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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:TM

CDUA: KA-3607

Acceptance Date: September 16, 2011

180-Day Expiration Date: March 14, 2011

SUSPENSE DATE: 21 Days from stamped date

MEMORANDUM

SEP 26 2011

TO: Gary Hooser, Director
Office of Environmental Quality Control

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

A large, stylized handwritten signature in black ink, appearing to read "Samuel J. Lemmo".

SUBJECT: Draft Environmental Assessment (EA) for Conservation District Use Application (CDUA) KA-3607 for the Stanley Single Family Residence and After the Fact Culvert Located at Waioli, Hanalei, Kauai, TMKs: (4) 5-5-008:001 & 002

The Department of Land and Natural Resources has reviewed the draft EA for the subject project, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the October 8, 2011 issue of the Environmental Notice. We have enclosed ~~four~~ hard copy of the draft EA document and the OEQC publication form. An electronic copy of the publication form has also been submitted.

Should you wish to provide comments regarding this project, please respond by the suspense date noted above. If no response is received by the suspense date, we will assume there are no comments. Please contact Tiger Mills of our Office of Conservation and Coastal Lands staff at 587-0382 should you have any questions.

Enclosures

**OEQC Publication Form
The Environmental Notice**

Name of Project: Stanley Single-Family Residence And After the Fact Culvert Crossing in the Conservation District in Hanalei

Applicable Law: Chapter 343, HRS

Type of Document: Draft EA

Island: Kauai

District: Hanalei

TMK: (4th): 5-5-008:001 and 002

Permits Required: Conservation District Use Permit; Stream Channel Alteration Permit

Name of Applicant:

Address Jason Stanley
City, State, Zip 909 Chateau Ct.
Colleyville TX

Contact and Phone Greg Mooers: 808-880-1455

Approving Agency: Office of Coastal and Conservation Lands
Hawai'i State DLNR

Address P.O. Box 621
City, State, Zip Honolulu HI 96809
Contact and Phone Sam Lemmo: 808-587-0377

Consultant: Geometrician Associates

Address PO Box 396
City, State, Zip Hilo HI 96721
Contact and Phone Ron Terry 808-969-7090

Project Summary:

Jason Stanley proposes to build a single-family residence and related improvements on a 1.21-acre kuleana property in the State Land Use Conservation District in Hanalei Valley. The proposed residence is a simple rectangular pole house design totaling 2,544 square feet with a rooftop elevation of less than 24 feet above finished grade. Associated improvements include a cement track driveway, an Individual Wastewater System, a water tank for water supply, and landscaping consisting primarily of removal of non-native species and planting of native and Polynesian species. Access would be via a set of easements over various State and private properties from Kumu Road. A culverted crossing built about 20 years ago by a different party on adjacent State land requires a Conservation District Use Permit and an after the fact Stream Channel Alteration Permit to remain. Landscaping will consist primarily of native or Polynesian species of plants already found in the area.

This property does not contain any sensitive biological resources such as rare, threatened or endangered flora and fauna or native vegetation. The remnants of three archaeological sites would be protected by the landowner through a preservation plan. Impacts to stream resources can be avoided by best management practices that are proposed as conditions of the permit and which will be employed during construction.

DRAFT ENVIRONMENTAL ASSESSMENT

Stanley Single-Family Residence And After the Fact Culvert Crossing in the Conservation District in Hanalei

TMK: (4th): 5-5-008:001 and 002
Wai‘oli, Hanalei District, Island of Kaua‘i, State of Hawai‘i

August 2011

Prepared for:
State of Hawai‘i
Department of Land and Natural Resources
P.O. Box 621
Honolulu HI 96809

DRAFT ENVIRONMENTAL ASSESSMENT

Stanley Single-Family Residence And After the Fact Culvert Crossing in the Conservation District in Hanalei

TMK (4th): 5-5-008:001 and 002
Hanalei, Island of Kaua'i
State of Hawai'i

APPLICANT:

Jason Stanley
909 Chateau Ct.
Colleyville TX 76034

APPROVING AGENCY:

Hawai'i State Department of Land and Natural Resources
P.O. Box 621
Honolulu HI 96809

CONSULTANT:

Geometrician Associates LLC
PO Box 396
Hilo HI 96721

CLASS OF ACTION:

Use of Land in the Conservation District
Use of State Land

This document is prepared pursuant to:

The Hawai'i Environmental Policy Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules (HAR).

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SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Jason Stanley proposes to build a single-family residence and related improvements on a 1.21-acre *kuleana* property in the State Land Use Conservation District in Hanalei Valley. The proposed residence is a simple rectangular pole house design totaling 2,544 square feet with a rooftop elevation of less than 24 feet above finished grade. Associated improvements include a cement track driveway, an Individual Wastewater System, a water tank for water supply, and landscaping consisting primarily of removal of non-native species and planting of native and Polynesian species. Access would be via a set of easements over various State and private properties from Kumu Road. A culverted crossing built about 20 years ago by a different party on adjacent State land requires a Conservation District Use Permit and an after the fact Stream Channel Alteration Permit to remain. Landscaping will consist primarily of native or Polynesian species of plants already found in the area.

This property does not contain any sensitive biological resources such as rare, threatened or endangered flora and fauna or native vegetation. The remnants of three archaeological sites would be protected by the landowner through a preservation plan. Impacts to stream resources can be avoided by best management practices that are proposed as conditions of the permit and which will be employed during construction.

PART 1: PROJECT LOCATION, DESCRIPTION, AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description, Location and Property Ownership

The applicants, Jason and Teresa Stanley, propose to build a single-family residence and related improvements on a 1.21-acre *kuleana* property identified as TMK (4th): 5-5-008:001 in the Resource subzone of the State Land Use Conservation District in Hanalei Valley (Figures 1-3). The proposed residence is a simple rectangular design totaling 2,544 square feet with a rooftop elevation of less than 24 feet above finished grade (Figure 4). The pole house design minimizes grading. Associated improvements include a cement track driveway, an Individual Wastewater System that would meet with the requirements of the Department of Health, a water tank for water supply, a roof-mounted photovoltaic solar system with a generator backup, a roof-mounted solar hot water system, and landscaping consisting primarily of removal of non-native species and planting of native and Polynesian species already found in the area. Access would be via a set of legal easements over various State and private properties from Kumu Road. A culverted crossing built about 20 years ago on an easement on adjacent State land by a different party requires a Conservation District Use Permit and an after the fact Stream Channel Alteration Permit to remain (SCAP) (see Figure 1c). If the SCAP is not granted, Mr. Stanley will construct a low-railed, single-span bridge in the easement.

An environmental assessment is required for the action because it involves uses within the State Land Use Conservation District. A Conservation District Use Permit issued by the State Board of Land and Natural Resources is also required for the project.

1.2 Environmental Assessment Process

This Environmental Assessment (EA) process is being conducted in accordance with Chapter 343 of the Hawai‘i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai‘i Administrative Rules (HAR), is the basis for the environmental impact assessment process in the State of Hawai‘i. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. Part 4 of this document states the finding (anticipated in the Draft EA) that no significant impacts are expected to occur; Part 5 lists each criterion and presents the findings by the Department of Land and Natural Resources (DLNR), the approving agency. In the EA process, if the approving agency determines after considering comments to the Draft EA that no significant impacts would likely occur, then the agency issues a Finding of No Significant Impact (FONSI), and the action is permitted to occur. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) is prepared.

Figure 1a
General Location Map

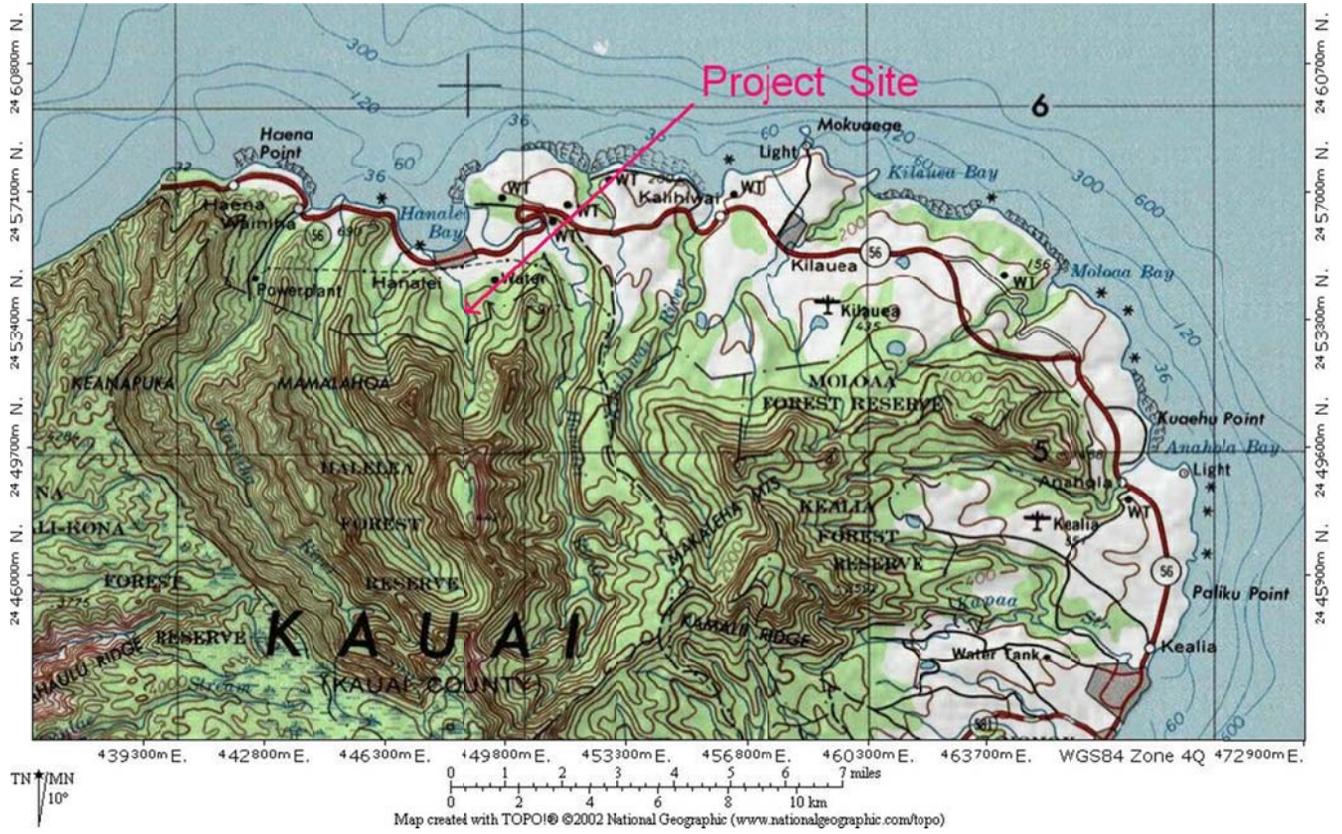


Figure 1b USGS Map

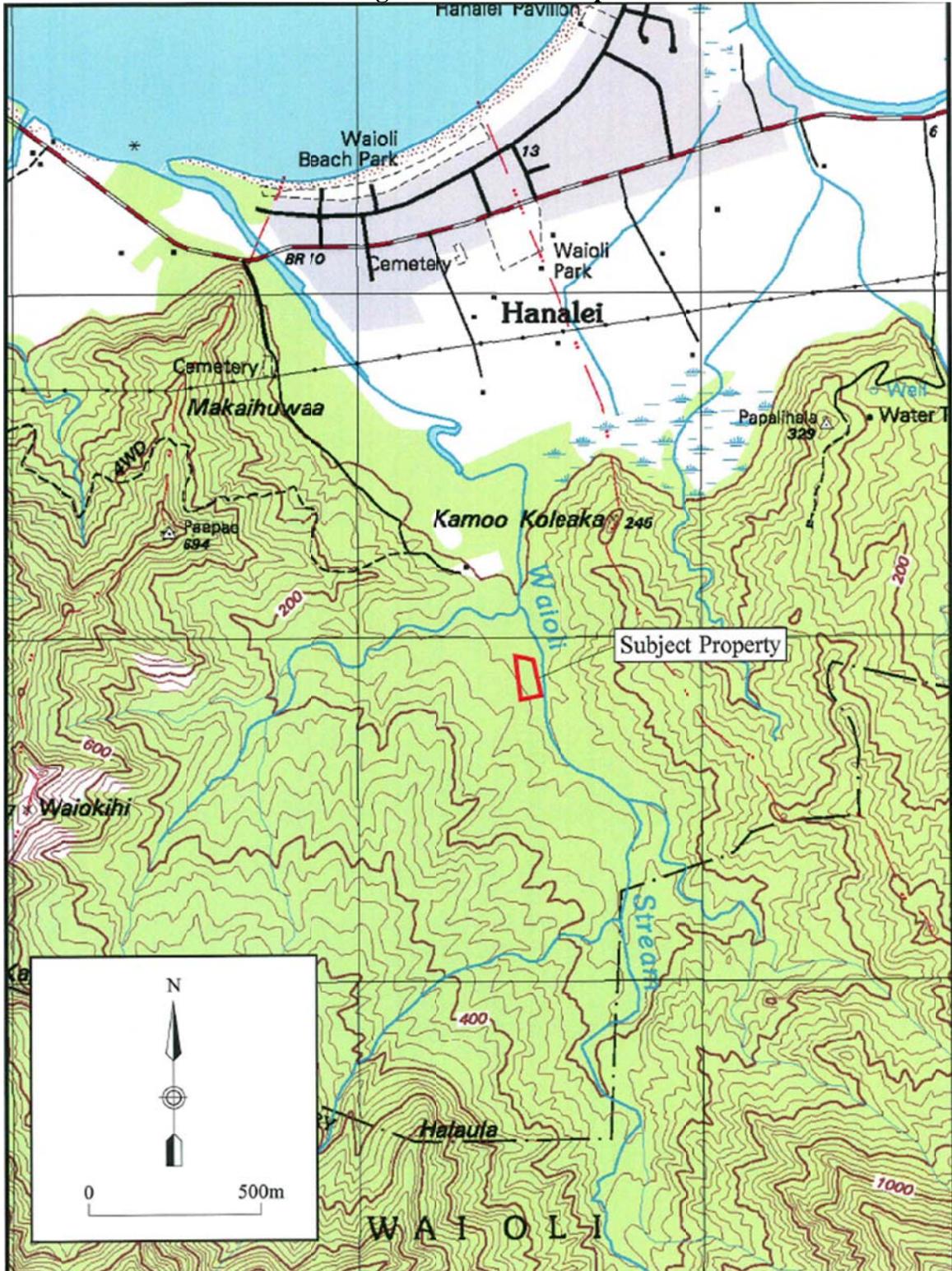


Figure 3 Project Site Photos



Top: View of lot; Middle: Wai'oli Stream to east of lot; Bottom: Culverted crossing of pond

Figure 4a Lot Site Plan

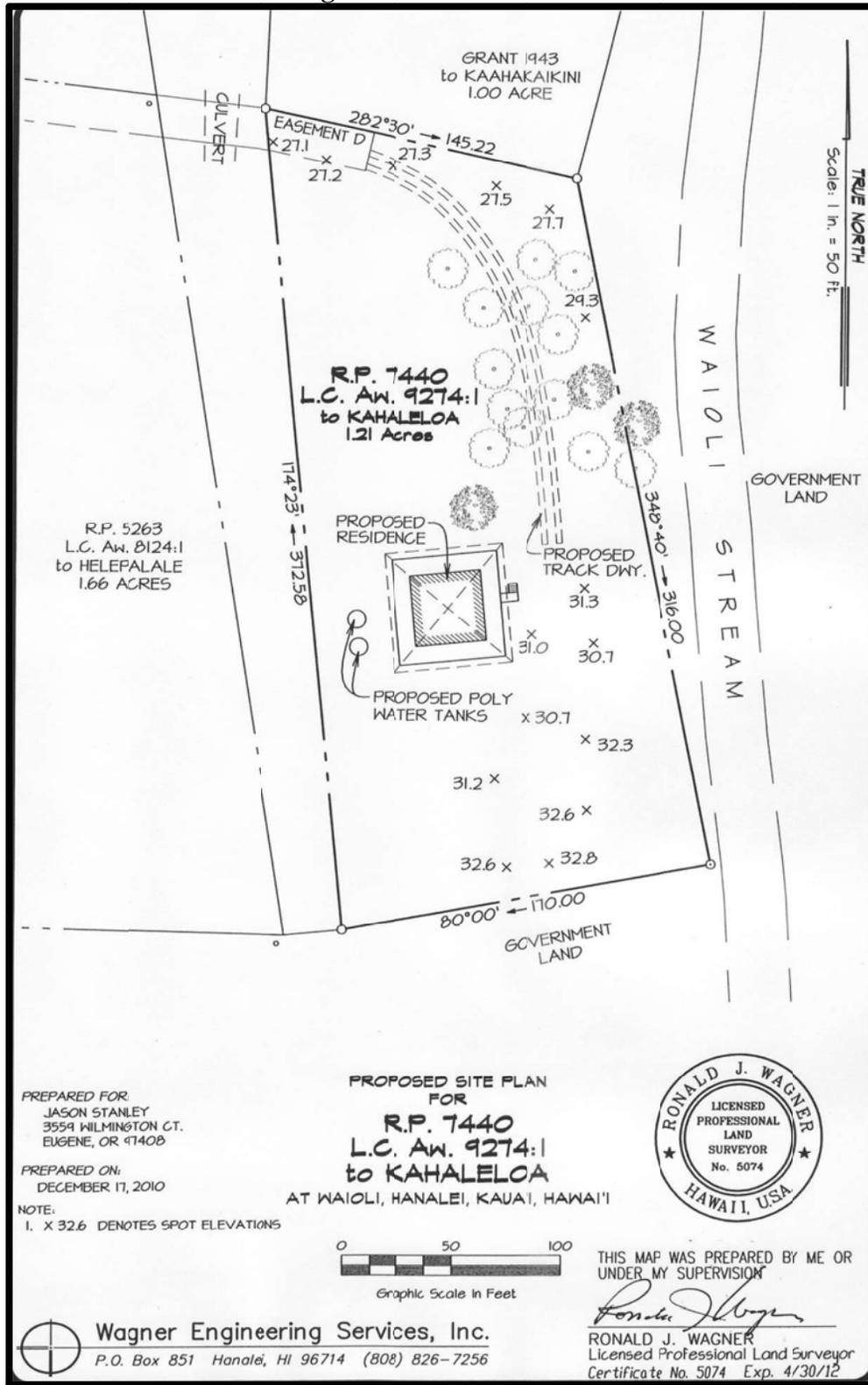


Figure 4b House Design, Plan View

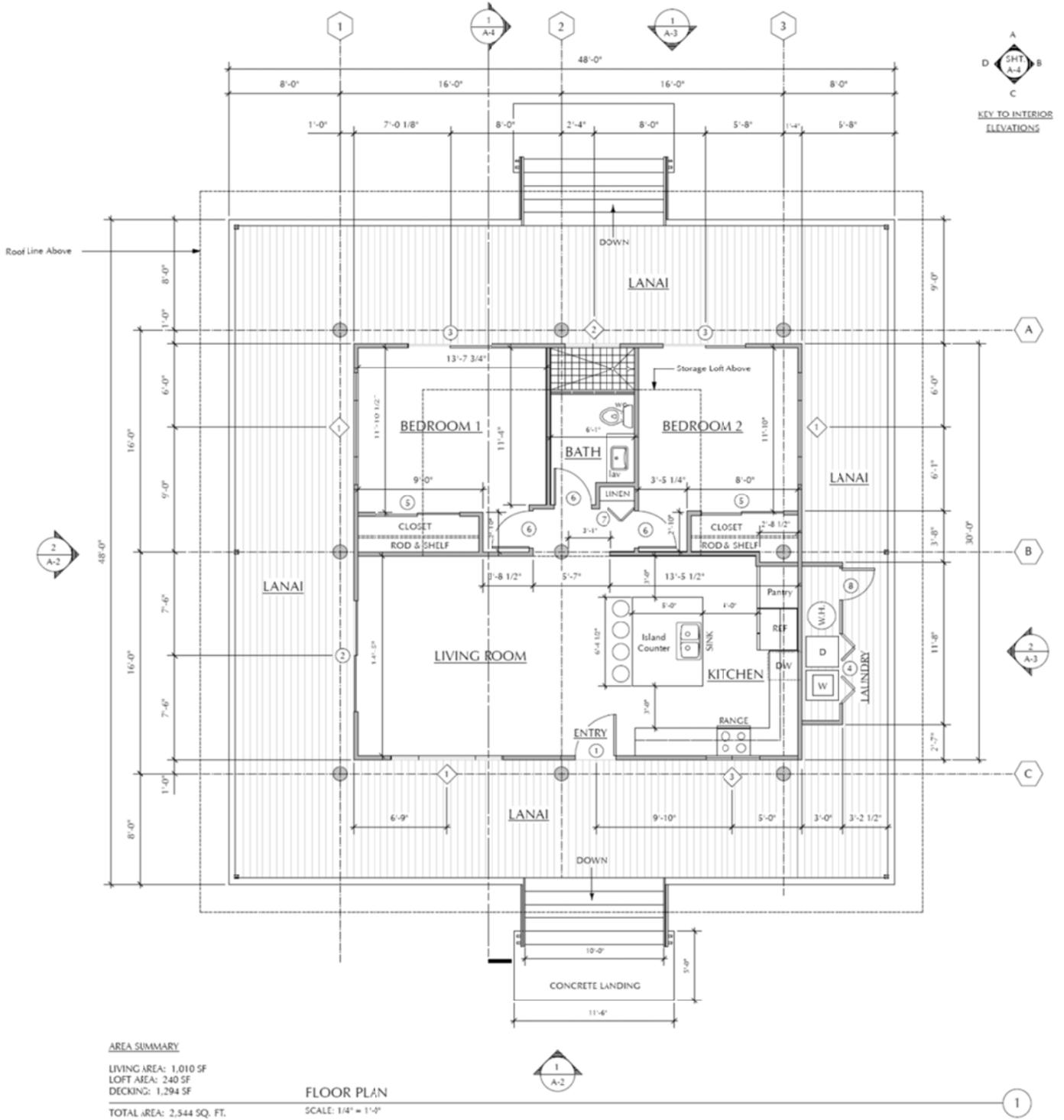


Figure 4c House Design, Front Elevation

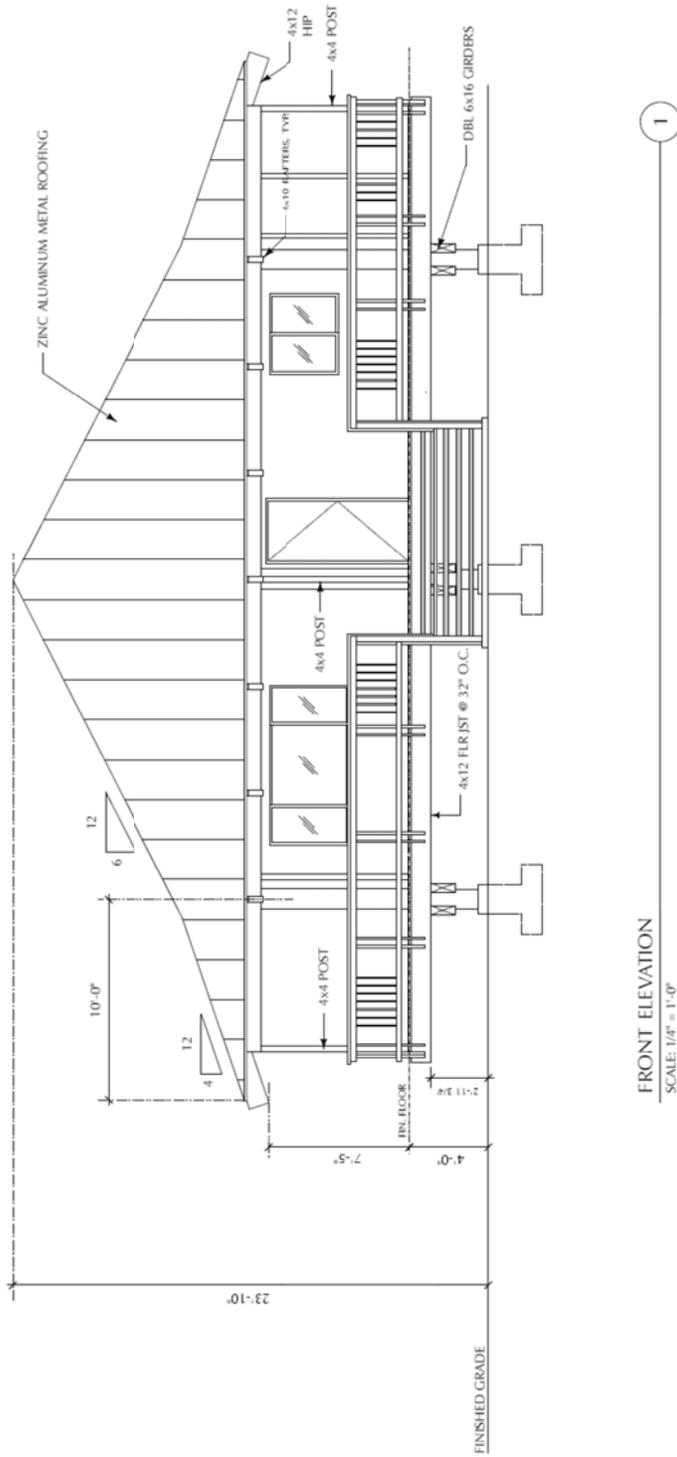
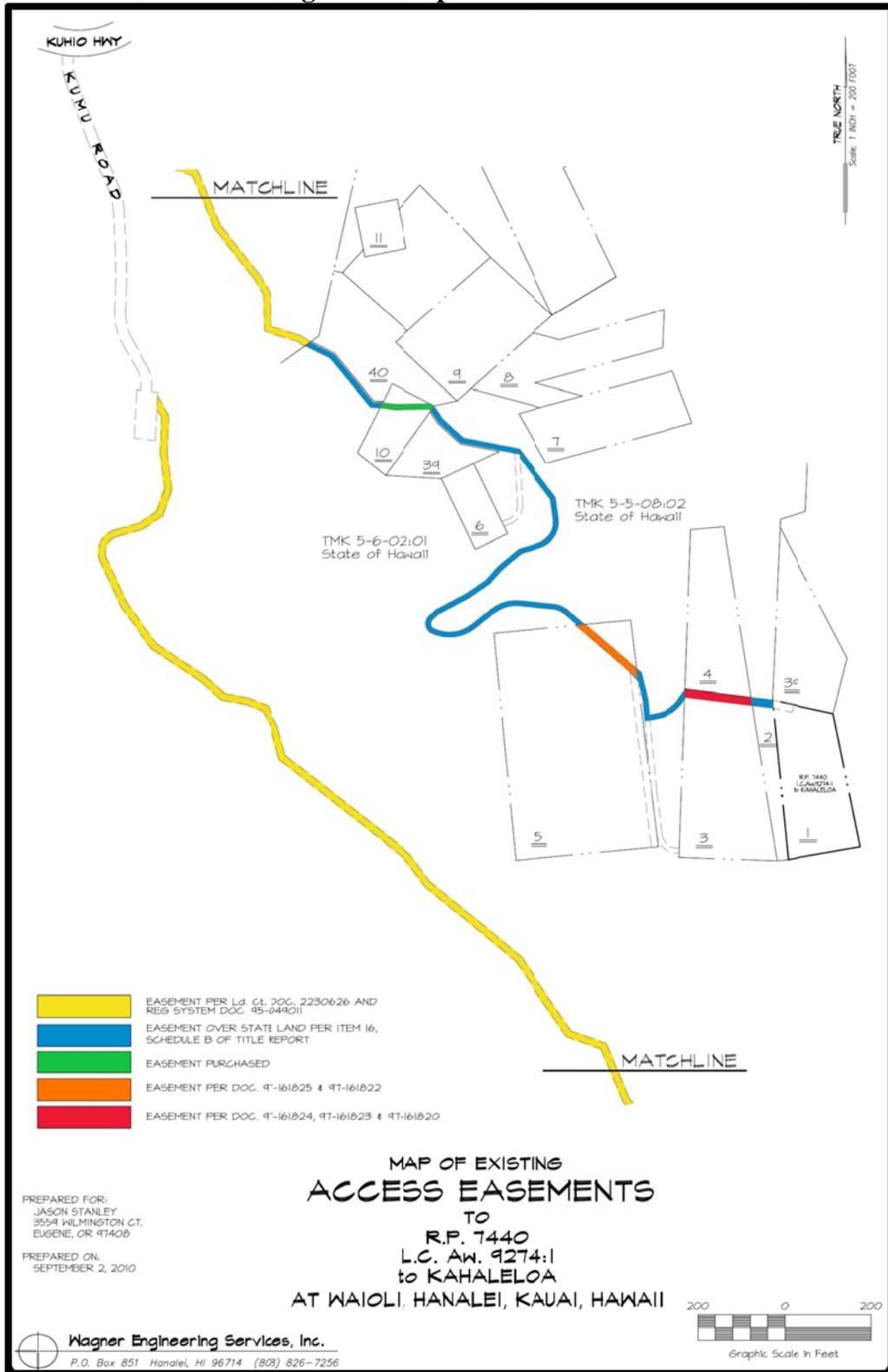


Figure 5 Map of Easements



1.3 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the environmental assessment:

State:

Department of Land and Natural Resources:
Commission on Water Resources Management
Office of Conservation and Coastal Lands

County:

Planning Department
Department of Public Works
County Council
Police Department

Private:

Hanalei-Ha'ena Community Association
Kaua'i Chamber of Commerce
Sierra Club, Kaua'i Group
Glen Kobayashi

Copies of communications received during early consultation are contained in Appendix 1a.

PART 2: ALTERNATIVES

2.1 Proposed Action

The action under consideration is development of a single-family residence and related improvements in a State Land Use Conservation District in Hanalei Valley, which will be called the *proposed action* or *project* in this document.

2.2 No Action

Under the No Action Alternative, the approval for a single-family home in the State Land Use Conservation District would not occur and the applicant would need to seek an alternate property. Such an arrangement would be an inconvenience and expense to the applicant, as he does not own or have authorization to build on any other property, and would provide no known benefit to any public or private party. The applicant considers the No Action Alternative undesirable and inequitable.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The property being developed is referred to throughout this EA as the *project site* or *the subject property*. The term *project area* is used to describe the general environs of Hanalei on Kauaʻi.

The project site is a 1.21-acre parcel located at an elevation of about 30 feet above sea level adjacent to the Waiʻoli Stream in Hanalei Valley, Kauaʻi. Adjacent land is primarily undeveloped, although there are several residences within about half a mile, and there is also agricultural use in the area. The vegetation of the project area has been previously disturbed by agricultural and residential (*kuleana*) activities but since become heavily overgrown.

3.1 Physical Environment

3.1.1 Climate, Geology, Soils and Geologic Hazards

Environmental Setting

The climate in the area is mild and moist, with an annual rainfall averaging about 100-120 inches (U.H. Hilo-Geography 1998:57). The average daily temperature is approximately 75 degrees F, with an average daily minimum of 62 degrees. Destructive hurricanes hit the island of Kauai in 1982 and 1992.

Geologically, the project site is located in a river valley on the flanks of the extinct Waialeale Volcano and the surface consists of lava from the Napali Formation of the Waimea Canyon Volcanic Series (MacDonald 1983). The project site soil is classified by the U.S. Natural Resources Conservation Service (formerly Soil Conservation Service) as Kolokolo extremely stony clay loam (KUL), which is typically found up to 80 inches deep. The well-drained, alluvium soil has a Capability subclass of VIIs, which is often considered unsuitable for cultivation but may have small areas in coffee, macadamia nuts, and other crops (U.S. Soil Conservation Service 1973).

In terms of seismic risk, the entire island of Kauaʻi is rated Zone 1 Seismic Hazard (Uniform Building Code, Appendix Chapter 25, Section 2518). Zone 1 areas are at low risk from major earthquake damage. The project site is in a flat area not adjacent to slopes and does not appear to be at risk from mass wasting.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the area, and the proposed residence would not be imprudent to construct or occupy for geologic reasons. The owner is aware of the hurricane risk and the single-family home would be built to modern building code standards.

3.1.2 Drainage, Water Features and Water Quality

Existing Environment

On the east side of the property is Wai‘oli Stream (Figure 3b). The stream originates from a series of steep tributaries at nearly 4,000 feet in elevation draining the north slope of the mountains behind the town of Hanalei. It ends in an estuary at the west end of Hanalei Bay. The *Hawai‘i Stream Assessment* (Hawai‘i State CWRM 1990) states that during 20 years of stream gaging in the early 20th century, the median flow was 20 cubic feet per second (cfs), with an average of 31.6 cfs. Wai‘oli is a candidate stream for protection for its existing and potential recreational resources, including hiking, fishing, hunting, boating, swimming and scenic views. It also contains some archaeological sites and supports taro farming in its lower sections.

On the west side of the property on TMK 5-8-008:002 (State property) is a small linear pond (Figure 3c). Without detailed topography, survey and soil cores, it is difficult to ascertain the exact origin of the pond. However, based on its general position on the landscape, its elevation, and its uniform width and depth exceeding 10 feet, it very likely represents a former channel of Wai‘oli Stream, possibly one from hundreds of years ago. Wai‘oli Stream lies about 180 feet to the east. A field investigation in May 2011 determined that pond elevation is about two feet higher than the stream in typical transects across the regional slope. That would indicate downcutting along a steeper gradient, typical of when a stream finds a shorter way downhill and abandons an old channel.

On the upstream side, the pond ends abruptly on a low bank down which a trickle of water is always flowing. This water derives from one of the many small springs that emerge in the soil at the base of a cliff that lies to the west of Wai‘oli Stream, a cliff that may have been carved by the same former channel. The spring originates only about a hundred feet mauka of the pond. Following from the pond and spring back *mauka* to Wai‘oli Stream there is no evidence of any kind of stream channel. The field investigation took place a few days after Hanalei Valley had experienced a week of extremely heavy rain, and yet there was no evidence of whatsoever of overflow of Wai‘oli Stream toward the pond. It is clear that no water body currently connects Wai‘oli Stream and the pond in an upstream direction.

On the downstream side, the pond continues for 360 feet past the culvert and then terminates in a *hau* swamp at a confluence with a tributary of Wai‘oli Stream. At the time of the May 2011 survey the tributary stream was flowing fast because of the previous week’s heavy rain. At the confluence of this tributary and the pond, a very small portion of the tributary’s flow was directed back into the pond, and there was no flow from the pond into the stream. There is no indication of rapid flow or downcutting.

In summary, the pond appears to be a partially filled-in former channel of Wai‘oli Stream that has the characteristics of a slough or backwater channel. It receives some flow from overland runoff and some from the trickling spring. The ponds flow makes its way, usually very slowly, towards the tributary to Wai‘oli Stream. If flow in the tributary is high enough, the pond serves as a backwater rather than a minor tributary.. The pond does not appear to have the flow characteristics of fresh, clear water that can support habitat for most native aquatic organisms aside from, perhaps, certain insects. Bullfrogs are abundant and there may also be various non-native fish.

The former owner of the Stanley property allegedly filled in a portion of a pond in about 1991 to provide a culverted crossing to access the project site, without any authorization or permits. The culvert is a 30-inch corrugated metal pipe with earth on both sides. It is important to note that Mr. Stanley purchased the property in 2007 and did not conduct the unauthorized activity, which occurred on State land outside his property boundaries.

The Flood Insurance Rate Map (FIRM) FM1500020035E (9/16/05) shows that the project site is in Flood Zone X, outside the 100-year floodplain. No known areas of local (non-stream related) flooding are present (Figure 6). A Kaua'i North Shore resident and realtor familiar with the property visited the property during two large rainfall events in the spring of 2008 specifically to determine if the property flooded and observed no flooding (pers. comm. Amy Marvin April 14, 2008).

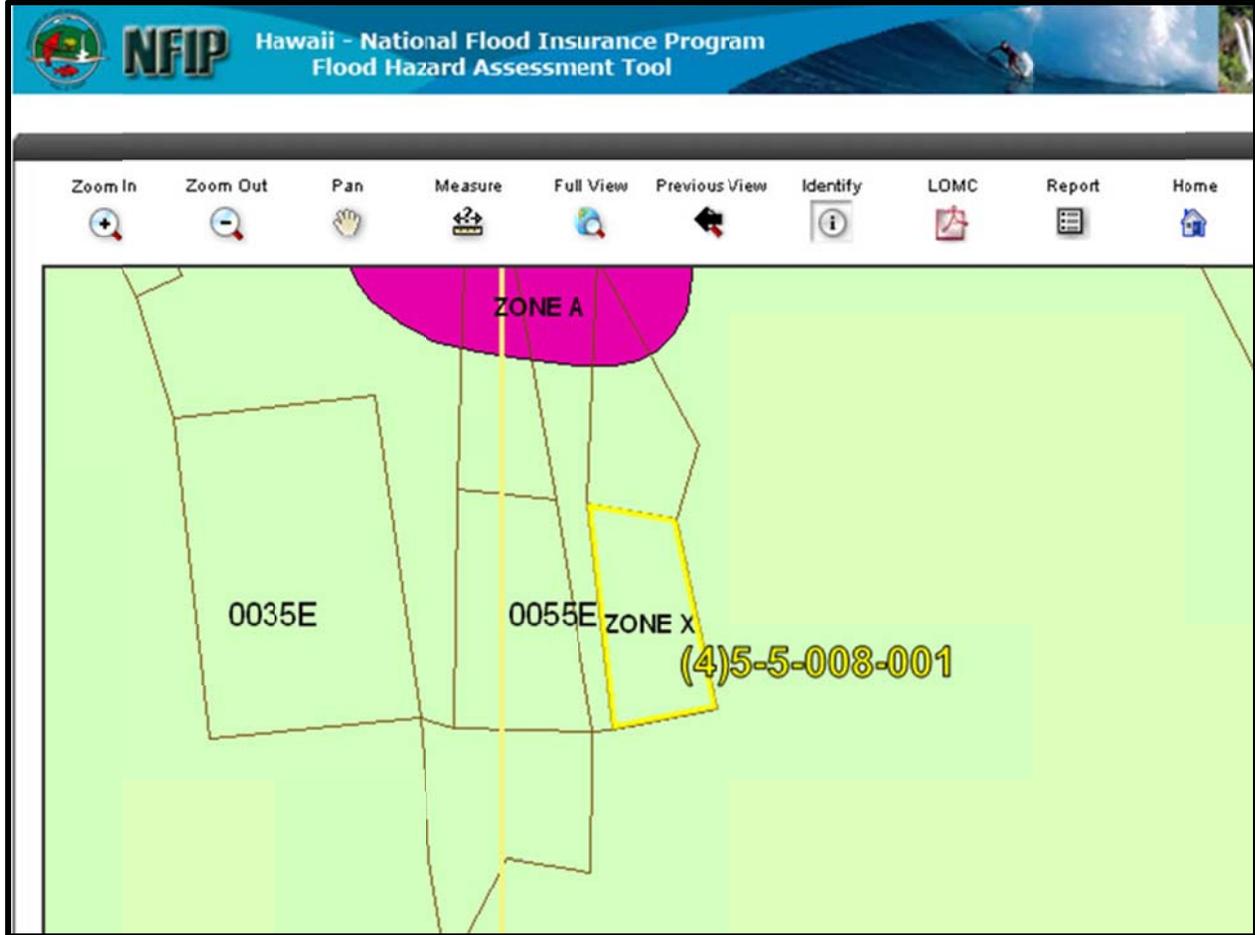
Impacts and Mitigation Measure

Additional risks for flooding or impacts to water quality associated with the proposed action are very minor, but in order to ensure that any impact is minimized, the contractor shall be required to perform all earthwork and grading in conformance with Ordinance 808 of the Kaua'i County Code, Sediment and Erosion Control. Although the project would not likely require a National Pollutant Discharge Elimination System (NPDES) permit because much less area than one acre would be disturbed, it is recommended that a Storm Water Pollution Prevention Plan (SWPPP) be prepared to properly manage storm water runoff. The SWPPP will describe the emplacement of a number of best management practices (BMPs) for the project, which will include measures to prevent sediment from entering Wai'oli Stream. These BMPs may include, but will not be limited to, the following:

- Minimization of soil loss and erosion by revegetation and stabilization of slopes and disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences, gravel bags, sediment ponds, check dams, and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Phasing of the project in order to disturb a minimum necessary area of soil at a particular time;
- Application of protective covers to soil and material stockpiles;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel; and
- Cleanup and proper disposal at an approved site of significant leaks/ spills, if they occur.

In response to an inquiry from the CWRM in March of 2011 regarding the potential need for a Stream Channel Alteration Permit (SCAP), CWRM was provided with information about this feature that would allow a determination of its status. CWRM responded in a telephone conversation on July 15, 2011, that although the pond did not appear to be an actively cutting feature, it qualified as a stream and that the culvert would require an after the fact SCAP.

Figure 6 Flood Zone Map



As plans for grading are finalized, quantities of earthwork will be calculated and the Kaua‘i County Department of Public Works (DPW) will be contacted to determine the need for Grading Permits or a Notice of Intent to prepare an NPDES permit.

3.1.3 Flora, Fauna and Ecosystems

A biological survey of the project area was conducted in November 2008 by biologists Patrick J. Hart, Ph.D., and Ron Terry, Ph.D. The results of the survey are presented below.

Flora

The area is dominated by alien plants that commonly persist or invade in moist lowlands near old households and farms, including bamboo, cat’s claw, rose apple, guava, white ginger, and mango. The only native plants observed were *hala* (*Pandanus tectorius*), a common indigenous tree of moist lowlands and coastal areas, and *hau* (*Hibiscus tiliaceus*), a sprawling tree of moist areas of uncertain provenance but considered indigenous by some biologists. No listed or proposed threatened or endangered plant species (USFWS 2011) were found on

the project site. In terms of conservation value, no botanical resources requiring special protection were present. Table 1 lists all plant species detected.

Table 1
Plant Species Identified on Project Site

Scientific Name	Family	Common Name	Life Form	Status*
<i>Caesalpinia decapetala</i>	Fabaceae	Cat's claw	Shrub	A
<i>Cecropia obtusifolia</i>	Cecropiaceae	Guarumo	Tree	A
<i>Christella dentata</i>	Thelypteridaceae	Downy wood fern	Fern	A
<i>Clidemia hirta</i>	Melastomataceae	Koster's curse	Shrub	A
<i>Coix lachryma-jobi</i>	Poaceae	Job's tears	Grass	A
<i>Cordyline fruticosa</i>	Agavaceae	Ki	Shrub	A
<i>Dissotis rotundifolia</i>	Melastomataceae	None	Shrub	A
<i>Hedychium coronarium</i>	Zingiberaceae	White ginger	Herb	A
<i>Hibiscus tiliaceus</i>	Malvaceae	Hau	Tree	I
<i>Mangifera indica</i>	Anacardiaceae	Mango	Tree	A
<i>Nephrolepis multiflora</i>	Nephrolepidaceae	Sword fern	Fern	A
<i>Oplismenus hirtellus</i>	Poaceae	Basket grass	Grass	A
<i>Pandanus tectorius</i>	Pandanaceae	Hala	Tree	I
<i>Phlebodium aureum</i>	Polypodiaceae	Phlebodium	Herb	A
<i>Phyllostachys nigra</i>	Poaceae	Bamboo	Grass	A
<i>Phymatosorus grossus</i>	Polypodiaceae	Maile-scented fern	Herb	A
<i>Psidium guajava</i>	Myrtaceae	Guava	Tree	A
<i>Schefflera actinophylla</i>	Araliaceae	Octopus tree	Tree	A
<i>Syzygium jambos</i>	Myrtaceae	Rose apple	Tree	A
<i>Triumfetta semitriloba</i>	Tiliaceae	Sacramento bur	Shrub	A
<i>Zingiber zerumbet</i>	Zingiberaceae	'Awapuhi ginger	Herb	A

A: Alien; I: Indigenous

Fauna

The mammalian fauna of the general project area is composed primarily of introduced species, including roof cats (*Felis catus*), dogs (*Canis f. familiaris*), rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*). None are of conservation concern and all are deleterious to native flora and fauna. As with all of Kaua'i, there may also be use of the project site by the State's only endemic mammal, the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), which is also listed as an endangered species. Hawaiian hoary bats are cryptic and little is known of their habits or habitat in Kaua'i, but they are regularly seen in the Hanalei area, notably foraging on insects attracted by the lights of a gas station on the highway in Princeville (R. David pers. comm. to R. Terry 2008).

The project area has limited habitat value for native birds and would be expected to be utilized mostly by introduced species. Table 2 provides a list of the birds observed, all alien, during two field visits.

Table 2
Bird Species Identified on Project Site

Scientific Name	Common Name	Status
<i>Acridotheres tristis</i>	Common Myna	Alien Resident
<i>Bubulcus ibis</i>	Cattle Egret	Alien Resident
<i>Copsychus malabaricus</i>	White-rumped Shama	Alien Resident
<i>Cardinalis cardinalis</i>	Northern Cardinal	Alien Resident
<i>Carpodacus mexicanus</i>	House Finch	Alien Resident
<i>Geopelia striata</i>	Zebra Dove	Alien Resident
<i>Lonchura punctulata</i>	Nutmeg Mannikin	Alien Resident
<i>Streptopelia chinensis</i>	Spotted Dove	Alien Resident
<i>Zosterops japonicus</i>	Japanese White-Eye	Alien Resident

No native forest birds would be expected to be found in the area due the lack of native forest habitat and the abundance of disease-carrying mosquitoes. Many shorebirds and waterbirds, some of which are federally listed threatened and endangered species, inhabit the Hanalei valley watershed. Two of these that might be expected to make occasional use of the fast flowing reaches of Wai'oli Stream or the pond fronting the project site include the endangered Hawaiian Duck (*Koia; Anas wyvilliana*) and the endangered Hawaiian Goose (*Nene; Nesochen sandvicensis*). Other waterbird species include the Black-Crowned Night Heron (*Auku'u; Nycticorax nycticorax hoactli*), the Wandering Tattler ('*Ulili; Heteroscelus incanus*), and possibly an occasional Pacific Golden Plover (*Kolea; Pluvialis fulva*).

Stream Fauna

A limited survey of the biological resources of the portion of Wai'oli Stream that fronts the project area was conducted through wading and snorkeling. Due possibly to the high stream flow on the survey day, no native stream fauna were observed. However, this portion of the stream is likely to contain populations of several native vertebrate and invertebrate stream fauna, including fish, snails, and insects.

According to prior surveys of Wai‘oli Stream listed in the Hawai‘i Stream Assessment (Hawai‘i State CWRM 1990), two species of endemic and indigenous Hawaiian gobies (*o‘opu*) are known to inhabit this stream, including the *o‘opu nopili* (*Sicyopterus stimpsoni*) and *o‘opu nakea* (*Awaous guamensis*). These *o‘opu* live their adult lives and lay their eggs in the streams, but upon hatching, the larvae drift out to sea where they develop as plankton for a number of months before returning to fresh water. They may be found far up Wai‘oli Stream because their sucker-like pectoral fins allow them to climb waterfalls. Two other gobies known from streams on the north shore of Kaua‘i, *o‘opu alamoo* (*Lentipes concolor*) and the *o‘opu naniha* (*Stenogobius hawaiiensis*), were not recorded in Wai‘oli in the *Hawai‘i Stream Assessment*, but may be present.

Newcomb’s snail (*Erinna newcombi*) is a federally listed threatened species of airbreathing fresh water snail that is endemic to Kaua‘i (USFWS 2004). It is found only in remote waterfalls, seeps, and springs of six streams on Kaua‘i, including Hanalei, and possibly the upper reaches of Wai‘oli Stream. Because of its highly specific habitat requirements, this snail would not be likely to be found near the project area. *Hihiwai* (*Neretina granosa*) is an endemic freshwater snail that is relatively common in Kaua‘i streams. Like *o‘opu*, these snails are diadromous, living in the ocean as freshly hatched larvae and returning to streams as juveniles. These snails were not recorded in the survey listed in the Hawai‘i Stream Assessment, and no *hihiwai* were detected in the portion of the stream fronting the project site during the brief 2008 survey.

Numerous endemic damselflies may be found in the Wai‘oli stream watershed. Only two native damselflies (*Megalagrion vagabundum* and *Megalagrion hawaiiense*) would likely be found at the low elevations of the project site. Both of these species are relatively common but neither was detected during the survey.

Impacts and Mitigation Measures

As context for biological impacts, the project site is in an area historically used for agriculture and residences and is dominated by introduced plant species. Clearing of vegetation for the single-family residence and associated facilities would not impact important native vegetation or threatened or endangered plant species. Construction or occupation of the residence would not be expected to harm native birds. No activities would occur near Wai‘oli Stream or affect its aquatic fauna in any way. The culvert structure through the pond, which does not appear to contain native organisms, has been in place for about twenty years and no adverse effects are apparent and none are expected from continuing to utilize it to access the property.

3.1.4 Air Quality, Noise and Scenic Resources

Environmental Setting

Air quality in the area is generally excellent, due to its rural nature and minimal degree of human activity.

Noise on the site is low, and is derived from natural sources (such as streams, birds and wind) as well as faint noise from human activities, mainly agriculture, on nearby properties.

The project site is situated within Hanalei Valley, which is world-renowned for its beauty. Kaua‘i County General Plan Heritage Resources maps document important natural, scenic and historic features, particularly in relation to the urban and agriculture lands which are developed or may be developed in the future. The maps show the project site as part of an area defined as an Important Land Form, in this case in the general area of a stream valley. The actual project site is almost completely hidden from view from any public vantage point, as it is low-lying and within an area of tall trees. In particular, the residence would not be visible from Kuhio Highway (SR 56) or any other public roadway or scenic lookout.

Impacts and Mitigation Measures

The project would not affect air quality or noise levels in any substantial ways. Brief and minor adverse effects would occur during construction. However, there are virtually no sensitive noise receptors in the vicinity, and given the small scale of the project, noise mitigation will likely not be necessary.

Due to obstructing vegetation and distance, the residence would not be visible from Kuhio Highway (SR 56) or any other public roadways or public vantage points. The Kaua‘i County General Plan notes: “Views of important mountains and other features should be safeguarded because of their cultural value, their value in residents’ quality of life, and their economic value to the visitor industry. As discussed herein, the intent is to preserve public views – i.e., views seen from a park, the beach, a road, or some other public place. The term does not include private views – i.e., views from one’s residence or other private property.”

In its isolated context, the single-family home and landscaping as planned (including a low-railed, single-span bridge over the culverted crossing, if necessary) will have almost no visual impact, which fulfills the intent of the General Plan which calls for the preservation of “scenic qualities of mountains, hills and other elevated landforms, qualities such as the silhouette against the horizon and the mass and shape of the landform.”

3.1.5 Hazardous Substances, Toxic Waste and Hazardous Conditions

Based on an onsite inspection, it appears that the site contains no hazardous or toxic substances and exhibits no other hazardous conditions.

In order to ensure that construction-related damage is avoided or minimized, construction activities with the potential to produce polluted runoff will be limited to periods of low rainfall; cleared areas will be replanted or otherwise stabilized as soon as possible; fuel storage and use will be conducted to prevent leaks, spills or fires; and construction materials, petroleum products, wastes, debris, and landscaping substances (herbicides, pesticides, and fertilizers) will be prevented from blowing, falling, flowing, washing or leaching into the stream.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

Existing Environment

The project site is within the *ahupua'a* of Wai'oli on the north shore of the Island and County of Kaua'i. The County's resident population nearly doubled between 1970 and 2000, from 29,424 to 58,303, and then increased by 15 percent in the next ten years. Visitors make up an additional 30 percent of the County's de facto population (DBEDT 2007). Kaua'i's economy, based primarily on tourism, enjoyed healthy growth that buoyed a vibrant construction industry and other inter-related service industries until 2008, when the international recession lowered visitor arrivals and spending. Since 2009 time, visitor numbers have been up somewhat, but substantial growth in Hawai'i's economy exceeding levels current in 2008 may not occur for several more years. Although Kaua'i County in general has seen regular and rapid growth in the previous decades, the north shore area of Hanalei has retained a distinctly rural character.

Table 3: Selected Socioeconomic Characteristics

CHARACTERISTIC	ISLAND OF KAUA'I	HANAIEI
Total Population*	67,091	572
Percent Caucasian*	33.0	60.4
Percent Asian*	31.3	13.6
Percent Hawaiian*	9.0	7.6
Percent Two or More Races*	24.9	24.9
Median Age (Years)	39.9	40.4
Percent Under 18 Years	23.1	22.4
Percent 65 Years and Over	14.5	10.7
Percent Households with Children	37.4	39.1
Average Household Size	2.84	3.55
Percent High School Grad of Population 25 Years of Over	88.0	93.1
Median Family Income	\$71,601	\$55,313
Percent Housing Vacant	24.1	55.8

Source: * U.S. Census Bureau: 2010 Redistricting Data: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

Other: Selected Social Characteristics in the United States: 2005-2009, Data Set: 2005-2009 American Community Survey 5-Year Estimates: <http://factfinder2.census.gov/main.html> . See website for margins of error, which may be substantial for small population areas such as Hanalei.

The nearest large population center is Hanalei, which is located less than a mile away. . The project is accessed via easements from a stubout off Kumu Road, about 1,000 feet away to the northwest (see Figure 5, which is a map of access easements). A number of private homes, many with small farms, are scattered in the Kumu Road/Wai‘oli Stream area. The project site is not located near any public facilities such as schools or parks.

Impacts

No adverse socioeconomic impacts are expected to result from the project. Population increase as result of the additional one house would be negligible. The residence and associated improvements on this *kuleana* lot, for which a residence is a use that by law must be allowed, will not adversely affect nearby residents with similar homes.

3.2.2 Cultural Resources

Scientific Consultant Services, Inc., (SCS) prepared a Cultural Impact Assessment for the proposed use of the *kuleana* property for a residence. The report is attached as Appendix 2 and summarized below. Most scholarly references have been removed from the following summary for readability but may be found in Appendix 2.

Methods

The Constitution of the State of Hawai‘i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua‘a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778”. In 1992, the State of Hawai‘i Supreme Court reaffirmed HRS 7-1 and expanded it to include native Hawaiian rights that may extend beyond the *ahupua‘a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner. In Section 1 of Act 50, enacted by the Legislature of the State of Hawai‘i (2000), it is stated that EAs and EISs should identify and address effects on Hawai‘i’s culture, and traditional and customary rights.

The purpose of a Cultural Impact Assessment is to identify whether cultural activities and resources are present within a project area, or its vicinity, and then to assess the potential for impacts on these cultural resources. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

“Traditional”, in this context, refers to the role a historic property plays in the beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice.

This CIA contains archival and documentary research, as well as communication with parties having knowledge of the project area, its cultural resources, and its practices and beliefs. Archival research focused on a historical documentary study involving both published

and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts; and previous archaeological project reports.

In a CIA, interviews should be conducted in accordance with federal and State laws and guidelines when knowledgeable individuals are able to identify cultural resources in, or in close proximity to, the project area. If they have knowledge of traditional stories, practices and beliefs associated with a project area or if they know of historical properties within the project area, they are sought for additional consultation and interviews. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information concerning particular cultural resources. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs (OHA), historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. Mr. Stanley conducted an informal interview with a knowledgeable Hanalei Valley resident. After extensively advertising through the newspaper, mail and through word of mouth (see Appendix 2 for details), no other individuals or organizations contacted the CIA team or otherwise came forward with information on cultural resources or practices.

Historical Background

Topographically, Kaua‘i is a product of heavy erosion with broad, deep valleys and large alluvial plains. Wai‘oli is one of these valleys on the north side of the island. Further traditional land divisions within the *moku* were called *ahupua‘a*, which ideally incorporated all the natural resources necessary for traditional subsistence strategies. Much of the knowledge of traditional land use patterns is based on what was recorded at the time of, and shortly after, Western contact. Early records (such as journals kept by travelers and missionaries), Hawaiian traditions that survived long enough to be written down, and archaeological investigations have assisted in understanding the past.

Approximately 600 years ago (from the time of Mā‘ilikukahi on O‘ahu and based on a 25 year per-generation count), the native population had expanded throughout the Hawaiian Islands to a point where most lowland regions were inhabited. Land was considered the property of the king or *ali‘i ‘ai moku* (the *ali‘i* who eats the island/district), which he held in trust for the gods. The title of *ali‘i ‘ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka‘āinana* (commoners) worked the individual plots of land.

Kaua‘i consisted of six *moku* or divisions: Kona, Puna, Ko‘olau, Halele‘a, Nāpali, and Waimea. These districts contained *ahupua‘a* that customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua‘a* were therefore able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua‘a* to be self-sufficient by supplying needed resources from different environmental zones. The *‘ili* were smaller land divisions and were next to importance to the *ahupua‘a*. They

were administered by the chief who controlled the *ahupua'a* in which it was located. *Mo'o'āina* were narrow strips of land within an *'ili*. The land holding of a tenant or *hoa'āina* residing in an *ahupua'a* was called a *kuleana*. The project area is located in the *ahupua'a* of Wai'oli, meaning literally "joyful water" (Pukui *et al.* 1974:227) and the *'ili* of Kaohe, most likely meaning "the bamboo".

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua'a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dryland, both of which were dependent upon geography. River valleys such as Hanalei and Wai'oli provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinarum*) and *mai'a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *'uala* (sweet potato, *Ipomoea batatas*) were cultivated.

Wai'oli Ahupua'a comprises 3,350 acres and includes the entire five-mile long drainage basin from the mountains, which rise as high as 3,745 feet above sea level, to the sea. Wai'oli was typical of many other Hawaiian river valleys in its cultivation in lower valley sections and on bends in the stream where alluvial terraces could be modified to take advantage of the stream flow. Although no longer in use, agricultural terraces were reported in the narrow valley interior of Wai'oli. The alluvial plain was extensively cultivated and contained two irrigation systems, still functioning into the present time. Fishponds of the *loko i'a kalo* type were reportedly situated inland of the bend in the Wai'oli River. This type of fishpond not only supported the growing of *kalo* on small mounds (*pu'epu'e*) but also supported fish, crustaceans, shellfish and some aquatic plants. Along with the three deep valleys of the Halele'a District (Wainiha, Lumaha'i, and Hanalei), Wai'oli formed one of the most agriculturally productive regions on Kaua'i (Handy and Handy 1972:419).

Coastal zones were utilized for acquiring marine resources and where habitation sites, burials, and ceremonial structures, were located. Slightly inland of Hanalei Bay was favored for house sites because of the coral sand soils.

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were made available and private ownership was instituted, the *maka'āinana*, if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *'okipū* (on O'ahu), stream fisheries, or many other resources necessary for traditional survival. If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16). A rebellion on the island of Kaua'i in 1824 complicated the land issue there and, instead of being awarded to the chiefs of Kaua'i, many Kaua'i *ahupua'a* were awarded to the heirs of the ruling Kamehameha dynasty. Wai'oli was awarded to Leleiohoku who, subsequently, returned it to Kauikeaouli, Kamehameha III.

A total of 66 land claims were made in the *ahupua'a* of Wai'oli. Many of these claims mentioned house lots in the 'ili of Hanalei and *lo'i* in Wai'oli. The project site was in LCA parcel 09274:2, located in the 'ili of Kaohe. It was originally 1.21 acres and was awarded to Kuheleloa/Kahaleloa (see sub-Appendix B of Appendix 2 for details). According to the Native Register and the testimony given by Kuheleloa in 1850, this land was used for a taro *lo'i* and a cultivated *kula*. He testified that his right to the land had been given to him by Kaumuali'i, the last king of Kaua'i who died in 1824. He had access to the stream and Wai'oli ditch where the *lo'i* were located. Around his parcel were other LCA claims for pasture and *lo'i*. His house lot was located in Hanalei, *Apana* 1, and had been received from the *konohiki* of Hanalei in about 1843. Land use was very similar for other claimants in the area.

With the shift to private land ownership brought about by the Māhele, alternative agricultural ventures and plantations quickly appeared throughout the islands, including cotton, potatoes, and sugar. In Wai'oli Valley, a silk plantation, a coffee enterprise, and ranching were tried.

Throughout the 19th century, the Hawaiian population had been in steady decline due to a number of factors including the introduction of foreign diseases for which the native people had no immunity. With the expansion of the sugar industry, more and more field workers were needed for the large plantations and laborers from China, Japan, Puerto Rico, Portugal, and the Philippines arrived. By the 1860s, traditionally cultivated agricultural lands became available and lands that had previously been cultivated in *kalo* by the diminishing Hawaiian people were converted into rice. Traditional *lo'i* ponds and agricultural terraces along river valleys such as Wai'oli and Hanalei were ideal for this purpose and were still producing rice in 1935 (Handy and Handy 1972).

A journey was taken around Kaua'i in 1849 by William DeWitt Alexander, the son of William P. Alexander, missionary at Wai'oli. He recorded his impressions of Hanalei and Wai'oli after having been away at school for a number of years:

...brought us to the top of the hill that overlooks Hanalei valley. The prospect from this hill is very fine. The lofty, and picturesque mountains behind Waioli, the majestic Hanalei river winding its way through coffee plantations and the graceful curve of the bay, bordered with houses, & groves, greatly increase the beauty of the valley...The feelings with which I gazed on the home of my early days, I can not describe...The little village that we used to call Bethlehem, was now a waste of indigo. The natives who were still living had, for the most part, moved their dwelling down to the seashore...The meeting house is very pleasantly situated among some hau trees...The beach is very broad, sloping gradually to the waters edge...By digging in any place we arrive at sand at the depth of a few feet. Coral, & sea shells also are found at a considerable distance from the sea. [Kauai Historical Society 1991:125]

Contemporary Cultural Resources and Practices On/Near Project Site

As discussed above and detailed in Appendix 2, extensive attempts to solicit information did not result in any group or organization coming forward with information relative to the property and practices or resources occurring on or near it. Through coordination of Jason Stanley with his neighbors, one cultural activity was identified still occurring in the valley: hunting. On December 5, 2008, Jason Stanley informally interviewed Glen Kobayashi of Kobayashi Trucking and Equipment, Inc. Glen is a well-respected, lifetime resident of Hanalei and his family has owned property in the Wai‘oli Valley since the late 1940s. Presently, his several businesses are located in Hanalei and he owns much of the property in the valley. The interview took place on December 5, 2008 at 3:45 pm at Glen’s place of business off Kuhio Highway in Hanalei between Glen and Jason Stanley. Mr. Stanley asked about local resources and practices and if building a home on the property would have any impact on the activities in the valley. Glen stated that his family and others hunt for pigs throughout the whole valley that building a residence on this old *kuleana* lot would not interfere with their practices. He was unaware of any other cultural resources or traditional or cultural practices taking place.

Cultural Impacts and Mitigation Measures

As no resources or practices (other than hunting in parts of the valley, which will not be impacted) of a potential traditional cultural nature appear to be present, the proposed construction and occupation of the single-family residence on this *kuleana* lot does not appear to have the potential to impact any culturally valued resources or cultural practices. In particular, the exercise of native Hawaiian rights related to gathering, access or other customary activities will not be affected, and there will be no adverse effect upon cultural practices or beliefs. Although there are no indications so far from literature review or consultation with the SHPD, the Office of Hawaiian Affairs, or local residents knowledgeable about Hawaiian cultural practices that there would be any impacts to traditional cultural properties or practices, various parties including the Office of Hawaiian Affairs and SHPD were supplied a copy of the Draft EA in order to help finalize this finding.

3.2.3 Archaeological Resources

Existing Resources

An archaeological inventory survey of the subject property performed by Archaeological Consultants of the Pacific, Inc., (ACP), is included in Appendix 3 and summarized below. Most scholarly references have been removed from the following summary for readability but may be found in Appendix 3.

The earliest use of the land was likely prior to western contact and associated with *lo‘i* cultivation. Dryland agricultural pursuits may well have occurred in conjunction with the production of taro. These agricultural pursuits may have continued into the post-contact era. Previous archaeological investigations of the area including the project site conducted in the late 1980s identified nine sites of significance in the project parcel including an *‘auwai* or irrigation ditch, stone walls, a house foundation and midden scatter. *Lo‘i* agricultural terraces were also documented over the entire subject parcel. Stone walls were also reported on the southern and eastern edges of the parcel.

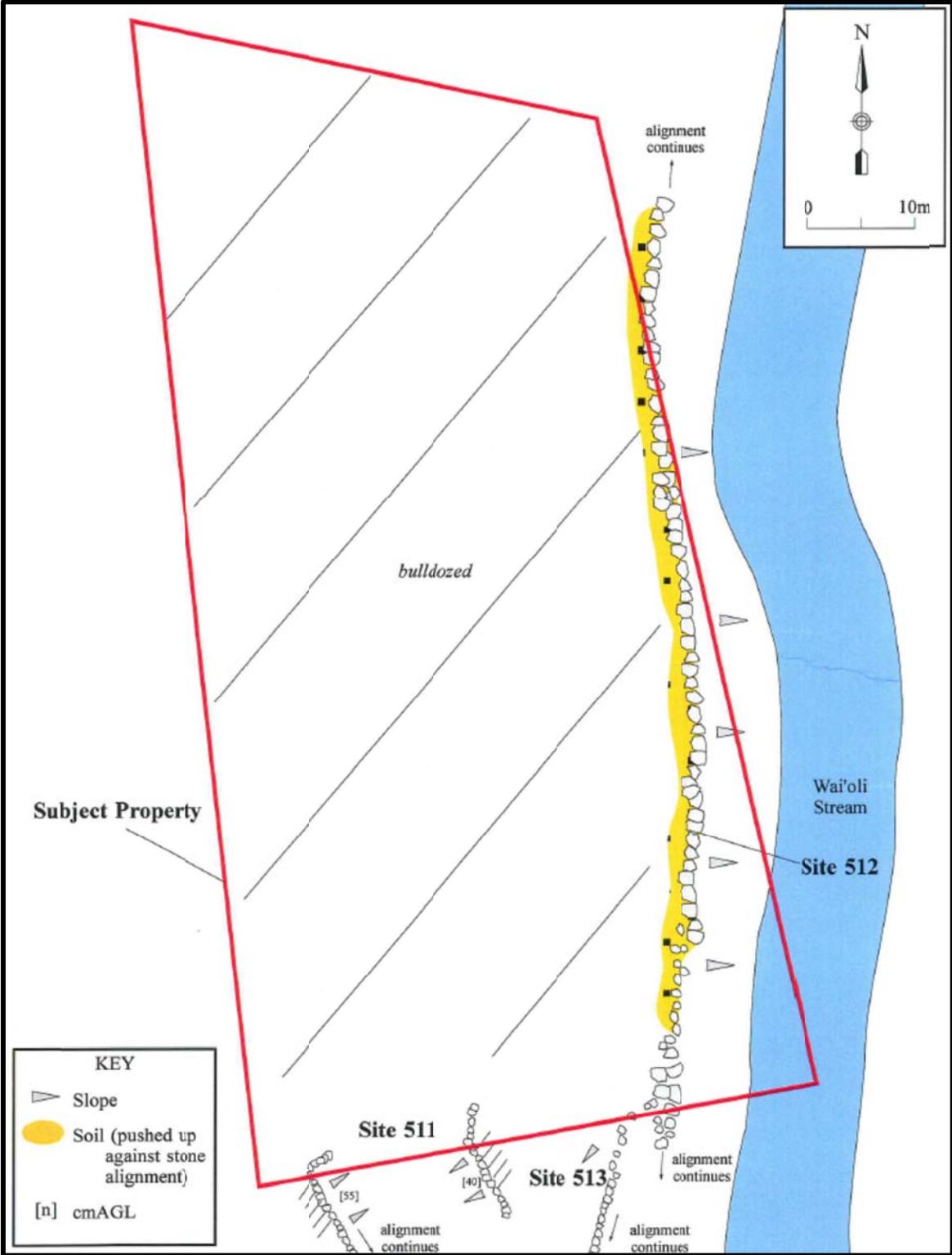
According to the current landowner, bulldozing was done on the subject parcel approximately 15-20 years ago, subsequent to a 1988 archaeological reconnaissance and prior to the current landowner's purchase. The multi-component site complex has been completely destroyed by that unpermitted grubbing and grading. Although most of the sites that once covered the subject property have been obliterated, remnants of Sites 511, 512, and 513 are still present on the southern and eastern borders of the property (Figure 7 and Table 4). Site 511 is associated with *lo'i* terracing, and sites 512 and 513 are stone walls.

Site 512 was originally identified as either a wall or a stone facing located along the eastern boundary of the subject property. Based on the current investigation, the structure constructed of both angular and water-worn basalt stones appears to have been a roughly stacked wall. It extends the entire length of the parcel's boundary and continues off the parcel to both the north and the south. Soils were moved by bulldozing against the western side of the structure forming an earthen berm which partially covers the wall, making it difficult to determine the extent of its deterioration and the morphology of the site.

In earlier investigations, Site 513 was referred to as a stone wall located in the southeastern corner of the subject property. The current investigation found an alignment of large stones extending from the rock wall of Site 512 off the project parcel and along the top of the western bank of Wai'oli Stream. In addition, a second alignment of stones that curved westward from that alignment and then turned south and parallel to the first alignment, extending south of the project area. Sites 512 and 513 may have previously been a single articulated structure; alternatively, earthmoving activities may have pushed stones into a gap that may have existed between the two structures.

Two portions of Site 511 extend into the subject property for approximately 15 meters. Site 512 extends approximately 70 meters into the subject property and borders the eastern boundary. Site 513 extends approximately one meter into the subject property. These sites are all that remain from the more elaborate sites that were intact before the subject property was bulldozed and graded.

Figure 7 Archaeological Sites



Source: Appendix 3, Archaeological Consultants of the Pacific

Table 4
Summary of Archaeological Sites

Site	Description	Function	Significance Evaluations
511	<i>lo'i</i> terracing	Ag	A & D
512	stone wall	Ag	A & D
513	stone wall	Ag	A & D

Functional Interpretations

Ag: Agriculture

Code for Significance Evaluation Criteria

A: Site is associated with events that have made a significant contribution to the broad patterns of history.

B: Site is associated with the lives of persons significant in the past.

C: Site embodies the distinctive characteristics of a type, period, or method of construction; or is the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity.

D: Site has yielded or is likely to yield information important in prehistory or history.

E: Site has cultural significance

NS: Not significant.

NLS: No longer significant.

Criterion A-E represents Hawaii Register of Historic Places criterion.

NS and NLS represent designations acceptable to the DLNR-SHPD

In summary, a survey of the entire surface of the subject property identified the remains of three previously identified archaeological sites. Each is considered significant under Criteria “A” and “D” of both the Hawai‘i Register of Historic Places and the National Register of Historic Places. Criterion “A” indicates that the site is associated with events that have made a significant contribution to the broad patterns of history. Criterion D means that the site has yielded, or is likely to yield, information important in prehistory or history of an area. The project archaeologist recommended that the remnants of Sites 511, 512 and 513 be preserved. Although no sub-surface testing has been conducted on the subject property, there is enough evidence to extrapolate that the subject property has been so thoroughly terraformed that it is unlikely to produce any accurate data through more archaeological investigation.

Impacts and Mitigation Measures

Based upon the findings and acceptance of the landowner of the preservation recommendations of the archaeological inventory survey, the archaeologist has concluded that there would be no adverse effect to significant historic properties. The survey was formally submitted on April 19, 2011, to the State Historic Preservation Division (SHPD), where it is currently under review for concurrence with the findings. If SHPD concurs with the findings, a Preservation Plan will be prepared and implemented prior to any ground-disturbing work on the project site. In order to mitigate for unanticipated finds, in the unlikely event that additional archaeological resources are encountered during future development activities, work in the immediate area of the discovery will be halted and SHPD contacted as outlined in Hawai‘i Administrative Rules 13§13-275-12.

3.2.4 Utilities, Roadways and Public Services and Facilities

No utilities are available at the site. The project will include solar hot water and a solar photovoltaic system with a generator backup. Telephone service will be by cell phone. An Individual Wastewater System meeting the requirements of the State Department of Health will be installed.

3.3 Secondary and Cumulative Impacts

Due to its small scale, the proposed project would not produce any major secondary impacts, such as population changes or effects on public facilities.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. Various single-family homes are in construction in the Hanalei area, but few in the immediate vicinity of the project site. The adverse effects of building a single-family residence are very minor and temporary disturbance to traffic, air quality, noise, and visual quality during construction. It should once again be noted that this area is fairly isolated from other residences, and no accumulation of adverse construction effects would be expected. Other than the precautions for preventing any effects to water quality during construction listed above in Section 3.1.2, no special mitigation measures should be required to counteract the small adverse cumulative effect.

The area *mauka* of Hanalei Bay currently has a distinctly rural character. Settlement is scattered, and where vegetation permits, there are spectacular views of the mountains as well as the bay and surrounding coastline. Cumulatively, the in-filling of the large lots in Wai‘oli Valley will gradually lessen the rural character in a marginal way, although the change from a single-family residence would be incremental and not significant, especially given the rural character of the project area.

3.4 Required Permits and Approvals

The following permits and approvals would be required:

- Conservation District Use Permit, State DLNR
- Stream Channel Alteration Permit (to be determined)

3.5 Consistency With Government Plans and Policies

3.5.1 Hawai‘i State Land Use Law

All land in the State of Hawai‘i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The property is in the State Land Use Conservation District, Resource Subzone. The proposed use is consistent with intended uses for this land use district, and is consistent with the Conservation District Rules. The applicant has prepared a Conservation District Use Application (CDUA), to which this EA is be an Appendix. The CDUA includes a detailed evaluation of the consistency of the project with the criteria of the Conservation District permit process. Briefly, the following individual consistency criteria should be noted:

1. The proposed land use is consistent with the purpose of the Conservation District;

The development of the single-family residence is conformant with the purpose of the Conservation District. The proposed use of the subject property for a single-family residence, an identified use in the Conservation District, and management of the site will conserve, protect and preserve the natural features on the subject property. No valuable natural or cultural resource would be committed or lost. No native ecosystems are present.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

The objective of the Resource subzone “...is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.”

Single-family residences are an identified use in the Resource subzone under HAR 13-5-24 R-8: “A single family residence that conforms to design standards as outlined in this chapter.”

This identified use, which conforms to the design standards in 13-5, will ensure the sustained use of the natural resources in the project area by mitigating potential impacts as outlined above.

3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled “Coastal Zone Management,” where applicable;

The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawai‘i Revised Statutes (HRS), entitled *Coastal Zone Management*. The proposed use would be consistent with Chapter 205A because it would not affect public access to recreational areas, historic resources, scenic and open space resources, coastal ecosystems, economic uses, or coastal hazards.

The proposed improvements are not likely to result in any substantial adverse impact on the surrounding environment. The house site is inside Wai‘oli Valley more than a mile from the shoreline. It will not restrict or adversely affect any coastal uses set back from the shoreline and will not restrict any shoreline uses such as hiking, fishing or water sports, nor will it affect beach processes. Furthermore, coastal viewplanes will not be adversely impacted in any way. It is expected that the project will not result in any impact on the biological or economic aspects of the coastal ecosystem. The project site is near Wai‘oli Stream but will not affect it. The property contains mainly non-native plants and only a few common native plants. No floodplains are present in the area proposed for improvements, which is identified in Flood Insurance Rate Maps (FIRM) as Zone X, outside the floodplain. In terms of beach protection, construction is not near the coast and would not affect any beaches nor adversely affect public use and recreation of the shoreline in this area. No impacts on marine resources are likely to occur. Historic sites and cultural uses have been properly assessed and the remnants of three historic sites will be preserved.

4. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region;

Because of the relatively minor nature of the project and the lack of native terrestrial ecosystems and threatened or endangered plant species, construction and use of the property for a single-family residence is not likely to cause adverse biological impacts. The applicant is planning to continue the landscape of nearby properties. The precautions for preventing any effects to water quality during construction should prevent any adverse impact on aquatic biological resources in coastal waters.

The proposed action would include mitigation measures to prevent soil erosion. The proposed project will have no adverse impacts to historic sites or to the scenic character of the area. No substantial adverse impact will occur to existing natural resources. The proposed use of the subject property for a single-family residence and commitment to management of the site will conserve, protect and preserve the natural and historic features on the subject property.

5. The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;

The construction activities of this single-family residence will be confined to the owner's lot and will not have any adverse impact on the natural resources of the area, community or region. The proposed use is consistent with the surrounding properties and will not negatively affect how these properties are utilized.

6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;

The proposed use of the subject property for a single-family residence and commitment to management of the site will conserve, protect and preserve the natural features on the subject property. The physical beauty of the lot will be enhanced by the home construction and landscaping, and open space will be preserved. The applicant proposes to landscape using native or Polynesian species to soften any visual impact of the residence and provide landscape material to beautify the area where little or no vegetation is currently seen. Because it is in a low-lying spot within an area of tall trees, the Stanley single-family residence is and will remain almost completely hidden from any public vantage point and therefore will not disrupt views of features in the area, including the mountains, Hanalei Bay and the coastline.

7. Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District;

The proposed action does not involve or depend upon subdivision and will not lead to any increase in intensity of use beyond the requested single-family residence.

8. The proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposed single-family residence in this rural neighborhood will not be detrimental to the public health, safety, and welfare.

3.5.2 Kaua‘i General Plan

The *General Plan* for the County of Kaua‘i is the document expressing the broad goals and policies for the long-range development and resource management for the Island of Kaua‘i. First adopted in 1971, the Plan was revised in 1984 and 2000. The *General Plan* is thematically arranged, first discussing issues including management of public facilities, preservation of rural character, and caring for land, water, and culture, among others. The General Plan also includes a chapter entitled “*Vision for Kaua‘i 2020*” that discusses roads, utility systems, and other public facilities and services. Policies are summarized in two policy maps, and Heritage Resource map depicts important historic, cultural and scenic resources discussed in the General Plan text. A Land Use Map depicts policy for long-range land uses. There are also discussions of the specific strategy for implementation for each policy element. The Plan’s structure and content were the result of much public input and participation, including a public workshop involving about 3,000 citizens and 60 community groups, and also input from the Citizens Advisory Committee. Below are pertinent sections followed by a discussion of conformance.

SCENIC VIEWS

In developing public facilities and in administering land use regulations, the County shall seek to preserve scenic resources and public views. Public views are those from a public place, such as a park, highway, or along the shoreline.

(b) The County shall observe the following general principles in maintaining scenic resources:

(1) Preserve public views that exhibit a high degree of intactness or vividness.

“Intactness” refers both to the integrity of visual patterns and the extent to which the landscape is free from structures or other visually encroaching features. “Vividness” relates to the memorability of a view, caused by contrasting landforms which create striking and distinctive patterns. (Examples are the silhouette of Mt. Ha‘upu against the horizon, views of Nounou Mountain from the valley and the coast, and the view of Hanalei Valley from the overlook.)

(2) Preserve the scenic qualities of mountains, hills and other elevated landforms, qualities such as the silhouette against the horizon and the mass and shape of the landform.

(3) Preserve the scenic qualities of lowland/open space features, such as the shoreline, the edge of a coastal bluff, a marsh, a fishpond, or a historic or cultural property. Structures should not impede or intrude upon public views of the feature and should not alter the character of the immediate area around the land feature, historic or cultural property.

Discussion

The Stanley single-family residence would not be visible from any public vantage point because it is low-lying and within an area of tall trees and therefore will not disrupt views of features in the area, including the mountains, Hanalei Bay and the coastline.

WATERSHEDS, STREAMS, AND WATER QUALITY

In developing County roads and drainage facilities and in administering the grading, flood control, and drainage regulations, the County of Kaua‘i shall carry out the following policies.

- (a) New Development
 - (1) Reduce average annual post-development sediment in runoff (total suspended solids), so that it is no greater than pre-development levels.
 - (2) Maintain post-development peak runoff rate and average volume at levels similar to pre-development.
 - (3) Work with other government agencies and community organizations to seek ways of reducing all types of nonpoint source water pollutants.
- (b) Site Development. Plan, design and develop sites to:
 - (1) Protect areas that provide important water quality benefits – i.e., wetlands;
 - (2) Protect areas that are particularly susceptible to erosion and sediment loss – i.e., stream banks;
 - (3) Promote the use of permeable surfaces for driveways and parking and limit increases of impervious areas;
 - (4) Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and
 - (5) Avoid disturbance of natural drainage features and vegetation.
- (c) Construction Site Erosion and Sediment Control
 - (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.
 - (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.
- (d) Watershed Management
 - (1) Manage land use and earth-moving activities from the standpoint of the entire watershed, considering important characteristics such as scenic landscape features, historic sites, native species of plants and animals, and other special resources.
 - (2) Specify relevant best management practices as a condition of approving land use permits that affect stream corridors.

Discussion

In order to minimize the potential for sediment-laden runoff to reach water features in the project area, a number of Best Management Practices (BMPs) would be implemented. This is discussed above in Section 3.1.2. The project would include the construction of a driveway and small parking area that would be grassed (i.e., permeable) and involves minimal grading. The project would not impact any surface water features. When

possible, existing vegetation would remain on the site, and landscaping will utilize primarily native and Polynesian species found nearby.

COASTAL LANDS

(5) Site buildings to preserve view corridors from roads or public places to the ocean and from the ocean mauka.

Discussion

The building would not be visible from public vantage points from or near the shoreline.

ENHANCING TOWNS & COMMUNITIES AND PROVIDING FOR GROWTH, NORTH SHORE

(a) The North Shore shall remain primarily a rural, agricultural area, with resort use and other urban development concentrated in Princeville. The towns of Hanalei and Kilauea shall also provide for housing and other urban uses.

Discussion

View corridors from nearby public areas and roadways would not be affected. The rural character of the project area would be negligibly affected by the construction of one home.

PART 4: DETERMINATION

Based on evaluation of the environmental setting and impacts, the Hawai‘i State Department of Land and Natural Resources is expected to determine that the proposed action will not have a significant effect upon the environment and is thus expected to issue a Finding of No Significant Impact (FONSI).

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai‘i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* Native plant communities are not present, and based on preservation of the remnants of three historic sites, impacts to archaeological resources determined to be present by an archaeological inventory survey will not occur. No valuable cultural resources will be affected.
2. *The proposed project will not curtail the range of beneficial uses of the environment.* The proposed project in no way curtails beneficial uses of the environment in this area.
3. *The proposed project will not conflict with the State's long-term environmental policies.* The State’s long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The proposed action is minor and basically

environmentally benign, and is thus consistent with all elements of the State's long-term environmental policies.

4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The project will not have any substantial effect on the economic or social welfare of the Kaua'i North Shore community or the State of Hawai'i.
5. *The proposed project does not substantially affect public health in any detrimental way.* No effects to public health are anticipated.
6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* No adverse secondary effects are expected to result from the one additional house, which is not significant enough to directly or indirectly tax public infrastructure or facilities. The rural character of the project area would be negligibly affected, given that there are presently other single-family homes in the general area.
7. *The proposed project will not involve a substantial degradation of environmental quality.* The proposed action is minor and is being regulated by permits to avoid environmental degradation, and thus would not contribute to environmental degradation.
8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* The site has mostly non-native and no rare or endangered species.
9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The single-family home is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions. This area is near few other residences, and no accumulation of adverse construction effects would occur. Other than the precautions for preventing any effects to water quality during construction listed above, no special mitigation measures should be required to counteract the small adverse cumulative effect.
10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* Due to the character and density of the proposed action, no adverse effects on these resources would occur. Brief, temporary effects would occur during construction and will be mitigated.
11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* No development associated with the single-family residence would be located within a flood zone.
12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* Because the project parcel is in a low-lying area amid tall trees, and would not be visible from any public vantage points, no aspect of the proposed action would adversely impact scenic resources or viewplanes.
13. *The project will not require substantial energy consumption.* Although construction and use of the home will require the use of energy, no major adverse effects to energy consumption would be expected, and there is no feasible way to provide housing without energy consumption.

For the reasons above, the proposed action will not have any significant effect in the context of Chapter 343, Hawai'i Revised Statutes and section 11-200-12 of the State Administrative Rules.

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ENVIRONMENTAL ASSESSMENT

Stanley Single-Family Residence in the Conservation District in Hanalei

APPENDIX 1a

Comments in Response to Pre-Consultation and Selected Pre-EA Correspondence

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Hanalei-Ha'ena Community Association
Post Office Box 789
Hanalei, HI 96714

March 8, 2008

Mr. Ron Terry
Geometrician Associates
PO Box 396, Hawaii 96721

Re: Early Consultation on Environmental Assessment, TMK 4-5-5-08-01

Aloha Mr. Terry,

I am writing in response to your letter of February 19, which solicited input on issues to be addressed in the Environmental Assessment for the proposed Stanley residence in Hanalei Valley (TMK 4-5-5-08-01).

As you are aware, the project site is in an area that has experienced very little development to date. The Hanalei-to-Ha'ena Community Association (HHCA) is therefore concerned with the precedential impacts of both the development and the process of approving the development.

As to the latter: it is my understanding that the project is located in the North Shore Development Plan Special Planning Area. So in addition to the normal requirements associated with a Conservation District Use Application, the Environmental Assessment should address all of the pertinent objectives and requirements of the North Shore Development Plan.

As to the former: in addition to the areas of investigation noted in the final paragraph of your letter, we would like emphasize that the following matters be addressed:

1. Infrastructure-Related Impacts

- (a) Roads: by what means will the site be accessed, both during construction and after construction is completed? Will access be achieved using the existing dirt road, will the existing road be upgraded, or will a new road be built? If any changes/upgrades/additions are proposed to the existing road, the visual and other impacts of such changes/upgrades/additions must be assessed, including the project's potential to open the area to

additional development that has heretofore been impractical or uneconomical.

- (b) Utilities (electric, water, phone, cable): will the project be completely off-grid, or will utilities be extended into the area? If the latter, the growth-inducing impacts of the project (stemming from the project's having reduced the economic hurdle for future projects by having brought new utility infrastructure into the area) need to be assessed.
- (c) Public Services (fire/police/medical emergency/trash disposal): Is there any expectation that there will be any additional costs to the providers of any of these services due to the project's remote location? Would any of these agencies require infrastructure improvements (see "Roads" and "Utilities" above) as a condition for approval? If so, analysis of the growth-inducing impacts of the project will be doubly important.

2. Visual Impacts

Would the proposed residence and/or any infrastructure additions (roads, utility poles or upgraded rights-of-way, etc.) be visible from any public locations, including Hanalei town, Hanalei valley, or the Okolehao Trail?

3. Waioli Stream Impacts

- (a) Flood Protection: Are any modifications to the Waioli Stream watershed (berms, changes to flows into the stream or changes to the stream itself, etc.) proposed, to protect the project from flooding or for aesthetic or other reasons? Are there any erosion-related issues?
- (b) Sewage Treatment and Disposal: Given the proximity of the project to Waioli Stream, it is imperative that the wastewater plans pose absolutely no threat to the stream, even under extreme (for example, high rainfall) circumstances.
- (c) Construction-Related Impacts: Given the proximity of the project to Waioli Stream, it is imperative that all precautions be taken to ensure that no soils, runoff or construction materials enter the stream during construction.

4. Historic, Cultural and Archaeological Impacts

In light of the undeveloped nature of the area, the protection of any historic, cultural or archaeologically-significant sites from disturbance is a very important consideration.

5. Growth-Inducing, Secondary and Cumulative Impacts

As noted above, the project has the potential - both by precedent and by possibly triggering one or more infrastructure-related impacts - to open up Hanalei Valley to additional development. For those reasons, an assessment of the growth-inducing, secondary and cumulative impacts that could be

triggered by this possibly precedent-setting development should be included in the Environmental Assessment.

6. Commercial Activities

As has been the HHCA's policy with respect to all Conservation District Use Applications, we request confirmation that no commercial activities - including transient vacation rental activities - will be conducted on the property, and I note that we will request that an explicit condition to that effect be included in any use permits granted by the state, should such permits ultimately be granted.

On behalf of the Hanalei-to-Ha'ena Community Association, I thank you for soliciting our input at this early stage of the project. Please do not misconstrue the comments provided above as indicative of any desire to prevent the Stanleys from constructing a family residence. Rather, the comments reflect our community's deep commitment to protecting the many qualities that make Hanalei Valley a remarkable place and to ensuring that any development in Hanalei Valley does not degrade those qualities.

Please provide the HHCA with a copy of the Environmental Assessment when it is completed and please keep the HHCA informed of any proceedings related to this project.

If I can be of any further assistance, please do not hesitate to contact me.

Sincerely,



Carl F. Imparato
President, Hanalei-to-Ha'ena Community Association
PO Box 789, Hanalei, HI 96714
808-826-1856
carl.imparato@juno.com

BRYAN J. BAPTISTE
MAYOR



DONALD M. FUJIMOTO
COUNTY ENGINEER
TELEPHONE 241-6600

GARY K. HEU
ADMINISTRATIVE ASSISTANT

EDMOND P.K. RENAUD
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6640

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAII 96766-1340

February 28, 2008

Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawai'i 96721
Attention: Mr. Ron Terry

**SUBJECT: EARLY CONSULTATION ON ENVIRONMENTAL ASSESSMENT FOR
CONSTRUCTION OF RESIDENCE AND ASSOCIATED ACTIONS IN
CONSERVATION DISTRICT AT HANALEI, KAUA'I TMK 5-5-08-01
(JASON STANLEY) PW 2.08.101**

Gentlemen,

We reviewed your subject request for information regarding the subject property. We offer the following comments:

A. Flood & Grading:

1. The Engineering Division is responsible for the administering of the Sediment and Erosion Control Ordinance No. 808. The building plans are premature at this time, therefore we are reserving our grading and drainage comments when plans are 100% complete. We wish to stress that plan submittal that is not 100% complete will be returned back without any review.
2. The subject property abuts Waioli Stream and we are concerned that the disturbed areas may impact Waioli Stream. Whether a grading permit is required for this project, Best Management Practices (BMP's) shall be incorporated with the project at all times to the maximum extent practicable to prevent damage by sedimentation, erosion and/or dust to streams, watercourses, natural areas and the property of others.
3. We request flood comments for building within flood prone areas be solicited from Mario Antonio, Flood Plain Coordinator of our Building Division.

Geometrician Associates, LLC
February 28, 2008
Page (2)

4. We would appreciate receiving a copy of the draft EA when completed.

Should you have any questions, please contact me at (808) 241-6498.

Very truly yours,



Wallace Kudo, P.E.
Chief, Engineering Division

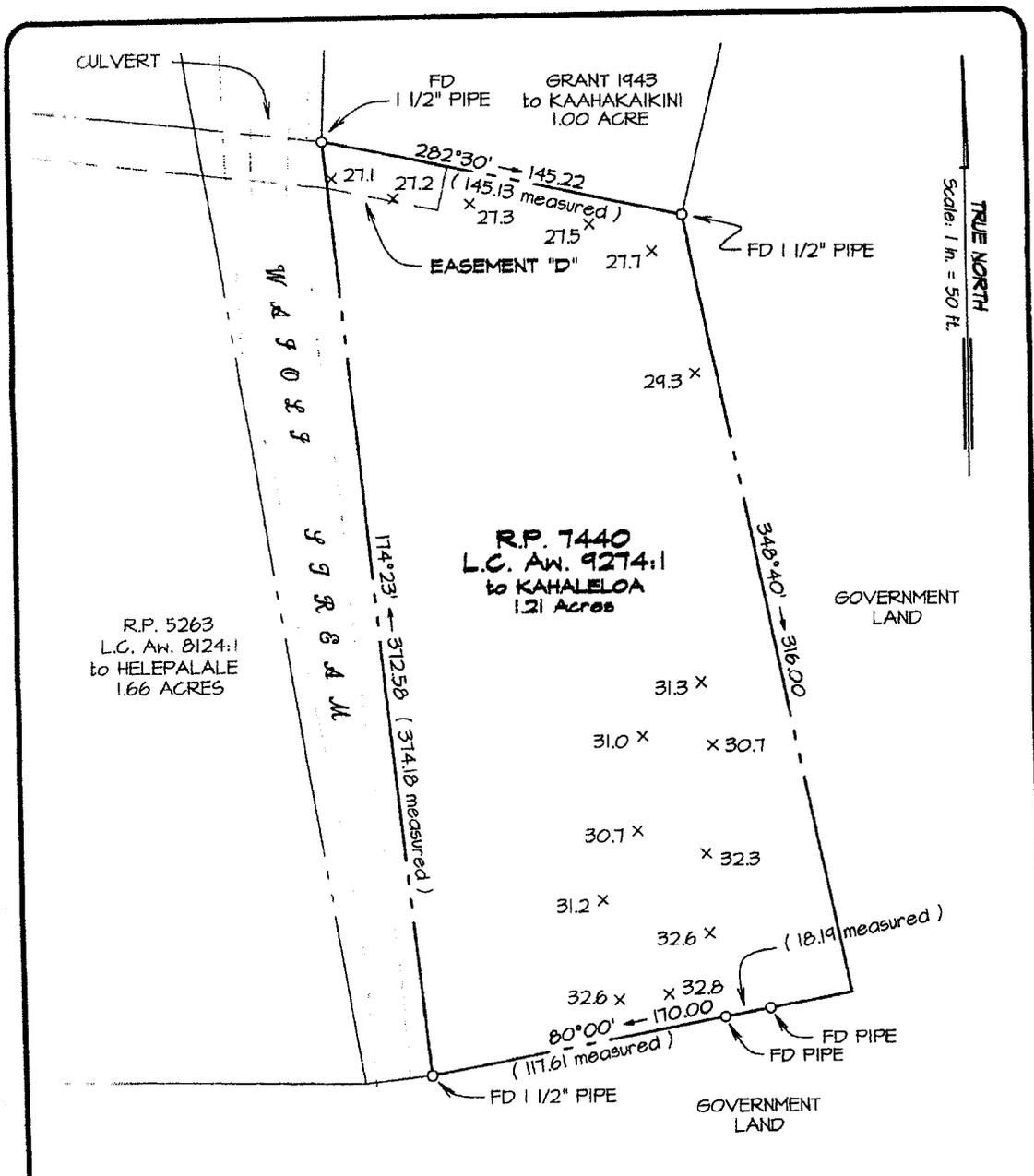
CONCUR:



DONALD M. FUJIMOTO, P.E.
County Engineer

WK

cc: Design and Permitting
Construction Inspection
Building Division

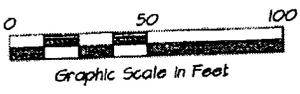


PREPARED FOR:
 FIRST HAWAII TITLE-PRINCEVILLE
 P.O. BOX 223669
 PRINCEVILLE HI 96722
 RE: THOMPSON / STANLEY
 ESCROW # 21-2031-012-PS
 APRIL 11, 2007

SURVEY OF
R.P. 7440
L.C. Aw. 9274:1
to KAHALELOA
 showing
EASEMENT "D"
 AT WAIOLI, HANAIEI, KAUA'I, HAWAII



- NOTE:
1. FEATURES SHOWN HEREON REPRESENT CONDITIONS EXISTING ON APRIL 3, 2007
 2. X 32.6 DENOTES SPOT ELEVATIONS



THIS MAP WAS PREPARED BY ME OR UNDER MY SUPERVISION

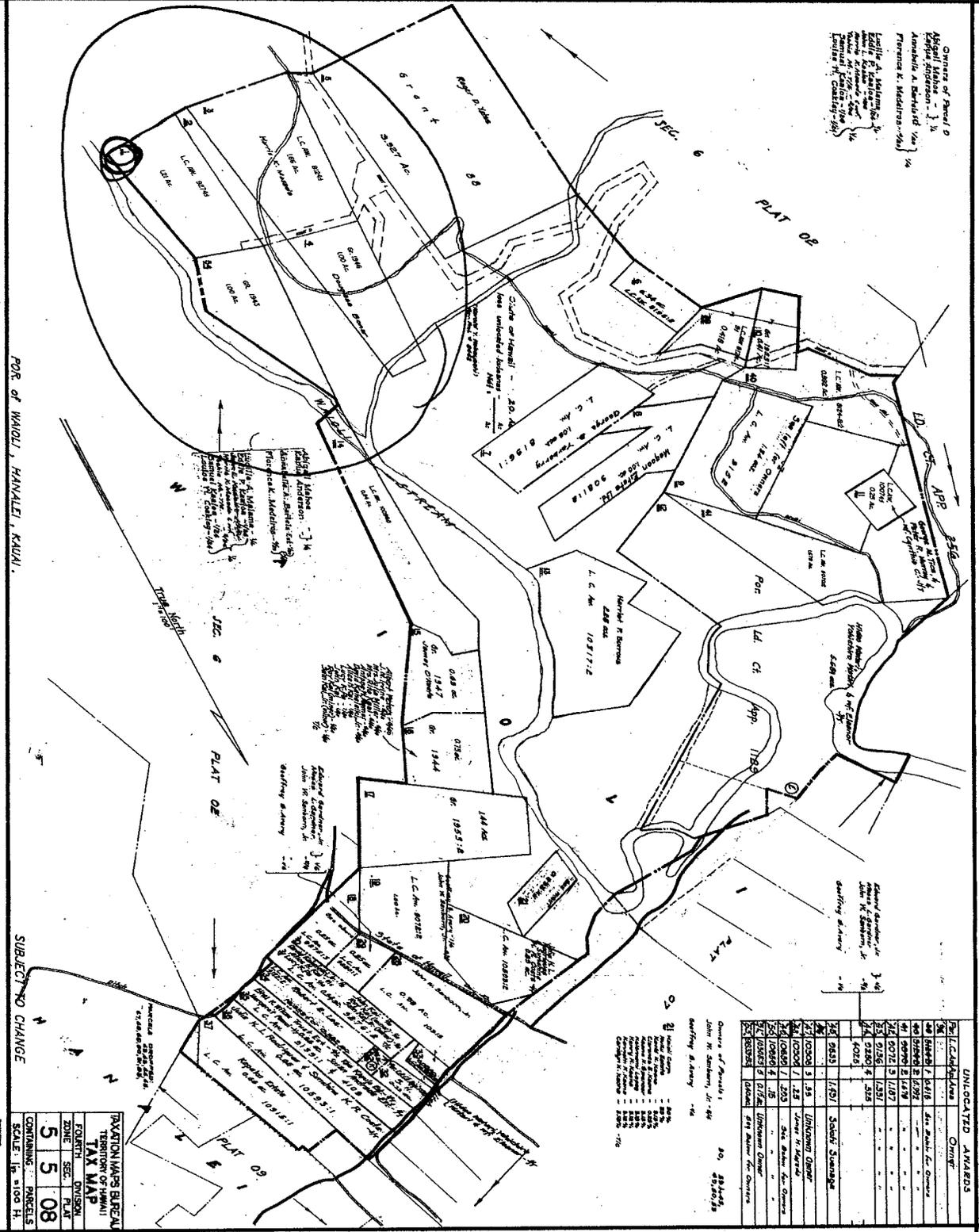
Ronald J. Wagner
RONALD J. WAGNER
 Licensed Professional Land Surveyor
 Certificate No. 5074 Exp. 4/30/08



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

PROJECT NO. 4434

Map No. 5090
 Source: Tax Map Bureau, Survey Dept., & Ld. Ct. App. 1183
 By: P.K. & S.L.C. Nov., 1954



Owners of Parcel 10
 Alfred H. Johnson - 1/4
 Andrew A. Schaefer - 1/4
 Florence K. Madras - 1/4
 Lucille A. Johnson - 1/4
 Lillian E. Johnson - 1/4
 George W. Johnson - 1/4
 Central Pacific - 1/4
 Louise M. Conroy - 1/4

Parcel No.	Area	Owner
10101	1.00	John W. Sweeney, Jr.
10102	1.00	John W. Sweeney, Jr.
10103	1.00	John W. Sweeney, Jr.
10104	1.00	John W. Sweeney, Jr.
10105	1.00	John W. Sweeney, Jr.
10106	1.00	John W. Sweeney, Jr.
10107	1.00	John W. Sweeney, Jr.
10108	1.00	John W. Sweeney, Jr.
10109	1.00	John W. Sweeney, Jr.
10110	1.00	John W. Sweeney, Jr.
10111	1.00	John W. Sweeney, Jr.
10112	1.00	John W. Sweeney, Jr.
10113	1.00	John W. Sweeney, Jr.
10114	1.00	John W. Sweeney, Jr.
10115	1.00	John W. Sweeney, Jr.
10116	1.00	John W. Sweeney, Jr.
10117	1.00	John W. Sweeney, Jr.
10118	1.00	John W. Sweeney, Jr.
10119	1.00	John W. Sweeney, Jr.
10120	1.00	John W. Sweeney, Jr.

PAVATION MAPS BUREAU
 TERRITORY OF HAWAII
 TAX MAP
 FRONT SEE DIVISION
 ZONE SEC. T14N
 5 5 08
 CONTAINING PARCELS
 SCALE 1" = 100' H.

SUBJECT TO CHANGE

PORT OF HAWAII, HAWAII, KAHUI

ENVIRONMENTAL ASSESSMENT

Stanley Single-Family Residence in the Conservation District in Hanalei

APPENDIX 2 Cultural Impact Assessment

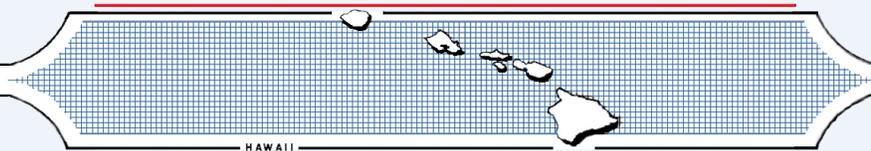
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**A CULTURAL IMPACT ASSESSMENT OF
1.21 ACRE PARCEL IN
WAI'OLI AHUPUA'A, HALELE'A DISTRICT,
KAUA'I, HAWAII
[TMK 5-5-008:1]**

Prepared by:
Leann McGerty, B.A.
and
Robert L. Spear, Ph.D.
February 2009

Prepared for:
Jason Stanley

SCIENTIFIC CONSULTANT SERVICES Inc.



711 Kapiolani Blvd. Suite 975 Honolulu, Hawai'i 96813

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INTRODUCTION

Scientific Consultant Services, Inc. (SCS) has been contracted by Jason Stanley, to conduct a Cultural Impact Assessment of 1.21 acres in Wai`oli Ahupua`a, Hanalei, Kaua`i Island [TMK: 5-5-008: 001] (Figures 1 and 2).

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua`a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778” (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua`a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, “native Hawaiian rights...may extend beyond the *ahupua`a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

In Section 1 of Act 50, enacted by the Legislature of the State of Hawai`i (2000) with House Bill 2895, it is stated that:

...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii’s culture, and traditional and customary rights...[H.B. NO. 2895].

Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs and practices, and resources of native Hawaiians as well as other ethnic groups. Act 50 also requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 environmental review process (2001).



Figure 1: USGS Quadrangle Map Showing Project Area

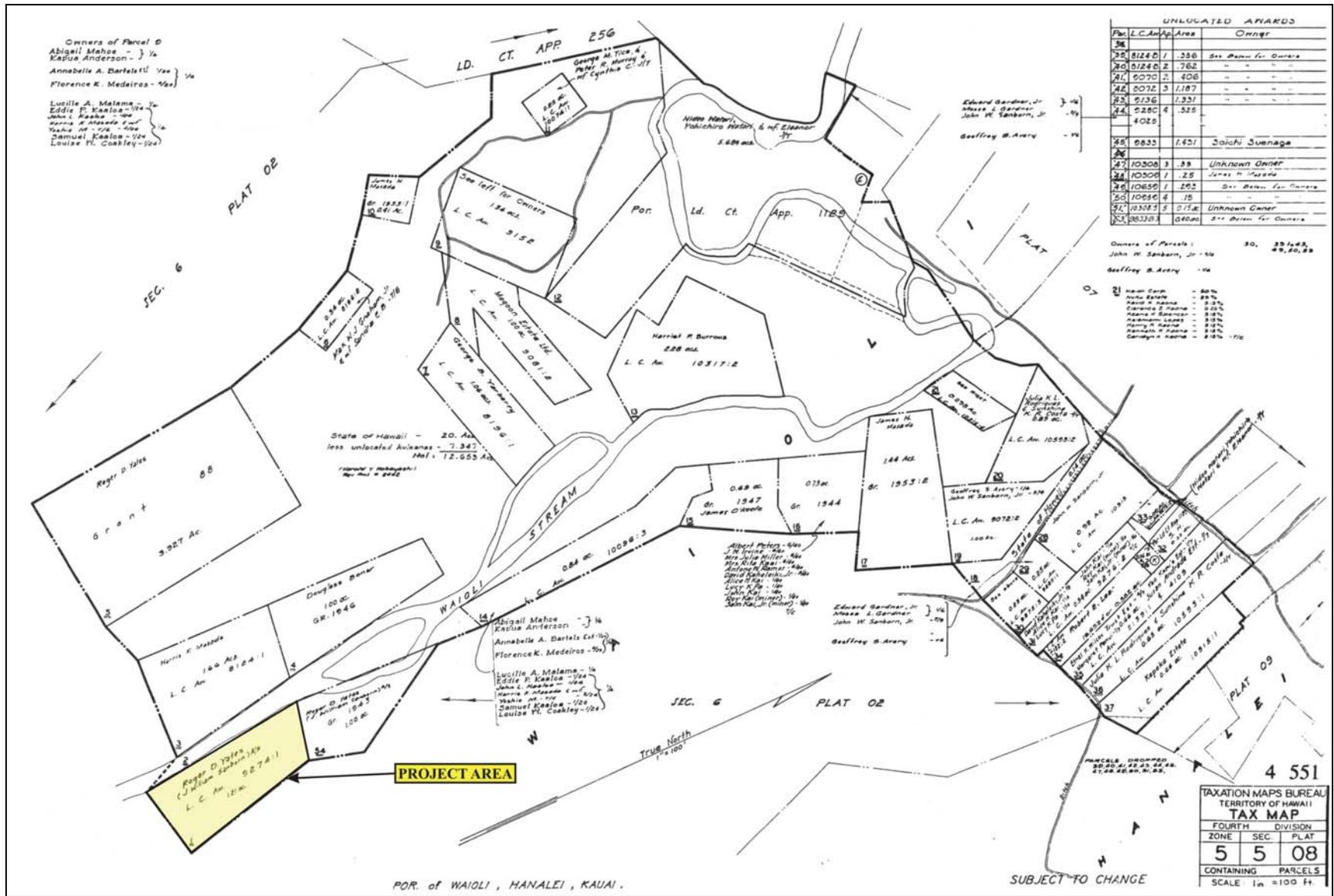


Figure 2: Figure Showing Project Area, TMK:5-5-08.

It also re-defined the definition of “significant effect” to include “the sum of effects on the quality of the environment including actions impact a natural resource, limit the range of beneficial uses of the environment, that are contrary to the State’s environmental policies. . . or adversely affect the economic welfare, social welfare or cultural practices of the community and State” (H.B. 2895, Act 50, 2000). Cultural resources can include a broad range of often overlapping categories, including places, behaviors, values, beliefs, objects, records, stories, etc. (H.B. 2895, Act 40, 2000).

Thus, Act 50 requires that an assessment of cultural practices and the possible impacts of a proposed action be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, “the broad geographical area, e.g. district or *ahupua`a*” (OEQC 1997). It was decided that the process should identify ‘anthropological’ cultural practices, rather than ‘social’ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

Therefore, the purpose of a Cultural Impact Assessment is to identify the possibility of cultural activities and resources within a project area, or its vicinity, and then assessing the potential for impacts on these cultural resources. The CIA is not intended to be a document of in depth archival-historical land research, or a record of oral family histories, unless these records contain information about specific cultural resources that might be impacted by a proposed project.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

The meaning of “traditional” was explained in *National Register Bulletin*:

Traditional” in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations’, usually orally or through practice. The traditional cultural significance of a historic property, then is significance derived from the role the property plays in a community’s historically rooted beliefs, customs, and practices. . . . [Parker and King 1990:1]

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the suggested methodology and content protocol in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the “Cultural Impact Assessment Methodology”, the OEQC states: that “...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories...” (1997).

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997) when possible. The assessment concerning cultural impacts may address, but not be limited to, the following matters:

- (1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained;
- (2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;
- (3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;
- (4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or

- being interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;
- (5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;
 - (6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;
 - (7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;
 - (8) an explanation of confidential information that has been withheld from public disclosure in the assessment;
 - (9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;
 - (10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices, or beliefs; the potential of the proposed action to isolate cultural resources, practices, or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;
 - (11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts; and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws and guidelines when knowledgeable individuals are able to identify cultural resources in, or in close proximity to, the project area. If they have knowledge of traditional stories, practices and beliefs associated with a project area or if they know of historical properties within the project area, they are sought for additional consultation and interviews. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information concerning particular cultural resources. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs (OHA), historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. No interviews were conducted for the present project as there were no responses from any of the contacted organizations and/or individuals.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is usually sent for correction and approval, or dictated by the informant and then incorporated into the document. If no cultural resource information is forthcoming and no knowledgeable informants are suggested for further inquiry, interviews are not conducted.

In September, 2008, letters were sent to organizations whose jurisdiction included knowledge of the area. Consultation was sought from Kai Markell, Office of Hawaiian Affairs, O`ahu; the Kaua`i Branch of the Office of Hawaiian Affairs; the Hanalei Watershed Hui (Makaala Ka`aumona); Barbra Say, member of the Kaua`i Burial Council; and Jeff Chandler, resident in area. In addition, SCS requested from the Department of Land and Natural Resources, Historic Preservation Division, the list of individuals recognized by the Kaua`i-Ni`ihau Island Burial Council (KNIBC) as lineal descendants for the island of Kaua`i, in case there were some located near the project area (Appendix A). Based on the responses, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The project area was located in Wai`oli Valley, in the district of Halele`a. The parcel sits along the west side of Wai`oli Stream and varies between 27 to 33 feet above mean sea level. As of April 2007, the property was vacant and overgrown.

CULTURAL AND HISTORICAL CONTEXT

Kaua`i, the oldest and fourth largest of the eight main Hawaiian Islands (with land area equaling approximately 1,432 square kilometers), was formed from one great shield volcano (Macdonald *et al.* 1970:458-461). At one time, this vast volcano supported the largest caldera in the islands, horizontally extending 15 to 20 kilometers across. Mt. Wai`ale`ale, forming the central hub of the island, extends 1,598 meters (above mean sea level) amsl. Topographically, Kaua`i is a product of heavy erosion with broad, deep valleys and large alluvial plains. Wai`oli is one of these valleys on the north side of the island.

Further traditional land divisions within the *moku* were called *ahupua`a* which ideally incorporated all the natural resources necessary for traditional subsistence strategies.

Much of the knowledge of traditional land use patterns is based on what was recorded at the time of, and shortly after, western Contact. Early records (such as journals kept by travelers and missionaries), Hawaiian traditions that survived long enough to be written down, as well as, archaeological investigations have assisted in understanding the past. Kaua`i was the first known Hawaiian island to receive western visitors (1778).

PAST POLITICAL BOUNDARIES

Approximately 600 years ago (from the time of Mā`ilikukahi on O`ahu and based on a 25 year per-generation count), the native population had expanded throughout the Hawaiian Islands to a point Land was considered the property of the king or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i `ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili`āina* were used to delineate various land sections. A district, or *moku*, appeared approximately B.P. 600 years, as the native population had expanded to a point where large political districts could be formed (Lyons 1903:29, Kamakau 1991:54, 55; Moffat and Fitzpatrick 1995:28). Kaua`i consisted of six *moku*; Kona, Puna, Ko`olau, Halele`a, Nāpali, and Waimea (*ibid.*:23). These districts contained smaller land divisions (*ahupua`a*) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili`āina*, or *`ili*, were smaller land divisions and were next to importance to the *ahupua`a*. They were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid.*: 33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa`āina* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the *ahupua`a* of Wai`oli, meaning literally “joyful water” (Pukui *et al.* 1974:227) and the *`ili* of Kaohe, most likely meaning “the bamboo”.

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys, such as Olowalu, provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinarum*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were cultivated. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985).

Wai`oli Ahupua`a, comprised 3,350 acres (14.2 km²) and included the entire drainage basin from the mountains, rising in some places 3,745 feet above mean sea level (amsl), to the sea (approximately 8 km long; Earle 1978:34). Many Hawaiian river valleys were defined by cultivation occurring in lower valley sections and on bends in the stream where alluvial terraces could be modified to take advantage of the stream flow (Kirch and Sahlins Vol. 2 1992:59; Earle 1978:31, 155). Although no longer in use, agricultural terraces were reported in the narrow

valley interior of Wai`oli. The alluvial plain was extensively cultivated and contained two irrigation systems, still functioning into the present time (Earle 1978:34.) Fishponds of the *loko-i`a-kalo* type were reportedly situated inland of the bend in the Wai`oli River (Kikuchi 1987). This type of fishpond not only supported the growing of *kalo* on small mounds (*pu`epu`e*) but, supported fish, crustacean, shellfish and some aquatic plants (Summers 1964:23). Along with the three deep valleys of the Halele`a District (Wainiha, Lumaha`i, and Hanalei), Wai`oli, formed one of the most agriculturally productive regions on Kaua`i (Handy and Handy 1972:419).

Coastal zones were utilized for acquiring marine resources and where habitation sites, burials, and ceremonial structures, often associated with fishing, were identified (Bennett 1931). Slightly inland of Hanalei Bay, was "...the preferred area for house sites," because of the coral sandy soils (Earle 1978:29). Hanalei Bay had no reliable ship anchorage for trading due to the susceptibility of the north coast's variable weather conditions and, therefore, never became a major port (Riznik 1987:2).

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame`eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1968:111; Kuykendall 1938 Vol. I: 145). The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were made available and private ownership was instituted, the *maka`āinana*, if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *`okipū* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

A rebellion on the island of Kaua`i in 1824 complicated the land issue there and, instead of being awarded to the chiefs of Kaua`i, many Kaua`i *ahupua`a* were awarded to the heirs of the ruling Kamehameha dynasty (Kamakau 1961). Wai`oli was awarded to Leleiohoku who, subsequently, returned it to Kauikeaouli, Kamehameha III (Buke Māhele 1848:31).

A total of 66 land claims were made in the *ahupua`a* of Wai`oli. Many of these claims mentioned house lots in the *ili* of Hanalei and *lo`i* in Wai`oli. The project area was in LCA parcel 09274:2, located in the *ili* of Kaohe. It was originally 1.21 acres and was awarded to Kuheleloa/Kahaleloa (Appendix B). According to the Native Register and the testimony given by Kuheleloa in 1850, this land was used for a taro *lo`i* and a cultivated *kula*. He testified that his right to the land had been given to him by Kaumuali`i, the last king of Kaua`i who died in 1824. He had access to the stream and Wai`oli ditch where the *lo`i* were located. Around his parcel were other LCA claims for pasture and *lo`i*. His house lot was located in Hanalei, *apana* 1, and had been received from the *konohiki* of Hanalei in about 1843.

Land use was the same for other claimants in the area. Helepalala and Muno claimed LCA 08124 located directly across Wai`oli Stream consisting of *kula* land under cultivation in taro (*mahina`ai kalo*) and a *lo`i* which would also have been for taro. Hakui, LCA No. 08196, claimed one parcel including eight *lo`i*, as well as, a house lot and some *kula* land. The American Board of Commissioners for Foreign Missions, LCA No. 00387, claimed a large portion of land nearer the coast (Waihona `Āina Corporation 2009).

With the shift to private land ownership brought about by the Māhele, alternative agricultural ventures and plantations quickly appeared throughout the islands (Joesting 1987). Sugar, had first been produced in small amounts, on the island of Lāna`i in 1802 and, by 1820, Samuel Whitney was making sugar and molasses at Waimea, Kaua`i (*Ibid.*:130). Sugar was soon to be a lucrative enterprise on all of the main Hawaiian Islands. Cotton was attempted on Kaua`i, and in Wai`oli, a Charles Titcomb, started a silk plantation (1839) by planting some 100,000 mulberry trees. Titcomb transferred his energy to coffee when the plantation failed (*ibid.*:148). In addition to these endeavors, ranching activities took place in Wai`oli Valley in the 1830s.

Throughout the 19th century, the Hawaiian population had been in steady decline due to a number of factors including the introduction of foreign diseases for which the native people had

no immunity. With the expansion of the sugar industry, more and more field workers were needed for the large plantations. The Royal Hawaiian Agricultural Society began importing Chinese laborers in 1852 (Knudsen 1991:125).

By the 1860s, traditionally cultivated agricultural lands became available and lands that had previously been cultivated in *kalo* by the diminishing Hawaiian people were converted into rice. Traditional *lo`i* ponds and agricultural terraces along river valleys such as Wai`oli and Hanalei were ideal for this purpose and were still producing rice in 1935 (Handy and Handy 1972).

A journey was taken around Kaua`i in 1849 by William DeWitt Alexander, the son of William P. Alexander, missionary at Wai`oli. He recorded his impressions of Hanalei and Wai`oli after having been away at school for a number of years.

...brought us to the top of the hill that overlooks Hanalei valley. The prospect from this hill is very fine. The lofty, and picturesque mountains behind Waioli, the majestic Hanalei river winding its way through coffee plantations and the graceful curve of the bay, bordered with houses, & groves, greatly increase the beauty of the valley...The feelings with which I gazed on the home of my early days, I can not describe...The little village that we used to call Bethlehem, was now a waste of indigo. The natives who were still living had, for the most part, moved their dwelling down to the seashore...The meeting house is very pleasantly situated among some hau trees...The beach is very broad, sloping gradually to the waters edge...The whole soil is part composed of sand. By digging in any place we arrive at sand at the depth of a few feet. Coral, & sea shells also are found at a considerable distance from the sea. [Kauai Historical Society 1991:125]

SUMMARY

The “level of effort undertaken” to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who know of cultural resources and activities that may be affected by the project or who know its history, conducting research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already

developed industrial area may be a “good faith effort”. However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the present parcel, letters of inquiry were initially sent to organizations whose expertise would include the project area. Consultation was sought from Kai Markell, Office of Hawaiian Affairs, O`ahu; the Kaua`i Branch of the Office of Hawaiian Affairs; the Hanalei Watershed Hui (Makaala Ka`aumona); Barbra Say, member of the Kaua`i Burial Council; and Jeff Chandler, resident in area. In addition, SCS requested from the Department of Land and Natural Resources, Historic Preservation Division, the list of individuals recognized by the Kaua`i-Ni`ihau Island Burial Council (KNIBC) as lineal descendants for the island of Kaua`i, in case there were some located near the project area.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I`i, Kamakau, Beckwith, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, Sterling, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2009 Data base.

CIA INQUIRY RESPONSE

No specific suggestions of contacts were received from Kaua`i Branch of the Office of Hawaiian Affairs; the Hanalei Watershed Hui (Makaala Ka`aumona); Barbra Say, member of the Kaua`i Burial Council; or Jeff Chandler, from the original letters of inquiry sent in September of 2008.

A response was received from Ms. Cayan, the History and Culture Branch Chief with SHPD, that included the list of individuals recognized by the Kaua`i-Ni`ihau Island Burial Council as cultural and/or lineal descendants for the island of Kaua`i (written on November 5, 2008). After research, it was clear that none of these known burial sites were in or near the project area.

Another avenue has been recently included in the strategy and pursuit of information concerning cultural resources and activities associated with specific land parcels. A Cultural Impact Assessment Notice was published on November 16, 19, 20, 2008 in *The Honolulu Advertiser* (Appendix D). This notice requests information of cultural resources or activities in the Wai`oli Ahupua`a, gives the TMK and LCA numbers and where to respond with information. There was no response from the notice.

One cultural activity was identified still occurring in the valley: hunting. On December 5, 2008, an informal interview was held between Jason Stanley and Glen Kobayashi of Kobayashi Trucking and Equipment, Inc. Glen is a well respected, lifetime resident of Hanalei and his family has owned property in the Wai`oli Valley since the late 1940s. Presently, his several businesses are located in Hanalei and he owns much of the property in the valley. The interview took place on December 5, 2008 at 3:45 pm at Glen's place of business off Kuhio Hwy in Hanalei between Glen and Jason Stanley.

Mr. Stanley asked if building a home on the property would have any impact on the activities in the valley. Glen stated, no. He said, they hunt for pigs throughout the whole valley, but the building of a home would not impact them [the hunters] at all. When asked if there were any traditional or cultural practices taking place on the property, Glenn said "No."

A letter from OHA, O`ahu Branch, dated December 2, 2008, recommended consultation with the following individuals and organizations: Kehaulani Kekua, Nani Rogers, Ka`iulani Huff, Sharon Pomroy, Christopher Kauwe, and the Hanalei Canoe Club. With the gracious assistance of the Kaua`i Branch of OHA, e-mail addresses were gathered and letters of inquiry were sent on December 16, 2008 (Appendix C). Jeff Chandler, also suggested by OHA, had previously been sent a letter and the Hanalei Hawaiian Civic Club was presently associated with the Canoe Club. None of these individuals or organizations responded to our inquiry.

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times. Hunting is a long-time cultural activity still occurring in the valley. However, according to a valley resident and hunter, Glen

Kobayashi, it will not be impacted by the construction in the project area. Based on historical research and the lack of response from most of the previously listed contacts, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the project area and the valley will not be affected and there will be no direct adverse effect upon cultural practices or beliefs. The visual impact of the project from surrounding vantage points, e.g. the highway, mountains, and coast is minimal.

CULTURAL ASSESSMEMNT

Based on organizational lack of response, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by a house construction within the project area. Because there were no cultural activities identified within the specific project area, and because the cultural activity of hunting in the valley will not be impacted by house construction on TMK:5-5-8:1, there are no adverse effects.

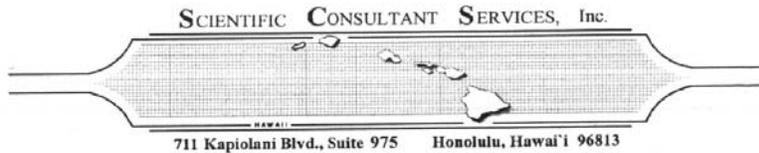
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APPENDIX A: OCTOBER CONSULTATION INQUIRES
(Enclosures not included)



Kai Markell
Director of Native Rights
C/o Office of Hawaiian Affairs
711 Kapi'olani Blvd, Suite 500
Honolulu, HI 96813

October 22, 2008

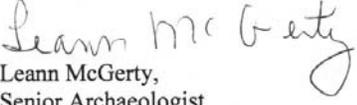
Dear Mr. Markell:

Scientific Consultant Services, Inc. (SCS) has been contracted by Mr. Jason Stanley, to conduct a Cultural Impact Assessment (CIA) of 1.21 acres in Wai'oli, Hanalei, Kaua'i Island [TMK:5-5-008:001]. According to documents supplied by Mr. Stanley, SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs...The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

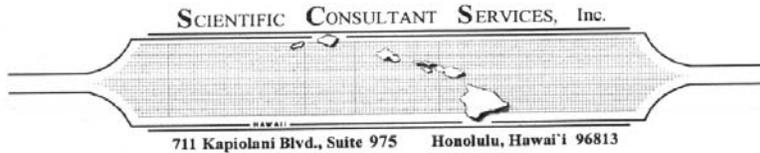
We are asking you for any information that might contribute to the knowledge of on-going traditional activities, rights, or resources that might be impacted by development of the property. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours. Enclosed are maps showing the proposed project area. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,


Leann McGerty,
Senior Archaeologist
Enclosures (2)

Ph: 808-597-1182 / SCS... SERVING ALL YOUR ARCHAEOLOGICAL NEEDS / Fax: 808-597-1193

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Kaua'i Branch
3100 Kūhiō Hwy. Ste.C4
Lihu'e, Kaua'i 96766

October 22, 2008

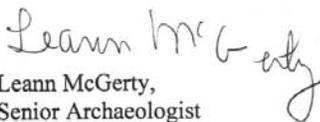
Dear Members:

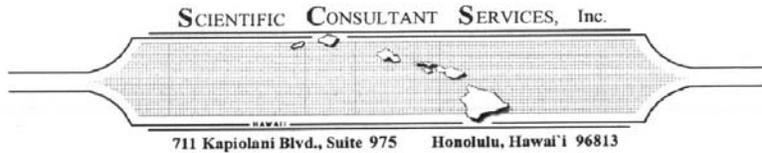
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Sincerely yours,


Leann McGerty,
Senior Archaeologist
Enclosures (2)



Hanalei Watershed Hui
c/o Maka'ala Ka'aumona
P. O. Box 1285
Hanalei, HI 96714

October 22, 2008

Dear Ms. Ka'aumona:

Scientific Consultant Services, Inc. (SCS) has been contracted by Mr. Jason Stanley, to conduct a Cultural Impact Assessment (CIA) of 1.21 acres in Wai'oli, Hanalei, Kaua'i Island [TMK:5-5-008:001]. According to documents supplied by Mr. Stanley, SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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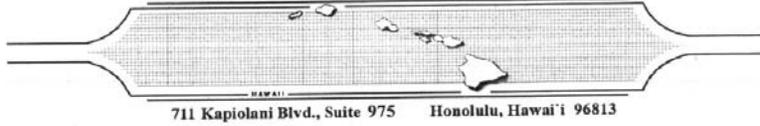
Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Ph: 808-597-1182 / SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS / Fax: 808-597-1193

Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i

SCIENTIFIC CONSULTANT SERVICES, Inc.



Jeff Chandler
P.O. Box 447
Hanalei, HI 96714

October 22, 2008

Dear Mr. Chandler:

Scientific Consultant Services, Inc. (SCS) has been contracted by Mr. Jason Stanley, to conduct a Cultural Impact Assessment (CIA) of 1.21 acres in Wai'oli, Hanalei, Kaua'i Island [TMK:5-5-008:001]. According to documents supplied by Mr. Stanley, SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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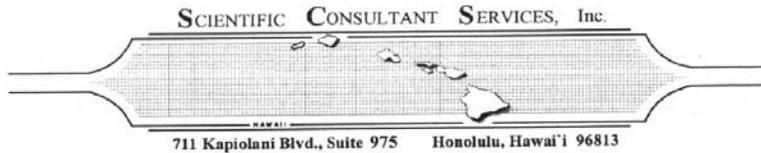
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Ph: 808-597-1182 / SCS... SERVING ALL YOUR ARCHAEOLOGICAL NEEDS / Fax: 808-597-1193

Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i



Barbara Say
Kaua'i Island Burial Council
294 Makani Road
Kapa'a, HI 96746

October 22, 2008

Dear Ms. Say:

Scientific Consultant Services, Inc. (SCS) has been contracted by Mr. Jason Stanley, to conduct a Cultural Impact Assessment (CIA) of 1.21 acres in Wai'oli, Hanalei, Kaua'i Island [TMK:5-5-008:001]. According to documents supplied by Mr. Stanley, SCS has been asked to assess the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Ph: 808-597-1182 / SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS / Fax: 808-597-1193

Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i

APPENDIX B: LCA CLAIM #09274 DOCUMENTS



- Articles
- Information
- Samples
- Gallery
- About Us
- Contact Us
- Mahele Database
- Boundary Commission
- Land Grants
- Royal Patents
- Review Cart & Checkout**

DOCUMENT DELIVERY

[Change password](#)

[Log out](#)

Mahele Database Documents
Number: 09274

Claim Number:	09274		
Claimant:	Kuheleloa		
Other claimant:			
Other name:			
Island:	Kauai		
District:	Halelea		
Ahupuaa:	Hanalei, Waioli		
Ili:	Hanalei, Kaohi		
Apana:	2	Awarded:	1
Loi:	1	FR:	
Plus:		NR:	446v9
Mala Taro:		FT:	27v12
Kula:		NT:	29v12
House lot:	1	RP:	7440

Kihapai/Pakanu:	Number of Royal Patents:	1
Salt lands:	Koele/Poalima:	No
Wauke:	Loko:	No
Olona:	Lokoia:	No
Noni:	Fishing Rights:	No
Hala:	Sea/Shore/Dunes:	No
Sweet Potatoes:	Auwai/Ditch:	No
Irish Potatoes:	Other Edifice:	No
Bananas:	Spring/Well:	No
Breadfruit:	Pigpen:	No
Coconut:	Road/Path:	Yes
Coffee:	Burial/Graveyard:	No
Oranges:	Wall/Fence:	No
Bitter Melon/Gourd:	Stream/Muliwai/River:	Yes
Sugar Cane:	Pali:	No
Tobacco:	Disease:	No
Koa/Kou Trees:	Claimant Died:	No
Other Plants:	Other Trees:	
Other Mammals: No	Miscellaneous:	Waioli ditch, House in Hanalei, government road

**No. 9274, Kuheleloa
N.R. 446v9**

For the information of the Land Commissioners, the diagram in this letter is my claim for land, a taro lo'i and the cultivated kula. The right of occupancy was received in the time of Kaumualii and has been held until the present. It is at Waioli. The witnesses are Konopuu, Kimokeo and Kiolea
Farewell to the Land Commissioners at Hale Kauwila,
Respectfully,

KUHELELOA

[DIAGRAM].

F.T. 27v12

No. 9274, Kuheleloa, Claimant, Waioli February 13th 1850

Mareko, sworn, says I know the lands of Kuheleloa. They consist of 2 pieces as follows.

No. 1 is a house lot in Hanalei.

No. 2 is a loi in the kula "Kaohe" Waioli & kula adjoining.

No. 1 is bounded:

Mauka by road to Hanalei River

Napali by Nunu's house lot

Makai by road on beach

Koolau by Timoteo's house lot.

No. 2 is bounded:

Mauka by Waioli ditch

Napali by Waioli River

Makai by Paoao's loi

Koolau by Paoao's kula.

The loi has been held by Claimant & his tenants since the days of Kamualii, unmolested to this present time. The house lot was given by the Konohiki of Hanalei & has been held in quiet possession since about 1843.

Timoteo, sworn, says I know the Claims of Kuheleloa. I have heard the testimony of Mareko, & it is all correct.

N.T. 28v12

No. 9274, Kuheleloa, Waioli 3 Feb. 1850

Mareko, sworn, he has seen Kuheleloa's land in Waioli and the house lot in Hanalei, also, Kaohe, a pond in Waioli.

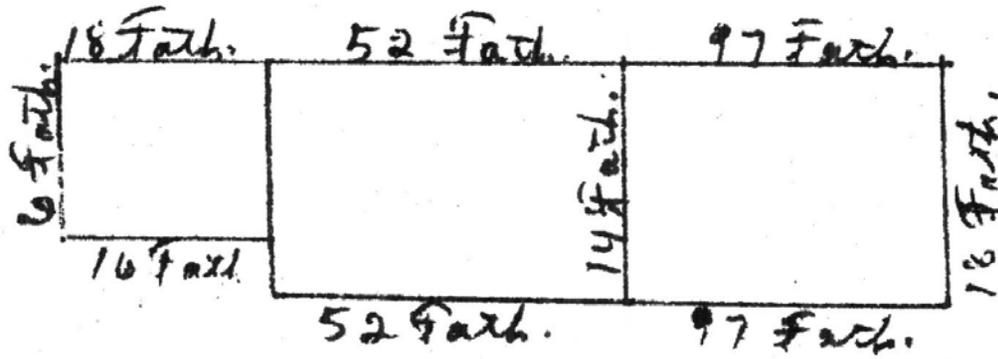
Section 1 - House lot in Hanalei.
Mauka from loane's place, a road
Napali by Numu's lot
Makai by Government road
Koolau by Timoteo's lot.

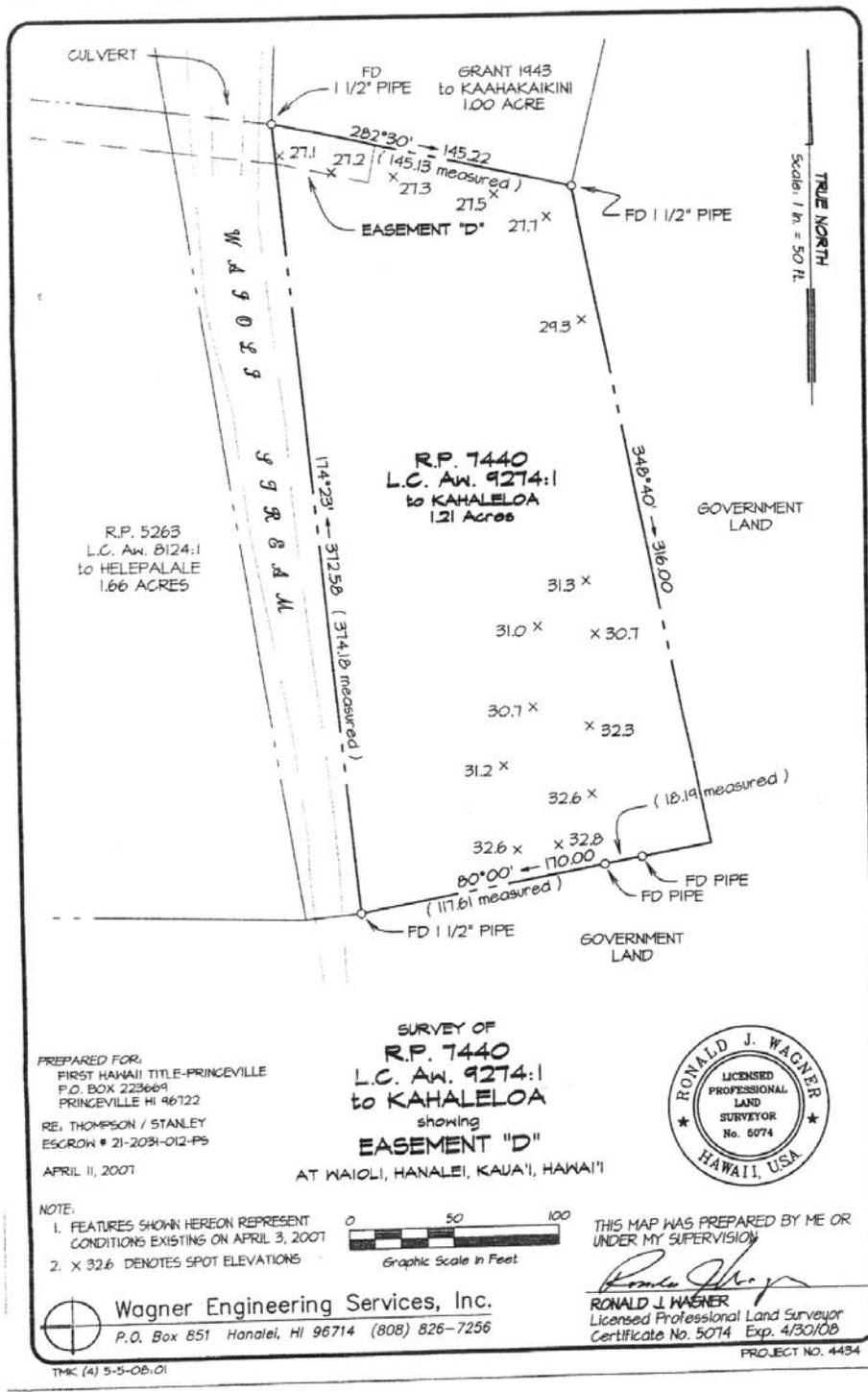
Section 2 - Waioli pond.
Mauka by Waioli ditch
Napali by Waioli river
Makai by Paoa's land
Koolau by Paoa's pasture.

Land received at the time of Kaumualii, no disputes to the present time It was from the Konohiki in 1843.

Timoteo, sworn, he has seen Kuheleloa's house lot exactly as Mareko has related here to us.

[Award 9274; R.P. 7440; Hanalei 1 ap. 1 rood 17 rods; Kaohi Waioli 1 ap. 1 Ac 33 rods]



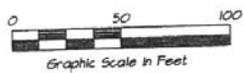


PREPARED FOR:
 FIRST HAWAII TITLE-PRINCETONVILLE
 P.O. BOX 223669
 PRINCETONVILLE HI 96722
 RE: THOMPSON / STANLEY
 ESCROW # 21-2031-012-PS
 APRIL 11, 2007

SURVEY OF
R.P. 7440
L.C. Aw. 9274:1
to KAHALELOA
 showing
EASEMENT "D"
 AT HAIOLI, HANAIEI, KAUA'I, HAWAII



- NOTE:
1. FEATURES SHOWN HEREON REPRESENT CONDITIONS EXISTING ON APRIL 3, 2007
 2. X 32.6 DENOTES SPOT ELEVATIONS



THIS MAP WAS PREPARED BY ME OR UNDER MY SUPERVISION

Ronald J. Wagner
RONALD J. WAGNER
 Licensed Professional Land Surveyor
 Certificate No. 5074 Exp. 4/30/08

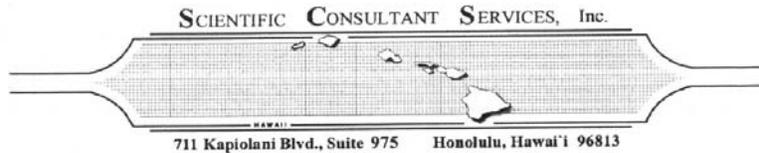


Wagner Engineering Services, Inc.
 P.O. Box 851 Hanalei, HI 96714 (808) 826-7256

PROJECT NO. 4434

THK (A) 5-5-06.01

APPENDIX C: DECEMBER CONSULTATION INQUIRES
(Enclosures not included)



Sharon Pomroy
Pomroys001@hawaii.rr.com

December 16, 2008

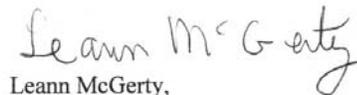
Dear Ms. Pomroy:

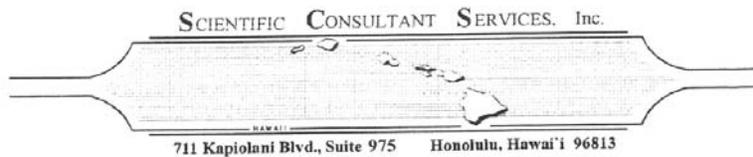
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Sincerely yours,


Leann McGerty,
Senior Archaeologist
Enclosures (2)



Kehaulani Kekua
c/o Ka'ie'ie Foundation
P. O. Box 1261
Kapa'a, Kaua'i 96746

December 16, 2008

Dear Ms. Kekua:

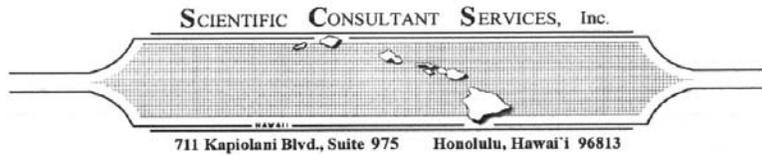
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Ka'iulani Huff
kaiulani@iwikupuna.com

December 16, 2008

Dear Ms. Huff:

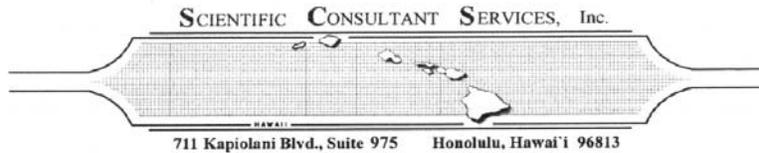
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Chris Kauwe
letsgosurfing@hotmail.com

December 16, 2008

Dear Mr. Kauwe:

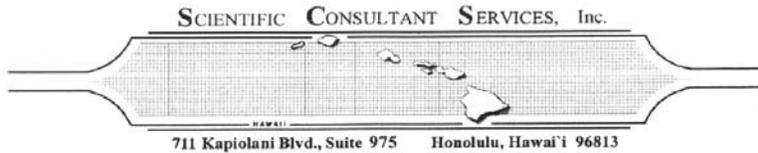
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Puanani Rogers
P.O. Box 88
Kapa'a, HI 96746
Kealiagir12004@yahoo.com

December 16, 2008

Dear Ms. Rogers:

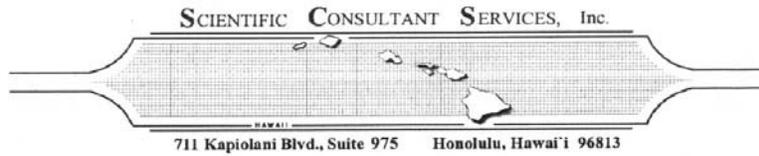
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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)



Hanalei Canoe Club
c/o Kainoa Chandler Forrest

December 16, 2008

Dear Ms. Forrest:

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Sincerely yours,

Leann McGerty,
Senior Archaeologist
Enclosures (2)

APPENDIX D: CULTURAL IMPACT NOTICE IN NEWSPAPER

The Honolulu Advertiser
 605 KAPIOLANI BLVD
 HONOLULU, HI 96813

LEGAL ADVERTISING

11/10/08 03:23 PM

RECEIPT

CLASSIFIED: (808) 525-7420
 FAX: (808) 525-5448

Please note: Check your ad the FIRST day it appears in the paper.
 The Honolulu Advertiser will not be responsible for errors after the first insertion of any advertisement.

21

Account Information				Ad Information	
Name:	SCIENTIFIC CONSULTANT SERVICES			Ad ID:	593106
Company:	711 KAPIOLANI BLVD 975			Run dates:	11/16/08 to 11/20/08
Address:	HONOLULU, HI 96813			Class:	Legal Ads
City:	23090			Sales Person:	TOYAMA
Account ID:	(808) 597-1182			Printed by:	TOYAMA
Account #:				Inserts:	6
Telephone:				Lines:	30
				Columns:	1
				Depth (Inches):	2.125
				Net Cost:	\$192.50
				Tax:	\$9.07
				Paid Amount:	\$201.57
				Amount Due:	\$0.00
				Keywords:	
				P.O. number:	

Publications:	Start	Stop	Inserts
The Honolulu Advertiser	11/16/08	11/20/08	3
Online	11/16/08	11/20/08	3

Payments:	Method	Card Type	Name on Card	Last 4 Digits	Expire Date	Check Number	Amount Paid
	CC	MC	SUARRA BAKER	5287	03/09		\$201.57

Ad Copy: (Actual Size)

CULTURAL IMPACT ASSESSMENT NOTICE:
 Information requested by SCS of cultural resources or on-going cultural activities on or near this parcel in Wai'oli Ahupua'a, Hanalei, Kaua'i, TMK: 5-5-08/LCA 9274:1. Please respond within 30 days to SCS at (808) 597-1182.
 (Hon. Adv.: Nov. 16, 19, 20, 2008) (A-593106)

989

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ENVIRONMENTAL ASSESSMENT

Stanley Single-Family Residence in the Conservation District in Hanalei

APPENDIX 3

Archaeological Inventory Survey and SHPD Correspondence

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ARCHAEOLOGICAL CONSULTANTS OF THE PACIFIC, INC.

JOSEPH KENNEDY
Principal Archaeologist

April 4, 2011

Mr. Jason Stanley
3359 Wilmington Ct.
Eugene, OR 97408

Dear Mr. Jason Stanley,

Please find enclosed two draft copies of, "An Archaeological Inventory Survey Report for a Property Located at TMK: 5-5-08 in Wai'oli Ahupua'a, Hanalei District, Island of Kaua'i. At your convenience, please send one of the copies to the Department of Land and Natural Resources, State Historic Preservation Division.

Sincerely,

Jeff Syrop
Archaeologist
ACP, Inc.

59-624 Pupukea Road • Haleiwa, Hawaii 96712
Telephone: (808) 638-7442 • Fax: (808) 638-0703
E-mail: acp@hawaii.np.com or Kennedy@lava.net

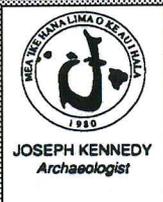
Inventory Surveys • Data Recovery Studies • Monitoring • Burial Treatment Plans • Historical Studies
Qualified Expert Witness Testimony • Preservation Plans • NAGPRA Studies • Traditional Cultural Property Studies

**AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT
FOR TMK: 5-5-08: 1 LOCATED IN
WAI'OLI AHUPUA'A, HANAIEI DISTRICT,
ISLAND OF KAUA'I**

APRIL 2011

**Prepared for: Mr. Jason Stanley
3359 Wilmington Ct.
Eugene, OR 97408**

**Prepared by: Archaeological Consultants of the Pacific, Inc.
Jeff Syrop, B.A.
Joseph Kennedy, M.A.
59-624 Pupukea Road
Haleiwa, Hawaii 96712**



*Inventory Reports * Data Recovery Reports * Research Design Documents * Monitoring * Due Diligence Work * Historical Studies * Cultural Studies * Burial Treatment Plans * Preservation Plans * Interpretive Reconstructions * Restorations * Qualified Expert Witness Testimony*

59-624 Pupukea Road Haleiwa, Hawaii 96712 Phone: 638-7442/Fax: 638-0703
e-mail: acp@hawaii.rr.com & kennedy@lava.net
website: ACPHawaii.org

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An Archaeological Inventory Survey Report for TMK 5-5-08: 01 Located in Wai‘oli Ahupua‘a, Hanalei District, Island of Kaua‘i

Section 1: Introduction

At the request of Mr. Jason Stanley, Archaeological Consultants of the Pacific, Inc. (ACP) has conducted an Inventory Survey for the property (TMK: 5-5-08: 01) located in the *ahupua‘a* of Wai‘oli, current district of Hanalei, Island of Kaua‘i (see Figure 1). The property is currently owned by Mr. Jason Stanley.

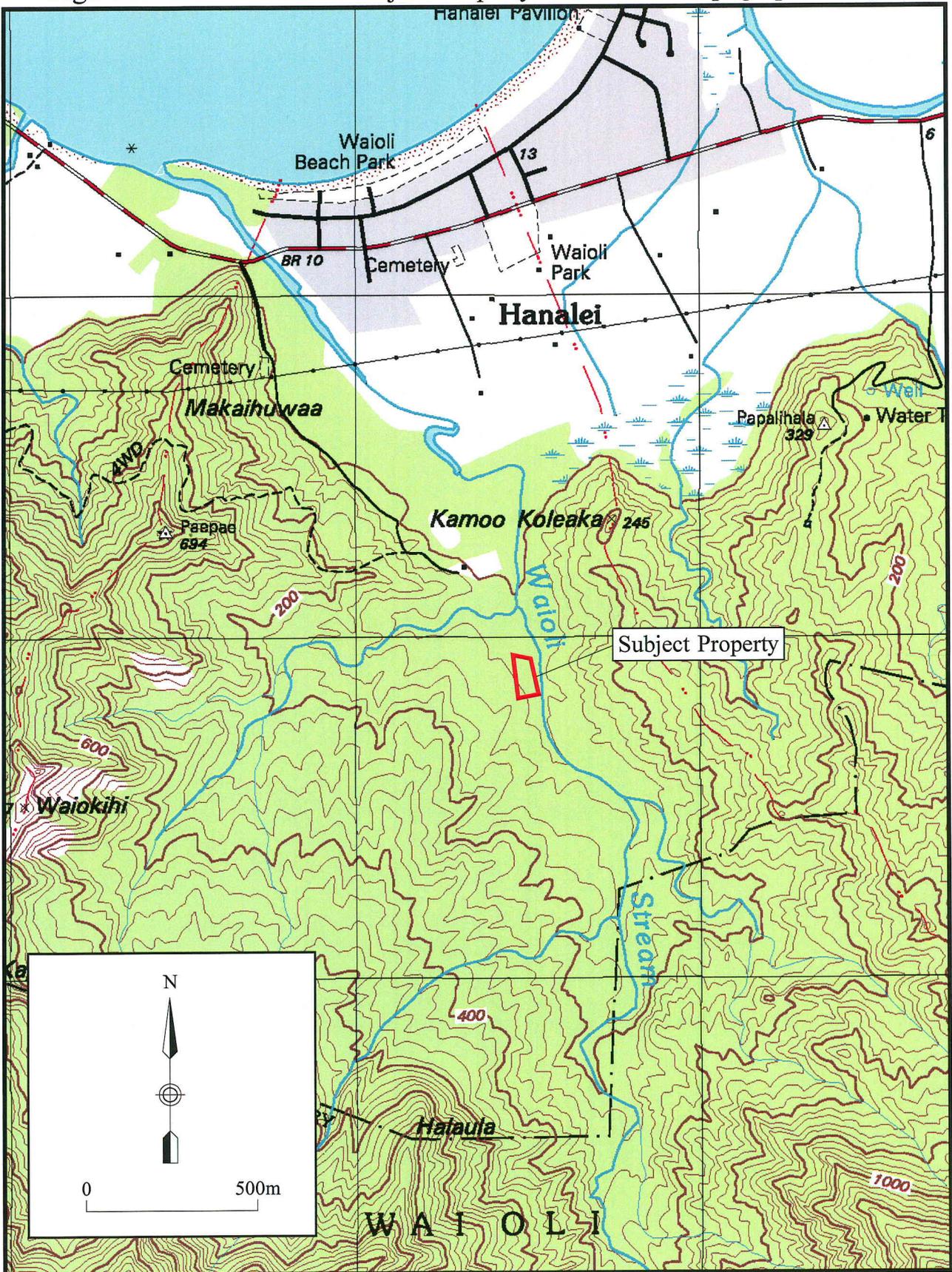
The purpose of these archaeological investigations was to perform the tasks and meet the requirements specified by the National Historic Preservation Act (NHPA) and the Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD). These investigations would allow for the evaluation of the significance of potential historic resources located on the property including their eligibility for inclusion in the National Register of Historic Places. These investigations also allow for the making of recommendations concerning the mitigation of the impact of future construction activities upon potentially significant historic resources.

Section 2: Environmental Setting

The subject property (TMK: 5-5-08: 01) is located in the *ahupua‘a* of Wai‘oli, current district of Hanalei, Island of Kaua‘i. The project area is located at geographic grid coordinates 159° 30’ 13”W by 22° 11’ 39”N (see Figure 2). The property is bordered on all sides by undeveloped land.

The current subject property is comprised of one parcel located in Wai‘oli Valley, approximately 1.4km from the ocean at an elevation of between 20 and 100 feet above mean sea level (see Figure 3). The present topography consists of artificially rolling terrain. Vegetation on the parcel includes a patch of bamboo (*Bambusa Vulgaris*) covering the southern third of the property. A *hau* thicket (*hibiscus tiliaceous*) covers the center of the property. Several types of trees and other small plants create a somewhat dense vegetation overgrowth.

Figure 2: Location of the Subject Property on a USGS Topographic Map



Average annual rainfall ranges between 75 and 100 inches (Armstrong 1973). Foote et al. (1972) describe the soils in the area as Kolokolo extremely stony clay loam (very dark brown extremely stony clay loam underlain by dark brown loam, very dark grayish brown silty clay loam and brown silty clay loam) and Hanamaulu silty clay, 3-8% slopes (very dark grayish-brown silty clay underlain by dark brown silty clay, dark reddish brown silty clay, dark brown silty clay loam and dark brown clay loam)(Foote et al. 1972).

Section 3: Historic Background of Wai'oli Ahupua'a

Wai'oli Ahupua'a is located within Hanalei District (traditional district of Halele'a) on the north shore of Kaua'i. This *ahupua'a* is bounded by Hanalei Ahupua'a to the east and Waipa Ahupua'a to the west. The *ahupua'a* extends from the central portion of Hanalei Bay to Nāmolokama Mountain with a width of 600 meters (m) along the bay expanding to a width of 3300m in the central-*mauka* portion. Wai'oli Stream bisects the *ahupua'a* and is fed by numerous tributaries. According to Handy and Handy (1972:419), Wai'oli, which translates to "joyous waters" was also called the "Birthplace of the Rainbows" and is reported to be "one of the most productive [*ahupua'a*] on Kauai."

Section 3.1: Legends and Traditional Accounts

Several place names and features as well as various colored *tapa* (reflecting the colors of the rainbow) made in Wai'oli are revealed in a narrative called "Waioli." Hammatt and Folk (1994) summarize the narrative:

This legend tells of the god Ka-nē-loa coming to Kaua'i to seek a bride beside the singing waters of Wai'oli [Wai'oli, Lit. joyful waters; Pukui, Elbert and Mookini 1974) and this visit brings the rainbow to Kaua'i. It is a charming legend and describes generally the making of different colored *tapa* and of the place names in Wai'oli... The place names in this tale go from shore to inland and are: 1) Monolau at the shore; 2) Māhāmōkū where there was a pond; 3) Ma-ka-ihu-wa'a ridge and Ka-mo'o-kōlea-ka, the hill that was once a dangerous *mo'o* [dragon]; 5) Lani-huli, with the yellow rain called Ua-lena; 6) Kū-pā-kō-'ili, where there is a living fence of dark green sugar cane surrounding ōhi'a-'ai (mountain apple) grove; 7) Manu'a-kepa, named for the blue-billed birds of this area; 8) Ka-hala-māpuana named for its famed hala tree(s); 9) Ka-uka-'oeua, where the wild *kalili* violets grow; 10) Wai'ama'o, where the tinkling water tells secrets; and finally to 11) the thundering waterfall at Nāmolokama.

... "Waioli" also describes the making of *tapa* throughout the *ahupua'a*. The first *tapa* is dyed red with noni and the color heightened by dipping the dyed *tapa* in salt water. The second *tapa* is dyed orange and scented with the 'alani leaf. The third *tapa* dyed yellow with the raw 'olena root. The fourth *tapa*, a green one, used the dye from the mamaki. The fifth *tapa*, a pale blue, is dyed with 'uki'uki berries. The sixth *tapa* is made from the poni taro sap and scented with the *kalili* violets. The eighth *tapa* dye, a pale grey, is made from the charcoal of sugar cane mixed with coconut milk and is scented with maile.

Nāmolokama Mountain, in the back of Wai'oli Valley, is mentioned in a saying "U'ina ka wai o Nāmolokama" (the water of Nāmolokama falls with a rumble) in reference to the

waterfall (Pukui in Hammatt, Folk and Creed 1995). Kamehameha referred to NāmoloKama (Pukui and Elbert in Hammatt, Folk and Creed 1995):

*E holo a inu i ka wai o Wailua, a hume i ka wai o NāmoloKama, a 'ai i ka 'anae 'au o
Kawaimakua i Hā'ena, a lei ho 'i i ka pahapaha o Polihale, a laila, ho 'i mai a O'ahu, 'oia ka
'āina e noho ai*

Let [us] go and drink the water of Wailua, wear a loincloth in the water of NāmoloKama, eat the mullet that swim in Kawaimakua at Hā'ena, wreath [ourselves] with the seaweed of Polihale, then return to O'ahu, the land to dwell upon.

Section 3.2: Land Use

The earliest use of the land along the northern coast of Kaua'i likely consisted of utilization of littoral resources, with settlement clustering near to the shoreline. Prehistoric and historic cultural layers consisting of dark deposits containing significant amounts of organic material have been identified in beach and dune deposits extending from Kē'ē Beach to Wainiha Bay. Hammatt and Shideler (1989) dated this dark marine resource oriented occupation layer located at Kē'ē Beach to between AD 900 and 1000, at the time one of the oldest Hawaiian occupation dates on Kaua'i (since that time, earlier dates have been obtained from investigations in Kōloa).

Griffin (1984) suggests that during the initial occupation of the Hā'ena/Wainiha area, a sporadic marine resource oriented residence pattern characterized the area. Temporary and specialized residence may have been characteristic of this early period. The population density was likely relatively low. Permanent residence was likely small and sparse (Griffin 1984:6).

Beginning approximately around AD 1200, "beach occupation intensified, with evidence of temporally and spatially continuous habitation" in the Hā'ena/Wainiha area (Griffin 1984:6). By AD 1400, the subsistence economy shifted to a greater dependence on land based resources such that agricultural intensification resulted in a significant taro production system (Hammatt et al. 1978:55; Griffin 1984:8). Extending inland from the beach dune area and continuing towards the base of the cliffs, all of Hā'ena appears to have been developed into taro growing systems with occasional residences (Griffin 1984:13).

While the pre-Contact period for the *ahupua'a* of Wai'oli has not been well documented, it may be conjectured that utilization and settlement followed a similar pattern, and possibly a comparable time frame. Conflicting radiocarbon results have been obtained from the Hanalei area. A date was obtained for taro cultivation in Hanalei as early as AD 610+/-95 (Schilt 1980), however these results have not been verified by additional similar findings.

During the proto-historic and early historic periods, agriculturally based subsistence resources were increasingly developed. Earle (1978:125) documented 44 separate *lo'i* irrigation systems from Hā'ena to Kalihiwai, including a gross total of more than 115 hectares. Land Commission Award (LCA) records document the use of *kula* lands for dry-land

agriculture in addition to claims for *lo'i* and house lots. Three *lo'i* systems are documented for Wai'oli Ahupua'a (Systems 22, 23 and 24).

Earle (1978:125) provided detailed summaries of each system based upon LCA documentation from the Great Mahele. System 22 is an Alluvial Coastal Plain irrigation system fed by the main stream of Wai'oli. This system is unusual in that it spans two *ahupua'a*, Wai'oli and Hanalei. The portion of the irrigation system that lies within Wai'oli Ahupua'a has a total length of 905m and covers an area of 14.20 gross hectares. System 22 is by far the largest of any other system in Halele'a, and consequently, the number of farmers for this irrigation system was nearly double that of any other in the district (net total of 34, gross total of 48-54). Earle (1978:67) describes this system at length:

System 22... irrigates the extensive alluvial plain east of the Waioli stream. This area is a broad zone of nearly flat, natural swampy, alluvial soils which extend from the base of the mountain ridges to the sandy soils bordering Hanalei Bay.

The intake for the primary ditch of System 22 is located in the narrow valley of the Waioli stream before it enters the broad alluvial flatlands of Hanalei Bay. At the intake, the Waioli stream is braided into three channels at a shallow rapids. The modern cement head dam (7m long, 1.5m high), which replaced a stone percolation dam in 1972, completely blocks the eastern channel. The ditch leads water away from the stream bed and along the lower slopes of the ridge which forms the eastern edge of the Waioli valley. This ditch is a good example of a contour ditch which maintains an approximate contour line along the slope of a ridge by keeping a gradual grade (less than .008). The ditch itself is dug into the natural slope and the fill is used to construct a down-slope bank which in places is up to 2 m high... Archaeologically, stone retaining walls were often used to reinforce the bank of a contour ditch.

The ditch finally rounds the northern face of the ridge and lies above the broad alluvial plain. Here, it divides into three segments. The highest fork of the ditch continues along the ridge to the Ma'ahana section in the ahupua'a of Hanalei. The middle fork of the ditch continues straight to a section of pondfields in the western section of Hanalei. The lowest fork turns north and cuts down into the main alluvial flatland of Waioli. This Waioli alluvium is relatively flat with an overall slope less than .005 but the topography gently undulates with alternating ridges and sloughs. The primary ditch cuts directly across the sloughs and so it is either built up or flumed across low areas. Secondary ditches branch off from the main ditch at right angles and run down the crests of the higher land. Drainage ditches are dug in the sloughs to lead excess water back to the Wainiha stream. The extensive use of both flumes and drainage ditches has permitted the expansion of System 22 into the flattest areas near the sea. Historically, the pondfields were concentrated closer to the ridge line. The present length of the main ditch is 1.40km (.63km below the main diversion).

The highest (Ma'ahana) branch of System 22 continues along underneath the rear ridge of Waioli and, after entering the ahupua'a of Hanalei, it descends to the broad alluvial plain. Topographically, the area is nearly flat (.003 slope), but it is criss-crossed by several sluggish streams. The main Ma'ahana ditch runs through the center of a pondfield series, which is fed either directly or by secondary ditches. The modern ditch runs 1.26km beyond the main fork with the Waioli ditch, but this represents a considerable extension over the traditional system, made possible by the extensive use of flumes and drainage ditches.

The central branch of System 22 irrigates an area of pondfields between the other two sections of the system. There is no evidence that this area was in production before the major expansion of irrigation during the period of rice cultivation.

System 22 is now one of the major taro producing areas in the Hanalei district. It represents a nearly continuous area of pondfields including a gross area of 53.8 ha. Although no study was made, I estimate that there are about ten to twelve farmers on this system. The development of drainage systems and the use of flumes has permitted considerable expansion of the total area under cultivation from the traditional system.

Earle provides further elaboration on System 22, suggesting that it may not have originally crossed the *ahupua'a* boundary between Wai'oli and Hanalei, but rather was once two separate systems (Earle 1978:129).

The historic irrigation systems of Halelea were virtually all community level projects. Because the territorial communities (*ahupua'a*) were usually physically isolated from each other by ridges, a given ditch network serviced the agricultural lands of a single community.

There was only one case where a ditch network crosses an *ahupua'a* boundary; historically, System 22 serviced lands within the two *ahupua'a* of Waioli and Hanalei. This exceptional case, however, may not represent an aboriginal condition, because there already had been severe economic disruption in this area by 1850. In 1842, a major portion of the alluvial bottom land of Hanalei was leased to a foreigner, J. Bernard, as a coffee plantation. Although the lease specifically excluded the taro patches, Bernard proceeded systematically to destroy the taro fields and to evict the Hawaiian farmers (Land Commission Foreign Testimony Vol. 1:54-55). At this time several dispossessed farmers received land in Waioli systems, and it seems probable that System 22 was expanded into Hanalei at this time. As described in Chapter 3, Waioli and Hanalei shared access to a large alluvial plain which was partitioned more or less arbitrarily between the two *ahupua'a*. The extension of System 22, therefore, was technologically a simple matter. By 1850, the community distinction between Hanalei and Waioli was blurred as indicated by individuals receiving *apana* in both *ahupua'a*. Of the thirteen cases of inter-*ahupua'a* *kuleana*, eleven were between Hanalei and Waioli.

Evidence, therefore, clearly indicates that irrigation systems were historically contained within the jurisdiction of a single community. This restriction would have minimized the potential managerial difficulties involved in the irrigation systems.

Moffat and Fitzpatrick (1995:105) suggest that much of what is currently under *lo'i* cultivation in Hanalei was not utilized as such during traditional times, providing further argument that System 22 may not have originally spanned two *ahupua'a*:

According to the *Indices of Awards*, there were ...fifty-five [*kuleana* awards] within Hanalei, and seventy in Waioli. It is interesting that Waioli, much smaller and with far less level land than Hanalei, had a significantly larger number of *kuleana* properties. Judging by the extensive taro farming that occurs in Hanalei today, it would seem that the well-watered valley must have been home to a considerable population in the original Hawaiian society. Archaeological and other evidence, however, indicates that much of the low-lying land in Hanalei was not used extensively for agriculture in earlier times. The variety of taro grown by Hawaiians is reported to do poorly unless grown in cool water, and the broad plains of Hanalei did not have the slope necessary to keep water flowing continuously through the *lo'i*, or taro fields.

Difficulties in making such a distinction are also due in part to disturbance resulting from rice cultivation as noted by Earle (1978:34):

Presently, the alluvial plain on both sides of the Waioli stream is extensively farmed with two irrigation systems. In 1850, this area was dominated by several large systems; little archaeological evidence remains because rice cultivation, around the turn of the century, heavily altered the traditional systems.

System 23 is an Alluvial Terrace irrigation system fed by a tributary of Wai'oli Stream (Earle 1978:125). The irrigation ditch had a total of 325 m in length (105m in the initial segment) covering an area of 3.63 hectares (net and gross), a fairly typical size for Halelean irrigation systems. The number of farmers for this irrigation system was 11 (net), or 14-17 (gross). Earle (ibid:69) provides a brief description of this system:

System 23 is located on the alluvial plain west of the Waioli stream. The source of this system is the Waikunono stream, a tributary of the Waioli stream. At present, the Waikunono is diverted completely by a stone, earth, and plastic sheeting dam located where the stream emerges from a narrow canyon on to the plain. A contour ditch then leads the water along the base of the ridge which forms the western edge of the Waioli valley. The area of modern cultivation has only eight pondfields and these are located well downstream from the historic pondfield area. The modern fields are all cultivated by a farmer whose main fields are in System 22.

The terracing recorded previously on the current subject property was most likely a portion of System 24. System 24 is an Alluvial Terrace irrigation system, fed by the main stream of Wai'oli (Earle 1978:125). The length of the irrigation ditch for this system is unknown. According to Earle, this system covers an area of 1.27 hectares (net and gross), roughly half that of System 23, and subsequently has nearly half the number of farmers (5 net and 6 gross). Unfortunately, Earle provides little additional information in reference to this system, and this is complicated by discrepancies on some of the maps. Earle's Maps 1 and 2 depicting the locations of Halelean irrigation systems do not include a designation for System 24. As noted above, two *lo'i* clusters linked by an *'auwai* both appear to be designated as System 23, rather than one of these clusters being System 24 and not labeled as such. Earle's Figure 8.1 (1978:152, see Figure 6 in this report) depicts System 24 as being located on the west side of Wai'oli Stream which appears to be in the vicinity of the current subject property, however its size and shape are not indicated. It must be noted that this map may be somewhat questionable as it does not label Systems 22 or 23, and shows System 25 as being located just to the north of System 24, whereas all other references indicate that System 25 is located in Hanalei Ahupua'a. The simplest and perhaps most logical interpretation of Earle's maps is that System 24 is located as indicated on Earle's Figure 8.1 (in the vicinity of the current subject property) and is not included on Earle's Map 2 because the map does not extend that far south. The designation of System 25 on Earle's Figure 8.1 may simply be a typographical error. Regardless of discrepancies in Earle's documentation, the presence of terracing on the current subject property clearly represents a portion of the broad network of Halelean irrigation systems.

Upon examination of the USGS topographic map of Hanalei (see Figure 2), the interior valley to the south of the current subject property continues for some distance with gently sloping alluvium which could have contained additional *lo'i* systems. Handy and Handy note that "there were many small terraces that were no longer in use in the upper valley" (1972:420). Earle (1978:34) also points out that a local farmer mentioned several small terraced sites in the valley interior.

In addition to the cultivation of taro, mention is made of mountain apples being grown in Wai'oli in a chant for Lono-i-ka-makahiki (chief of Kau and Puna) written by his favorite attendant, "recounting their wanderings in the wilderness of Kauai" (Kamakau 1992:51):

Ka ua ho'opala 'ohia o Wai'oli.

The rain that ripened the mountain apples of Wai'oli.

Substantial changes began to take place in Wai'oli after western contact. Missionaries established the Wai'oli Mission was 1832 which eventually included a Church, school, work shed, storehouse and additional ancillary structures on 34 acres (McGerty and Spear 1999). The school had fifty students in its fourth year (Kamakau 1992:405). A short-lived community, Bethlehem or Kalema, was also established by the missionaries at the mouth of Wai'oli Stream (Hammatt et al. 1995).

With the arrival of missionaries in the 1830's, thirty years of agricultural experiments began, which included attempts at growing coffee, sugar and silk as well as raising cattle. Cotton was planted in the 1830's for the purposes of raising money for a school house, church and bell. Sugar was also being planted at that time. In the following decade, mulberry trees were planted for a burgeoning silk business, with 500,000 worms documented in 1840 (McGerty and Spear 1999).

During the Great Mahele (1848-1852) lands became available for private ownership for the first time for the *maka'āinana* (commoners) as well as foreigners. Foreign and Native Resister and Testimony for land claims elucidates the various land uses in the mid-1800s. The entire *ahupua'a* of Wai'oli was granted to Kamehameha III, however numerous smaller awards were granted within the *ahupua'a* to individuals primarily for *lo'i*, house lots, and *kula* lands (Hammatt et al 1995). Fifty-six claims were made for land in Wai'oli, the majority of which were for used for the cultivation of taro, including 154 *lo'i* patches, some of which were *kō'ele* (patches cultivated for the chief). Other uses of claimed lands include *kula* (27 claims), houselots (26 claims), fishponds (2 claims) and *muliwai* (fishpond with brackish water)(1 claim) and the Wai'oli Mission (1 claim).

Two Land Commission Awards (LCA's) were granted on Parcel 1 (LCA 9274:1) and Parcel 3 (LCA 8124) adjacent to the current subject property. LCA 9274:1 was awarded to Kuheleloa in the days of Kaumuāli'i, meaning the award preceded the *mahele* transfers of the 1840's. Testimony indicates a house located in Hanalei (*apana 2*) and an agricultural plot located at Wai'oli (*apana 1*). LCA 8124 was awarded to Helepalale and Muno in 1841 by the local *konohiki*. Recorded testimony indicates this parcel was once the site of a house lot and planting area.

From the 1860's to the 1890's sugar continued as a major crop grown on large plantations, while small scale rice growing developed with the arrival of Chinese and later Japanese immigrants. Rice continued to be cultivated for over a hundred years. By the 1890's sugar had declined as a main crop, and small-scale wetland cultivation of rice and taro constituted the major agricultural activities, particularly in Hanalei Valley. Handy (1940) noted that at the time of his observations, "Mauka of the highway and of the Mission and school grounds, Wai'oli is planted in rice up to the base of the hills. Smaller terraces up the valley are now unused." In addition to the above-mentioned crops, other plants have been reported to have been growing in Wai'oli including *ahuawa*, bananas, beans, guava, *hau*, ironwood, *kamani*, *kukui*, *noni*, *ohia*, *olona*, oranges, *pia*, potatoes and yams (Hammatt et al. 1995).

A number of archaeological investigations have been conducted in Wai‘oli Ahupua‘a, including the current subject property (see Figure 3 and Table 1). The majority of these investigations are clustered on the *mauka* side of Kuhio Highway in the vicinity of the Wai‘oli Mission Hall, the Wai‘oli Huiia Church and Cemetery, and Hanalei School.

The earliest investigations in Wai‘oli Ahupua‘a consisted of surveys of *heiau* by Thrum in “Heiau and Heiau Sites Throughout the Hawaiian Islands” (1907) and Bennett in *The Archaeology of Kaua‘i* (1931). Mamalahoa Heiau (Site 22) is described as “A small heiau 24x60 feet in size, paved with walls 3 to 5 feet high. Of husbandry class. Kanehekili its deity; Kapihi its priest” and its location is unknown (Thrum 1907:43). Kupakolili Heiau (Site 144) is “Reported as a small heiau; probably simply a place of offering” (ibid). Though Thrum describes the location of this *heiau* as being in Waipa, Bennett indicates its location as within Wai‘oli, on the west side of Wai‘oli Stream. The tax map for TMK 5-6 depicts the *heiau* as being located in an area similar to the description by Bennett (Hammatt Folk and Creed 1995). Nanikoniawalaau Heiau (Site 145) is described as being located in Wai‘oli -uka, “An open paved space, not large, dedicated to Laka, to which offerings at the annual festivities were brought” (Thrum 1907:43).

Earle’s (1978) study of *lo‘i* systems in Wai‘oli indicate that much of the low lying areas of Wai‘oli were cultivated in taro irrigated by Wai‘oli Stream. Earle’s findings are discussed above in Section 3.2.

A number of investigations have been conducted at the Wai‘oli Mission since the late 1970’s. Two investigations have been conducted at the Church (Hammatt 1970; Hammatt and Folk 1979). Stratigraphic deposits were encountered with a date of AD 1832-1900’s along with infant burials as well as post holes, hearths and pits. Forty-eight marked graves were recorded during a study of the cemetery by Kikuchi and Remoaldo (1992). One additional investigation near the mission recorded no sites (McGerty and Spear 1999).

Cultural Surveys Hawaii conducted investigations on a property (TMK 5-5-06: 9) adjacent to the Hanalei School (Hammatt and Folk 1994; Hammatt 1994; Hammatt, Folk and Creed 1995). One date was obtained of AD 1680-1944 along with one pre-Contact burial. Three additional burials were encountered on a neighboring property (Jourdane 1995; McMahon 1995). An inadvertently discovered burial along with a disturbed cultural deposit was also encountered on a property on the *makai* side of Kuhio Highway (Sullivan and Dega 2003).

As Hanalei District moved from the post-Contact period, through the historic period, and into the current century, there has been a marked shift in native Hawaiian demographics as Hawaiian populations decreased for numerous reasons. The populations on all the Hawaiian Islands decreased substantially (by approximately 50%) in the first fifty years after western contact as a result of introduced illnesses for which the Hawaiians had no immunity. Devaney, Kelly, Lee and Motteler (1982:8) discuss this dramatic change in demographics:

Depopulation during the early historical period of the Hawaiian Islands is not well documented, but several scholars have attempted assessments of the limited sources available. The Hawaiian historian and scholar, David Malo, wrote: "In the reign of Kamehameha, from the time I was born until I was nine the pestilence (*mai ahulau*) visited the Hawaiian Islands, and the majority (*ka pau nui ana*) of the people from Hawaii to Niihau died" (Malo 1839:125). Lorenzo Adams expressed the opinion that Malo was probably not far off in estimating the loss of about half of the population (Schmitt 1968:36). The epidemic took place some time between 1802 and 1807, probably around 1804 (*ibid.*). It was known as *ma 'i 'oku 'u* and was likened to bubonic plague, or cholera.

Populations continued to decline in the early 1800's, and into the latter half of the nineteenth century after the introduction of smallpox in 1853. The population of Wai'oli Ahupua'a was recorded in 1832 at 158, 75 of which were new residents of Bethlehem (Folk et al. 1995). The pre-Contact population was likely much higher. After the establishment of the mission, the native population would have been increasingly exposed to new illnesses which likely brought about additional reduction in numbers.

Section 3.3: Settlement Patterns

The earliest utilization of Wai'oli Ahupua'a likely took the form of temporary coastal sites that provided access to the nearby littoral resources. As the population of the island increased, permanently occupied sites were established and potential agricultural areas inland were exploited. Permanent settlement was likely located in coastal areas in the vicinity of a permanent source of fresh water as well as in areas providing access to the coastal resources.

Indeed, historical records suggest a settlement pattern for Wai'oli Ahupua'a in which there are scattered permanent habitation sites located just inland of the coast with intensive utilization of the valley floors along Wai'oli Stream for the cultivation of wet taro and scattered *kula* (rainfall agriculture). This pattern is nicely depicted in Earle's Figure 8.1. Earle's analysis of land tenure at Wai'oli indicated that habitation sites (*pahale*) were located at a mean distance of 293m from the coast with the closest associated *apana* utilized for taro production located at a mean distance of 788m mauka of the *pahale* (Earle 1978:150). Occasional habitation sites including day-use structures and activity areas related to rest, food consumption, and the processing and/or manufacturing of crops and/or tools would also be found scattered amongst upland agricultural fields. The current subject property is situated in an area which most likely included *lo 'i* (possibly System 24) and scattered *kula*, with occasional *pahale*.

Section 4: Previous Archaeology

A number of archaeological investigations have been conducted in Wai‘oli Ahupua‘a, including the current subject property (see Figure 3 and Table 1). The majority of these investigations are clustered on the *mauka* side of Kuhio Highway in the vicinity of the Wai‘oli Mission Hall, the Wai‘oli Huiia Church and Cemetery, and Hanalei School.

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Earle’s (1978) study of *lo‘i* systems in Wai‘oli indicate that much of the low lying areas of Wai‘oli were cultivated in taro irrigated by Wai‘oli Stream. Earle’s findings are discussed above in Section 3.2.

A number of investigations have been conducted at the Wai‘oli Mission since the late 1970’s. Two investigations have been conducted at the Church (Hammatt 1970; Hammatt and Folk 1979). Stratigraphic deposits were encountered with a date of AD 1832-1900’s along with infant burials as well as post holes, hearths and pits. Forty-eight marked graves were recorded during a study of the cemetery by Kikuchi and Remoaldo (1992). One additional investigation near the mission recorded no sites (McGerty and Spear 1999).

Cultural Surveys Hawaii conducted investigations on a property (TMK 5-5-06: 9) adjacent to the Hanalei School (Hammatt and Folk 1994; Hammatt 1994; Hammatt, Folk and Creed 1995). One date was obtained of AD 1680-1944 along with one pre-Contact burial. Three additional burials were encountered on a neighboring property (Jourdane 1995; McMahan 1995). An inadvertently discovered burial along with a disturbed cultural deposit was also encountered on a property on the *makai* side of Kuhio Highway (Sullivan and Dega 2003).

Figure 3: Previous Archaeology in Wai'oli Ahupua'a

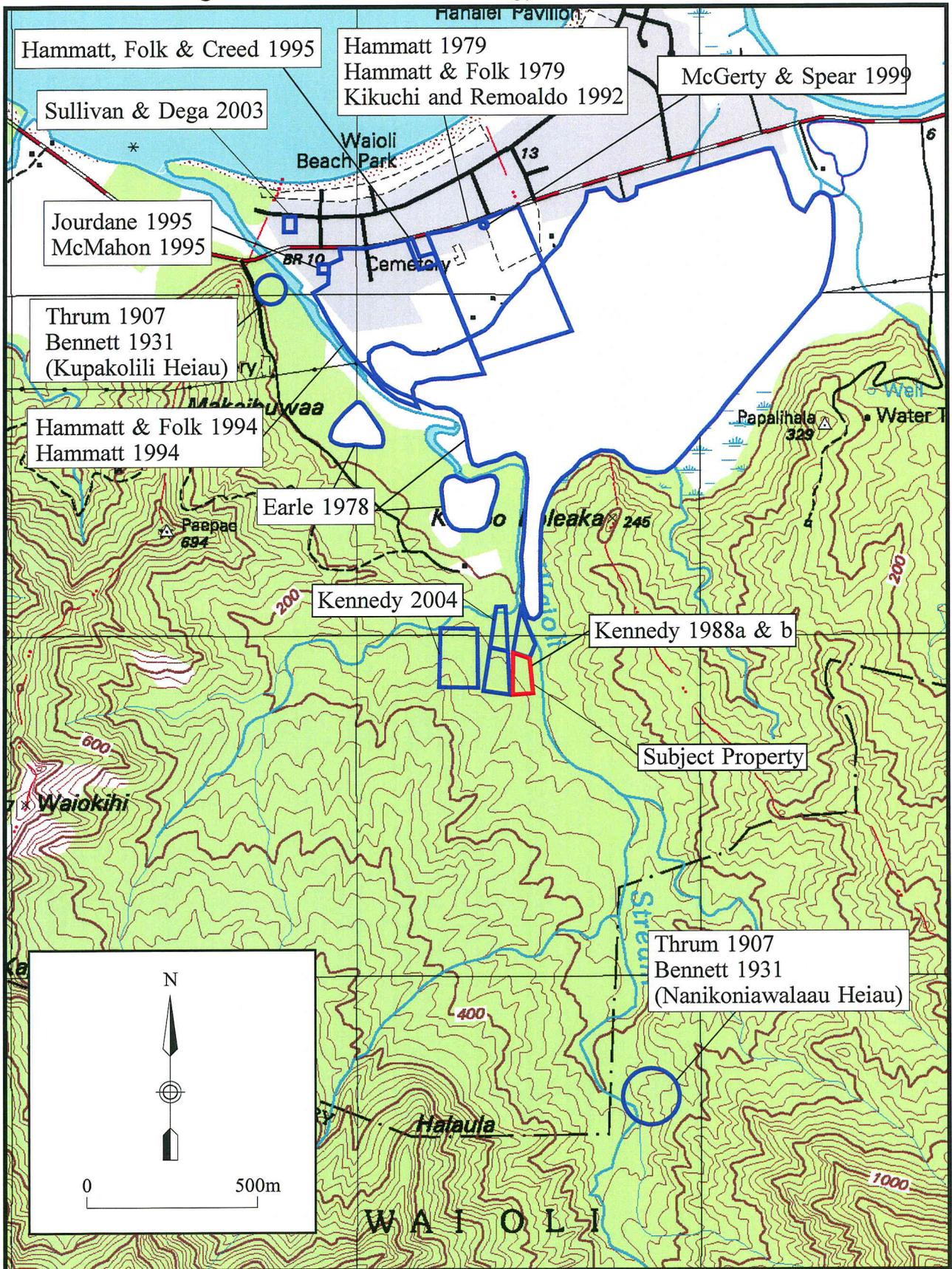


Table 1: Previous Archaeological Investigations in Wai‘oli Ahupua‘a

Site Number	Reference	Type of Investigation	Location	Description/Findings
22, 145	Thrum 1907	survey of <i>heiau</i>	State of Hawaii	two <i>heiau</i> : Nakikoniawaiiaau Heiau (145) and Mamalahoa Heiau (22)
22, 144, 145	Bennett 1931	study of archaeological sites	Kauai	three <i>heiau</i> : Kupakolili Heiau (144), Nakikoniawaiiaau Heiau (145) and Mamalahoa Heiau (22)
NA	Earle 1978	study of irrigations systems	Halelea	<i>lo ‘i</i> Systems 22, 23 and 24
9300	Hammatt 1979	testing	Wai‘oli Mission Hall	stratigraphic deposits of mission church dating from 1832-1900’s
9300	Hammatt and Folk 1979	excavation	Wai‘oli Mission Hall	stratigraphic deposits of mission church dating from 1832-1900’s; two infant burials as well as post holes, hearths and pits
B1a, B1b, B1c, B6a, B25a, B25b	Kikuchi 1987	study of fishponds	Kauai	6 <i>lo ‘i</i> /aquaculture ponds
505-513	Kennedy 1988a & b	Reconnaissance	TMK: 5-5-8: 1, 3, 4, 5 and 54	<i>lo ‘i</i> terraces, <i>auwai</i> , house platform with associated terraces and midden scatter, walls
B004	Kikuchi and Remoaldo 1992	study of cemeteries	Wai‘oli Huiia Church	Wai‘oli Huiia Church Cemetery (B004): contains 48 marked graves ca. 1842-1980 and 17 unmarked graves
6028	Hammatt and Folk 1994	Inventory Survey	TMK 5-5-6: 9	30 acres surveyed; one date of AD 1680-1944; one burial, pre-Contact
6028	Hammatt 1994	Burial Treatment Plan	TMK 5-5-6: 9	proposed treatment of burial
N/A	Hammatt, Folk and Creed 1995	Inventory Survey	TMK 5-5-06: 9 (por)	2.8 acres surveyed; no sites; modern pondfield sediments
3014	Jourdane 1995	Inadvertent Discovery	TMK 5-5-6:12	one burial
3014	McMahon 1995	Burial Treatment	TMK 5-5-6:12	two additional burials discovered
N/A	McGerty and Spear 1999	Inventory Survey	TMK 5-6-02: 5 (por)	no sites
883	Sullivan and Dega 2003	Monitoring and Burial Treatment	TMK: 5-5-05: 24	1 traditional burial and disturbed cultural deposit with traditional and historic materials

Section 4.1: Previous Archaeology on the Subject Property

The current subject property, TMK: (4) 5-5-08: 01, was subjected to a brief reconnaissance investigation by ACH in 1988 along with neighboring Parcels 3, 4, 5 and 54 (Kennedy 1988a and b). Though dense vegetation prevented 100% coverage of the subject parcels, nine sites of significance to the interests of historic preservation were identified at that time including agricultural terraces (primarily *lo 'i*), an *'auwai*, stone walls, a house foundation and midden scatter (Sites 505-513)(see Figure 3). Extensive *lo 'i* terracing was present covering the entirety of Parcels 1 and 54 (Site 511). Stone walls were located on the south and east edges of Parcel 1 (Sites 512 and 513) and just to the north of Parcel 5 (Site 507) on land owned by the state (Parcel 2, which surround Parcels 1, 3, 4, 5 and 54). The presence of agricultural sites at these locations was found to be consistent with previously reported interpretation of System 24 by Earle (1978).

During an Archaeological Inventory Survey Report conducted by ACP in January of 2004, there was subsurface testing on parcels 4 and 5 which are adjacent to the subject property, parcel 1. The excavations concluded that bulldozing and grading of the parcels had not only affected the surface, but the sub-surface as well. The illegal bulldozing and grading had terraformed the land and had destroyed the sub-surface deposits. During the excavations in 2004, only isolated artifacts remain from the ravaged sites (see table 2.)

Section 5: Expected Finds

Parcels 1, 3, 4, 5, 54 (see figure 5) and a portion of 2 were mass graded in October 1989 (Masumoto 1989). A site inspection by DLNR-SHPD in November 1989 claimed that all sites were destroyed (Hibbard 1989). Mr. Douglas Bonar, who conducted the illegal bulldozing of the property, claimed that the sites were not destroyed but rather were buried under soil fill, and thus remain intact below the present ground surface (Kennedy 2003 pers. com). Sub-surface excavations on the parcels directly adjacent to the subject property show that the entire area was terraformed during the bulldozing conducted by Mr. Douglas Bonar. The subject property underwent the same procedure and the sub-surface sites are very likely to be destroyed as well.

Due to the prior grubbing, grading and terraforming activities which took place on the subject property, it is not anticipated that surface features will be present. Small portions of destroyed sites 511 and 512, rock alignments that runs along the South and East side of the parcel, still remain (see figure 4). Although remnants of the destroyed sites may lay sub-surface, excavations on the parcels adjacent to the subject property show that sub-surface sites were obliterated by the illegal bulldozing and grading. It is very likely that only isolated historical and pre-contact Hawaiian artifacts remain sub-surface and not *in situ*. The Inventory Survey Report conducted by ACP in 2004 states, "Four sites previously recorded on the subject property, Sites 505, 508-510, are no longer present and are presumed to be completely destroyed."

While little or no cultural materials would be expected in taro fields, lo'i cultivation produces a distinct stratigraphic record. Earle (1973) describes in detail the processes of constructing and maintaining lo'i. The construction of lo'i fields entails a tamping of the soils to produce a hard, compact pan which would aid in the retention of water. Mulching was added to the base of the fields prior to flooding, which could include a thin layer of loose soil and dried grass or other organic materials (ibid 1973:54). From the accounts of early western visitors to the islands, the water depth could be from 3 to 36 inches, averaging about 18 inches in depth (ibid 1973:46). With fresh water constantly moving slowly through the fields, alluvium would be deposited as "suspended silt/clay particles settle out" (ibid 1973:53). Organic materials would be mixed in with the alluvium as a result of fertilization methods, wherein weeds and refuse portions of the taro plant were stamped down into the alluvium (ibid 1973:54).

In *Anahulu: The Anthropology of History in the Kingdom of Hawaii, Volume 2: The Archaeology of History*, describes the oxidation-reduction processes which occur over time in pondfields (Kirch 1992:145-146):

...a distinctive profile develops under the aqueous conditions of pondfield inundation. This profile consists of an eluviation, reduction state in the upper A horizon of the field, and an illuviation, oxidation state in the lower B horizon. This results from the downward percolation of water, which transports exchangeable ferrous and manganous ions mobilized in the reductive A horizon to the B horizon, where oxidation causes ion precipitation and consequent mottling of the soil (Kirch 1977:254). Thus pondfield A horizons are dark and rich in organics, while the underlying B horizon is strongly mottled with ferric and manganic oxides. This characteristic profile has also been observed for rice pondfields in Asia (Kawaguchi and Kyuma 1977; Barnes 1990) as well as for Hawaiian taro fields (Cline et al. 1955: 121-23). The longer a field has been under a pondfield cultivation regime, the more strongly this distinctive oxidation-reduction profile is expressed. We therefore utilize the contrastive comparison or reduction-oxidation profiles in various fields within the Kaloaloo system to assess the relative length of time under inundation (sic).

Though Kirch's study was in Kaloaloo, it applies to the general processes which may occur in pondfields elsewhere, including rice pondfields, as mentioned above. From the methods in construction as well as the oxidation-reduction processes of pondfields, a distinct profile will consequently bear witness to its former use, and possibly even the length of time in which it was utilized.

Section 6: Methodology

Archaeological investigations were conducted in March 2011. The Archaeological Inventory Survey investigation of TMK (4)-5-5-008: 1 was conducted under the direction of the principal investigator, Joseph Kennedy, M.A. and was assisted by archaeologist Jeff Syrop, B.A.

ACP very carefully and methodically reviewed documents and reports and our approach is based on archaeological work in this area. ACP has conducted a reconnaissance survey and an in-house archaeological assessment of the parcel during past archaeological investigation. Our methodology, discussion, and conclusions are extrapolated from the previous excavations conducted by ACP on the adjacent parcels that were affected by the same illegal bulldozing and grading. In the below paragraphs, the methodology of the 2004 excavations of parcels 4 and 5 is discussed.

A visual inspection of 100% of the property was facilitated by excellent visibility due to well-maintained landscaping and areas of exposed ground surface. Subsurface investigations of parcels 4 and 5 took the form of 13 trenches excavated by a backhoe with a 24 inch clawed bucket. The trenches were primarily placed in areas where sites were located during the reconnaissance survey (Kennedy 1988) in order to determine the presence or absence of these sites. Other trenches were placed randomly across the property in an effort to determine whether previously unrecorded subsurface deposits are present as well as to examine the alteration of the topography. All trenches were excavated to the sterile basal layer.

All soils removed from the trenches were visually examined in order to identify cultural materials or deposits. Cultural materials observed in the back dirt were recovered and collected. Soil samples were collected from each stratigraphic layer identified and a profile was drawn of a representative section of at least one face of most trenches. A trench profile was not drawn if the trench was compromised in some way, for example trenches filled with roots, or trenches too deep to safely enter. In these cases, measurements of each layer and total depth were taken as well as notes on each layer's soil matrix. In each accessible trench, all the faces were hand scraped with trowels to reveal the stratigraphy and any potential features. All cultural materials encountered during scraping were collected from each trench, where present. Photographs were also taken of the trenches. Soil samples were collected and placed in airtight zip-lock bags and labeled for use in laboratory analyses. Cultural material collected from soils were similarly bagged.

Table 2: Summary of Trench Excavations

Trench	Length (m)	Layer/Level	Depth (cmbs)	Soils	Description
1	10.2	I	0-50	dark brown (7.5YR 3/3) clay	Excavated in former location of house platform. Disturbed top layer (I) containing vegetative debris, (primarily cut <i>hau</i> , partially burned), scattered waterworn stones (10-40cm diameter; particularly at north end of trench), porcelain, glass and a volcanic glass flake. Sterile clay layers (II, III) below fill. No <i>in situ</i> cultural deposits or features.
		II	50-85	dark brown (10YR 3/2) clay	
		III	85-115	dark yellowish brown (10YR 3/3) silty clay	
2	9.7	I	0-45	dark brown (7.5YR 3/2) silty clay	Disturbed top layer (I) appears to have been graded and refilled with additional soil to create artificial high ground, containing vegetative debris, (primarily cut <i>hau</i> , partially burned), scattered waterworn stones (15-30cm diameter), scattered charcoal, glass and porcelain. Sterile clay layers (II, III) below fill. No <i>in situ</i> cultural deposits or features.
		II	45-90	dark brown (7.5YR 3/4) silty clay	
		III	90-125	dark brown (10YR 3/3) silty clay	
3	11	I	0-35	dark brown (10YR 3/3) silty clay	Excavated in formerly terraced area. Disturbed top layer (I) containing vegetative debris, (primarily cut <i>hau</i> , partially burned), numerous scattered waterworn stones (5-30cm diameter), some of which contains burnt limestone mortar and stoneware. Sterile clay layers (II, III) below fill. No <i>in situ</i> cultural deposits or features.
		II	35-75	dark grayish brown (10YR 4/2) clay	
		III	75-140	dark yellowish brown (10YR 3/4) clay	
4	10	I	0-75	dark brown (10YR 3/3) clay	Excavated in formerly terraced area. Disturbed top layer (I) containing vegetative debris, (primarily cut <i>hau</i> , partially burned), numerous scattered waterworn stones (5-50cm diameter), scattered charcoal, porcelain, glass and a basalt flake. Sterile clay layer (II) below fill. No <i>in situ</i> cultural deposits or features.
		II	75-110	dark yellowish brown (10YR 3/4) clay	
5	8.5	I	0-50	brown/dark brown (10YR 4/3) clay	Excavated in former location of <i>'auwai</i> . Disturbed top layer (I) containing vegetative debris, (primarily cut <i>hau</i> , partially burned), a few scattered waterworn stones (5-30cm diameter) and boulders (75cm diameter), bottles, glass, stoneware, porcelain and 2 basalt flakes. Sterile clay layers (II, III) below fill. No <i>in situ</i> cultural deposits or features.
		II	50-70	strong brown (7.5YR 4/6) clay	
		III	70-115	dark yellowish brown (10YR 4/4) clay	
6	3.5	I	0-60	dark yellowish brown (10YR 3/4) clay	Remnant of <i>'auwai</i> encountered below disturbed top layer (I) containing vegetative debris, (primarily cut <i>hau</i> , partially burned). <i>'auwai</i> filled with disturbed soil (II), burned cut <i>hau</i> and charcoal; lined with large basalt boulders (50-80cm diameter) on edges. Sterile clay layer (III) at base of trench.
		II	60-95	dark brown (10YR 3/3) clay	
		III	95-110	dark yellowish brown (7.5YR 4/6) clay	
7	4.7	I	0-25	dark brown clay*	Excavated in former location of <i>'auwai</i> . Disturbed fill layers (I, II) containing vegetative debris, (primarily cut <i>hau</i> , partially burned). No <i>in situ</i> cultural deposits or features.
		II	25-240	brown/dark brown clay*	
8	4.3	I	0-165	brown/dark brown clay*	Excavated in former location of <i>'auwai</i> . Disturbed fill layer (I) containing large amounts of vegetative debris, (primarily cut logs of <i>hau</i> , partially burned) and boulders. No <i>in situ</i> cultural deposits or features.
9	8.8	I	0-30	dark brown (10YR 3/3) clay	Excavated in formerly terraced area. Disturbed top layer (I). Sterile clay layer (II) below fill. No <i>in situ</i> cultural deposits or features.
		II	30-120	strong brown (7.5YR 4/6) silty clay	
10	7.8	I	0-20	dark yellowish brown (10YR 3/3) silty clay	Excavated in graded area. Original top layer has been removed. Existing top layer (I) is recent A-horizon atop sterile clay layers (II and III).
		II	20-45	dark yellowish brown (10YR 3/4) silty clay	
		III	45-90	dark yellowish brown (10YR 3/4) clay	
11	6	I	0-20	dark yellowish brown (10YR 3/4) clay	Excavated in graded area. Original top layer has been removed. Existing top layer (I) is recent A-horizon atop sterile clay layers (II and III) and a large immobile boulder.
		II	20-60	dark yellowish brown (10YR 4/6) clay	
		III	60-100	dark yellowish brown (10YR 3/4) silty clay	
12	6.9	I	0-15	dark yellowish brown (10YR 3/4) clay	Excavated in graded area. Original top layer has been removed. Existing top layer (I) is recent A-horizon atop sterile clay layers (II and III).
		II-A	15-65	dark yellowish brown (10YR 4/4) clay	
		II-B	65-85	brown/dark brown (7.5YR 4/4) silty clay	
13	7.9	I	0-70	dark brown (10YR 3/3) clay	Excavated on a relatively undisturbed "island" of high ground among numerous large mango trees. Thick sterile layer (I) of original A-horizon atop sterile clay (II).
		II	70-100	brown/dark brown (7.5YR 4/4) silty clay	

*Trenches too deep to safely enter. Soil samples not collected. Soil description approximated.

Section 7: Previous Disturbances on Subject Property and Surrounding properties

In 1989 after ACP recorded many archaeological sites on the subject property (Kennedy 1988), Mr. Douglas Bonar bulldozed and graded the subject property and the adjacent properties. Upon revisiting the bulldozed and graded parcels during a 2003 Due Diligence report, ACP stated, "In general, it was immediately clear that massive changes had been made to all the parcels inspected in 1988. This not only included vegetative change but wholesale landscape and topographic changes as well. These alterations resulted in a number of violations that were assigned by the Department of Land and Natural Resources, and other state and county agencies and were visited upon the individual who effected these changes."

In 2004 ACP conducted an Inventory Level Survey for parcels 4 and 5, which are directly adjacent to the subject parcel. After completing archaeological backhoe trenches and discovering that the subsurface had also been affected by the grubbing and grading, the recommendations section of our report states, "The current subject property has suffered severe disturbances from unpermitted grading and grubbing, such that little useful information may be obtained from further studies on the current subject property. For this reason, no further archaeological investigations are recommended for the subject property." (Kennedy 2004)

Section 8: Discussion

As mentioned above, TMK 5-5-08: 01 has suffered severe disturbances that resulted in a terraforming of the general area. Little useful information may be obtained from further archaeological investigation on the current subject property. Due to the illegal grubbing and grading and information gathered during past archaeological investigations on the subject property and surrounding parcels, we recommend that no further study needs to be conducted on the subject property. The sites that were recorded in 1988 by ACP (Kennedy 1988) were not only destroyed, but the topography of the land was altered well below current grade. The once terraced land was completely flattened by the bulldozing and grading by Mr. Douglass Bonar and others subsequent to his actions. Sub-surface testing on the directly adjacent parcels demonstrates that the sites that may have remained intact below the surface have also been obliterated.

Previous reconnaissance investigations in the 1980's have recorded agricultural terracing in the subject property and on the adjacent parcels. (Kennedy 1988). These terraces may have been a part of System 24 recorded by Earle (1978), and is in keeping with LCA testimony for adjoining parcels. Most of the terraces were likely once flooded, fed by an *'auwai* (Site 506) which ran through the parcels. These agricultural systems were most likely constructed during

the pre-Contact era. The flooded terraces would have been utilized for the production of wet taro, while the dry terraces could have been used for cultivating such food plants as sweet potatoes (*'uala*, or *Ipomoea batatas*), bananas (*Musa* sp.), *pia* (*Tacca leontopetaloides*), and yams (*uhi*, or *Dioscorea alata*). Utilitarian plants reported to have been growing in Wai'oli which also could have been cultivated on the subject property include *'ahu'awa* (*Mariscus javanicus*) and *olonā* (*Touchardia latifolia*) (Hammatt et al. 1995). *'Ahu'awa* is an indigenous plant used for cordage and straining *'awa*, and is known to be associated with marshy areas, alongside streams and near *lo'i* patches (Neal 1965; Wagner et al 1990). *Olonā* is an endemic plant used for producing strong fibers, and was grown wet interior valley and upland areas (Handy and Handy 1978; Neal 1965; Wagner et al 1990). These terraces have since been completely destroyed.

In summary, the earliest use of the land was likely prior to western contact, largely associated with *lo'i* cultivation. Dryland agricultural pursuits may well have occurred in conjunction with the production of taro. These agricultural pursuits may have continued into the post-contact era. The subject property once contained a multi-component site complex, now has been completely destroyed by unpermitted grubbing and grading. Although no sub-surface testing has been construction of the subject property, there is enough evidence to extrapolate that the subject property has been so badly terraformed that it is unlikely to produce any accurate data through more archaeological investigation.

Although most of the sites that once covered the subject property have been obliterated, remnants of sites 511, 512, and 513 still remain on the South and East border of the property. Site 511 is associated with *lo'i* terracing, and sites 512 and 513 are stone walls (see figure 4). Two portions of site 511 extend into the subject property for approximately 15 meters. Site 512 extends approximately 70 meters into the subject property and borders the East boundary. Site 513 extends approximately 1 meter into the subject property (see figure 4). These sites are all that remain from the more elaborate sites that were intact before the subject property was bulldozed and graded. ACP recommends that these sites be preserved. Table 3 describes the summary of site significance evaluations.

Figure 4 Feature Locations on a Plan View of the Subject Property

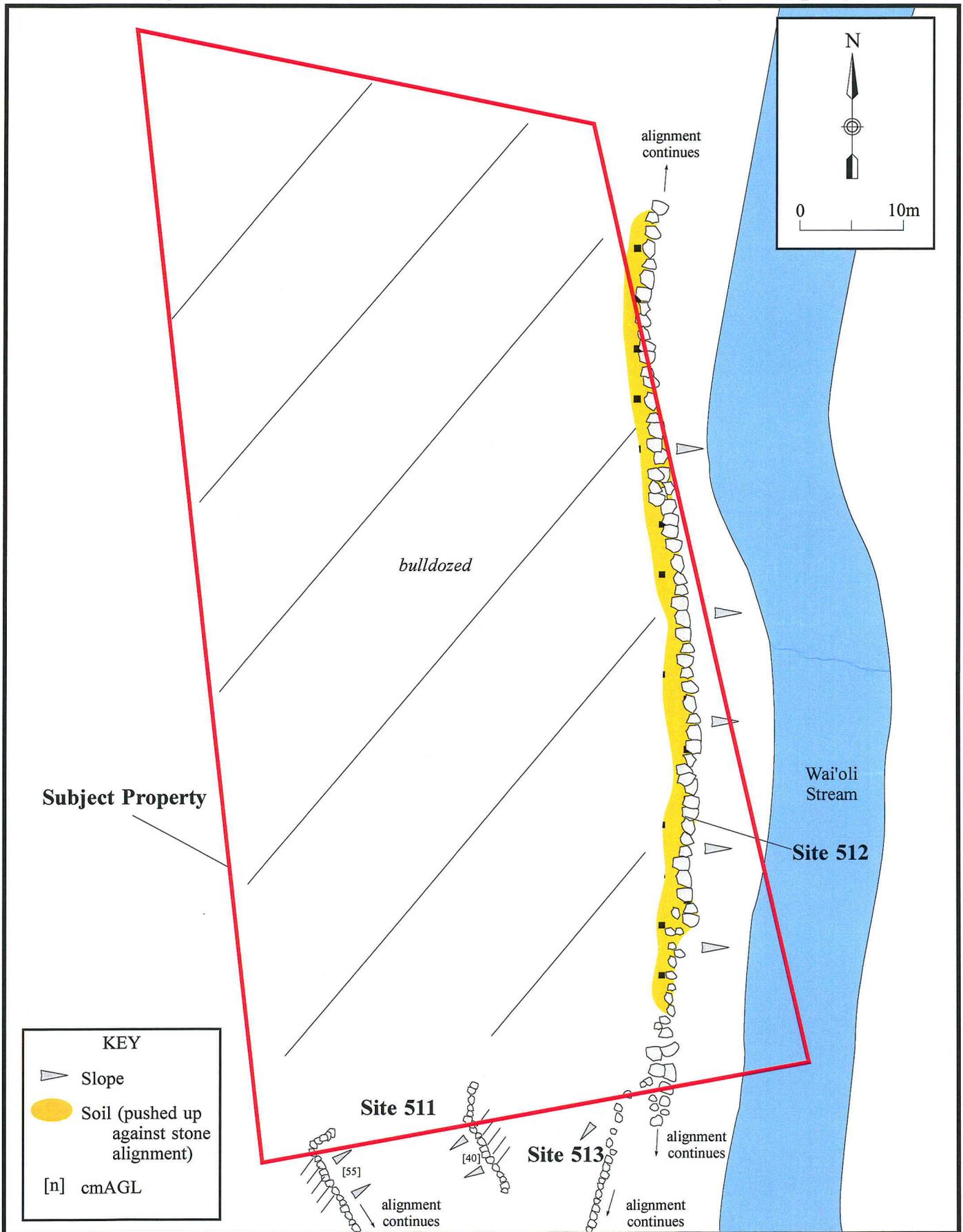
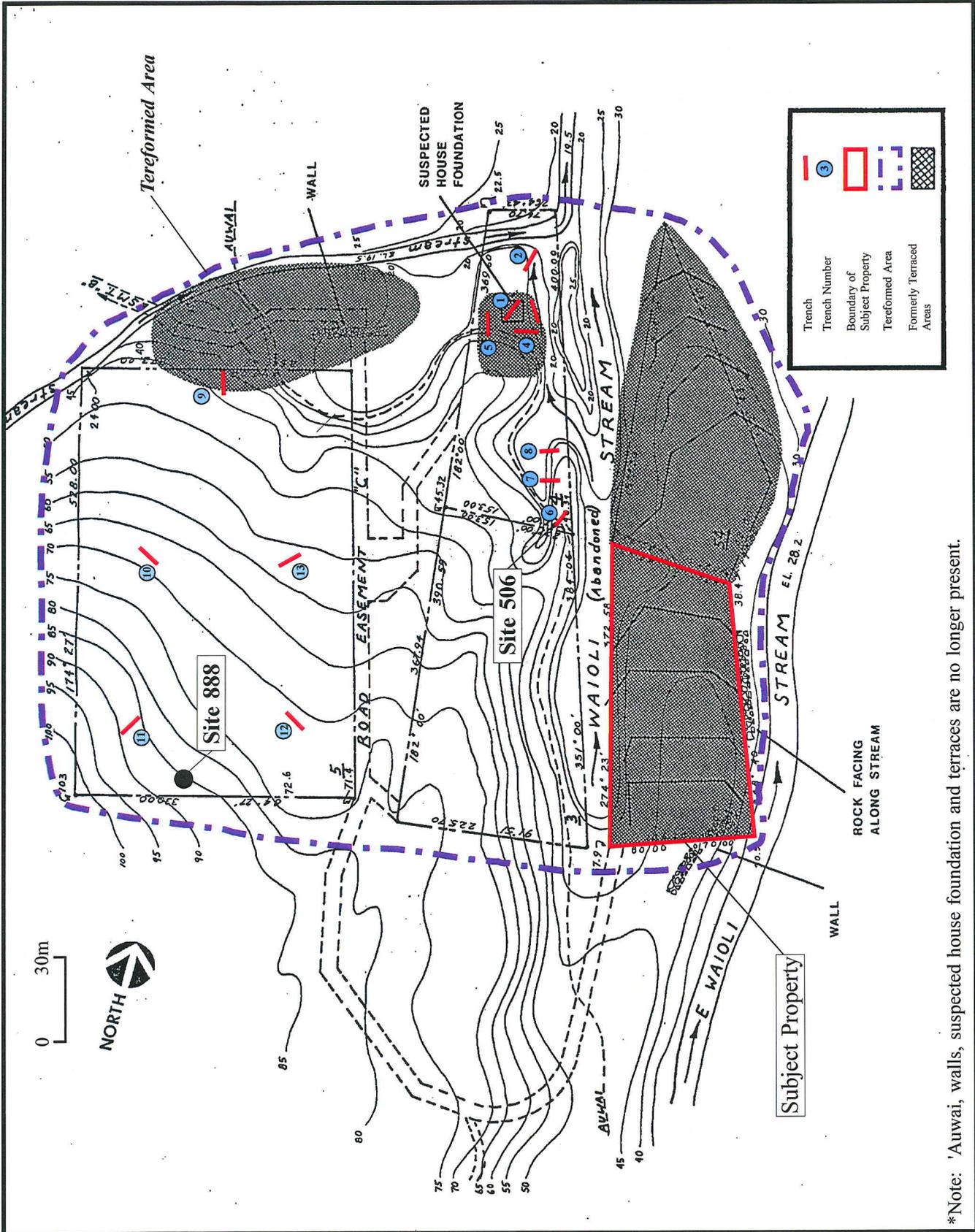


Figure 5: Plan Map of Trench and Site Locations



adapted from: Kennedy 1988

*Note: 'Auwai, walls, suspected house foundation and terraces are no longer present.

STANLEY Wai'oli TMK: (4) 5-5-08: 1

Figure 6: Makai Portion of Parcel 4, Showing Trenches 1-5
(view north)



STANLEY Wai'oli TMK: (4) 5-5-08: 1

source: ACP, Inc. 2003

Figure 7: Parcel 5 Showing Trench 10 (view southeast)



STANLEY Wai'oli TMK: (4) 5-5-08: 1

source: ACP, Inc. 2003

Table 3: Summary of Site Significance Evaluations

Site	Description	Function	Significance Evaluations
511	<i>lo'i</i> terracing	Ag	A & D
512	stone wall	Ag	A & D
513	stone wall	Ag	A & D

Functional Interpretations

Ag: Agriculture

Code For Significance Evaluation Criteria

A: Site is associated with events that have made a significant contribution to the broad patterns of history.

B: Site is associated with the lives of persons significant in the past.

C: Site embodies the distinctive characteristics of a type, period, or method of construction; or is the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity.

D: Site has yielded or is likely to yield information important in prehistory or history.

E: Site has Cultural Significance (*heiau*, shrine, burial, etc.).

NS: Not Significant.

NLS: No Longer Significant.

Criterion A-E represents Hawaii Register of Historic Places criterion.

NS and NLS represent designations acceptable to the DLNR-SHPD.

Conclusion

An Inventory Survey has been completed on TMK: 5-5-08: 1. Several sites formerly located on this property and the properties adjacent to the subject property have been destroyed by unpermitted grubbing and grading activities. Based upon the results of the current investigations and the investigations that took place on the adjacent parcels, Archaeological Consultants of the Pacific, Inc. recommends that a determination be made that no further archaeological investigations are necessary. It is very likely that sub-surface testing in the subject property will produce inaccurate data due to the bulldozing and grading of the land. The land in the subject property has been terraformed and has been so grubbed and graded to the extent of changing the topography.

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