive irrigated agricultural system at elevation 770 feet above sea level in the main valley; Site 1501 – a basalt flake scatter located above Pawainui Falls; and Site 1502 – a charcoal concentration and pit in soil slopes near Site 1500. Site 1500 was mapped and described. Test pits showed varied stratigraphic units but unfortunately radiocarbon chronology was not obtained. Site 1500, in which Barrera identified both ponded and dry terraces was recommended for preservation and is now the most

upstream documented lo'i system in Wainiha with over 20 separate agricultural terraces. Presumably this system is the one that Earle refers to as having been abandoned before 1850. Judging by the photographs and written descriptions in Barrera's report much stone work was involved in the construction system. This characteristic contrasts to the lower valley systems which are mostly earthen. Differing alluvial environment may be a factor but changing construction techniques through time may also be involved along with modern modifications of the more recently used systems.

Ida, Hammatt and Duncan (1993)

The adjacent Lot (Lot 3) and its neighboring areas were surveyed on May 5, 1993 for the proposed construction of a GTE telecommunications hut (Ida, Hammatt and Duncan). There were no archaeology identified and the stratigraphy of the road cut alongside the property revealed no cultural material. At the time Lot 3 was surveyed, the adjacent lot (Lot 1) was also explored and no cultural or archaeological materials were found and a determination of no impact on Lot 3 was made.

Recent Shoreline Studies

Joseph Kennedy conducted an inventory survey for a house lot (TMK 5-8-09:24) along the western shoreline of Wainiha Bay. The excavation of 5 backhoe trenches in the approximately 1-acre property showed a widespread prehistoric cultural layer along the *makai* portion in beach sand deposits. The layer yielded fishing-related artifacts and radiocarbon dates of 1360±70 B.P. (from an octopus lure shell dates are known to be unreliable on the early side) and a date on charcoal of 140±50 B.P. (Kennedy, 1990). At a later date, during residence construction, a single human burial was discovered in the sand deposits.

More recently Robert Spears conducted an inventory survey for another house lot adjacent to the Kennedy project. Approximately 7,000 square feet of the property was subjected to backhoe testing with a single long backhoe trench and three short hand-dug trenches. A buried cultural deposit was located in all areas tested.

Various soil features, artifactual, and midden materials were located along with a single human burial. Intensive multi-functional shoreline occupation is indicated. A radiocarbon date was obtained on charcoal and is clearly in the prehistoric period A.D. 1270-1650 (Spear, 1992).

Research at Hāʻena

Hāʻena *ahupuaʻa* borders Wainiha to the west and because considerable archaeological research was conducted here which is of relevance to Wainiha for comparative purposes a summary of the Hāʻena work is included.

In their bibliography of Hawaiian archaeology, Spriggs and Tanaka (1988:300) list some eighteen archaeological studies specifically on the *ahupuaʻa* of Hāʻena but only one of these predates 1977 (Emory, 1929). Until the 1970s what few studies and travelers' accounts there were on the prehistory of Hāʻena were largely focused on the wet and dry caves and the "ruins at Keʻe." These later sites, including Kaʻuluʻa Paoa *heiau*, the immediately *mauka hula* platform and Lohiʻau's house have been much mentioned in travelers' accounts as they figure prominently in Hawaiʻi's greatest saga -- the Pele and Lohiʻau legend, also called the Hiʻiaka myth (Emerson, 1978).

Wendell Bennett (1931:136-138) conducted fieldwork on Kauaʻi in 1928 and 1929 but only recorded the above-mentioned three sites within the *ahupuaʻa* of Hāʻena proper.

In the early 1970s Timothy Earle conducted fieldwork on the drainages of Hāʻena for his doctoral dissertation (1973) which was revised as a monograph titled *Social and Economic Organization of a Complex Chiefdom: The Haleleʻa District, Kauaʻi, Hawaiʻi.*

This research focused in detail on irrigation systems, terraces and pond fields near Limahuli and Mānoa Streams at Hā'ena, but paid relatively little attention to coastal areas like Hā'ena Point whose coral sandy soils were less intensively utilized for agriculture. His work is still the best overview on the prehistory of Hā'ena and Halele'a District.

Subsurface archaeological investigations at Hā'ena really began with research for the Hā'ena State Park (Griffin et al., 1977; Hammatt et al., 1978) and continued with several related projects (Hammatt and Meeker, 1979; Riley, 1979; Yent, 1980).

These studies identified prehistoric cultural layers which appear to be discontinuous, but widespread along the backshore beach and dune deposits of coastal Hā'ena and Wainiha. These deposits extend from Ke'e Beach in the west at least to Wainiha Bay in the east, and have been reported in a number of short archaeological reports prepared in conjunction with conservation district use permits for single family residences.

The largest exposure of these beach front cultural layers occurs at Hā'ena State Park and stretches from Limahuli Stream to Ke'e Beach. The Hawaiian occupation and adjacent *mauka lo'i* which occur along virtually every stream in Halele'a were the subject of intensive studies from 1977 to 1979 (Griffin et al., 1977; Earle, 1978; Hammatt et al., 1978; and Hammatt and Meeker, 1979). The marine-oriented occupation at Ke'e Beach was dated to between 900 and 1,000 A.D. (Hammatt et al., 1978). Intensive development of irrigated agriculture dates to after 1200 A.D. (*Ibid.*, 1978).

Recent work at the Zimmerman Property (State Site #50-30-02-1089) at Hā'ena Point (Hammatt and Shideler, August 1989) dated an extensive prehistoric cultural layer to 1280-1410. This study noted that midden was generally less concentrated than at the

earlier Ke'e Beach sites; suggesting less intensive utilization of the area, but the midden contained a higher percentage of mammal and bird bone suggesting increased use of terrestrial resources in later Hā'ena occupations. The artifact assemblage in the Zimmerman excavations was sparse but the presence of an abundance of basalt waste flakes, eight polished adz flakes, and an adz tip reinforces the impression of a strong orientation toward terrestrial resources.

The cultural layers located in various properties at Hā'ena Point are almost certainly of comparable age to that of Ke'e Beach and represent the beach occupation component of those people exploiting the extensive *lo'i* in Mānoa Stream which have a large associated ceremonial terrace (Earle, 1978:93). Hā'ena is unique among the *ahupua'a* of the Halele'a District in being blessed with a long reef-fringed coastline and two permanent streams -- Limahuli to the west and Mānoa to the east. This richness in resources is reflected in an "archaeological richness, likely the greatest in the State" (Griffin et al., 1977:8). Hā'ena has been called "one big archaeological site" and has been suggested to "hold the key to understanding earliest Tahitian or Marquesan colonization in Hawai'i" (Kenneth Emory, 1977 quoted in *Ibid.* 1977:2).

Implications for Archaeology of Wainiha

Earle's 1978 study remains the primary source for wetland agriculture in Wainiha Valley supplemented by Barrera's mapping of one inland valley system. Clearly, Wainiha, because of its lengthy valley (one of the longest on Kaua'i) and plentiful water and level irrigated alluvial terrain was a preferred settlement center throughout pre-history. Reef resources are also plentiful and future studies along the sandy coastal plain will certainly document an almost continuous beach occupation with culturally rich organic layers as

well as human burials. Wainiha will prove to be every bit as rich archaeologically as Hā'ena as work continues but will also show its unique character derived from its deep valley environment.

IV. SURVEY RESULTS

The present survey found no midden, artifacts, or other definable evidence of culture on the surface of Lot 3, or the surrounding area. Examination of the cut banks also showed no evidence of cultural layers in this steep slope environment. The 1993 (Ida *et al.*) report contains a profile description of the cut bank of the old PowerHouse Road. This description also applies to the present project area and is typical of a ridge soil developed on decomposed heavily eroded lava. The profile description is continuous with little or no variation throughout the project area.

V. SUMMARY AND CONCLUSIONS

No archaeological deposits or materials were encountered during the 1993 archaeological surface survey of the adjacent or during the present 1995 survey. The project area is too steeply sloped for agricultural or habitation use.

Recommendations

Given the lack of surface and subsurface archaeological materials within the project area further archaeological research is not recommended. The subdivision of the conservation land on which the water tank stands, for acquisition by the County of Kauaʻi, will have no impact on archaeological resources. However should any cultural materials be encountered at some future time, during any land moving work related to the Water Tank property, all work in that immediate area should be stopped and the State Historic Sites Division should be notified.

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APPENDIX A: Place Names of Wainiha Valley

PLACE NAMES OF WAINIHA VALLEY

The following list of place names of the *ahupua'a* of Wainiha was compiled from the Native Claims and accompanying Foreign Testimony presented to the Commission to Quiet Land Titles in the mid-1800s. It includes names of land divisions, man-made and natural geological features, as well as general localities. Translating the names and locating these places would provide much useful information, not to mention a heightened awareness of the thought processes of the ancient Hawaiians. However, this would be a major research project in its own right and is left at this time for future study.

General Localities

Hopeokia	Kipapa	Paulehlu
Kaaluhee	Maunaloa	Poapinaa
Kalaopa	Naue	Polo
Kawaihae	Pahoa	

Creek or Brook

Aikahi	Kawaihae	Opunaha
Io	Kipapa	Paieie
Kaaluhee	Kululama	Papakaheka
Kamalaiaai	Laukalo	
Kapapa	Mene	

Pali

Apaukalea	Kaawakiki	Paieie
Io	Opunaha	

River

Wainiha

'Ili

Kaeleala	Kapohaku	Mai
Kaeleele	Kaumaia	Oiiai
Kaluanui	Kiilua	Puaaloliloli
Kaluapoo	Kiluaiki	

'Ili Kupono (Ku)

Kapaloa

Mo'o (Mo'o Kalo)
Kaaimaneo Kaakau Kaohia
Kailiili Kaulu

Ko'ele (Po'alima)
Kaohiaiki Kauhukikauela
Kaohianui Kuwalauala

Lo'i
Halilaukaa Kaulukea
Kapaeu Omolehulehu

Kula
Mahunoenoe

Loko
Kapauki

House Lot (Kahua Hale)
Apaukalea Mene
Kahopekia

APPENDIX B: Photographs

Fig. 7 Water Tank Site, View to South

Fig. 8 Water Tank Site, View to North