NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013

MEMORANDUM

SEP 13 2013

TO: Genevieve Salmonson, Interim Director
Office of Environmental Quality Control

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

SUBJECT: Final Environmental Assessment (EA) for Conservation District Use Application (CDUA) HA-3675 for a Single Family Residence and Related Improvements Located at Pahoehoe I, South Kona, TMK: (3) 8-7-007:011

The Office of Conservation and Coastal Lands (OCCL) has reviewed the Final Environmental Assessment for the proposed project. The draft Environmental Assessment (EA) for this project was published in OEQC's July 8, 2013 Environmental Notice.

The final EA is being submitted to OEQC. We have determined that this project will not have significant environmental effects, and have therefore issued a FONSI. Be advised, however, that this finding does not constitute approval of the proposal. Please publish this notice in OEQC's upcoming October 8, 2013 Environmental Notice.

We have enclosed a hard copy and a disk with a pdf. file of the final EA and the OEQC Bulletin Publication Form and Project Summary. Comments on the draft Environmental Assessment were sought from relevant agencies and the public, and were included in the final EA.

Please contact Tiger Mills of our Office at 587-0382 if you have any questions on this matter.

Attachments

APPLICANT ACTIONS
SECTION 343-5(C), HRS
PUBLICATION FORM (JULY 2012 REVISION)

Project Name: Dungate Single-Family Residence in the Conservation District at Pahoehoe
Island: Hawaii
District: South Kona
TMK: 8-7-007:011
Permits: County of Hawai'i: Special Management Area Permit or exemption; Plan Approval and Grubbing Grading and Building Permits. Department of Land and Natural Resources CDUP; grading permit

Approving Agency:

Office of Coastal and Conservation Lands
Hawai'i State DLNR
P.O. Box 621
Honolulu HI 96809
Sam Lemmo: 808-587-0377

Applicant:

Peter Dungate
75-1193 Kamalani Street
Holualoa HI 96725
c/o Roy A. Vitousek III 808-329-5811

Consultant:

Geometrician Associates
PO Box 396
Hilo HI 96721
Ron Terry 808-969-7090

Status (check one only):

__DEA-AFNSI	Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day comment period ensues upon publication in the periodic bulletin.
_x_FEA-FONSI	Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov; no comment period ensues upon publication in the periodic bulletin.
__FEA-EISPN	Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day consultation period ensues upon publication in the periodic bulletin.
__Act 172-12 EISPN	Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov. NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
__DEIS	The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.
__FEIS	The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
__ Section 11-200-23 Determination	The approving agency simultaneous transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.
__Statutory hammer Acceptance	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.
__Section 11-200-27	

Determination	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

__Withdrawal (explain)

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page)**:**

Peter Dungate seeks a Conservation District Use Permit to build a single-family residence and related improvements on a 6.6-acre lot located adjacent to the shoreline at Pahoehoe in Kona. The location of the house and accessory features is constrained by several factors, including topography, archaeological sites and buffers, and Limited Subzone rules. The one-story home will be 2,234 square feet, including the house and lanai and covered entry area. The home will be set back a minimum of 44 feet from the certified shoreline at an elevation of about 33 to 36 feet above sea level. Other features include a catchment water tank, a generator, an Individual Wastewater System and an existing driveway which will be improved but left unpaved. All features will be a minimum of 40 feet from the shoreline. Two kiawe trees will be cut or trimmed and several new native or Polynesian trees will be planted near the house site. No modifications within the shoreline setback area are planned. The vegetation is scattered, scrubby and low non-native trees, and there will be no impacts to native flora or fauna. The applicant has recognized the public ownership of the roads that traverse his properties and has worked with Na Ala Hele to protect the public interest in access along traditional access ways. Archaeological and cultural resources have been avoided through inventory, consultation, and approved treatment plans, and the site layout has situated the home, driveway and other features in areas that avoid impacts. Two burial sites and several archaeological features will be preserved in accordance with approved preservation and burial treatment plans.

FINAL ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

September 2013

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPLICANT:

Peter Dungate
75-1193 Kamalani Street
Holualoa HI 96725

APPROVING AGENCY:

State of Hawai‘i
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, Hawai‘i 96813

CONSULTANT:

Geometrician Associates LLC
P.O. Box 396
Hilo, Hawai‘i 96721

FINAL ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007: 011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPLICANT:

Peter Dungate
75-1193 Kamalani Street
Holualoa HI 96725

APPROVING AGENCY:

State of Hawai‘i
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, Hawai‘i 96813

CONSULTANT:

Geometrician Associates LLC
P.O. Box 396
Hilo, Hawai‘i 96721

CLASS OF ACTION:

Use of Land in Conservation District

This document is prepared pursuant to:
The Hawai‘i Environmental Protection Act,
Chapter 343, Hawai‘i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai‘i Department of Health Administrative Rules (HAR).

[THIS PAGE INTENTIONALLY LEFT BLANK]

TABLE OF CONTENTS

SUMMARY OF PROJECT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Peter Dungate (the applicant) seeks a Conservation District Use Permit (CDUP) to build a single-family residence and related improvements on a 6.6-acre lot located adjacent to the shoreline at Pahoehoe in the South Kona District. The location of the house and accessory features is constrained by several factors, including topography, archaeological sites (plus buffers), and Limited Subzone rules. The proposed one-story home will be 2,234 square feet, including the house and lanai and covered entry area. The home will be set back a minimum of 44 feet from the certified shoreline at an elevation of about 33 to 36 feet above sea level. Other features include a catchment water tank, a generator, an Individual Wastewater System and an existing driveway which will be improved by adding cinders but leaving it unpaved. All features will be a minimum of 40 feet from the shoreline. Two *kiawe* trees will be cut or trimmed and several new native or Polynesian trees will be planted near the house site. No modifications within the shoreline setback area are planned.

Landclearing and construction activities would occur over roughly a half acre, which would produce minor short-term impacts to noise, air and water quality and scenery. These would be mitigated by Best Management Practices expected to be required as conditions of the CDUP and grading permit. The applicant will ensure that his contractor performs all earthwork and grading in conformance with applicable laws, regulations and standards. The project has been fully surveyed for threatened and endangered plants and none are present. The vegetation is scattered, scrubby and low, and there will be no impacts to the island wide-ranging endangered Hawaiian hoary bat or Hawaiian Hawk. The applicant has recognized the public ownership of the roads that traverse his properties and has worked with Na Ala Hele to protect the public interest in access along traditional access ways. Archaeological and cultural resources have been avoided through inventory, consultation, and approved treatment plans, and the site layout has situated the home, driveway and other features in areas that avoid impacts. Two burial sites and several archaeological features will be preserved in accordance with approved preservation and burial treatment plans. In the unlikely event that additional undocumented archaeological resources, including shell, bones, midden deposits, lava tubes, or similar finds, are encountered during construction within the project site, work in the immediate area of the discovery will be halted and the State Historic Preservation Division will be contacted to determine the appropriate actions.

PART 1: PROJECT DESCRIPTION AND E.A. PROCESS

1.1 Project Description and Location

Peter Dungate (the applicant) seeks a Conservation District Use Permit (CDUP) to build a single-family residence and related improvements on a 6.6-acre lot located adjacent to the shoreline in the *ahupua'a* of Pahoehoe 1st in the South Kona District of the Big Island of Hawai'i (Figures 1, 2 and 3a). The location of the house site was chosen primarily because of previous habitational use in the area, an existing access road, and because other areas of the lot contain either archaeological features or are steep and lack an access road and would require substantial grading to be used. The proposed one-story residence will consist of a two-bedroom, 1½-bath home of 1,052 square feet, with an additional 1,182 square feet of open or covered lanai and covered entry area (see Figures 3a-c for Site Plan). The home will be set back a minimum of 44 feet from the shoreline, which was surveyed on October 7, 2011, and certified on May 16, 2012, at an elevation of 33 to 36 feet above sea level. Other features include a catchment water tank, an Individual Wastewater System, a generator for electricity, and improvement of an existing rough track from the coastal road to the building site that was present when the applicant bought the property by adding cinders so that it can be used as a driveway without inducing flat tires. All features will be a minimum of 40 feet from the shoreline. Two *kiawe* trees will be cut or trimmed and several new native or Polynesian trees will be planted near the house site. No modifications within the shoreline setback area are planned. Two burial sites and several archaeological feature will be preserved in accordance with preservation and burial treatment plans that have already been approved by the State Historic Preservation Division. The applicant has recognized the public ownership of the roads that traverse his properties and has worked with Na Ala Hele to protect the public interest in access along traditional access ways.

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 anticipated finding that no significant impacts are expected to occur, based on the preliminary findings for each criterion made by the consultant in consultation with the Hawai'i State Department of Land and Natural Resources, the approving agency. If, after considering comments to the Draft EA, DLNR concludes that, as anticipated, no significant impacts would be expected to occur, then the agency will issue a Finding of No Significant Impact (FONSI), and the action will be permitted to proceed. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) will be prepared.

1.3 Public Involvement and Agency Coordination

The following agencies, organizations and individuals have been consulted during the Environmental Assessment Process:

County:
- Planning Department
- County Council
- Department of Public Works
- Police Department
- Fire Department

State:
- Department of Health
- Department of Land and Natural Resource (DLNR), State Historic Preservation Division
- Office of Hawaiian Affairs

Private:
- Sierra Club
- Adjacent Property Owners

Copies of communications received during early consultation are contained in Appendix 1a. Notice of the availability of the Draft EA was published in the July 8, 2013 *OEQC Environmental Notice*. Appendix1b contains written comments on the Draft EA and the Applicant's responses to these comments. Various sections of the EA have been modified in response to the comment letters; additional or modified non-procedural text is denoted by double underlines, as in this paragraph.

Figure 1a Project Location Map

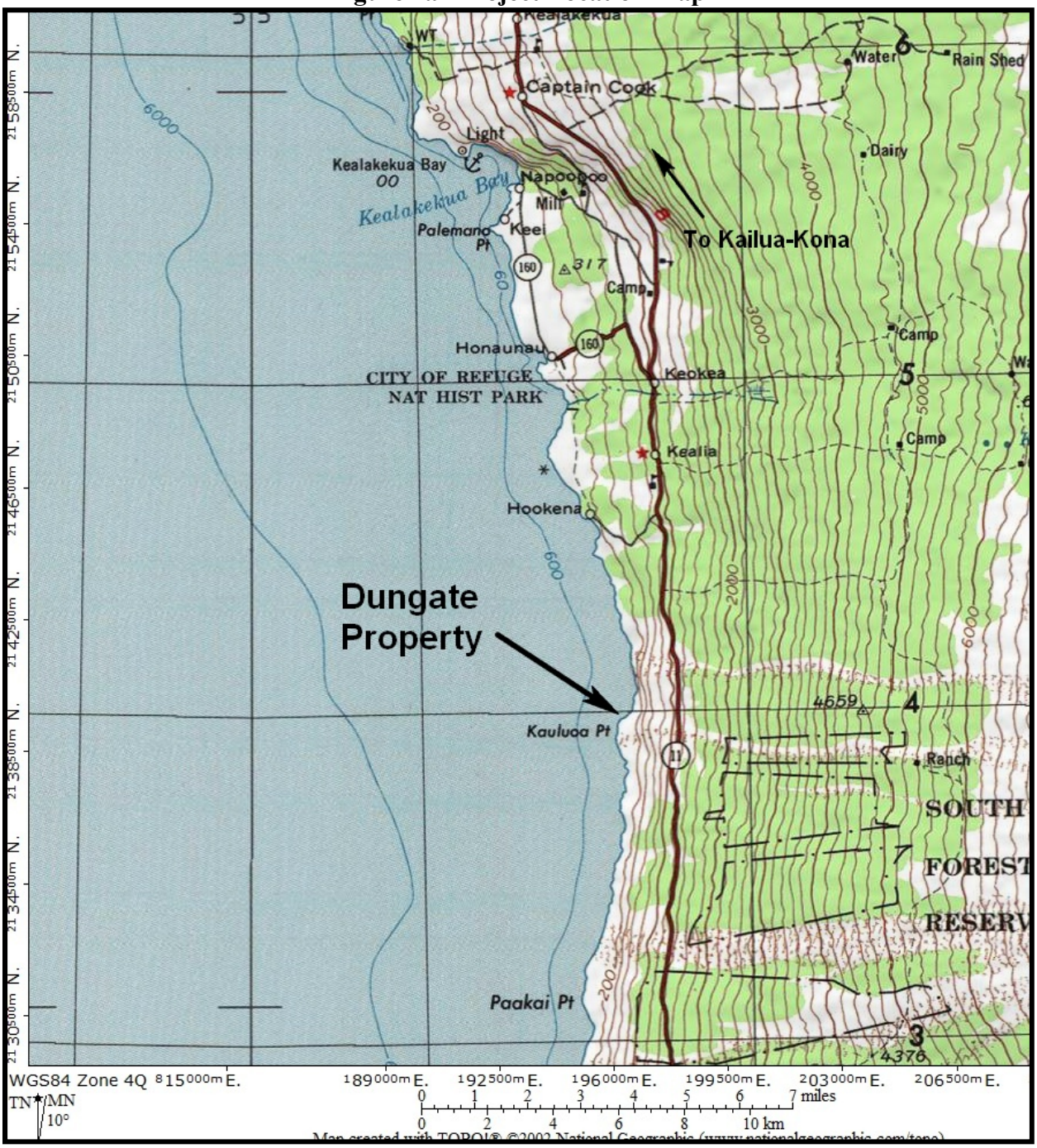


Figure 1b TMK Map

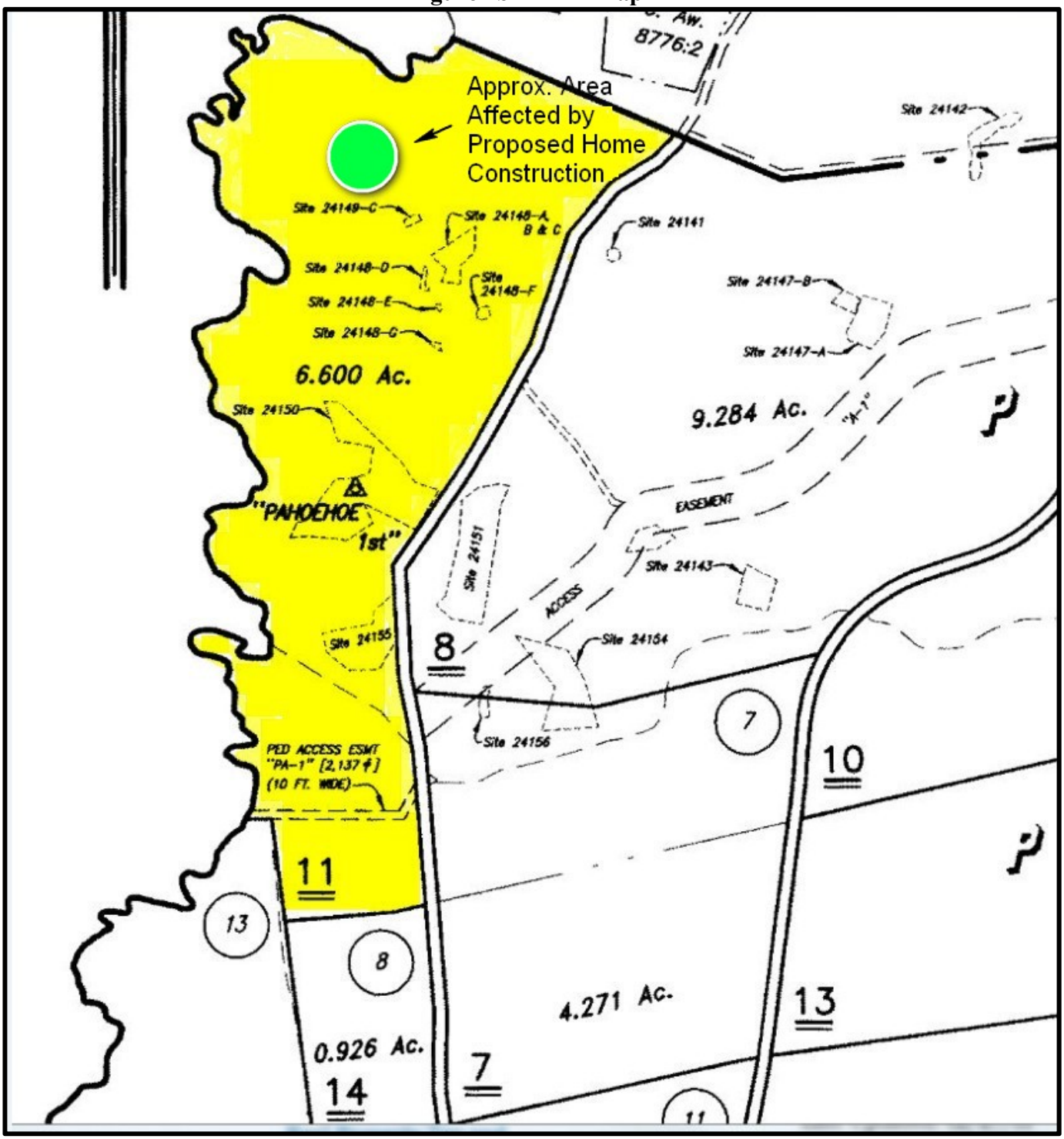
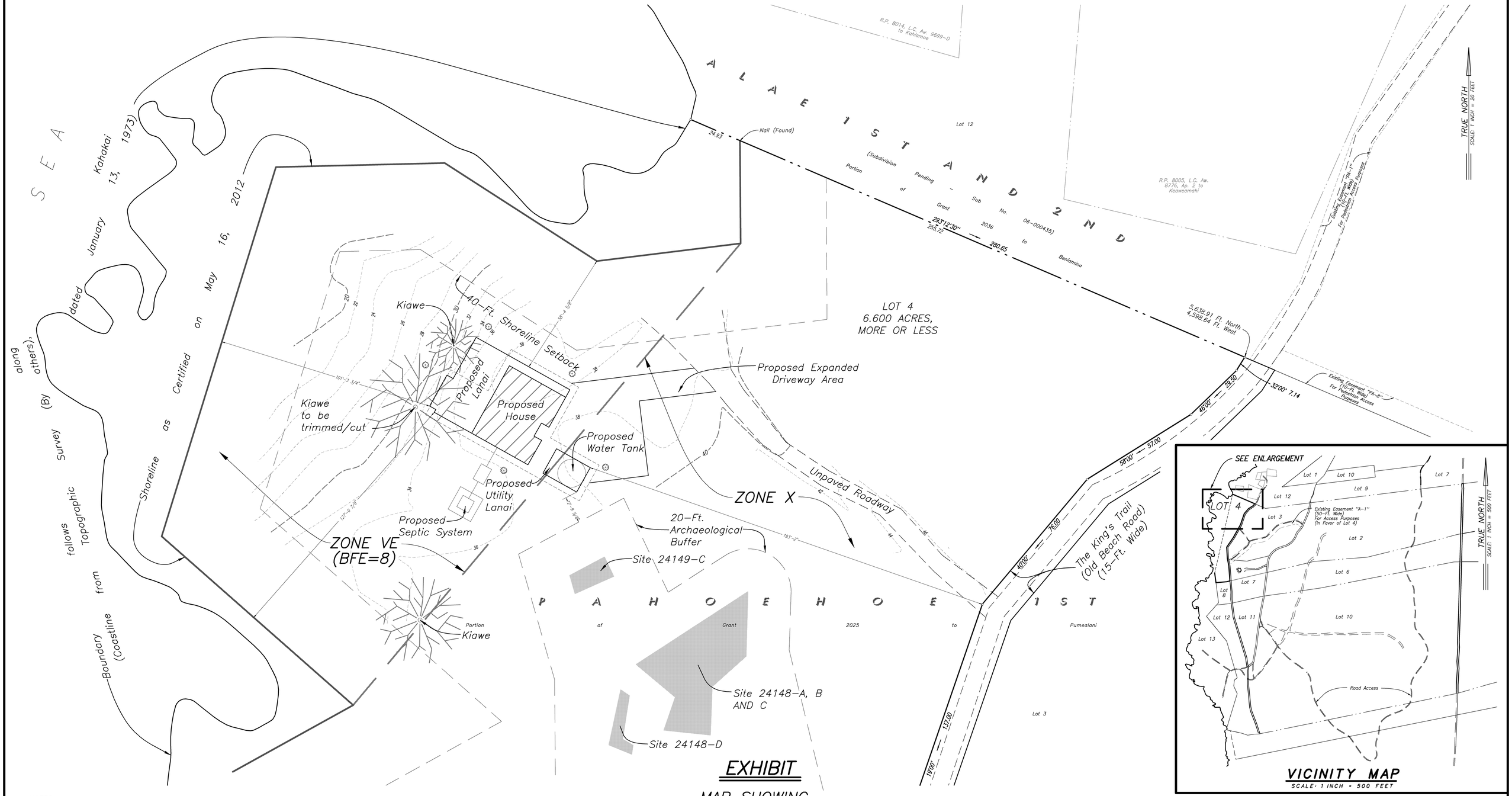


Figure 2 Project Site Photos

Typical Vegetation on Project Site ▲ ▼ Shoreline in Front of Project Site

Figure 2 Project Site Photos (continued)

▼ View to South



NOTES:

1. Azimuths and coordinates are referred to Government Survey Triangulation Station "WAIKAKUU 4".
2. The features, shown hereon, were located by an actual survey on the ground done between February 28, 2005 and August 15, 2011.
3. Subject Parcel is located in Zone X (areas determined to be outside the 500-year flood plain) and Zone VE (coastal flood with velocity hazard (wave action) with base flood elevations determined) as per Flood Insurance Rate Map (F.I.R.M.) Community-Panel Number 155166 1425 C, revised Sepetember 16, 1988.
4. SYMBOL:

   ⊙ New Planting of individual shrubs/trees of Milo, Akia, Loulu or Noni.
5. Elevations are based on Mean Sea Level.

20 10 0 20 40 60
SCALE IN FEET

EXHIBIT

MAP SHOWING LOCATION OF PROPOSED RESIDENCE, SHORELINE AS CERTIFIED ON MAY 16, 2012 AND FEMA FIRM FLOOD ZONES.

Being Portions of Lot 4 and Grant 2025 to Pumealani

At Pahoehoe 1st, South Kona
Island and County of Hawaii, State of Hawaii

Prepared For:
PETER AND ANGIE DUNGATE (OWNERS)
P.O. Box 89
Kailua-Kona, Hawaii 96745

Prepared By:
WES THOMAS ASSOCIATES
-- Land Surveyors --
75-5749 Kalawa Street
Kailua-Kona, Hawaii 96740-1817
TEL. (808) 329-2353
FAX (808) 329-5334 EMAIL surveys@wtahawaii.com

PROJECT NO.: 16957.42
DATE: . . . . . MAY 8, 2013
FIELD BOOK NO.: . . 1197,1223,1236,1279 AND 1281
TAX MAP KEY: . . . . 8-7-007:011 (3RD DIVISION)

[THIS PAGE INTENTIONALLY LEFT BLANK]

Figure 3b Floor Plan

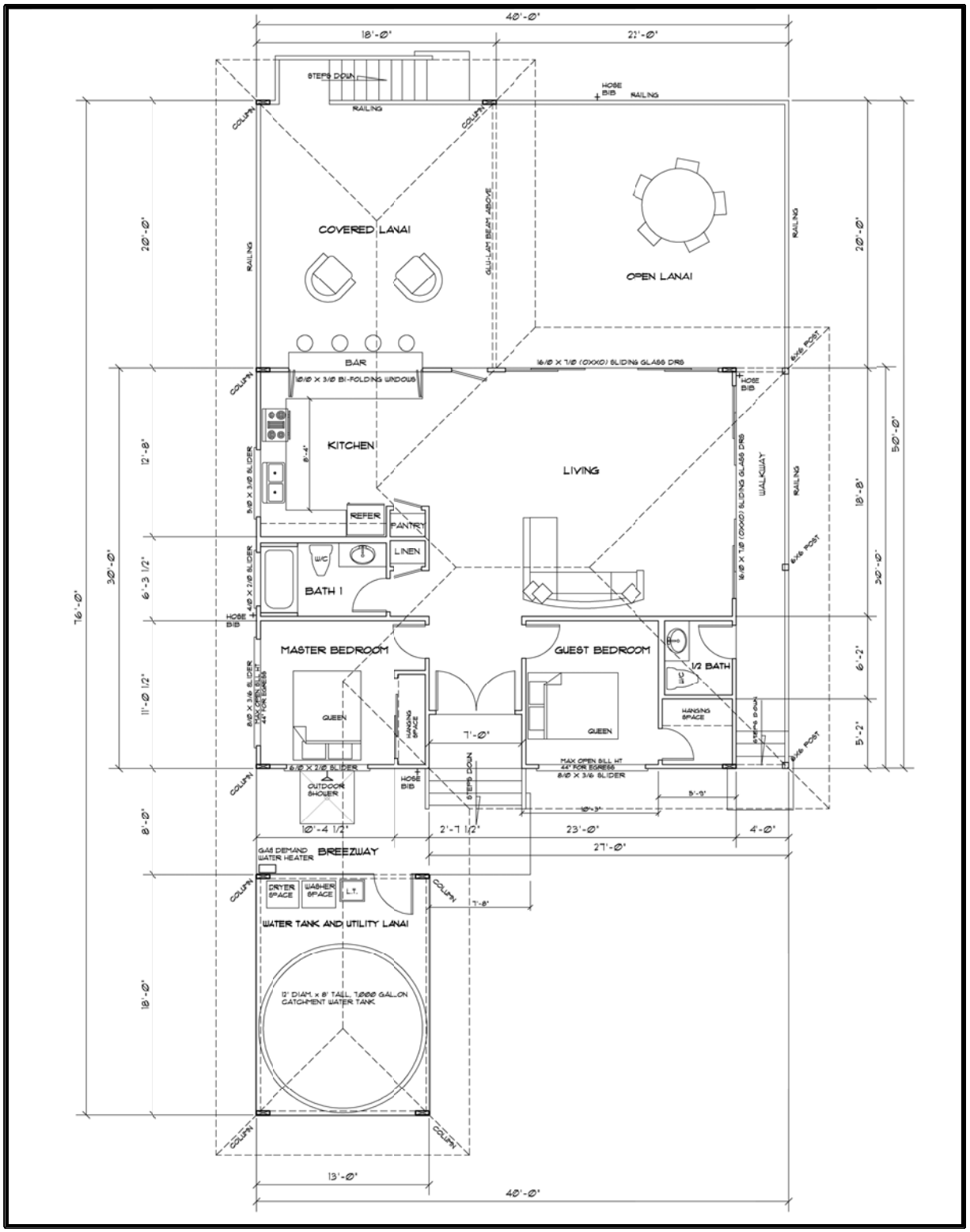
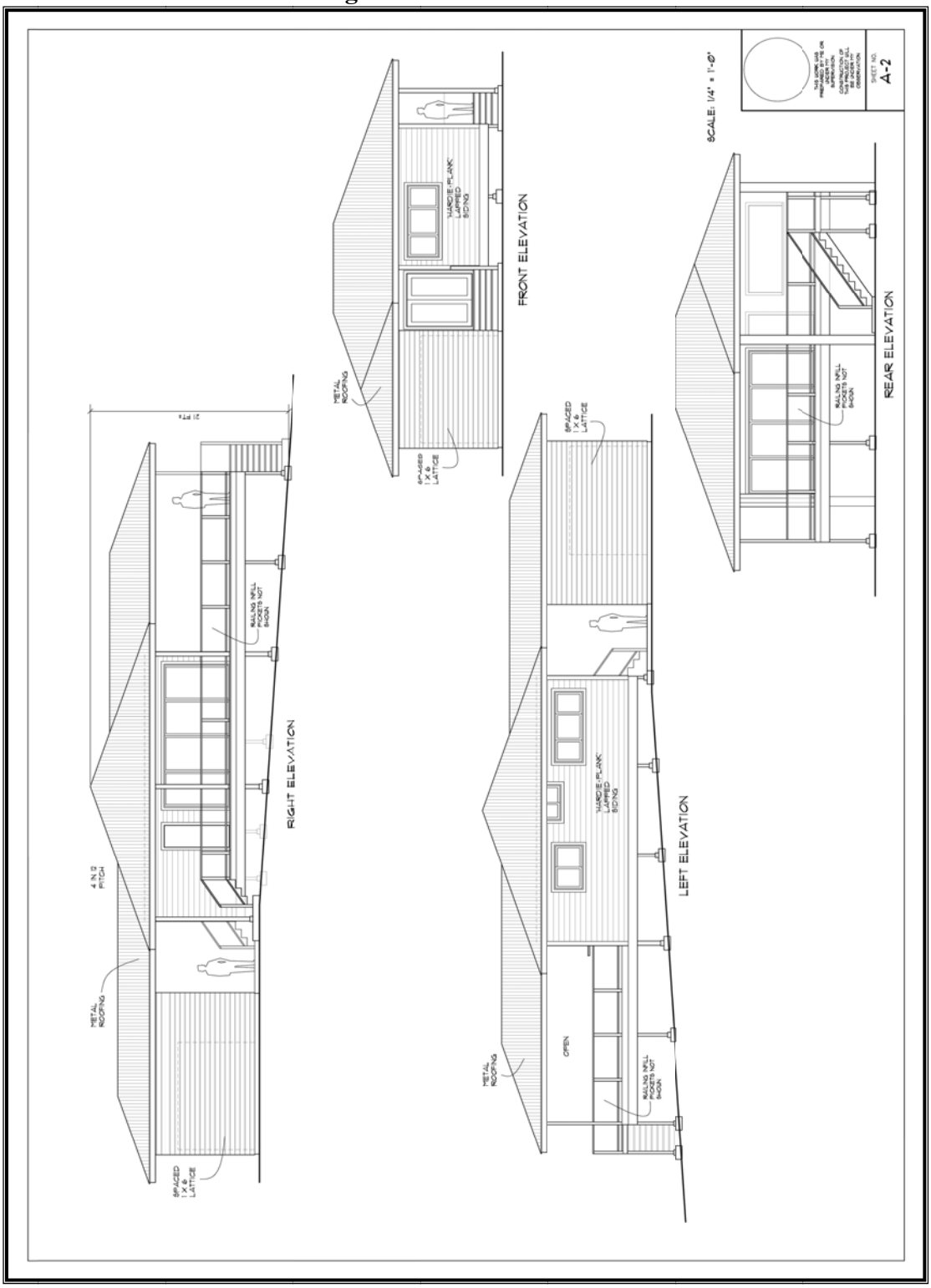


Figure 3c Elevation Plan



PART 2: ALTERNATIVES

2.1 Proposed Project

The proposed project and its location are described in Section 1.1 above and illustrated in Figures 1-3.

2.2 No Action

Under the No Action Alternative, the residence would not be built but the lot could be used for camping or day activities by the owner. This EA considers the No Action Alternative as the baseline by which to compare environmental effects from the project. No other alternative uses for the property are currently desired by the applicant, and thus none are addressed in this EA.

In an August 10, 2012 letter (see Appendix 1a) rejecting the application and requesting additional information, OCCL stated:

> "Under alternatives; other alternatives such as developing outside of the Conservation District *or applying for a different identified land use should be considered*."

There is only a very limited area on the southern margin of the property outside the Conservation District and within the Agricultural District, which is not readily accessible from other parts of the property

In terms of non-single-family home uses, the landowner wishes to build a single-family home, which is an identified and reasonable use, on his private property. It is not within the authority of OCCL or the scope of alternatives analysis under Chapter 343 to require consideration of an alternate use that a landowner has no desire to implement.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

The 6.60-acre property is located adjacent to the shoreline (see Figure 3 for lot map) and is the product of a recent subdivision action which also resulted in the State receiving fee simple ownership of several roads and a trail. It is presently vacant and unused and is covered with low, scattered *koa haole* and *kiawe trees*, both of which are non-native (see Figure 2 for photographs). At its highest point, the area planned for improvements is approximately 50 feet above mean sea level, and the house site is situated at about 33-36 feet above sea level. There is a recently constructed single-family residence on the adjoining parcel to the south (TMK 8-7-007:014), owned by Dr. and Mrs. Peter Locatelli. Also south of Parcel 14 is a coastal parcel, apparently created by a lava flow, which is identified as TMK 8-7-007:018 and is owned by the State of Hawai‘i. The property which lies *mauka* or east of Parcel 11 is TMK 8-7-007:008 and is also owned by the Dungates. The parcel to the north of Parcel 11 is TMK 8-7-005:002, which is owned by Kiowai Hui LLC and is undeveloped. The Kona Paradise Subdivision is located on TMK (3) plats 15 – 20 and is less than one mile south of Parcel 11. There are over 100 homes in the Kona Paradise Subdivision, including several in the Conservation District along the coast.

3.1 Physical Environment

3.1.1 Geology, Soils and Geologic Hazards

Environmental Setting

The property is located on the western flank of Mauna Loa, an active volcano, in the District of South Kona, on lava flows dated at between 1,500 and 3,000 years ago (Wolfe and Morris 1996). Soil in the area is predominantly ‘a‘a lava flows (rLV) and Punalu‘u extremely rocky peat (rPYD) (U.S. Soil Conservation Service 1973). Both are highly drained and their soil subclasses are VIIIs and VIIs, respectively, which means they have limitations that because of their stony nature preclude their use for commercial crops and restrict their use to recreation, wildlife, or water supply, or to aesthetic purposes. This area receives an average of about 40 inches of rain annually, with a mean annual temperature of approximately 75 degrees Fahrenheit (UH Hilo-Geography 1998:57).

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the U.S. Geological Survey in this area of South Kona is Zone 2 on a scale of ascending risk of 9 to 1 (Heliker 1990:23). The relatively high hazard risk is because Mauna Loa is an active volcano. In Zone 2, approximately 15-25 percent of the land area has been covered by lava flows since 1800, but up to 75 percent has been covered in the last 750 years. The nearby 1950 Mauna Loa lava flows reached the coast only a few hours after eruption, indicating that the area should be evacuated at the first sign that renewed Southwest Rift Zone eruptive activity is imminent. The lava flow hazard at this Property is, however, no greater here than anywhere else on the South Kona and Ka’ū coastline.

In terms of seismic risk, the entire Island of Hawai‘i is rated Zone 4 Seismic Hazard (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the proposed action, as much of Hawai‘i Island faces similar volcanic and seismic hazard. The applicant understands the risk and the residence is not imprudent to construct.

In an August 10, 2012 letter (see Appendix 1a) rejecting the original application and requesting additional information, OCCL stated:

> “Regarding this area, the Atlas of Natural Hazards in the Hawaiian Coastal Zone has rated the overall hazard assessment as moderately high in regards to tsunami, high waves, storms, sea level rise and volcanic/seismic activity (Exhibit D). The Archeological Inventory Survey notes that site 24149 that appears to the proposed development site has been "impacted by wave activity." …..The shoreline certification report describes the shoreline as a west facing, exposed, irregular shoreline characterized by a very steep to vertical basalt bluff. The bluff consists of multiple volcanic deposits with an apparent blue rock core and a'a surface. The bluff face is highly fractured with multiple sea caves at the base. The area is exposed to very high wave energy, particularly during large south swells and Kona storms. The area mauka of the pali is moderately-sloping and very rugged. The wash of the waves had extensive salt deposits along the top of pali and the bluff face. The highly fractured bluff face, the toe of the bluff with intertidal signatures (pipipi, algae, wet/dry lines), and most makai was the swash zone. A narrow boulder reef extends into the near shore with no discernible reef in the deep off shore waters. Further discussion with our Sea Grant Geologist on staff indicated that the ocean resource is under cutting the cliff face. It was further noted that unlike a beach, there is nothing to dissipate the ocean's wave energy therefore it is expected that the wave force will continue to gouge and erode beneath the cliffs. Exhibit C clearly illustrates substantial cliff failure in this vicinity. Due to the nature of the site, improvements should be kept to a minimum.”

Although the area is in the VE zone, the hazard does not appear to render the area unsuitable for a residence, as evidenced by the fact that the site was previously inhabited. As presented in Appendix 3, a professional geologist with decades of experience systematically examined the site and determined that actual erosion is minimal. Because of the 33-foot plus elevation of the home, the main hazard will be occasional salt spray. The applicant would be theoretically amenable to moving out of the VE zone, but the OCCL has rules that require landowner within the limited subzone to locate their homes inside the VE zone. The applicant acknowledges the fact that the house site is in a secluded area on a southern facing rugged coastline susceptible to the elements and seismic and volcanic activity.

3.1.2 Flood Zones and Coastal Processes

Environmental Setting: Flood Zones

Floodplain status for many areas of the island of Hawai‘i has been determined by the Federal Emergency Management Agency (FEMA), which produces the National Flood Insurance Program's Flood Insurance Rate Maps (FIRM). The map for the project area (FIRM Panel 1551661425C) shows the home building site is classified in Flood Zone VE (areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action) with a Base Flood Elevation of 8 feet above sea level (see Figure 3a). As such, mandatory flood insurance purchase requirements and floodplain management standards apply.

In an August 10, 2012 letter (see Appendix 1a) rejecting the application and requesting additional information, OCCL stated:

> "The OCCL has inspected a survey entitled, 'Exhibit Map Showing Pre-Existing Lots of Record' that includes the flood zone designations (Exhibit E). Based upon review of this survey, it is unclear if the proposed residence does indeed lie within a coastal high hazard zone as the application did not contain enough information for us to confirm this. Please submit the County of Hawaii Public Works determination regarding the National Flood Insurance Program with the location of the residence over laid."

Exhibit E in the OCCL letter was produced at a small scale for the purposes of illustrating a proposed subdivision and provided only an approximate representation of the VE zone. A larger scale map with a more precise placement of the VE zone was prepared by a professional surveyor using the official FEMA FIRM map and the certified shoreline, and it is this map that is the basis for the Site Plan.

Regulatory Background: Coastal Process

Title 13, Chapter 5, Hawai‘i Administrative Rules (Conservation District), has rules that govern the location of single-family residences within the Limited Subzone. According to §13-5-23(c) L4, D1, the following is permitted:

> "A single family residence in a flood zone or coastal high hazard area defined by the boundaries of the Federal Insurance Rate Maps (FIRM) that conforms to applicable county regulations regarding the National Flood Insurance Program and single family residential standards as outlined in this chapter."

This has been interpreted by DLNR officials as constraining the location of single-family residences in the Limited Subzone to areas within the Flood Zone. The only area of Flood Zone within the property is found in and around the location of the proposed home. The location of the home thus conforms to the locational requirements of DLNR.

The Conservation District rules also specify procedures in Exhibit 4 for determining the shoreline setback that depend upon calculations of shoreline erosion and lot depth. This is meant to avoid beach erosion and interference with coastal processes.

> "The shoreline setback line shall be established based on a setback distance from the certified shoreline of 40 feet plus 70 times the average annual coastal erosion rate, based on a coastal erosion study as defined in this chapter. No shoreline setback shall be established for any lot subject to this chapter unless the application for a shoreline setback line includes a shoreline survey certified by the department not more than 12 months prior to submission of the permit application. The shoreline setback line shall be based on the average lot depth (ALD) measured from the current shoreline. For lots with an ALD of two hundred feet or less, the shoreline setback line shall be established based on the ALD of the lot, as provided in Table 1, or based on 40 feet plus 70 times the annual erosion rate. The applicant may choose the lesser of the two methods, but in no case shall the shoreline setback line be calculated to be less than 40 feet. The department may waive the requirement for coastal erosion study based on supportive documentation from the applicant. Such documentation may include, but is not limited to, county or state approved coastal erosion rate data provided through the University of Hawaii, School of Ocean, Earth Science, and Technology, or evidence that the erosion rate is zero."

However, it is again important to note that DLNR rules dictate that the only appropriate location for a residence in the Limited Subzone, as is the case with this property, is within a Flood Zone.

Environmental Setting: Shoreline

Regardless of the rules constraining a house location, in order to determine the risk of shoreline retreat, a coastal erosion analysis was performed for the property by John P. Lockwood, Ph.D., is attached as Appendix 3 and summarized below. The project site was inspected on February 9, 2012, when the tide level was low (0.0 feet) and there was a strong northwest swell impacting the coastline.

This area of rugged South Kona coastline lies between the middle and northern (Honokua) lava flows of June, 1950, and is mostly bounded by a steep coastal sea cliff that offers protection from normal sea waves. The project site is completely underlain by an undated prehistoric ʻaʻa flow (Wolfe and Morris 1996), with an estimated radiocarbon age between 1,500 and 3,000 years b.p. This flow consists of a dense, non-vesicular "blue rock" ʻaʻa core overlain by a carapace of loose ʻaʻa rubble. Where exposed in cross-section north of the project site, the ʻaʻa core is seen to be 5 to 8 feet thick. The flow dips gently seaward 3 to 5 degrees in this area, so that its upper surface is relatively flat, with low relief defined by the sizes of overlying ʻaʻa boulders and loose rubble.

Where it has not been impacted by the erosive power of storm waves, the ʻaʻa flow underlying the project site is overlain by a normal, rubbly layer of ʻaʻa breccia that characterizes the land inland from the coast (see Figure 2). Where it subject to the erosive power of storm or tsunami waves, however, closer to the coastline, the flow has been eroded vertically by waves that have overtopped the coastal sea cliff and washed away loose material. The "blue rock" core of this ʻaʻa flow is extremely durable, however, and is not subject to appreciable horizontal erosion. Inspection of aerial photographs showed no measurable

change in position of the overall coastal sea cliff since the earliest 1954 photos, nor of the coastal vegetation (scattered *kiawe* trees). Despite the poor resolution of the aerial photos, it appears that a large fragment of the seacliff may have broken off between the 1965 and 1976 photos. The exact size of the missing piece is not resolvable, but could have been as large as 300 square feet. The area of the missing fragment was not directly observable owing to high surf at the time of inspection, but an exposed area directly across an embayment from Kaululoa point indicated that the same ʻaʻa flow in this area overlies an older pahoehoe flow. Hydraulic ramming of water into the spaces between the two flows erodes the basal loose ʻaʻa breccia layer, and may contribute to failure of overlying ʻaʻa flow fragments in the area north of Kaululoa Point. In the area directly fronting the project site, however, the sea cliff has remained stable and shows no indication of substantial erosion. Several large, angular boulders of angular ʻaʻa blocks were noted immediately inland from the coastal sea cliff, showing that mechanical failure of the cliff does occur, but this piecemeal erosional process appears to result in no measurable migration of the coastline, nor would it have any effect on shoreline position, as determined by the "highest reach of normal waves".

Impacts and Mitigation Measures

The location of the home building site within Flood Zone VE with a Base Flood Elevation of 8 feet above sea level brings with it a requirement to purchase flood insurance and conform to other applicable County regulations, even though the building site is 33 to 36 feet above sea level.

Even if not exposed to flood damage, property near the shoreline may be subject to natural coastal processes including erosion and accretion, which can be affected by human actions such as removal of sand or shoreline hardening. Erosion may adversely affect not only a lot owner's improvements but also State land and waters, along with the recreational and ecosystem values they support. Development of shoreline properties also exposes residents and visitors to increased risk of hazardous high waves and tsunami.

The coastal geologist determined that calculation of a meaningful erosion rate at the project site is not feasible, since the overall retreat of the coastal sea cliff by the piecemeal failure of individual blocks, such as the one described above, does not contribute to a general modification at or near the certified shoreline fronting the property. There is no indication that the shoreline vegetation line has changed over the 58 year period since the aerial photographic record began.

The project site is located on solid rock, 33 to 36 feet above sea level at a minimum of 44 feet from the certified shoreline. The project involves no shoreline hardening or use of areas subject to beach processes. Although the proposed home is within the flood zone, its elevation and geologic setting means that it would not likely be subject to flooding or coastal processes. The proposed location of the residence is as far away from the shoreline as possible within the constraint of staying within the flood zone. A setback of 44 feet is greater than 70 times the measurable erosion rate (zero) added to 40 feet. This setback combined with the lack of beaches and the 30-foot plus elevation in a safe location indicates little or no impact to beaches, coastal processes, or resident/public safety.

The submarine slope off this coast is steep, the sea cliff is relatively high, and no sign of any tsunami debris from the March, 2010 Japan tsunami nor from previous events was observed inland from the vegetation line. The 30-foot plus elevation and steepness of the coastal sea cliff also ensure that combined sea level change and land subsidence (as reported by Apple and Macdonald 1966 at Honaunau Bay, six miles to the north, about 5 mm/yr) will not cause significant shoreline transgression in this area, nor would the higher overall rise in sea level of 3.3 feet by the end of the 21st century projected by Fletcher and others (2010).

Even in a worst-case sea level rise scenario, there would be an opportunity for the owner to consider relocating or scrapping the structure for re-use of its materials should sea level rise sufficiently to endanger the structure, as sea level rise is gradual. The owner would agree to a CDUP and/or deed condition that would prevent any future request for shoreline hardening to protect the residence, regardless of hardship, and a condition requiring moving or dismantling the home if sea level rise eventually threatens the integrity of the structure.

3.1.3 Water Quality

The property is adjacent to the shoreline, but the house would be set back 44 feet and no grading activities would occur *makai* of this area. There are no water features such as streams, springs, or anchialine ponds.

Land clearing and construction activities would occur on an area of less than half an acre, including the driveway. Grading for the driveway and house lot will include practices to minimize the potential for sedimentation, erosion and pollution of coastal waters. The applicant will ensure that his contractor shall perform all earthwork and grading in conformance with:

(a) "Storm Drainage Standards," County of Hawai‘i, October, 1970, and as revised.
(b) Applicable standards and regulations of Chapter 27, "Flood Control," Hawai‘i County Code.
(c) Applicable standards and regulations of Federal Emergency Management Agency.
(d) Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawai‘i County Code.
(e) Conditions of any additional best management practices required by the Board of Land and Natural Resources.

In addition, as part of construction, the applicant will require that the construction contractor implement the following practices:

- The total amount of land disturbance will be minimized. The construction contractor will be limited to the delineated construction work areas within the lot.
- The contractor will not allow any sediment to leave the site, particularly towards the ocean.
- Construction activities with the potential to produce polluted runoff will not be allowed during unusually heavy rains or storm conditions that might generate storm water runoff.
- Cleared areas will be replanted or otherwise stabilized as soon as possible.

Upon its completion, the home would not be expected to contribute to sedimentation, erosion, and pollution of coastal waters.

3.1.4 Flora and Fauna

Environmental Setting: Flora

The natural vegetation of this dry site covered with almost bare lava is a very sparse dry shrubland. Some of the project site has been previously disturbed by grading and habitational activities. The floral makeup reflects colonization by introduced species, including *koa haole* (*Leucaena leucocephala*), *kiawe* (*Prosopis pallida*), Christmas berry (*Schinus terebinthifolius*), castor bean (*Ricinis communis*), and *Boerhavia coccinea*. One very common indigenous herb, *ʻuhaloa* (*Waltheria indica*), is also present. Outside but near the site there are also the non-natives *opiuma* (*Pithecellobium dulce*), buffel grass (*Cenchrus ciliaris*), leaf of life (*Kalanchoe pinnata*), and fountain grass (*Pennisetum setaceum*). No rare, threatened or endangered plant species was found in any part of the property during botanical surveys.

Environmental Setting: Fauna

During a site reconnaissance lasting an afternoon only two vertebrate species were observed: several goats (*Capra hirca*) and the migratory shoreline bird Golden Plover (*Pluvialis fulva*). Typical introduced birds that might be expected are the introduced Common Myna (*Acridotheres tristis*), Northern Cardinal (*Cardinalis cardinalis*), Spotted Dove (*Streptopelia chinensis*), Japanese White-eye (*Zosterops japonicus*), House Finch (*Carpodacus mexicanus*), Yellow-billed Cardinal (*Paroaria capitata*) and Yellow-fronted Canary (*Serinus mozambicus*). Other mammals likely to be found in the project area are all introduced species, including feral cats (*Felis catus*), small Indian mongooses (*Herpestes a. auropunctatus*) and various species of rats (*Rattus* spp.). Various introduced lizards may also be present. None of these are of conservation concern and all are deleterious to native flora and fauna.

It is unlikely that many native forest birds would be expected to use the project site due to its low elevation, alien vegetation and lack of adequate forest resources. Common shorebirds, such as the Golden Plover noted above, Ruddy Turnstone (*Arenaria interpres*), and Wandering Tattler (*Heteroscelus incanus*), can be observed on the rocky shoreline fronting the property, feeding on shoreline resources. They would be unlikely to make much use of the project site itself, which is back from the shore, sparsely vegetated and offers no habitat for them.

As with all of West Hawaiʻi, several endangered native terrestrial vertebrates may be present in the general area and may overfly, roost, nest, or utilize resources of the property. These include the endangered Hawaiian Hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*). The vegetation is scattered, scrubby and low, and there will be no impacts to the types of vegetation needed by the island wide-ranging endangered Hawaiian hoary bat or Hawaiian Hawk.

The coastal and marine fauna and flora are typical of the leeward coasts of South Kona, which are young ecosystems with limited coral growth but a variety of algae, fish and invertebrates. Endangered whales, seals and turtles also visit South Kona coastal waters.

Impacts and Mitigation Measures

Because of the minor nature of the project and the lack of sensitive terrestrial ecosystems and threatened or endangered plant species, construction and use of the single-family residence are not likely to cause adverse biological impacts. The applicant is planning minimal landscaping; two *kiawe* trees will be cut and/or trimmed and several new native or Polynesian trees, including *milo* (*Thespesia populnea*), *loulu* palms (*Pritchardia* spp.), *noni* (*Morinda citrifolia*) and *ʻakia* (*Wikstroemia* spp.), will be planted near the house site (see Figure 3a). The precautions for preventing effects to water quality during construction listed above and below in Sections 3.1.1 and 3.1.6 will reduce adverse impact on aquatic biological resources in coastal waters to negligible levels.

In order to minimize the potential for disorientation of threatened or endangered seabirds, the applicant agrees to shield any exterior lighting from shining upward, in conformance with Hawaiʻi County Code § 14 – 50 et seq.

3.1.4 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air pollution in West Hawaiʻi is mainly derived from volcanic emissions of sulfur dioxide from Kilauea volcano, which convert into sulfur dioxide and particulate matter and produce a volcanic haze (vog) that persistently blankets North and South Kona, although the vog tends to accumulate to the north of the project site. Noise on the site is very low, and is derived from natural sources (such as surf and wind) due to the very rural nature of the area.

The area shares the quality of scenic beauty of the South Kona coastline. The Goals, Policies and Standards of the Hawaiʻi County General Plan are intended to preserve areas of natural beauty and scenic vistas from encroachment. The General Plan discusses the coastal areas of Hookena-Kauhako Bay and Miloliʻi areas located more than three miles to the north and south of the project site, respectively, as noted features of natural beauty in South Kona. Only the lava flow of 1950 is listed as a specific example of natural beauty in close proximity to the project site. Although the area directly surrounding the building site is vacant, there is a single-family home to the south and over 100 single family homes about a mile to the south, including several within the Conservation District.

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.

Because all grading and construction except improvement of the driveway would occur a substantial distance from the *mauka* and side edges of the property, construction and occupation of the single-family home would have minimal visual impacts. Inside the property, the simple and modest design of the one-story home, along with minimal landscaping that will replace non-native with native and Polynesian vegetation, will enhance the scenic character of the property.

3.1.6 Hazardous Substances, Toxic Waste and Hazardous Conditions

Based on onsite inspection and the lack of any known former use on the property other than habitational use long ago, it appears that the site contains no hazardous or toxic substances and exhibits no other hazardous conditions. In addition to the measures related to water quality detailed in Section 3.1.3, in order to ensure to minimize the possibility for spills of hazardous materials, the applicant proposes the following conditions of the CDUP:

- Unused materials and excess fill will be removed and disposed of at an authorized waste disposal site.
- During construction, emergency spill treatment, storage, and disposal of all hazardous materials, will be explicitly required to meet all State and County requirements, and the contractor will be asked to adhere to "Good Housekeeping" for all appropriate substances, with the following instructions:
    - Onsite storage of the minimum practical quantity of hazardous materials necessary to complete the job;
    - Fuel storage and use will be conducted to prevent leaks, spills or fires;
    - Products will be kept in their original containers unless unresealable, and original labels and safety data will be retained;
    - Disposal of surplus will follow manufacturer's recommendation and adhere to all regulations;
    - Manufacturers' instructions for proper use and disposal will be strictly followed;
    - Regular inspection by contractor to ensure proper use and disposal;
    - Onsite vehicles and machinery will be monitored for leaks and receive regular maintenance to minimize leakage;
    - 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 ocean
    - All spills will be cleaned up immediately after discovery, using proper materials that will be properly disposed of;
    - Regardless of size, spills of toxic or hazardous materials will be reported to the appropriate government agency;
    - Should spills occur, the spill prevention plan will be adjusted to include measures to prevent spills from re-occurring and for modified clean-up procedures.

3.2 Socioeconomic and Cultural

3.2.1 Land Use, Socioeconomic Characteristics and Recreation

Existing Environment

The South Kona District, which extends from the area of Kealakekua to south of Miloli‘i, has a significantly more rural character and more modest growth rate than its neighboring North Kona District or Hawai‘i County as a whole. Along with the expansion of the tourist industry, North Kona’s population has boomed in the past 30 years, growing at more than twice the rate of South Kona in the past decade. The 2010 census showed a population of 37,875 in North Kona, an increase of nearly 33 percent over the past decade and nearly twice its population of 1980. In comparison, South Kona had only 9,997 residents in 2010, a 16 percent increase over the past decade, significantly lower than the 24 percent increase for Hawai‘i County. The South Kona District saw its greatest expansion between 1980 and 1990 when population increased by 29.5 percent, slowing to a 12.2 percent increase between 1990 and 2000, with the population of the district actually seeing a slight decline from 1995 to 2000. The distribution of housing units shows a similar pattern. The number of housing units in North Kona stood at 18,642, an increase of more than 33 percent in the past decade, while in South Kona there were 4,435 housing units, an increase of 24 percent since 2000. South Kona is home to the majority of Kona’s coffee industry, and also supports macadamia nuts, avocados and flowers. The northern part of the district has a higher concentration of tourism-related facilities, while the southern portion – which includes the project site – harbors mostly residential and some agricultural use.

Recreational use in public lands in South Kona consists primarily of ocean activities, although despite the long coastline, access to the shoreline in the southern part of the district is hampered by lack of paved, public roadways along the steep terrain. Pebble Beach, which is located at Kaohe Park at the *makai* end of Kona Paradise Subdivision, is the closest formal recreational area to the project site and is frequented by local residents and some tourists for swimming, sunbathing, fishing and *opihi* gathering. The Dungate property is located about a mile north of the Kona Paradise Subdivision and is along a shoreline that is periodically visited by hikers headed north from Pebble Beach.

Impacts and Mitigation Measures

No adverse socioeconomic impacts are expected to result from the project. The project will have a very small positive economic impact for the County of Hawai‘i. The residence and associated improvements will not adversely affect recreation, as access along the coast and the path to the ocean that lie northwest of the property will undergo no changes or restrictions. Subdivision of the property that contains the residence included formal delineation and title transfer to the State of Hawai‘i of several trails, including the King’s Trail just mauka of the property (see Figure 1b), that can be used by the public now and will be incorporated in the Ala Kahakai National Historic Trail. A 10-foot wide pedestrian access easement from the King’s Trail to the shoreline also exists at the southern end of the property (see Figure 1b), several hundred feet from and unaffected by the proposed improvements.

3.2.2 Cultural and Historic Resources

An archaeological inventory survey, site preservation plan, data recovery plan, and burial treatment plan have all been prepared for the property and approved and are attached as Appendices 2a-d and summarized in the section below, which also includes information from other sources. A Cultural Impact Assessment has also been prepared (Appendix 4). Research for these studies included primary fieldwork, consultation of archaeological and ethnographical studies, and primary documents including maps and Mahele testimony. In the interest of readability, the summary below does not include all scholarly references; readers interested in extended discussion and sources may consult the appendices.

Historical and Cultural Background

The first inhabitants of Hawai‘i were believed to be settlers who had undertaken difficult voyages across the open ocean. For many years, researchers have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai‘i were underway by A.D. 300 (Kirch 1985), although recent work suggests that Polynesians may not have arrived in Hawai‘i until at least A.D. 1000 (Kirch 2010).

The initial inhabitants of Hawai‘i are believed to have come from the southern Marquesas Islands and settled initially on the windward side, eventually expanding to leeward areas. Early Hawaiian farmers developed new strategies and tools for their new environment (Kirch 1985; Pogue 1978). Societal order was maintained by their traditional philosophies and by the conical clan principle of genealogical seniority (Kirch 1984). Universal Polynesian customs brought from their homeland included the observance of major gods *Kane*, *Ku*, and *Lono*; the *kapu* system of law and order; cities of refuge; and the concepts of *mana* and the *‘aumakua* (Fornander 1969).

The Development Period, believed under Kirch’s new concept to have occurred from A.D. 1100 to 1350, brought an evolution of traditional tools, including a variation of the adze (*ko‘i*), and some new Hawaiian inventions such as the two-piece fishhook and the octopus-lure breadloaf sinker. That was followed by the Expansion Period (A.D. 1350 to 1650), which saw greater social stratification, intensive land modification, and population growth. This period was also the setting for the second major migration to Hawai‘i, this time from Tahiti. Also established during this period was the *ahupua‘a*, a land-use concept that incorporated all of the eco-zones from the mountains to the shore and beyond. The usually wedge-shaped *ahupua‘a* provided a diverse subsistence resource base (Hommon 1986) and added another component to what was already becoming a well-stratified society (Kirch 1985).

Ahupua‘a were ruled by *ali‘i ‘ai ahupua‘a* or lesser chiefs and managed by a *konohiki*. *Ali‘i* and *maka‘ainana*, or commoners, were not confined to the boundaries of *ahupua‘a* as resources were shared when a need was identified. *Ahupua‘a* were further divided into smaller sections such as *‘ili, mo‘o‘aina, pauku‘aina, kihapai, koele, hakuone* and *kuakua*. The chiefs of these land units had their allegiance to a territorial chief or *mo‘i* (literally translated as king) (Hommon 1986).

The project site is located within Pahoehoe 1st Ahupua‘a, a land unit of the District of Kona, one of six major districts on the island of Hawai‘i.

As population grew during the following centuries, so did the reach of inland cultivation in the upland environmental zones and consequent political and social stresses. During the Proto-Historic Period (A.D. 1650-1795), wars reflective of a complex and competitive social environment are evidenced by *heiau* building. During this period, sometime during the reign of Kalaniopuʻu (A. D. 1736-1758), Kamehameha I was born in North Kohala.

Pahoehoe 1st, the *ahupuaʻa* where the project site is located, is contained in one of two groups of *ahupuaʻa* named Pahoehoe in Kona; it and Pahoehoe 2nd, which is bounded to the south by Kaʻohe Ahupuaʻa, represent the more southern of the two groups. The other, which is designated Pahoehoe 1-4, is located approximately one mile to the north. According to Maly, the Pahoehoe and neighboring Kaʻohe *ahupuaʻa* are part of a sub-district-level land division known as "Ka-pali-lua," which he translates as "the two cliffs.

Kaʻao Hoʻoniua Puʻuwau No Ka-Miki (The Heart Stirring Story of Ka-Miki), translated by Maly, tells of a legendary account of two supernatural brothers, *Ka-Miki and Maka-ʻiole,* as recorded by Hawaiian historians John Wise and J.W.I. Kihe. Maly reports:

> … The lands of Pahoehoe were named for Pahoehoe-nui-a-Lonohea. Pahoehoe was married to the Chiefess Honokua, and their daughters were Kalahiki and Waiea…. Other lands in the region which bear the name Pahoehoe were named for Pahoehoe-wahine-iki-a-lani (who is also known as Pahoehoe-kuʻai-moku and Ka-huli-a-Pahoehoe), the sister of Pahoehoe-nui-a-Lonohea. The various lands upon which the chief, his family and retainers lived are named for them. Haukalua-nui and Haukalua-iki (father and son) were *konohiki* (overseers of the land). Haleʻili was a priest of the Lono class. Maunaoui was the *kukini* (runner and messenger) of the chief. Alaʻe was the *kaulana paʻa* (champion warrior who secured, or maintained peace upon the land) for the Chief Pahoehoe, and he was also the husband of the Chiefess Pahoehoe-wahine-iki-a-lani.
>
> In the uplands between Haukalua to Kaʻohe is a large plantation in which the *kalo* (taro) and *ʻawa* (Piper methysticum) were planted. The plantation bore the names Ka-huli-a-Pahoehoe and Pahoehoe-kuʻai-moku, so named for the chiefess. This plantation was sacred to the family of Pahoehoe, and the natives of Ka-pali-lua could point these sites out to you, to this day (Maly 2000:6).

Traditional life in Hawaiʻi' took a sharp turn on January 18, 1778 with the arrival of British Capt. James Cook. On a return trip to Hawaiʻi ten months later, with a Maui turmoil still raging, Kamehameha visited Cook aboard his ship the *Resolution* off the east coast of Maui and helped Cook navigate his way to Hawaiʻi Island. Cook exchanged gifts with Kalaniopuʻu at Kealakekua Bay the following January, and Cook left Hawaiʻi in February. However, Cook's ship then sustained damage to a mast in a severe storm off Kohala and returned to Kealakekua, setting the stage for his death on the shores of the bay.

Kamakau and Iʻi told of traditional references to Kapalilua, referring to a 1784 struggle between Keaweʻopala and Ka-lani-ʻopuʻu for control of Hawaiʻi Island:

> A canoe arrived from Kekaha and brought word to Keʻe-au-moku that Ka-lani-ʻopuʻu was at Kapalilua [in South Kona] and was coming to make war against Keaweʻopala. Keʻe-au-moku therefore made up his mind to join forces with Ka-lani-ʻopuʻu, and at Honomalino in Kapalilua Keʻe-au-moku came to offer his support to Ka-lani-ʻopuʻu. When Keaweʻopala heard that Keʻe-au-moku had thus given his support to Ka-lani-ʻopuʻu, he made his forces ready with Ka-moho-ʻula as their leader, a famous fighter and skillful in maneuvering a battle. He sent his forces to South Kona by the east side of Hualalai, on the slope of Pae, and thence to Kaupehu. Between Keʻei and Honaunau lay the battlefield (Kamakau 1992).

According to Kamakau, the lands of Kapalilua were given to a displaced Maui chief, Keawe-a-heulu, for his assistance to Ka-lani-ʻopuʻu during battles with Ka-hekili between 1777 and 1779 (1961:310). During this period, "…Ka-lani-ʻopuʻu returned to Hawaii to see Captain Cook, called Lono, all the chiefs returned with him to Hawaiʻi, and Keʻe-au-moku also left Hana to live at Honokua in Kapalilua, and later moved westward with his wife and children to Honomalino and Miloliʻi" (1992). In 1782, Kaʻū chiefs bearing the corpse of Ka-lani-ʻopuʻu changed their plans to bury him in Kailua when they reached Kapalilua and learned that Kamehameha had arrived at Keʻei (Iʻi 1959:13).

During the Proto-Historic Period there was a continuation of the trend toward intensification of agriculture, *aliʻi*-controlled aquaculture, settling of upland areas and development of traditional oral history. The *Ku* cult, *luakini heiau* and the *kapu* system were at their peaks, but the influence of western civilization was being felt in the introduction of trade for profit and a market-system economy. By 1810, the sandalwood trade established by Europeans and Americans twenty years earlier was flourishing. That contributed to the breakdown of the traditional subsidence system as farmers and fishermen were required to toil at sandalwood logging, which resulted in food shortages and a decline in population.

The rampant sandalwood trade resulted in the first Hawaiian national debt, as promissory notes and levies granted by American traders were enforced by American warships. The assimilation of western ways continued with the short-lived whaling industry to the production of sugarcane, which was more lucrative but carried a heavy environmental price.

Following the death of Kamehameha I in 1819, the customary relaxing of *kapu* took place. But with the introduction of Christianity shortly thereafter, his successor, Kamehameha II, renounced the traditional religion and ordered that *heiau* structures either be destroyed or left to deteriorate. The family worship of *ʻaumakua* images was allowed to continue.

In 1823, British missionary William Ellis and members of the American Board of Commissioners for Foreign Missions (ABCFM) toured the island of Hawaiʻi scouting communities in which to establish church centers for the growing Calvinist mission. Ellis recorded observations made during this tour in a journal (Ellis 1963). Ellis described the South Kona coast as being less hospitable than its northern counterpart, primarily because of relatively recent lava flows. Sailing south from Kalahiki, which is located approximately three miles north of the project site, Ellis described the coast he encountered as looking "literally ironbound." Ellis wrote: "It was formed of steep rocks of porphyritic lava, whose surface wore the most rugged aspect imaginable."

I‘i traveled to Ka‘ū in 1843 to solve a dispute between Catholics and Protestants on behalf of the government. He was assisted by residents of Kapalilua on his trip from Kahuku to Kainaliu (1959:169). In 1853, I‘i, traveling with Chiefess Victoria Kamamalu stopped at Papa in Kapalilua where they learned of the outbreak of a smallpox epidemic “about 10 ahupua‘a away from Papa” (I‘i 1959).

The *Mahele ‘Aina* took place in 1848, placing all land in Hawai‘i into three categories: Crown Lands, Government Lands and Konohiki Lands. Ownership rights were “subject to the rights of the native tenants,” or those individuals who lived on the land and worked it for their subsistence and for their chiefs.

The Waihona ‘Aina Mahele Database (Waihona ‘Aina Corp. 1998), which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); lists 33 LCA claims in Pahoehoe, but based on current tax maps, all appear to have been for the Pahoehoe lands north of the project site. That includes the entire *ahupua‘a* of Pahoehoe 2nd, which was awarded to Fanny Young during the Mahele, under Land Commission Award (LCA) 8519B.

Emerson’s 1880s map of South Kona shows the seaward portion of Pahoehoe 1st as Grant 2025 to Pumealani. It also shows a Pahoehoe 3rd as Grant 1573 to Kuaimoku. Two houses for Kuaimoku are shown; one at the coast and one inland. According to Maly (2000), these are Royal Patent Grants issued between 1855 and 1856. Maly cited a reference from George Bowser’s 1880 directory and tourist guide stating that Kuaimoku “provided accommodations for travelers and their horses” (2000:10).

Trails *(alahele*) and thoroughfares (*alaloa*) were integral to resource access within and between *ahupua‘a*, and continue to serve as important features of the cultural landscape. These routes were by the 1840s modified into a system of roads referred to as “Ala Nui Aupuni”, or Government roads (Maly and Maly 2002:84). The location of the current Māmalahoa Highway follows the path of the Old Government Road. A coastal trail extended from the north edge of Kauluoa Point as far as Kukuiopa‘e Ahupua‘a, passing through Pāhoehoe 1st Ahupua‘a near the current study area. Additionally, a *mauka-makai* trail meanders through the upper portion of Pāhoehoe 1st Ahupua‘a intersecting with the coastal trail in the neighboring *ahupua‘a* of Ka‘ohe.

Wright’s 1909 map of South Kona shows the main road following the route of today’s Mamalahoa Highway. Several houses are present along the road and “Kaohe Village” is situated near the boundary of Ka‘ohe 1st and 2nd. The map shows a road or trail along the coast and one that extends from the coast to the main road through Pahoehoe lands. The map also shows the seaward limit of the upland forest of scattered large *ohi‘a* at approximately 1,800 feet elevation.

The 1923 USGS Quadrangle map shows the same inland-seaward road or trail that is shown on Wright’s map. It shows a branch trail extending north along the crest of the cliffs (*pali*) to Hale’ili where it turns east to meet the main inland road.

Handy and Handy describe traditional agriculture in South Kona based on historic documentary research

and informant interviews in the 1920s to 1940s as follows:

> …South Kona was planted in zones determined by rainfall and moisture. Near the dry seacoast potatoes were grown in quantity, and coconuts where sand or soil among the lava near the shore favored their growth. Up to 1,000 feet grew small bananas which rarely fruited, and poor cane; from 1,000 to 3,000 feet, they prospered increasingly. From approximately 1,000 to 2,000 feet, breadfruit flourished.
>
> Taro was planted dry from an altitude of 1,000 to approximately 3,000 feet. An old method of planting taro in Kona, described as Lakalo at Hoʻokena, was to plant the cuttings in the lower, warmer zone where they would start to grow quickly and then transplant them to the higher forest zone where the soil was rich and deep and where moisture was ample for their second period of growth, in which their corms are said to have developed to an average of 25 pounds each.
>
> At an altitude of about 2,300 feet in Kealia [located approximately five miles north of the project site] there was in 1931 an old-style upland taro plantation corresponding exactly to descriptions by the early voyagers, with the flourishing taro planted in twos and threes in holes in even lines, spaced about four feet apart, the surface covered with a mulch of dried amaʻu fern. The borders of the patches were marked by zones of rock thrown up through the field, on top of and along the sides of which were clumps of native sugar cane. Hawaiian bananas were planted here and there between the taro fields (1972:524-525).

The later 19th century brought increasingly rapid changes to all of Hawaiʻi, even the relatively sleepy district of Kona. Cattle ranching and commercial coffee production, which also began in the mid-1800s, changed traditional agricultural practices and necessitated construction of rock walls to control the movement of livestock. Historical documentary research and informant interviews by Walsh et al. (1995) for Kukuiopae and Hammatt and Shideler (2003) for Kaʻohe 5th provide details concerning the later history of lands in the vicinity of the project area. Coffee farming expanded in the 1890s. Some of the growers were Chinese. Chinese and Korean immigrants who arrived in the late 1800s built ovens to make charcoal. Ranching and coffee cultivation were the main economic activities during most of the 1900s. Subsistence farming, fishing, and pig hunting helped sustain local residents. According to Clarence Medeiros, the project area was owned by the Magoon family since the early 1900s. Mr. Medeiros's granduncle, Fred Iona, worked for the family's cattle ranching operation that included the project area. The project area was used for ranching during the 1900s and probably in the mid- to late-1800s as well.

The next major change for Kona was the advent of tourism, marked by the construction of Kona's first major hotel, the Kona Inn, in 1928. In June of 1950, Mauna Loa erupted and one of the flows covered the southern side of the project area. Starting in the 1960s, the area between Kailua-Kona and Keauhou became increasingly dedicated to resort residential land use, but South Kona retained its rural character.

Archaeological Investigations and Resources

As indicated by the cultural and historical background, activities in coastal areas of South Kona throughout several eras had potential to leave archaeological remains. The 94-acre former extent of TMK 8-7-007:008 (which includes the 6.6-acre project site) was the subject of an archaeological inventory survey conducted in 2004 by Haun & Associates (see Appendix 2a). This survey resulted in the recording of 23 archaeological sites containing 67 features. Table 1 summarizes information about the sites on the entire former 94-acre property, details of which can be found in Appendices 2a-d. As can be seen in Figure 4, the sites are distributed in most areas of the former 94-acre property with the highest concentration along the coast (see Figure 3a for sites in vicinity of proposed residence). All 23 sites were assessed as significant for information content under HAR Chapter 275. Four sites were assessed as culturally significant; three were interpreted as *heiau* (none of which are in close proximity to the project site) while the fourth, Site 24150, was determined to contain at least one burial and has an accepted burial treatment plan (Appendix 2d). A preservation plan for 16 sites, with appropriate buffer zones, was accepted per letter from the State Historic Preservation Division dated July 22, 2005 (see Appendix 2c).

Figure 3a shows the location of the preserved sites in the immediate vicinity of the proposed residence. As the single-family residence projects involves no activities outside the 6.6-acre area (and relatively little disturbance inside this area), the following discussion focuses primarily on the three sites in closest proximity to the residence and driveway. The site closest to the proposed location of the residence (24149) was initially classified in the archaeological survey as a complex of four permanent habitation features comprised of three enclosures and a wall. The site, which is altered and in poor to fair condition and may have been impacted by wave activity, was earmarked for data recovery. Further investigation of Feature C of Site 24149 revealed a burial beneath the surface pavement, as noted in an April 3, 2005 letter from Haun & Associates to the State Historic Preservation Division. The burial has been preserved within a preservation area (see letters at end of Appendix 1a).

Located south-southeast of the house site and Site 24149 is Site 24148. It consists of a complex of seven permanent habitation features comprised of four enclosures, a wall, a modified outcrop, and a mound. The site is unaltered and in fair condition. To the southwest of Site 24148 is Site 24150, which consists of 11 permanent habitation and burial features located in an area of uneven pahoehoe and ʻaʻa lava. The site, which contains five platforms, four terraces, a modified knoll and an enclosure remnant, is unaltered and in fair condition. After an investigation of Feature A in Site 24150 determined that a human burial was present the feature was determined to be a burial platform. Feature B was interpreted as a probable burial feature based on its formal type, small area and close proximity to the Feature A burial platform.

Impacts and Mitigation for Archaeological Resources

Because of the widespread distribution of the archaeological sites on this property, protection has required implementation of the preservation plans and will require precautions prior to construction.

As approved per a July 22, 2005 letter from the State Historic Preservation Division, a preservation buffer zone of 20 feet within which no development activities can take place has been established around the perimeters of each of all 16 preservation sites on the former 94-acre property, including the three within the current 6.6-acre property. The buffer zones, which will not be marked by barriers, will be sufficient to protect the sites because the lands surrounding the sites will remain undeveloped and because access is

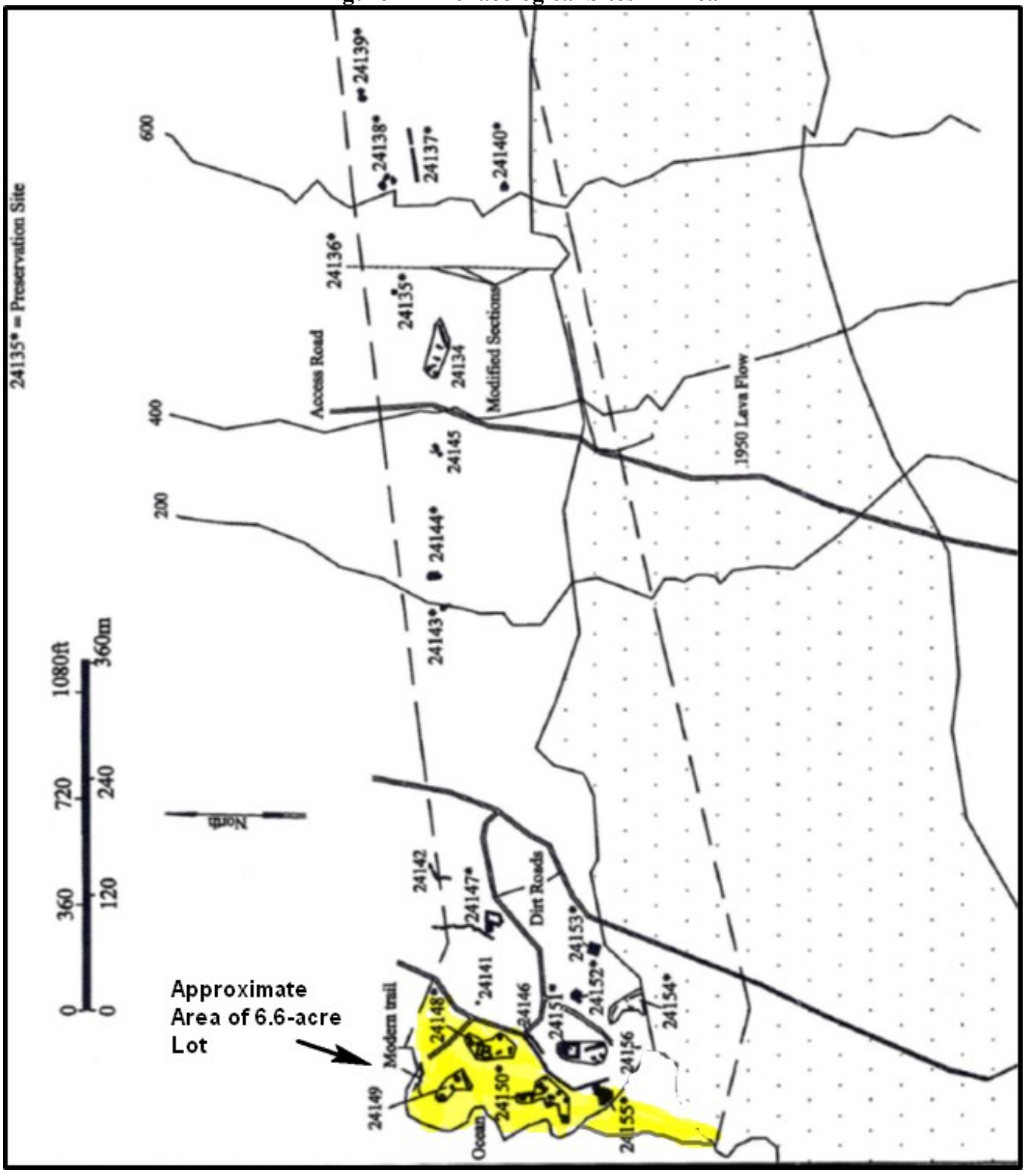
restricted to persons authorized by the landowner. Permission to access the property includes requirements that all vehicle use is restricted to existing roads and that the archaeological sites must not be disturbed. An exception to buffer width is found around certain sides of five sites because of the presence of existing unpaved roads. In addition, the burial treatment plan for Site 24150 calls for buffer zones for the existing and probable burials in Features A and B to be delineated by a low stone wall approximately three feet in height and two feet in thickness, constructed to resemble traditional Hawaiian structures using local stone. A narrow gated opening through the wall will provide access for maintenance and for formally recognized lineal and/or cultural descendants to be allowed with prior permission of the landowner.

Table 1 Archaeological Sites on Former 94-acre Property

SIHP Site #	***Formal Type***	***Functional Type***
24134	Complex	Agriculture
24135	Modified knoll	Habitation
24136	Road remnants	Transportation
24137	Wall (Kua ʻiwi?)	Agriculture
24138	Complex	Habitation
24139	Complex	Habitation
24140	Enclosure	Habitation
24141	Modified outcrop	Agriculture
24142	Wall	Ranching
24143	Terrace	Habitation
24144	Terrace	*Heiau*
24145	Terrace	Ranching (water system)
24146	Roadway	Transportation
24147	Complex	Habitation/Ranching
24148*	**Complex**	**Habitation**
24149*	**Complex**	**Habitation/Burial**
24150*	**Complex**	**Habitation/Burial**
24151	Complex	Habitation
24152	Pavement	Habitation
24153	Platform	*Heiau*
24154	Complex	Habitation
24155	Complex	*Heiau*
24156	Complex	Ranching (water system)

***Sites within current 6.6-acre property**

Figure 4 Archaeological Sites in Area



Short-term preservation measures would also apply to sites within 100 feet of any land-altering activity. Those measures include plotting of sites on grading and construction plans, informing of construction supervisors of the sites' locations and buffer zones, and temporary marking of permanent buffer zones as verified by an archaeologist and documented in a letter to SHPD.

In addition, both of the preservation plans specify that an archaeological monitor will be present during all earth-moving activities associated with development of the parcel. As a further precaution, in the unlikely event that additional undocumented archaeological resources, including shell, bones, midden deposits, lava tubes, or similar finds are encountered during construction within the project site, it is recommended that work in the immediate area of the discovery shall be halted and SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

In order to ensure that impacts are avoided, it is recommended that full implementation of the preservation plan within a designated period of time, as well as the additional precautions listed above, be required as a condition of the Conservation District Use Permit for the single-family residence.

Consultation

When assessing potential cultural impacts to resources, practices, and beliefs; input gathered from community members with genealogical ties and/or long-standing residency relationships to the study area is vital. It is precisely to these individuals who ascribe meaning and value to traditional resources and practices. Community members may also retain traditional knowledge and beliefs unavailable elsewhere in the historical or cultural record of a place.

The consultation process early on included interviews and site visits with Mr. Clarence A. Medeiros Jr as well as involvement of the Office of Hawaiian Affairs in response to a pre-Draft EA consultation request. Additional consultation as part of the Cultural Impact Assessment was conducted with members of the Magoon family (Jerry Magoon and Keoki Magoon) as well as with Mr. Jim Medeiros Sr.

Mr. Clarence A. Medeiros (Clarence) provided valuable input. Clarence's Hawaiian family South Kona roots are well established, and according to Clarence, he is a descendant of Pumealani who received the Grant 2025 that included the current study area, which later fell under the ownership of the Magoon family. Clarence's granduncle, Fred Iona, worked for the Magoon cattle ranching operation that included the project site. Clarence (along with several of his immediate family members) was recognized by DLNR-SHPD as a cultural descendant to the burial sites identified within the project area, and he provided input relative to the establishment of preservation buffer sizes and treatments. As discussed in the archaeological reports in Appendix 2, input from Clarence induced the property owner to increase the width of the proposed permanent preservation buffers from 15 to 20 feet.

The Office of Hawaiian Affairs (OHA) was solicited for consultation in a pre-draft EA notification. In a letter dated December 21, 2011, OHA (see Appendix 1a), OHA indicated that it sought clarification on whether there would be archaeological monitoring present during project activities, and also sought

assurances that access to the shoreline and nearshore waters for the perpetuation of traditional and customary practices would not be inhibited.

Telephone conversations were conducted with Jerry Magoon and Keoki Magoon, who as children visited the shoreline portion of their extended family's ranch. The Magoons' matriarch is of Hawaiian-Chinese descent. Both had recollections of visiting the "black sand beach" (now Kona Paradise subdivision) and getting there by ranch road and by boat. Keoki had very little knowledge of the area as he was young when he would visit. When asked about significant cultural places of the land, Jerry related a story about a cave in the general vicinity of the project site that is only accessible from the ocean that was used reputed to be a traditional place of burial for high status individuals. When asked about their observations of the use of the shoreline area for traditional practices, they both explained that during Magoon ownership of the property there was very limited access to the shoreline. Both were pleased that the cultural sites are being preserved and that access to the shoreline area has been enhanced.

Mr. Jim Medeiros Sr. (Jimmy) was contacted by telephone about this proposed development and was provided with a copy of the pre-draft EA, including all maps and appendices. Jimmy is Clarence's brother (same mother: Pansy Hua Medeiros, same father: Clarence A. Medeiros, Sr.). Jimmy is also the founding member of Protect Keopuka ʻOhana, a South Kona activist group dedicated to the protection and preservation of traditional properties and associated practices. He expressed an interest in providing his input and an on-site meeting was held on February 22, 2013 with Jimmy, the landowner, and the Cultural Impact Assessment's author. Jimmy and the landowner shared their mutual philosophies about the use of the shoreline and the protection and perpetuation of traditional sites and practices. The landowner, who resides in Kona, explained that he had been accessing this shoreline for fishing since his boyhood days living in Oʻahu, and welcomed the opportunity to purchase this property when it came on the market. The landowner further explained that it was one of his goals to see that this shoreline resource area was protected and perpetuated for the benefit of future generations. Jimmy agreed and offered his support. The cultural sites that were documented during the earlier archaeological studies were visited and their preservation discussed. Jimmy expressed his pleasure that these important sites are being preserved and that access to the sites and the shoreline for cultural practices and activities will be permitted. He recommended to the landowner that an archaeological monitor be present during development activities to assure protection of the preservation sites and to be able to provide a timely and appropriate response to any new finds that may be discovered. The landowner agreed to have a monitor present. Before he departed, Jimmy again offered his personal support for the project and exchanged phone numbers with the landowner wanting to stay informed as the proposed development progressed.

Impacts to Cultural Resources and Practices

The Dungate property does not contain any springs, *puʻu*, or caves that might be important cultural sites. However, the shoreline location is culturally important for fishing and gathering and other cultural practices. The shoreline area is accessible to Native Hawaiians through walking along the shoreline. Mr. Dungate visited the area many times as a child and learned to appreciate the unique beauty of the area, which led to his decision to purchase the property and build a home here. In personal consultation with Hawaiians native to and knowledgeable of the area, he has affirmed that he understands and supports the rights of Native Hawaiians to engage in fishing, gathering and other cultural practices here.

The burials and archaeological sites are significant, culturally important resources on the property that may be important. An extensive effort at consultation was engaged in as part of the Burial Treatment Plan process for Site 24150 (see Appendix 2d for details and documentation), which included discussion with the Burials Sites Program of the State Historic Preservation Division as well as the Office of Hawaiian Affairs and local resident Clarence Medeiros. Notices published in the *West Hawai'i Today* and the *Honolulu Advertiser* elicited no responses from potential lineal descendants. As documented in the April 3, 2005 letter from Alan Haun to SHPD in Appendix 1a, during the process that ensued the discovery of a burial during data recovery at Site 24149, Keola Lindsey of the Burial Sites program was contacted immediately. Following consultation with Mr. Lindsey the excavation was carefully back-filled and the surface pavement was restored. The landowner subsequently met with Mr. Lindsey and developed the idea to plan to preserve the remains in place as part of the preservation of the entire site.

It is reasonable to conclude, based upon the limited range of resources and the proposed mitigation to all affected resources, that 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 sites, practices or beliefs. This Draft EA was distributed to agencies and groups who might have knowledge in order to confirm this finding. None of the parties reviewing the Draft EA provided any commentS regarding the cultural or historic significance of the site.

Under the No Action Alternative, the residence would not be built but the lot could be used for camping or day activities by the owner. There is at least some risk of inappropriate entry by trespassers into burial features and other sites important to Hawaiian culture could occur because of the lack of a caretaking presence.

3.3 Public Roads, Services and Utilities

3.3.1 Roads and Access

Existing Environment, Impacts and Mitigation Measures

Road access to the property is from a legal driveway on State Highway 11 (Mamalahoa Highway) via easements on a series of private roads. The use of the property as a single-family residence will have no material effects on any State or County road or highway facility.

3.3.2 Public Utilities and Services

Environmental Setting, Impacts and Mitigation Measures

No electricity or landline telephone service is available in the area. Electrical power will be supplied with a generator. Telephone service will be via cell phone. Domestic water supply would be through catchment, the most common method used by residents of the area, including homes in the Kona Paradise subdivision. Wastewater would be treated with a septic system in conformance with requirements of the State Department of Health (see Figure 3a for location. Police, fire and emergency medical service are

available about 12 miles away in Captain Cook.

There will be no adverse impact to any public or private utilities. The addition of one single-family home will have no measurable adverse impact to or additional demand on public facilities such as police or fire services schools or recreational areas. The applicant acknowledges and understands that this lot, along with others in this part of the South Kona District, is remote from municipal and emergency services, with poor emergency response time, and he is prepared to plan appropriately to insure the health, safety and welfare of the residents and visitors to the proposed home in this setting.

3.4 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. No other projects are currently occurring in the area, and due to the Conservation District zoning and remoteness from public roads, it is unlikely that any would be undertaken. There are likely to be a handful of single-family homes built in this general area of South Kona. No accumulation of adverse effects would be expected.

3.5 Required Permits and Approvals

County of Hawai'i:
Special Management Area Permit or Exemption
Plan Approval and Grubbing, Grading, and Building Permits

State of Hawai'i:
Conservation District Use Permit

3.6 Consistency With Government Plans and Policies

3.6.1 Hawai'i County General Plan and Kona Community Development Plan

The *General Plan* for the County of Hawai'i is the document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The plan was adopted by ordinance in 1989 and revised in 2005. The General Plan's Land Use Allocation Guide Map designates the subject parcel as Open. The *General Plan* is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Below are pertinent sections followed by a discussion of conformance.

ECONOMIC GOALS

(a) Provide residents with opportunities to improve their quality of life through economic development that enhances the County's natural and social environments.
(b) Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.
(d) Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County's cultural, natural, and social environment.

Discussion: The proposed construction and occupation of a single-family home is in balance with the natural, cultural and social environment of the County, would create temporary construction jobs for local residents, and would indirectly boost the economy through construction industry purchases from local suppliers. A multiplier effect takes place when these employees spend their income for food, housing, and other living expenses in the retail sector of the economy. Such activities are in keeping with the overall economic development of the island.

ENVIRONMENTAL QUALITY GOALS

(a) Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.
(b) Maintain and, if feasible, improve the existing environmental quality of the island.
(c) Control pollution.

ENVIRONMENTAL QUALITY POLICIES

(a) Take positive action to further maintain the quality of the environment.

ENVIRONMENTAL QUALITY STANDARDS

(a) Pollution shall be prevented, abated, and controlled at levels that will protect and preserve the public health and well being, through the enforcement of appropriate Federal, State and County standards.
(b) Incorporate environmental quality controls either as standards in appropriate ordinances or as conditions of approval.
(c) Federal and State environmental regulations shall be adhered to.

Discussion: The proposed construction and occupation of a single-family home would not have a substantial adverse effect on the environment and would not diminish the valuable natural resources of the region. The home and associated improvements would be compatible with the existing rural single-family homes and recreational uses in the area. Pertinent environmental regulations would be followed, including those for mitigation of water quality impacts.

HISTORIC SITES GOALS

(a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaii.
(b) Appropriate access to significant historic sites, buildings, and objects of public interest should be made available.

HISTORIC SITES POLICIES

(a) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.
(b) Amend appropriate ordinances to incorporate the stewardship and protection of historic sites, buildings and objects.
(c) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.
(d) Public access to significant historic sites and objects shall be acquired, where appropriate.

Discussion: The archaeological inventory survey and burial treatment plan have properly documented and mitigated impacts to historic sites and provided fuller protection to a Hawaiian cultural resource.

FLOOD CONTROL AND DRAINAGE GOALS

(a) Protect human life.
(b) Prevent damage to man-made improvements.
(c) Control pollution.
(d) Prevent damage from inundation.
(e) Reduce surface water and sediment runoff.
(f) Maximize soil and water conservation.

FLOOD CONTROL AND DRAINAGE POLICIES

(a) Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.
(g) Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.

FLOOD CONTROL AND DRAINAGE STANDARDS

(a) “Storm Drainage Standards,” County of Hawaii, October, 1970, and as revised.
(b) Applicable standards and regulations of Chapter 27, “Flood Control,” of the Hawaii County Code.
(c) Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).

(d) Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawaii County Code.
(e) Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.

Discussion: The single-family residence will conform to all applicable regulation for its VE Flood Zone setting. Due to an elevation of about 33-36 feet above sea level, damage to the residence from waves or tsunami appear unlikely.

NATURAL BEAUTY GOALS

(a) Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.
(b) Protect scenic vistas and view planes from becoming obstructed.
(c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

NATURAL BEAUTY POLICIES

(a) Increase public pedestrian access opportunities to scenic places and vistas.
(b) Develop and establish view plane regulations to preserve and enhance views of scenic or prominent landscapes from specific locations, and coastal aesthetic values.

Discussion: The improvements are minor and consistent with traditional uses of the land and will not cause scenic impacts or impede access.

NATURAL RESOURCES AND SHORELINES GOALS

(a) Protect and conserve the natural resources from undue exploitation, encroachment and damage.
(b) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.
(c) Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.
(d) Protect rare or endangered species and habitats native to Hawaii.
(e) Protect and effectively manage Hawaii's open space, watersheds, shoreline, and natural areas.
(f) Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.

NATURAL RESOURCES AND SHORELINES POLICIES

(a) Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.
(c) Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is

protective of resources and is of the maximum benefit to the general public.
(d) Protect the shoreline from the encroachment of man-made improvements and structures.
(h) Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
(p) Encourage the use of native plants for screening and landscaping.
(r) Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.
(u) Ensure that activities authorized or funded by the County do not damage important natural resources.

Discussion: Given the building location conditions applicable to the Conservation District Limited Subzone, the home would be set back as far as feasible about 44 feet from the shoreline, at minimum elevation of about 33 to 36 feet above sea level, and would not affect shoreline resources or be damaged by waves or tides.

KONA COMMUNITY DEVELOPMENT PLAN

The Kona Community Development Plan (CDP) encompasses the judicial district of North and South Kona, and was developed under the framework of the February 2005 County of Hawai‘i General Plan. Community Development Plans are intended to translate broad General Plan Goals, Policies, and Standards into implementation actions as they apply to specific geographical regions around the County. CDPs are also intended to serve as a forum for community input into land-use, delivery of government services and any other matters relating to the planning area.

The General Plan now requires that a Community Development Plan shall be adopted by the County Council as an “ordinance,” giving the CDP the force of law. This is in contrast to plans created over past years, adopted by “resolution” that served only as guidelines or reference documents to decision-makers. The Kona CDP was adopted in September 2008 by the County Council. The version referenced in this Environmental Assessment is at:
http://www.hcrc.info/community-planning/community-development-plans/kona/cdp-final-drafts/Final%20KCDP_Sept%202008_text.pdf.

The Plan has many elements and wide-ranging implications, but there are several major strategies that embody the guiding principles related to the economy, energy, environmental quality, flooding and other natural hazards, historic sites, natural beauty, natural resources and shoreline, housing, public facilities, public utilities, recreation, transportation and land use.

The Dungate home is, in general, consistent with or not inconsistent with, the Kona CDP. Below are relevant policies followed by a discussion of consistency.

> **Policy LU-1.3: Rural Area.** The rural area consists of the lands outside of the Kona Urban Area. Future growth in this area shall be concentrated within and around the existing LUPAG medium and low density areas, which correspond to the existing rural towns.

Policy LU-1.4: Consistency with Land Use Pattern Allocation Guide (LUPAG). The current LUPAG accommodates the vision and needs for the Kona CDP area planning horizon and should be amended only for compelling reasons. Any rezoning application should be consistent with the LUPAG.

Policy LU-1.5: Enhanced Shoreline Setback. Beyond the 40 foot shoreline setback regulated by Hawai‘i Revised Statutes (HRS) Sections 205A Part III, the County shall explore alternatives (e.g., density transfer based on gross density) for the applicant of a Special Management Area (SMA) Major Permit to dedicate to the government or land trust or encumber as open space for the purpose of realizing a shoreline linear park along as much of Kona’s coastline as possible. Consistent with the Federal Coastal Zone Management Act (CZMA) and County of Hawai‘i General Plan policy to retain open space and protect natural resources along with public access to and along the shoreline, it shall be a priority of the County to maintain a minimum of 1,000-foot open space no-build setback for undeveloped lands adjacent to the shoreline, *on parcels which currently exceed 1,000 feet in depth*, in discretionary land use approvals such as SMA major permits, rezonings, and state land use boundary amendments. Structures makai of this setback should be for public recreation and ocean-dependent facilities such as harbor improvements.

A series of polices associated with environmental protection (**Policy ENV–1.1 – 1.12**) address issues including sensitive resources protection, flood corridors, non-degradation of anchialine ponds. Similarly, the Kona CDP contains a number of policies (**Policy CR–1.1 – 3.5**) that deal with protection of cultural resources.

DISCUSSION: Although not located in an existing rural town or village, a single-family home is not of the scale to qualify as “growth”, and the Kona CDP policy on growth in rural areas is not to be construed as prohibiting legal uses of property outside towns. The designation of the project site, according to the LUPAG, is Open, but as it is within the State Land Use Conservation District, the Conservation District rules at §13-5-2 (c) govern permitted or identified land uses within the Limited Subzone of the Conservation District. The use of this site for scattered single-family homes is in keeping with similar uses on this coastline. The goal for a 1,000-foot setback on parcels that currently exceed 1,000 feet in depth is inapplicable, because the property has a maximum depth of 400 feet from the shoreline to property boundary. The proposed single-family home is minor in nature and has involved inventory and protection of natural and cultural resources, and is in no way inconsistent with Kona CDP policies related to natural or cultural resources.

3.6.2 Hawai‘i County Zoning and Special Management Area

The 6.6-acre property is zoned by the County of Hawai‘i as within the Agricultural District, minimum lot size of five acres (A-5a), although County zoning does not apply within the Conservation District. No aspect of the project appears to be inconsistent with County zoning.

The property is within the Special Management Area. Single-family residences may be determined to be an exempt action under the County's Special Management Area (SMA) guidelines. The County of Hawai‘i Planning Department requires preparation of an SMA Assessment Application, in which SMA issues are expressly dealt with. A summary of consistency is provided below.

The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawai‘i Revised Statutes (HRS), entitled *Coastal Zone Management*. Single-family residences may be determined to be an exempt action under the County's Special Management Area (SMA) guidelines. 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. A discussion of the project's relationship to these objectives and policies and guidelines is contained below.

§205A-2(b) Objectives

(1) Recreational resources;
(A) Provide coastal recreational opportunities accessible to the public.
(2) Historic resources;
(A) Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.
(3) Scenic and open space resources;
(A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
(4) Coastal ecosystems;
(A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.
(5) Economic uses;
(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.
(6) Coastal hazards;
(A) Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.
(7) Managing development;
(A) Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
(8) Public participation;
(A) Stimulate public awareness, education, and participation in coastal management.

(9) Beach protection;
(A) Protect beaches for public use and recreation.
(10) Marine resources;
(A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Discussion: The single-family home project does not adversely affect access to recreational opportunities; has properly inventoried historic resources and prevents harm to significant historic sites; because of its very modest scale and low-key design in an area of little public use with no scenic vantages, has no impact on scenic resources; involves no impact on coastal ecosystems; does not affect public facilities; is outside an area subject to tsunami, erosion, subsidence, pollution or storm waves; is undergoing review for managing development through the SMA, EA and CDUA processes, which include public participation that has helped manage development in the coastal zone; and does not impact beaches or marine resources.

§205A-2(c) Policies

c) Policies.
(1) Recreational resources;
(A) Improve coordination and funding of coastal recreational planning and management; and
(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
(ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;
(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
(v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;
(vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;
(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and
(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6;
(2) Historic resources;
(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and
(C) Support state goals for protection, restoration, interpretation, and display of historic resources;
(3) Scenic and open space resources;
(A) Identify valued scenic resources in the coastal zone management area;
(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
(D) Encourage those developments that are not coastal dependent to locate in inland areas;
(4) Coastal ecosystems;
(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
(B) Improve the technical basis for natural resource management;
(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures;
(5) Economic uses;
(A) Concentrate coastal dependent development in appropriate areas;
(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
(i) Use of presently designated locations is not feasible;
(ii) Adverse environmental effects are minimized; and
(iii) The development is important to the State's economy;
(6) Coastal hazards;
(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
(D) Prevent coastal flooding from inland projects;
(7) Managing development;
(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and
(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process;
(8) Public participation;
(A) Promote public involvement in coastal zone management processes;
(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and
(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts;
(9) Beach protection;
(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;
(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities;
(C) Minimize the construction of public erosion-protection structures seaward of the shoreline; and
(D) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and
(10) Marine resources;
(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;
(C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion: The single-family home project does not impact coastal recreation in general or coordination and funding of coastal recreational planning and management or provision of recreational opportunities specifically; has involved identification and analysis of significant historic properties; has ensured visual compatibility by minimizing the alteration of natural landforms and existing public views to and along the shoreline; and does not involve coastal uses of non-coastal dependent land uses (by DLNR rule, the project MUST be located in the shoreline flood zone on this property rather than elsewhere on the applicant's six acres); would not affect coastal ecosystems; does not involve exposing the public to coastal hazards and will comply with all applicable rules related to its location in a flood zone; does not create a public nuisance of a private property owner's vegetation in a beach transit corridor; involves public participation through the EA, SMA and CDUA process to ensure appropriate management of

development; does not involve beaches or marine resources; and does not interfere with developing marine and coastal resources in environmentally beneficial ways, including research and technology.

§205A-26 Special management area guidelines.

In implementing this part, the authority shall adopt the following guidelines for the review of developments proposed in the special management area:

(1) All development in the special management area shall be subject to reasonable terms and conditions set by the authority in order to ensure:
(A) Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles;
(B) Adequate and properly located public recreation areas and wildlife preserves are reserved;
(C) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources; and
(D) Alterations to existing land forms and vegetation, except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, wind damage, storm surge, landslides, erosion, siltation, or failure in the event of earthquake.

Discussion: The project does not interfere with recreation or access; involves management of any potential pollutants including wastewater and sediment; involves minimal alteration of natural features and no effects to resources.

(2) No development shall be approved unless the authority has first found:
(A) That the development will not have any substantial adverse environmental or ecological effect, except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health, safety, or compelling public interests. Such adverse effects shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect, and the elimination of planning options;
(B) That the development is consistent with the objectives, policies, and special management area guidelines of this chapter and any guidelines enacted by the legislature; and
(C) That the development is consistent with the county general plan and zoning. Such a finding of consistency does not preclude concurrent processing where a general plan or zoning amendment may also be required.

Discussion: The project will not have any substantial adverse environmental impacts and is consistent with Chapter 205a, the General Plan, and zoning. No General Plan amendment is required.

(3) The authority shall seek to minimize, where reasonable:
(A) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;
(B) Any development which would reduce the size of any beach or other area usable for public recreation;
(C) Any development which would reduce or impose restrictions upon public access to tidal and

submerged lands, beaches, portions of rivers and streams within the special management areas and the mean high tide line where there is no beach;
(D) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and
(E) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

Discussion: No dredging, effects to beach size, restrictions on access, interferences of views from State Highway 11 and the sea, or adverse effects to water quality, open water, fisheries, wildlife habitats or agriculture will occur.

In summary, the proposed home is not likely to result in any substantial adverse impact on the surrounding environment. The house site is set back from the shoreline and will not restrict any shoreline uses such as hiking, fishing or water sports. Lateral pedestrian use of the shoreline area will not be impacted and there will be no effect on the public's access to or enjoyment of this shoreline area. Furthermore, viewplanes towards the project site will not be adversely impacted in any substantial way, as the topography of the area is steep. 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 not situated over any major natural drainage system or water feature that would flow into the nearby coastal system. The property contains mostly non-native and a few common native plants. Despite the Zone VE location, due to an elevation of about 33 to 36 feet above sea level where the Base Flood Elevation is 8 feet above sea level, damage from waves or tsunami appear unlikely. The single-family residence will conform to all applicable regulation for its VE Flood Zone setting. In terms of beach protection, construction is set back from the shoreline 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.

The Planning Director will be asked to make the determination that the proposed development of a single-family home is not considered a "development" under Special Management Area Rules and Regulations of the County of Hawai'i, Section 9-4 (10) (B). According to the Planning Department (see letter of July 23, 2013 in App 1b), the determination will be considered after the Chapter 343, HRS, process is concluded.

3.6.3 Conservation District

The State Land Use District for the property is Conservation, Limited Subzone (a small area on the southern margin of the property, not readily accessible from other parts of the property, lies outside the Conservation District and within the Agricultural District). As discussed previously in Section 3.1.3, Title 13, Chapter 5, Hawai'i Administrative Rules (Conservation District), has rules that govern the location of single-family residences within the Limited Subzone. According to §13-5-23(c) L4, D1:

> "A single family residence in a flood zone or coastal high hazard area defined by the boundaries of the Federal Insurance Rate Maps (FIRM) that conforms to applicable county regulations regarding

> the National Flood Insurance Program and single family residential standards as outlined in this chapter."

This has been interpreted by DLNR officials as constraining the location of single-family residences in the Limited Subzone to areas within the Flood Zone. The only area of Flood Zone within the property is found in and around the location of the proposed home. The location of the home thus conforms to the requirements of DLNR.

Any proposed use must undergo an examination for its consistency with the goals and rules of this district and subzone. The applicant has concurrently prepared a Conservation District Use Application (CDUA), to which this EA is 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 in conformance with the purpose of the Conservation District. The proposed use of the subject property for a single-family residence is an identified use within the Conservation District, requiring a Board Permit for such use. A commitment by the applicant to management of the site will conserve, protect and preserve the natural features on the subject property. The proposed use will not impact the lateral public access or the public's ability to utilize the coastal resources that front this property. Additionally, due to the careful and limited nature of the proposed development, there would be no significant impacts to the natural or cultural resources of the area.

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 Limited Subzone "*…is to limit uses where natural conditions suggest constraints on human activities."* As discussed above, despite the Zone VE location, due to an elevation of about 33 feet above sea level where the Base Flood Elevation is 8 feet above sea level, damage from waves or tsunami appear unlikely. The single-family residence will conform to all applicable regulation for its VE Flood Zone setting. There are no other natural conditions that would constrain use, such as mass wasting or subsidence, on the project site.

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*, as discussed above in Section 3.6.2.

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 implement only very modest landscaping of the property. The construction of the proposed residence will allow for the management of the property, including protecting the burial sites. No effect on any coastal ecosystem will occur, due to minimal grading and planned precautions for preventing soil runoff during construction. The proposed action will also have no impact on the public's current access to or use of the shoreline area fronting the 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 proposed use is consistent with single-family residential use on Conservation land. The home will have a low-key design of one story with 2,234 square feet, (sf), set back away from and well above the shoreline in an area that will not be visible to the public. This identified use, which conforms to the design standards in HAR 13-5-41, will ensure the sustained use of the natural resources in the project area by mitigating potential impacts. The use will not adversely affect the surrounding properties or 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 help conserve, protect and preserve the natural features of the area. Although two *kiawe* trees will be trimmed or cut to provide an area for the home, the physical beauty characteristics of the existing lot will be enhanced by landscaping with native or Polynesian species.

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 general area is already in use for recreation by the public and the proposed single-family residence will not be detrimental to the public health, safety, and welfare.

PART 4: DETERMINATION, FINDINGS AND REASONS

4.1 Determination

Based on the findings below, and upon consideration of comments to the Draft EA, the applicant

anticipates that the State of Hawai‘i, Department of Land and Natural Resources, will determine that the proposed action will not significantly alter the environment, as impacts will be minimal, and that this agency will accordingly issue a Finding of No Significant Impact (FONSI).

4.2 Findings and Supporting Reasons

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resource would be committed or lost. Common native plants are present but native ecosystems would not be adversely affected. Valuable cultural resources in the form of burial sites and archaeological sites will be preserved in place with more protection than exists currently. No valuable cultural resources and practices such as coastal access, fishing, gathering, hunting, or access to ceremonial sites would be affected in any way.

2. *The proposed project will not curtail the range of beneficial uses of the environment.* No restriction of beneficial uses would occur by residential use on this lot.

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 project is minor and basically environmentally benign, and it 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 would not have any substantial effect on the economic or social welfare of the Big Island community or the State of Hawai‘i.

5. *The proposed project does not substantially affect public health in any detrimental way.* The project would not affect public health and safety in any way. Wastewater will be disposed of in conformance with State Department of Health regulations.

6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities*. The small scale of the proposed project would not produce any major secondary impacts, such as population changes or effects on public facilities.

7. *The proposed project will not involve a substantial degradation of environmental quality*. The project is minor and environmentally benign, and thus it 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.* Thorough survey has determined that no endangered plant species are present. No rare, threatened or endangered species of fauna are known to exist on or near the project site, and none would be affected by any project activities.

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.* No other projects are currently occurring in the area, and due to the Conservation District zoning and remoteness from public roads, it is unlikely that any would be undertaken. There are likely to be a handful of single-family homes built in this general area of South Kona. No accumulation of adverse effects would be expected.

10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No substantial effects to air, water, or ambient noise would occur. Brief, temporary effects would occur during construction and would 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.* The Conservation District rules require homes in the Limited subzone to be located within the Flood Zone. Despite the Zone VE location, due to an elevation of about 33 to 36 feet above sea level where the Base Flood Elevation is 8 feet above sea level, damage from waves or tsunami appear unlikely. The single-family residence will conform to all applicable regulation for its VE Flood Zone setting.

12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic views are located nearby or would be affected in any way. The low-key design of the home and the landscaping, given the existing context in a very isolated area with no public vantage points, would not materially degrade the scenery of the project area.

13. *The project will not require substantial energy consumption*. Negligible amounts of energy input would be required for construction.

REFERENCES

Apple, R. A. and G. A. Macdonald.1966. "The rise of sea level in contemporary times at Honaunau, Kona, Hawaii." *Pacific Science* 20:125-136.

Boak, E. H. and Turner, I. L. 2005. "Shoreline definition and detection – a review." *Journal of Coastal Research* 21:688-703.

Ellis, W. 1963. *Journal of William Ellis*. Honolulu: Advertiser Publishing Co., Ltd.

Fornander, A. 1969. *An Account of the Polynesian Race: Its Origin and Migrations*. Tokyo: Charles E. Tuttle Co., Inc.

Hommon, R. 1986. Social Evolution in Ancient Hawai'i. IN Kirch, P. (editor), *Island Societies*: *Archaeological Approaches to Evolution and Transformation*:55–88. Cambridge: Cambridge University Press.

Fletcher, C. H., Boyd, R., Neal, W. J., and Tice, V. 2010. *Living on the Shores of Hawaii – Natural Hazards, the Environment, and our Communities.* Honolulu: University of Hawai'i Press.

Fletcher, C. H., Grossman, E. E, Richmond, B. M. and Gibbs, A. E. 2002. *Atlas of Natural Hazards in the Hawaiian Coastal Zone*. U.S. Geological Survey, Geologic Investigations Series Map I-2761, scale 1:50,000.

Gagne, W., and L. Cuddihy. 1990. "Vegetation," pp. 45-114 in W.L. Wagner, D.R. Herbst, and S.H. Sohmer, eds., *Manual of the Flowering Plants of* Hawai'i. 2 vols. Honolulu: University of Hawai'i Press.

Handy, E.S.C., and E. Handy (with M.K. Pukui). 1972. *Native Planters in Old Hawai'i. B.P. Bishop Museum Bulletin 233*. Honolulu: Bishop Museum Press.

Hawai'i County Planning Department. 2008. *Kona Community Development Plan*. Hilo.

Hawai'i State Department of Business Economic Development and Tourism (DBEDT). 1997. *State of Hawai'i Data Book*. Honolulu.

Hwang, D. J., 2005. *Hawaii Coastal Zone Mitigation Handbook: Hawaii Coastal Zone Management Program. DBEDT, State of Hawaii.*

I'i , J.P. 1959. Fragment of Hawaiian History. *Bishop Museum Special Publication* 70. Bishop Museum Press, Honolulu.

Indices. 1929. *Indices of Awards Made by the Board of Land Commissioners to Quiet Land Titles in the Hawaiian Islands.* Territory of Hawaii, Honolulu.

Kamakau, S.M. 1992. (rev. ed.). "*Ruling Chiefs of Hawaii."* Honolulu: The Kamehameha Schools Press.

Kirch, P. 1984. *The Evolution of the Polynesian Chiefdoms*. New York: Cambridge University Press.

_____. 1985. *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory.* Honolulu: University of Hawai'i Press.

Maly, K. 2000. *Overview of Historical Documentation for Lands for Lands of South Kona, "Pahoehoe to Kaohe", Island of Hawaii*. Kumu Pono Associates. In Rosendahl 2002

McGregor, D. 2007. *Nā Kua'āina: Living Hawaiian Culture*. Honolulu: University of Hawai'i Press.

Pogue, J. 1858 [1978]. *Moolelo Hawaii*. Hale Paipalapala Aupuni, Honolulu (Rev. Ed.).

Pukui, M.K., Elbert, S.H., and E.T. Mookini. 1976. *Place Names of Hawaii*. Honolulu: University of Hawai'i Press.

Rosendahl, P. 2002. *Archaeological Assessment Survey, Kukuiopa'e 1 Makai Parcel, Land of Kukuiopa'e 1st, South Kona District, Island of Hawaii (TMK: 3-8-7-11:5).* PHRI report 2285-103102 prepared for Griffey and Griffey, Kailua-Kona.

U.S. Dept. of Commerce, Economics and Statistics Administration, Bureau of the Census, 2011, http://factfinder.census.gov/.

University of Hawai'i at Hilo, Dept. of Geography. 1998. *Atlas of Hawai'i*. 3rd ed. Honolulu: University of Hawai'i Press.

Waihona 'Aina Corporation. 1998. The Mahele Database, waihona.com.

Wilkes, C. 1845. *Narrative of the United States Exploring Expedition During the Years 1838-1842, Under the Command of C. Wilkes, U.S.N.,* Volume 4. Philadelphia: Lea and Blanchard.

Wolfe, E.W., and J. Morris. 1996. *Geologic Map of the Island of Hawai'i.* USGS Misc. Investigations Series Map i-2524-A. Washington, D.C.: U.S. Geological Survey.

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 1a
Comments in Response to Early Consultation/SHPD Letters

[This page intentionally left blank]

William P. Kenoi
Mayor

BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

January 17, 2012

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

Dear Mr. Terry:

Subject: Environmental Assessment Consultation
Applicant: Peter Dungate
Project: Single-Family Home and Related Improvements
Tax Map Key: 8-7-7:11, South Kona, Hawai'i

This is in response to your request for comments on the above-referenced project.

According to your submittal, the applicant proposes to construct a post-and-pier, 1-story, 2-bedroom, 1½ bath home of 1,052 square feet, with an additional 1,182 square feet of open or covered lanai and covered entry area. A catchment water tank and an Individual Wastewater System will be built, and the existing driveway to the building site will be improved but left unpaved.

The proposed house site will be situated about 36 feet above sea level and a minimum of 44 feet from the certified shoreline.

We note the following for this parcel and project:

1. The State Land Use designation is Conservation.

2. Due to this Conservation designation, there is no County zoning per se.

3. It is designated Open by the General Plan's Land Use Pattern Allocation Guide (LUPAG) Map.

4. It is located within the County's Special Management Area and has frontage along the ocean:

   a. A Special Management Area Use Permit Assessment Application will be required to be submitted for the proposed development.
   b. The house site is proposed to be a minimum 44 feet from the certified shoreline. According to Planning Department Rules of Practice and Procedure, Rule 11 shoreline setback areas are established to regulate the use and activities along the shoreline. Rule 11-5(a), states that *"Except as otherwise provided in this section, all lots which abut the shoreline shall have a* ***minimum*** *shoreline setback line of forty feet..."* (emphasis supplied).

      For your information, the Planning Department may determined that a 40-foot shoreline setback line, as measured from the top of the sea cliff, may not be a sufficient distance to satisfy the purposes for establishing shoreline setback areas. This includes, but is not limited to, disturbances within the shoreline setback area that may increase erosion of the sea cliff. Therefore, an additional distance from the minimum 40-foot shoreline setback line may be required.

   c. In reference to the certified shoreline, Rule 11-4(a) states, in part, that "*No determination of a shoreline shall be valid for a period longer than twelve months, except where the shoreline is fixed by man-made structures, which have been approved by appropriate government agencies and for which engineering drawings exist to locate the interface between the shoreline and structure; in which case the certified shoreline survey shall be valid so long as the man-made structure remains intact and unaltered.*"..." If a shoreline survey is enclosed with the Special Management Area Use Permit Assessment Application, it must be submitted within twelve months of its certification.

      Further, depending on what structures or activities are proposed within the shoreline setback area, a determination will be made as to whether it is permitted, qualifies as a "Minor structure" or a "Minor activity", or requires a Shoreline Setback Variance.

5. It is our understanding that Na Ala Hele has worked to negotiate a trail alignment through properties from Alae to Ka'ohe. Since the subject parcel was included in this segment, the shoreline public access issue must be addressed.

6. The Kona Community Development Plan was adopted by the County of Hawaii as Ordinance No. 08-131, effective September 25, 2008. A discussion of the proposed development as it relates to this plan should be included in the Environmental Assessment.

Please provide us with a copy of the Environmental Assessment for our review and file.

If you have questions, please feel free to contact Esther Imamura of this office at 961-8139.

Sincerely,

BJ LEITHEAD TODD
Planning Director

ETI:cs
P:\Wpwin60\ETI\Eadraftpre-Consul\Terry Dungate 8-7-7-11.Rtf

cc: Planning Department – Kona
Mr. Rick Gmirkin
Ala Kahakai National Historic Trail
73-4786 Kanalani Street, #14
Kailua-Kona HI 96740

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai'i

POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

December 14, 2011

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

Dear Mr. Terry:

SUBJECT: Early Consultation for Environmental Assessment for Single-Family Home in the Conservation district at Pahoehoe 1st
South Kona, Island of Hawai'i
TMK: 8-7-007:011

The above-referenced Environmental Assessment has been reviewed, and we have no comments or objections to offer at this time.

Should you have any questions, please contact Major James O'Connor, Area II Operations, at 326-4646, ext. 270.

Sincerely,

HARRY S. KUBOJIRI
POLICE CHIEF

RAUL H. KEALOHA JR.
ASSISTANT CHIEF
AREA II OPERATIONS

JO
RS110826

Fw: TMK8-7-007:011

From: **Peter Locatelli** (fauba84@hotmail.com)
Sent: Tue 12/13/11 9:40 AM
To: rterry@hawaiirr.com

Thank You for your letter dated December 8. 2011 concerning the proposed development of this parcel. Please keep me informed about the progress of the EA. I am especially interested if a new shoreline survey will be obtained for this project, and will it cover the entire shoreline of the parcel, or just the area adjacent to the construction site.

Thank You,

Peter Locatelli MD
PO Box 915
Kealakekua, Hi. 96750

BY CERTIFIED MAIL

7010 1670 0001 9065 6113

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD11/6046

December 21, 2011

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

Re: Pre-Draft Environmental Assessment Consultation
Home Construction
Pahoehoe Ahupua'a, South Kona, Island of Hawai'i

Aloha e Ron Terry,

The Office of Hawaiian Affairs (OHA) is in receipt of your December 8, 2011 letter requesting comments ahead of a draft environmental assessment (DEA) which will be prepared to support the construction of a new 1,052 square foot home with a 1,182 square foot lanai (project) on a 6.6 acre property (property) within the State Land Use Conservation District in Pahoehoe Ahupua'a on the Island of Hawai'i. A Conservation District Use Permit issued by the Board of Land and Natural Resources will be required to facilitate this project. An individual wastewater system will be installed in compliance with applicable State of Hawai'i-Department of Health requirements. An existing access driveway to the project area will be improved, but left unpaved.

Your letter indicates that the project area was selected because it is one of the few level areas on the property where a home and supporting improvements could be constructed due to the presence of a number of archaeological sites and a burial. OHA looks forwarding to seeing preservation and burial treatment plans which have been approved by the Department of Land and Natural Resources-State Historic Preservation Division and reflective of appropriate consultation with descendant families to the project area included in the DEA. OHA seeks clarification whether archaeological monitoring will be employed during project activities.

Since the project area is near the shoreline, OHA seeks assurances that access to near shore waters and resources for the perpetuation of traditional and customary practices will not be inhibited. We appreciate the suggestion that native trees will be incorporated into landscaping designs and recommend that the selected native species be common or adapted to the project area.

Thank you for the opportunity to provide comments. We look forward to reviewing the DEA and providing additional comments at that time. Please send one hardcopy and one electronic copy of the DEA to OHA attn: Compliance Monitoring Program when it is available. Should you have any questions or concerns, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

CWN:kl

C: OHA, West Hawai'i Community Outreach Coordinator

PHONE (808) 594-1888 FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD11/6046

December 21, 2011

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

Re: Pre-Draft Environmental Assessment Consultation
Home Construction
Pahoehoe Ahupua'a, South Kona, Island of Hawai'i

Aloha e Ron Terry,

The Office of Hawaiian Affairs (OHA) is in receipt of your December 8, 2011 letter requesting comments ahead of a draft environmental assessment (DEA) which will be prepared to support the construction of a new 1,052 square foot home with a 1,182 square foot lanai (project) on a 6.6 acre property (property) within the State Land Use Conservation District in Pahoehoe Ahupua'a on the Island of Hawai'i. A Conservation District Use Permit issued by the Board of Land and Natural Resources will be required to facilitate this project. An individual wastewater system will be installed in compliance with applicable State of Hawai'i-Department of Health requirements. An existing access driveway to the project area will be improved, but left unpaved.

Your letter indicates that the project area was selected because it is one of the few level areas on the property where a home and supporting improvements could be constructed due to the presence of a number of archaeological sites and a burial. OHA looks forwarding to seeing preservation and burial treatment plans which have been approved by the Department of Land and Natural Resources-State Historic Preservation Division and reflective of appropriate consultation with descendant families to the project area included in the DEA. OHA seeks clarification whether archaeological monitoring will be employed during project activities.

Since the project area is near the shoreline, OHA seeks assurances that access to near shore waters and resources for the perpetuation of traditional and customary practices will not be inhibited. We appreciate the suggestion that native trees will be incorporated into landscaping designs and recommend that the selected native species be common or adapted to the project area.

Thank you for the opportunity to provide comments. We look forward to reviewing the DEA and providing additional comments at that time. Please send one hardcopy and one electronic copy of the DEA to OHA attn: Compliance Monitoring Program when it is available. Should you have any questions or concerns, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

CWN:kl

C: OHA, West Hawai'i Community Outreach Coordinator

William P. Kenoi
Mayor

Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Room 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

December 23, 2011

Mr. Ron Terry
Geometrician Associates
PO Box 396
Hilo, HI 96721

SUBJECT: EARLY CONSULTATION FOR ENVIRONMENTAL ASSESSMENT FOR SINGLE-FAMILY HOME IN THE CONSERVATION DISTRICT AT PAHOEHOE 1ST, SOUTH KONA
TMK: 8-7-007:011

We have no comments to offer at this time in reference to the above-mentioned Early Consultation for Environmental Assessment. No final EA in necessary upon its completion.

DARREN J. ROSARIO
Fire Chief

CB:lpc

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:
EPO-11-266

December 19, 2011

Mr. Ron Terry, Principal
Geometrician Associates
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

SUBJECT: Early Consultation for Environmental Assessment for Single-Family Home in the Conservation District of Pahoehoe 1st, South Kona, Island of Hawaii TMK: 8-7-007:011

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The same website also features a Healthy Community Design Smart Growth Checklist (Checklist). The Hawaii State Department of Health, Built Environment Working Group, recommends that State and county planning departments, developers, planners, engineers and other interested parties apply the healthy built environment principles in the Checklist whenever they plan or review new developments or redevelopments projects. We also ask you to share this list with others to increase community awareness on healthy community design.

If there are any questions about these comments please contact the Environmental Planning Office at 586-4337.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON, Acting Manager
Environmental Planning Office

Rec'd 8-4-04 320

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

July 29, 2004

Log No. 2004.2306
Doc No. 0407MM14

Alan Haun, PhD.
Haun and Associates
HCR 1 Box 4730
Keaau, Hawaii 96749

Dear Dr. Haun,

SUBJECT: **6E-42 Historic Preservation Review**
Archaeological Inventory Survey, Revised
Pahoehoe 1, South Kona District, Island of Hawaii,
TMK (3) 8-7-008:008

Thank you for your July 11, 2004 letter and the attachment consisting of replacement pages ii, 4, 10, 12, 60, 62, and 65 for the above mentioned Inventory Survey. The replacement pages contain additional information requested in our previous review of the subject report (Log No. 2004.1620, Doc No. 0405MM36).

The requested revisions have been satisfactorily met and the additional consultation with knowledgeable individuals was fruitful. We now agree with your significance evaluations and recommended treatments for the sites identified within the survey area of about 94 acres. A total of 23 historic sites were identified during the field work, including habitation, agricultural, ceremonial, burial, and historic ranching features pertaining to water and livestock management.

No further work is recommended for Sites 24134, 24141, 24142, 24145, or 24146. Adverse effects for Site 24149 will be mitigated through data recovery. A Burial Treatment Plan will be prepared for Site 24150, and a Preservation Plan prepared for Sites 24135, 24136, 24137, 24138, 24139, 24140, 24143, 24144, 24147, 24148, 24150, 24151, 24152, 24153, 24154, and 24155.

The report is now adequate to meet the requirements of Chapter 13-276 of the Hawaii Administrative Rules, and we accept it is final. The next steps in the historic preservation process will be the preparation of preservation, data recovery, and burial treatment plans; the burial treatment plan will be reviewed by the Burial Sites Program, the Hawai`i Island Burial Council, and any recognized descendants.

If you have any questions about this review please contact MaryAnne Maigret in our Hawaii Island Office (329-3690) or Dr. Sara Collins in Honolulu at 692-8026.

Aloha,

P. Holly McEldowney

P. Holly McEldowney, Acting Administrator
State Historic Preservation Division

c: Christopher J. Yuen, Director, Hawaii County Planning, 101 Pauahi Street, Suite 3, Hilo, HI 96720-3043
Chair, Hawai`i Island Burial Council
Keola Lindsey, Burial Sites Program

BTP Approval

374 Rec'd 2-4-05

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

February 2, 2005

Alan Haun, PhD.
Haun and Associates
HCR 1 Box 4730
Kea'au, Hawaii 96749

LOG NO: 2005.0216
DOC NO: 0501KL03

Dear Dr. Haun:

SUBJECT: Notice of Hawai'i Island Burial Council Determination
Site 24150 features A and B
Pahoehoe 1st Ahupua'a, South Kona District, Hawai'i Island
TMK (3) 8-7-007:008

On January 20, 2005, at a duly noticed meeting of the Hawai'i Island Burial Council (HIBC) with a quorum of council members present, the HIBC concurred with your client's request, and voted to preserve in place the burials within Site 24150 features A and B.

It is our understanding that a recognized cultural descendant to the project area, Mr. Clarence Medeiros Jr. has reviewed the burial treatment plan, concurred with the proposal to preserve in place, and the proposed preservation measures (the only other recognized descendants to the project area are the children and grandchildren of Mr. Medeiros).

The State Historic Preservation Division (SHPD) is currently working with Mr. Medeiros on pending collateral lineal descent claim for individuals believed to be buried near the pa hale located within the boundaries of Site 24150- these additional sites were not identified in the Archaeological Inventory Survey for the subject property. However, the remaining portion of Site 24150 which may contain these additional burials will be preserved, since your client has proposed preservation for 16 non-burial sites on the subject property.

A preservation plan for the 16 non-burial sites is currently under review by our Archaeology Branch. Mr. Medeiros will be consulted as part of our review process.

Should the SHPD obtain specific location information for these additional burials, you and your client will be immediately notified. Our primary concern at that juncture would be to verify that these additional burials are located within the boundaries of a site formally slated for preservation, and not in danger of being impacted by any development related activities.

The Burial Treatment Plan presented to the HIBC can now be used as the Preservation Plan for Site 24150 Features A and B, and the Department of Land and Natural Resources, as represented by the SHPD approves the plan. We look forward to seeing the details of the plan implemented, which will provide perpetual protection for these sites.

Thank you for your attention to this most important matter. Should you have any questions or concerns, please call Keola Lindsey of our Burial Sites Program at 327-3692.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

KL:jen

c: Mr. Clarence Medeiros, Descendant
Members, Hawai'i Island Burial Council

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

April 3, 2005 Project 373

Via Fax (2 pp.) and Mail

Ms. Melanie Chinen, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Subject: Completion of Fieldwork
Archaeological Data Recovery
Site 24149, Land of Pahoehoe 1
South Kona District, Island of Hawaii
(TMK: 8-7-007:008)

Dear Ms. Chinen:

Haun & Associates completed the fieldwork for the subject mitigation data recovery work on March 18, 2005. The data recovery work included the excavation of 5 units at 3 features of Site 24149. A total of 20 square meters were excavated during the project. The work was done in accordance with the approved data recovery plan (Haun and Henry 2004). *Table 1* summarizes the excavations by site and feature.

The data recovery excavations at Feature C discovered a burial beneath the surface pavement on March 16, 2005. Upon the discovery the excavation was suspended and Mr. Keola Lindsey of the Burial Sites program was contacted immediately. Following consultation with Mr. Lindsey the excavation was carefully back-filled and the surface pavement was restored. The landowner subsequently met with Mr. Lindsey and developed a plan to preserve the remains in place.

Based on the results of the data recovery fieldwork, no further archaeological work is recommended and the landowner requests permission to begin construction in compliance with approved burial treatment and site preservation plans for the property. The information obtained during the data recovery was adequate to address the research questions presented in the data recovery plan.

If you have any questions, please contact me at 982-7755.

Sincerely,

Alan E. Haun, Ph.D.
Principal Investigator

cc: Mary Anne Maigret
Peter Dungate

Table 1. Summary of Data Recovery Excavations

Site	Feature	Required Excavations* (sq m)	Area Excavated during Data Recovery (sq m)
24149	A	4.0	4.0
	B	4.0	4.0
	C	12.0	12.0
Total		20.0	20.0

Reference Cited

Haun, A. and J. Henry
2004 Archaeological Data Recovery Plan, Site 24149, Land of Pahoehoe 1, South Kona District, Island of Hawaii (TMK: [3] 8-7-007:008). Haun & Associates Report 373-101904 prepared for Mr. Peter Dungate.

375 Rec'd 7/27/05

Pres. Plan Approved

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

July 22, 2005

Dr. Alan Haun
Principal Investigator
Haun & Associates
HCR Box 4730
Keaau, Hawaii 96707

LOG NO: 2005.1577
DOC NO: 0507MM09

Dear Dr. Haun

SUBJECT: 6E-42 Historic Preservation Review, Archaeological Site Preservation Plan, Sites 24135-24140, 24143, 24144, 24147, 24148, 24150-24155 Pahoehoe 1, South Kona, Hawaii Island TMK: (3) 8-7-007:008

Thank you for your cover letter and a final copy of this revised plan for our review, which we received on April 28, 2005. We acknowledge receipt of seven revised pages, which address our comments from our previous review dated April 7, 2005 (Log No. 2005.0653, Doc No. 0305MM55).

In our previous review we requested the addition of maps that depict the preservation buffers in relation to the site complexes, and clarification regarding the planned use of the property. These items have been successfully addressed, and we have no further concerns.

Sixteen sites identified in an approved archaeological inventory survey of the subject property, *Archaeological Inventory Survey, TMK: 8-7-007:008, Land of Pahoehoe 1, South Kona District, Island of Hawai`i (Report 320-010804)* (Haun and Henry, March 2004) will be preserved. The form of protection for these sites is avoidance and protection. Short term preservation measures consist of plotting sites on grading plans and construction plans prior to the initiation of grading, grubbing or construction activities, marking of buffer zones with orange plastic fencing should the site lie within 100-feet of any project area, verification of fencing by an archaeologist, and notification of construction supervisors of the meaning of fencing and buffer zones.

Long term measures include a buffer in which no alteration will take place, left in its natural state without permanent demarcation. Litter removal by the landowner is specified. The long term preservation commitments and buffer specifications are to be recorded in the property deed and the location of the sites plotted on subdivision maps.

The revised plan is now adequate to satisfy the conditions of HAR 13-277 and is accepted. We appreciate your client's willingness to work with us. Should any question arise during implementation of the plan, please do not hesitate to contact MaryAnne Maigret in our Hawaii Island office at 327-3690.

Aloha,

Melanie A.Chinen, Administrator
State Historic Preservation Division

MM:jen

c: Mr. Peter Dungate, 75-5914G Mamalahoa Highway, Holualoa, Hawaii
Christopher Yuen, Hawaii County Planning Director

Rec'd 4/22/06

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

April 18, 2006

Dr. Alan E. Haun
Haun & Associates
HCR 1 Box 4730
Kea'au, Hawai'i 96749

LOG NO: 2006.1174
DOC NO: 0604JT10
Archaeology

Dear Dr. Haun:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Archaeological Data Recovery Site 24149
Land of Pahoehoe 1, South Kona District, Island of Hawai'i
TMK: (3) 8-7-007: 008

Thank you for the opportunity to review the aforementioned report by Haun, Henry & Berrigan (2005), which we received on June 23, 2005. The report summarizes the results of a data recovery project in which the effects of a development project on previously identified site SIHP -24149 were mitigated through data recovery designed to establish age, site function and activities within three features.

These goals have been accomplished, and the report satisfies the requirements of the Hawaii Administrative Rules under Chapter 13-278 and is hereby accepted.

Please contact Dr. Julie Taomia at 808-327-3691 if you have questions or concerns.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

JT:dlb

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

PAUL J. CONRY
INTERIM FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

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: HA-3631

AUG 10 2012

Roy A. Vitousek
Cades Schutte, LLP
75-170 Hualalai Road, Ste. B-303
Kailua-Kona, HI 96740

SUBJECT: Conservation District Use Application (CDUA) HA-3631 for a Single Family Residence Located at Kauluoa Point, Pahoehoe 1st, South Kona, Hawaii, TMK: (3) 8-7-007:011

Dear Mr. Vitousek:

The Office of Conservation and Coastal Lands has reviewed your client's application and has decided to rejected the application as more information is required. Prior to submission of any future CDUA, a site inspection is requested.

Regarding siting a residence in the Limited subzone of the Conservation District, the Hawaii Administrative Rules (HAR) §13-5-23, L-3, allows for the application for a single family residence in a flood zone or coastal high hazard area defined by the boundaries of the Federal Insurance Rate maps (FIRM) that conforms to applicable county regulations regarding the National Flood Insurance Program and single family residential standards as outlined in this chapter.

Within the CDUA under EXISTING CONDITIONS, please review and clarify paragraph 5. Within the Environmental Assessment (EA), all plans should be legible and include a legend, north arrow, and scale (Figures 3a, 3b, 3c). Under alternatives; other alternatives such as developing outside of the Conservation District or applying for a different identified land use should be considered.

More discussion should take place regarding meeting the objectives and policies of Chapter 205A, HRS (e.g. scenic and open space resources; coastal hazards, and managing development). How is the proposal consistent with these objectives and policies?

The EA does not include a Cultural Impacts Assessment pursuant to Act 50, Sessions Laws of Hawaii 2000. What are the effects on the cultural practices of the community and State? The proposal is sited on the ocean cliff near cultural assets. What impacts would the proposal have on site 24149? How will the proposal be mitigated so as to not impose on the cultural landscape or the Ala Loa?

In 2009, your client wrote to the OCCL requesting to conduct 'road repair.' The OCCL requested more information to determine if the existing road qualifies as a non-conforming use.

However, there was no response. Maps on file do not indicate the presence of a road in the subject area nor do aerial photographs. Please forward more information regarding this existing road if available (**Exhibit A, B & C**).

Regarding this area, the Atlas of Natural Hazards in the Hawaiian Coastal Zone has rated the overall hazard assessment as moderately high in regards to tsunami, high waves, storms, sea level rise and volcanic/seismic activity (**Exhibit D**). The Archeological Inventory Survey notes that site 24149 that appears to the proposed development site has been "impacted by wave activity."

The shoreline certification report describes the shoreline as a west facing, exposed, irregular shoreline characterized by a very steep to vertical basalt bluff. The bluff consists of multiple volcanic deposits with an apparent blue rock core and a'a surface. The bluff face is highly-fractured with multiple sea caves at the base. The area is exposed to very high wave energy, particularly during large south swells and Kona storms. The area mauka of the pali is moderately-sloping and very rugged. The wash of the waves had extensive salt deposits along the top of pali and the bluff face. The highly fractured bluff face, the toe of the bluff with intertidal signatures (pipipi, algae, wet/dry lines), and most makai was the swash zone. A narrow boulder reef extends into the near shore with no discernible reef in the deep off shore waters.

Further discussion with our Sea Grant Geologist on staff indicated that the ocean resource is under cutting the cliff face. It was further noted that unlike a beach, there is nothing to dissipate the ocean's wave energy therefore it is expected that the wave force will continue to gouge and erode beneath the cliffs. Exhibit C clearly illustrates substantial cliff failure in this vicinity. Due to the nature of the site, improvements should be kept to a minimum.

The OCCL has inspected a survey entitled, 'Exhibit Map Showing Pre-Existing Lots of Record' that includes the flood zone designations **(Exhibit E).** Based upon review of this survey, it is unclear if the proposed residence does indeed lie within a coastal high hazard zone as the application did not contain enough information for us to confirm this. Please submit the County of Hawaii Public Works determination regarding the National Flood Insurance Program with the location of the residence over laid. Further your client may wish to obtain a boundary interpretation to determine the Conservation vs. the Agricultural State Land Use Districts to see if siting improvements in the Agricultural District is a viable option.

We are returning your check for $2500.00. Please make arrangements to have the additional copies of the CDUA picked up at our Office or we shall recycle the applications after 30 days. Should you have any questions regarding this matter, contact Tiger Mills of our Office at 587-0382.

Sincerely,

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

c: Chairperson
HDLO
County of Hawaii, Planning
County of Hawaii, DPW

ML

HA-10-28

To DLNR:

I am the owner of TMK {3} 8-7-007:008 Pahoehoe 1 located in south Kona on the Big Island 95ac that includes a coastal portion within the conservation zone. I've done an extensive archaeological survey by Haun & Associates and other preservation and coastal surveys that have been accepted by the State of Hawaii. This parcel was owned by Magoon Ranch from about the 1930s to 2002 when I bought it. Some time around the 1950s the ranch bulldozed a series of jeep roads throughout the parcel and in the conservation zone. I've included a map of the roads in the parcel, most of the roads are still in good shape after 50+ years. There is one section of road that is in the conservation zone that has deteriorated { I highlighted this section on the map and picture #s 1, 2 and 3 show this section of road} I would like to repair this section of pre-existing road by smoothing it out and spreading gravel/cinder on top . Picture #4 shows that it will look like with the repairs. This section is about 150ft long, 35ft above sea level and does not include any archaeological sites. I don't know what your policy is for repairing pre-existing roads in the conservation zone is but I wanted to get your opinion before I repair this section. Please get back to me as soon as you can

Thank You Peter Dungate

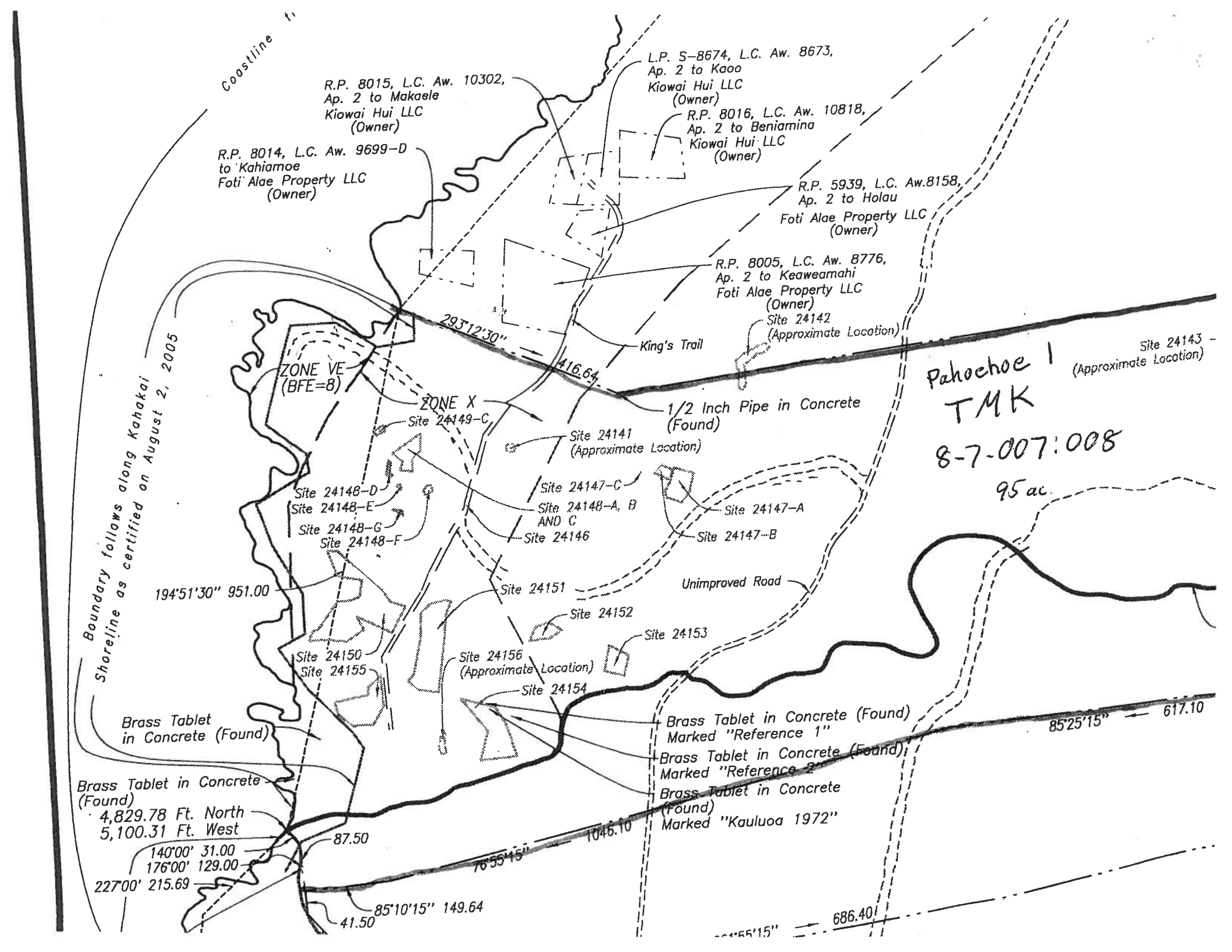
Peter Dungate 75-5491G Mamalahoa HWY Holualoa HI 96725
cell# 937-7123

Kaulua Point?

Pahoehoe, S. Kona

8 lot subdivision

EXHIBIT A


Coastline
R.P. 8015, L.C. Aw. 10302, Ap. 2 to Makaele Kiowai Hui LLC (Owner)
L.P. S-8674, L.C. Aw. 8673, Ap. 2 to Kaoo Kiowai Hui LLC (Owner)
R.P. 8016, L.C. Aw. 10818, Ap. 2 to Beniamina Kiowai Hui LLC (Owner)
R.P. 8014, L.C. Aw. 9699-D to Kahiamoe Foti Alae Property LLC (Owner)
R.P. 5939, L.C. Aw.8158, Ap. 2 to Holau Foti Alae Property LLC (Owner)
R.P. 8005, L.C. Aw. 8776, Ap. 2 to Keaweamahi Foti Alae Property LLC (Owner)
293°12'30"
416.64
King's Trail
Site 24142 (Approximate Location)
Site 24143 (Approximate Location)
ZONE VE (BFE=8)
ZONE X
Site 24149-C
1/2 Inch Pipe in Concrete (Found)
Site 24141 (Approximate Location)
Site 24148-D
Site 24148-E
Site 24148-G
Site 24148-F
Site 24147-C
Site 24148-A, B AND C
Site 24146
Site 24147-A
Site 24147-B
Pahoehoe 1
TMK
8-7-007:008
95 ac
Boundary follows along Kahakai Shoreline as certified on August 2, 2005
194°51'30" 951.00
Site 24151
Unimproved Road
Site 24152
Site 24153
Site 24150
Site 24155
Site 24156 (Approximate Location)
Site 24154
Brass Tablet in Concrete (Found)
Brass Tablet in Concrete (Found) 4,829.78 Ft. North 5,100.31 Ft. West
Brass Tablet in Concrete (Found) Marked "Reference 1"
Brass Tablet in Concrete (Found) Marked "Reference 2"
Brass Tablet in Concrete (Found) Marked "Kauluoa 1972"
85°25'15" 617.10
140°00' 31.00
176°00' 129.00
227°00' 215.69
87.50
76°55'15" 1046.10
85°10'15" 149.64
41.50
686.40

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:MC

Corr HA-10-28

AUG 20 2009

Peter Dungate
75-5491G Māmalahoa Highway
Hōlualoa, HI 96725

Dear Mr. Dungate,

SUBJECT: ROAD WORK
Pāhoehoe, South Kona, Hawai`i
TMK (3) 8-7-007:008

The Office of Conservation and Coastal Lands (OCCL) has received your inquiry regarding the repair of a lava cinder road on the above subject parcel. Approximately 150 feet of the road is in the Limited Subzone of the State Land Use Conservation District.

According to the information you provided the road was bulldozed by Magoon Ranch in the 1950s.

Land uses that were in existence prior to 1964 qualify as *non-conforming uses.* Repairs or reconstruction of non-conforming land uses are covered by Hawai`i Administrative Rules (HAR) §13-5-37 NONCONFORMING USES (a) *The burden of proof to establish that the land use or structure is legally nonconforming shall be on the applicant;* (d) *If a nonconforming structure is destroyed by any means to an extent of more than fifty percent of its replacement cost at the time of destruction, it shall not be reconstructed except in conformity with the provisions of this chapter;* and (e) *Repairs or reconstruction of the nonconforming structure shall not exceed the size, height or density of the structure which existed immediately prior to October 1, 1964.*

OCCL will need more detailed information regarding the project to determine if the existing road qualifies as a non-conforming use, and if the proposed repairs are consistent with the above criteria. Otherwise the project will likely require a Conservation District Use Permit (CDUP) approved by the Board of Land and Natural Resources.

OCCL also notes that the map and site plan you submitted appear to be for the wrong parcel.

Should you have any questions, please contact Michael Cain of our Office of Conservation and Coastal Lands at 587-0048.

Sincerely,

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

EXHIBIT 3

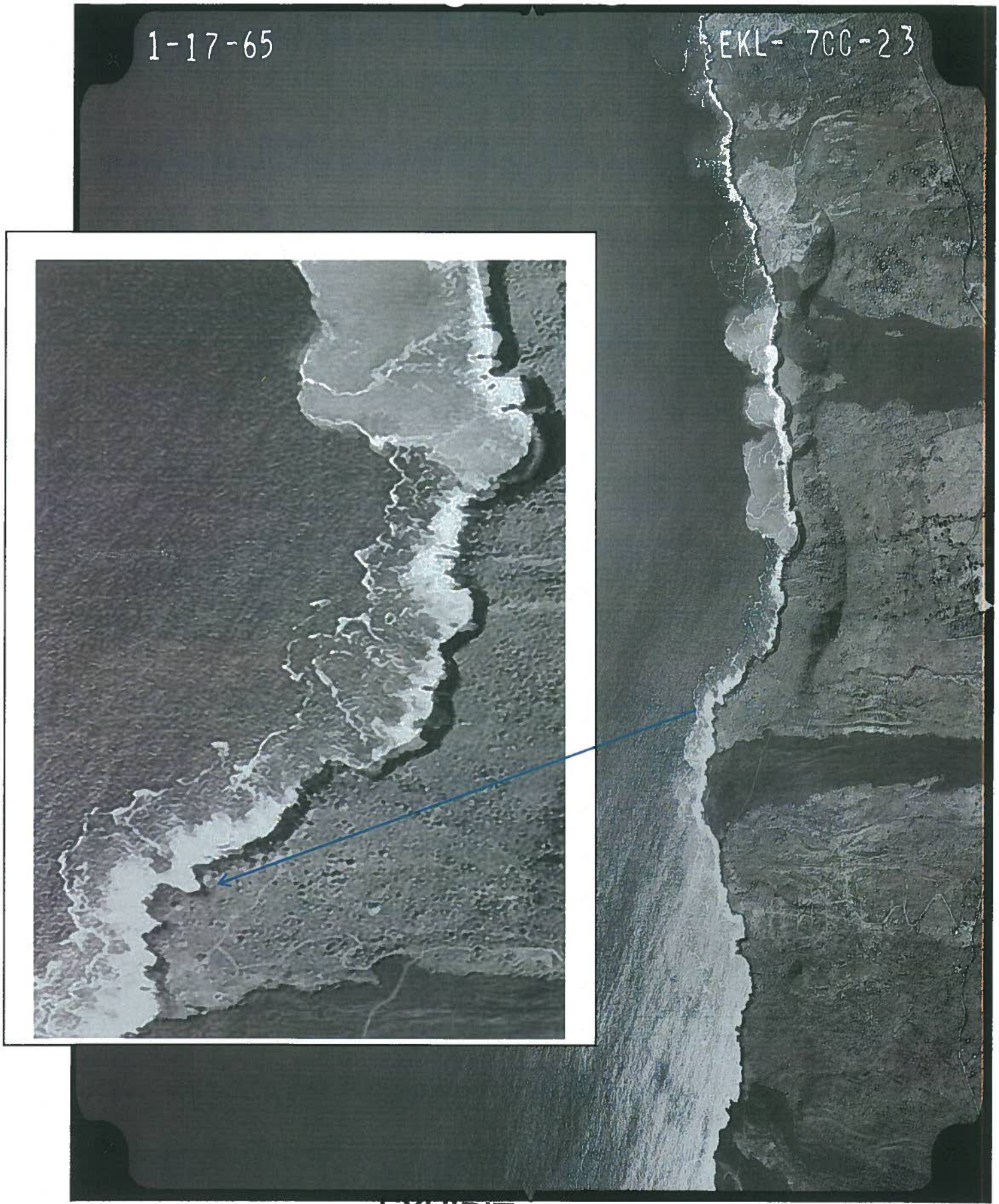


EXHIBIT C

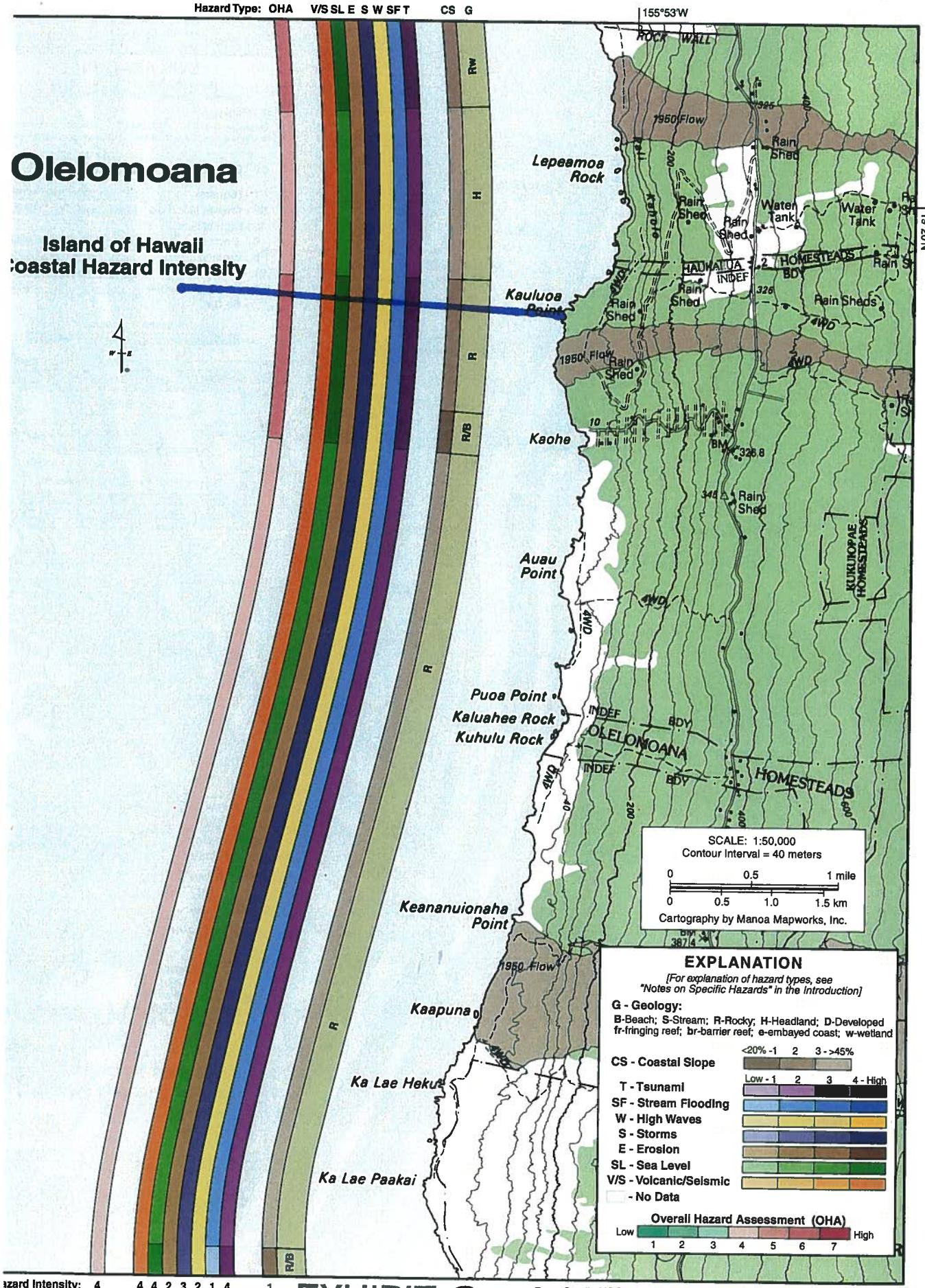

Hazard Type: OHA V/S SL E S W SF T CS G
155°53'W
19°20'N
Olelomoana
Island of Hawaii
Coastal Hazard Intensity
Lepeamoa Rock
Kauluoa Point
Kaohe
Auau Point
Puoa Point
Kaluahee Rock
Kuhulu Rock
Keananuionaha Point
Kaapuna
Ka Lae Heku
Ka Lae Paakai
1950 Flow
Rain Shed
Water Tank
HAUHAUOA
HOMESTEADS
INDEF
BDY
OLELOMOANA
KUKUIOPAE HOMESTEADS
4WD
SCALE: 1:50,000
Contour Interval = 40 meters
0 0.5 1 mile
0 0.5 1.0 1.5 km
Cartography by Manoa Mapworks, Inc.
EXPLANATION
[For explanation of hazard types, see "Notes on Specific Hazards" in the Introduction]
G - Geology:
B-Beach; S-Stream; R-Rocky; H-Headland; D-Developed
fr-fringing reef; br-barrier reef; e-embayed coast; w-wetland
CS - Coastal Slope
<20% -1 2 3 ->45%
T - Tsunami
SF - Stream Flooding
W - High Waves
S - Storms
E - Erosion
SL - Sea Level
V/S - Volcanic/Seismic
Low - 1 2 3 4 - High
- No Data
Overall Hazard Assessment (OHA)
Low 1 2 3 4 5 6 7 High
Olelomoana
Hazard Intensity: 4 4 4 2 3 2 1 4 1
Base Credit: USGS 1:50,000 Milolii, Hawaii 5816 III W733 Edition 1-DMA

EXHIBIT D

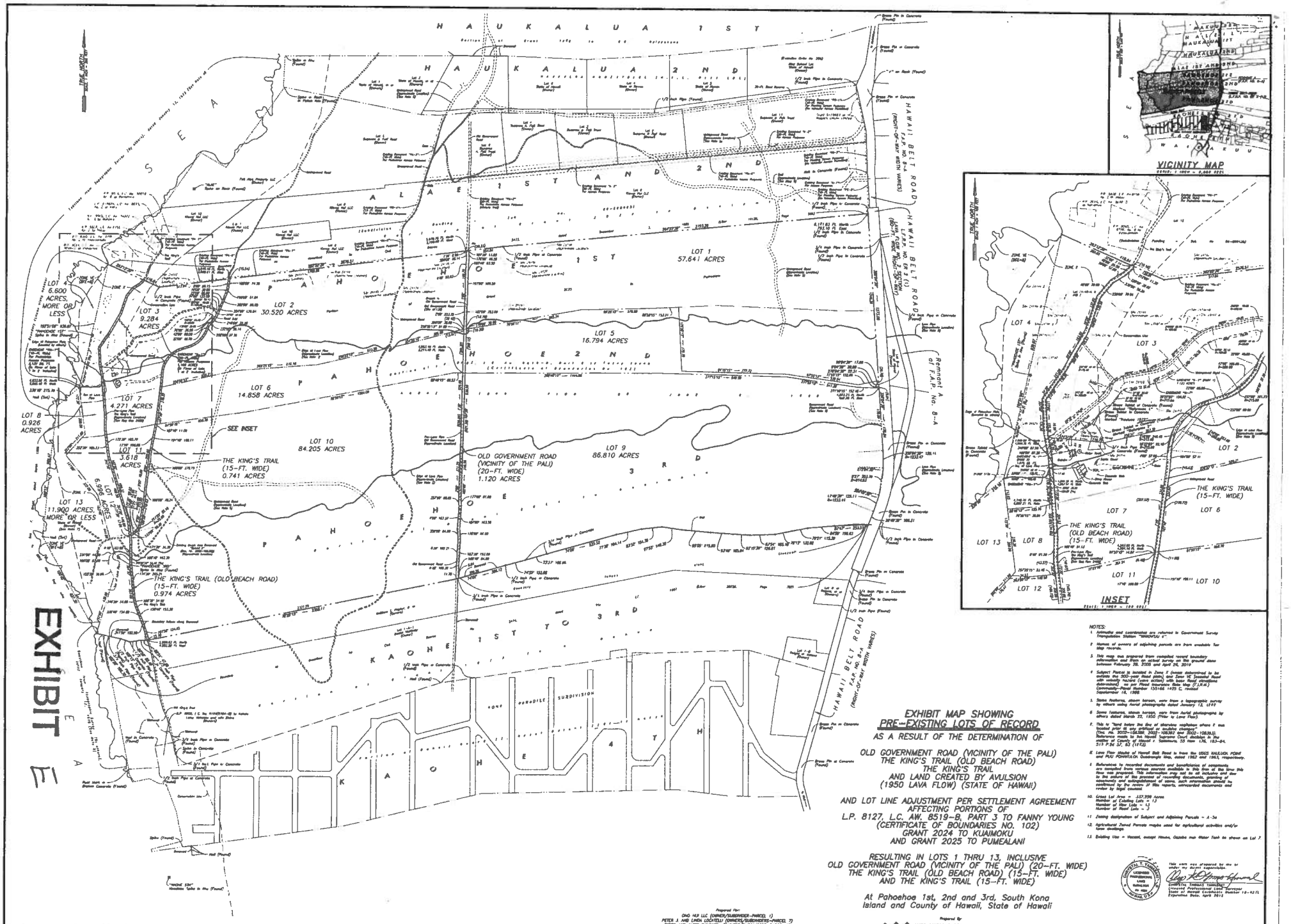


EXHIBIT E

EXHIBIT MAP SHOWING
PRE-EXISTING LOTS OF RECORD
AS A RESULT OF THE DETERMINATION OF

OLD GOVERNMENT ROAD (VICINITY OF THE PALI)
THE KING'S TRAIL (OLD BEACH ROAD)
THE KING'S TRAIL
AND LAND CREATED BY AVULSION
(1950 LAVA FLOW) (STATE OF HAWAII)

AND LOT LINE ADJUSTMENT PER SETTLEMENT AGREEMENT
AFFECTING PORTIONS OF
L.P. 8127, L.C. AW. 8519-B, PART 3 TO FANNY YOUNG
(CERTIFICATE OF BOUNDARIES NO. 102)
GRANT 2024 TO KUAIMOKU
AND GRANT 2025 TO PUMEALANI

RESULTING IN LOTS 1 THRU 13, INCLUSIVE
OLD GOVERNMENT ROAD (VICINITY OF THE PALI) (20-FT. WIDE)
THE KING'S TRAIL (OLD BEACH ROAD) (15-FT. WIDE)
AND THE KING'S TRAIL (15-FT. WIDE)

At Pahoehoe 1st, 2nd and 3rd, South Kona
Island and County of Hawaii, State of Hawaii

NOTES:

1. Azimuths and coordinates are referred to Government Survey Triangulation Station "HANAUKA 2".
2. Names of owners of adjoining parcels are from available Tax Map records.
3. This map was prepared from compiled record boundary information and from an actual survey on the ground done between February 28, 2005 and April 24, 2010.
4. Subject Parcel is located in Zone X (areas determined to be outside the 0.2% annual chance floodplain) per Flood Insurance Rate Map (F.I.R.M.) Community-Panel Number 150166 0425 C, revised September 16, 1988.
5. Some features, shown hereon, were from a topographic survey by others using Aerial photography dated January 13, 1977.
6. Some features, shown hereon, were from Aerial photographs by others dated March 23, 1950 (Prior to Lava Flow).
7. This is "land below the line of vegetation, vegetation where it was located prior to any artificial or avulsive changes". (Haw. Rev. Stats. §205-1(b)(8); 2002 - 108(b)(6)). Reference made to the Hawaii Supreme Court decision in the matter of County of Hawaii v. Sotomura, 55 Haw. 176, 183-84, 515 P.2d 57, 63 (1973).
8. Lava Flow Routes of Hawaii Belt Road is from the USGS SAUWAI, POINT AMA'U, POHAKULOA Quadrangle Map, dated 1982 and 1965, respectively.
9. References to recorded documents and boundaries of easements are compiled from various sources available to this firm at the time this map was prepared. This information may not be all inclusive and due to the nature of the process of recording documents, granting of easements and acknowledgement of same, such information should be confirmed by the review of title reports, unrecorded documents and review by legal counsel.
10. Gross Lot Area = ±57.709 Acres
Number of Existing Lots = 13
Number of New Lots = 13
Number of Road Lots = 3
11. Zoning designation of Subject and Adjoining Parcels = A-3a
12. Agricultural Zoned Parcels maybe used for agricultural activities and/or have dwellings
13. Existing Use = Vacant, except Hawaii Gazebo and Water Tank as shown on Lot 7

Prepared For:
OHA 14.9 LLC (OWNER/SUBDIVIDER-PARCEL 1)
PETER J. AND LINDA LOCICERO (OWNERS/SUBDIVIDERS-PARCEL 7)
PETER AND ANGIE DUNDAS (OWNERS/SUBDIVIDERS-PARCEL 8)
c/o Am Thomas Associates
75-5749 Kalawa Street
Kailua-Kona, Hawaii 96740

Prepared By:
WES THOMAS ASSOCIATES
-- Land Surveyors --
75-5749 Kalawa Street
Kailua-Kona, Hawaii 96740-7519
TEL (808) 329-1353
FAX (800) 329-5314 EMAIL surveyors@westhomas.com

CHRISTOPHER T. THOMAS
LICENSED PROFESSIONAL LAND SURVEYOR
No. 10010
STATE OF HAWAII

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

CHRISTOPHER THOMAS THOMAS
Licensed Professional Land Surveyor
State of Hawaii Certificate Number 10-10010
Expiration Date: April 2012

PROJECT NO.: 16957.4
DATE: ..... SEPTEMBER 27, 2010
FIELD BOOK NO.: ..1197, 1253 AND 1256
TAX MAP KEY ..... 8-7-007:001, 007 AND 008 (3RD DIVISION)

Roy A. Vitousek III
Direct Line: (808) 329-5811
Direct Fax: (808) 326-1175

September 19, 2012

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Re: Conservation District Use Application (CDUA) HA-3631 for Single Family Residence Located at Kauluoa Point, Pahoehoe 1st, South Kona, Hawaii, TMK: (3) 8-7-007: 011

Dear Mr. Lemmo:

This responds to your letter of August 10, 2012 which we received on October 15, 2012.

First, can it be that the Office of Conservation and Coastal Lands seriously rejecting the CDUA both because:

1. the proposed home would be located in an area "exposed to very high wave energy, particularly during large south swells and Kona storms" and because

2. "it is unclear that the proposed residence does indeed lie within a coastal high hazard zone . . ."?

The incongruity here is obvious.

The Applicant is submitting herewith a site plan which shows the location of the proposed home relative to the coastal high hazard zone as determined by professional surveyors Wes Thomas Associates. If OCCL questions the location of the coastal high hazard zone, it should use its own governmental resources to do so.

The existing rule, HAR § 13-5-23, L-3, is absurd as written and creates the problem we are dealing with in this Application. The Applicant would be happy to re-site the improvements further mauka into the area outside the coastal high hazard area but OCCL rules do not allow single family residences in the limited subzone unless they are located in the coastal high hazard zone or flood plain. I personally discussed this issue with you when we met on February 28,

2012, and you said OCCL would not agree to locate the home outside the high hazard area and recommended that the Applicant proceed with the CDUA with the proposed home located in the coastal high hazard area.

Second, your letter requests clarification of paragraph 5 of the Existing Conditions discussion in the CDUA at page 4. Applicant offers the following:

> The proposed Dungate single-family residence will be located on TMK (3) 8-7-007: 011 (the "Property" or "Parcel 11"). There is a recently constructed single-family residence on the adjoining parcel to the south (TMK (3) 8-7-007: 14) which is owned by Dr. and Mrs. Peter Locatelli. Makai of Parcel 11 is a coastal parcel, apparently created by a lava flow, which is identified as TMK (3) 8-7-007: 18 and is owned by the State of Hawaii. The property which lies mauka or east of Parcel 11 is TMK (3) 8-7-007: 008 and is also owned by the Dungates. The parcel to the north of Parcel 11 is TMK (3) 8-7-005: 002 which is owned by Kiowai Hui LLC and is undeveloped. The Kona Paradise Subdivision is located on TMK (3) plats 15 – 20 and is less than one mile south of Parcel 11. There are over 100 homes in the Kona Paradise Subdivision, including several in the Conservation District along the coast.

Cultural, Historical, and Environmental Resources

The EA and the CDUA contain more than adequate information and assessments to evaluate the presence of cultural, historical, and environmental resources on the property and in the area, to evaluate the extent to which cultural practices may be conducted in this area and to assess what mitigation measures may be appropriate to minimize any adverse impacts. See EA at pp. 18-27.

There is no separate document with a title "Cultural Impact Assessment" but it is the content of the application, not the titles in the documents, that informs agency decision-makers.

This is an unusual project because the owner has already undertaken and completed actions which identify, assess, and mitigate adverse impacts well before preparing the Draft EA or submitting the CDUA.

This is a coastal property in South Kona. The cultural and historical resources on the Property in South Kona The cultural and historical resources on the Property will be the archaeological features, the natural resources of the coastal and nearshore areas, and the practices associated with these features and resources. The flora and fauna studies disclose no terrestrial biological resources that would be gathered for subsistence or cultural practices. See EA § 3.1.4.

The littoral and nearshore environments are rich in marine resources such with fish, shellfish, limu, and the like. It is recognized that members of the public, no doubt including native Hawaiian, access these areas from shore and from the sea to enjoy and harvest these resources. The proposed single-family residence will in no way interfere with these resources or on the activities. The shoreline has been certified. The certified shoreline is well mauka of the mean high water line. The proposed home is located no less than 40 feet from the certified shoreline. People who access the shoreline for fishing and diving will continue to be able to do so.

The EA and CDUA recognize that people hike the trails in this area and use the trails to gain access to the coast. The Applicant has deeded the lateral trails on his property to the State of Hawaii. This is quite unique. The Applicant has not only recognized the existence of trails and old roadways, he has deeded any interests he has in specific roads to the public. This action acknowledges customary practices and public use and facilitates this use. This action clearly mitigates potential adverse impacts of developing a single-family residence.

Archaeological Inventory Survey

With respect to archaeological and cultural site, the Applicant has completed the Archaeological Inventory Survey, Data Recovery Plan, Site Preservation Plan, and Burial Treatment Plan (see Appendices 2a through 2d) for all of his properties, including Parcel 11. He has already taken the Property through the complete process of identifying cultural and historical sites, assessing the significance, identifying burial sites, going through the consultation process, and obtaining approval for a burial treatment plan. The resources have been identified, the potential impact of the home identified and assessed, and _____ mitigation measures have been approved by DLNR/SHPD, and implemented by the Applicant.

Through these processes, the cultural resources on and near the Property have been identified, the potential impacts of the Project on those resources have been identified and assessed, and the mitigation measures have been identified and implemented. There is no reason to pay another consultant to write another document.

With respect to site 24149, that site was initially approved for data recovery. See letter dated July 29, 2004, from P. Holly McEldowney, Acting Administrator of State Historic Preservation Division, to Alan Haun (Appendix 1(a) to EA. When the data recovery work was performed, a burial was discovered and reported to SHPD. Excavation was suspended and the burial was reported to Keola Lindsey of the Burial Sites program of SHPD. The landowner and Mr. Lindsey developed a plan to preserve the remains in place. See letter dated April 3, 2005, to Ms. Melanie Chenin from Alan Haun (Appendix 1(a) to EA). By letter dated April 18, 2006, Ms. Chenin wrote to Mr. Haun and confirmed that the data recovery on Site 24149 was

accomplished and that the requirement of HAR § 13-278 had been met. See Appendix 1(a) to the EA.

Site 24149 is being preserved in place. This treatment has already been approved by the appropriate branch of the Department of Land and Natural Resources.

The design of the proposed home is set out in the EA and CDUA. The fact that there are already other homes in the area is also discussed. The fact that this Applicant has already agreed to have the County take fee ownership of the alignment of the Ala Loa and has executed deeds conveying title to the County clearly demonstrates that this Applicant is proactive in recognizing that there will be public use of the trail. The EA and CDUA make it clear that the presence of the house will not impair use of the trails or use of the shoreline for fishing, diving, and the like. These issues are adequately discussed in the EA and CDUA.

The discussion of the objectives and policies of HRS chapter 205A is contained at pages 5 and 10 of the CDUA and pages 33 and 34 of the EA. Further, construction of a single family residence which is not part of a larger development is an exempt action under the special management area guidelines. See HRS § 205A-22.

Please do not recycle the Application. We will pick up, supplement, and resubmit it.

If you have questions or require additional information, please contact me.

Very truly yours,

Roy A. Vitousek III
for
CADES SCHUTTE
A Limited Liability Law Partnership

RAV:bah

[This page intentionally left blank]

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 1b
Comments in Draft EA and Responses

[This page intentionally left blank]

NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013

Roy A. Vitousek, III
Cades ▪ Schutte
75-170 Hualalai Road, Suite B-303
Kailua Kona, Hawaii 96740

AUG 14 2013

SUBJECT: Conservation District Use Application (CDUA) HA-3675 for a Single Family Residence and Related Improvements Located at Pahoehoe I, South Kona, TMK: (3) 8-7-007:011

Dear Mr. Vitousek:

This letter is regarding the processing of CDUA HA-3675. The public and agency comment period on this application has closed (August 7, 2013). Attached to this letter are copies of the comments received by the Office of Conservation and Coastal Lands (OCCL) regarding the CDUA.

The OCCL is in receipt of the proposed plantings for the residence and would also like to thank you for hosting the site inspection to the subject parcel. During the inspection, staff noted the house site is in a secluded area on a southern facing rugged coastline susceptible to the elements and seismic volcanic activity. Staff believes the landowners are aware of the inherent challenges and vulnerabilities of potentially having a residence in a location that is isolated, with no municipal services, poor access, and poor emergency response time and shall plan accordingly to insure their own health, safety and welfare.

Please send copies of your responses to the questions and comments raised in these letters directly to the authoring agency as well as to the OCCL. Should you have received comments directly, please include a copy of the comments and your response to the OCCL also. The final copy of this project's Environmental Assessment (EA) needs to include your responses to the queries raised in these letters. These responses can be attached to the end of the Final EA document.

These issues must be addressed in the Final Environmental Assessment for the OCCL to make a determination in regards to declaring a Finding of No Significant Impact.

Please send 3 hard copies and 2 CD in pdf. format of your final EA to the OCCL. In addition, please send an electronic copy of the Office of Environmental Quality Control (OEQC) Publication Form to OCCL staff at kimberly.mills@hawaii.gov. If the project summary has changed, include a new summary. Please include a hard copy of the submitted publication form

with the Final EAs. Should the OCCL determine a Finding of No Significant Impact (FONSI) for the final version of the Environmental Assessment, we shall forward the final EA and publication form to the OEQC.

Should you have any questions regarding matters pertaining to CDUA HA-3675, contact Tiger Mills of our Office of Conservation and Coastal Lands at (808) 587-0382.

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Land

NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA`AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAI`I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI`I 96809

2013 AUG -6 A 11:45

DEPT OF LAND & NATURAL RESOURCES STATE OF HAWAII

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013
SUSPENSE DATE: 21 Days from stamped date

JUN 24 2013

MEMORANDUM

TO:

	State Agencies:		
___	DLNR- Resource Enforcement	___	Office of Hawaiian Affairs
___	DLNR- Forestry & Wildlife		**County Agencies:**
___	DLNR-Engineering	___	Planning Office
___	DLNR-Hawaii District Land Office	___	Fire Department
___	DLNR-Historic Preservation Division	___	Department of Public Works
___	DLNR-Na Ala Hele		**Federal Agency:**
___	DOH-Environmental Planning Office	___	National Park Service-Ala Kahakai

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

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3675
Single Family Residence and Associated Improvements

APPLICANT: Peter Dungate
LOCATION: Pahoehoe I, South Kona, County of Hawai`i
Tax Map Key: (3) 8-7-007:011
PUBLIC HEARING: No

Attached please find a CD of CDUA HA-3675, the draft Environmental Assessment and our notice to the applicant. We would appreciate your agency's review and comment on this application. If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Please contact Tiger Mills at (808) 587-0382 should you have any questions on this matter.

( ) Comments Attached

(X) No Comments

Signature

DOCARE / CREO IV
Print name and Title

NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

JUN 27 A 11: 30

DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013
SUSPENSE DATE: 21 Days from stamped date

JUN 2 4 2013

MEMORANDUM

From ~~TO:~~

State Agencies:

_____ DLNR- Resource Enforcement
_____ DLNR- Forestry & Wildlife
_____ DLNR-Engineering
_____ DLNR-Hawaii District Land Office
_____ DLNR-Historic Preservation Division
__✓__ DLNR-Na Ala Hele
_____ DOH-Environmental Planning Office
_____ Office of Hawaiian Affairs

County Agencies:

_____ Planning Office
_____ Fire Department
_____ Department of Public Works

Federal Agency:

_____ National Park Service-Ala Kahakai

To

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

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3675
Single Family Residence and Associated Improvements

APPLICANT: Peter Dungate
LOCATION: Pahoehoe I, South Kona, County of Hawai`i
Tax Map Key: (3) 8-7-007:011
PUBLIC HEARING: No

Attached please find a CD of CDUA HA-3675, the draft Environmental Assessment and our notice to the applicant. We would appreciate your agency's review and comment on this application. If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Please contact Tiger Mills at (808) 587-0382 should you have any questions on this matter.

( ) Comments Attached

(✓) No Comments

Signature

Roger H. Imoto Deputy Director

Print name and Title

RECEIVED
2013 JUN 24 A11:16
FORESTRY & WILDLIFE
STATE OF HAWAII

NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2013 JUL 11 A 10: 14
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013
SUSPENSE DATE: 21 Days from stamped date

JUN 24 2013

MEMORANDUM

TO:

State Agencies:

_____ DLNR- Resource Enforcement
_____ DLNR- Forestry & Wildlife
_____ DLNR-Engineering
_____ DLNR-Hawaii District Land Office
_____ DLNR-Historic Preservation Division
_____ DLNR-Na Ala Hele
_____ DOH-Environmental Planning Office
_____ Office of Hawaiian Affairs

County Agencies:

_____ Planning Office
✓ Fire Department
_____ Department of Public Works

Federal Agency:

_____ National Park Service-Ala Kahakai

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

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3675
Single Family Residence and Associated Improvements

APPLICANT: Peter Dungate
LOCATION: Pahoehoe I, South Kona, County of Hawai'i
Tax Map Key: (3) 8-7-007:011
PUBLIC HEARING: No

RECEIVED
HAWAII FIRE DEPT
2013 JUN 25 AM 10: 58

Attached please find a CD of CDUA HA-3675, the draft Environmental Assessment and our notice to the applicant. We would appreciate your agency's review and comment on this application. If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Please contact Tiger Mills at (808) 587-0382 should you have any questions on this matter.

( ) Comments Attached

(✓) No Comments

D. J. Rosario
Signature

Darren J. Rosario, Fire Chief
Print name and Title

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013
SUSPENSE DATE: 21 Days from stamped date

JUN 24 2013

MEMORANDUM

TO:

State Agencies:

_____ DLNR- Resource Enforcement
__✓__ DLNR- Forestry & Wildlife
_____ DLNR-Engineering
_____ DLNR-Hawaii District Land Office
_____ DLNR-Historic Preservation Division
_____ DLNR-Na Ala Hele
_____ DOH-Environmental Planning Office
_____ Office of Hawaiian Affairs

County Agencies:

_____ Planning Office
_____ Fire Department
_____ Department of Public Works

Federal Agency:

_____ National Park Service-Ala Kahakai

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

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3675
Single Family Residence and Associated Improvements

APPLICANT: Peter Dungate
LOCATION: Pahoehoe I, South Kona, County of Hawai`i
Tax Map Key: (3) 8-7-007:011
PUBLIC HEARING: No

Attached please find a CD of CDUA HA-3675, the draft Environmental Assessment and our notice to the applicant. We would appreciate your agency's review and comment on this application. If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Please contact Tiger Mills at (808) 587-0382 should you have any questions on this matter.

( ) Comments Attached

(✓) No Comments

Signature

Roger H. Imoto, Administrator
Print name and Title

RECEIVED
2013 JUN 24 AM 11:16
FORESTRY & WILDLIFE
STATE OF HAWAII

NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

RECEIVED
CONSERVATION
COASTAL LANDS
2013 JUL 11 A 10:

2013 JUN 25 P 1:

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
LAND DIVISION
HILO, HAWAII

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013
SUSPENSE DATE: 21 Days from stamped date

7/15/13

JUN 24 2013

MEMORANDUM

TO:

State Agencies:

_____ DLNR- Resource Enforcement
_____ DLNR- Forestry & Wildlife
_____ DLNR-Engineering
__✓__ DLNR-Hawaii District Land Office
_____ DLNR-Historic Preservation Division
_____ DLNR-Na Ala Hele
_____ DOH-Environmental Planning Office
_____ Office of Hawaiian Affairs

County Agencies:

_____ Planning Office
_____ Fire Department
_____ Department of Public Works

Federal Agency:

_____ National Park Service-Ala Kahakai

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

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3675
Single Family Residence and Associated Improvements

APPLICANT: Peter Dungate
LOCATION: Pahoehoe I, South Kona, County of Hawai`i
Tax Map Key: (3) 8-7-007:011
PUBLIC HEARING: No

Attached please find a CD of CDUA HA-3675, the draft Environmental Assessment and our notice to the applicant. We would appreciate your agency's review and comment on this application. If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Please contact Tiger Mills at (808) 587-0382 should you have any questions on this matter.

( ) Comments Attached

(✓) No Comments

Signature

GORDON C. HEIT, DLA
Print name and Title

NEIL ABERCROMBIE
GOVERNOR OF HAWAI'I

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2013 JUL -3 A 11:19

'13 JUL 27 A9:39

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

REF:OCCL:TM

CDUA: HA-3675
Acceptance Date: June 17, 2013
180-Day Exp. Date: December 14, 2013
SUSPENSE DATE: 21 Days from stamped date

JUN 24 2013

MEMORANDUM

TO:

State Agencies:
_____ DLNR- Resource Enforcement
_____ DLNR- Forestry & Wildlife
_____ DLNR-Engineering
_____ DLNR-Hawaii District Land Office
_____ DLNR-Historic Preservation Division
_____ DLNR-Na Ala Hele
_✓_ DOH-Environmental Planning Office
_____ Office of Hawaiian Affairs

County Agencies:
_____ Planning Office
_____ Fire Department
_____ Department of Public Works

Federal Agency:
_____ National Park Service-Ala Kahakai

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

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3675
Single Family Residence and Associated Improvements

APPLICANT: Peter Dungate
LOCATION: Pahoehoe I, South Kona, County of Hawai`i
Tax Map Key: (3) 8-7-007:011
PUBLIC HEARING: No

Attached please find a CD of CDUA HA-3675, the draft Environmental Assessment and our notice to the applicant. We would appreciate your agency's review and comment on this application. If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Please contact Tiger Mills at (808) 587-0382 should you have any questions on this matter.

( ) Comments Attached

(X) No Comments

Signature

Laura McIntyre, Mgr. EPO
Print name and Title

13-125

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

August 19, 2013

Sam Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Lemmo:

Subject: Comment to Draft Environmental Assessment for CDUA/Draft Environmental Assessment for Single-Family Residence in the Conservation District at Pahoehoe, South Kona District, Island of Hawai'i, TMK (3rd.) 8-7-007:011

I am in receipt of your letter to project attorney Roy A. Vitousek of August 14, 2013, containing OCCL's comments, providing instructions for submittal of the Final EA to your office and the comment letters your office received.

To address the OCCL comments, we acknowledge the fact that the house site is in a secluded area on a southern facing rugged coastline susceptible to the elements and seismic and volcanic activity. You are correct in your assessment that Mr. Dungate, who has visited this area since his childhood and has lived on the Big Island for many decades, is aware of the inherent challenges and vulnerabilities of potentially having a residence in a location that is isolated, with no municipal services, poor access, and poor emergency response time. Mr. Dungate is indeed prepared to plan appropriately for the health, safety, and welfare of residents and visitors to the proposed home.

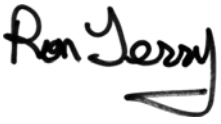
We believe that the site's characteristics were adequately described in the Draft EA, specifically, in Section 3.1.1 and Section 3.1.2, where the seismic, lava flow, flood zone and wave hazard was addressed in detail; and in Section 3.3.2, where the lack of public facilities and services in convenient proximity is noted. In deference to your statement, however, we have added information concerning Mr. Dungate's understanding of the implications of these circumstances, which we agree would be unusual for many residents of the State, although they are a regular fact of life for many, if not most, Big Islanders.

We very much appreciate your circulating the EA and CDUA for review by DLNR agencies. In the interest of a complete record on comment letters to the EA/CDUA, I would like to

acknowledge receipt of comments contained within form memos circulated by your office. We acknowledge here the *no-comment* remarks of those DLNR offices and other agencies that reviewed the EA, for which no response is necessary: DLNR-DOCARE, DLNR-Na Ala Hele, DLNR-DOFAW, DLNR-Hawai‘i District Land Office, the Hawai‘i Fire Department, and the Department of Health, Environmental Planning Office. We have also attached to this letter a copy of our response to the Hawai‘i County Planning Department. It is our understanding that no other comment letters were received.

If you have any questions about the EA, please contact me at (808) 969-7090; for questions about the project or CDUA, please contact Roy A. Vitousek, project attorney, at (808) 329-5811. Mr. Vitousek's office will be supplying you with copies of the EA and associated material shortly. Again, thank you very much for your assistance in reviewing and processing the EA and CDUA.

Sincerely,



Ron Terry, Principal
Geometrician Associates

Attach: Letter of August 19, 2013 to Duane Kanuha

Cc: Roy A. Vitousek, Peter Dungate

William P. Kenoi
Mayor

Duane Kanuha
Director

Bobby Command
Deputy Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

July 23, 2013

Mr. Samuel J. Lemmo
Administrator
Office of Conservation and Coastal Land
Department of Land and Natural Resources
State of Hawai'i
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Lemmo:

SUBJECT: **Conservation District Use Permit Application** (HA-3675)
Applicant: **Peter Dungate**
Project: **Single-Family Residence and Associated Improvements**
TMK: **(3) 8-7-007:011; Pahoehoe 1st, South Kona, Hawai'i**

This is in response to your request for comments on the above referenced application. We have reviewed the subject Conservation District Use Application (HA-3675) for a single-family residence and associated improvements on the subject property.

The subject parcel consists of 6.6 acres, is located in the State Land Use Conservation District, and is designated as Open by the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map. Because the project area is located entirely within the Conservation District, there is no county zoning, per se. Therefore, the State of Hawai'i Department of Land and Natural Resources (DLNR) has jurisdiction on any use or activity within the Conservation District on this parcel. Finally, the subject parcel is located entirely within the Special Management Area (SMA) with frontage along the shoreline.

Special Management Area Determination:
A Special Management Area Use Permit Assessment Application (SAA-13-000979) for the subject project was submitted for our review on May 15, 2013. According to Chapter 205A-22, HRS and Planning Commission Rule 9 relating to Special Management Area, "development" does not include *"Construction or reconstruction of a single-family*

residence that is less than seven thousand five hundred square feet of floor area and is not part of a larger development." Therefore, the construction of the 1,794 square-foot single-family dwelling and related improvements may be exempt from the definition of "development".

However, because the project is located in the State Land Use Conservation District, prior to the processing of the SMA determination, compliance with Hawai'i Revised Statutes, Chapter 343 Environmental Impact Statements, must be satisfied. The Draft Environmental Assessment was posted in the July 8, 2013 Department of Health, Office of Environmental Quality Control Environmental Notice. We understand that your Department has anticipated a finding of no significant impact to the environment (FONSI) for the proposed project. However, we will not be able to issue our SMA determination until the project has fully complied with HRS Chapter 343.

We have no further comments to offer at this time. If you have any questions, please feel free to contact Bethany Morrison of our office at (808) 961-8138.

Sincerely,

for DUANE KANUHA
Planning Director

BJM:cs
\\Coh33\planning\public\wpwin60\Bethany\General Zoning Inquiries\CDUA Dungate.doc

cc: Mr. Roy A. Vitousek III
Cades Schutte, LLP
75-170 Hualalai Road, Suite B-303
Kailua Kona, HI 96740

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

August 19, 2013

Duane Kanuha, Director
Hawai‘i County Planning Dept.
101 Pauahi Street, Suite 3
Hilo HI 96720

Dear Mr. Kanuha:

Subject: **Comment to Draft Environmental Assessment for CDUA/Draft Environmental Assessment for Single-Family Residence in the Conservation District at Pahoehoe, South Kona District, Island of Hawai‘i, TMK (3rd.) 8-7-007:011**

Thank you for the comment letter dated July 23, 2013, indicating that Special Management Area Use Permit Assessment Application (SAA-13-000979) for the subject project was submitted for review on May 15, 2013. We understand that your Department policy is now to hold off issuing an SMA exemption determination until the project has fully complied with HRS Chapter 343. We anticipate that the DLNR will issue a Finding of No Significant Impact with respect to the proposed action, thereby fulfilling the requirements of HRS Chapter 343.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Roy A. Vitousek, Peter Dungate

[This page intentionally left blank]

From: Peter Locatelli [mailto:REDACTED]
Sent: Thursday, August 22, 2013 6:52 PM
To: Ron Terry
Subject: Re: Dungage sfh EA

Thank You for your prompt reply. As stated in my email to you of 12/112011, my concerns were twofold. From your report and the information you provided, the shoreline survey relevant to this project only includes the area immediately involved with construction. An earlier shoreline survey that included the southern portion of the parcel involved I believe was in error. I directly observed wave action significantly more mauka of the shoreline designated by that survey. Additionally, my concerns about road and trail access appear to be satisfied. In the Archeological Inventory Survey by Haun & Associates dated March 2004, on page 30, this language is present: *The remainder of the property will be retained by the landowner who intends to build a personal residence at the coast in the vicinity of Site 24149. Access to the residence would be via an existing access road. The landowner intends to erect a gate on the seaward portion of this road on the southern property boundary where cross it (sic) the 1950 lava flow. Access to this gated portion of the road would be controlled by the landowner and the owners of two parcels situated immediately north of Parcel 008.* This language, if included in the landowner's application, would be in direct conflict with the sales deeds for the properties involved, including my own, and block access to families who were granted rights to access the properties prior to the current owners possession. Since these issues appear to be resolved, I have no objections to the landowners application. You may include this email in your final EA report.

Peter Locatelli MD

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

August 22, 2013

Dr. Peter Locatelli
Email: REDACTED

Dear Dr. Locatelli:

Subject: **Comment to Draft Environmental Assessment for CDUA/Draft Environmental Assessment for Single-Family Residence in the Conservation District at Pahoehoe, South Kona District, Island of Hawai‘i, TMK (3rd.) 8-7-007:011**

Thank you for the comment email dated August 22, 2013, in which you indicated that based on the restricted extent of the shoreline survey being used for the house application, and the lack of road access restrictions in archaeological mitigation, your concerns about the application have been satisfied.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Roy A. Vitousek, Peter Dungate

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 2a
Archaeological Inventory Survey

[This page intentionally left blank]

Report 320-010804

ARCHAEOLOGICAL INVENTORY SURVEY

TMK: 8-7-007:008, LAND OF PAHOEHOE 1

SOUTH KONA DISTRICT, ISLAND OF HAWAI'I

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

ARCHAEOLOGICAL INVENTORY SURVEY

TMK: 8-7-007:008, LAND OF PAHOEHOE 1

SOUTH KONA DISTRICT, ISLAND OF HAWAI'I

By:

Alan E. Haun, Ph.D.

and

Dave Henry, B.S.

Prepared for:
Mr. Peter Dungate
75-5914G Mamalahoa Highway
Kailua-Kona, Hawaii

March 2004

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

SUMMARY

At the request of Mr. Peter Dungate, Haun & Associates conducted an archaeological inventory survey of a c. 94-acre parcel located in the Land of Pahoehoe 1, South Kona District, Island of Hawaii (TMK: 8-7-007:008). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

The inventory survey identified 23 sites with 67 features. The sites are comprised of 11 single feature sites and 12 complexes of features. The features consist of enclosures, mounds, terraces, platforms, modified outcrops, walls, pavements, modified knolls, *kua'iwi*, roads, concrete boxes, a wooden pump house, and a water tank. Feature function includes permanent habitation, agriculture, ceremonial, water source, livestock control, transportation, burial, and temporary habitation.

The identified site and component features conform to the site/feature types expected based on previous archaeological work and historic documentary research. Probable prehistoric to early historic agricultural features consist of modified outcrops, mounds, and a *kua'iwi*. All except one of the agricultural features are situated inland between 400 ft and 700 ft elevation. Other inland traditional sites include two temporary and three permanent habitation sites, and a terrace interpreted to be a small *heiau* based on its prominent location, multiple tiers, and presence of numerous waterworn basalt and coral cobbles that appear to represent offerings. The temporary habitations consist of a modified knoll and an enclosure.

There is a concentration of sites at the coast including permanent habitations, burials, and two sites interpreted to be *heiau.* The coastal permanent habitation sites consist of between one and nine features. The sites include between one and five dwelling foundations, or yards in which a pole and thatch dwelling is presumed to have been present. Walled yards are present at four sites, a typical early historic form that served to keep free-ranging cattle out. One confirmed burial platform and probable burial are present at the largest permanent habitation site (24150).

Historic sits consist of two roads, two water sources and two segments of ranch walls. An inland road, known as Kalanipo'o Road, was probably constructed between the 1830s and 1850s. The habitation sites at the coast with walled yards indicate use of these sites in the early 1800s. The coastal road was probably used during the late 1800s and early 1900s. The two water sources have construction materials and artifacts that date to the 1900s and were part of a water system used by the Magoon Family ranch to water cattle.

All 23 sites are assessed as significant for their information potential. Four sites are also assessed as culturally significant because three of the sites are interpreted a *heiau* and the fourth includes two burials. Two sites also are assessed as excellent site type examples. The mapping, written descriptions, photography, and test excavations at six sites adequately documents them and no further work or preservation is recommended. Twelve sites retain the potential to yield information important for understanding traditional settlement. The landowner proposes data recovery to mitigate Site 24149 and preservation for the other eleven sites. Five other sites also are recommended for preservation. The specific preservation measures for the sites would be detailed in a Site Preservation Plan submitted for DLNR-SHPD review and approval. The proposed data recovery would be detailed in a Data Recovery Plan prepared for DLNR-SHPD review and approval. A Burial Treatment Plan for Site 24150 would be prepared for Hawaii Island Burial Council review and approval.

CONTENTS

ILLUSTRATIONS

ILLUSTRATIONS (cont.)

TABLES

INTRODUCTION

At the request of Mr. Peter Dungate, Haun & Associates conducted an archaeological inventory survey of a c. 94 acre parcel located in the Land of Pahoehoe 1, South Kona District, Island of Hawaii (TMK: 8-7-007:008; *Figure 1*). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules (2003).

The survey fieldwork was conducted between December 30, 2003 and January 13, 2004 under the direction of Dr. Alan Haun. Approximately 38 person days were required to complete the field work portion of the present project. Described in this final report are the project scope of work, field methods, background information, survey findings, and significance assessments of the sites with recommended further treatments.

Scope of Work

Based on DLNR-SHPD rules for inventory surveys, the following specific tasks were determined to constitute an appropriate scope of work for the project:

1. Conduct background review and research of existing archaeological and historical documentary literature relating to the project area and its immediate vicinity--including examination of Land Commission Awards, *ahupua'a* records, historic maps, archival materials, archaeological reports, and other historical sources;

2. Conduct a high intensity, 100% pedestrian survey coverage of the project area;

3. Conduct detailed recording of all potentially significant sites including scaled plan drawings, written descriptions, and photographs, as appropriate;

4. Conduct limited subsurface testing (manual excavation) at selected sites to determine function;

5. Analyze background research and field data; and

6. Prepare and submit Final Report.

Project Area Description

The project area is a roughly rectangular-shaped parcel located within the Land of Pahoehoe 1. It extends from the shoreline to the seaward side of the Mamalahoa Highway at c. 1,100 ft elevation. The project area is bordered by undeveloped land to the north and south, with Alae 2 situated to the north and Pahoehoe 2 to the south. A dirt access road crosses the project area at c. 400 ft elevation. A network of bulldozed roads is present in the coastal portion of the project area. The parcel slopes moderately to steeply from the highway to the shoreline, with relatively levels areas at the coast.

Sato et al. indicates that the project area is comprised predominately of a`a lava with an area of pahoehoe lava in the inland portion (1973: Sheet 155). These land types are characterized as miscellaneous land units that are bare of soil and vegetation (1973:34). The a'a lava is broken and rough and is listed as a "mass of clinkery, hard, glassy sharp pieces piled in tumbled heaps" with the pahoehoe lava comprised of "billowy, glassy surface that is relatively smooth" (1973:34).

Although areas of bare lava were noted in the parcel, the portion of the parcel inland from the access road is dominated by rocky, soil covered terrain. The vegetation in this area consists of Christmas-

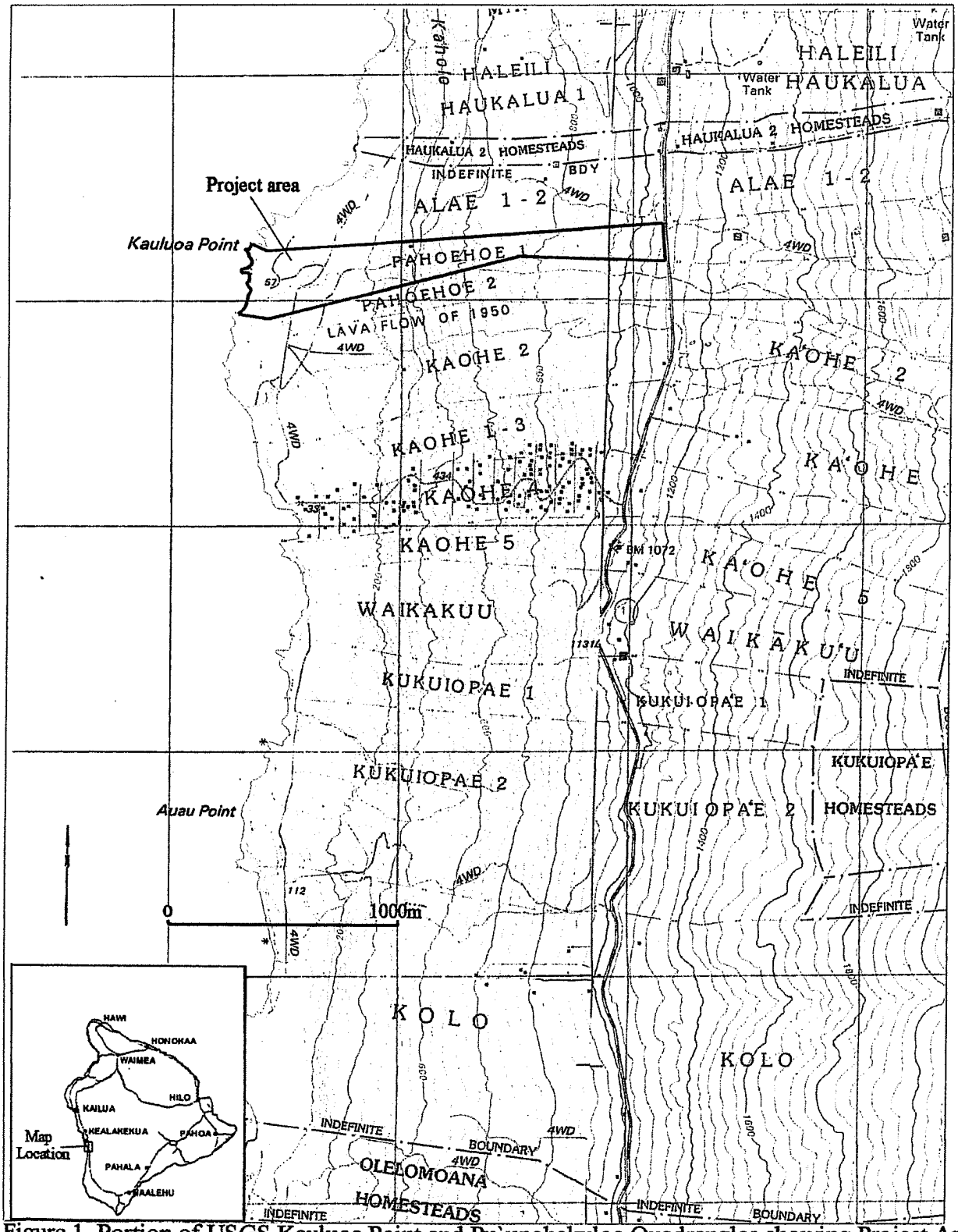


Figure 1. Portion of USGS Kauluoa Point and Pu`upohakuloa Quadrangles showing Project Area

berry (*Schinus terebinthifolius*), lantana (*Lantana camara*), guava (*Psidium guajava*), *ohi'a* (*Metrosideros polymorphia*), *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), and grasses and vines. The seaward portion of the area, below the access road is comprised of bare a'a and pahoehoe lava with areas of thin soil. Vegetation in this portion of the parcel consisted of *kiawe, koa haole, Opiuma* (*Pithecellobium dulce* [Roxb.] Benth.) and vines.

A 1950 lava flow (see *Figure 1*) occupies the southern portion of the parcel from c. 700 ft elevation to the shoreline. This flow has partially buried several archaeological sites within the project area (Sites 24136, 24153 and 24154) and likely completely buried other sites. According to Wolfe and Morris (2001), this 1950 flow originated from Mauna Loa and contains both a'a and pahoehoe lavas, although the portion of the flow within the project area is comprised exclusively of a'a lava.

Field Methods

The project area was subjected a 100% surface examination with surveyors spaced at 10 m intervals. Transects were oriented in an inland-seaward direction, and extended between the central access road and the Mamalahoa Highway, and between the access road and the shoreline. Ground surface visibility was good to excellent throughout the parcel because of the relatively dense canopy of trees in the inland portion and the rocky, lava covered terrain in the seaward portion. The identified features were flagged with pink and blue flagging tape and their locations plotted on a scaled project area map with the aid of Garmin Global Positioning System (GPS) III+. The accuracy of the GPS device for a single point is +/- 15 m. This accuracy is increased to less than c. 3-5 meters by taking multiple points including property corners and overlying the plotted points on a scaled map using AutoCAD software.

All sites and features within the parcels were subjected to detailed recording consisting of the preparation of scaled plan maps, the completion of standardized site/feature forms, and photographic documentation. A metal site tag was placed at each site and the tag's location was plotted on the site plan map.

Subsurface testing consisted of the excavation of eight units at seven features of four sites. The tested features consist of three permanent habitation platforms, two permanent habitation terraces, a temporary habitation modified knoll and a burial platform (Site 24150, Feature A). The test units were dug in arbitrary levels within stratigraphic layers and were terminated on either bedrock or on the identification of human remains. Standardized excavation records were prepared after the completion of each stratigraphic layer. The soil removed during the excavations was screened through ¼" mesh. Portable remains collected were placed in paper bags labeled with the appropriate provenience information. Recovered charcoal samples were carefully removed from either *in situ* locations or collected during the screening process. These samples were deposited in aluminum foil pouches and placed in properly labeled paper bags. Following the excavation of the test units, a section drawing depicting the stratigraphy was prepared, post-excavation photographs were taken, and the units were backfilled. Recovered cultural remains were transported to Haun & Associates laboratory for analysis.

One excavation within a platform (Site 24150, Feature A) yielded human remains. The excavation was terminated on identification of these remains. A profile drawing depicting the location of the remains was prepared then the structure was carefully reconstructed.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Historical Documentary Research

There are two groups of *ahupua‘a* named Pahoehoe in South Kona: a northern group labeled Pahoehoe 1-4 on the current USGS Quadrangle map; and a southern group labeled Pahoehoe 1, where the project area is located, and Pahoehoe 2, bounded by Ka‘ohe to the south (*Figure 2*). One 1800s map (*Figure 3*) shows a Pahoehoe 3 in the southern group. According to Maly (2000) the South Kona lands of Pahoehoe and Ka‘ohe are part of a traditional sub-district level land division known as “Ka-pali-lua”, which he translates as “the two cliffs” (2000:1). Kepa Maly translated portions of *Ka 'ao Ho’oniua Pu’uwai No Ka-Miki* (The Heart Stirring Story of *Ka-Miki)* a legendary account of two supernatural brothers, *Ka-Miki* and *Maka –’iole*, who traveled around the island of Hawai'i. The account was published in serial form between 1914 and 1917 in a Hawaiian newspaper, *Ka Hoku o Hawai’i*. According to Maly, the account was recorded by Hawaiian historians John Wise and J.W.I. Kihe. Pertinent excerpts from Maly’s translation follow:

> … The lands of Pahoehoe were named for Pahoehoe-nui-a-Lonohea. Pahoehoe was married to the Chiefess Honokua, and their daughters were Kalahiki and Waiea…Other lands in the region which bear the name Pahoehoe were named for Pahoehoe-wahine-iki-a-lani (who is also known as Pahoehoe-ku‘ai-moku and Ka-huli-a-Pahoehoe), the sister of Pahoehoe-nui-a-Lonohea. The various lands upon which the chief, his family and retainers lived are named for them. Haukalua-nui and Haukalua-iki (father and son) were *konohiki* (overseers of the land). Hale‘ili was a priest of the Lono class. Maunaoui was the *kukini* (runner and messenger) of the chief. Ala‘e was the *kaulana pa‘a* (champion warrior who secured, or maintained peace upon the land) for the Chief Pahoehoe, and he was also the husband of the Chiefess Pahoehoe-wahine-iki-a-lani.
>
> In the uplands between Haukalua to Ka‘ohe is a large plantation in which the *kalo* (taro) and *‘awa* (Piper methysticum) were planted. The plantation bore the names Ka-huli-a-Pahoehoe and Pahoehoe-ku‘ai-moku, so named for the chiefess. This plantation was sacred to the family of Pahoehoe, and the natives of Ka-pali-lua could point these sites out to you, to this day (Maly 2000:6).

Traditional historical references to Kapalilua are given in Kamakau (1961) and I‘i (1959). During a 1784 struggle between Keawe‘opala and Ka-lani-‘opu‘u for control of Hawaii Island:

> A canoe arrived from Kekaha and brought word to Ke‘e-au-moku that Ka-lani-‘opu‘u was at Kapalilua [in South Kona] and was coming to make war against Keawe‘opala. Ke‘e-au-moku therefore made up his mind to join forces with Ka-lani-‘opu‘u, and at Honomalino in Kapalilua Ke‘e-au-moku came to offer his support to Ka-lani-‘opu‘u. When Keawe‘opala heard that Ke‘e-au-moku had thus given his support to Ka-lani-‘opu‘u, he made his forces ready with Ka-moho-‘ula as their leader, a famous fighter and skillful in maneuvering a battle. He sent his forces to South Kona by the east side of Hualalai, on the slope of Pae, and thence to Kaupehu. Between Ke‘ei and Honaunau lay the battlefield ((Kamakau 1961:78).

According to Kamakau, the lands of Kapalilua were given to a displaced Maui chief, Keawe-a-heulu, for his assistance to Ka-lani-‘opu‘u during battles with Ka-hekili between 1777 and 1779 (1961:310). During this period, “…Ka-lani-‘opu‘u returned to Hawaii to see Captian Cook, called Lono, all the chiefs returned with him to Hawaii, and Ke‘e-au-moku also left Hana to live at Honokua in Kapalilua, and later moved westward with his wife and children to Honomalino and Miloli‘i” (1961:385).

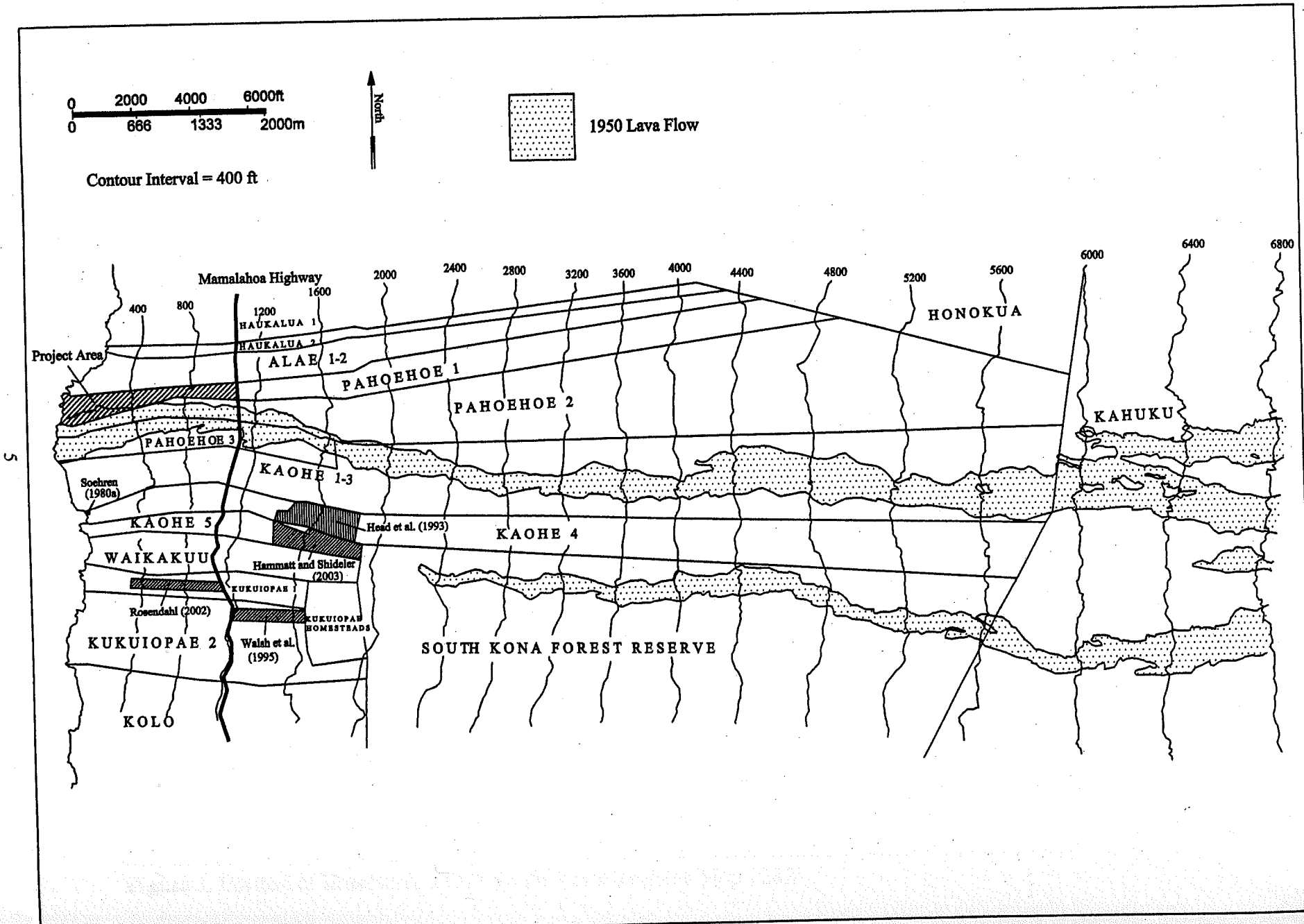


Figure 2. Ahupua`a Boundaries and Previous Archaeological Work

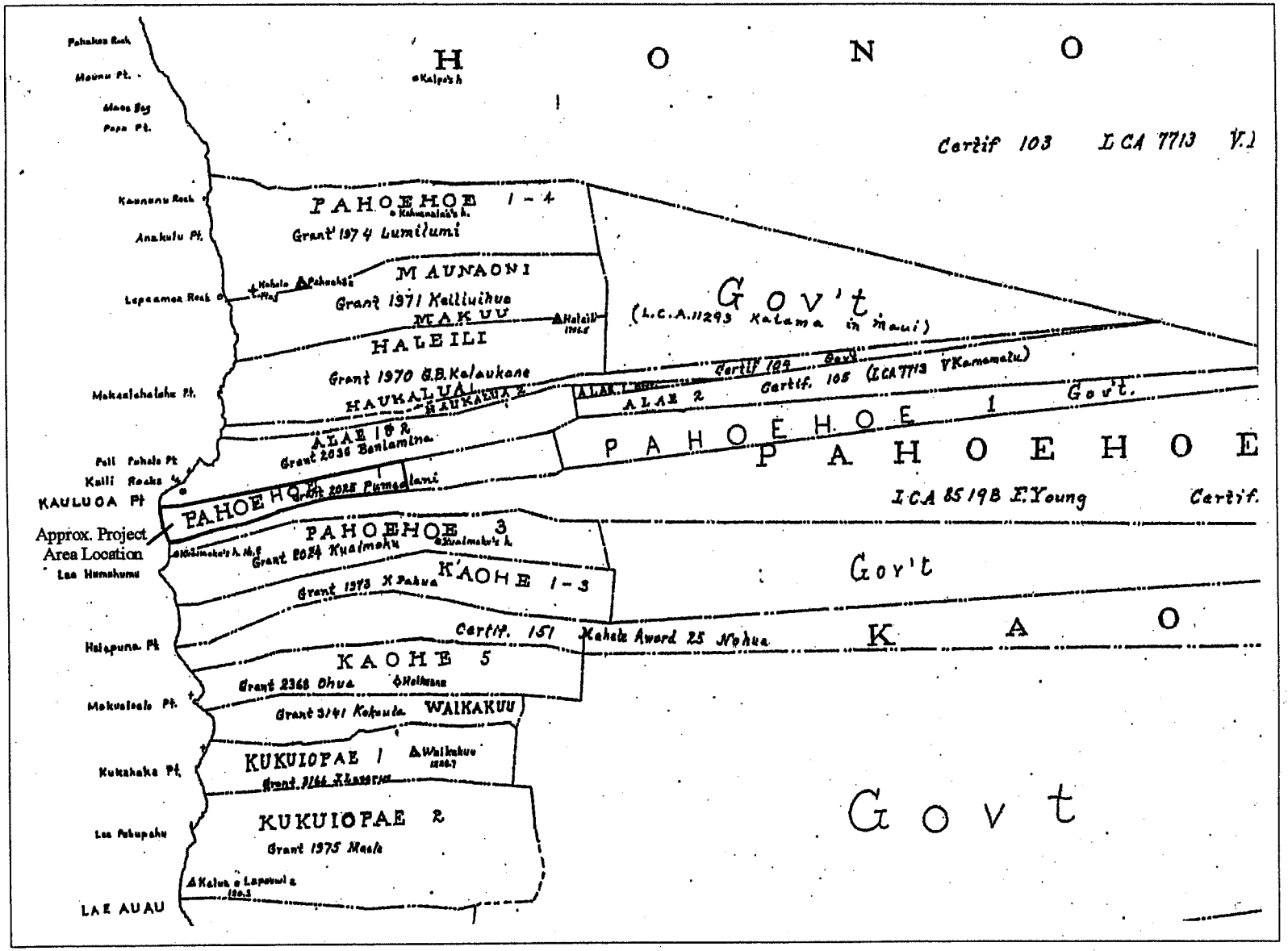


Figure 3. Portion of Emerson's 1880s South Kona Register Map 1282

In 1782, Kau chiefs bearing the corpse of Ka-lani-ʻopuʻu changed their plans to bury him in Kailua when they reached Kapalilua and learned that Kamehameha had arrived at Keʻei (Iʻi 1959:13). Iʻi traveled to Kau in 1843 to solve a dispute between Catholics and Protestants on behalf of the government. He was assisted by residents of Kapalilua on his trip from Kahuku to Kainaliu (1959:169). In 1853, Iʻi, traveling with Chiefess Victoria Kamamalu stopped at Papa in Kapalilua where they learned of the outbreak of a small pox epidemic "about 10 ahupuaʻa away from Papa" (Iʻi 1959:171).

During the Mahele, Fanny Young was awarded the entire *ahupuaʻa* of Pahoehoe 2 under Land Commission Award (LCA) 8519B. The Waihona ʼAina Mahele Database (Waihona ʼAina Corp. 2000); which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); lists 33 LCA claims in Pahoehoe, but all appear to have been for the northern Pahoehoe lands based on current tax maps.

Emerson's 1880s map of South Kona (see *Figure 3*) shows the seaward portion of Pahoehoe 1 as Grant 2025 to Pumealani. It also shows a Pahoehoe 3 as Grant 1573 to Kuaimoku. Two houses for Kuaimoku are shown; one at the coast and one inland. According to Maly (2000), these are Royal Patent Grants issued between 18555 and 1856. Maly cites a reference from George Bowser's 1880 directory and tourist guide stating that Kuaimoku "provided accommodations for travelers and their horses" (2000:10).

Wright's 1909 map of South Kona (*Figure 4*) shows the main road following the route of today's Mamalahoa Highway. Several houses are present along the road and "Kaohe Village" is situated near the boundary of Kaʻohe 1 and 2. The map shows a road or trail along the coast and one that extends from the coast to the main road through Pahoehoe lands. The map also shows the seaward limit of the upland forest of scattered large *oʻhia* at approximately 1,800 feet elevation.

The 1923 USGS Quadrangle map (*Figure 5*) shows the same inland-seaward road or trail shown on Wright's map. It shows a branch trail extending north along the crest of the cliffs (*pali*) to Haleili where it turns east to meet the main inland road.

Handy and Handy describe traditional agriculture in South Kona based on historic documentary research and informant interviews in the 1920s to 1940s as follows:

> …South Kona was planted in zones determined by rainfall and moisture. Near the dry seacoast potatoes were grown in quantity, and coconuts where sand or soil among the lava near the shore favored their growth. Up to 1,000 feet grew small bananas which rarely fruited, and poor cane; from 1,000 to 3,000 feet, they prospered increasingly. From approximately 1,000 to 2,000 feet, breadfruit flourished.
>
> Taro was planted dry from an altitude of 1,000 to approximately 3,000 feet. An old method of planting taro in Kona, described as Lakalo at Hoʻokena, was to plant the cuttings in the lower, warmer zone where they would start to grow quickly and then transplant them to the higher forest zone where the soil was rich and deep and where moisture was ample for their second period of growth, in which their corms are said to have developed to an average of 25 pounds each.
>
> At an altitude of about 2,300 feet in Kealia there was in 1931 an old-style upland taro plantation corresponding exactly to descriptions by the early voyagers, with the flourishing taro planted in twos and threes in holes in even lines, spaced about 4 feet apart, the surface covered with a mulch of dries amaʻu fern. The borders of the patches were marked by zones of rock thrown up through the field, on top of and along the sides of which were clumps of native sugar cane. Hawaiian bananas where planted here and there between the taro fields (1972:524-525).

Historical documentary research and informant interviews by Walsh et al. (1995) for Kukuiopae and Hammatt and Shideler (2003) for Kaʻohe 5 provide details concerning the later history of lands in the vicinity of the project area. Coffee farming expanded in the 1890s. Some of the growers were Chinese.

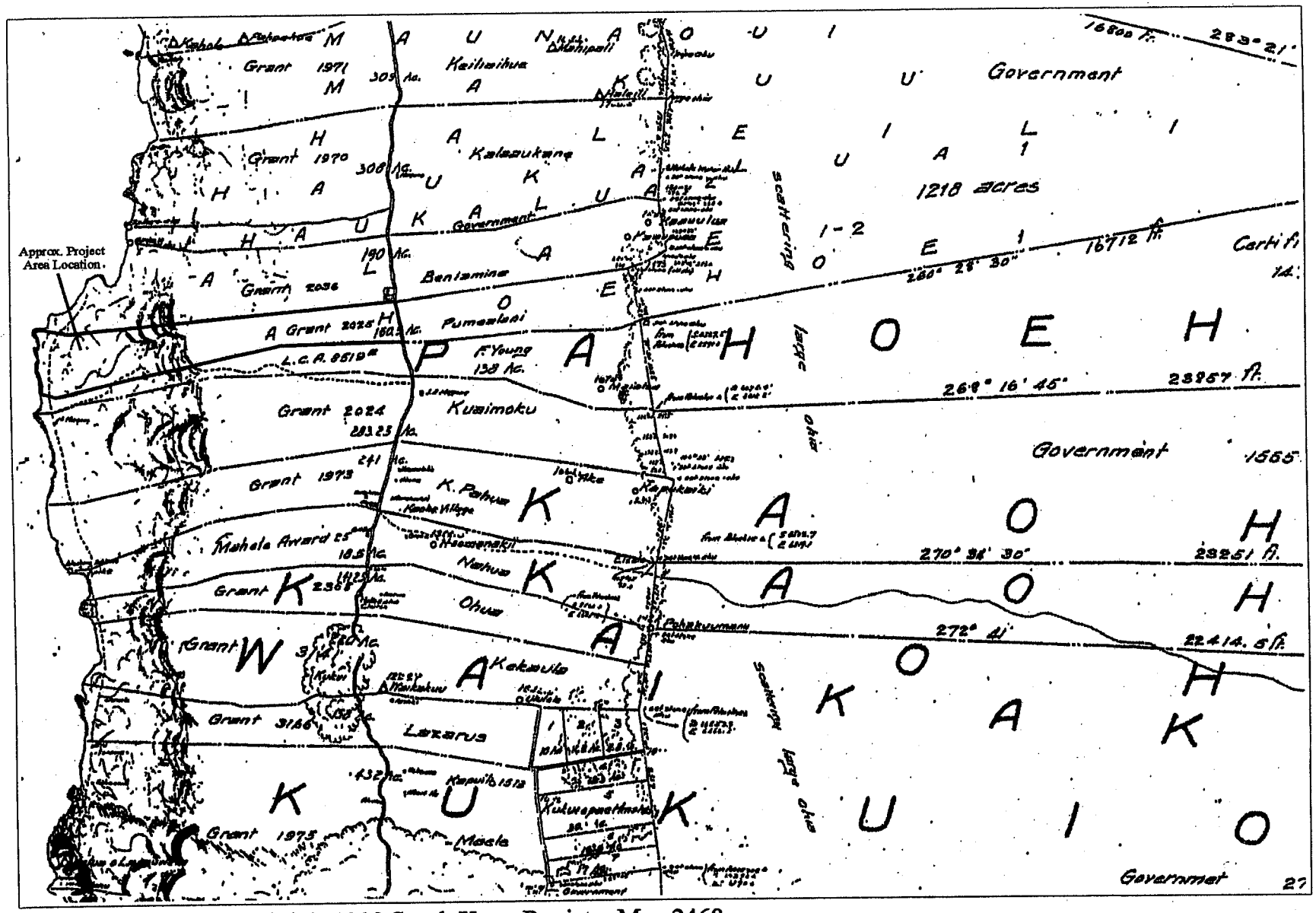


Figure 4. Portion of Wright's 1909 South Kona Register Map 2468

Figure 5. Portion of 1923 USGS Quadrangle Map

Charcoal was produced in ovens built by the Chinese and Korean immigrants who arrived in the late 1800s. Ranching and coffee cultivation were the primary commercial activities during most of the 1900s. Subsistence farming, fishing, and pig hunting helped sustain local residents. In June of 1950, Mauna Loa erupted and one of the flows covered the southern side of the project area. According to Mr. Clarence Medeiros the project area was owned by the Magoon family since the early 1900s. Mr. Medeiros's granduncle, Mr. Fred Iona, worked for the families' cattle ranching operation that included the project area.

Previous Archaeological Research

Five archaeological survey projects have been conducted in the vicinity of the project area; although none have covered Pahoehoe lands. *Figure 5* shows the locations of the projects. Not included in the figure is a survey by Reinecke (n.d.). Reineke surveyed the coastal portion of Pahoehoe in 1929-30. Site numbers on the map in the copy of his manuscript reviewed for this report are not legible and his site descriptions do not consistently name the *ahupua'a* where the sites were located. He estimated that there were "30-40 sites…not counting graves" in the coastal portions of Haleili, Haukalua, and Alae immediately north of Pahoehoe (n.d.: 166). He referred to the land immediately north of Kaohe 1 as Keaunou. He described Site 46 as follows:

> Even the section of a-a at the north side of Keaunou…is more thickly strewn with remains than the half-mile of coast of Kaohe 1, 2, and 3. The ruins are continuous and usually contiguous—house platforms, bits of wall, house walls, pigpens, smoothed yard areas, little receptacle-pits, apparently graves built over old habitations. I counted 51 sites which I took to be house sites, at least two-thirds of them unmistakably so; which will give an idea of the nature of the section. A path with a stone border runs from the house and grove at Pahoehoe to the hamlet at Kaohe (Reinecke n.d.: 167)

In the intervening area, which presumably included Pahoehoe, Soehren recorded six sites with more than 10 house platforms, a burial platform, cultivation pits, and two pens. None of the sites he described could be convincingly correlated with any of the sites identified during the current project.

Soehren (1980) conducted a reconnaissance survey of a 10 ac area situated between 10 and 30 ft elevation in Kaohe 4 where he identified two historic burial platforms. Head et al. (1993) conducted an inventory survey of a 56 acre parcel in Kaohe 3-5 situated between 1,400 and 1,850 ft elevation. The survey identified nine sites with 42 features. The majority of the features (27) were interpreted to be agricultural in function and included retaining walls, mounds, depressions, modified outcrops, and walls. Eight temporary habitation features consisted of C-shape walls, enclosures, and a platform. A trail segment was also identified. Four radiocarbon dating samples were processed. Two produced a single age range extending from the 1600s to 1950s. The other two samples produced multiple age ranges between the 15-1600s and mid-1900s.

Walsh et al. (1995) conducted a survey of a 30 ac parcel situated between 1,240 and 1,640 ft elevation in Kukuiopae 2. The survey identified 38 features at 15 sites. Most of the features (31) are historic in age and include charcoal ovens, a cemetery, a house site, an artifact scatter, agricultural features, and animal pens. Traditional Hawaiian remains were limited to six agricultural features at four sites.

Rosendahl (2000) conducted an assessment of 22 tax map parcels totaling 978 acres of land owned by the Magoon Estate inland of the Mamalahoa Highway, and an assessment of nine estate-owned parcels totaling 1,022 acres situated seaward of the highway (Rosendahl 2003). The parcels spanned the area bounded by Pahoehoe 1-4 to the north and Kaohe 5 to the south. The reports apparently were not submitted to DLNR-SHPD because the reports are not listed in the Division's data base; however, the reports are summarized in Rosendahl (2000). The inland assessment identified traditional dryland agricultural features and temporary habitations in undisturbed areas between 1,380 ft and 1,890 ft elevation. In the seaward parcels traditional Hawaiian habitation, marine exploitation, and agricultural sites were concentrated along the shoreline. Above the cliff line inland of the coastal strip site density was low and sites primarily consisted of agricultural features.

Hammatt and Shideler (2003) conducted an inventory survey of 30 acre parcel situated between 1,400 ft and 1,680 ft elevation in Kaohe 5. The survey documented 9 sites with 33 features. Traditional Hawaiian features included two temporary habitations, a possible burial mound, and agricultural features including terraces, mounds, modified outcrops, modified depressions, and enclosures. Historic features associated with ranching and cultivation also were identified.

PROJECT EXPECTATIONS

Based on previous archaeological research and historical documentary evidence, prehistoric use of the project area is probably evidenced by a concentration of sites along the coast including permanent habitations (terraces, enclosures, platforms), burials (platforms and caves), ritual sites (*heiau* and shrines), agricultural features, and sites associated with marine exploitation. These sites probably date to as early as the A.D. 1500s. Inland, sites are probably limited to scattered agricultural features, trails, and temporary habitation sites (walled enclosures and caves) up to approximately 1,000 ft elevation. Between 1,000 ft and 3,000 ft elevation more intensive evidence of agricultural activity and permanent habitations are expected. Agricultural activity included *ʻawa* and taro plantations and tree crops including bananas and breadfruit. This inland settlement zone was occupied into historic times.

Sites dating to the mid- to late 1800s would include the agricultural and habitation sites. Differences in agricultural sites from the previous periods may be evident as a result of a shift to a market-based economy, which presumably would favor cultivated fields as opposed to small garden plots. Walls designed to control cattle and trails or roads for horse and wagon traffic also may be present.

By the beginning of the 1900s, traditional agricultural and habitation sites should be rare. Potential sites include charcoal ovens, agricultural features associated with commercial coffee production and transportation infrastructure. A coastal road extended through the project area in 1909. Ranching activity, which continued until at least the mid-1900s would be evidenced by walls, corrals, and clearing piles of stone associated with pasture improvement.

FINDINGS

The inventory survey identified 23 sites with 67 features (*Figure 6*). The sites are comprised of 11 single feature sites and 12 complexes of features. The features consist of 13 enclosures, 11 mounds, ten terraces, seven platforms, five modified outcrops, five walls, five pavements, three modified knolls, two *kua'iwi*, two roads, two concrete boxes, a wooden pump house, and a water tank. Functionally, the features consist of permanent habitation (n=37), agriculture (n=11), ceremonial (n=6), water source (n=5), livestock control (n=2), transportation (n=2), burial (n=2), and temporary habitation (n=2). The sites are summarized in *Table 1* and are described below.

Subsurface testing consisted of the excavation of eight units at seven features of four sites. The tested features consist of three permanent habitation platforms (Site 24150, Features D, H and J), two permanent habitation terraces (24138, Feature A and 24139, Feature A), a temporary habitation modified knoll (Site 24135) and a burial platform (Site 24150, Feature A). The results of these excavations are incorporated into the following site descriptions.

In the following site descriptions permanent habitation features are defined as the primary dwelling structures at a permanent habitation site. Permanent habitation features were defined based on a criteria developed by Cordy (1981:66-82). In his model, Cordy presents the following attributes for permanent habitation structures: (a) external area greater than 16.0 to 19.0 sq m; (b) substantial construction (i.e. faced walls, paving); (c) presence of special purpose structures (small structures for work and storage); and (d) location (permanent housing clustered primarily along the shoreline or at the mouth of and on the sides of valleys). Other attributes used in this study as evidence of substantial construction include architectural features such as constructed doorways and steps and internal subdivision into rooms.

Special purpose structures, which are smaller in area than Cordy's permanent habitation size criteria, consist of structures present at permanent habitation sites, but which do not comprise the basic dwelling structure. Their specific functions cannot usually be determined at the inventory level of investigation. These structures may represent sleeping structures, cookhouses or storage areas. Special purpose structures are typically smaller and less formally constructed than permanent habitation features.

For this study other features, which would not have supported roof structures, are classified as permanent habitation ancillary features. These features consist of pavements and mounds, and often functioned as site furniture such as tables, benches or drying racks. Large enclosures surrounding permanent habitations sites are also termed ancillary features, functioning to define the limits of enclosed yards.

As defined by Cordy (1981), temporary habitations are (a) less than 16 sq m in external area, (b) insubstantial constructions, (c) contain numerous features of internal stratification (multiple firepits), and (d) have few or no associated structures. These habitations are characterized by occupations of short-term or recurrent duration.

Site 24134

Site 24134 is a complex of nine agricultural features located in the inland portion of the project area, 35.0 m east of the access road at c. 450 elevation. The site is situated on a moderately steep slope that angles down to the west, in an area of exposed bedrock outcrops and soil and encompasses an area 53.0 m long (west-northwest by east-southeast) and 19.0 m wide. The features consist of seven mounds (Features A-E and H and I), one modified outcrop (Feature G) and a *kua'iwi* (Feature F; *Figure 7*). The Site 24134 features are built of piled cobbles and small boulders with uneven surfaces and no cultural remains. These features are interpreted as agricultural feature based on their formal type, informal construction and the absence of cultural debris. The features are unaltered and in good condition.

The seven mounds are generally oval in shape and vary in length from 1.7 to 5.85 m, in width from 0.8 to 3.5 m and in height from 0.2 to 1.1 m. An example of a Site 24134 mound is presented in *Figure 8.* The Feature F *kua'iwi* is a linear pile of cobbles and small boulders that is 25.3 m long (east-

Table 1. Summary of Identified Sites

Site	Type	Function	No. of Features	Formal Type													Function								H&A Temp. Field No.
				Enclosure	Mound	Terrace	Platform	Modified Outcrop	Wall	Pavement	Modified knoll	Kua`iwi	Road	Concrete Box	Pump House	Water Tank	Permanent Habitation	Agriculture	Ceremonial	Water Source	Livestock Control	Transportation	Burial	Temporary Habitation	
24134	Complex	Agriculture	9		7			1				1						9							T-1
24135	Modified Knoll	Temporary Habitation	1								1													1	T-2
24136	Road	Transportation	1										1									1			T-3, T-12, T-13
24137	Kua`iwi	Agriculture	1									1						1							T-6
24138	Complex	Permanent Habitation	3	1		1					1						3								T-5, T-7
24139	Complex	Permanent Habitation	2			2											2								T-8
24140	Enclosure	Temporary Habitation	1	1																				1	T-11
24141	Modified Outcrop	Agriculture	1					1										1							T-14
24142	Wall	Livestock Control	1						1												1				T-16
24143	Terrace	Permanent Habitation	1			1											1								T-17
24144	Terrace	Ceremonial	1			1													1						T-18
24145	Complex	Water Source	3						1						1	1				3					T-19
24146	Road	Transportation	1										1									1			T-21
24147	Complex	Permanent Habitation/ Livestock Control	3	1					1	1							2				1				T-20
24148	Complex	Permanent Habitation	7	4	1			1	1								7								T-22
24149	Complex	Permanent Habitation	4	3					1								4								T-23, T-31
24150	Complex	Permanent Habitation/ Burial	11	1		4	5				1						9							2	T-24, T-25, T-33, T-34
24151	Complex	Permanent Habitation	6	1	3			1		1							6								T-26
24152	Pavement	Permanent Habitation	1							1							1								T-27
24153	Platform	Ceremonial	1				1												1						T-28
24154	Complex	Permanent Habitation	2	1				1									2								T-29
24155	Complex	Ceremonial	4			1	1			2									4						T-30
24156	Complex	Water Source	2											2						2					T-36
Total			67	13	11	10	7	5	5	5	3	2	2	2	1	1	37	11	6	5	2	2	2	2	

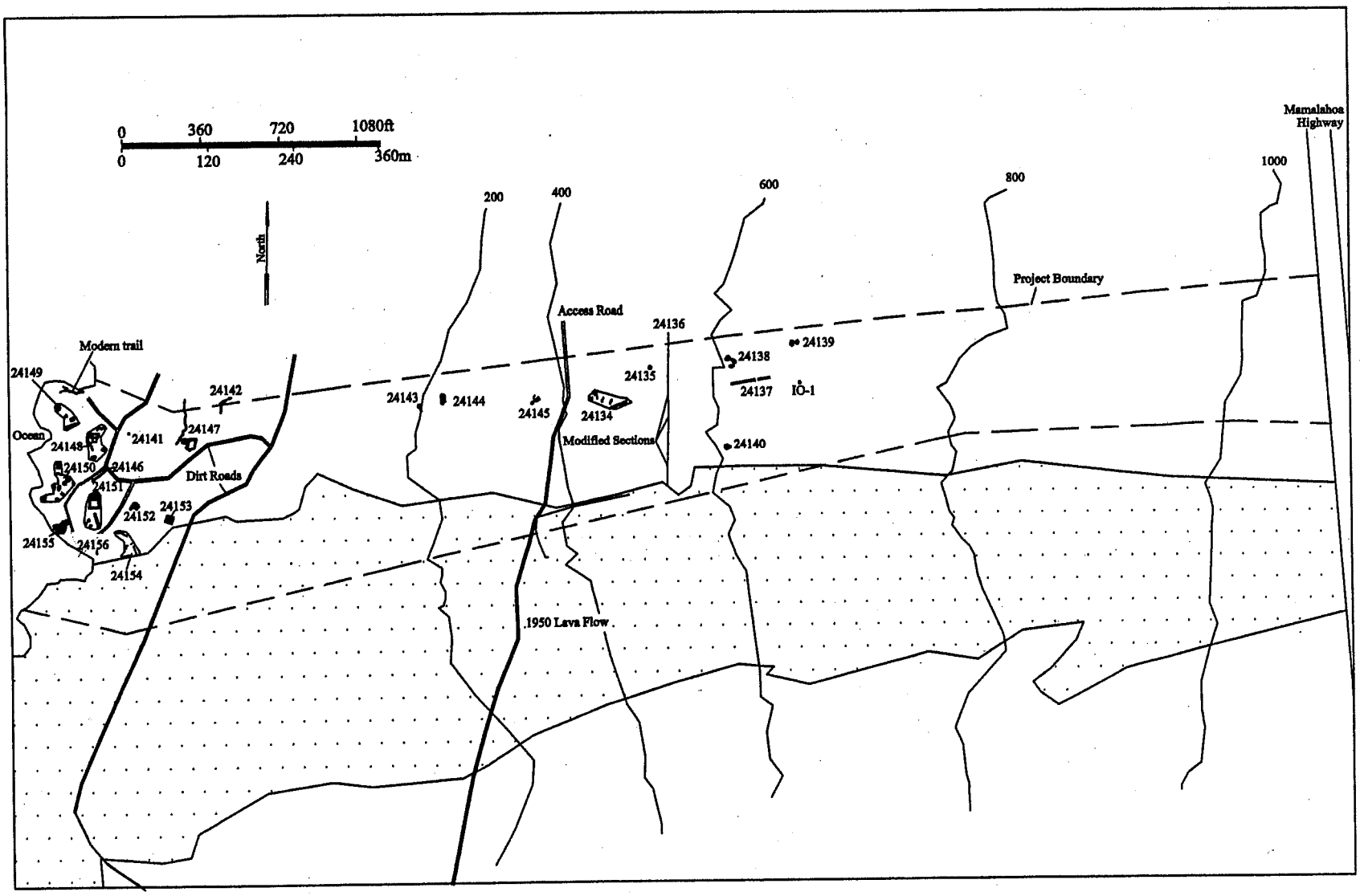


Figure 6. Site Location Map

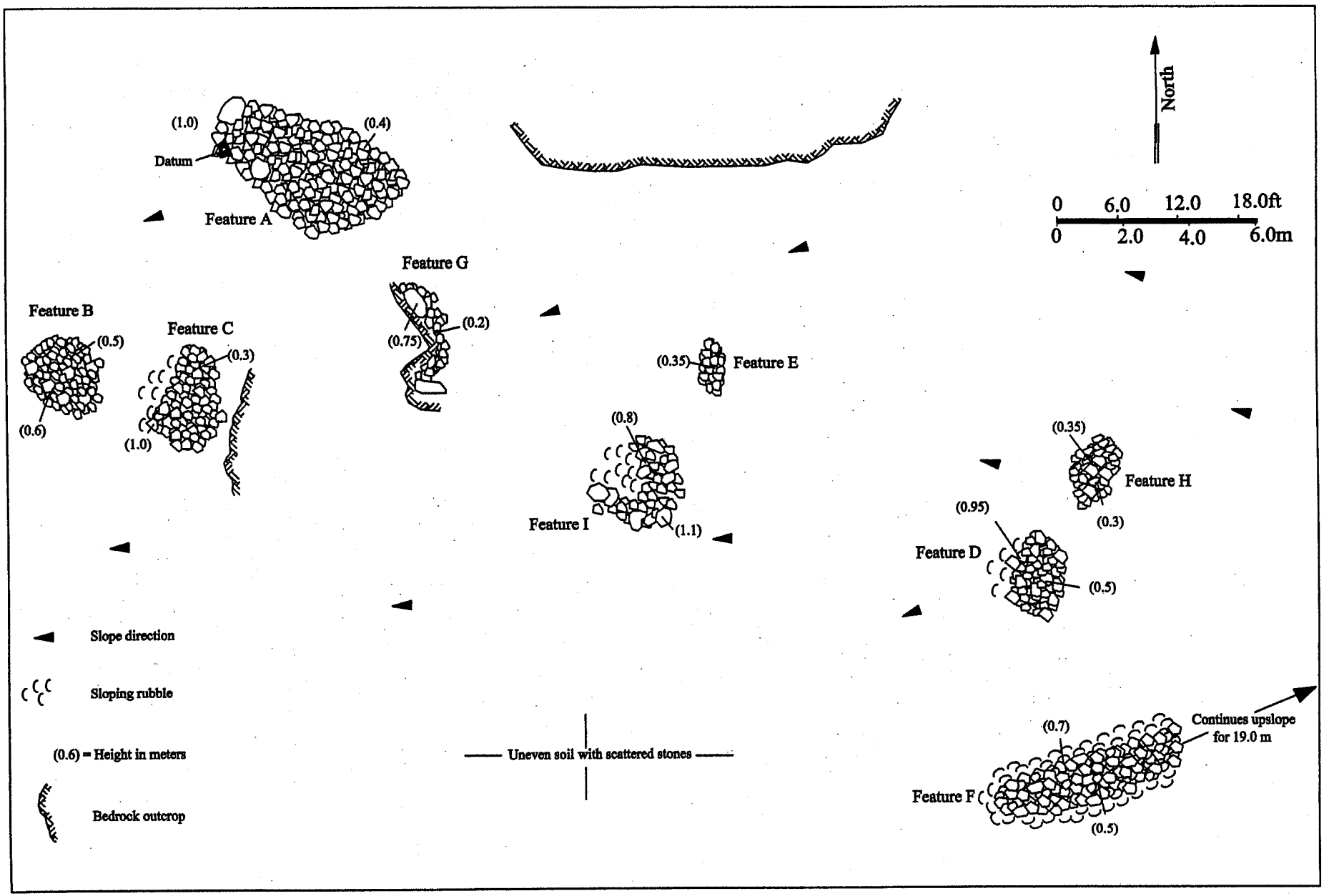


Figure 7. Site 24134 Plan Map

Figure 8. Site 24134, Feature D Mound, view to northeast

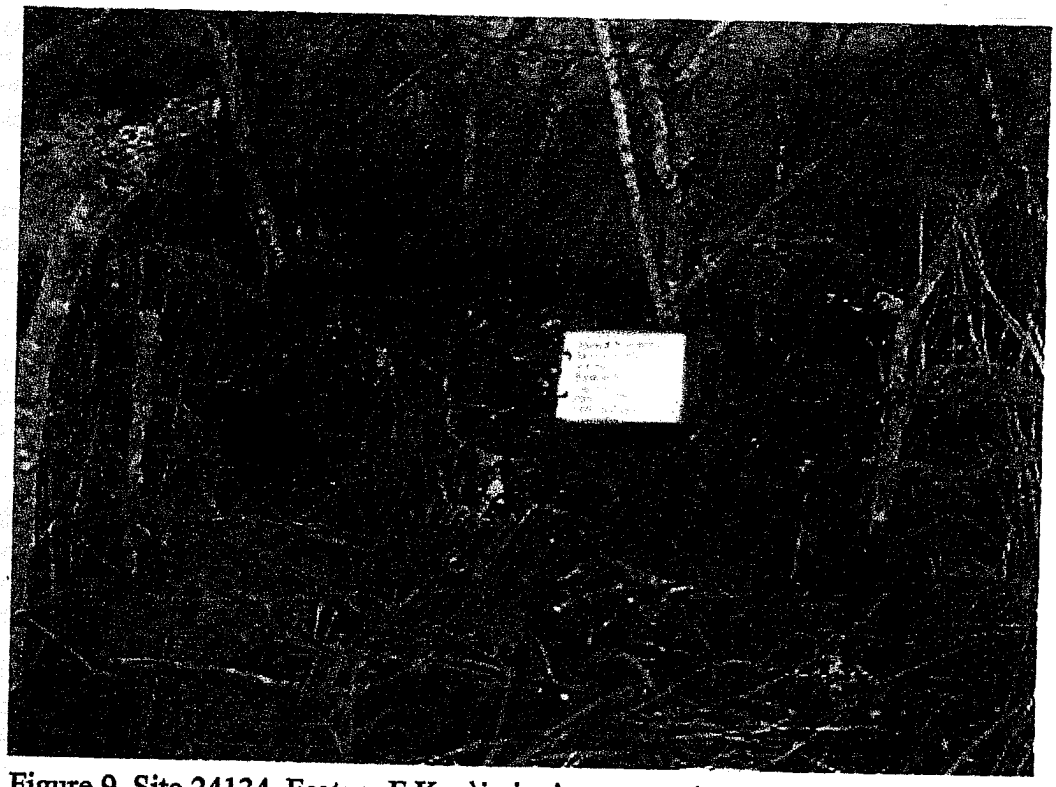


Figure 9. Site 24134, Feature F Kua`iwi, view to northeast

northeast by west-southwest), 1.5 to 2.5 m wide and 0.5 to 0.7 m in height (*Figure 9*). The Feature G modified outcrop is irregularly-shaped and is 3.45 m long (north-south), 0.5 to 1.25 m wide and 0.2 to 0.75 m in height.

Site 24135

Site 24135 is a modified knoll located 80.0 m east-northeast of Site 24134 at c. 510 ft elevation. The knoll is 8.6 m long (northeast by southwest) and 5.7 m wide, on the side of a slope angling down to the west-southwest (*Figure 10*). The north and northwest sides of the knoll are bordered by a pahoehoe outcrop, with the east, west and south sides comprised of sloping soil. The southwest and south sides of the knoll contain a piled cobble and small boulder wall that is 0.3 to 1.2 m wide and 0.2 to 0.95 m in height. The surface is comprised of a level soil deposit with scattered cobbles and boulders. No cultural remains were observed on the surface of the knoll, though two marine shells were noted on the ground surface below the knoll to the south.

Two 0.5 by 0.5 m test units (TUs 3 and 4) were excavated into the soil surface of the knoll. Both units evidenced identical soil stratigraphy, consisting of 0.1 to 0.25 m of a very dark grayish brown (10YR 3/2) silt with 10% gravel inclusions (Layer I; see *Figure 10*). Cultural remains were recovered from each unit. Remains from TU-3 consisted of a *Cypraea sp.* shell fragment (0.6 grams) and two fragments of *kukui* nut shell (1.1 grams). Remains from TU-4 consisted of three *kukui* nut shell fragments (1.3 grams) and a *Thaidadae sp.* shell fragment (0.5 grams). The excavation of the units was terminated on bedrock.

Site 24135 is interpreted as a temporary habitation site. Although much larger in area (49.0 sq m) than temporary habitations as defined by Cordy (1981) the feature's formal type, sparse midden, and insubstantial construction suggest that it was only used on a short-term basis. The site is unaltered and in good condition.

Site 24136

Site 24136 consists of the remnants of an historic road that extends through the project area in a north-south direction, at c. 550 ft elevation. There are three modified sections of the road present within the project area, with the intervening areas consisting of level soil that have been cleared of surface stones. Discontinuous alignments of cobbles and small boulders were noted along each side of the road in the intervening areas. The extent of the road is depicted in *Figure 6*.

The northern modified section consists of a linear terrace with a partially collapsed stacked and faced cobble and small boulder retaining wall along the western, downslope side (*Figure 11*). The retaining wall ranges in height from 0.6 to 1.25 m. The area above the retaining wall is comprised of level soil. This section of the road is 15.0 m long (north-south) with the level soil area ranging in width from 2.5 to 4.0 m.

The central modified section is located 19.0 m south of the northern section. This portion of the road is also comprised of a linear terrace that is 11.5 m long (north-south), with a stacked and faced cobble and small boulder retaining wall along the western side. This wall is 0.35 to 2.0 m in height. A level soil area is present above the wall, ranging in width from 2.5 to 3.5 m.

The southern modified section is comprised of a ramp-like structure with a paved cobble surface, located 71.0 m south of the central section. This section is 19.0 m long (north-south) and extends down a moderate slope to the south, terminating at the edge of the 1950 lava flow. It is probable that it once extended to the south out of the project area. This ramp-like structure is 3.2 to 4.0 m wide, with stacked and faced sides that range in height from 0.4 to 1.1 m (*Figure 12*).

Site 24136 is interpreted as an historic road based on its formal type and appearance. This road is not depicted on historic maps of the area, although it is similar in construction to two north-south oriented roads (SIHP Sites 10290 and 17189) documented in South Kona, north of the current project area (Soehren 1981, Walker and Rosendahl 1990a and 1990b, Walker et al. 1991, Hammatt et al. 1995 and Haun and Henry 2003). These two roads date to the period of government road building between the 1830s and 1850s

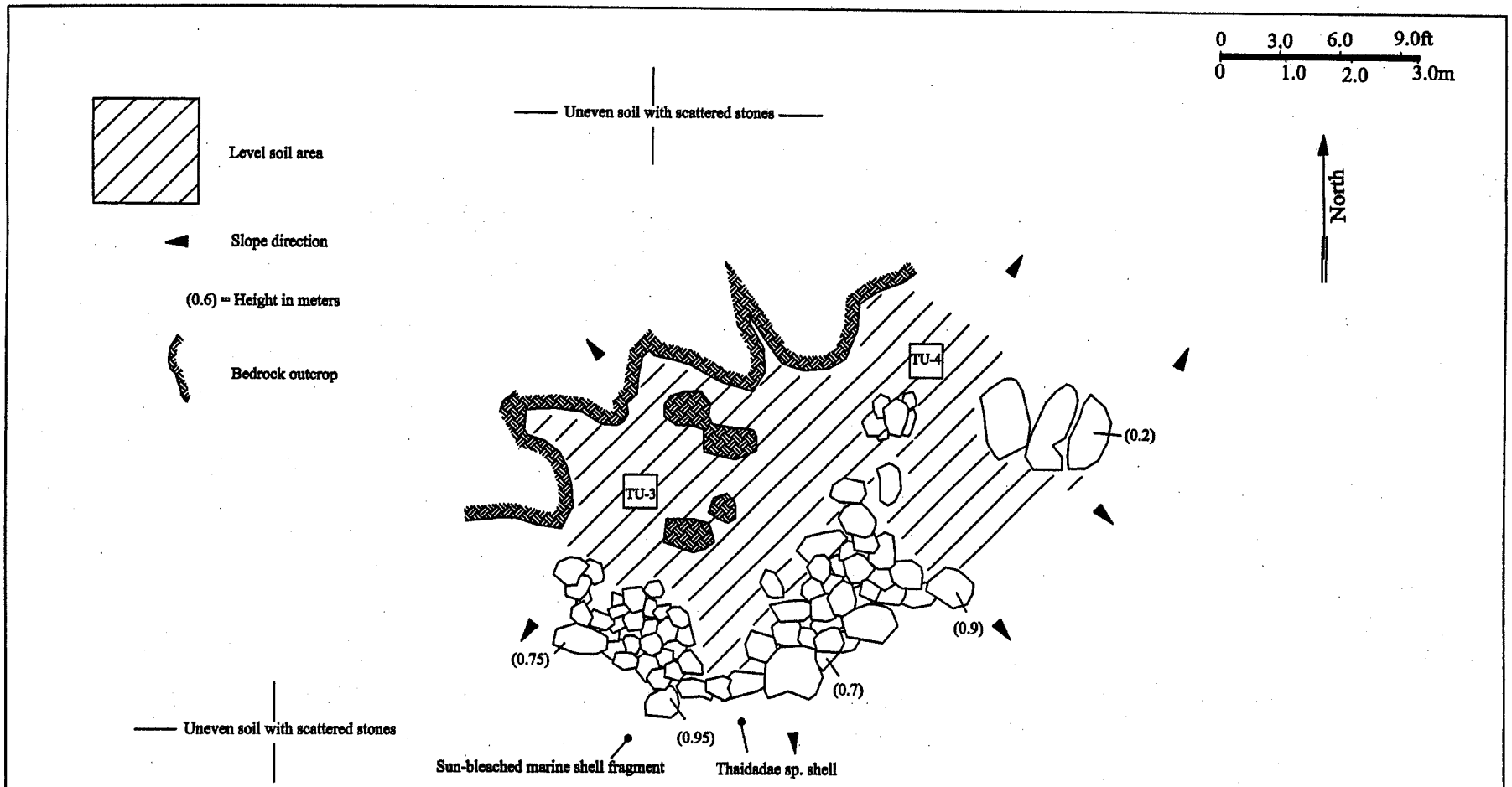


Figure 10. Site 24135 Plan Map and TU-3 and TU-4 Profiles

Figure 11. Site 24136 Road showing Retaining Wall, view to east

Figure 12. Site 24136 Road showing Paved Surface, view to north

and it is probable that the Site 24136 road was constructed during the same period. The site is altered and in fair to good condition.

Site 24137

Site 24137 is a *kua'iwi* located in the inland portion of the project area, 88.0 m east of the Site 24136 road at c. 620 ft. elevation. The site is located within a broad soil covered drainage that is oriented in an east-west direction. The *kua'iwi* consists of a linear pile of cobbles and small boulders that is 56.0 m long (east-northeast by west southwest), 1.5 to 1.9 m wide and 0.55 to 0.9 m in height. There is a 6.0 m wide gap in the *kua'iwi* 17.0 m west of its inland end. A small waterworn basalt cobble was observed adjacent to the site at its eastern end. No other cultural remains were present. Site 24137 is interpreted as an agricultural field boundary based on its formal type and appearance, likely used to divide the drainage into agricultural plots. The site is unaltered and in fair condition.

Site 24138

Site 24138 is a complex of three permanent habitation features located on and adjacent to an east-west trending ridge, in the inland portion of the project area at c. 610 ft elevation. The features are comprised of a terrace (Feature A), an enclosure (Feature B) and a modified knoll (Feature C; *Figure 13*) situated in area 18.0 m long (north-south) and 16.0 m wide. The site is unaltered and in fair condition.

Feature A is a roughly rectangular-shaped terrace built between two pahoehoe outcrops. It is 7.5 m long (north-south) by 6.7 m wide, with a sloping cobble and small boulder retaining wall along its west and northwest side. This wall is 0.3 to 0.9 m in height. The north and south sides abut pahoehoe outcrops and the east side abuts the base of a slope that angles down to the north-northwest. The surface is comprised of a level soil deposit with no cultural remains observed.

A 0.5 by 0.5 m test unit (TU-5) was excavated into the surface of the terrace at its northern end. This excavation revealed a single soil deposit overlying bedrock (see *Figure 13*). Layer I consisted of 0.3 to 1.18 m of a very dark brown (10YR 2/2) fine silt with 40-50% gravel inclusions. No cultural remains were present.

Feature A is interpreted as a permanent habitation, ancillary feature which potentially functioned in conjunction with the adjacent Feature B enclosure (discussed below). The terrace may have served as an associated *lanai* based on its close proximity to Feature B.

Feature B is an oval-shaped enclosure situated 2.3 m east of Feature A. The enclosure is bordered by pahoehoe outcrops to the southwest and south, by a stacked wall to the east and north and by a piled cobble wall to the northwest. The feature is 7.3 m long (northwest by southeast) and 2.3 to 4.8 m wide. The bedrock outcrops bordering the feature range in height from 1.0 to 1.05 m. The stacked wall along the north and east sides is partially faced and is built of cobbles and small boulders, ranging in height from 1.2 to 1.3 m. The piled wall along the northwest side is 0.6 to 1.2 m wide and 0.5 m in height. The interior floor of the enclosure is comprised of a level soil deposit with scattered cobbles. No cultural remains were noted. Feature B is interpreted as the foundation for a permanent habitation structure. This is based on its formal type, substantial construction (faced side) and area (26.0 sq m).

Feature C is a modified knoll located at the south end of a narrow ridge, above Features A and B to the south. A partially collapsed stacked wall of cobbles and small boulders is located at the west end of the feature, measuring 0.6 to 1.0 m wide and 0.35 to 0.75 m in height. The area to the east of this wall is comprised of bare lava that has been cleared of surface stones. No cultural remains were noted. Feature C is interpreted as an ancillary feature associated with the permanent habitation of the site, based on its close proximity to the other features of the site. It potentially functioned as an associated work area.

Site 24139

Site 24139 is a complex of two permanent habitation features located 89.0 m east-northeast of Site 24138 within a broad shallow drainage at c. 650 ft elevation. The site is comprised of two terraces (Fea-

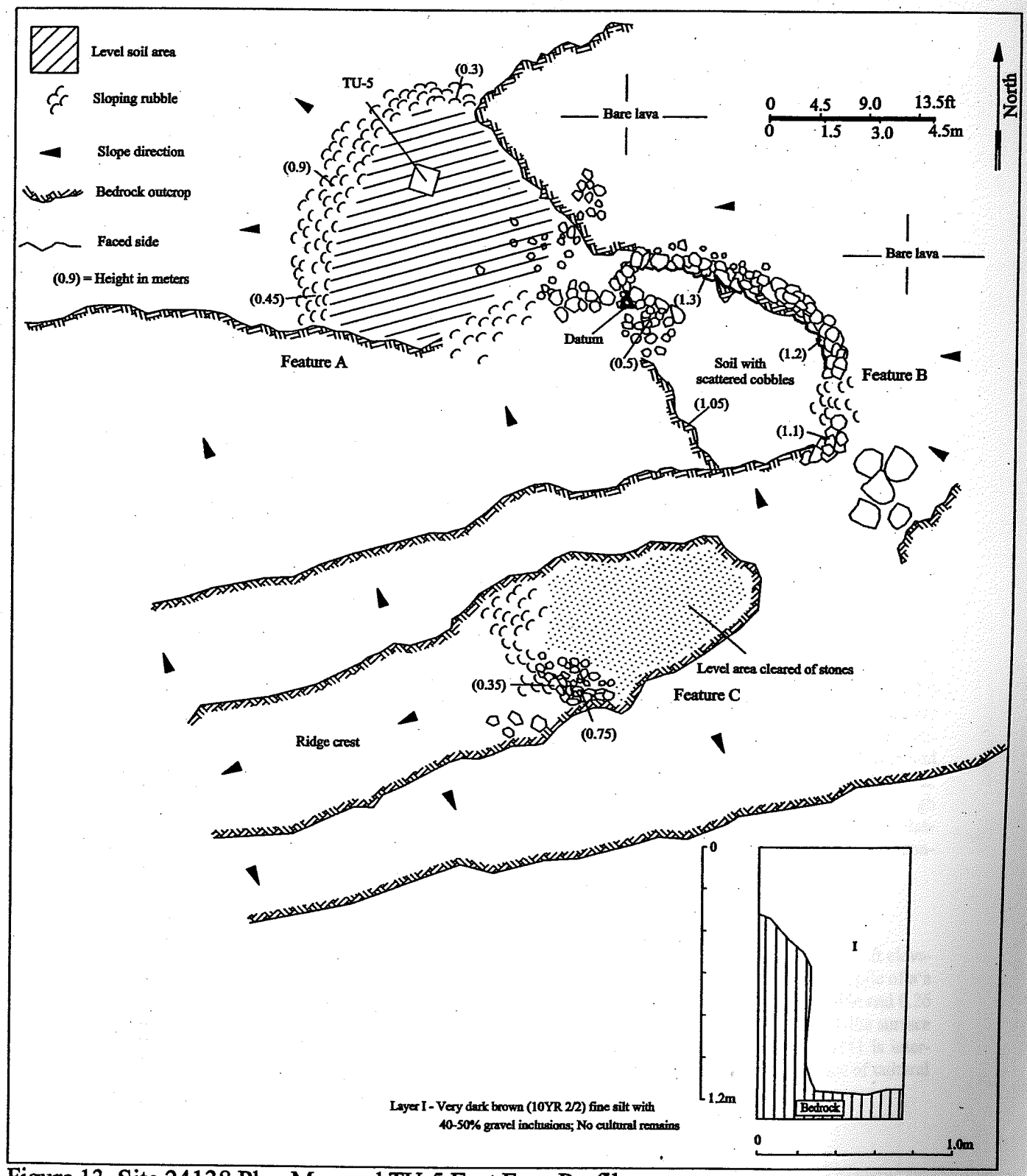


Figure 13. Site 24138 Plan Map and TU-5 East Face Profile

tures A and B; *Figure 14*) located in area 13.5 m long (east-west) by 9.0 m wide. The site is unaltered and in fair to good condition.

Feature A is a roughly rectangular-shaped terrace located at the eastern end of the site. It is 4.6 to 5.3 m long (northeast by southwest) and 4.4 m wide. A stacked cobble and small boulder retaining wall is present along the southwest side of the structure. The northwest end of this wall has collapsed outward, though the southeast end is intact and faced, averaging 1.1 m in height. The remaining sides of the terrace abut the surrounding terrain. The surface of the feature consists of a level soil deposit with no cultural remains observed. A oval-shaped depression is located in the approximate center of the feature, measuring 0.95 m long, 0.9 m wide and 0.15 m in depth.

A 1.0 by 1.0 m test unit (TU-6) was excavated over the depression. This excavation revealed an architectural layer (Layer I), over a soil deposit (Layer II) over bedrock (see *Figure 14*). Layer I consisted of 0.62 to 0.65 m of tightly packed cobbles, pebbles and small boulders, with no cultural remains present. Layer II was comprised of 0.3 to 0.38 m of a very dark grayish brown (10YR 3/2) silt with 60-70% cobble and pebble inclusions. Cultural remains from Layer II consisted of three *Cypraea sp.* shell fragments (29.6 grams), one *Cellana sp.* shell fragment (0.4 grams), one *Drupa sp.* shell fragment (1.5 grams), six sea urchin body fragments (2.8 grams), one rat bone (0.5 grams) and a trace of charcoal.

Feature A is interpreted as the foundation for a permanent habitation structure which likely once supported a pole and thatched roof structure. This is based on its formal type, substantial construction (faced side, paved surface) and area (21.8 sq m).

Feature B is a roughly rectangular-shaped terrace located adjacent to Feature A to the west. The feature is 7.0 m long (north-south) by 5.3 m wide, with a partially collapsed stacked cobble and small boulder retaining wall along the west side. The intact portions of this wall are faced and range in height from 0.6 to 0.9 m. The surface of the terrace is comprised of a level soil deposit with scattered cobbles. No cultural remains were noted. Feature B is interpreted as a permanent habitation, ancillary feature which likely served as an associated *lanai* or work area. This is based on its close proximity to Feature A, its substantial construction (faced side) and large area (37.1 sq m).

Site 24140

Site 24140 is an oval-shaped enclosure located on a level, natural soil covered terrace on the side of a slope angling to the south, at c. 610 ft elevation. The enclosure is 9.1 m long (east-west) and from 3.0 to 6.6 m wide with walls built of stacked and piled cobbles and small boulders (*Figure 15*). The walls are 0.75 to 2.05 m in width and 0.3 to 0.9 m in height. Several basalt slabs set vertically on edge are incorporated into the interior wall of the enclosure at the southwest corner. Portions of the north, south, east and west sides of the interior walls are faced. The interior consists of a level soil deposit with scattered cobbles. No cultural remains were observed. Site 24140 is interpreted as a temporary habitation enclosure. Although substantial construction was noted (faced sides) and overall the structure is large enough in area to be classified as a permanent habitation, the interior space is only (11.0 sq m). The site is unaltered and in fair condition.

Site 24141

Site 24141 is a modified outcrop located in the seaward portion of the project area at c. 50 ft elevation. The site is located in a relatively level area of a‘a lava and consists of an irregularly-shaped pile of a‘a cobbles and small boulders situated on a bedrock outcrop. It is 2.9 m long (east-west), 2.8 m wide and 0.26 to 0.7 m in height (*Figure 16*). Some crude stacking is present along the northern side, although the surface is uneven and irregular. No cultural remains were found in association with the site. Site 24141 is interpreted as an agricultural feature based on its formal type, insubstantial construction and absence of cultural remains. The site is unaltered and in fair condition.

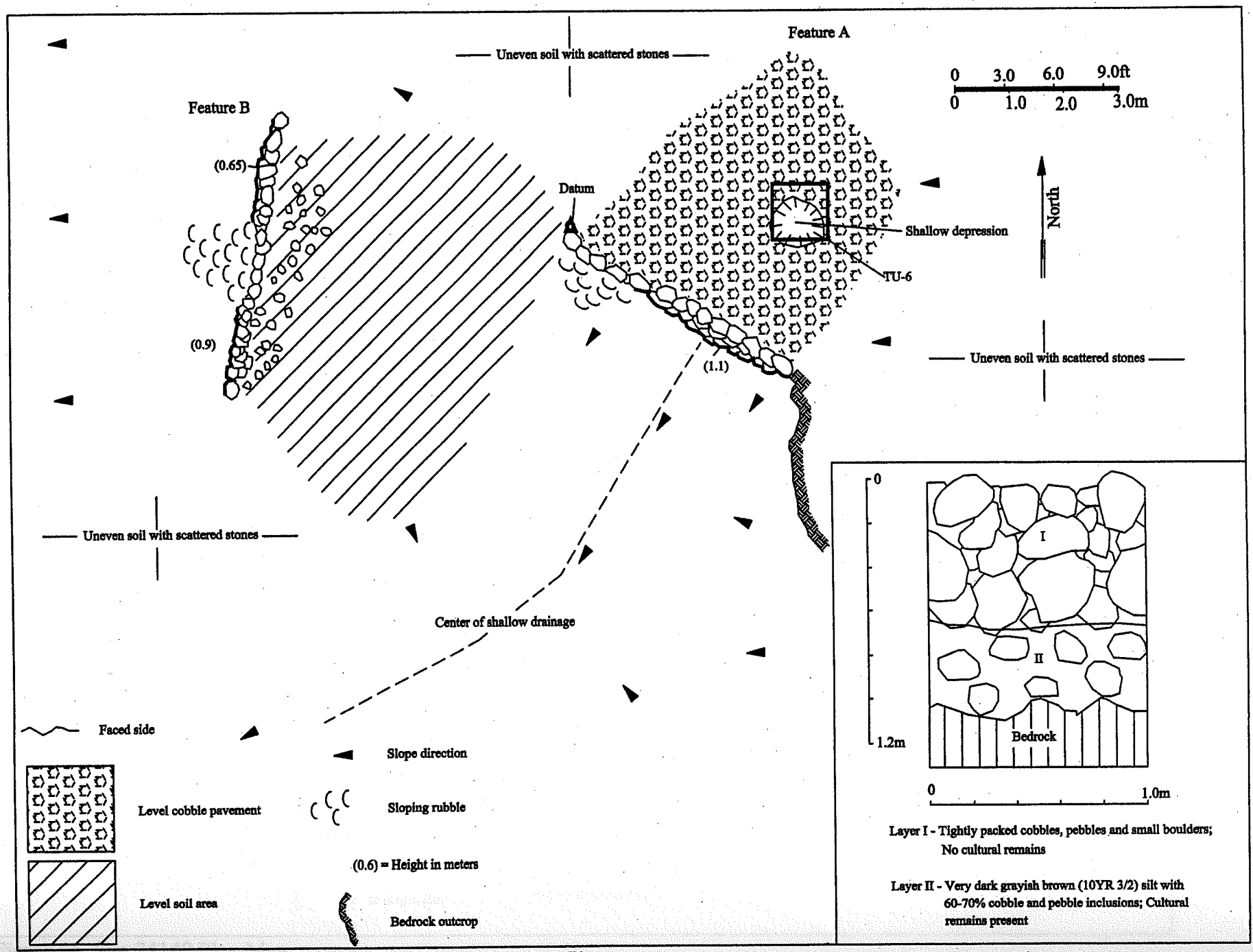


Figure 14. Site 24139 Plan Map and TU-6 East Face Profile

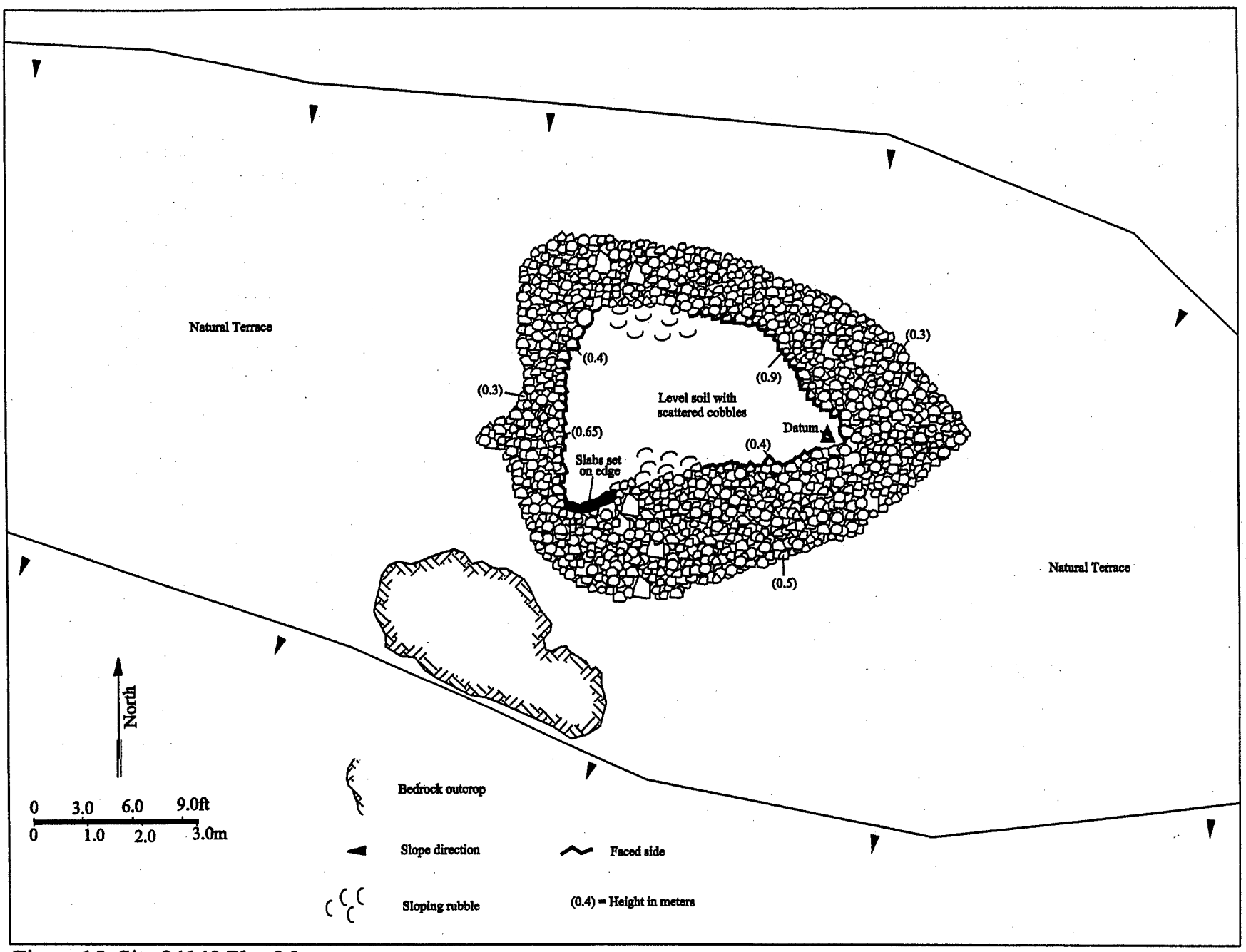


Figure 15. Site 24140 Plan Map

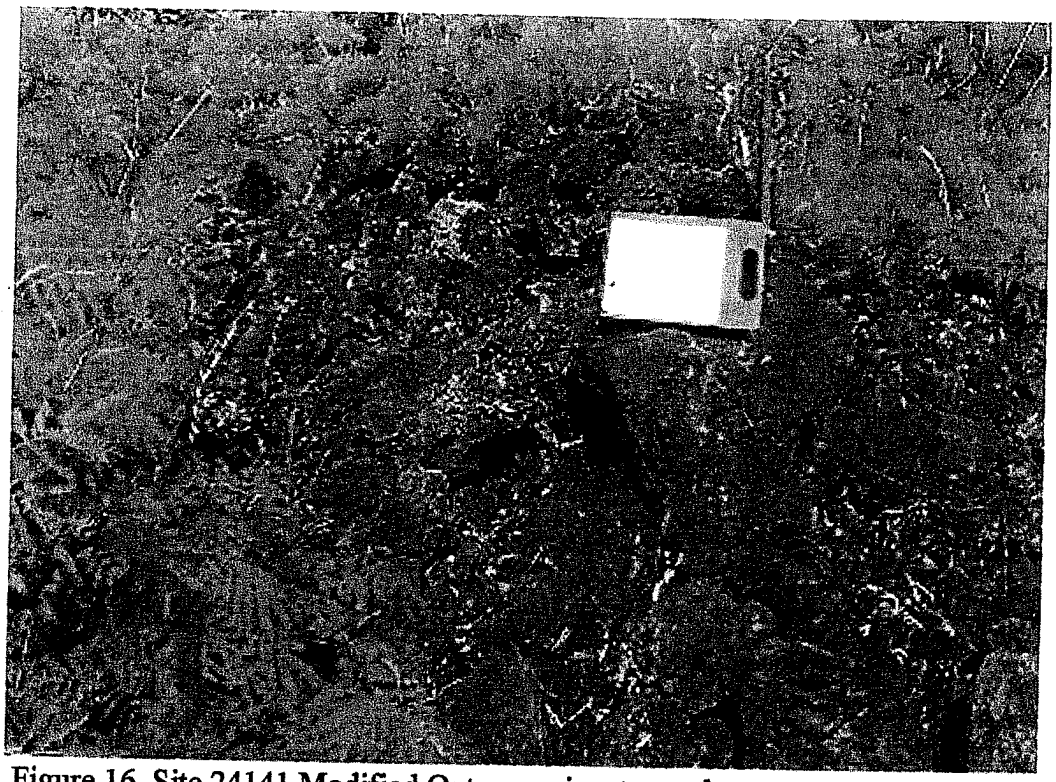


Figure 16. Site 24141 Modified Outcrop, view to north

Figure 17. Site 24142 Wall, view to north

Site 24142

Site 24142 is a stone wall located in the seaward portion of the study area, c. 130.0 m east-northeast of Site 24141, at c. 90 ft elevation. The site is located in an area of uneven a‘a lava. The extent of the wall is depicted in *Figure 6.* The site originates against the north side of a large a‘a outcrop and extends 14.0 m to the north, where it exits the project area. The wall then angles to the east-northeast and extends in this direction outside the parcel an undetermined distance. The wall is constructed of stacked and piled a‘a cobbles and small to medium-sized boulders, ranging in width from 0.6 to 1.5 m and in height from 0.75 to 1.2 m (*Figure 17*). The wall is relatively intact although collapsed sections were noted. No cultural remains were found in association with the wall. Site 24142 is interpreted as a livestock control feature based on its formal type and height. It is unaltered and in fair condition.

Site 24143

Site 24143 is a large irregularly-shaped terrace located at c. 200 ft elevation on the side of a rocky slope that angles to the west. The terrace contains a sloping cobble and small boulder rubble retaining wall that extends along the western side of the structure (*Figure 18*). This wall varies in width from 2.9 to 7.75 m. rubble wall. A 0.4 m high bedrock outcrop borders the rubble at the northern end. The surface of the terrace is comprised of a level pavement of poorly sorted cobbles that is 9.8 m long (north-south) and from 1.65 to 5.2 m wide. This paved area is bordered by a 1.0 to 1.05 m high bedrock outcrop at the northwest end, by the sloping retaining wall to the west, and by a stacked cobble and small boulder retaining wall at the southern end. This wall is 3.5 m long (north-northwest by south-southeast) and 0.3 to 0.5 m in height. The eastern side of the paved area abuts the side of the slope.

The surface of the paved portion of the terrace contains five waterworn basalt cobbles. Two fragments of *Cypraea sp.* marine shells were observed on the ground surface at the base of the rubble retaining wall. Site 24143 is interpreted as the foundation for a permanent habitation structure. This is based on its formal type, substantial construction (paved surface) and the area of the paved surface (33.5 sq m). The site is unaltered and in fair condition.

Site 24144

Site 24144 is a large two-tiered terrace located 32.0 m east of Site 24143, on the side of a moderately steep rocky slope that angles down to the west, at c. 220 ft elevation. The terrace is bordered on the west by a sloping, rubble cobble and small boulder retaining wall that is 13.3 m long (north-south), 1.1 to 3.0 m wide and 0.6 m in height (*Figure 19*). Numerous waterworn basalt cobbles and several waterworn coral cobbles are present within the rubble retaining wall. Two fragments of *Cypraea sp.* shell are present below the rubble wall to the west.

The main surface of the terrace consists of a level pavement of a‘a cobbles and pebbles that is 13.4 m long (north-south) and 2.85 to 4.3 m wide. There are four boulders in an alignment along the western side of the terrace surface at its southern end. Waterworn basalt and coral cobbles are also present on the surface of the terrace The north and south sides of the terrace abut the side of the slope and the eastern side abuts a sloping cobble pavement that is 10.1 m long (north-south) and 1.8 to 3.4 m wide. This upper tier also contains waterworn basalt cobbles scattered across its surface.

Hammatt et al. (1997) compiled a list of *heiau* attributes drawn from several sources including Bennett (1930), Valeri (1985), Kirch (1985), Kolb (1991), and Stokes and Dye (1991) that were used to support their interpretations. The attributes include upright stones and coral, prominent location on bluffs and cliff tops, historic references, area, and several architectural attributes. The architectural attributes included altars, paving, pits and multiple levels or tiers.

Site 24144 is interpreted as a *heiau* based on its large surface area (74.1 sq m), multiple tiers, on the abundance of waterworn coral and basalt stones, and on its prominent location that commands a wide view of the shoreline. The site is unaltered and in fair condition.

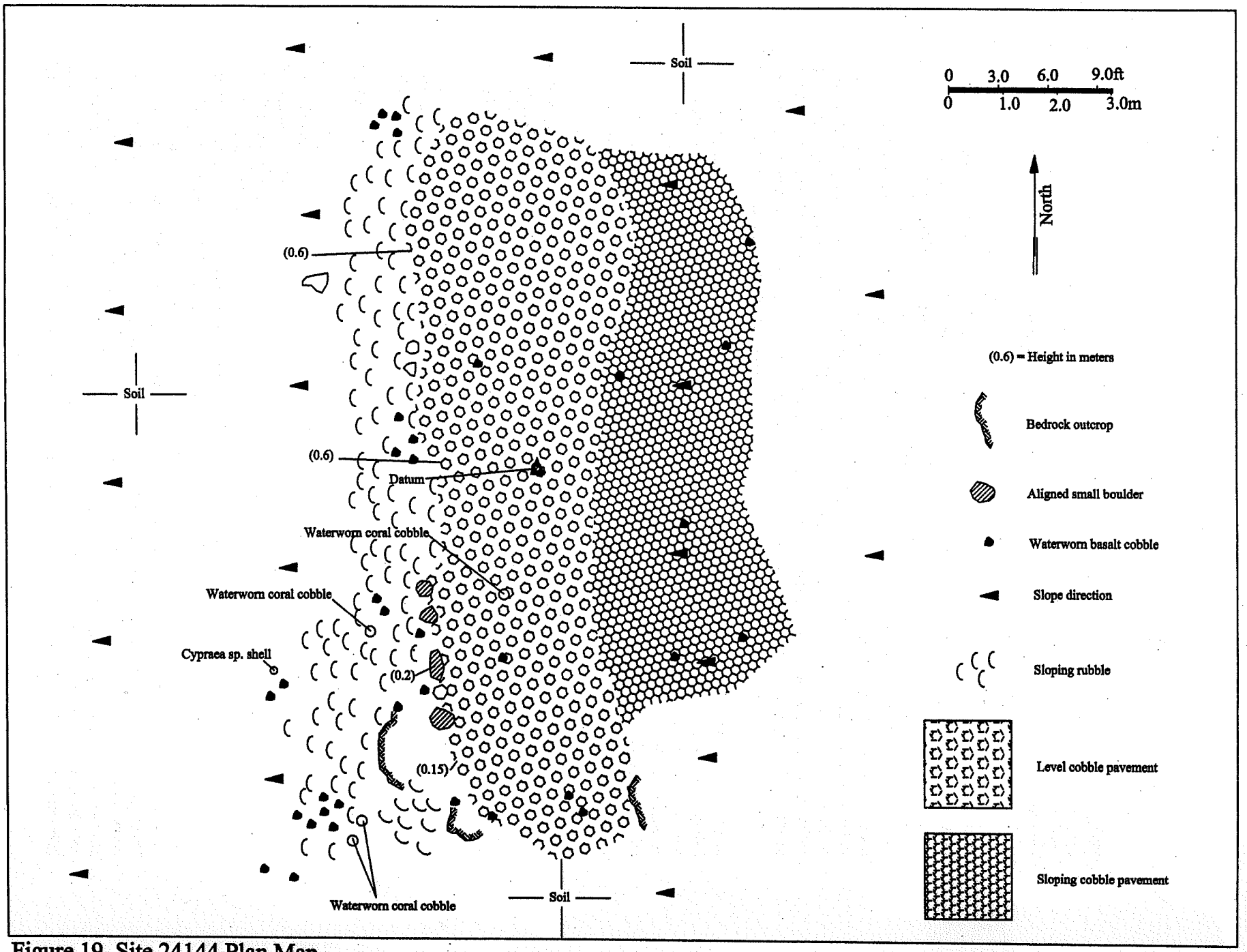


Figure 19. Site 24144 Plan Map

Site 24145

Site 24145 is a complex of three historic features located on a large, artificial terrace 40.0 m seaward of the dirt access road at c. 380 ft elevation. The features consist of the remains of a wooden structure containing pumping equipment (Feature A), a metal water tank (Feature B) and a wall (Feature C; *Figure 20*). The artificial terrace on which the site is located is soil covered and is 16.0 to 18.5 m wide. The remnants of dirt roads extend to the north and south from the terrace. The site is altered and in poor to fair condition.

Feature A consists of the remnants of a rectangular wooden structure that is 5.1 m long (northeast by southwest) and 3.4 to 3.9 m wide. The structure contains a corrugated tin roof supported by wooden posts that is 1.9 m in height (*Figure 21*). A wire fence extends to the south from the southern corner of the structure, and a disturbed wire fence is situated to the north. The structure contains a large metal pump with a plaque that reads, "Fairbanks Morges, 12 HP Pump, Fig No. 6181, Serial # 613358". The pump has an external fuel tank with unattached copper tubing, and several unattached belt drives. There is a wooden ladder within the structure to the northwest of the pump, and a wooden box built against the interior western wall. A second wooden box is located outside the structure against the north wall. A variety of trash is scattered throughout the interior of the structure, consisting of plumbing parts, machine parts and milled lumber fragments. A fiberglass bath tub, a section of corrugated tin roof set on edge and a pile of milled lumber located to the north of the building.

Feature B is a circular wooden water tank located 5.0, southwest of Feature A. The tank is 3.66 m (12 feet) in diameter and 2.43 m (8 feet) in height. The tank rests on a series of concrete piers and is banded by metal straps. A collapsed corrugated tin and wood roof is located on top of the southeastern side of the tank. A 1" metal pipe extends to the northeast from the tank, leading to the southwest side of the Feature A structure. A 1 ½" PVC plastic pipe parallels the metal pipe, then angles to the south, running along the western side of the wire fence.

Feature C is a crude U-shaped wall located adjacent to Feature A to the west and to the northeast of Feature B. This wall originates adjacent to the southern corner of Feature A and extends 4.1 m to the west. It then angles to the north for 5.9 m, then turns to the east for an additional 1.6 m where it terminates. This wall is comprised of piled basalt boulders and fragments of concrete, ranging in width from 0.4 to 1.0 m. The wall is 0.5 to 1.0 m in height on the downslope side and 0.2 to 0.8 m on the upslope side.

Site 24145 is interpreted as the remnants of an historic pump and water storage facility based on the presence of the pump and adjacent water tank. It is likely that the site functioned in association with historic ranching activity in the area. The site is altered and in poor to fair condition.

Site 24146

Site 24146 is a roadway located in the seaward portion of the project area at elevations ranging from 20-40 ft. The extent of the road is depicted in *Figure 6*. The road is bordered along the seaward side by a stone wall throughout its length. A rock wall also borders the inland side for 25.0 m at its northeastern end. The road originates 25.0 m north of a large bay and extends 36.0 m to the north-northwest. It then angles to the north-northeast for 34.0 m, then turns to the northeast for an additional 45.0 m where it has been destroyed by the construction of a bulldozed road. It is likely that the road once continued along the path of this dirt road, although no other intact sections were identified within the boundaries of the project area.

The surface of the road is comprised of level soil with scattered cobbles. No cultural remains were found in association with the road. The walls bordering the road are generally collapsed, although intact sections indicate they were originally built of stacked cobbles and small boulders, ranging in width from 1.0 to 1.4 m and in height from 0.7 to 0.9 m (*Figure 22*). The portion of the road bordered by walls on both side is 4.0 to 5.0 m in width. It is possible that the inland side of the road where a wall is not present may have been disturbed, though no obvious evidence of bulldozer activity was noted. Site 24146 is interpreted

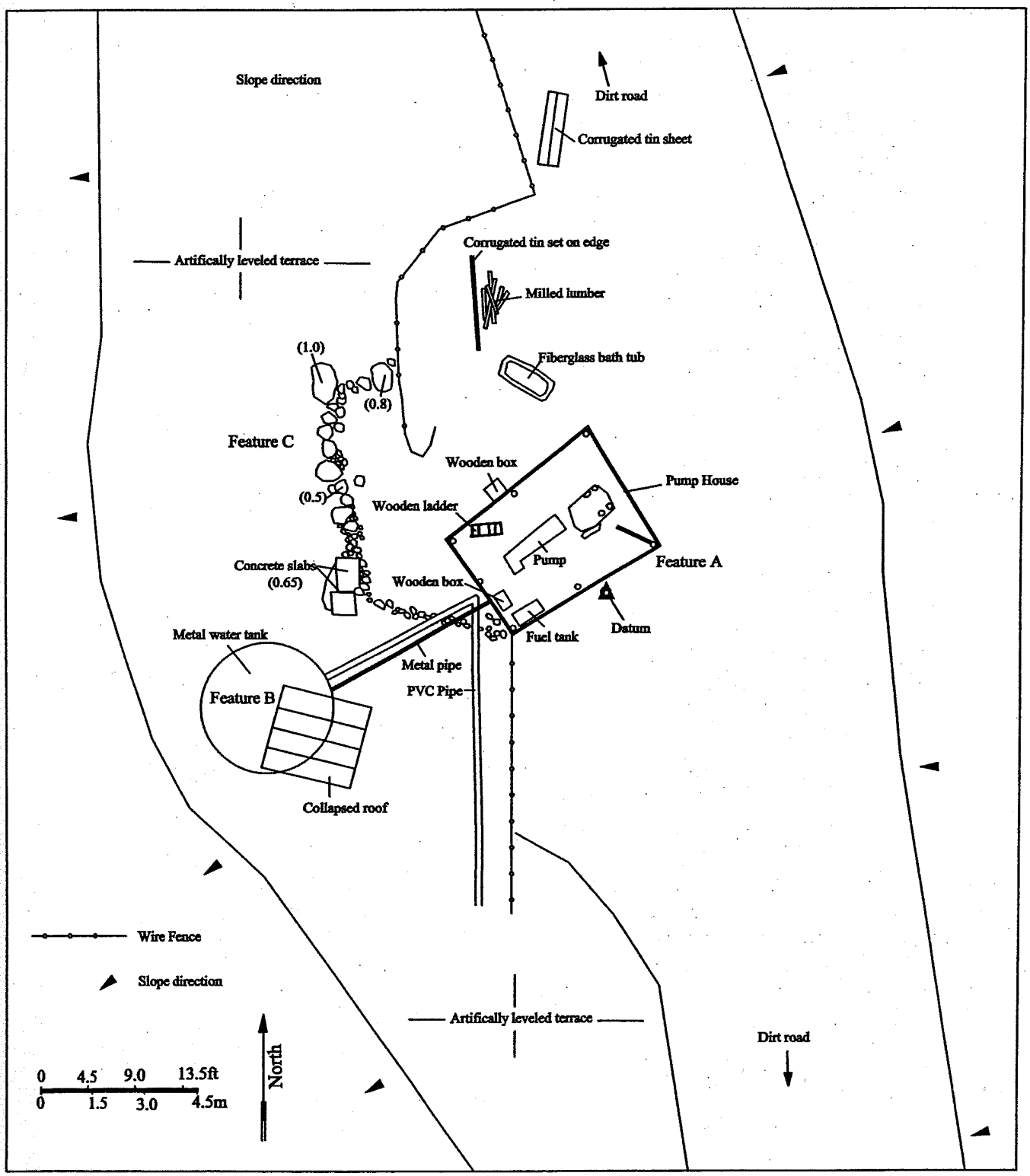


Figure 20. Site 24145 Plan Map

Figure 21. Site 24145, Feature A Pump House, view to southwest

Figure 22. Site 24146 Road, view to north

as an historic roadway based on its formal type and appearance. It is probable that this road may have been used as a coastal transportation route, and may have also functioned to herd livestock to the large bay. The road appears on a 1909 map (see *Figure 4*) indicating it was probably used during the late 1800s and early 1900s. The site is altered and in poor to fair condition.

Site 24147

Site 24147 is a complex of three permanent habitation features and a livestock control feature located in the seaward portion of the project area, 48.0 m west of Site 24142 at c. 70 ft elevation. The site is comprised of an enclosure (Feature A), a pavement (Feature B) and a wall (Feature C; *Figure 23* and *Figure 24*) and encompasses an area 60.0 m long (north-south) by 29.0 m wide. The site is situated in an area of uneven a‘a lava and isolated pockets of soil.

Feature A is a large, rectangular enclosure that is 17.7 m long (north-south) and 13.4 to 14.7 m wide. The walls of the enclosure are built of stacked cobbles and small boulders with a core-filled interior of cobbles that vary in width from 1.07 to 2.55 m and in height from 1.4 to 1.75 m. Portions of the interior and exterior sides of the walls have collapsed, although the majority of the structure is intact. A possible entrance into the enclosure is present in the center of the northern wall. This opening is 1.6 m wide and is filled with rubble. The interior of the enclosure is comprised of a soil deposit with low bedrock outcrops and scattered surface stones. A single *Cypraea sp.* shell was noted within the interior.

The southern side of the enclosure is constructed against a large bedrock outcrop. A small cave is situated within the outcrop, with the opening facing into the enclosure. The entrance to the cave is 3.5 m wide and 0.7 m in height, and the interior is 3.55 m long (north-south), 3.0 to 3.5 m wide and 0.65 m in height. The interior of the cave contains a soil deposit with scattered historic debris, consisting of enamelware bowls, a metal pot and an alarm clock.

Feature A is interpreted as a permanent habitation structure, which likely functioned as a yard surrounding a pole and thatch roofed structure. This is based on its formal type, substantial construction (faced sides) and area (248.6 sq m). The adjoining cave likely served as an associated cupboard or shelter. The substantial width and height of the structure indicates that it may represent the residence of a chiefly status individual. The presence of the historic remains within the cave suggests that at least part of the feature was historically utilized, likely as a temporary shelter.

Feature B is a pavement that adjoins Feature A to the west. The pavement is level with the surrounding terrain and is comprised of tightly packed cobbles and pebbles. No cultural remains were noted on the surface of the pavement. Feature B is 10.4 m long (east-west) and 7.8 m wide. Feature B is interpreted as an ancillary feature associated with the permanent habitation of the site, likely functioning as an associated *lanai* or work area.

Feature C is a stone wall situated to the west of Features A and B (see *Figure 23*). The wall is curvilinear in shape and is oriented in a roughly north-south direction. The wall originates 7.4 m west-southwest of the southwest corner of Feature B and extends 42.7 m to the north-northeast and north where it encounters a 2.0 m wide gap. The wall continues to the north for 6.5 m where it exits the project area. The wall continues in this direction an undetermined distance.

The wall is constructed of stacked a‘a cobbles and small boulders and incorporates several bedrock outcrops. It is 1.0 to 1.35 m in width and 0.5 to 1.45 m in height. The wall is collapsed throughout most of its length though intact, faced sections with core-filled cobble interiors are present.

Feature C is interpreted as a probable livestock control feature based on its formal type and method of construction. The wall may have been used to restrict grazing animals from entering the habitation area. The site is unaltered and in fair condition.

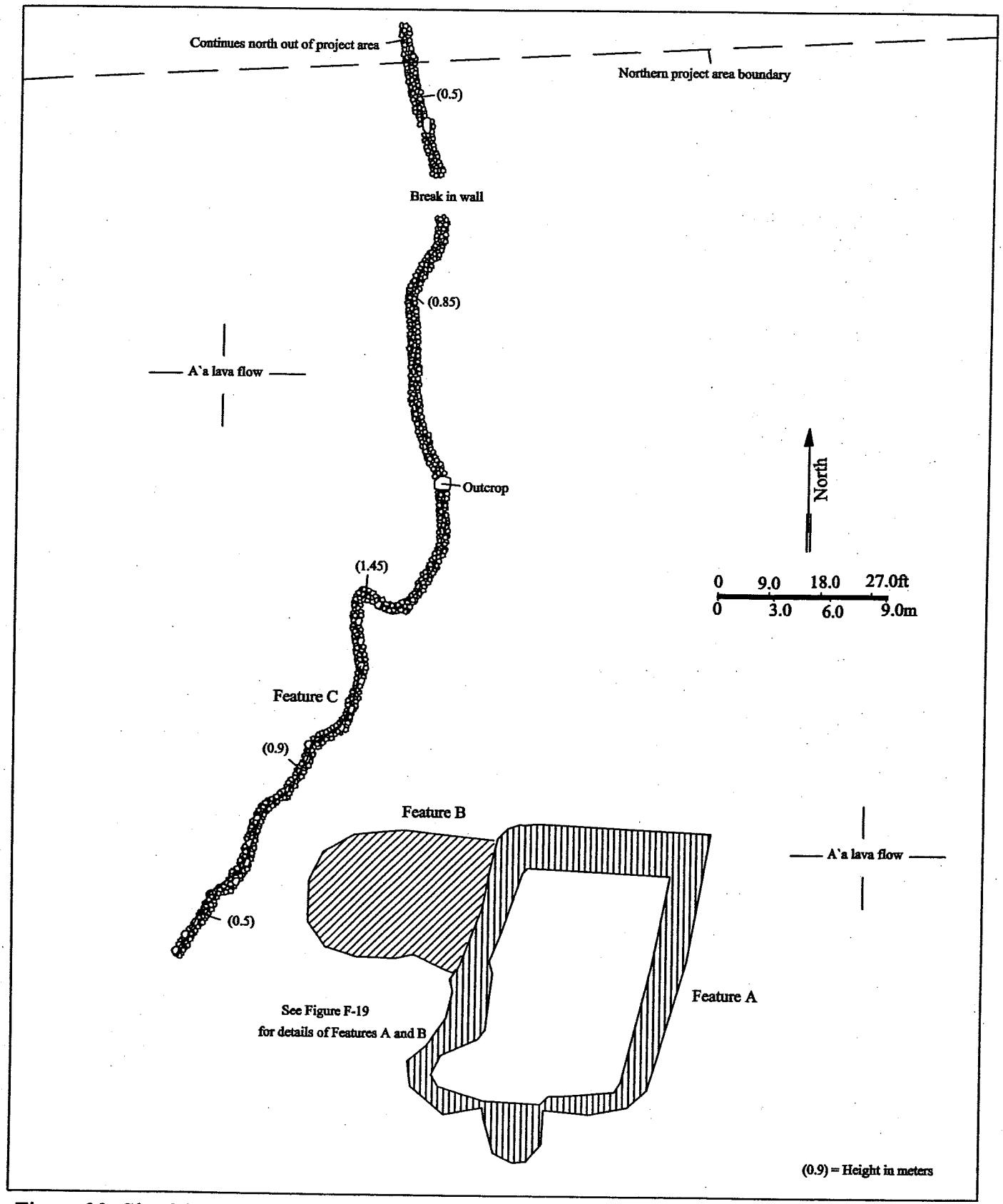


Figure 23. Site 24147 Plan Map

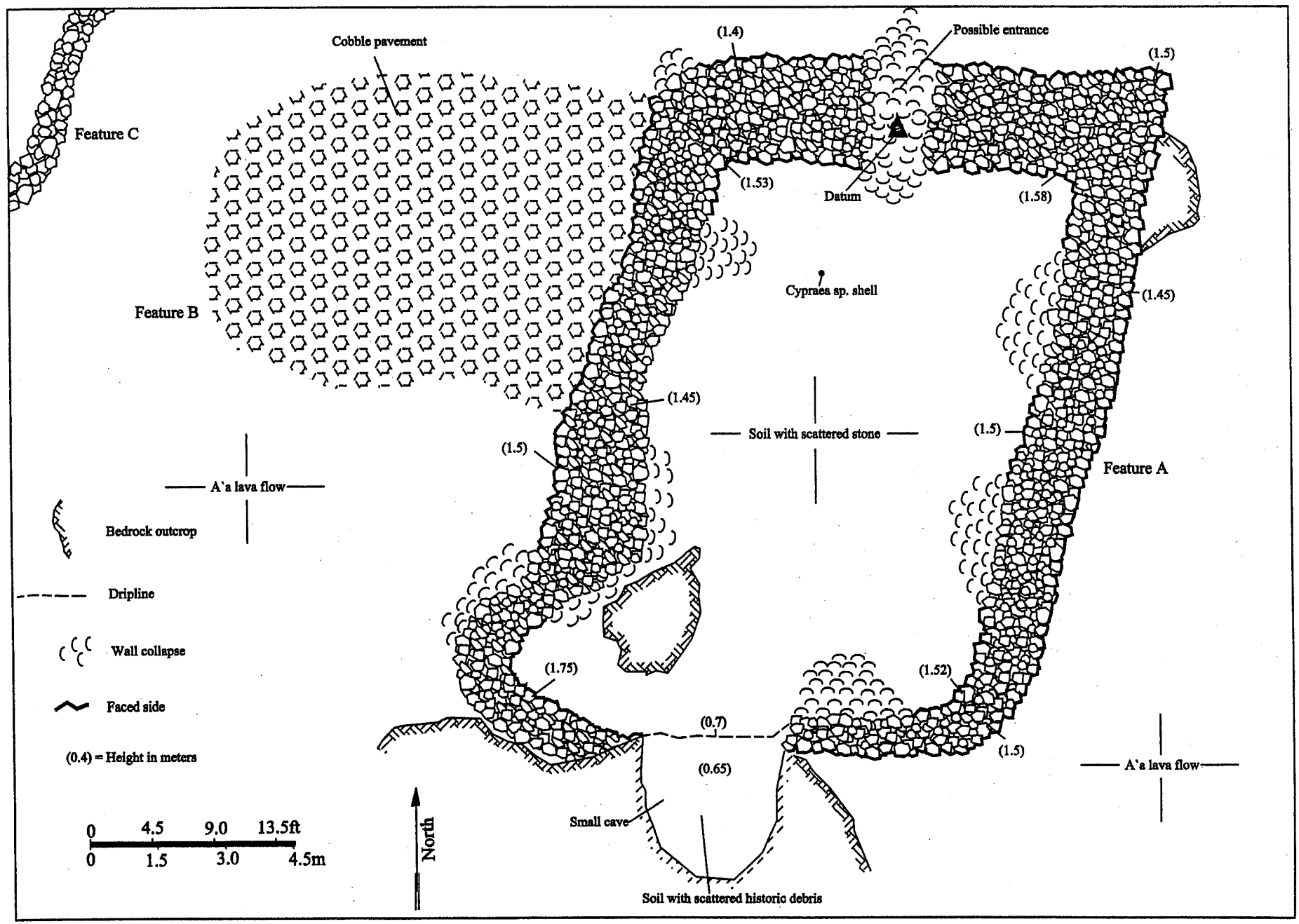


Figure 24. Plan Map of Site 24147, Features A and B and Portion of Feature C

Site 24148

Site 24148 is a complex of seven permanent habitation features located in an area of uneven a‘a lava in the seaward portion of the project area at the 20ft elevation. The features are comprised of four enclosures (Features A, B, D and F), a wall (Feature C), a modified outcrop (Feature E), and a mound (Feature F; *Figure 25)* situated in an area 47.0 m long (north-south) by 25.0 m wide. The site is unaltered and in fair condition.

Feature A is a large, rectangular enclosure built of stacked a‘a cobbles and small boulders. It is 14.2 m long (east-west) by 6.5 m wide, with walls that range in width from 0.8 to 1.4 m and in height from 0.6 to 1.22 m (*Figure 26*). Portions of the enclosure walls have collapsed although intact faced sections are present, with core-filled cobble interiors. The northern wall of the enclosure incorporates several bedrock outcrops and this outcrop area may have functioned as the entrance into the interior. The interior floor of the enclosure is covered in a thin soil deposit with no cultural remains noted. Feature A is interpreted as a permanent habitation feature which may have served as a yard surrounding a pole and thatch roofed structure. This is based on its formal type, substantial construction (faced sides) and large area (92.3 sq m).

Feature B is a roughly square shaped enclosure that is built against the southern wall of Feature A. It is 6.9 m long (east-west) by 6.1 m wide with stacked a‘a cobble and small boulder walls that range in width from 1.0 to 1.2 m and in height from 0.72 to 1.22 m. Wall collapse is present along portions of the south and west walls, though the remainder of the structure’s walls are intact with faced sides and core-filled interiors of small cobbles. A possible entrance into the interior is located in along the western side at the north end. The interior of the enclosure consists of a level soil deposit with no cultural remains. Feature B is also interpreted as a permanent habitation feature which probably served as foundation for a pole and thatch roofed structure. This is based on its formal type, substantial construction (faced sides) and area (42.0 sq m).

Feature C is a curvilinear wall that incorporates several low bedrock outcrops. The wall is built of stacked and piled a‘a cobbles and small boulders, ranging in width from 0.6 to 0.7 m and in height from 0.5 to 0.72 m. It originates 4.9 m north of the northern wall of Feature A and extends 1.4 m to the north, then angles to the northeast for 5.0 m where it intersects a low bedrock outcrop. A large leaning vertical outcrop is located adjacent to the northeast end of this section of wall, measuring 3.7 m long (west-northwest by east-southeast), 0.9 m wide and 2.45 m in height. The area between this vertical outcrop and the low outcrop is paved with small cobbles and pebbles, in an area 3.2 m long (west-northwest by east-southeast) by 0.8 m wide (*Figure 27*) and is slightly sheltered by the leaning outcrop. No cultural remains were noted.

The wall continues on the east end of the low outcrop, extending 1.4 m east, then angling to the north-northeast for 3.2 m where it terminates against another outcrop. Feature C is interpreted as an ancillary feature associated with the permanent habitation of the site. The paved area beneath the leaning outcrop likely functioned as an associated shelter or activity area.

Feature D is an L-shaped wall remnant that forms an enclosure between the western wall of Feature B and the west end of the south wall of Feature A. The wall is 9.5 m long north-south by 5.5 m wide east-west, and is built of stacked a‘a cobbles and small boulders, ranging in width from 1.2 to 1.4 m and in height from 1.0 to 1.45 m. The central portion and north end of the west wall have collapsed as has the east end of the south wall. The collapsed areas may have served as entrances into the interior. The intact walls are faced with core-filled cobble interiors. The overall extent of the enclosed area is 9.1 m long (north-south) by 6.9 m wide. The interior floor of the enclosure is comprised of bare a‘a lava with no cultural remains present. Feature D is interpreted as a permanent habitation yard based on its formal type, substantial construction (faced sides) and area (62.8 sq m).

Feature E is a modified outcrop located 5.5 m south of Feature D in an area of uneven a‘a lava. This feature is irregularly shaped and is 5.05 m long (north-northwest by south-southeast), 2.9 m wide and 0.4 to 1.0 m in height. It is constructed of piled a‘a cobbles and small boulders with an uneven, irregular

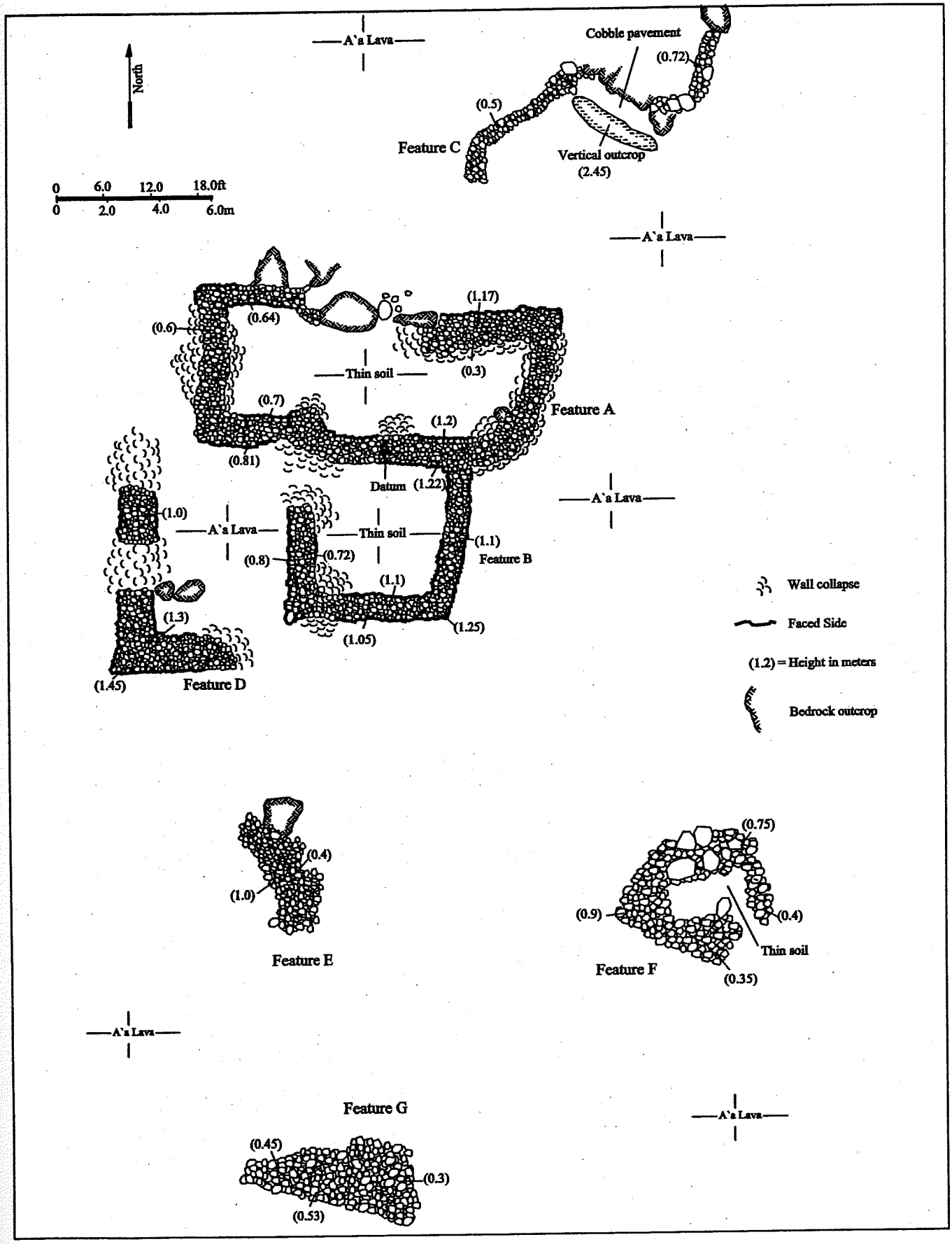


Figure 25. Site 24148 Plan Map

Figure 26. Site 24148, Feature A Enclosure, view to north

Figure 27. Site 24148, Feature C Paved area beneath outcrop, view to west

surface. No cultural remains were noted. Feature E is interpreted as a permanent habitation, ancillary feature which may have functioned as site furniture based on its close proximity to other features.

Feature F is crudely constructed enclosure located 12.0 m southeast of Feature A. It is 5.8 m long (east-west) by 5.5 m wide, with walls that range in width from 0.8 to 2.7 m and in height from 0.4 to 0.9. These walls are built of piled and roughly stacked a‘a boulders and cobbles and enclose a roughly rectangular interior space that is 3.0 m long (east-northeast by west-southwest) and 1.15 m wide. The floor of this interior space is covered in a thin soil deposit with no cultural remains observed. Feature F is interpreted as the possible foundation for a permanent habitation, special purpose structure, based on its formal type and close proximity to the other permanent habitation features of the site.

Feature G is a mound built on bare a‘a lava, 8.5 m south of Feature E. The mound is irregularly-shaped and is 6.5 m long (east-west), 1.5 to 3.0 m wide and 0.3 to 0.53 m in height. It is built of piled cobbles and small boulders with an uneven, irregular surface and no cultural remains. Feature G is interpreted as a permanent habitation, ancillary feature which may have functioned as site furniture in association with the site, based on its close proximity to other features.

Site 24149

Site 24149 is a complex of four permanent habitation features located in the seaward portion of the project area, c. 35.0 m inland from the coastal cliff line. The site is comprised of three enclosures (Features A-C) and a wall (Feature D; *Figure 28*), situated in an area 35.0 m long (northwest by southeast) and 21.0 m wide. The site is located in an area of uneven a‘a lava. The three enclosures and potentially the wall have likely been impacted by wave activity. The site is altered and in poor to fair condition.

Feature A is the remnant of an oval-shaped enclosure situated at the northwest end of the site on a bare lava flow. The enclosure is 7.6 m long (northeast by southwest) and 5.8 m wide with walls built of piled and stacked cobbles and small boulders that are 0.5 to 1.4 m wide and 0.35 to 0.92 m in height. The majority of the walls appear to be collapsed, likely disturbed by wave activity. There is no apparent entrance into the enclosure. The interior floor of the enclosure is comprised of uneven a‘a lava. No cultural remains were observed. Feature A is interpreted as the possible disturbed remnant of the foundation for a permanent habitation structure. This is based on its formal type and area (44.0 sq m). Alternatively, the feature may have functioned as a pigpen pen.

Feature B is an oval enclosure located 10.7 m southeast of Feature A. This feature is 4.0 m long (north-northeast by south-southwest) and 2.45 m wide. The enclosure incorporates bedrock outcrops along the north, southwest and south sides, with collapsed stacked and piled cobble and small boulder walls present between the outcrops. These walls are 0.5 to 0.65 m wide and 0.43 to 1.2 m in height. There is no apparent entrance into the interior of the enclosure.

There is a small overhang located within the outcrop at the south end of the enclosure. The entrance to the overhang is 1.4 m wide and 1.7 m in height, with the interior measuring 0.9 to 1.25 m long (north-south) and 1.35 m wide. The floor of the enclosure and the overhang is comprised of bare a‘a lava with no cultural remains present. Feature B is interpreted as the possible disturbed remnant of the foundation for a permanent habitation, special purpose structure based on its formal type and small area (9.8 sq m). No substantial construction was present, though this may be the result of wave activity. Alternatively, the feature may have functioned as a pigpen pen.

Feature C is an enclosure formed by bedrock outcrops to the north, south, northeast, and southwest, and by a stacked, partially collapsed a‘a cobble and small boulder wall to the west. The feature is located 6.2 m southeast of Feature B and is 6.1 m long (northeast by southwest) and 4.2 m wide. The wall along the west side of the feature varies in width from 0.7 to 1.05 m and in height from 0.95 to 1.0 m. The bedrock outcrops bordering the feature range in height from 0.5 to 1.15 m. The interior floor of the feature consists of a rough pavement of a‘a cobbles, with no cultural remains. A possible entrance into the enclosure is situated along the southeast side of the feature, between two outcrops. Feature B is interpreted as the

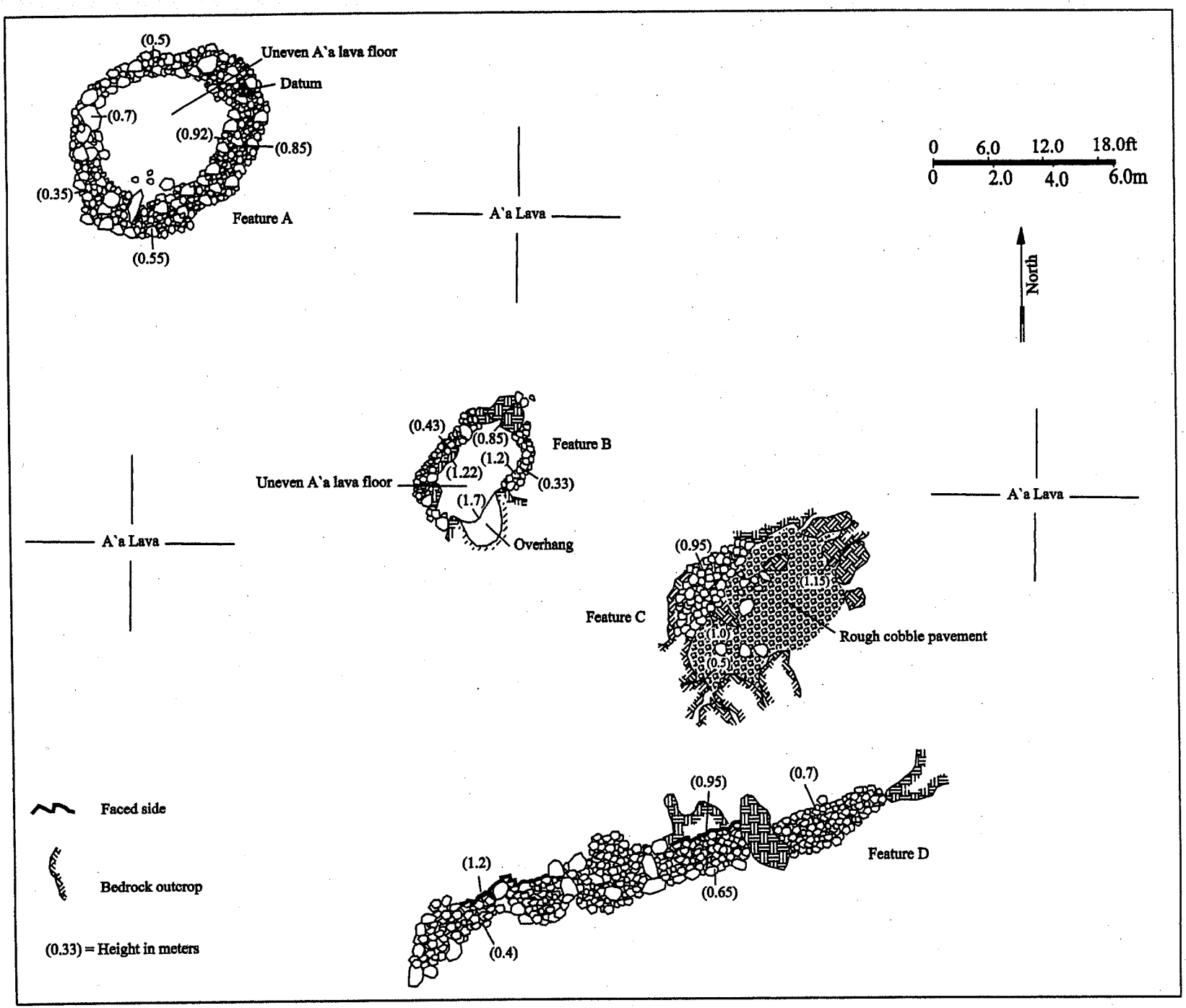


Figure 28. Site 24149 Plan Map

foundation for a permanent habitation structure based on its formal type, substantial construction (paved surface) and area (25.6 sq m).

Feature D is a stone wall located 5.3 m south of Feature C. The wall is 17.3 m long (east-northeast by west-southwest), 0.9 to 2.0 m wide and 0.4 to 1.2 m in height. The wall incorporates several bedrock outcrops and is constructed primarily of stacked and piled a‘a and pahoehoe boulders and large cobbles. Portions of the wall have collapsed, though two intact faced sections are present, along the northern side. Modern trash is scattered around the wall, and fragments of waterworn coral is present on the a‘a flow between Features C and D. Feature D is interpreted as an ancillary feature associated with the permanent habitation of the site, potentially functioning to partially delineate the boundaries of yard surrounding the complex. This is based on its formal type and association with the other features of the site.

Site 24150

Site 24150 is a complex of 11 permanent habitation, burial and possible burial features located in an area of uneven pahoehoe and a‘a lava in the coastal portion of the project area at c. 10-20 ft elevation. The site encompasses an area 55.0 m long (north-south) and 54.0 m wide and consists of five platforms (Features A, C, D, H and J), four terraces (Features B, E, F and G), a modified knoll (Feature I) and an enclosure remnant (Feature K; *Figure 29*). The site is unaltered and in fair condition.

Feature A is a small, oval-shaped platform located in the southwestern portion of the site, in an area of uneven pahoehoe lava and thin surface soil. The platform is 4.6 m long (east-west) and 2.8 m wide with the surface comprised of a level cobble pavement. The sides of the platform are bordered by one to two courses of aligned cobbles and small boulders. Waterworn basalt cobbles and pebbles, waterworn coral and branch coral are present on the surface of the feature.

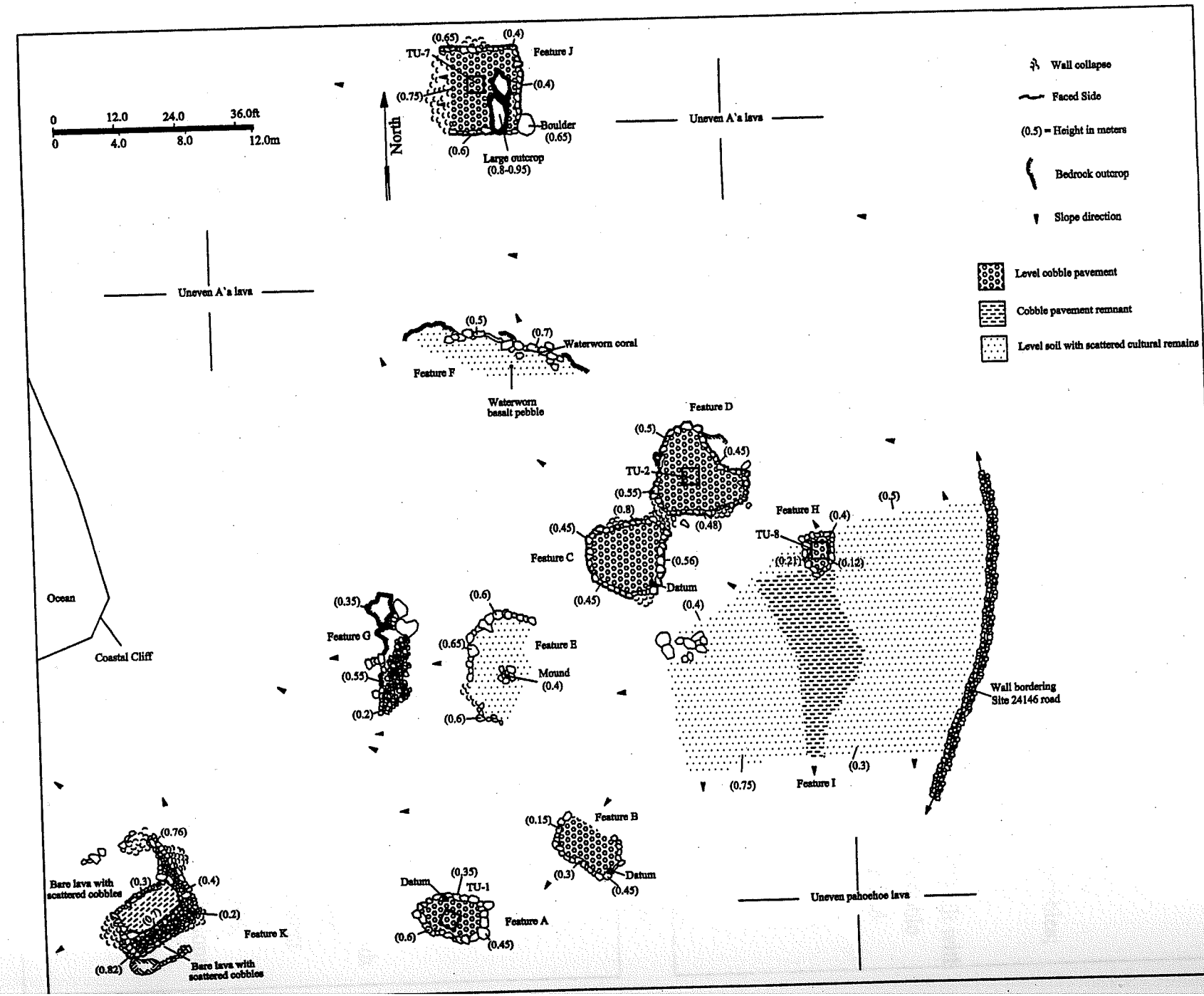
A 1.0 by 1.0 m test unit (TU-1) was excavated into the surface of the platform. This excavation revealed a stone architectural layer (Layer I) over a soil deposit (Layer II; *Figure 30*). Layer I consisted of 0.18 to 0.22 m of tightly packed cobbles and pebbles. Cultural remains from Layer I consisted of waterworn basalt cobbles and pebbles, waterworn coral and branch coral which were not collected, and marine shell. The marine shell was comprised of *Theodoxus sp.* (n=1, 3.6 grams), *Cypraea sp.* (n=2, 9.7 grams), *Cymatium sp.* (n=1, 7.1 grams), *Nerita picea* (n=1, 0.7 grams) and *Drupa morum* (n=1, 2.0 grams).

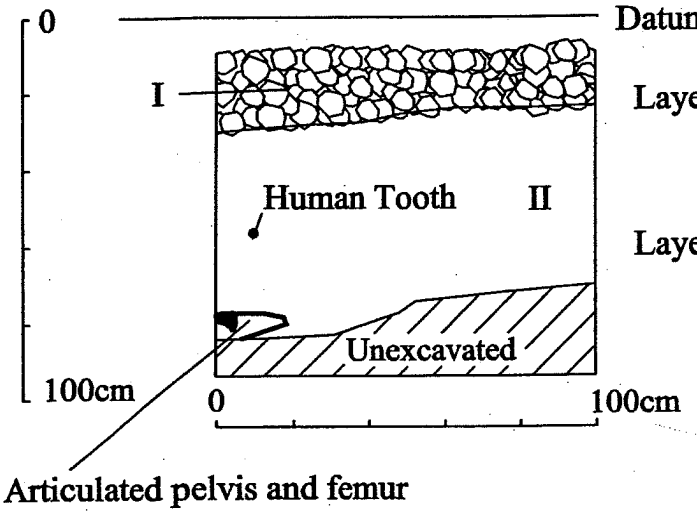
The Layer II soil deposit consisted of a very dark brown (10YR 2/2) silt with 40-50% gravel, pebble and cobble inclusions. A human tooth was noted in this deposit at 0.47 m below datum. The excavation continued below the tooth to determine if an *in situ* human burial was present. An articulated pelvis and a femur were identified at 0.78 to 0.85 m below datum. The excavation was terminated upon identification of the articulated remains.

Additional cultural remains were present within the Layer II deposit. These remains consisted of waterworn coral pebbles (n=8, 3.0 grams), one fish bone (n=1, 0.2 grams), 14 volcanic glass flakes (4.1 grams), one basalt flake (33 m long, 14 mm wide an 6 mm thick; 2.3 grams), a small groundstone fragment (16mm long, 13 mm wide and 6 mm thick; 1.9 grams) urchin spines (n=3, 1.7 grams), urchin body fragments (n=3, 0.4 grams), and marine shell. The marine shell consisted of *Cypraea sp.* (n=44, 87.8 grams), *Cellana sp.* (n=5, 1.1 grams), *Thaididae sp.* (n=7, 4.9 grams), *Nerita picea* (n=3, 0.5 grams), *Conus sp.* (n=1, 1.3 grams) and 40 small unidentified shell fragments (14.4 grams).

Feature A is interpreted as a burial platform based on the identification of human remains. The presence of relatively abundant cultural remains recovered from TU-1 indicates that the area served a habitation function, probably prior to the interment and erection of the platform.

Feature B a rectangular terrace situated 5.6 m northeast of Feature A. The terrace is 4.6 m long (northwest by southeast) and 2.5 m wide and is bordered along the northwest, southwest and southeast sides by a low, stacked cobble and small boulder retaining wall that varies in height from 0.15 to 0.45 m. The northeast side of the structure abuts the base of a slight slope that angles down to the southwest. The surface is paved with cobbles and pebbles with no cultural remains noted. Feature B is interpreted as a

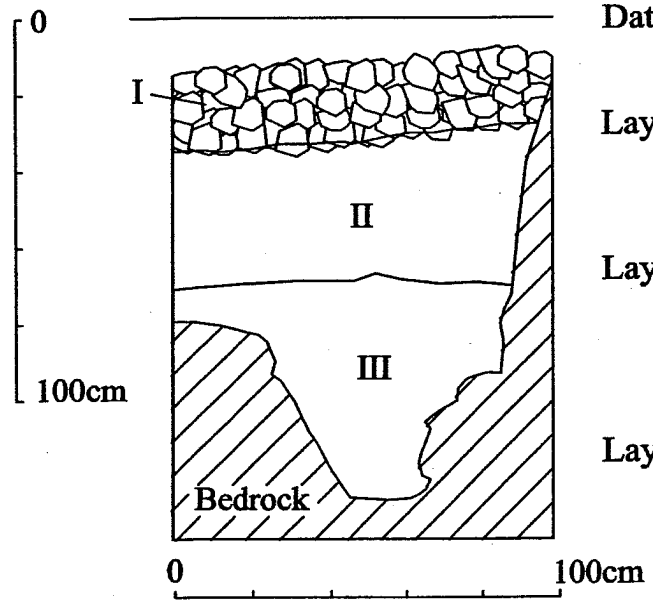

0 12.0 24.0 36.0ft
0 4.0 8.0 12.0m
North
(0.65)
(0.4)
TU-7
Feature J
(0.4)
(0.75)
Boulder
(0.65)
(0.6)
Large outcrop
(0.8-0.95)
Uneven A'a lava
Uneven A'a lava
Wall collapse
Faced Side
(0.5) = Height in meters
Bedrock outcrop
Slope direction
Level cobble pavement
Cobble pavement remnant
Level soil with scattered cultural remains
(0.5)
(0.7)
Waterworn coral
Feature F
Waterworn
basalt pebble
Feature D
(0.5)
(0.45)
TU-2
(0.55)
(0.8)
(0.48)
(0.45)
Feature C
(0.56)
Datum
(0.45)
Feature H
(0.4)
TU-8
(0.21)
(0.12)
(0.5)
Ocean
Coastal Cliff
(0.35)
Feature G
(0.55)
(0.2)
(0.6)
(0.65)
Feature E
Mound
(0.4)
(0.6)
(0.4)
Wall bordering
Site 24146 road
(0.3)
(0.75)
Feature I
(0.15)
Feature B
(0.3)
Datum
(0.45)
(0.76)
Bare lava with
scattered cobbles
(0.3)
(0.4)
(0.2)
Feature K
(0.82)
Bare lava with
scattered cobbles
Datum
(0.35)
TU-1
Feature A
(0.6)
(0.45)
Uneven pahoehoe lava



Layer I - Tightly packed cobbles and pebbles; Cultural remains present

Layer II - Very dark brown (10YR 2/2) silt with 40-60% gravel, pebble and cobble inclusions; Cultural remains and human burial present

Figure 30. Site 24150, Feature A, TU-1 North Face Profile



Layer I - Tightly packed cobbles and pebbles; Cultural remains present

Layer II - Very dark brown (10YR 2/2) silt with 50-60% gravel, pebble and cobble inclusions; Cultural remains present

Layer III - Dark brown (7.5YR 3/4) silt with 70-80% cobble and pebble inclusions; No cultural remains

Figure 31. Site 24150, Feature D, TU-2 North Face Profile

probable burial feature based on its formal type, small area (11.5 sq m) and close proximity to the Feature A burial platform.

Feature C is a large, roughly rectangular platform situated 14.3 m north of Feature B. The platform is 5.7 m long (northeast by southwest) and 4.6 m wide, and is separated from the Feature D platform (discussed below) by an area of collapsed rubble. The sides of the platform are bordered by stacked cobbles and small boulders that range in height from 0.45 to 0.8 m. The sides of the platform at the north and south ends are collapsed, although the remaining sides are intact and faced. The surface of the feature is comprised of a level pavement of cobbles. No cultural remains were noted. Feature C is interpreted as the foundation for a permanent habitation structure based on its formal type, substantial construction (faced sides, paved surface) and area (25.7 sq m).

Feature D is an irregularly-shaped platform located adjacent to Feature C to the northeast. It is 6.0 m long (north-south) and 2.3 to 5.9 m wide and is bordered by stacked and faced cobbles and small boulders around its perimeter. The sides of the platform range in height from 0.45 to 0.55 m. The surface is comprised of a level cobble pavement with no cultural remains observed.

A 1.0 by 1.0 m test unit (TU-2) was excavated into the center of the feature during the project. This excavation revealed a stone architectural layer (Layer I) over two soil deposits (Layers II and III) over bedrock (*Figure 31*). Layer I consisted of 0.21 to 0.25 m of tightly packed cobbles and pebbles. Cultural remains from Layer I consisted of a *Cypraea sp.* shell (2.8 grams), one *Conus sp.* shell (3.6 grams), urchin spines (n=3, 0.5 grams) and urchin body fragments (n=2, 0.3 grams).

Layer II consisted of 0.36 to 0.42 m of a very dark brown (10YR 2/2) silt with 50-60% gravel, pebble and cobble inclusions. Cultural remains from Layer II consisted of two *Cypraea sp.* shells (4.2 grams), one *nerita picea* shell (0.2 grams), one *Theodoxus sp.* shell (2.0 grams) and one unidentified marine shell fragment (0.8 grams). The Layer III deposit was comprised of 0.11 to 0.57 m of a dark brown (7.%YR 3/4) silt with 70-80% cobble and pebble inclusions. No cultural remains were present in Layer III. The excavation of TU-2 was terminated on bedrock.

Feature D is also interpreted as the foundation for a permanent habitation structure. This is based on its formal type, substantial construction (faced sides and paved surface) and area (24.6 sq m).

Feature E is a roughly rectangular-shaped terrace located 4.5 m southwest of Feature C, built on the side of a slight, rocky slope that angles to the west. The terrace is 6.5 m long (north-south) and 4.0 m wide, with stacked cobble and small boulder retaining walls along the north, south and west sides. These walls range in height from 0.6 to 0.65 m. The eastern side of the terrace abuts the base of the slope. The surface is comprised of a level soil deposit with no cultural remains present. A low piled cobble mound is present on the surface of the terrace, measuring 0.8 m in diameter and 0.4 m in height. Feature E is interpreted as an ancillary feature associated with the permanent habitation of the site, which potentially functioned as an activity area. This is based on its close proximity to the other features of the site.

Feature F is a crude terrace located 6.5 m west-northwest of Feature D. This feature consists of a roughly linear retaining wall of a‘a cobbles and small boulders situated on an exposed a‘a outcrop, with an area of level soil on the upslope, southern side. The retaining wall is 7.3 m long (east-west) and 0.5 m wide, 0.5 to 0.7 m in height. A fragment of waterworn coral is present within the retaining wall. The level soil area is 11.0 m long (east-west) and 1.6 to 2.6 m wide. A waterworn basalt cobble is present on the soil surface. Feature F is also interpreted as a potential permanent habitation activity area based on its spatial association with the other features of the site.

Feature G is a crude terrace situated 3.5 m west of Feature E, on the side of a slight rocky slope. The terrace contains a stacked and piled cobble and small boulder retaining wall along the western downslope side of the feature that is 3.0 m long (north-south) and 0.2 to 0.55 m wide. The north end of the terrace is built on the surface of an uneven outcrop. The surface of Feature G consists of an uneven scattered of cobbles and small boulders with no cultural remains. Feature G is interpreted as a possible perma-

nent habitation, ancillary feature that may have served as an activity area, based on its proximity to the other features.

Feature H is a small roughly rectangular platform located on the surface of the Feature I modified knoll (discussed below) along its northern side. The platform is 2.6 m long (north-south) and 2.0 m wide, and is bordered by a single course alignment of large cobbles and small boulders. The surface of the platform consists of a level pavement of cobbles, pebbles and small boulders, with no cultural remains present.

A 1.0 by 1.0 m test unit (TU-8) was excavated into the center of the platform during the project. This excavation revealed a stone architectural layer (Layer I), over two soil deposits (Layers II and III; *Figure 32*). Layer I consisted of 0.43 to 0.57 m of tightly packed cobbles, pebbles and small boulders. Cultural remains from Layer I consisted of seven waterworn coral pebbles (23.9 grams), two waterworn basalt pebbles (12.8 grams), two fragments of *Cypraea sp.* shell (1.05 grams), and a *kukui* nut shell (0.9 grams).

Layer II consisted of 0.4 to 0.46 m of a very dark brown (10YR 2/2) silt with 70-80% gravel, pebble and cobble inclusions. Cultural remains from Layer II consisted of 40 waterworn basalt pebbles (130.1 grams), 29 waterworn coral pebbles (35.4 grams), one *kukui* nut shell (3.4 grams), three *Cypraea sp.* shell fragments (2.4 grams) and two *Theodoxus sp.* shell fragments (1.1 grams).

Layer III consisted of 0.74 to 0.81 m of a dark brown (7.5YR 3/4) silt with 50-60% cobble and pebble inclusions. Cultural remains were recovered from the upper 0.4 m of this deposit. These remains consisted of waterworn basalt pebbles (n=106, 391.5 grams), waterworn coral pebbles (n=44, 55.8 grams), *kukui nut shells* (n=4, 5.7 grams), urchin spine fragments (n=2, 2.6 grams), urchin body fragments (n=3, 0.5 grams), *Cypraea sp.* shell fragments (n=2, 1.9 grams), *Theodoxus sp.* shell fragments (n=3, 2.3 grams), unidentified shell fragments (n=4, 2.9 grams) and trace charcoal. The excavation of TU-8 was terminated on bedrock.

Feature H is interpreted as the probable foundation for a permanent habitation, special purpose structure. This is based on its formal type, substantial construction (paved surface) and proximity to the other features of the site.

Feature I is a large level, soil-covered knoll that has been mostly cleared of surface stones. The surface of this knoll is 19.3 m long (east-west) and 6.5 to 14.0 m wide. It is bordered by the stone wall that lines the Site 24146 road on the east, and by slight drop offs to the north, south and west. The surface of the knoll is 0.3 to 0.75 m in height above the surrounding terrain. The Feature H platform is situated along the northern edge of the knoll, in the approximate center.

A sparse cobble pavement remnant extends across the surface of the knoll through its center in a north-south direction. This pavement consists of a single course of scattered cobbles and pebbles in an area 11.0 m long (north-south) and 1.25 to 4.7 m wide. Scattered marine shells and waterworn coral and basalt pebbles are scattered over the surface of the pavement and on the soil covered knoll. Feature I is interpreted as a permanent habitation, ancillary feature which likely served as an activity area, based on its formal type and proximity to the other components of the site. It is possible that a pole and thatch roofed structure may have once existed on the surface of the knoll.

Feature J is a roughly square-shaped platform located in an area of uneven a‘a lava, 12.0 m north of Feature F. The platform is 5.8 m long (east-west) and 5.5 m wide and is bordered on the north, south and east sides by stacked and faced cobble and small boulder walls. These sides range in height from 0.4 to 0.65 m. The western side of the structure has collapsed outward and collapse was noted in the center of the northern wall. A large a‘a boulder is located adjacent to the southeastern corner of the platform.

The surface of the platform is comprised of a level pavement of cobbles and small boulders. Several waterworn basalt cobbles and coral pebbles were noted on the platform’s surface. A large outcrop extends from the surface of the platform along its eastern side. This outcrop is 4.0 m long (north-south), 1.45 m wide and 0.8 to 0.95 m in height above the surface of the platform.

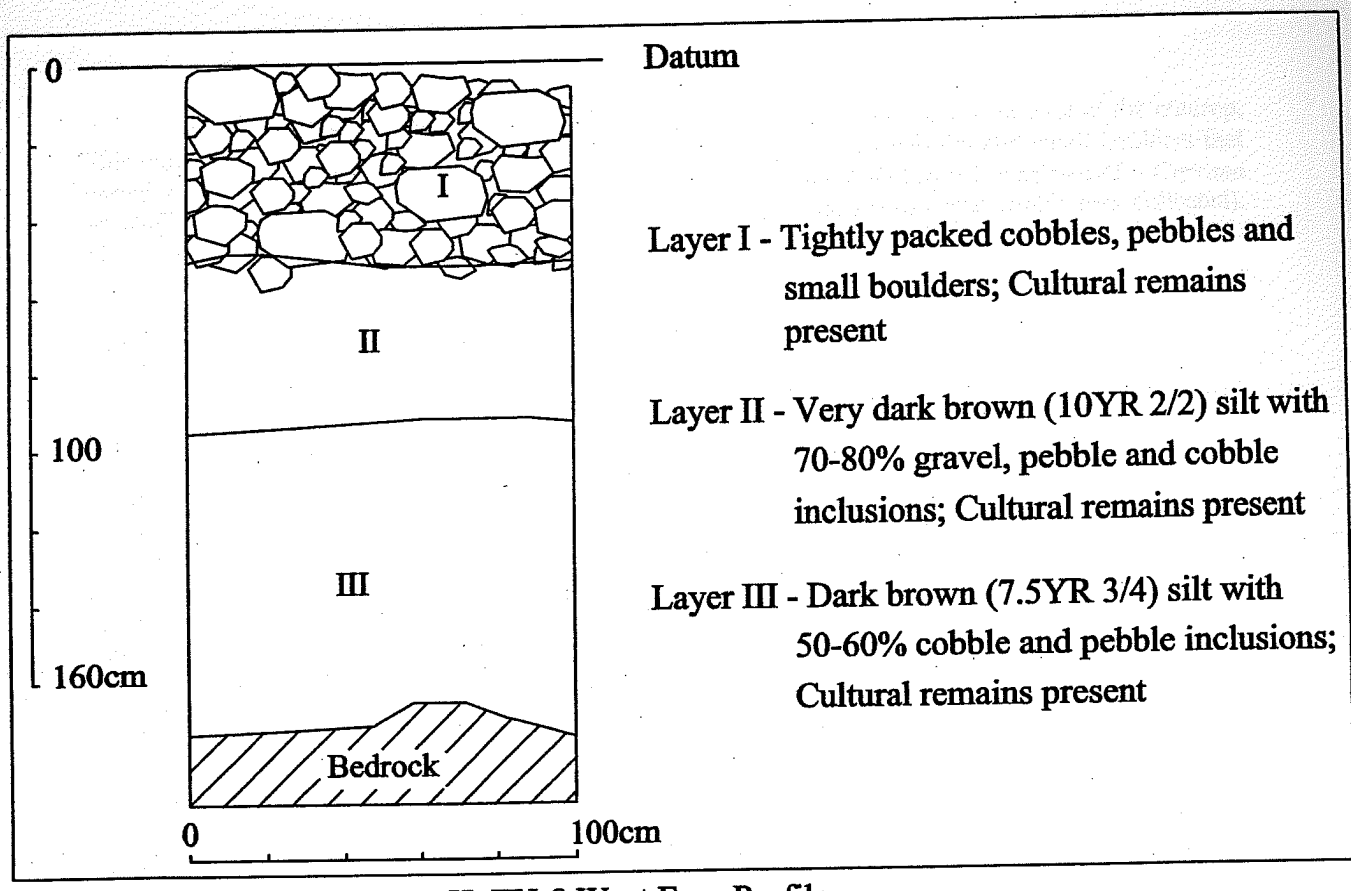


Figure 32. Site 24150, Feature H, TU-8 West Face Profile

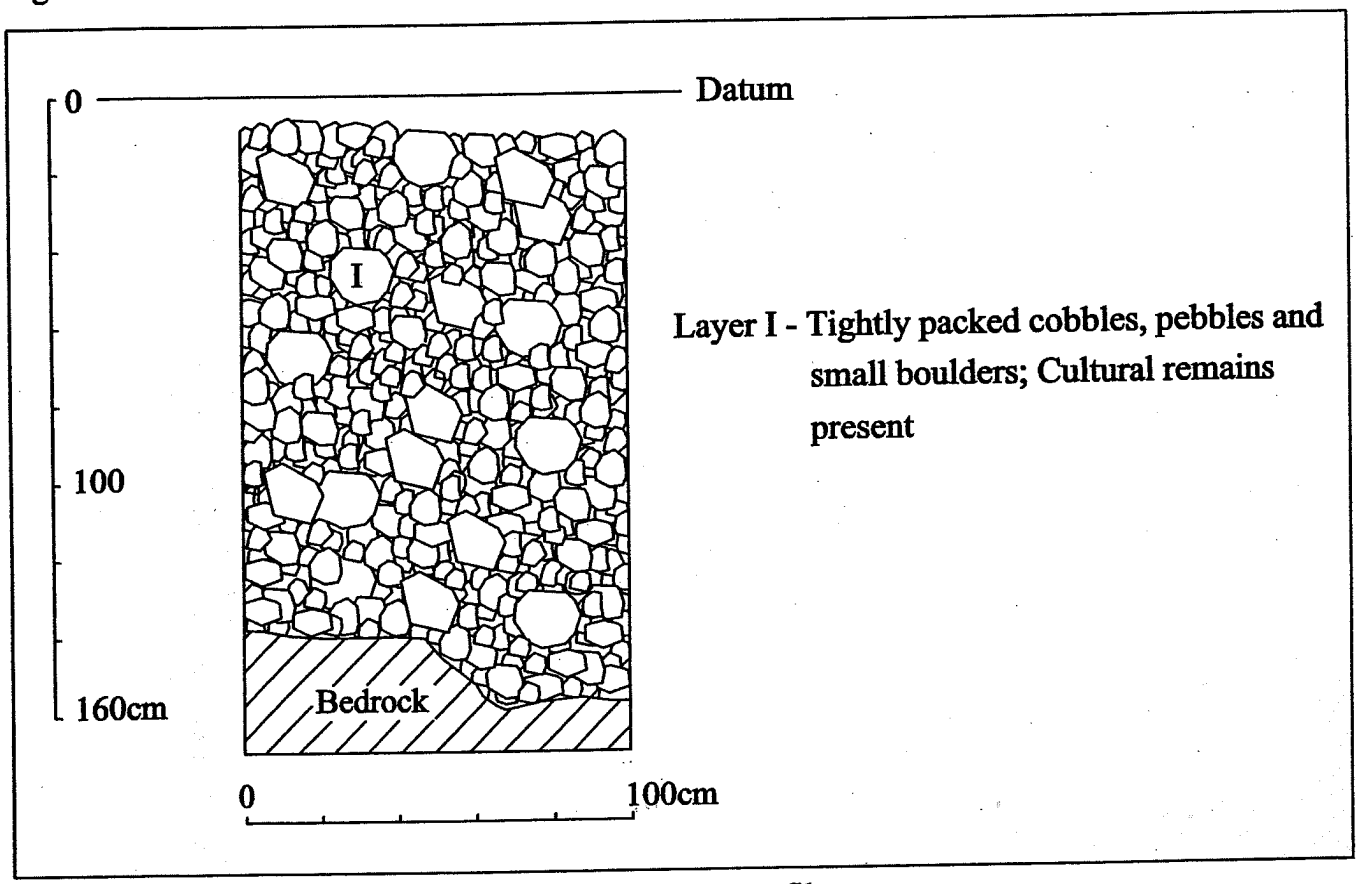


Figure 33. Site 24150, Feature J, TU-7 South Face Profile

A 1.0 by 1.0 m test unit (TU-7) was excavated into the center of the platform west of the outcrop. This excavation revealed in a single layer of tightly packed a‘a cobbles, pebbles and small boulders that varied in thickness from 1.3 to 1.47 m (*Figure 33*). Cultural remains from Layer I consisted of a *Cypraea sp.* shell (22.0 grams), five waterworn coral pebbles and a small waterworn basalt cobble (not collected). The excavation of TU-7 was terminated on bedrock.

Feature J is interpreted as the foundation for a permanent habitation structure. This is based on its formal type, substantial construction (faced sides, paved surface) and area (31.9 sq m).

Feature K consists of the disturbed remnant of an enclosure located in an area of bare coastal lava, 12.5m east of Feature A, and 11.0 m inland from the coastal cliff line. The enclosure remnant is 7.0 m long (north-northwest by south-southeast) and 5.6 m wide, with partially intact walls along the northeast and southwest sides. These walls range in width from 0.65 to 1.1 m and in height from 0.2 to 0.82 m. The exterior sides of these walls have mostly collapsed, although intact faced sections are present. A low alignment of cobbles bisects the interior of the enclosure in a northeast by southwest direction. This alignment averages 0.3 m in height. The area to the southeast of the alignment consists of a rough cobble pavement remnant and the area to the northwest is bare lava with scattered cobbles. No cultural remains were noted at the feature, but waterworn coral fragments and basalt cobbles are scattered on the lava surface between the enclosure and the cliff line. Feature K is interpreted as the probable remnant of a permanent habitation structure based on its formal type, substantial construction (faced sides, paved surface) and area (39.2 sq m).

Site 24151

Site 24151 is a complex of six permanent habitation features located in an area of uneven pahoehoe and soil, 40.0 m southeast of Site 24150, on the inland side of the Site 24146 road. The site encompasses an area 49.0 m long (north-south) by 22.0 m wide and is comprised of an enclosure (Feature A), a low wall (Feature B), three mounds (Features C-E) and a pavement (Feature F; *Figure 34*). The site is unaltered and in fair condition.

Feature A is a large rectangular enclosure that is 14.5 m long (east-west) by 12.4 m wide. The walls of the enclosure are constructed of stacked cobbles and small boulders and vary in width from 1.0 to 1.7 m and in height from 0.55 to 1.1 m. Portions of the interior and exterior sides of the walls are collapsed, although intact faced sections are present with core-filled cobble interiors. There are two entrances into the enclosure; one in the center of the south wall and on e in the center of the north wall. The entrances range in width from 1.5 to 2.0 m.

The interior floor of the enclosure consists of a level soil deposit and low pahoehoe outcrops with scattered sun-bleached marine shells and waterworn coral pebbles. An oval-shaped alignment of large cobbles is present in the northwestern portion of the enclosure, measuring 1.2 m in diameter and 0.2 m in height. This alignment may represent a hearth. Feature A is interpreted as a permanent habitation, ancillary feature which likely functioned as a yard surrounding a pole and thatch roofed structure. This is based on its formal type, substantial construction (faced sides) and area (179.8 sq m).

Feature B is a wall located 7.9 m south of the Feature A. It extends 20.7 m to the south, terminating 7.0 m north of a dirt road. The wall consists of stacked and piled cobbles and small boulders and is 1.4 to 3.0 m wide and 0.1 to 0.52 m in height. There is an alignment of small boulders along the western side at the north end. Several low pahoehoe outcrops are incorporated into the wall in the center. No cultural remains were observed. Feature B is interpreted as a permanent habitation, ancillary feature, which may have served as a boundary wall that partially enclosed the habitation area. This is based on its formal type and proximity to the Feature A enclosure.

Feature C, D and E are roughly oval-shaped mounds located to the west of the Feature B wall. These mounds are constructed of piled cobbles and small boulders, with uneven, irregular surfaces. These features range in length from 3.0 to 4.7 m, in width from 1.9 to 3.0 m and in height from 0.4 to 0.6 m. No cultural remains were found in association with the mounds. Features C-E are interpreted as permanent

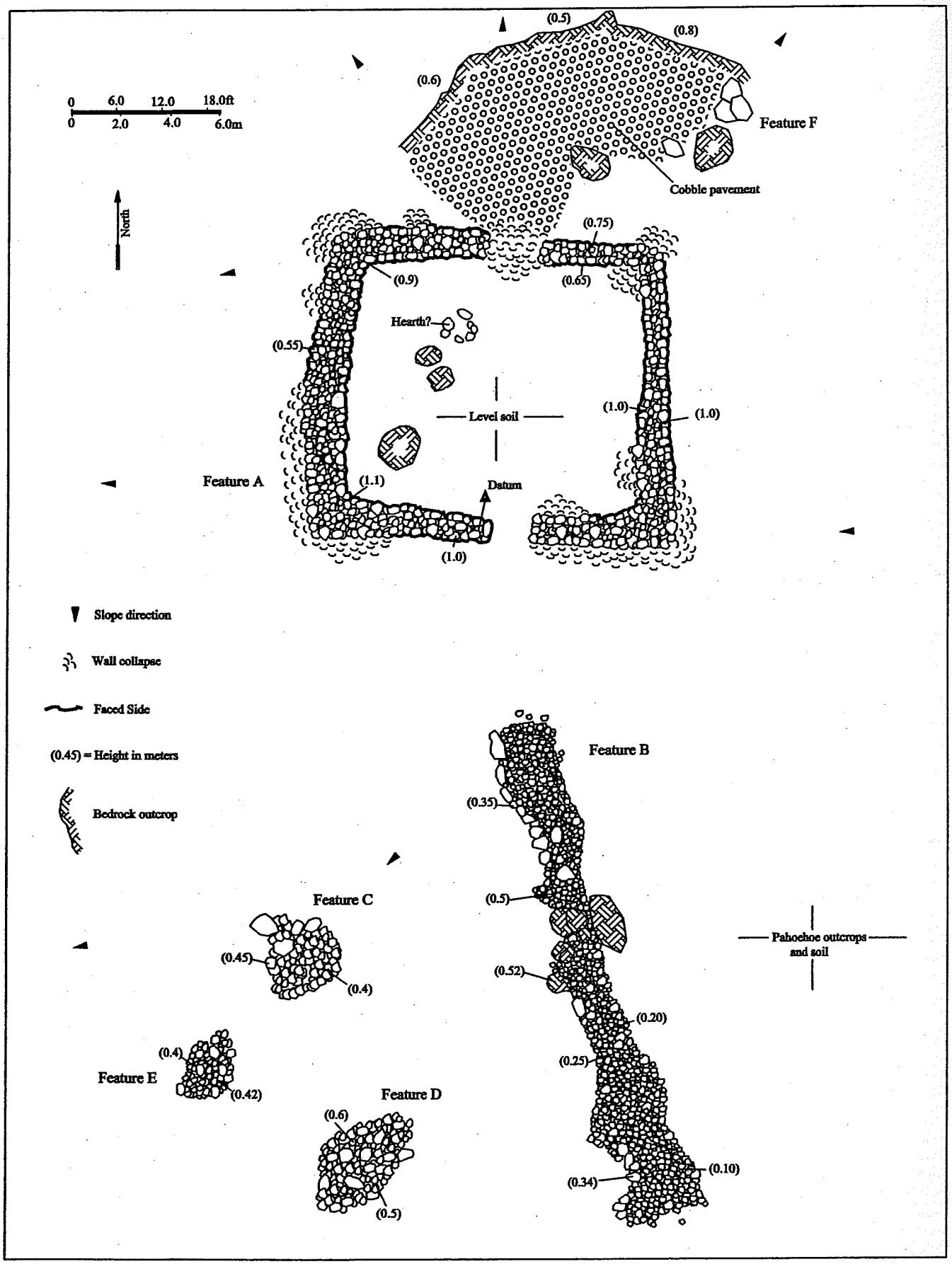


Figure 34. Site 24151 Plan Map

habitation, ancillary features which may have functioned as site furniture, based primarily on their close proximity to the other features of the site.

Feature F is a low pavement located adjacent to the Feature A enclosure to the north. The paved area is 13.5 m long (east-west) and 4.7 to 6.4 m wide. It is bordered by a bedrock outcrop along the north and northwest sides, and by outcrops and several large boulders to the east. The southern end of the pavement appears to originate at the northern entrance of the Feature A enclosure. The surface of the feature is relatively level and consists of tightly packed pebble, cobbles and small boulders. No cultural remains were noted on the surface of the pavement. Feature F is interpreted as a permanent habitation, ancillary feature that likely served as a *lanai* or activity area associated with the Feature A enclosure. This is based on its formal type, substantial construction (paved surface), large area (74.9 sq m) and association with Feature A.

Site 24152

Site 24152 is a large, irregularly-shaped pavement located in the coastal portion of the project area, on a level ridge 44.0 m east of Site 24151. A bulldozed road is located 11.0 m west of the structure. The pavement is 12.75 m long (northeast by southwest), and 2.3 to 9.9 m wide (*Figure 35*). The pavement is bordered by bedrock outcrops to the west and northeast, by several small to medium sized boulders to the north and by areas of level soil with scattered surface stones to the south and east. The ground surface slopes down to the west and north away from the pavement. The surface is comprised of level a‘a cobbles and pebbles. Several waterworn basalt cobbles are present on the pavement surface at the southeastern end. Site 24152 is interpreted as the foundation for a permanent habitation structure based on its formal type, substantial construction (paved surface) and large area (77.5 sq m). The site is unaltered and in fair condition.

Site 24153

Site 24153 is a large multi-tiered platform located 37.0 m east-southeast of Site 24152 and 2.0 m north of the 1950 lava flow, on a rocky slope to the west. The platform is square in shape with overall dimensions of 10.15 m long (west-northwest by east-southeast) and 10.0 m wide (*Figure 36*). Portions of the exterior sides of the platform have collapsed outward, although intact faced sections of stacked cobbles and small boulders are present, ranging in height from 0.5 to 1.75 m.

The lower tier occupies the west and south sides of the structure. This tier is L-shaped, measuring 10.0 m (north-northeast by south-southeast) and 10.15 m (west-northwest by east-southeast). The tier varies in width from 1.0 to 5.0 m with a surface comprised of a level a‘a cobble, pebble and small boulder pavement. A 3.3 m long (north-northeast by south-southwest) alignment of small boulders and large cobbles is present in the western portion of the lower tier. Several waterworn basalt cobbles and waterworn coral fragments are scattered over the surface of the tier.

The upper tier occupies the north and eastern sides of the structure. This tier is also roughly L-shaped and is 0.2 to 0.55 m higher than the lower tier. It is 9.2 m (north-northeast by south-southeast) and 9.0 m (west-northwest by east-southeast). The north and east exterior sides of the tier are bordered by partially collapsed, stacked and faced walls that are 1.0 to 1.5 m wide and 0.37 to 0.65 m in height on the interior side. The surface of the upper tier is comprised of relatively level pavement of cobbles, pebbles and small boulders, with scattered waterworn basalt cobbles present.

The upper tier contains two internal features consisting of a small platform and a rock pile. The platform is located along the west side of the tier and is 1.6 m long (north-south), 1.3 m wide and 0.4 to 0.45 m in height. The sides of this platform are bordered by aligned small boulders and the surface is comprised of a level cobble and pebble pavement. The mound is located 2.5 m south-southeast of the platform. It is oval-shaped and is 1.4 m long (northeast by southwest), 1.1 m wide and 0.6 to 0.65 m in height. The surface is slightly domed.

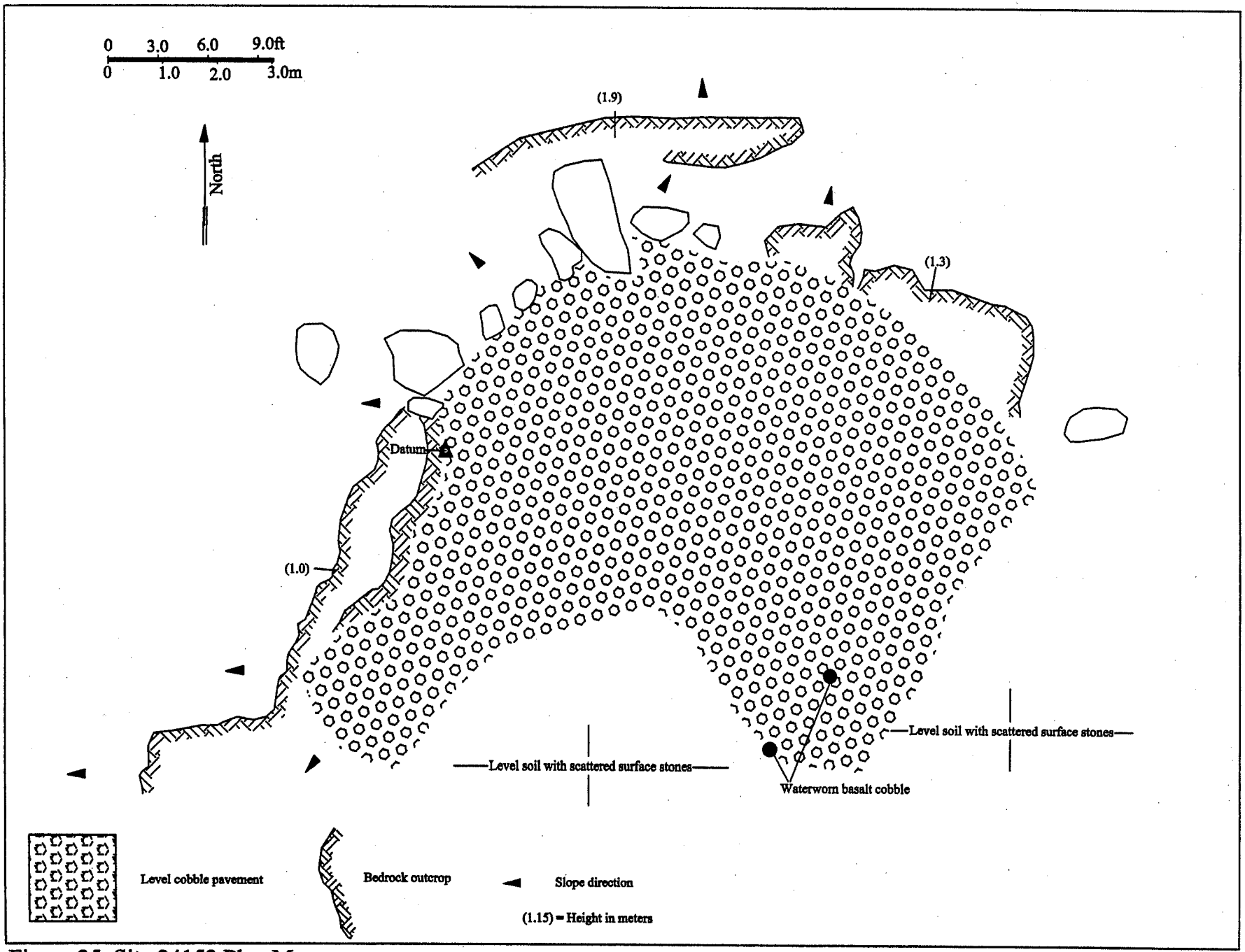


Figure 35. Site 24152 Plan Map

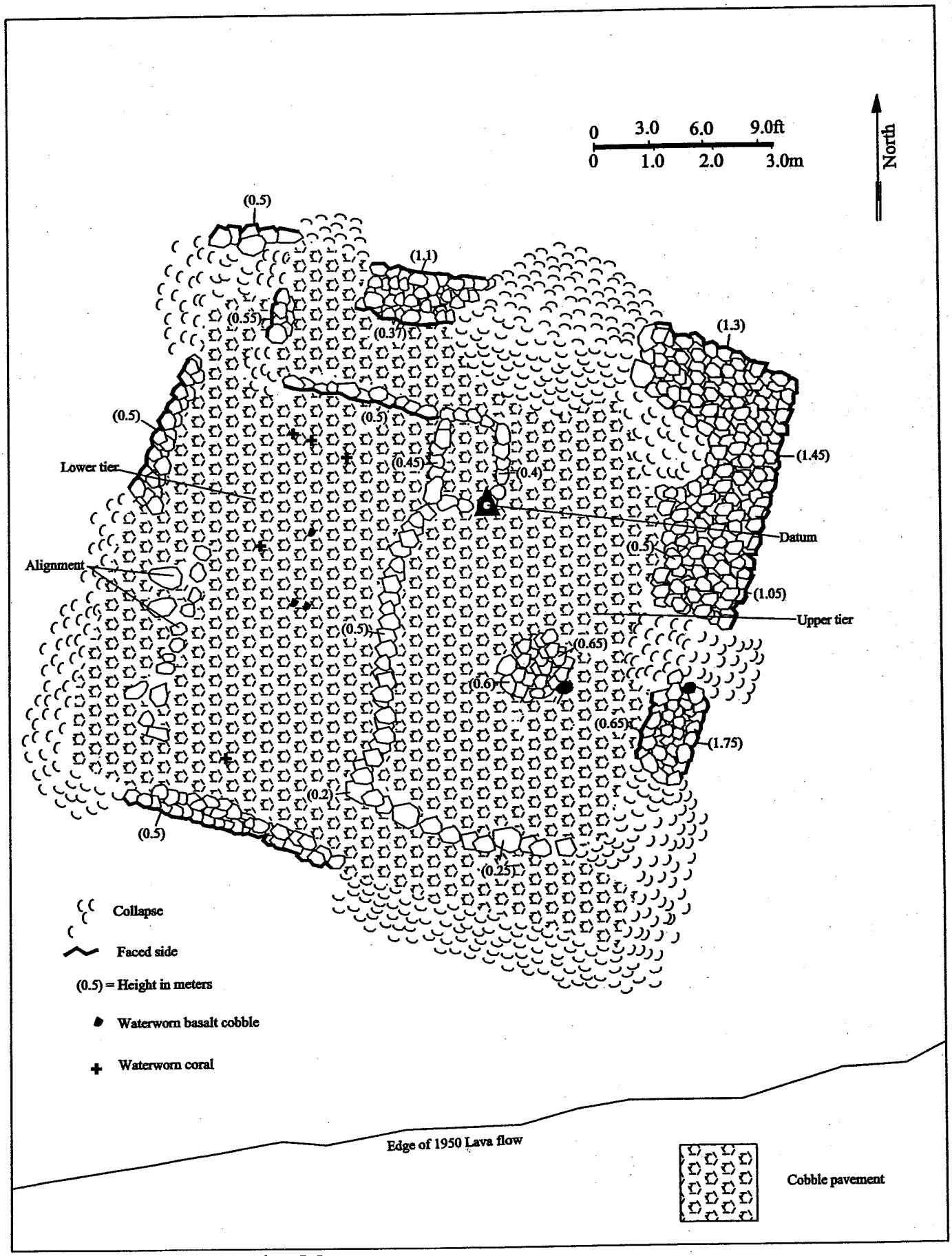


Figure 36. Site 24153 Plan Map

Site 24153 is interpreted as a *heiau* based on its large area (101.5 sq m), its substantially constructed nature (faced side, paved surface), and its multiple tiers and internal features.

Site 24154

Site 24154 is a complex of two permanent habitation structures located in the southwestern portion of the project area, 30.0 m south of Site 24152 and 7.0 m southeast of dirt road in an area of uneven soil and outcrops that slopes to the west and southwest. The southern end of the site has been buried beneath the 1950 lava flow. The features are comprised of an enclosure remnant (Feature A) and a modified outcrop (Feature B; *Figure 37*). The site is altered and in poor to fair condition.

Feature A consists of the disturbed remnant of an enclosure located at the southern end of the site. Currently the structure is 19.3 m (northeast by southwest) and 17.8 m wide. The feature appears to have originally been roughly L-shaped, though it has been significantly impact by bulldozer disturbance, evidenced by a dozed path that extends through the feature is an east-west direction. Portions of the north, south, east and west sides of the enclosure still remain extant, although each side evidences disturbance. The northwest corner of the enclosure is the most intact portion of the feature, consisting of stacked and faced walls, with a core-filled cobble interior (*Figure 38*). These walls are 1.3 to 1.5 m wide and 0.8 to 1.1 m in height. The east end of the north wall in this area is faced, suggesting that an entrance into the interior was once present. A remnant of the north wall is present 3.4 m to the east-northeast, measuring 2.3 m long, 1.1 m wide and 0.3 m in height.

Portions of the eastern wall are also intact, with faced interior and exterior side remaining. These intact sections are 1.0 to 1.3 m wide and 0.7 to 0.8 m in height. The remaining portions of the east wall are either collapsed or missing. Portions of the south wall have been buried beneath the 1950 lava flow, although a collapsed rubble wall measuring 13.6 m long (east-west), 1.2 to 1.4 m wide and 0.45 to 0.5 m in height is present at the southwest end of the feature.

The interior of the enclosure is comprised of relatively level soil and scattered stones at the north end, with the southern end sloping slightly towards the south. The remnants of a crude terrace is located at the top of the sloping area, measuring 2.3 m long (east-west) and 1.35 m wide. A retaining wall of aligned small boulders is located along the south side of the terrace (0.5 m in height), with an area of level soil on the upslope side. No cultural remains were found within the enclosure, although a fragment of milled lumber was noted on top of the wall at the northwest corner. The enclosure is interpreted as a permanent habitation feature that functioned as a yard.

Feature B is a linear modified outcrop located 12.5 m north of Feature A. The feature is 16.4 m long (east-west) by 1.0 to 1.5 m wide. The eastern end consists of an exposed pahoehoe outcrop that is 0.7 to 1.2 m in height above the surrounding ground surface. Scattered stacked and piled cobbles, small boulders and pebbles are present across the surface of the outcrop. Several fragments of sun-bleached marine shell were noted at the eastern end of the outcrop and two circular brass benchmarks are imbedded into the surface. One of the benchmarks reads, “Kauluoa”.

A disturbed linear pile of cobbles and small boulders extends to the west from the outcrop for 9.5 m. This pile is 0.5 to 0.8 m in height. A *papamu* consisting of a flat waterworn basalt boulder with a series of pecked holes on one side is present at the western end of the linear pile. The boulder is 0.77 m long, 0.58 m wide and 0.35 m in thickness (*Figure 39*).

Feature B and the area surrounding it has been impacted by bulldozer activity making a determination of its function difficult. However, based on its close proximity to the Feature A enclosure, the presence of the *papamu* and the marine shell, this feature likely represents the remnants of permanent habitation feature.

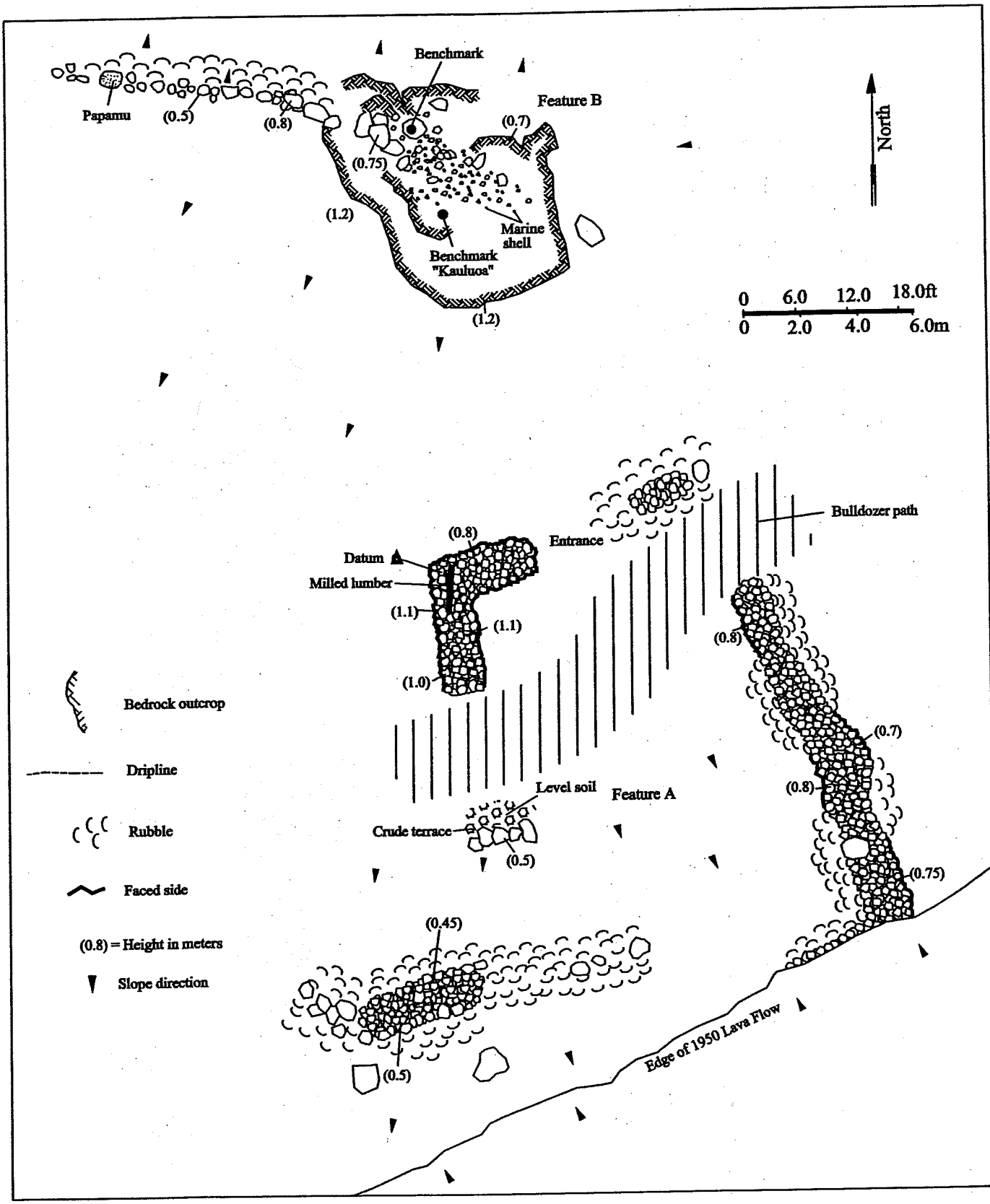


Figure 37. Site 24154 Plan Map

Figure 38. Site 24154, Feature A, Enclosure Wall Remnant, view to southwest

Figure 39. Site 24154, Feature B Papamu, view to northwest

Site 24155

Site 24155 is a complex of four possible ceremonial features located in the southwestern portion of the project area, 6.0 m inland from the coastal cliff line. The wall bordering the seaward side of the Site 24146 road is located adjacent to the site to the east. The features are comprised of a platform (Feature A), a terrace (Feature C) and two paved areas (Features B and D; (*Figure 40*).

Feature A is a rectangular platform that is 5.7 m long (north-south) and 3.9 m wide. The platform is located on the surface of the Feature B pavement and is bordered to the south by the inland end of the Feature C terrace (discussed below). The southeast side of the platform has collapsed, although the remaining sides are intact, comprised of stacked and faced cobbles and small boulders that vary in height from 0.6 to 0.78 m. The surface of the platform is comprised of a rough pavement of cobbles and small boulders, with large amounts of waterworn coral.

Feature B is an irregularly-shaped, level pavement of cobbles and small boulders that extends around the north, west and east sides of the Feature A platform. The paved area is 20.2 m long (northeast by southwest) and 4.0 to 7.4 m wide. It is bordered by the inland end of the Feature C terrace to the west and south, by an alignment of small boulders to the north and by a level soil with scattered cobbles to the east. The surface of the pavement contains scattered waterworn basalt cobbles and waterworn coral.

Feature C is a large, irregularly-shaped terrace that extends along the west and south sides of the site. The terrace is 18.1 m long (east-west) and 6.4 to 14.1 m wide. A retaining wall extends along the west and southwest side of the feature. This wall is partially collapsed although an intact, faced section is located at the north end, comprised of stacked cobbles and small boulders that average 1.1 m in height. Aligned small boulders, several of which are positioned vertically, border the terrace at the southwest end. The northern side is delineated by an alignment of cobbles and boulders, and by Features A and B. The south and east sides of the features abut the surrounding terrain. The surface of the terrace consists of sloping, rough pavement of cobbles and small boulders. Waterworn basalt cobbles and waterworn coral are scattered over the surface of the terrace. Two depressions with vertical sides are present on the surface at the northern end, ranging in length from 0.8 to 1.6 m, in width from 0.35 to 0.7 m and in depth from 0.5 to 0.9 m.

Feature D is a roughly rectangular pavement located to the north and west of the Feature B pavement. This paved area is separated from Feature B by an alignment of cobbles and small boulders. It is 5.9 m long (east-west) by 5.2 m wide and abuts the surrounding terrain to the north and south. Waterworn basalt cobbles are present on the surface of the pavement.

Site 24155 is interpreted as a *heiau* complex based on its coastal location, large area (282.7 sq m), its substantially constructed nature (faced sides, paved surface), the vertical pits and multiple tiers formed by its component features. The site is unaltered and in fair condition.

Site 24156

Site 24156 is a complex of two historic features located in the southwestern portion of the project area along the northeast side of a rocky bay. The site is comprised of a concrete box with an attached slab (Feature A) and a concrete box (Feature B), situated at the base of a slope that angles down to the west (*Figures 41* and *42*). Feature A is partially buried beneath slope wash. Some of the soil was removed from the surface of the slab, exposing an area 1.47 m long (northwest by southeast) and 0.76 to 1.0 m wide. A 0.1 m deep recessed box was noted in the southeast corner of the slab, measuring 0.71 m long and at least 0.36 m wide. The sides of the slab and the box are bordered narrow curbs that are 0.6 m wide. The slab is level with the surrounding ground surface at the north and south sides and 0.1 m in height on the west side.

Feature B is a concrete box located adjacent to Feature A, 0.78 m to the southeast. The box is 0.8 m square at the base at 0.65 m square at the top, with sides that slope inward from the base. The top of the

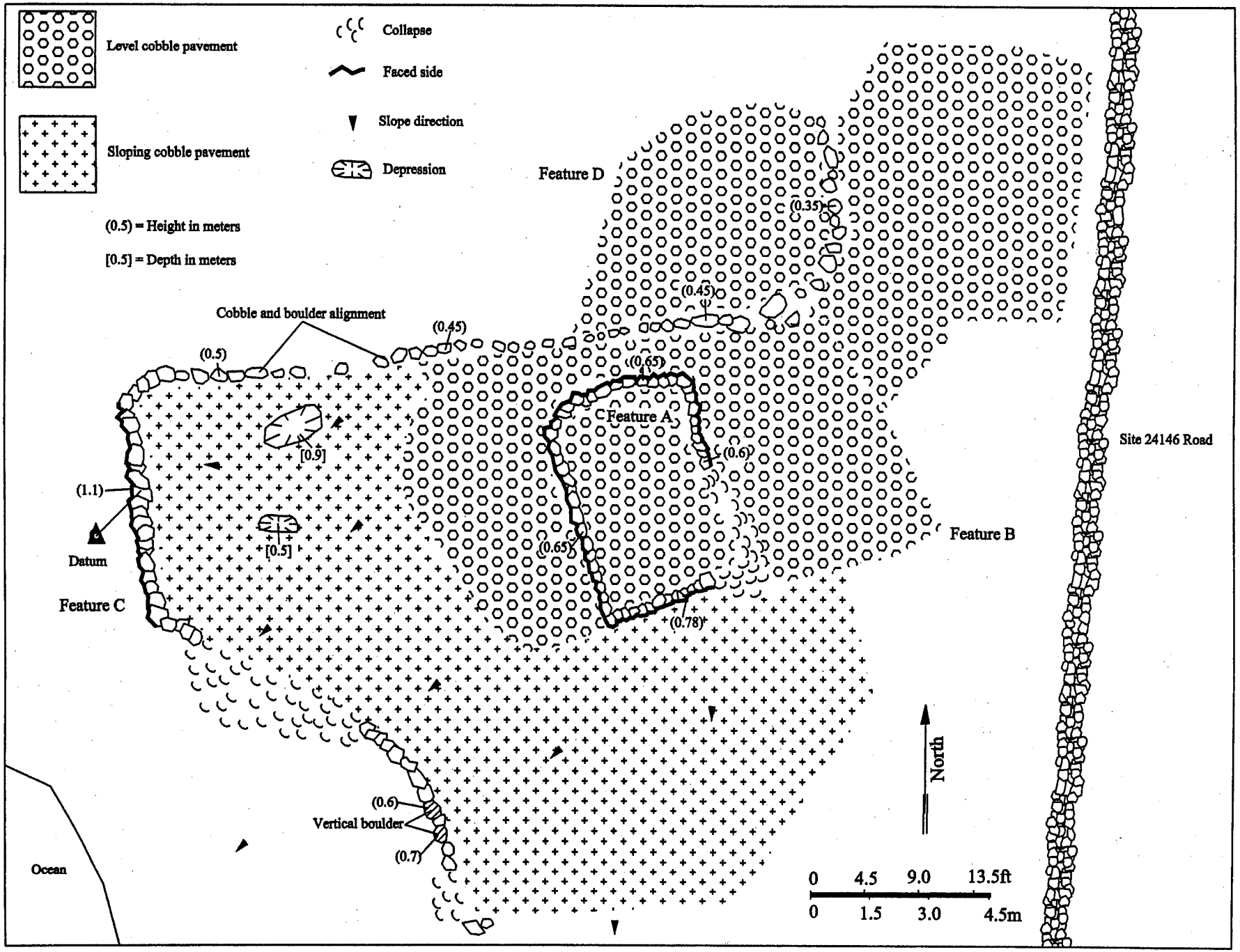


Figure 40. Site 24155 Plan Map

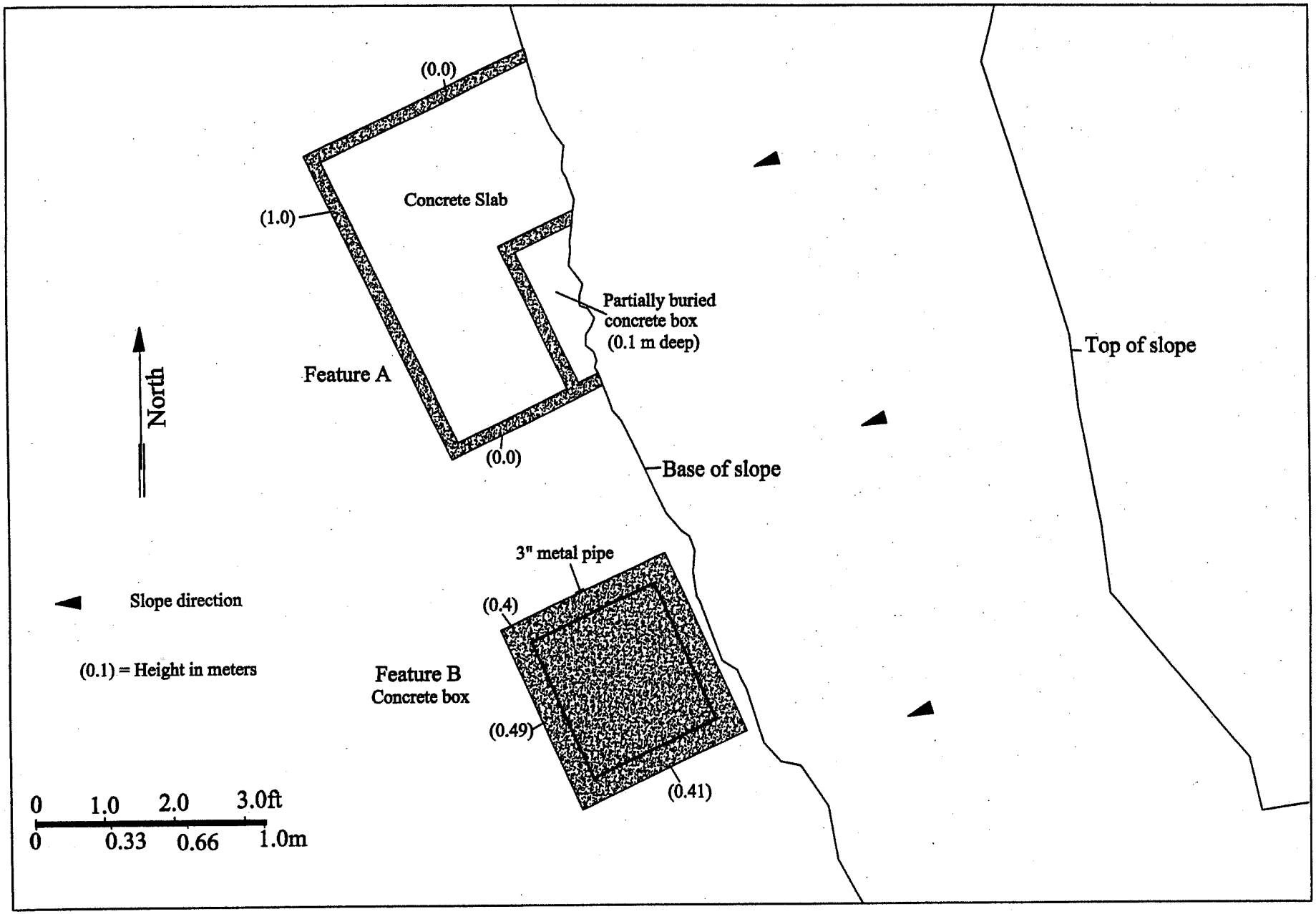


Figure 41. Site 24156 Plan Map

Figure 42. Site 24156, Feature A and Feature B, view to south

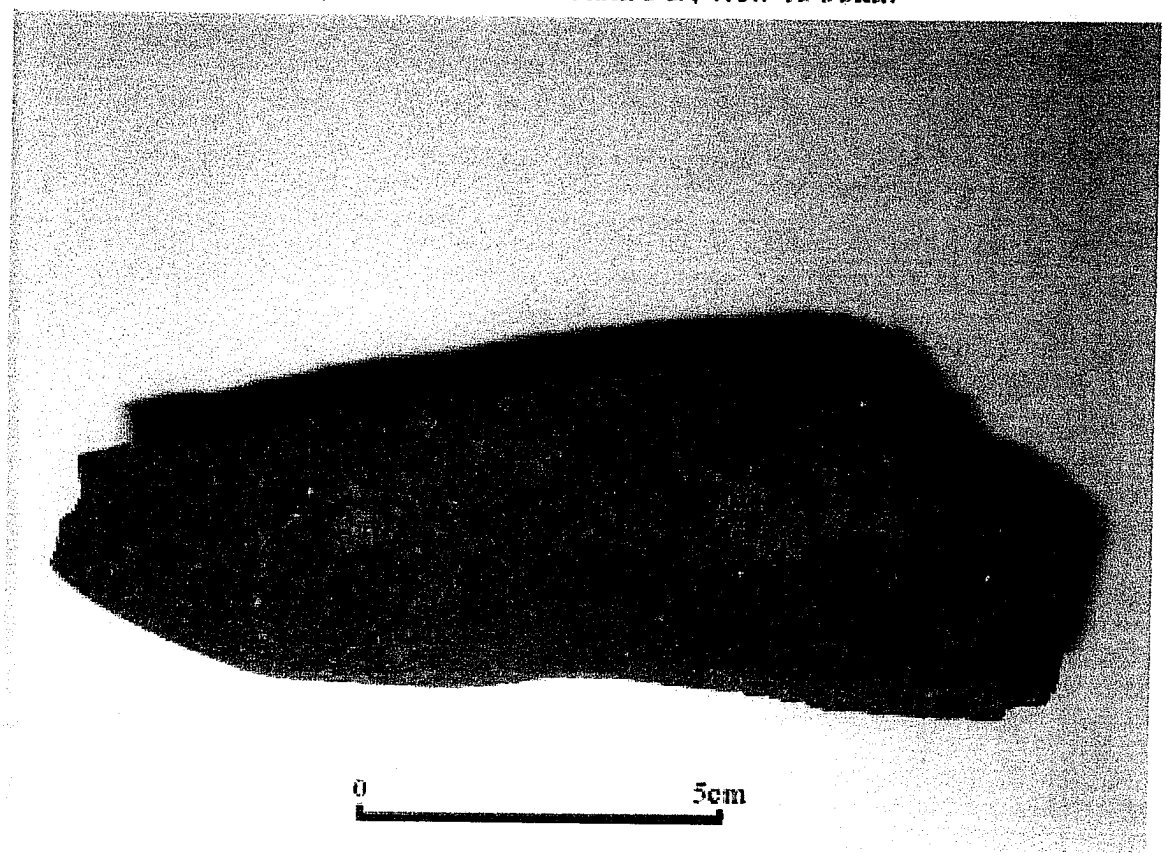


Figure 43. Isolated Object 1, Basalt Adze

box ranges in height from 0.4 to 0.49 m. A 3” metal pipe is exposed in the center of the northern side of the box. No cultural remains were found in association with the site. Site 24156 is interpreted as a water source. The concrete boxes probably capped springs based on the nature of the concrete features, their location at the base of a slope bordering a beach, and the presence of the metal pipe. The site is unaltered and in fair condition.

Isolated Object

Isolated Object 1 (IO-1) is a basalt adze collected from the ground surface in the inland portion of the project area at c. 650 ft elevation. The adze is complete and is 113 mm long, 42 mm wide and 25-33 mm in thickness (*Figure 43*). The bevel of the adze has been broken off and smooth, ground facets are present on each side.

CONCLUSION

Discussion

The identified site and component features conform to the site/feature types expected based on previous archaeological work and historic documentary research. Probable prehistoric to early historic agricultural features consist of modified outcrops, mounds, and *kua'iwi*. All except one of the agricultural features are situated inland between 400 ft and 700 ft elevation. Other inland traditional sites include two temporary and three permanent habitation sites, and a terrace interpreted to be a small *heiau* (Site 24144) based on its prominent location, multiple tiers, and presence of numerous waterworn basalt and coral cobbles that appear to represent offerings. The temporary habitations consist of a modified knoll and an enclosure.

As expected there is a concentration of traditional sites at the coast including permanent habitations, burials, and two sites interpreted to be *heiau. Table 2* summarizes permanent habitation sites. The three inland permanent habitation sites are relatively small with between one and three features and a single roofed dwelling foundation. The coastal permanent habitation sites consist of between one and nine features. The sites include between one and five dwelling foundations, or yards in which a pole and thatch dwelling is presumed to have been present. Walled yards are present at four sites (24147, 24148, 24151, and 24154) a typical early historic form that served to keep free-ranging cattle out. One confirmed burial platform (Feature A) and probable burial (Feature B) are present at the largest permanent habitation site (24150).

Two coastal sites, Site 24155 situated on a bluff overlooking a small bay and Site 24153 situated about 200 m inland overlooking the coast, are interpreted to be *heiau* based on their prominent locations, large size, and architectural traits including multiple tiers. Site 24155 is a complex consisting of a terrace, two pavements, and a platform that cover an area of nearly 300 sq m. The terrace borders the ocean and has been partly destroyed by wave action that has reduced most of the terrace to a sloping pavement. The basal course of the terrace retaining wall is intact, primarily consisting of an alignment of boulders up to 1 m in diameter. If the original terrace surface was level, then the retaining wall was probably 2 m or more in height. Two depressions on the terrace may have supported wooden idols.

Site 24153 is a large two-tiered platform over 100 sq m in area. The upper surface is divided into two tiers. Waterworn basalt and coral cobbles, possibly offerings, are present on the surface of the lower western tier. The upper surface of the platform is partially enclosed by walls and there is a bench along a portion of the wall and a low platform that potentially served as altars. Possible alternative functions for Sites 24153 and 24155 include men's houses or chiefly residences; however, the relative isolation of Site 24153 and the massiveness of Site 24155 are traits that argue against these alternative functions.

Historic sites consist of two roads (24136 and 24146), two water sources (24145 and 24156) and two segments of ranch walls. The coastal permanent habitation sites with walled yards (Sites 24147 and 24148) and possible yards (Sites 24149, 24151, 24154) were probably occupied in the early 1800s when free-ranging cattle were becoming a nuisance. The inland Site 24136 road was probably constructed between the 1830s and 1850s based on its similarity to other roads build during the period. It is not shown on late 1800s or early 1900s maps indicating that it was probably no longer in use then. The coastal road is bordered by walls potentially indicating it was used to drive cattle. The road is shown on a 1909 map (see *Figure 4*) and it was probably used during the late 1800s and early 1900s prior to the 1920s because it is not shown on the 1923 USGS Quadrangle map (see *Figure 5*). The two water sources have construction materials and artifacts that date to the 1900s.

Wright's 1909 map of South Kona (see *Figure 4*) shows a road or trail that extends from the coast to the main inland road through portions of the project area that were covered by the 1950 lava flow. The 1923 USGS Quadrangle map (see *Figure 5*) shows the same inland-seaward road or trail shown on Wright's map. It also shows a branch trail extending north along the crest of the cliffs through the project area. No evidence of this branch road was found during the survey. Its location corresponds with the current access road that probably followed the route of the earlier road.

Table 2. Summary of Permanent Habitation Sites

Site	Feature	Formal Type	Shape	Substantial Construction	Area (sq m)	Elevation (ft)	Comments
24138	A	Terrace	Rectangular	None	50.3	610	Ancillary Feature, Possible *lanai*
24138	B	Enclosure	Oval	Faced side	26.0	610	Foundation for roofed structure
24138	C	Modified Knoll	Oval	None	20.1	610	Ancillary Feature, Possible work area
24139	A	Terrace	Rectangular	Faced side	21.8	650	Foundation for roofed structure
24139	B	Terrace	Rectangular	Faced side	37.1	650	Ancillary Feature, Possible work area or *lanai*
24143	-	Terrace	Irregular	Paved surface	33.5	200	Foundation for roofed structure
24147	A	Enclosure	Rectangular	Faced side	248.6	70	Ancillary Feature, Yard
24147	B	Pavement	Oval	Paved surface	81.1	70	Ancillary Feature, Possible work area or *lanai*
24148	A	Enclosure	Rectangular	Faced side	92.3	20	Ancillary Feature, Yard
24148	B	Enclosure	Square	Faced side	42.0	20	Foundation for roofed structure
24148	C	Wall with leaning boulder	Curvilinear	Paved surface	11.3 m long	20	Ancillary Feature, Possible associated shelter
24148	D	Enclosure	L-shape	Faced side	62.8	20	Ancillary Feature, Yard
24148	E	Modified Outcrop	Irregular	None	14.6	20	Ancillary Feature, Site Furniture
24148	F	Enclosure	Rectangular	None	31.9	20	Possible Special Purpose Structure
24148	G	Mound	Irregular	None	19.5	20	Ancillary Feature, Site Furniture
24149	A	Enclosure	Oval	None	44.0	10	Foundation for roofed structure
24149	B	Enclosure	Oval	None	9.8	10	Possible Special Purpose Structure
24149	C	Enclosure	Oval	Paved surface	25.6	10	Foundation for roofed structure
24149	D	Wall	Linear	Faced side	7.3 m long	10	Ancillary Feature, Possible portion of yard
24150	C	Platform	Rectangular	Faced side, paved surface	25.7	10-20	Foundation for roofed structure
24150	D	Platform	Irregular	Faced side, paved surface	24.6	10-20	Foundation for roofed structure
24150	E	Terrace	Rectangular	None	26.0	10-20	Ancillary Feature, Possible work area
24150	F	Terrace	Oval	None	28.6	10-20	Ancillary Feature, Possible work area
24150	G	Terrace	Irregular	None	4.9	10-20	Ancillary Feature, Possible work area
24150	H	Platform	Rectangular	Paved surface	5.2	10-20	Possible Special Purpose Structure
24150	I	Modified Knoll	Irregular	Paved surface	266.0	10-20	Foundation for roofed structure
24150	J	Platform	Square	Faced side, paved surface	31.9	10-20	Foundation for roofed structure
24150	K	Enclosure	Rectangular	Faced side, paved surface	39.2	10-20	Foundation for roofed structure
24151	A	Enclosure	Rectangular	Faced side	179.8	20	Ancillary Feature, Yard
24151	B	Wall	Linear	None	20.7 m long	20	Ancillary Feature, Possible portion of yard
24151	C	Mound	Oval	None	6.9	20	Ancillary Feature, Site Furniture
24151	D	Mound	Oval	None	9.8	20	Ancillary Feature, Site Furniture
24151	E	Mound	Oval	None	4.1	20	Ancillary Feature, Site Furniture
24151	F	Pavement	Irregular	Paved surface	74.9	20	Ancillary Feature, Possible work area or *lanai*
24152	-	Pavement	Irregular	Paved surface	77.5	30	Foundation for roofed structure
24154	A	Enclosure	L-shape	Faced sides	343.5	30	Ancillary Feature, Yard
24154	B	Modified Outcrop	Irregular	None	16.4 m long	30	Undetermined Habitation

In response to DLNR-SHPD comments on a draft of this report (Log No: 2004.1620; Doc No: 0405MM36) Mr. Clarence Medeiros was consulted regarding his knowledge of sites in the project area. He has lived in the vicinity for over fifty years and used the project area for hunting and fishing. He also has knowledge of the area passed to him from his granduncle, Mr. Fred Iona, who worked on the Magoon family ranch that included the project area. The inland road, Site 24136, is known as Kalanipoʻo Road. It is named after the man who was responsible for its construction. Baptismal records from the Mormon Church list Kalanipoʻo in 1810. The road was apparently built under his direction by local residents who were required to work on public works projects on Tuesdays and Thursdays.

According to Mr. Medeiros, the water pump and storage facility at Site 24145 were part of a water system used by the ranch to supply a series of cattle troughs. The system used brackish water pumped from the coast near Site 24156. It is likely that the concrete features of Site 24156 were part of the system. Mr. Medeiros recalls an intake pipe in the area, but was unsure if the concrete features were part of the system. He did not recall ranching related use of the Site 24146 coastal road.

Significance Assessments

Pursuant to DLNR (1998) Chapter 275-6 (d), the initial significance assessments provided herein are not final until concurrence from the DLNR has been obtained. Sites identified during the survey are assessed for significance based on the criteria outlined in the Rules Governing Procedures for Historic Preservation Review (DLNR 1998: Chap 275). According to these rules, a site must possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:

1. Criterion “a”. Be associated with events that have made an important contribution to the broad patterns of our history;

2. Criterion “b”. Be associated with the lives of persons important in our past;

3. Criterion “c”. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

4. Criterion “d”. Have yielded, or is likely to yield, information important for research on prehistory or history; and

5. Criterion “e”. Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts--these associations being important to the group’s history and cultural identity.

Based on the above criteria, all 23 sites are assessed as significant under Criterion *“d”* (*Table 3*). The sites have yielded information important for understanding prehistoric to historic land use in project area. Four sites are also assessed as culturally significant under Criterion “e” because three of the sites are interpreted a *heiau* and the fourth includes two burials. The Site 24136 road and Site 24153 *heiau* also are assessed as excellent site type examples under Criterion “c”.

Recommended Treatments

The mapping, written descriptions, photography, and test excavations at six sites adequately documents them and no further work or preservation is recommended. Twelve sites retain the potential to yield information important for understanding traditional settlement. The landowner proposes data recovery to mitigate Site 24149 and preservation for the other eleven sites. Five other sites also are recommended for preservation. The specific preservation measures for the sites would be detailed in a Site Preservation Plan submitted for DLNR-SHPD review and approval. The proposed data recovery would be detailed in a Data Recovery Plan prepared for DLNR-SHPD review and approval. A Burial Treatment Plan for Site 24150 would be prepared for Hawaii Island Burial Council review and approval.

Table 3. Site Significance and Recommended Treatment

Site	Type	Function	Significance Criteria	Recommended Treatment*
24134	Complex	Agriculture	d	NFW
24135	Modified Knoll	Temporary Habitation	d	PR/DR
24136	Road	Transportation	c, d	PR
24137	Kua`iwi	Agriculture	d	PR/DR
24138	Complex	Permanent Habitation	d	PR/DR
24139	Complex	Permanent Habitation	d	PR/DR
24140	Enclosure	Temporary Habitation	d	PR/DR
24141	Modified Outcrop	Agriculture	d	NFW
24142	Wall	Livestock Control	d	NFW
24143	Terrace	Permanent Habitation	d	PR/DR
24144	Terrace	Ceremonial	d, e	PR
24145	Complex	not a Water Source (Pump only)	d	NFW
24146	Road	Transportation	d	NFW
24147	Complex	Permanent Habitation/ Livestock Control	d	PR/DR
24148	Complex	Permanent Habitation	d	PR/DR
24149	Complex	Permanent Habitation	d	[redacted]/DR
24150	Complex	Permanent Habitation/ Burial	d, e	PR
24151	Complex	Permanent Habitation	d	PR/DR
24152	Pavement	Permanent Habitation	d	PR/DR
24153	Platform	Ceremonial	c, d, e	PR
24154	Complex	Permanent Habitation	d	PR/DR
24155	Complex	Ceremonial	d, e	PR
24156	Complex	Water Source	d	NFW

* NFW=No Further Work, DR=Data Recovery, PR=Preservation

References

Bennett, L.

1930 Kauai Archaeology. *Papers of the Hawaiian Historical Society No. 17.* Honolulu: The Printshop Co. Ltd.

Cordy, R.

1981 *A Study of Prehistoric Social Change: The Development of Complex Societies in the Hawaiian Islands.* Academic Press. New York.

DLNR (Department of Land and Natural Resources)

2003 Hawaii Administrative Rules, Title 13, Department of Land and Natural Resources, State Historic Preservation Division.

FR

n.d. Foreign Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

FT

n.d. Foreign Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

Hammatt, H., P. Walsh, J. Robins, M. Stride and T. Barr

1995 Archaeological Inventory Survey and Limited Subsurface Testing of a 500-acre Parcel in the *Ahupua'a* of Keopuka, District of South Kona, Island of Hawai'i (TMK: 3-8-1:06-11, 13-19). Cultural Surveys Hawaii report prepared for 1250 Oceanside Partners.

Hammatt, H.H., D.F. Borthwick, B.L. Collins, I. Masterson, J.J. Robins, and H. Wong-Smith

1997 Archaeological Inventory Survey and Limited Subsurface Testing of a 1,540-acre Parcel in the Ahupua`a of Honuaino, Hokukano, Kanaueue, Halei`i, Ke`eke`, `Ilikahi, Kalukalo, and Onouli, Districts of North and South Kona, Hawaii Island. Prepared for 1250 Oceanside Partners by Cultural Surveys Hawaii.

Hammatt, H., and D. Shideler

2003 Archaeological Inventory Survey of an Approximately 30-acre parcel at Ka'ohe 5th Ahupua'a, South Kona District, Hawaii (TMK: 8-7-08: por. 3, 5 & 6). Cultural Surveys Hawaii, Inc. report prepared for Forest View, Inc.

Handy, E.S.C., and E.G. Handy

1972 Native Planters of Old Hawaii – Their Life, Lore and Environment. *Bulletin 233.* B.P. Bishop Museum.

Haun, A. and D. Henry

2003 Archaeological Inventory Survey, TMK: (3) 8-1-7:1, 54 and 55, Lands of Keopuka, Onouli 2 and Ka'awaloa, South Kona District, Island of Hawaii. Haun & Associates Report 212 prepared for PBR Hawaii.

Head, J., P. Rosendahl, and S. Goodfellow

1993 Archaeological Inventory Survey, Ka'ohe Subdivision, Lands of Ka'ohe 3rd, 4th and 5th, South Kona District, Island of Hawaii (TMK: 3-8-7-08: por 8). PHRI report 1375-070993 prepared for Allen Construction Company, Anacortes, Washington.

I'i , J.P.
1959 Fragment of Hawaiian History. *Bishop Museum Special Publication* 70. Bishop Museum Press, Honolulu.

Indices
1929 *Indices of Awards Made by the Board of Land Commissioners to Quiet Land Titles in the Hawaiian Islands.* Territory of Hawaii, Honolulu.

Kamakau, S.
1961 *Ruling Chiefs of Hawaii.* Honolulu: The Kamehameha Schools Press.

Kirch, P.V.
1985 Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory. Honolulu: University of Hawai'i Press.

Kolb, M.
1991 Social Power, Chiefly Authority, and Ceremonial Architecture, in an Island Polity, Maui, Hawaii. Dissertation, University of California, Los Angeles. UMI Dissertation Services, Ann Arbor

Maly, K.
2000 Overview of Historical Documentation for Lands for Lands of South Kona, "Pahoehoe to Kaohe", Island of Hawaii. Kumu Pono Assocaites. In Rosendahl 2002

NR
n.d. Native Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

NT
n.d. Native Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

Rosendahl, P.
2002 Archaeological Assessment Survey, Kukuiopa'e 1 Makai Parcel, Land of Kukuuiopa'e 1st, South Kona District, Island of Hawaii (TMK: 3-8-7-11:5). PHRI report 2285-103102 prepared for Griffey and Griffey, Kailua-Kona.

Sato, H.H., E.W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro Jr.
1973 *Soil Survey of the Island of Hawaii.* U.S. Dept. of Agriculture, Soil Conservation Service and University of Hawaii Agricultural Experiment Station. Washington D.C. Government Printing Office.

Soehren, L.
1980a Archaeological Reconnaissance, TMK: 8-7-19:38, 39, 40, Kaohe, South Kona, Hawaii.

1980b Archaeological Reconnaissance. TMK: 8-1-07: por 1, situated at Keopuka, South Kona, Hawaii. Prepared for Wilson, Okamoto & Associates.

Stokes and Dye
1991 Heiau of the Island of Hawai'i. *Bishop Museum Bulletin in Anthropology* 2. Bishop Museum Press, Honolulu.

Valeri, V .
1985 *Kingship and Sacrifice. Ritual and Society in Ancient Hawaii.* Chicago and London: the University of Chicago Press.

Waihona 'Aina Corporation
1998 The Mahele Database, waihona.com.

Walker, A., and P. Rosendahl
1990a Archaeological Field Inspection Survey, Keopuka Lands Parcel, Lands of Onouli 2nd and Keopuka, South Kona District, Island of Hawaii (TMK: 3-8-1-07:1. 54, 55). PHRI report 769 prepared for Libbie & Company.

1990b Archaeological Field Inspection, Jack Greenwell South Kona Parcel, Lands of Kanakau, Kalukalu and Onouli 1st, South Kona District, Island of Hawaii. PHRI Report 936 prepared for Libbie & Company.

Walsh, P., R. Chiogioji, H. Ballard, J. Robins and H. Hammatt
1995 Archaeological Inventory Survey of a 29.8-acre Parcel at Kukuipae 2, South Kona, Island of Hawaii (TMK: 8-7-10:11). Cultural Surveys Hawaii report prepared for Mr. Stanley Roehrig.

Wolfe, E., and J. Morris
2001 Geological Map of the Island of Hawaii. U.S. Department of the Interior. U.S Geological Survey

[This page intentionally left blank]

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 2b
Archaeological Data Recovery Plan and Report

[This page intentionally left blank]

Report 373-101904

ARCHAEOLOGICAL DATA RECOVERY PLAN
SITE 24149, LAND OF PAHOHOE 1ST
SOUTH KONA DISTRICT, ISLAND OF HAWAII
(TMK: (3) 8-7-007:008)

By:

Alan E. Haun, Ph.D.
and
Dave Henry, B.S.

Prepared for:

Prepared for:
Mr. Peter Dungate
75-5914G Mamalahoa Highway
Holualoa, Hawaii

October 2004

Haun & Associates
Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

INTRODUCTION

This data recovery plan was prepared by Haun & Associates at the request of Mr. Peter Dungate. The objective of this plan is to mitigate impacts to Site 24149 in accordance with data recovery requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, SHPD Rules, Chapter 278 (DLNR 2003).

Haun & Associates previously conducted an archaeological inventory survey of TMK: (3) 8-7-008:008, a c. 94-acre parcel located in the Land of Pahoehoe 1st, South Kona District, Island of Hawaii (Haun and Henry 2004; *Figure 1*). The survey of this parcel identified 23 sites consisting of 67 features (*Figure 2*). The features consist of 13 enclosures, 11 mounds, ten terraces, seven platforms, five modified outcrops, five walls, five pavements, three modified knolls, two *kua'iwi,* two roads, two concrete boxes, a wooden pump house, and a water tank. Functionally, the features consist of permanent habitation (n=37), agriculture (11), ceremonial (6), water source (5), livestock control (2), transportation (2), burial (2), and temporary habitation (2).

In the inventory survey report (Haun and Henry 2004) all 23 sites were assessed as significant for their information content. Four sites were also assessed as culturally significant because three sites were interpreted as *heiau* (Sites 24144, 24153 and 24155) and the fourth included burials (Site 24150). An historic road (Site 24136) and the Site 24153 *heiau* were also assessed as excellent site type examples. Six of the 23 sites were recommended for no further work and 16 sites were recommended for preservation. The remaining site (Site 24149) was recommended for data recovery. DLNR-SHPD concurred with the significance assessments and recommended site treatments (Log No. 2004.2306, Doc. No. 0407MM14).

This plan is for the data recovery of a permanent habitation complex (Site 24149). This plan describes the data recovery site and outlines research questions and methods for the data recovery effort.

SITE IDENTIFICATION

Site 24149

Site 24149 is a complex of four permanent habitation features located in the seaward portion of the project area, c. 35.0 m inland from the coastal cliff line. The site is comprised of three enclosures (Features A-C) and a wall (Feature D; *Figure 3*), situated in an area 35.0 m long (northwest by southeast) and 21.0 m wide, in an area of uneven a'a lava. The three enclosures and potentially the wall have likely been impacted by wave activity. The site is altered and in poor to fair condition.

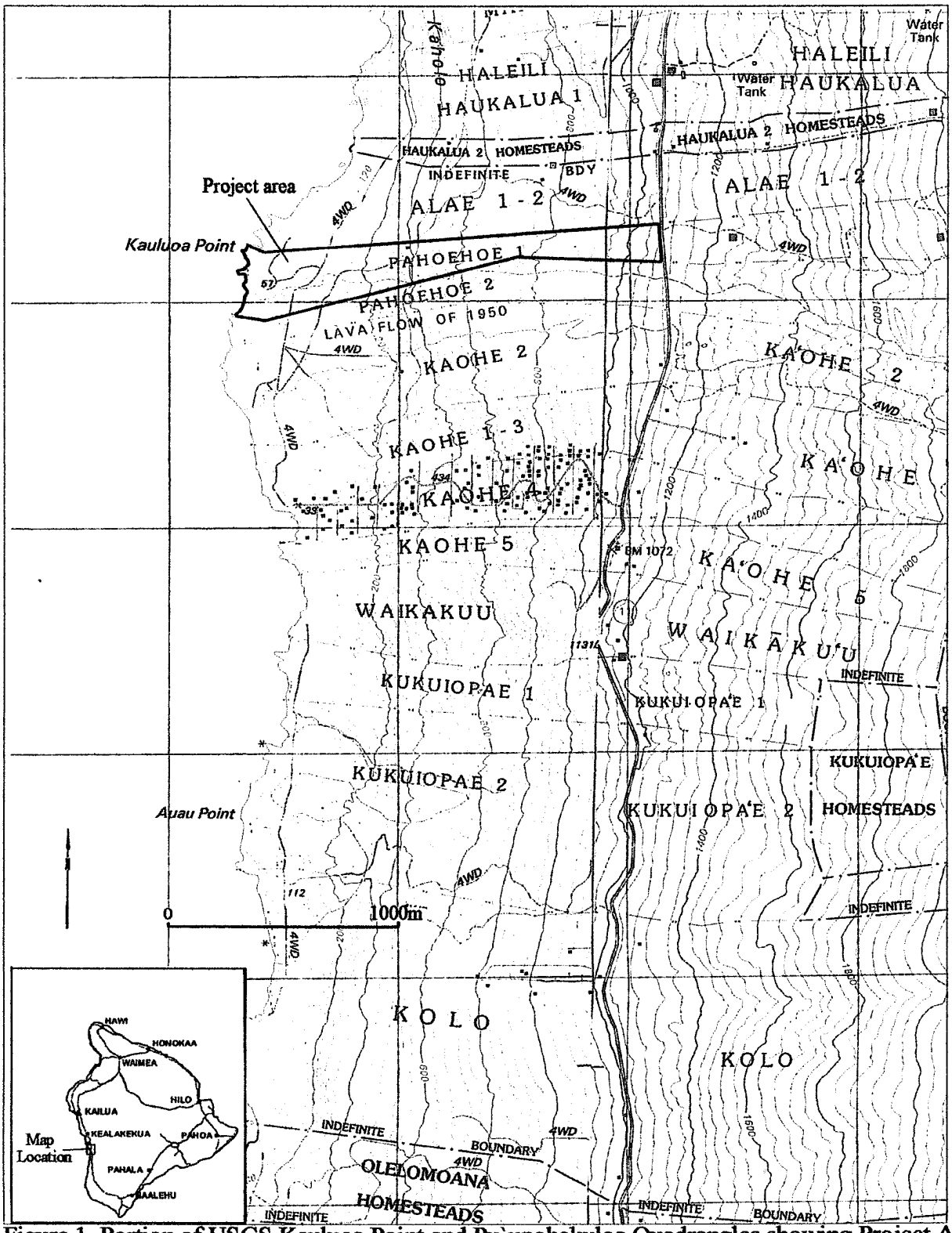


Figure 1. Portion of USGS Kauluoa Point and Pu`upohakuloa Quadrangles showing Project Area

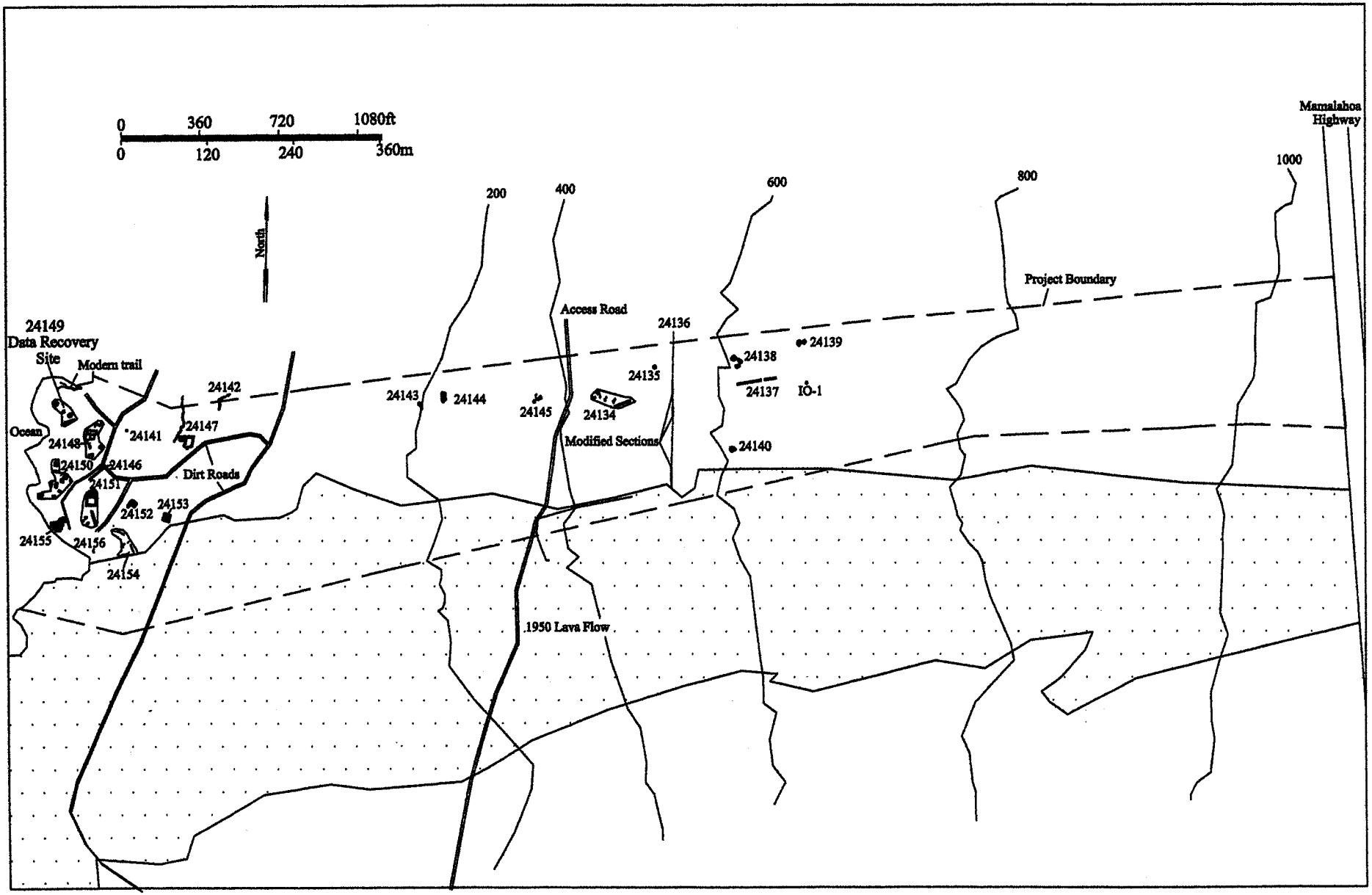


Figure 2. Site Location Map

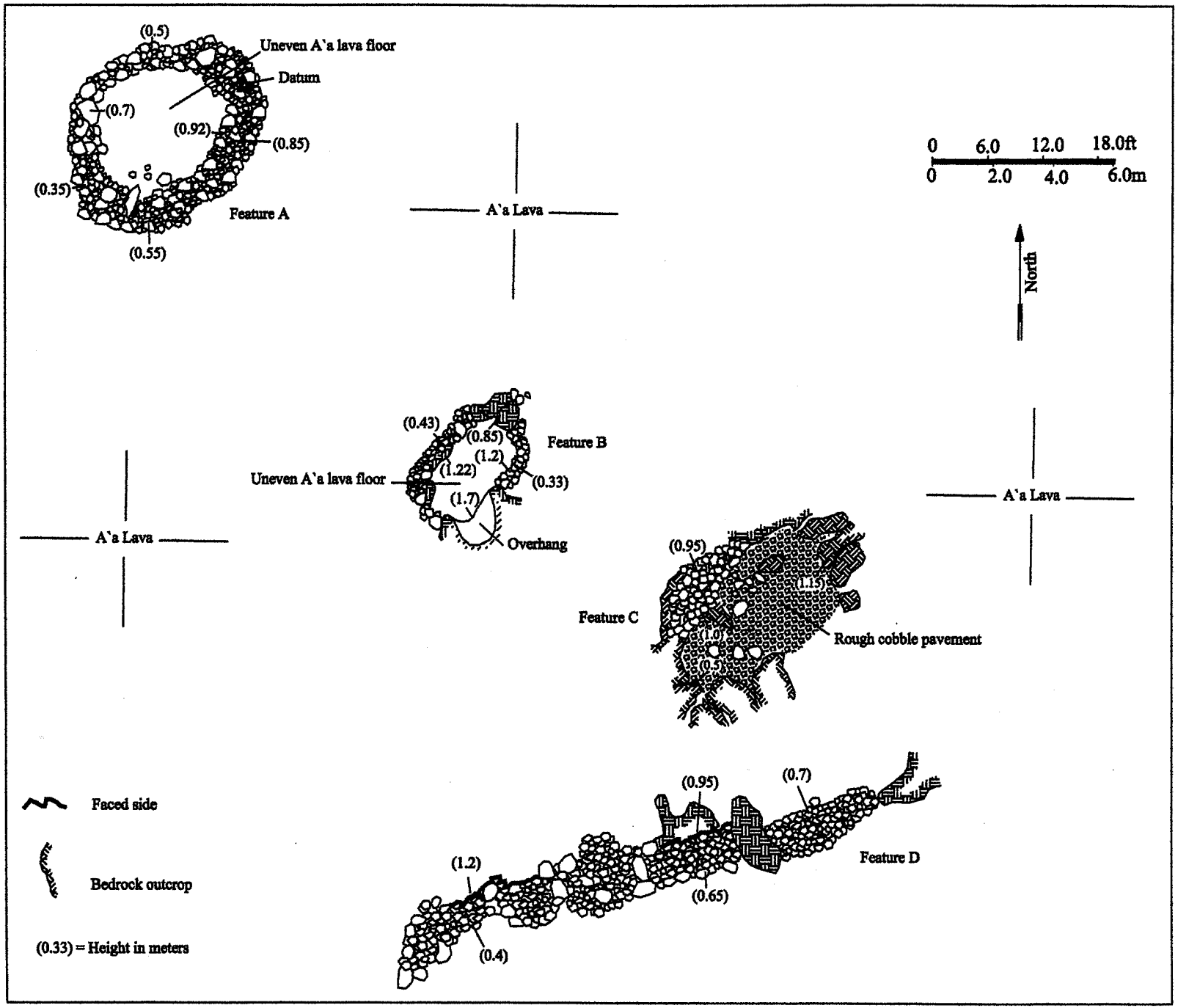


Figure 3. Site 24149 Plan Map

Feature A is the remnant of an enclosure situated at the northwest end of the site on a bare lava flow. It is 7.6 m long and 5.8 m wide with walls built of piled and stacked cobbles and small boulders that are 0.5 to 1.4 m wide and 0.35 to 0.92 m in height. The majority of the walls are collapsed and there is no apparent entrance. The interior floor of the enclosure is comprised of uneven a'a lava. No cultural remains are present on the surface. Feature A is interpreted as the possible disturbed remnant of the foundation for a permanent habitation structure.

Feature B is an enclosure located southeast of Feature A. It is 4.0 m long and 2.45 m wide and incorporates bedrock outcrops along the north, southwest and south sides with collapsed stacked and piled cobble and small boulder walls present between the outcrops. These walls are 0.5 to 0.65 m wide and 0.43 to 1.2 m in height. There is no apparent entrance into the interior of the enclosure. A small overhang is located within the outcrop at the south end of the enclosure. The entrance to the overhang is 1.4 m wide and 1.7 m in height, with the interior measuring 0.9 to 1.25 m long and 1.35 m wide. The floor of the enclosure and the overhang is comprised of bare a'a lava with no cultural remains present. Feature B is interpreted as the possible disturbed remnant of the foundation for a permanent habitation, special purpose structure. Alternatively, the feature may have functioned as a pigpen pen.

Feature C is an enclosure formed by bedrock outcrops to the north, south, northeast, and southwest, and by a stacked, partially collapsed a'a cobble and small boulder wall to the west. The feature is 6.1 m long and 4.2 m wide. The wall along the west side of the feature varies in width from 0.7 to 1.05 m and in height from 0.95 to 1.0 m. The bedrock outcrops bordering the feature range in height from 0.5 to 1.15 m. The interior floor of the feature consists of a rough pavement of a'a cobbles with no cultural remains. A possible entrance into the enclosure is situated along the southeast side of the feature between two outcrops. Feature B is interpreted as the foundation for a permanent habitation structure.

Feature D is a stone wall located south of Feature C that is 17.3 m long, 0.9 to 2.0 m wide and 0.4 to 1.2 m in height. The wall incorporates several bedrock outcrops and is constructed primarily of stacked and piled a'a and pahoehoe boulders and large cobbles. Portions of the wall have collapsed, although two intact faced sections are present along the northern side. Modern trash is scattered around the wall, and fragments of waterworn coral is present on the a'a flow between Features C and D. Feature D is interpreted as an ancillary feature associated with the permanent habitation of the site, potentially functioning to partially delineate the boundaries of yard surrounding the complex.

RESEARCH QUESTIONS AND METHODS

The research objectives for data recovery at Site 24149 are:

1. To establish the age of the site; and

2. To determine the function of the site and the type and variety of activities conducted at each feature.

The data recovery effort will determine the age of Site 24149. The data requirements for addressing Research Objective 1 include stratigraphic data, charcoal for dating, and chronologically diagnostic artifacts, faunal remains, and plant remains. These data will be obtained using controlled excavations.

The prior studies of sites in the Kona area provide limited functional interpretations of habitation features. These interpretations primarily consist of inferences concerning the duration and permanence of habitation. The interpretations include a simple dichotomy of temporary versus permanent using Cordy's (1981) criteria, which include formal type, structure size, and structural substantiveness. Variation in activities in individual dwelling structures is implicit in the model, but the specific types of activity are generally not defined.

The proposed data recovery effort will attempt to define specific activities associated with the occupation of the habitation features (Research Objective 2). Haun et al. (2003a, 2003b, 2003c) have done this for a number of sites in North Kona District where the results provided a basis for characterizing variation in habitation site occupations. Many activities are evident from structural remains, artifacts, and ecofactual remains. For example, the presence of a hearth indicates the activity of making fire for cooking, warmth, or light. Precursor activities associated with a hearth include construction of the feature and collection of firewood. While such activities appear obvious, the activities frequently are not explicitly enumerated.

The goal of the present effort would be to explicitly define the full range of potential activities engaged in by the occupants of the feature based on the qualitative range of cultural remains. Quantitative data will be used to make inferences concerning the scope or intensity of the activities. The resulting constellations of potential activities can then be used to compare and contrast the nature of occupations associated with individual features or structures. It should be stressed that the effort will be limited to defining the range of potential activities based primarily on the qualitative range of cultural remains.

The relationship between cultural remains and activities is based on an interpretation of the activities associated with the use and production of the remains, which will be treated as site or feature "attributes". Activities can be grouped into craft and construction, subsistence, and other habitation-related or support activities. Craft and construction activities are activities that relate to the procurement and use of raw materials and to activities that convert the raw materials into usable items and structures. Subsistence activities relate to the procurement, production, preparation, and consumption of marine and terrestrial food resources. Other habitation, or support, activities include ritual, sleep, mortuary activities, recreation, and the provision of heat and light with fire.

Many of these activities can also be broken down into primary and precursor activities, and those that potentially occurred either on-site, off-site, or in an undetermined

location. There is always a possibility that some raw materials may have been obtained through trade or exchange; however, with the exception of stone, this usually cannot be demonstrated archaeologically. Remote sources of volcanic glass or basalt, which might indicate that the site occupants did not directly acquire the raw material, can only be identified through petrographic and chemical analyses that are beyond the scope of the research. As mentioned previously, the present study is limited to potential activities in the broadest sense.

Data requirements for addressing Research Objective 2 include stratigraphic data, architectural features (i.e., hearths, post holes, etc.), and the recovery and analysis of artifacts and food remains. These data will be used to define the range of activities associated with the habitation feature.

The data recovery effort at Features A and B will focus on excavations in the enclosure walls because the interiors of the features consist of a'a lava with no visible portable remains. The wall excavations will consist of dismantling the enclosure walls and excavating the underlying lava to recover charcoal and other cultural remains associated with the use of the features. The excavations at Feature A will consist of approximately two linear meters each in the southeast and southwest walls of the feature. The excavations at Feature B will consist of approximately two linear meters each in the east and northwest walls of the feature.

Data recover at Feature C will consist of an approximately 6 m long by 2 m wide excavation block centered on the surface of the interior pavement. The excavation area comprises approximately 50% of the structure's interior.

Excavation units dug during data recovery will be excavated in arbitrary levels within stratigraphic layers and will be excavated to bedrock. All excavated fill will be passed through 1/8 inch mesh screen. Standardized excavation records will be prepared after the completion of each stratigraphic layer. Portable remains collected will be placed in paper bags labeled with the appropriate provenience information. Recovered charcoal samples from either the excavations or from the surface of the sites will be deposited in aluminum foil pouches and placed in properly labeled paper bags. Following the excavations, section drawings depicting the stratigraphy will be prepared, and post-excavation photographs will be taken. Recovered cultural remains will then be transported to Haun & Associates' office for analysis.

Laboratory analysis will consist of evaluating charcoal samples for dating and analysis of all recovered artifacts and food remains. Dating sample selection will emphasize single fragments of charcoal to minimize contamination by fragments of varying ages. Fragments representing intact sections of small tree and shrub stems will be used if available to minimize intra-sample variation in wood age. Charcoal samples will be submitted to Beta Analytic, Inc. for radiocarbon dating. Stable isotope ratios (C13/12) will also be determined. A maximum of three samples will be submitted for AMS dating.

A final report on the data recovery work will be prepared and submitted for DLNR-SHPD review and acceptance. The report will, at a minimum, contain all elements required in DLNR-SHPD Rules Chapter 13-278-4. The report will be submitted within two to three months after completion of fieldwork.

All recovered materials will be temporarily curated at the Haun & Associates office. Following completion and acceptance of the data recovery report, the materials will be submitted to DLNR-SHPD for permanent curation.

If human remains are encountered during data recovery investigations, then the remains will be treated following the procedures outlined in Hawaii Revised Statutes (HRS) Chapter 6E-43. Work in the area of the discovery will be halted, the remains stabilized if necessary, and DLNR-SHPD contacted for guidance.

REFERENCES

Cordy, R.

1981 *A Study of Prehistoric Social Change: The Development of Complex Societies in the Hawaiian Islands.* Academic Press. New York.

DLNR (Department of Land and Natural Resources)

2003 Hawaii Administrative Rules, Title 13, Department of Land and Natural Resources, Subtitle 13, State Historic Preservation Division Rules.

Haun, A., and D. Henry

2004 Archaeological Inventory Survey, TMK: (3) 8-7-008:008, Land of Pahoehoe 1st, South Kona District, Island of Hawaii. Haun & Associates report 340-010804 prepared for Mr. Peter Dungate.

Haun, A.E., J.D. Henry, D.M. Berrigan

2003a Archaeological Data Recovery, Sites 5748, 5749, 5750, 5753, 5755, 5756, 5761, 5762, 5764, 5771, and 5774, Pu'uhonua Subdivision Parcel, Land of Kalaoa 5, North Kona District, Island of Hawai'i (TMK: 3-7-3-10:Por 27).

Haun, A.E., J.D. Henry, and D.M. Berrigan

2003b Archaeological Data Recovery Sites 22946, 22949, 22951, 22952, and 22955, Lands of Hienaloli 2-5, North Kona District, Island of Hawai'i, TMK: 7-5-10:52, 65, 66. Prepared by Haun & Associates (Report 110-042503) for Bolton, Inc., Kailua-Kona.

Haun, A.E., J.D. Henry, and D.M. Berrigan

2003c Archaeological Data Recovery Sites 22764 and 22780 Land of Kahalui 1 & 2, North Kona District, Island of Hawai'i, TMK: 7-5-16:15, 16, 17, 29. Prepared by Haun & Associates (Report 109-060703) for Bolton, Inc., Kailua-Kona.

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

November 16, 2004

Project 373

Dr. Sara Collins, Archaeology Branch Chief
State Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Subject: Replacement Pages for
Archaeological Data Recovery Plan
Site 24149, Land of Pahoehoe 1
South Kona District, Island of Hawaii
(TMK: 8-7-007:008)

Dear Dr. Collins:

Enclosed are replacement pages for the subject plan that correct an error in the TMK Plat number.

If you have any questions or comments, please contact me at 982-7755.

Sincerely,

Alan E. Haun, Ph.D.
Principal Investigator

Encl. replacement pages (3)

cc: Mary Ann Maigret
Peter Dungate

Report 373-101904

ARCHAEOLOGICAL DATA RECOVERY PLAN
SITE 24149, LAND OF PAHOEHOE 1
SOUTH KONA DISTRICT, ISLAND OF HAWAII
(TMK: (3) 8-7-007:008)

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services

HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

Report 373-101904

ARCHAEOLOGICAL DATA RECOVERY PLAN
SITE 24149, LAND OF PAHOHOE 1ST
SOUTH KONA DISTRICT, ISLAND OF HAWAII
(TMK: (3) 8-7-007:008)

By:

Alan E. Haun, Ph.D.
and
Dave Henry, B.S.

Prepared for:

Prepared for:
Mr. Peter Dungate
75-5914G Mamalahoa Highway
Holualoa, Hawaii

October 2004

Haun & Associates
Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

INTRODUCTION

This data recovery plan was prepared by Haun & Associates at the request of Mr. Peter Dungate. The objective of this plan is to mitigate impacts to Site 24149 in accordance with data recovery requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, SHPD Rules, Chapter 278 (DLNR 2003).

Haun & Associates previously conducted an archaeological inventory survey of TMK: (3) 8-7-007:008, a c. 94-acre parcel located in the Land of Pahoehoe 1st, South Kona District, Island of Hawaii (Haun and Henry 2004; *Figure 1*). The survey of this parcel identified 23 sites consisting of 67 features (*Figure 2*). The features consist of 13 enclosures, 11 mounds, ten terraces, seven platforms, five modified outcrops, five walls, five pavements, three modified knolls, two *kua'iwi,* two roads, two concrete boxes, a wooden pump house, and a water tank. Functionally, the features consist of permanent habitation (n=37), agriculture (11), ceremonial (6), water source (5), livestock control (2), transportation (2), burial (2), and temporary habitation (2).

In the inventory survey report (Haun and Henry 2004) all 23 sites were assessed as significant for their information content. Four sites were also assessed as culturally significant because three sites were interpreted as *heiau* (Sites 24144, 24153 and 24155) and the fourth included burials (Site 24150). An historic road (Site 24136) and the Site 24153 *heiau* were also assessed as excellent site type examples. Six of the 23 sites were recommended for no further work and 16 sites were recommended for preservation. The remaining site (Site 24149) was recommended for data recovery. DLNR-SHPD concurred with the significance assessments and recommended site treatments (Log No. 2004.2306, Doc. No. 0407MM14).

This plan is for the data recovery of a permanent habitation complex (Site 24149). This plan describes the data recovery site and outlines research questions and methods for the data recovery effort.

SITE IDENTIFICATION

Site 24149

Site 24149 is a complex of four permanent habitation features located in the seaward portion of the project area, c. 35.0 m inland from the coastal cliff line. The site is comprised of three enclosures (Features A-C) and a wall (Feature D; *Figure 3*), situated in an area 35.0 m long (northwest by southeast) and 21.0 m wide, in an area of uneven a'a lava. The three enclosures and potentially the wall have likely been impacted by wave activity. The site is altered and in poor to fair condition.

Ned 4/22/06

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

April 18, 2006

Dr. Alan E. Haun
Haun & Associates
HCR 1 Box 4730
Kea'au, Hawai'i 96749

LOG NO: 2006.1174
DOC NO: 0604JT10
Archaeology

Dear Dr. Haun:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Archaeological Data Recovery Site 24149
Land of Pahoehoe 1, South Kona District, Island of Hawai'i
TMK: (3) 8-7-007: 008

Thank you for the opportunity to review the aforementioned report by Haun, Henry & Berrigan (2005), which we received on June 23, 2005. The report summarizes the results of a data recovery project in which the effects of a development project on previously identified site SIHP -24149 were mitigated through data recovery designed to establish age, site function and activities within three features.

These goals have been accomplished, and the report satisfies the requirements of the Hawaii Administrative Rules under Chapter 13-278 and is hereby accepted.

Please contact Dr. Julie Taomia at 808-327-3691 if you have questions or concerns.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

JT:dlb

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

April 3, 2005 Project 373

Via Fax (2 pp.) and Mail

Ms. Melanie Chinen, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Subject: Completion of Fieldwork
Archaeological Data Recovery
Site 24149, Land of Pahoehoe 1
South Kona District, Island of Hawaii
(TMK: 8-7-007:008)

Dear Ms. Chinen:

Haun & Associates completed the fieldwork for the subject mitigation data recovery work on March 18, 2005. The data recovery work included the excavation of 5 units at 3 features of Site 24149. A total of 20 square meters were excavated during the project. The work was done in accordance with the approved data recovery plan (Haun and Henry 2004). *Table 1* summarizes the excavations by site and feature.

The data recovery excavations at Feature C discovered a burial beneath the surface pavement on March 16, 2005. Upon the discovery the excavation was suspended and Mr. Keola Lindsey of the Burial Sites program was contacted immediately. Following consultation with Mr. Lindsey the excavation was carefully back-filled and the surface pavement was restored. The landowner subsequently met with Mr. Lindsey and developed a plan to preserve the remains in place.

Based on the results of the data recovery fieldwork, no further archaeological work is recommended and the landowner requests permission to begin construction in compliance with approved burial treatment and site preservation plans for the property. The information obtained during the data recovery was adequate to address the research questions presented in the data recovery plan.

If you have any questions, please contact me at 982-7755.

Sincerely,

Alan E. Haun, Ph.D.
Principal Investigator

cc: Mary Anne Maigret
Peter Dungate

Table 1. Summary of Data Recovery Excavations

Site	Feature	Required Excavations* (sq m)	Area Excavated during Data Recovery (sq m)
24149	A	4.0	4.0
	B	4.0	4.0
	C	12.0	12.0
Total		20.0	20.0

Reference Cited

Haun, A. and J. Henry
2004 Archaeological Data Recovery Plan, Site 24149, Land of Pahoehoe 1, South Kona District, Island of Hawaii (TMK: [3] 8-7-007:008). Haun & Associates Report 373-101904 prepared for Mr. Peter Dungate.

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 2c
Archaeological Site Preservation Plan

[This page intentionally left blank]

Report 375-101904

ARCHAEOLOGICAL SITE PRESERVATION PLAN

SITES 24135-24140, 24143, 24144, 24147, 24148, 24150-24155

LAND OF PAHOEHOE 1, SOUTH KONA DISTRICT

ISLAND OF HAWAII (TMK: (3) 8-7-007:008)

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

Report 375-101904

ARCHAEOLOGICAL SITE PRESERVATION PLAN

SITES 24135-24140, 24143, 24144, 24147, 24148, 24150-24155

LAND OF PAHOEHOE 1, SOUTH KONA DISTRICT

ISLAND OF HAWAII (TMK: (3) 8-7-007:008)

By:

Alan E. Haun, Ph.D.
and
Dave Henry, B.S.

Prepared for:
Mr. Peter Dungate
75-5914G Mamalahoa Highway
Holualoa, Hawaii

December 2004

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

INTRODUCTION

This archaeological site preservation plan concerns 16 sites located within a c. 94-acre parcel situated in the Land of Pahoehoe 1, South Kona District, Island of Hawaii (3-8-7-007:008; *Figure 1).* The plan was prepared in accordance with the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) rules for site preservation (DLNR-SHPD 2003, Chapter 277). The selected form of preservation is avoidance and protection (conservation).

Haun & Associates previously conducted an archaeological inventory survey of the project area (Haun and Henry 2004). The survey identified 23 sites consisting of 67 features (*Figure 2*). The features consist of 13 enclosures, 11 mounds, ten terraces, seven platforms, five modified outcrops, five walls, five pavements, three modified knolls, two *kua'iwi,* two roads, two concrete boxes, a wooden pump house, and a water tank. Functionally, the features consist of permanent habitation (n=37), agriculture (n=11), ceremonial (n=6), water source (n=5), livestock control (n=2), transportation (n=2), burial (n=2), and temporary habitation (n=2).

In the inventory survey report (Haun and Henry 2004) all 23 sites were assessed as significant for their information content. Four sites were also assessed as culturally significant because three sites were interpreted as *heiau* (Sites 24144, 24153 and 24155) and the fourth included burials (Site 24150). An historic road (Site 24136) and the Site 24153 *heiau* were also assessed as excellent site type examples.

The mapping, written descriptions, photography, and test excavations at six sites adequately documented them and no further work or preservation was recommended (Sites 24134, 24141, 24142, 24145, 24146 and 24156). The remaining 17 sites retained the potential to yield information important for understanding prehistoric and historic land use in the area; however, the landowner has decided to preserve 16 of the 17 sites (Sites 24135-24140, 24143, 24144, 24147, 24148 and 24250-24155). The remaining site (Site 24149) was recommended for data recovery, the mitigation of which is detailed in a data recovery plan currently in preparation. One of the 16 preservation sites (Site 24150) contains human remains in two probable locations (Feature A and likely Feature B). The treatment of these burial features are presented in a burial treatment plan also currently in preparation.

DLNR-SHPD concurred with these assessments and recommended treatments (letter dated July 24 2002 to Alan Haun from Holly McEldowney; Log No: 2004.2306, Doc No: 0407MM14). This preservation plan is for Sites 24135-24140, 24143, 24144, 24147, 24148, 24251-24155 and for the non-burial portion of Site 24150. The plan describes the sites to be preserved, buffer zones, and measures for long-term preservation.

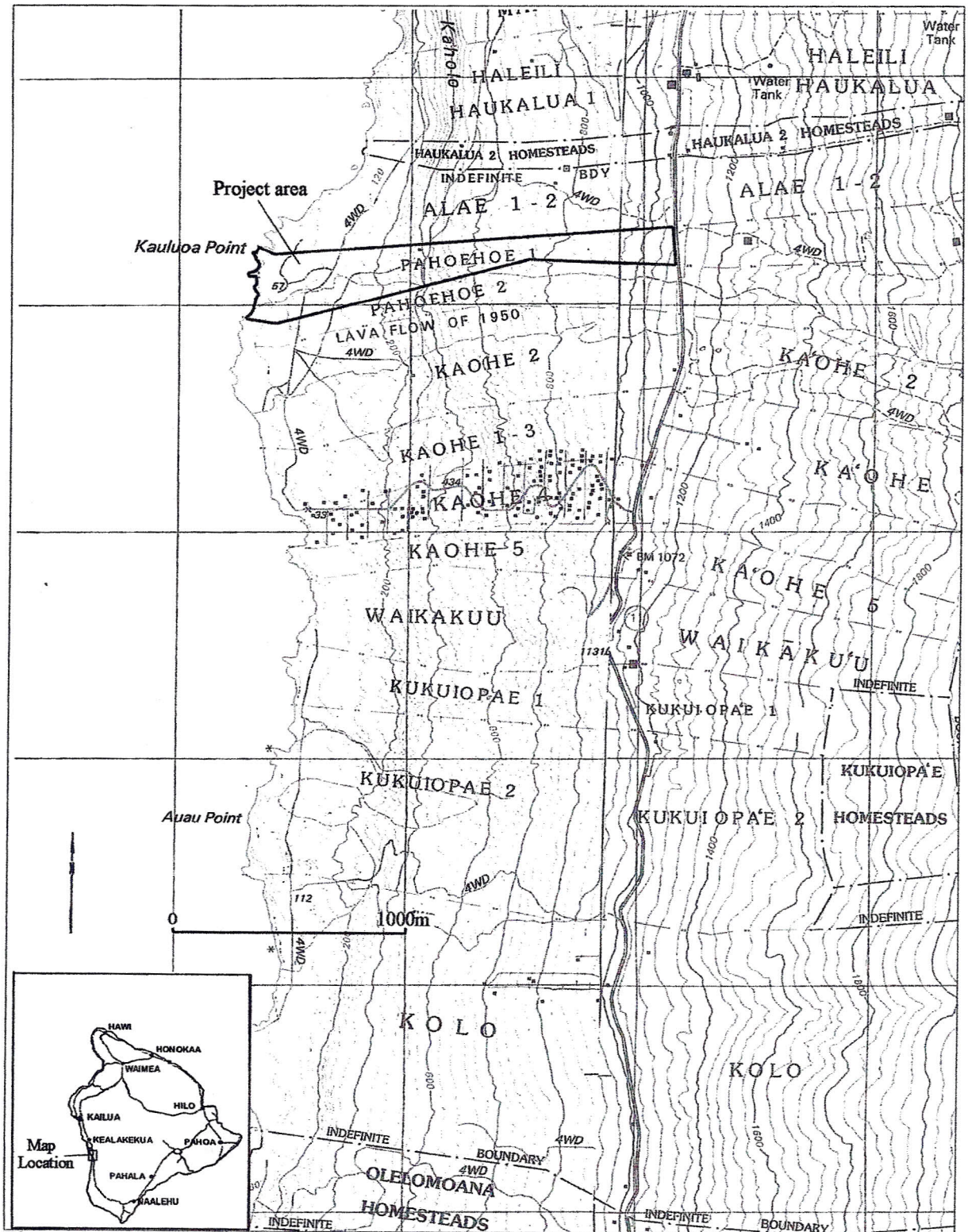


Figure 1. Portion of USGS Kauluoa Point and Pu`upohakuloa Quadrangles showing Project Area

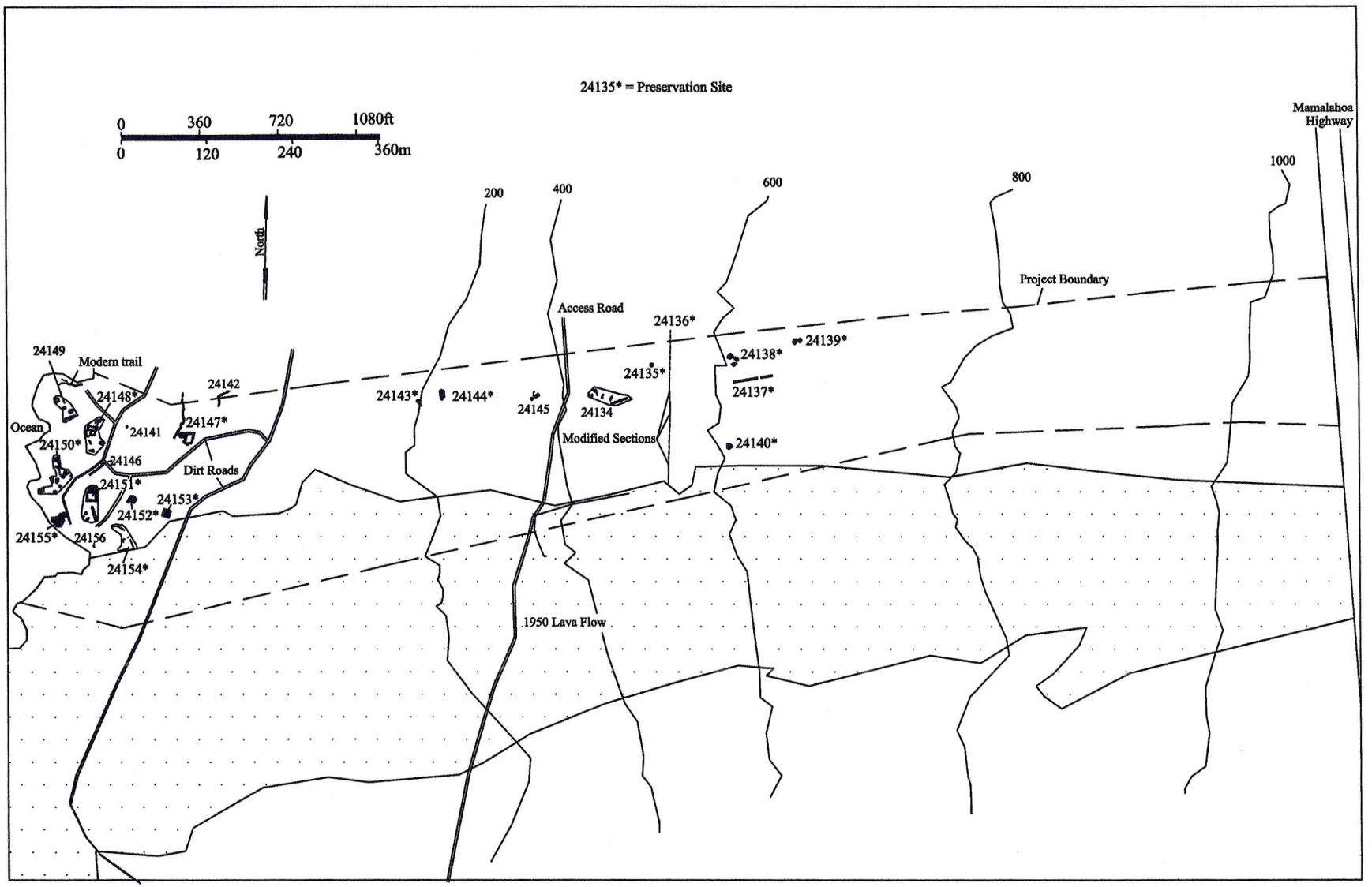


Figure 2. Site Location Map

SITE IDENTIFICATION

Site 24135

Site 24135 is a modified knoll located in the inland portion of the project area at c. 510 ft elevation. The knoll is 8.6 m long and 5.7 m wide, on the side of a slope angling down to the west-southwest (*Figure 3*). The north and northwest sides of the knoll are bordered by a pahoehoe outcrop, with the east, west and south sides comprised of sloping soil. The southwest and south sides of the knoll contain a piled cobble and small boulder wall that is 0.3 to 1.2 m wide and 0.2 to 0.95 m in height. The surface is comprised of a level soil deposit with scattered cobbles and boulders. No cultural remains were observed on the surface of the knoll, though two marine shells were noted on the ground surface below the knoll to the south. Site 24135 was interpreted as a temporary habitation site by Haun and Henry (2004).

Site 24136

Site 24136 consists of the remnants of an historic road that extends through the project area in a north-south direction, at c. 550 ft elevation. There are three modified sections of the road present within the project area, with the intervening areas consisting of level soil that have been cleared of surface stones. Discontinuous alignments of cobbles and small boulders were noted along each side of the road in the intervening areas. The extent of the road is depicted in *Figure 2*.

The north section consists of a linear terrace with a partially collapsed stacked and faced cobble and small boulder retaining wall along the western, downslope side. The retaining wall ranges in height from 0.6 to 1.25 m. The area above the retaining wall is comprised of level soil. This section of the road is 15.0 m long with the level soil area ranging in width from 2.5 to 4.0 m.

The central section is located 19.0 m south of the northern section. This portion of the road is also comprised of a linear terrace that is 11.5 m long, with a stacked and faced cobble and small boulder retaining wall along the western side. This wall is 0.35 to 2.0 m in height. A level soil area is present above the wall, ranging in width from 2.5 to 3.5 m.

The south section is comprised of a ramp-like structure with a paved cobble surface, located 71.0 m south of the central section. This section is 19.0 m long and extends down a moderate slope to the south, terminating at the edge of the 1950 lava flow. This ramp-like structure is 3.2 to 4.0 m wide, with stacked and faced sides that range in height from 0.4 to 1.1 m. Site 24136 was interpreted as an historic road probably built between the 1830s and 1850s.

Site 24137

Site 24137 is a *kua'iwi* located in the inland portion of the project area at the c. 620 ft. elevation see *Figure 2*). The site is located within a broad soil covered drainage

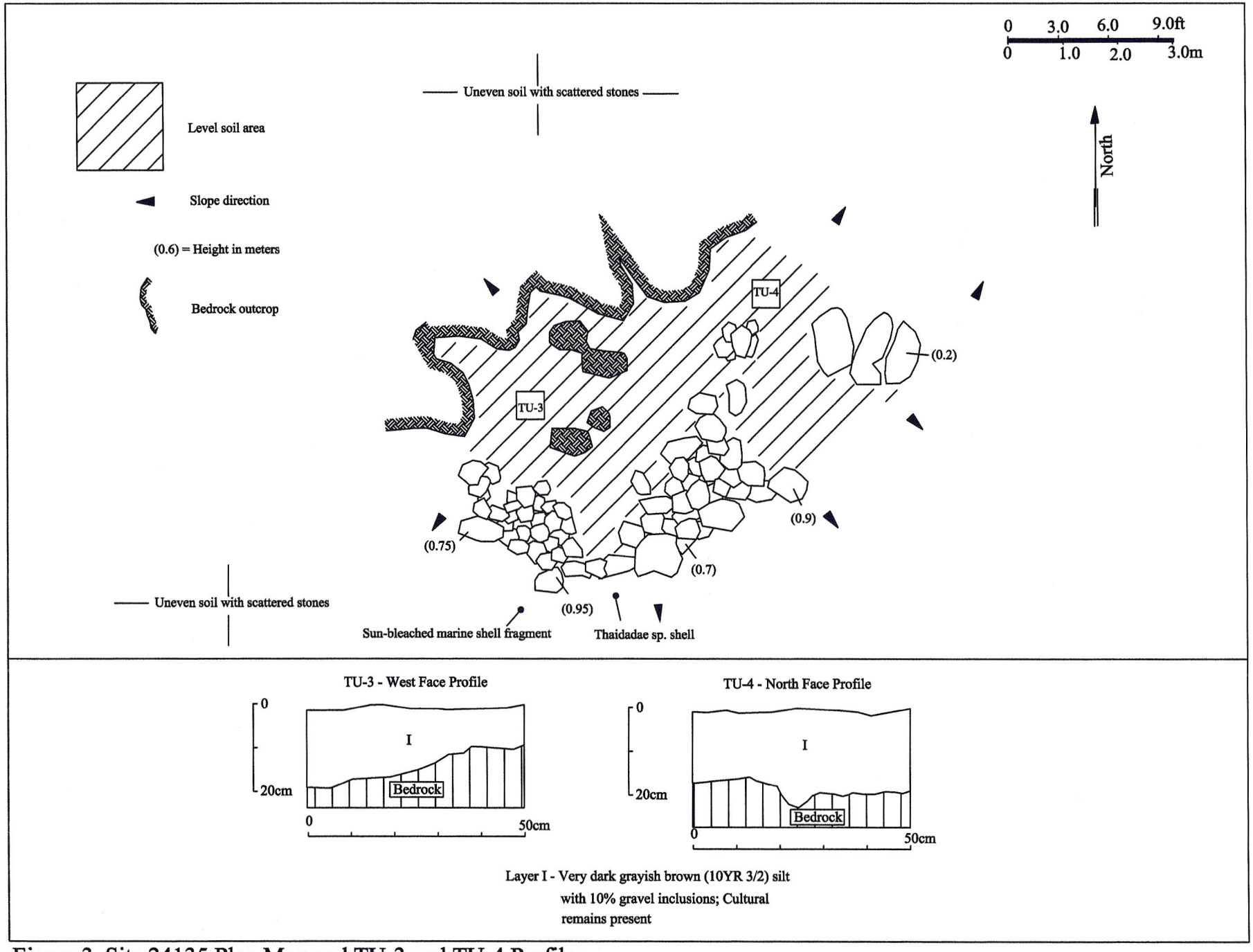


Figure 3. Site 24135 Plan Map and TU-3 and TU-4 Profiles

that is oriented in an east-west direction. The *kua'iwi* consists of a linear pile of cobbles and small boulders that is 56.0 m long, 1.5 to 1.9 m wide and 0.55 to 0.9 m in height. There is a 6.0 m wide gap in the *kua'iwi* 17.0 m west of its inland end. A small water-worn basalt cobble was observed adjacent to the site at its eastern end. No other cultural remains were present. Site 24137 was interpreted as an agricultural field boundary based on its formal type and appearance, likely used to divide the drainage into agricultural plots.

Site 24138

Site 24138 is a complex of three permanent habitation features located on and adjacent to an east-west trending ridge, in the inland portion of the project area at c. 610 ft elevation. The features are comprised of a terrace (Feature A), an enclosure (Feature B) and a modified knoll (Feature C; *Figure 4*) situated in area 18.0 m long and 16.0 m wide.

Feature A is a roughly rectangular-shaped terrace built between two pahoehoe outcrops. It is 7.5 m long by 6.7 m wide, with a sloping cobble and small boulder retaining wall along its west and northwest side. This wall is 0.3 to 0.9 m in height. The north and south sides abut pahoehoe outcrops and the east side abuts the base of a slope that angles down to the north-northwest. The surface is comprised of a level soil deposit with no cultural remains observed. Feature A was interpreted as a permanent habitation, ancillary feature which potentially functioned as a *lanai* in conjunction with the adjacent Feature B enclosure.

Feature B is an oval-shaped enclosure situated 2.3 m east of Feature A. The enclosure is bordered by pahoehoe outcrops to the southwest and south, by a stacked wall to the east and north and by a piled cobble wall to the northwest. The feature is 7.3 m long and 2.3 to 4.8 m wide. The bedrock outcrops bordering the feature range in height from 1.0 to 1.05 m. The stacked wall along the north and east sides are partially faced and built of cobbles and small boulders, ranging in height from 1.2 to 1.3 m. The piled wall along the northwest side is 0.6 to 1.2 m wide and 0.5 m in height. The interior floor of the enclosure is comprised of a level soil deposit with scattered cobbles. No cultural remains were noted. Feature B was interpreted as the foundation for a permanent habitation structure.

Feature C is a modified knoll located at the south end of a narrow ridge, above Features A and B to the south. A partially collapsed stacked wall of cobbles and small boulders is located at the west end of the feature, measuring 0.6 to 1.0 m wide and 0.35 to 0.75 m in height. The area to the east of this wall is comprised of bare lava that has been cleared of surface stones. No cultural remains were noted. Feature C was interpreted as an ancillary feature associated with the permanent habitation of the site, potentially functioned as an associated work area.

Site 24139

Site 24139 is a complex of two permanent habitation features within a broad shallow drainage at c. 650 ft elevation. The site is comprised of two terraces (Features A and B; *Figure 5*) located in area 13.5 m long by 9.0 m wide.

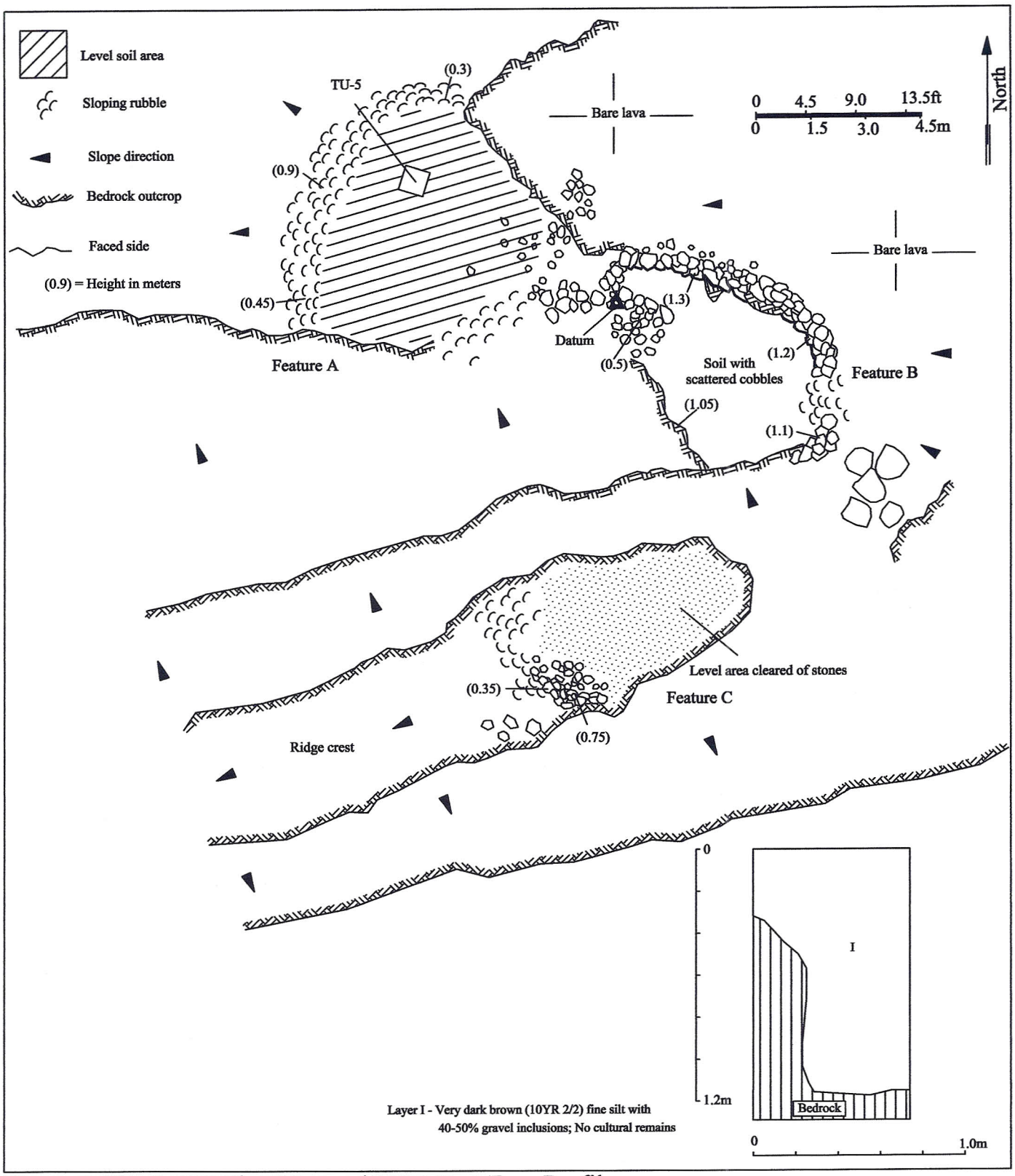


Figure 4. Site 24138 Plan Map and TU-5 East Face Profile

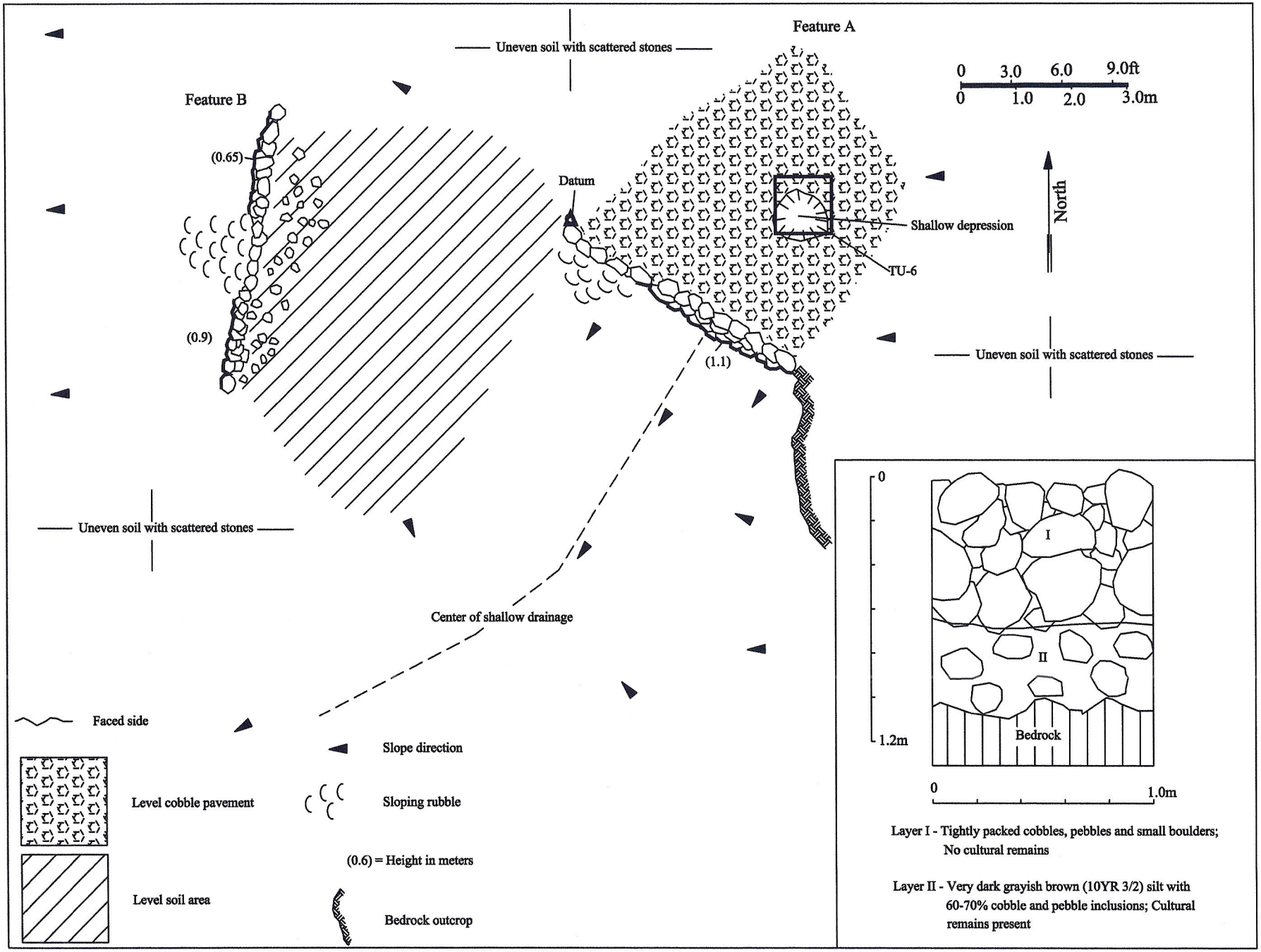


Figure 5. Site 24139 Plan Map and TU-6 East Face Profile

Feature A is a rectangular terrace that is 4.6 to 5.3 m long and 4.4 m wide. A stacked cobble and small boulder retaining wall is present along the southwest side of the structure. The northwest end of this wall has collapsed outward, though the southeast end is intact and faced, averaging 1.1 m in height. The remaining sides of the terrace abut the surrounding terrain. The surface of the feature consists of a level soil deposit with no cultural remains observed. An oval-shaped depression is located in the approximate center of the feature, measuring 0.95 m long, 0.9 m wide and 0.15 m in depth. Feature A was interpreted as the foundation for a permanent habitation structure which likely once supported a pole and thatched roof structure.

Feature B is a roughly rectangular-shaped terrace located adjacent to Feature A to the west. The feature is 7.0 m long by 5.3 m wide, with a partially collapsed stacked cobble and small boulder retaining wall along the west side. The intact portions of this wall are faced and range in height from 0.6 to 0.9 m. The surface of the terrace is comprised of a level soil deposit with scattered cobbles. No cultural remains were noted. Feature B was interpreted as a permanent habitation, ancillary feature which likely served as an associated *lanai* or work area.

Site 24140

Site 24140 is an oval-shaped enclosure located on a level, natural soil covered terrace on the side of a slope angling to the south, at c. 610 ft elevation. The enclosure is 9.1 m long and from 3.0 to 6.6 m wide with walls built of stacked and piled cobbles and small boulders (*Figure 6*). The walls are 0.75 to 2.05 m in width and 0.3 to 0.9 m in height. Several basalt slabs set vertically on edge are incorporated into the interior wall of the enclosure at the southwest corner. Portions of the north, south, east and west sides of the interior walls are faced. The interior consists of a level soil deposit with scattered cobbles. No cultural remains were observed. Site 24140 was interpreted as a temporary habitation enclosure.

Site 24143

Site 24143 is a large irregularly-shaped terrace located at c. 200 ft elevation on the side of a rocky slope that angles to the west. The terrace contains a sloping cobble and small boulder rubble retaining wall that extends along the western side of the structure (*Figure 7*). This wall varies in width from 2.9 to 7.75 m. A 0.4 m high bedrock outcrop borders the rubble at the northern end. The surface of the terrace is comprised of a level pavement of poorly sorted cobbles that is 9.8 m long and from 1.65 to 5.2 m wide. This paved area is bordered by a 1.0 to 1.05 m high bedrock outcrop at the northwest end, by the sloping retaining wall to the west, and by a stacked cobble and small boulder retaining wall at the southern end. This wall is 3.5 m long and 0.3 to 0.5 m in height. The eastern side of the paved area abuts the side of the slope. The surface of the paved portion of the terrace contains five waterworn basalt cobbles. Two marine shells were observed on the ground surface at the base of the rubble retaining wall. Site 24143 was interpreted as the foundation for a permanent habitation structure.

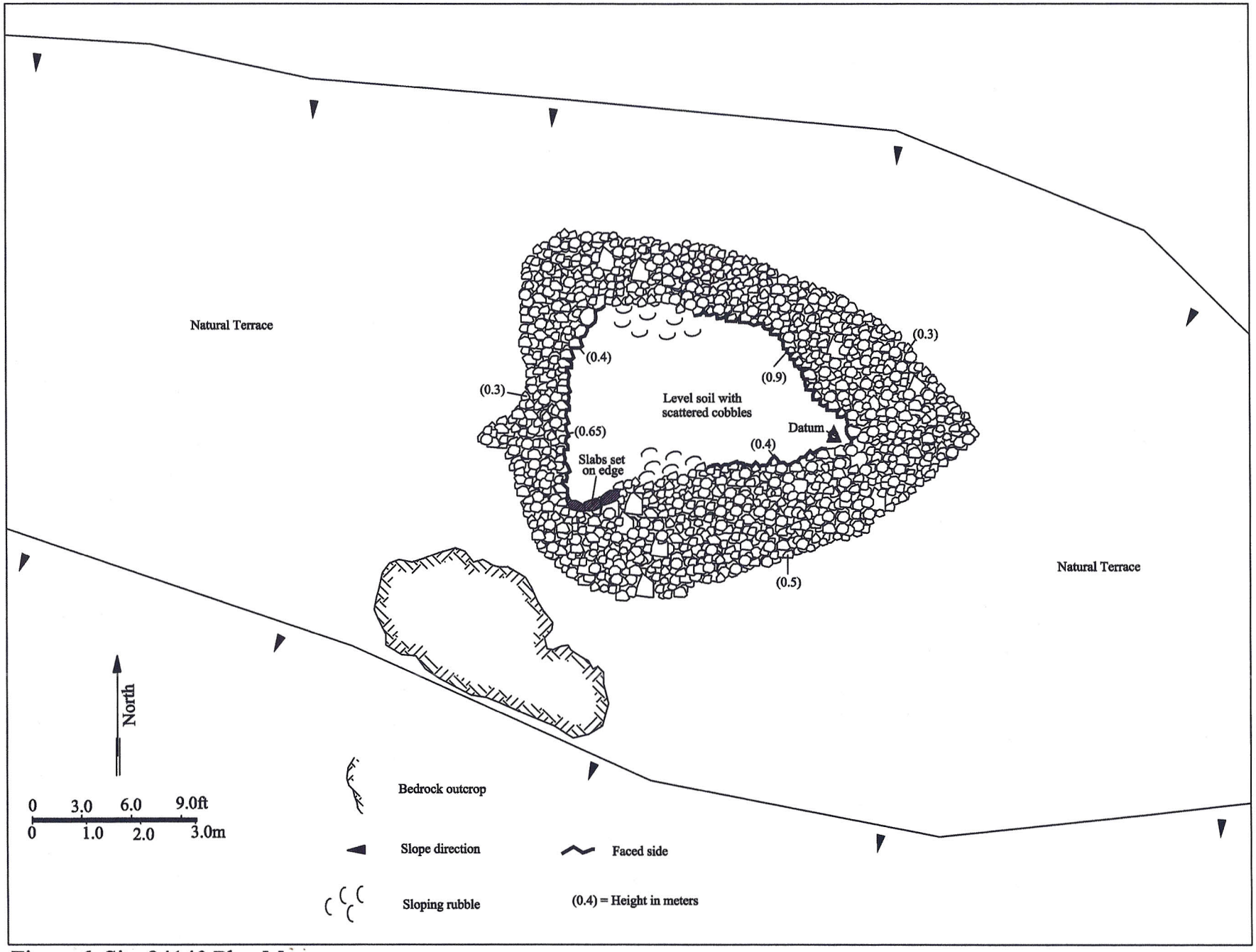


Figure 6. Site 24140 Plan Map

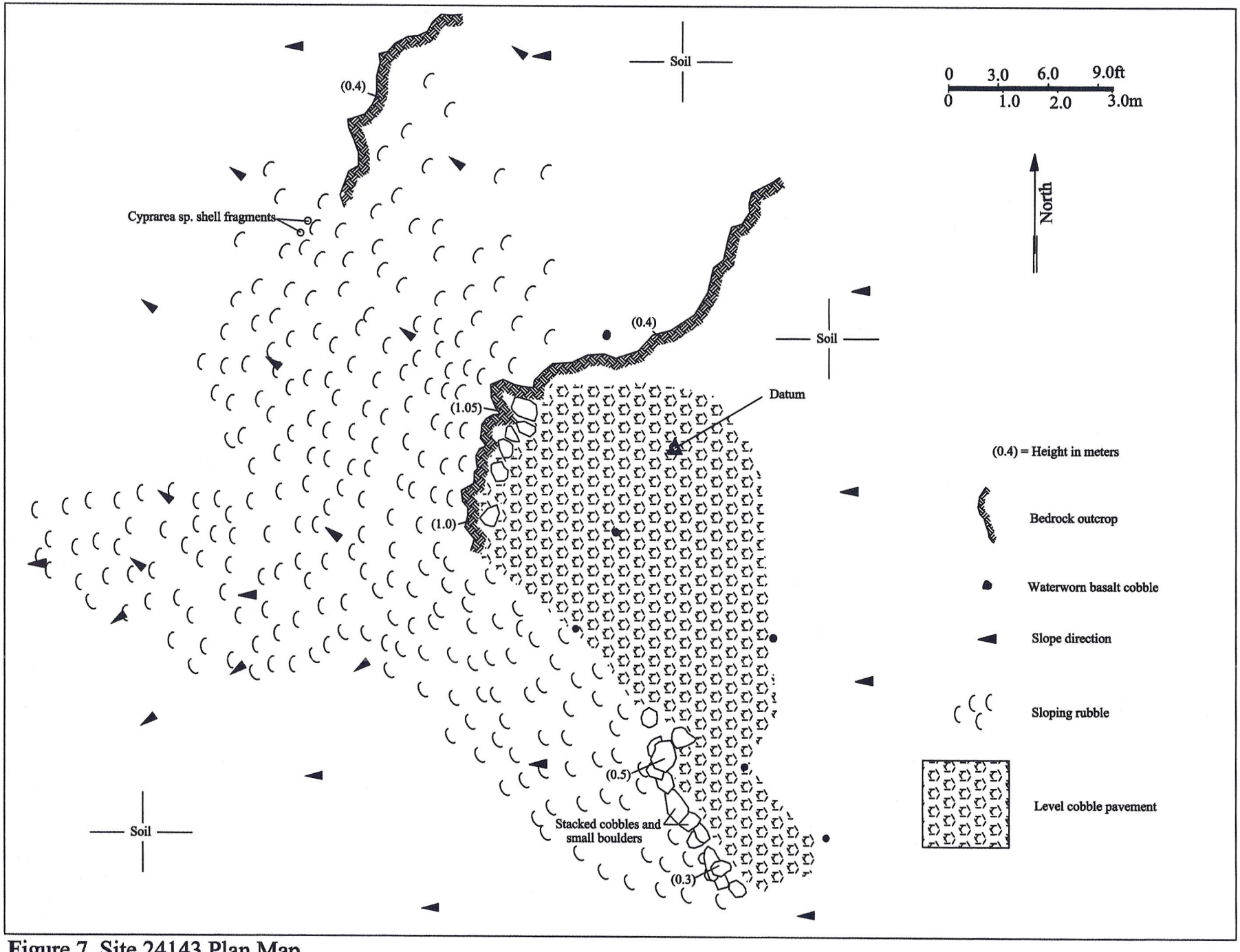


Figure 7. Site 24143 Plan Map

Site 24144

Site 24144 is a large two-tiered terrace located on the side of a moderately steep rocky slope that angles down to the west, at c. 220 ft elevation. The terrace is bordered on the west by a sloping, rubble cobble and small boulder retaining wall that is 13.3 m long, 1.1 to 3.0 m wide and 0.6 m in height (*Figure 8*). Numerous waterworn basalt cobbles and several waterworn coral cobbles are present within the rubble retaining wall. The main surface of the terrace consists of a level pavement of a'a cobbles and pebbles that is 13.4 m long and 2.85 to 4.3 m wide. There are four boulders in an alignment along the western side of the terrace surface at its southern end. Waterworn basalt and coral cobbles are also present on the surface of the terrace The north and south sides of the terrace abut the side of the slope and the eastern side abuts a sloping cobble pavement that is 10.1 m long and 1.8 to 3.4 m wide. This upper tier also contains waterworn basalt cobbles scattered across its surface. The site was interpreted as a *heiau* based on its large surface area (74.1 sq m), multiple tiers, on the abundance of waterworn coral and basalt stones, and on its prominent location that commands a wide view of the shoreline.

Site 24147

Site 24147 is a complex of three permanent habitation features and a livestock control feature located in the seaward portion of the project area at the c. 70 ft elevation. The site is comprised of an enclosure (Feature A), a pavement (Feature B) and a wall (Feature C; *Figure 9*) and encompasses an area 60.0 m long by 29.0 m wide. The site is situated in an area of uneven a'a lava and isolated pockets of soil.

Feature A is a rectangular enclosure that is 17.7 m long and 13.4 to 14.7 m wide. The walls of the enclosure are built of stacked cobbles and small boulders with a core-filled interior of cobbles that vary in width from 1.07 to 2.55 m and in height from 1.4 to 1.75 m. Portions of the interior and exterior sides of the walls have collapsed, although the majority of the structure is intact. A possible entrance (1.6 m wide) into the enclosure is present in the center of the northern wall. The interior of the enclosure is comprised of a soil deposit with low bedrock outcrops and scattered surface stones and one *Cypraea sp.* shell.

The southern side of the enclosure is constructed against a large bedrock outcrop. A small cave is situated within the outcrop, with the opening facing into the enclosure. The entrance to the cave is 3.5 m wide and 0.7 m in height, and the interior is 3.55 m long, 3.0 to 3.5 m wide and 0.65 m in height. The interior of the cave contains a soil deposit with scattered historic debris, consisting of enamelware bowls, a metal pot and an alarm clock. Feature A was interpreted as a permanent habitation structure, which likely functioned as a yard surrounding a pole and thatch roofed structure. The substantial width and height of the structure indicates that it may represent the residence of a chiefly status individual The adjoining cave likely served as an associated cupboard or shelter.

Feature B is a pavement that adjoins Feature A to the west. The pavement is level with the surrounding terrain and is comprised of tightly packed cobbles and pebbles. No

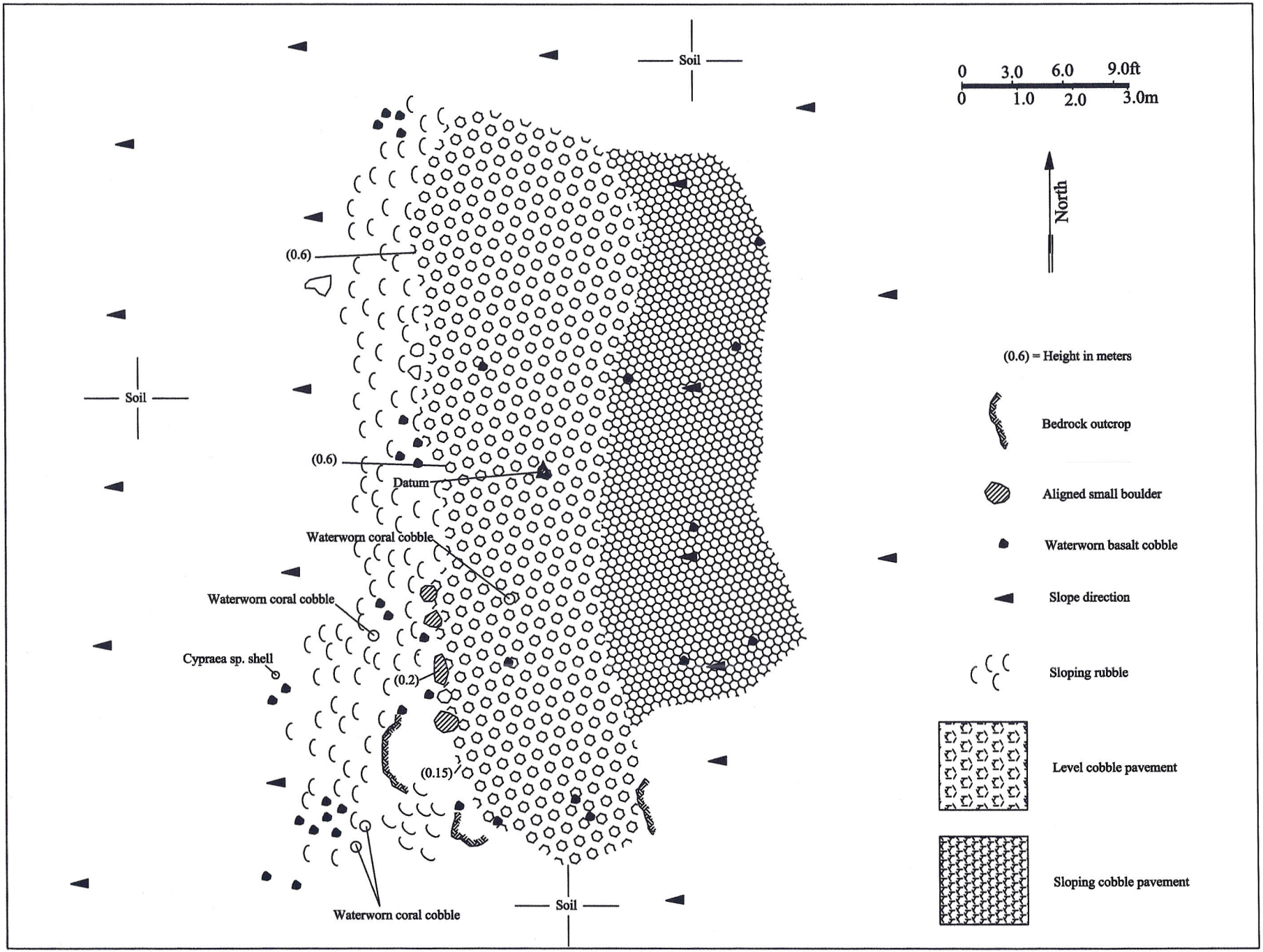


Figure 8. Site 24144 Plan Map

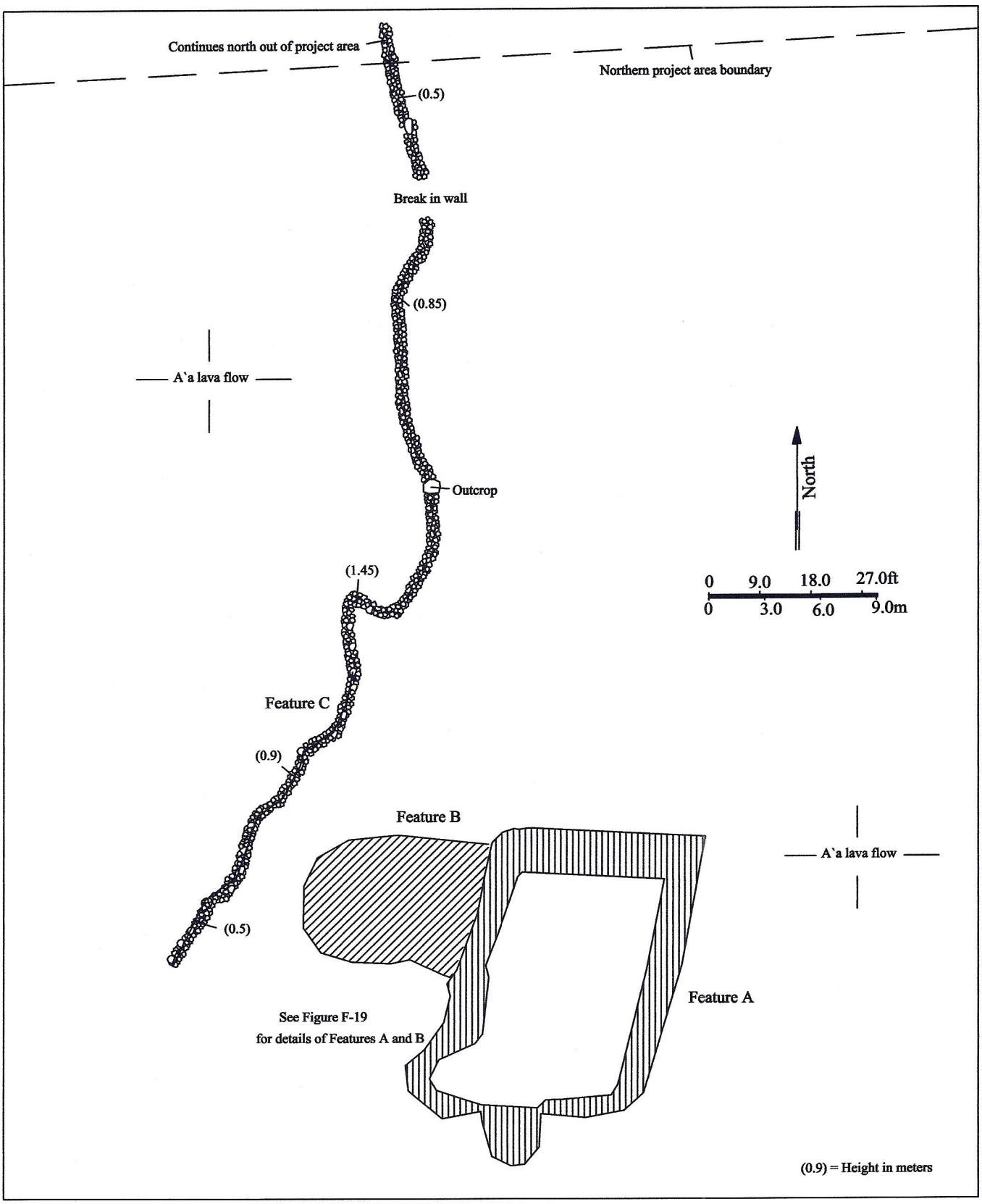


Figure 9. Site 24147 Plan Map

cultural remains were noted on the surface of the pavement. Feature B is 10.4 m long and 7.8 m wide. Feature B was interpreted as an ancillary feature associated with the permanent habitation of the site, likely functioning as an associated *lanai* or work area.

Feature C is a stone wall situated to the west of Features A and B. The wall originates 7.4 m west-southwest of the southwest corner of Feature B and extends 42.7 m to the north-northeast and north where it encounters a 2.0 m wide gap. The wall continues to the north for 6.5 m where it exits the project area. The wall is constructed of stacked a'a cobbles and small boulders and incorporates several bedrock outcrops. It is 1.0 to 1.35 m in width and 0.5 to 1.45 m in height. The wall is collapsed throughout most of its length though intact, faced sections with core-filled cobble interiors are present. Feature C was interpreted as a probable livestock control feature that may have been used to restrict grazing animals from entering the habitation area.

Site 24148

Site 24148 is a complex of seven permanent habitation features located in an area of uneven a'a lava in the seaward portion of the project area at the 20ft elevation. The features are comprised of four enclosures (Features A, B, D and F), a wall (Feature C), a modified outcrop (Feature E), and a mound (Feature F; *Figure 10)* situated in an area 47.0 m long (north-south) by 25.0 m wide.

Feature A is a large, rectangular enclosure built of stacked a'a cobbles and small boulders. It is 14.2 m long by 6.5 m wide, with walls that range in width from 0.8 to 1.4 m and in height from 0.6 to 1.22 m. Portions of the enclosure walls have collapsed although intact faced sections are present, with core-filled cobble interiors. The northern wall of the enclosure incorporates several bedrock outcrops and this outcrop area may have functioned as the entrance into the interior. The interior floor of the enclosure is covered in a thin soil deposit with no cultural remains noted. Feature A was interpreted as a permanent habitation feature which may have served as a yard surrounding a pole and thatch roofed structure.

Feature B is a roughly square shaped enclosure that is built against the southern wall of Feature A. It is 6.9 m long by 6.1 m wide with stacked a'a cobble and small boulder walls that range in width from 1.0 to 1.2 m and in height from 0.72 to 1.22 m. Wall collapse is present along portions of the south and west walls, though the remainder of the structure's walls are intact with faced sides and core-filled interiors of small cobbles. A possible entrance into the interior is located along the western side at the north end. The interior of the enclosure consists of a level soil deposit with no cultural remains. Feature B was also interpreted as a permanent habitation feature which probably served as foundation for a pole and thatch roofed structure.

Feature C is a curvilinear wall that incorporates several low bedrock outcrops. The wall is built of stacked and piled a'a cobbles and small boulders, ranging in width from 0.6 to 0.7 m and in height from 0.5 to 0.72 m. It originates 4.9 m north of the northern wall of Feature A and extends 1.4 m to the north, then angles to the northeast for 5.0 m where it intersects a low bedrock outcrop. A large leaning vertical outcrop is located

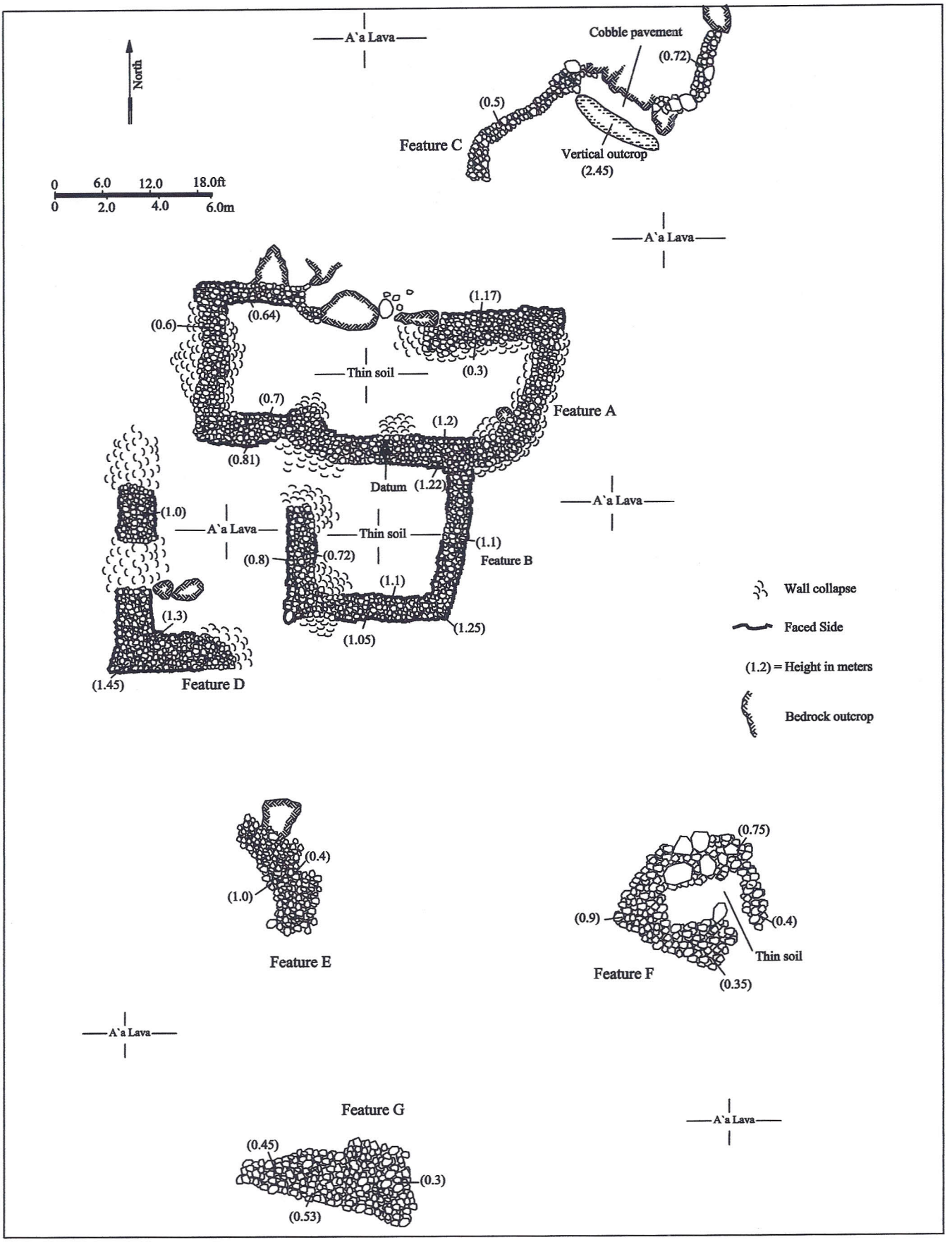


Figure 10. Site 24148 Plan Map

adjacent to the northeast end of this section of wall, measuring 3.7 m long, 0.9 m wide and 2.45 m in height. The area between this vertical outcrop and the low outcrop is paved with small cobbles and pebbles, in an area 3.2 m long by 0.8 m wide and is slightly sheltered by the leaning outcrop. No cultural remains were noted. The wall continues on the east end of the low outcrop, extending 1.4 m east, then angling to the north-northeast for 3.2 m where it terminates against another outcrop. Feature C was interpreted as an ancillary feature associated with the permanent habitation of the site. The paved area beneath the leaning outcrop likely functioned as an associated shelter or activity area.

Feature D is an L-shaped wall remnant that forms an enclosure between the western wall of Feature B and the west end of the south wall of Feature A. The wall is 9.5 m long by 5.5 m wide, and is built of stacked a'a cobbles and small boulders, ranging in width from 1.2 to 1.4 m and in height from 1.0 to 1.45 m. The central portion and north end of the west wall have collapsed as has the east end of the south wall. The collapsed areas may have served as entrances into the interior. The intact walls are faced with core-filled cobble interiors. The overall extent of the enclosed area is 9.1 m long by 6.9 m wide. The interior floor of the enclosure is comprised of bare a'a lava with no cultural remains present. Feature D was interpreted as a permanent habitation yard.

Feature E is a modified outcrop located south of Feature D in an area of uneven a'a lava. This feature is irregularly shaped and is 5.05 m long, 2.9 m wide and 0.4 to 1.0 m in height. It is constructed of piled a'a cobbles and small boulders with an uneven, irregular surface. No cultural remains were noted. Feature E was interpreted as a permanent habitation, ancillary feature which may have functioned as site furniture based on its close proximity to other features.

Feature F is crudely constructed enclosure located southeast of Feature A. It is 5.8 m long by 5.5 m wide, with walls that range in width from 0.8 to 2.7 m and in height from 0.4 to 0.9. These walls are built of piled and roughly stacked a'a boulders and cobbles and enclose a roughly rectangular interior space that is 3.0 m long and 1.15 m wide. The floor of this interior space is covered in a thin soil deposit with no cultural remains observed. Feature F was interpreted as the possible foundation for a permanent habitation, special purpose structure.

Feature G is a mound built on bare a'a lava that is irregularly-shaped and is 6.5 m long, 1.5 to 3.0 m wide and 0.3 to 0.53 m in height. It is built of piled cobbles and small boulders with an uneven, irregular surface and no cultural remains. Feature G was interpreted as a permanent habitation, ancillary feature which may have functioned as site furniture in association with the site.

Site 24150

Site 24150 is a complex of 11 permanent habitation, burial and possible burial features located in an area of uneven pahoehoe and a'a lava in the coastal portion of the project area at c. 10-20 ft elevation. The site encompasses an area 55.0 m long and 54.0 m wide and consists of five platforms (Features A, C, D, H and J), four terraces (Features

B, E, F and G), a modified knoll (Feature I) and an enclosure remnant (Feature K; *Figure 11*).

Feature A is a small platform and Feature B is a small terrace located in the south-central portion of the site. Subsurface testing within Feature A revealed an *in situ* human burial at 0.78 to 0.85 m below surface. The proximity of Feature B to Feature A and its small size suggested that Feature B also represented a burial feature. The preservation of Features A and B are presented in a burial treatment plan currently in preparation.

Feature C is a large, platform that is 5.7 m long and 4.6 m wide, separated from the Feature D platform by an area of collapsed rubble. The sides of the platform are bordered by stacked cobbles and small boulders that range in height from 0.45 to 0.8 m. The sides of the platform at the north and south ends are collapsed, although the remaining sides are intact and faced. The surface of the feature is comprised of a level pavement of cobbles. No cultural remains were noted. Feature C was interpreted as the foundation for a permanent habitation structure.

Feature D is a platform located adjacent to Feature C to the northeast. It is 6.0 m long and 2.3 to 5.9 m wide and is bordered by stacked and faced cobbles and small boulders around its perimeter. The sides of the platform range in height from 0.45 to 0.55 m. The surface is comprised of a level cobble pavement with no cultural remains observed. Feature D was also interpreted as the foundation for a permanent habitation structure.

Feature E is a roughly rectangular-shaped terrace located on the side of a slight, rocky slope that angles to the west. The terrace is 6.5 m long and 4.0 m wide, with stacked cobble and small boulder retaining walls along the north, south and west sides. These walls range in height from 0.6 to 0.65 m. The eastern side of the terrace abuts the base of the slope. The surface is comprised of a level soil deposit with no cultural remains present. A low piled cobble mound is present on the surface of the terrace, measuring 0.8 m in diameter and 0.4 m in height. Feature E was interpreted as an ancillary feature associated with the permanent habitation of the site, which potentially functioned as an activity area.

Feature F is a crude terrace comprised of linear retaining wall of a'a cobbles and small boulders situated on an exposed a'a outcrop, with an area of level soil on the upslope, southern side. The retaining wall is 7.3 m long and 0.5 m wide, 0.5 to 0.7 m in height. A fragment of waterworn coral is present within the retaining wall. The level soil area is 11.0 m long and 1.6 to 2.6 m wide. A waterworn basalt cobble is present on the soil surface. Feature F was also interpreted as a potential permanent habitation activity area.

Feature G is a crude terrace situated on the side of a slight rocky slope. The terrace contains a stacked and piled cobble and small boulder retaining wall along the western side of the feature that is 3.0 m long and 0.2 to 0.55 m wide. The north end of the terrace is built on the surface of an uneven outcrop. The surface of Feature G consists of an uneven scattered of cobbles and small boulders with no cultural remains. Feature G is

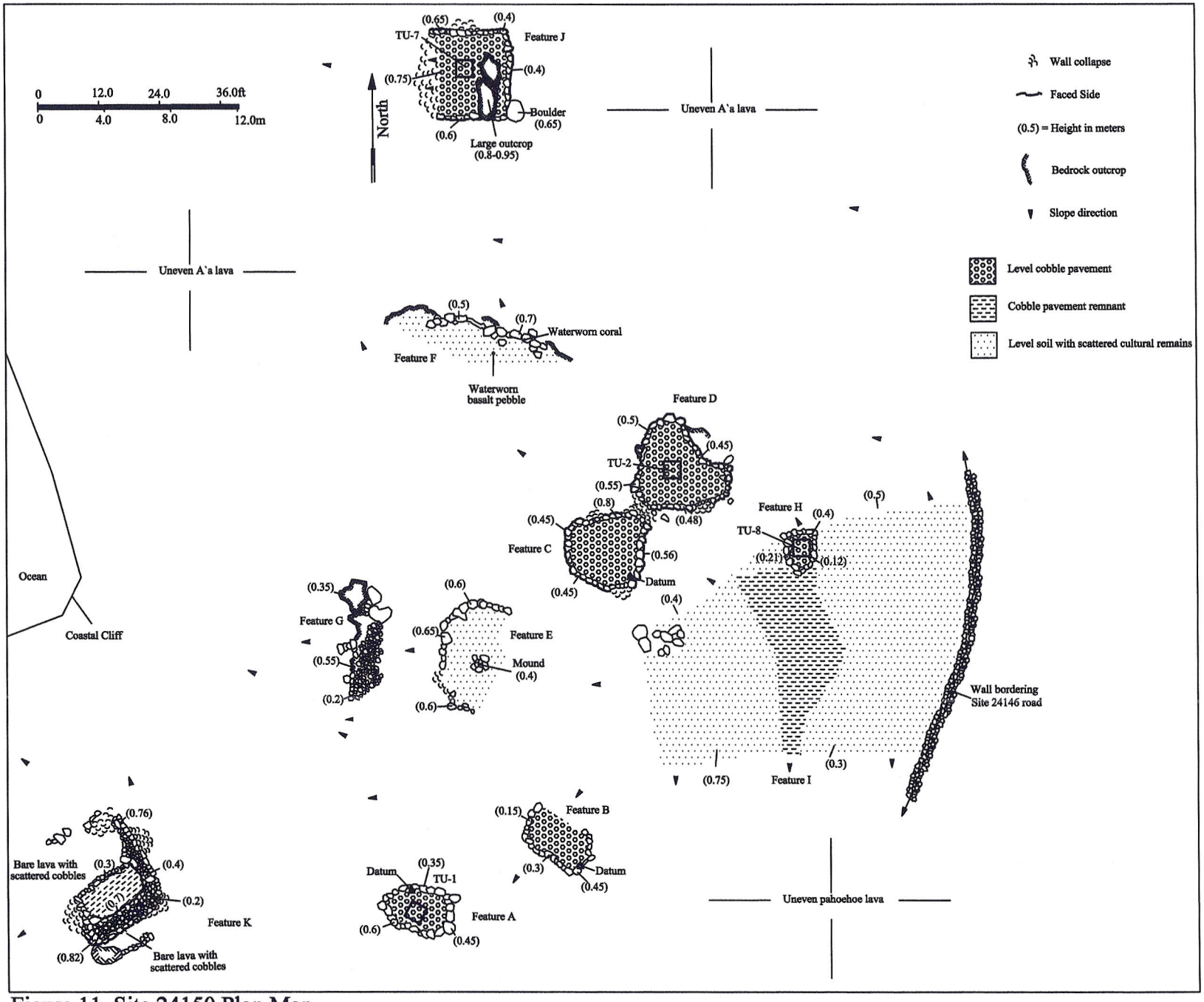


Figure 11. Site 24150 Plan Map

interpreted as a possible permanent habitation, ancillary feature that may have served as an activity area.

Feature H is a small roughly rectangular platform located on the surface of the Feature I modified knoll along its northern side. The platform is 2.6 m long and 2.0 m wide, and is bordered by a single course alignment of large cobbles and small boulders. The surface of the platform consists of a level pavement of cobbles, pebbles and small boulders, with no cultural remains present. Feature H was interpreted as the probable foundation for a permanent habitation, special purpose structure.

Feature I is a large level, soil-covered knoll that has been mostly cleared of surface stones. The surface of this knoll is 19.3 m long and 6.5 to 14.0 m wide. It is bordered by the stone wall that lines the Site 24146 road on the east, and by slight drop offs to the north, south and west. The surface of the knoll is 0.3 to 0.75 m in height above the surrounding terrain. The Feature H platform is situated along the northern edge of the knoll, in the approximate center. A sparse cobble pavement remnant extends across the surface of the knoll through its center in a north-south direction. This pavement consists of a single course of scattered cobbles and pebbles in an area 11.0 m long and 1.25 to 4.7 m wide. Scattered marine shells and waterworn coral and basalt pebbles are scattered over the surface of the pavement and on the soil covered knoll. Feature I was interpreted as a permanent habitation, ancillary feature which likely served as an activity area.

Feature J is a roughly square-shaped platform located in an area of uneven a'a lava. The platform is 5.8 m long and 5.5 m wide and is bordered on the north, south and east sides by stacked and faced cobble and small boulder walls. These sides range in height from 0.4 to 0.65 m. The western side of the structure has collapsed outward and collapse was noted in the center of the northern wall. A large a'a boulder is located adjacent to the southeastern corner of the platform. The surface is comprised of a level pavement of cobbles and small boulders. Several waterworn basalt cobbles and coral pebbles were noted on the platform's surface. A large outcrop extends from the surface of the platform along its eastern side. Feature J was interpreted as the foundation for a permanent habitation structure.

Feature K is the disturbed remnant of an enclosure located in an area of bare coastal lava, 11.0 m inland from the coastal cliff line. The enclosure remnant is 7.0 m long and 5.6 m wide, with partially intact walls along the northeast and southwest sides. These walls range in width from 0.65 to 1.1 m and in height from 0.2 to 0.82 m. The exterior sides of these walls have mostly collapsed, although intact faced sections are present. A low alignment of cobbles bisects the interior of the enclosure in a northeast by southwest direction. This alignment averages 0.3 m in height. The area to the southeast of the alignment consists of a rough cobble pavement remnant and the area to the northwest is bare lava with scattered cobbles. No cultural remains were noted at the feature, but waterworn coral fragments and basalt cobbles are scattered on the lava surface between the enclosure and the cliff line. Feature K was interpreted as the probable remnant of a permanent habitation structure.

Site 24151

Site 24151 is a complex of six permanent habitation features located in an area of uneven pahoehoe and soil. The site encompasses an area 49.0 m long by 22.0 m wide and is comprised of an enclosure (Feature A), a low wall (Feature B), three mounds (Features C-E) and a pavement (Feature F; *Figure 12*).

Feature A is a large enclosure that is 14.5 m long by 12.4 m wide with walls constructed of stacked cobbles and small boulders and vary in width from 1.0 to 1.7 m and in height from 0.55 to 1.1 m. Portions of the interior and exterior sides of the walls are collapsed, although intact faced sections are present with core-filled cobble interiors. There are two entrances into the enclosure; one in the center of the south wall and one in the center of the north wall. The floor of the enclosure consists of a level soil deposit and low pahoehoe outcrops with scattered sun-bleached marine shells and waterworn coral pebbles. An oval-shaped alignment of large cobbles is present in the northwestern portion of the enclosure, measuring 1.2 m in diameter and 0.2 m in height. This alignment may represent a hearth. Feature A was interpreted as a permanent habitation, ancillary

Feature B is a wall located 7.9 m south of the Feature A. It extends 20.7 m to the south, terminating 7.0 m north of a dirt road. The wall consists of stacked and piled cobbles and small boulders and is 1.4 to 3.0 m wide and 0.1 to 0.52 m in height. There is an alignment of small boulders along the western side at the north end. Several low pahoehoe outcrops are incorporated into the wall in the center. No cultural remains were observed. Feature B was interpreted as a permanent habitation, ancillary feature, which may have served as a boundary wall that partially enclosed the habitation area.

Feature C, D and E are roughly oval-shaped mounds located to the west of the Feature B wall. These mounds are constructed of piled cobbles and small boulders, with uneven, irregular surfaces. These features range in length from 3.0 to 4.7 m, in width from 1.9 to 3.0 m and in height from 0.4 to 0.6 m. No cultural remains were found in association with the mounds. Features C-E are interpreted as permanent habitation, ancillary features which may have functioned as site furniture.

Feature F is a low pavement located adjacent to the Feature A enclosure to the north. The paved area is 13.5 m long and 4.7 to 6.4 m wide and is bordered by a bedrock outcrop along the north and northwest sides, and by outcrops and several large boulders to the east. The southern end of the pavement appears to originate at the northern entrance of the Feature A enclosure. The surface of the feature is relatively level and consists of tightly packed pebble, cobbles and small boulders. No cultural remains were noted on the surface of the pavement. Feature F was interpreted as a permanent habitation, ancillary feature that likely served as a *lanai* or activity area associated with the Feature A enclosure.

Site 24152

Site 24152 is an irregularly-shaped pavement located in the coastal portion of the project area, on a level ridge. The pavement is 12.75 m long and 2.3 to 9.9 m wide (*Figure 13*). The pavement is bordered by bedrock outcrops to the west and northeast, by sev-

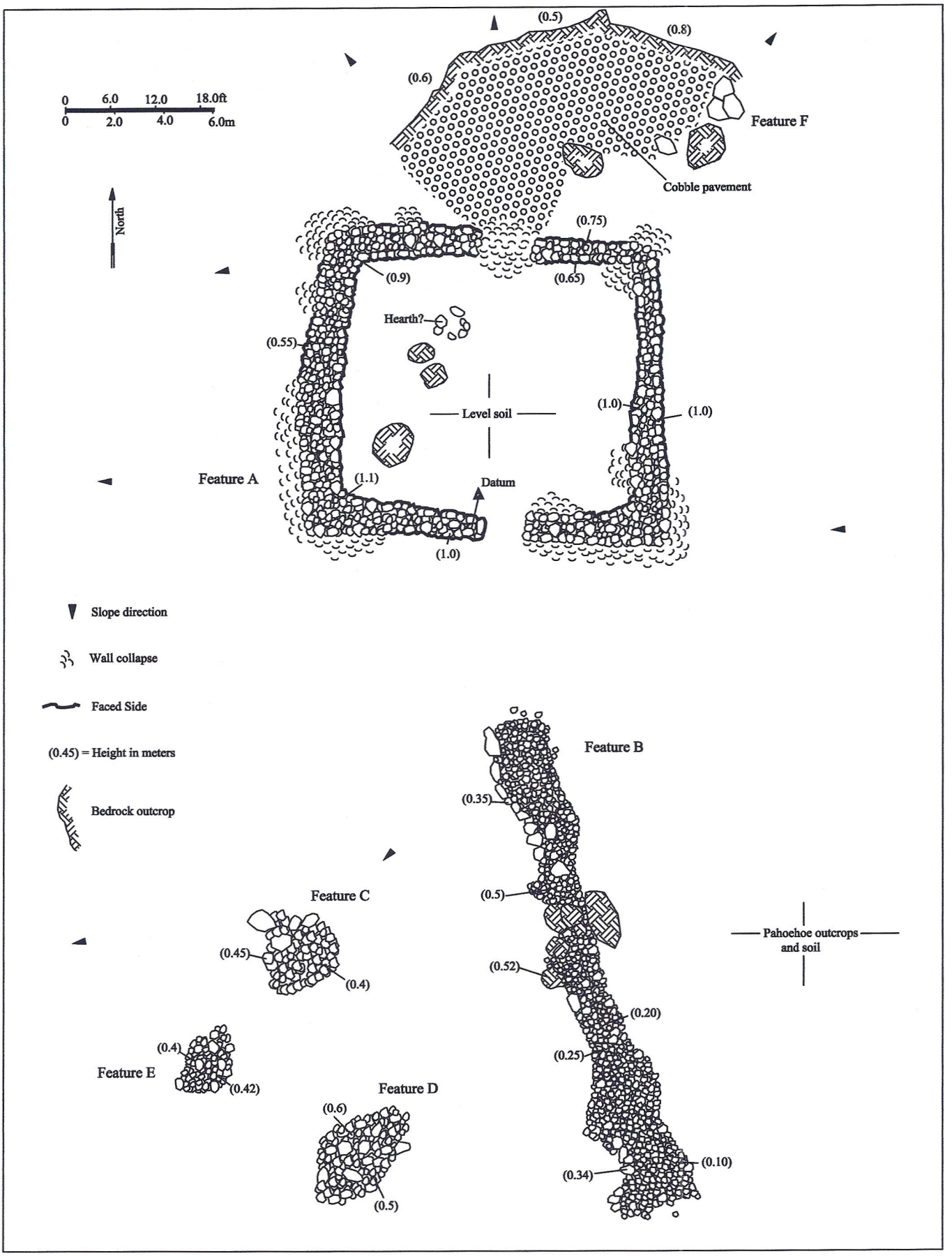


Figure 12. Site 24151 Plan Map

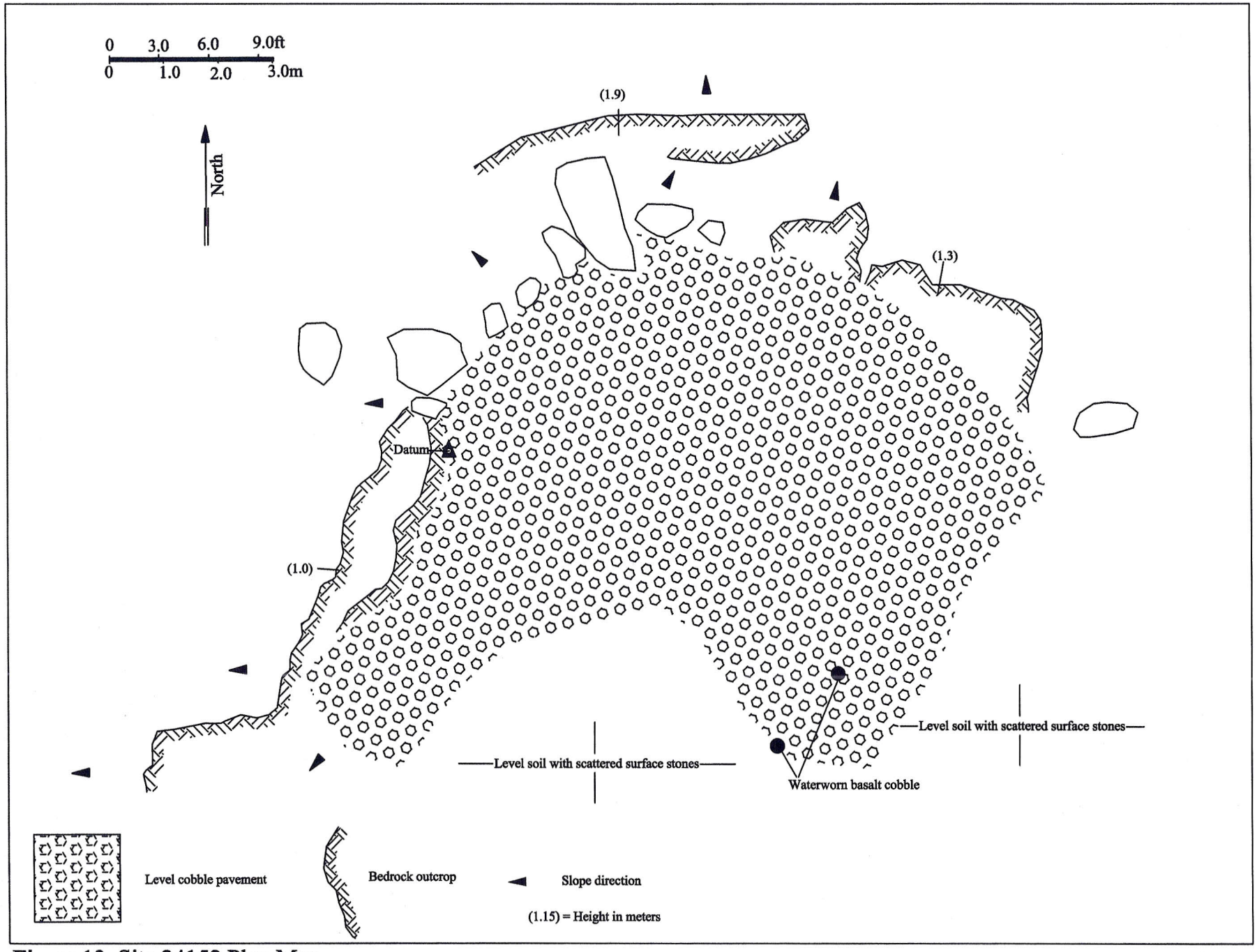


Figure 13. Site 24152 Plan Map

eral small to medium sized boulders to the north and by areas of level soil with scattered surface stones to the south and east. The ground surface slopes down to the west and north away from the pavement. The surface is comprised of level a'a cobbles and pebbles. Several waterworn basalt cobbles are present on the pavement surface at the southeastern end. Site 24152 was interpreted as the foundation for a permanent habitation structure.

Site 24153

Site 24153 is a multi-tiered platform located 2.0 m north of a 1950 lava flow, on a rocky slope to the west. The platform is square and is 10.15 m long and 10.0 m wide (*Figure 14*). Portions of the exterior sides of the platform have collapsed outward, although intact faced sections of stacked cobbles and small boulders are present, ranging in height from 0.5 to 1.75 m. The lower tier occupies the west and south sides of the structure. This tier is L-shaped and is 10.0 m (north-northeast by south-southeast) and 10.15 m (west-northwest by east-southeast) and varies in width from 1.0 to 5.0 m with a surface comprised of a level a'a cobble, pebble and small boulder pavement. A 3.3 m long alignment of small boulders and large cobbles is present in the western portion of the lower tier. Several waterworn basalt cobbles and waterworn coral fragments are scattered over the surface of the tier.

The upper tier occupies the north and eastern sides of the structure. This tier is also roughly L-shaped and is 0.2 to 0.55 m higher than the lower tier. It is 9.2 m (north-northeast by south-southeast) and 9.0 m (west-northwest by east-southeast). The north and east exterior sides of the tier are bordered by partially collapsed, stacked and faced walls that are 1.0 to 1.5 m wide and 0.37 to 0.65 m in height on the interior side. The surface of the upper tier is comprised of relatively level pavement of cobbles, pebbles and small boulders, with scattered waterworn basalt cobbles present.

The upper tier contains two internal features consisting of a small platform and a rock pile. The platform is located along the west side of the tier and is 1.6 m long (north-south), 1.3 m wide and 0.4 to 0.45 m in height. The sides of this platform are bordered by aligned small boulders and the surface is comprised of a level cobble and pebble pavement. The mound is located 2.5 m south-southeast of the platform. It is oval-shaped and is 1.4 m long (northeast by southwest), 1.1 m wide and 0.6 to 0.65 m in height. The surface is slightly domed. Site 24153 was interpreted as a *heiau* based on its large area (101.5 sq m), its substantially constructed nature (faced side, paved surface), and its multiple tiers and internal features.

Site 24154

Site 24154 is a complex of two permanent habitation structures located in the southwestern portion of the project area in an area of uneven soil and outcrops that slopes to the west and southwest. The southern end of the site has been buried beneath the 1950 lava flow. The features are comprised of an enclosure remnant (Feature A) and a modified outcrop (Feature B; *Figure 15*).

Feature A is the disturbed remnant of an enclosure located at the southern end of the site. Currently the structure is 19.3 m and 17.8 m wide. The feature appears to have

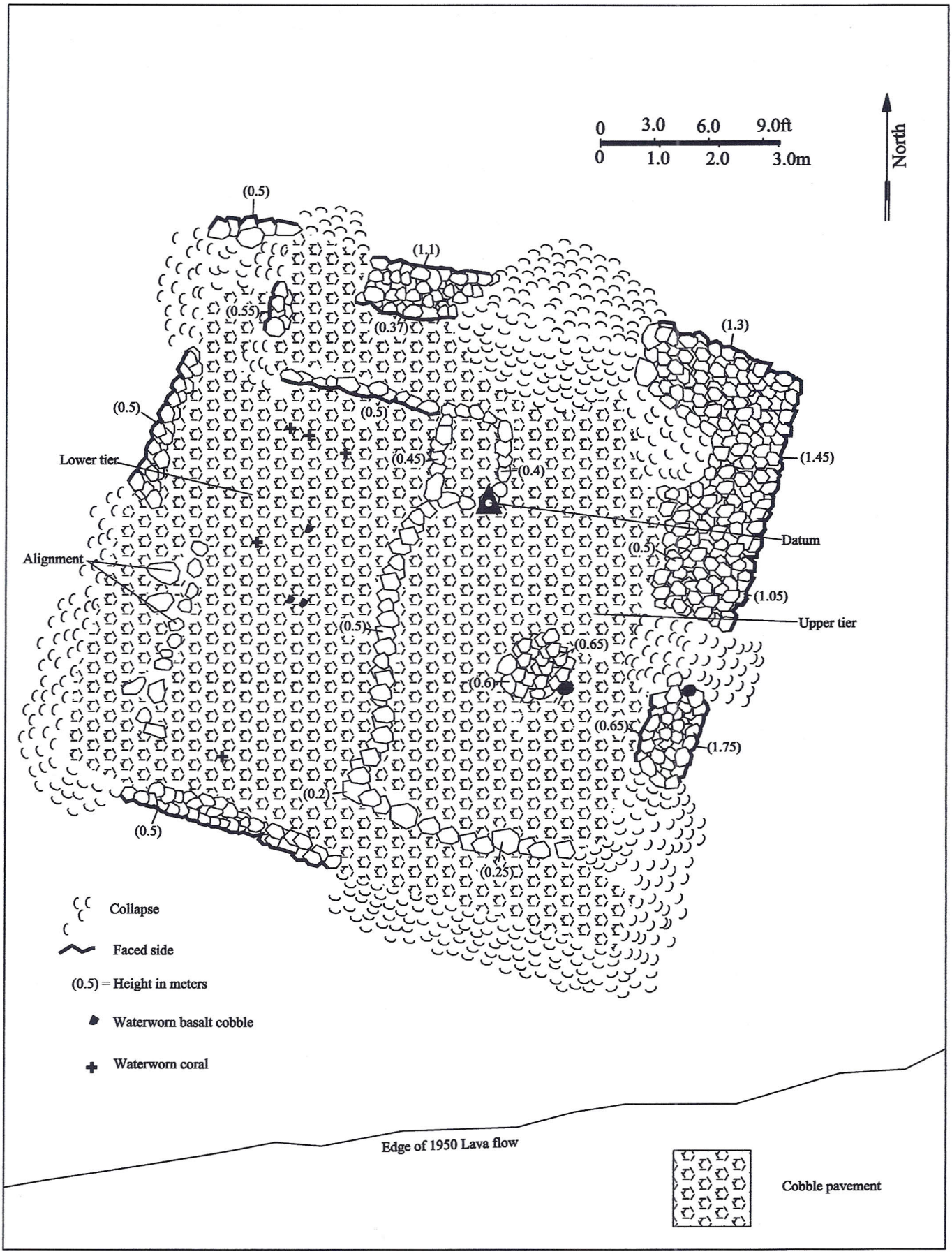


Figure 14. Site 24153 Plan Map

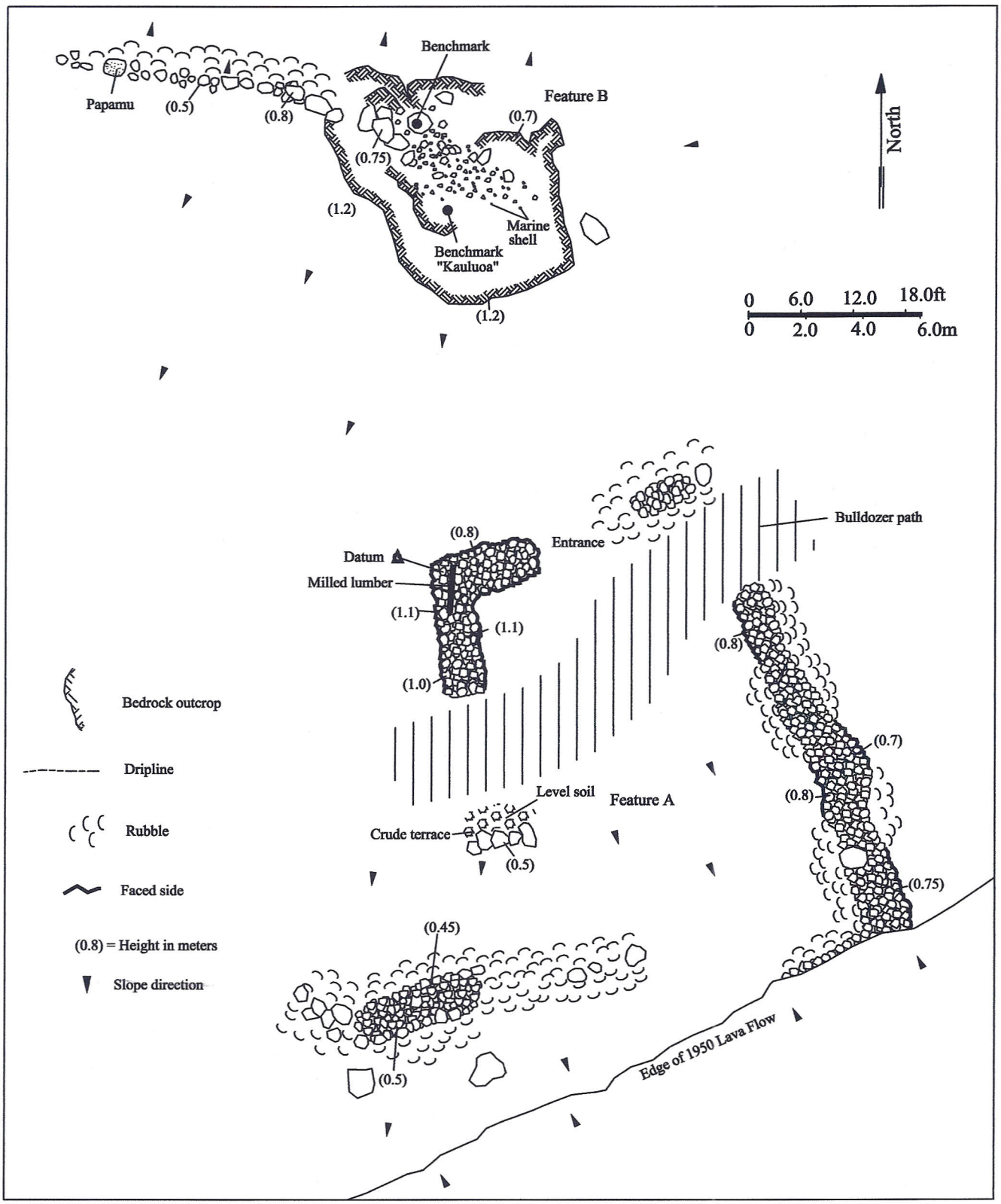


Figure 15. Site 24154 Plan Map

originally been roughly L-shaped, though it has been significantly impact by bulldozer disturbance, evidenced by a dozed path that extends through the feature is an east-west direction. Portions of the north, south, east and west sides of the enclosure still remain extant, although each side evidences disturbance. The northwest corner of the enclosure is the most intact portion of the feature, consisting of stacked and faced walls, with a core-filled cobble interior. These walls are 1.3 to 1.5 m wide and 0.8 to 1.1 m in height. The east end of the north wall in this area is faced, suggesting that an entrance into the interior was once present. A remnant of the north wall is present 3.4 m to the east-northeast, measuring 2.3 m long, 1.1 m wide and 0.3 m in height.

Portions of the eastern wall are also intact, with faced interior and exterior side remaining. These intact sections are 1.0 to 1.3 m wide and 0.7 to 0.8 m in height. The remaining portions of the east wall are either collapsed or missing. Portions of the south wall have been buried beneath the 1950 lava flow, although a collapsed rubble wall measuring 13.6 m long, 1.2 to 1.4 m wide and 0.45 to 0.5 m in height is present at the southwest end of the feature.

The interior of the enclosure is comprised of relatively level soil and scattered stones at the north end, with the southern end sloping slightly towards the south. The remnants of a crude terrace is located at the top of the sloping area, measuring 2.3 m long and 1.35 m wide. A retaining wall of aligned small boulders is located along the south side of the terrace (0.5 m in height), with an area of level soil on the upslope side. No cultural remains were found within the enclosure, although a fragment of milled lumber was noted on top of the wall at the northwest corner. The enclosure was interpreted as a permanent habitation feature that functioned as a yard.

Feature B is a linear modified outcrop located north of Feature A. It is 16.4 m long by 1.0 to 1.5 m wide. The eastern end consists of an exposed pahoehoe outcrop that is 0.7 to 1.2 m in height above the surrounding ground surface. Scattered stacked and piled cobbles, small boulders and pebbles are present across the surface of the outcrop. Several fragments of sun-bleached marine shell were noted at the eastern end of the outcrop and two circular brass benchmarks are imbedded into the surface. One of the benchmarks reads, "Kauluoa". A disturbed linear pile of cobbles and small boulders extends to the west from the outcrop for 9.5 m. This pile is 0.5 to 0.8 m in height. A *papamu* consisting of a flat waterworn basalt boulder with a series of pecked holes on one side is present at the western end of the linear pile. The boulder is 0.77 m long, 0.58 m wide and 0.35 m in thickness. Though disturbed, Feature B was interpreted as the remnant of permanent habitation feature.

Site 24155

Site 24155 is a complex of four ceremonial features located in the southwestern portion of the project area, 6.0 m inland from the coastal cliff line. The Site 24146 road is located adjacent to the site to the east. The features are comprised of a platform (Feature A), a terrace (Feature C) and two paved areas (Features B and D; (*Figure 16*).

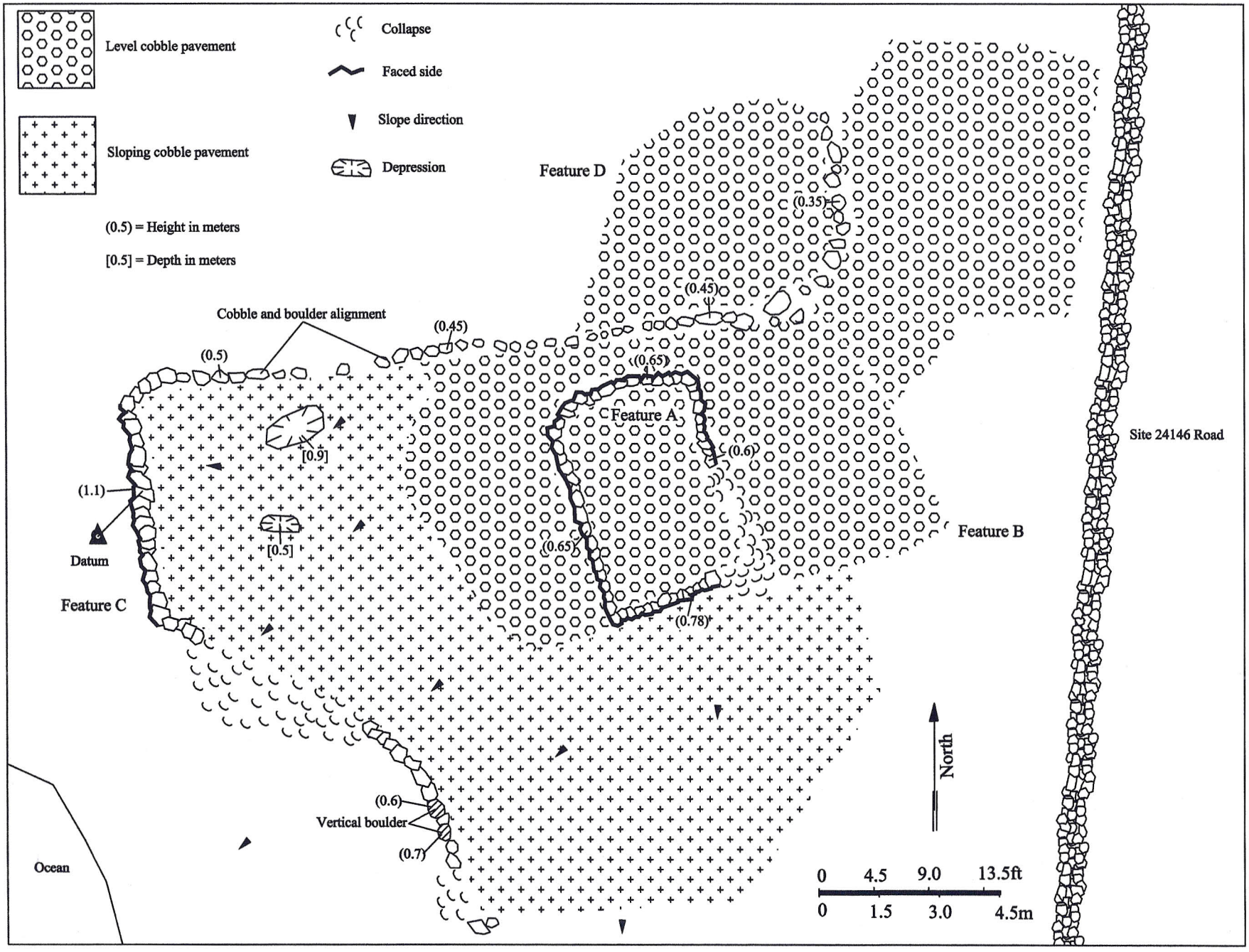


Figure 16. Site 24155 Plan Map

Feature A is a rectangular platform that is 5.7 m long and 3.9 m wide. The platform is located on the surface of the Feature B pavement and is bordered to the south by the inland end of the Feature C terrace. The southeast side of the platform has collapsed, although the remaining sides are intact, comprised of stacked and faced cobbles and small boulders that vary in height from 0.6 to 0.78 m. The surface of the platform is comprised of a rough pavement of cobbles and small boulders, with large amounts of waterworn coral.

Feature B is a level pavement of cobbles and small boulders that extends around the north, west and east sides of the Feature A platform. The paved area is 20.2 m long and 4.0 to 7.4 m wide. It is bordered by the inland end of the Feature C terrace to the west and south, by an alignment of small boulders to the north and by a level soil with scattered cobbles to the east. The surface of the pavement contains scattered waterworn basalt cobbles and waterworn coral.

Feature C is an irregularly-shaped terrace that extends along the west and south sides of the site. The terrace is 18.1 m long and 6.4 to 14.1 m wide. A retaining wall extends along the west and southwest side of the feature. This wall is partially collapsed although an intact, faced section is located at the north end, comprised of stacked cobbles and small boulders that average 1.1 m in height. Aligned small boulders, several of which are positioned vertically, border the terrace at the southwest end. The northern side is delineated by an alignment of cobbles and boulders, and by Features A and B. The south and east sides of the features abut the surrounding terrain. The surface of the terrace consists of sloping, rough pavement of cobbles and small boulders. Waterworn basalt cobbles and waterworn coral are scattered over the surface of the terrace. Two depressions with vertical sides are present on the surface at the northern end, ranging in length from 0.8 to 1.6 m, in width from 0.35 to 0.7 m and in depth from 0.5 to 0.9 m.

Feature D is a rectangular pavement located to the north and west of the Feature B pavement. This paved area is separated from Feature B by an alignment of cobbles and small boulders. It is 5.9 m long by 5.2 m wide and abuts the surrounding terrain to the north and south. Waterworn basalt cobbles are present on the surface of the pavement.

Site 24155 is interpreted as a *heiau* complex based on its coastal location, large area (282.7 sq m), its substantially constructed nature (faced sides, paved surface), the vertical pits and multiple tiers formed by its component features.

PRESERVATION SITE BUFFERS

At present, TMK: 8-7-007:008 is undeveloped and vehicular access is limited to a dirt road that traverses the property at c. 400 ft elevation and a road that traverses the property at approximately 75 ft elevation. Another dirt road branches off the latter road providing access to the coast at two locations; one near the northern property boundary and one on the north side of the 1950 lava flow. The main access road has a locked gate and access is controlled by the owners of seven adjoining properties served by the access

road. The shoreline is occasionally accessed for fishing by individuals who hike in from the Kona Paradise Subdivision to the south.

Future planned development by the landowner consists of subdivision of the property into eight parcels. Seven parcels, which would be sold, will consist of a series of five acre rectangular lots situated between the Mamalahoa Highway and approximately 600 ft elevation inland from Site 24136. Access to the lots would be via a private road along the northern property boundary accessed from Mamalahoa Highway.

The remainder of the property will be retained by the landowner who intends to build a personal residence at the coast in the vicinity of Site 24149 (see *Figure 2*). Access to the residence would be via the existing access road. The landowner intends to erect a gate on the seaward portion of this road on the southern property boundary where cross it 1950 lava flow. Access to this gated portion of the road would be controlled by the landowner and the owners of the two parcels situated immediately north of Parcel 008.

All except three of the sites to be preserved are situated on land that the landowner intends to retain. Two sites (24137 and 24139), and possibly a third (24138), are situated in the seaward five acre lot the landowner intends to sell. There are no preservation sites in the other six proposed five acre lots.

With the exceptions cited below, a preservation buffer zone of 20 ft will be established around the perimeters of each of the 16 preservation sites (*Figures 17* and *18*). The 20 ft buffers, which will not be marked by any barriers, will be sufficient to protect the sites because the lands surrounding the sites will remain undeveloped and because access is restricted to persons authorized by the landowner. Permission to access the property includes requirements that all vehicle use is restricted to existing roads and that the archaeological sites must not be disturbed.

The buffers around single feature sites (24135, 24136, 24137, 24140, 24143, 24144, 24152, and 24153) would extend out from the edges of the features on all sides. The buffers around site complexes (24138, 24139, 24147, 24148, 24150, 24151, 24154, and 24155) would extend out from the edges of the site boundaries as defined in the inventory survey (Haun and Henry 2004; see *Figures 17* and *18*).

The width of the buffer on the northeast side of Site 24148 and the southeast sides of Sites 24147 and 24151 would be 16-18 ft wide where existing dirt roads are present. The width of the buffer along the southwest side of Site 24155 follows the property boundary that is approximately 10-15 feet from the edge of the site. The buffer boundary on the southeast side of Site 24153 would be extended up to 64 ft onto the 1950 lava flow to ensure that any road improvements do not cause stones to be displaced on to the site (see *Figure 17*).

SHORT-TERM PRESERVATION

Short-term preservation will consist of the following general protective measures that would only be used for sites within 100 ft of any land altering activity:

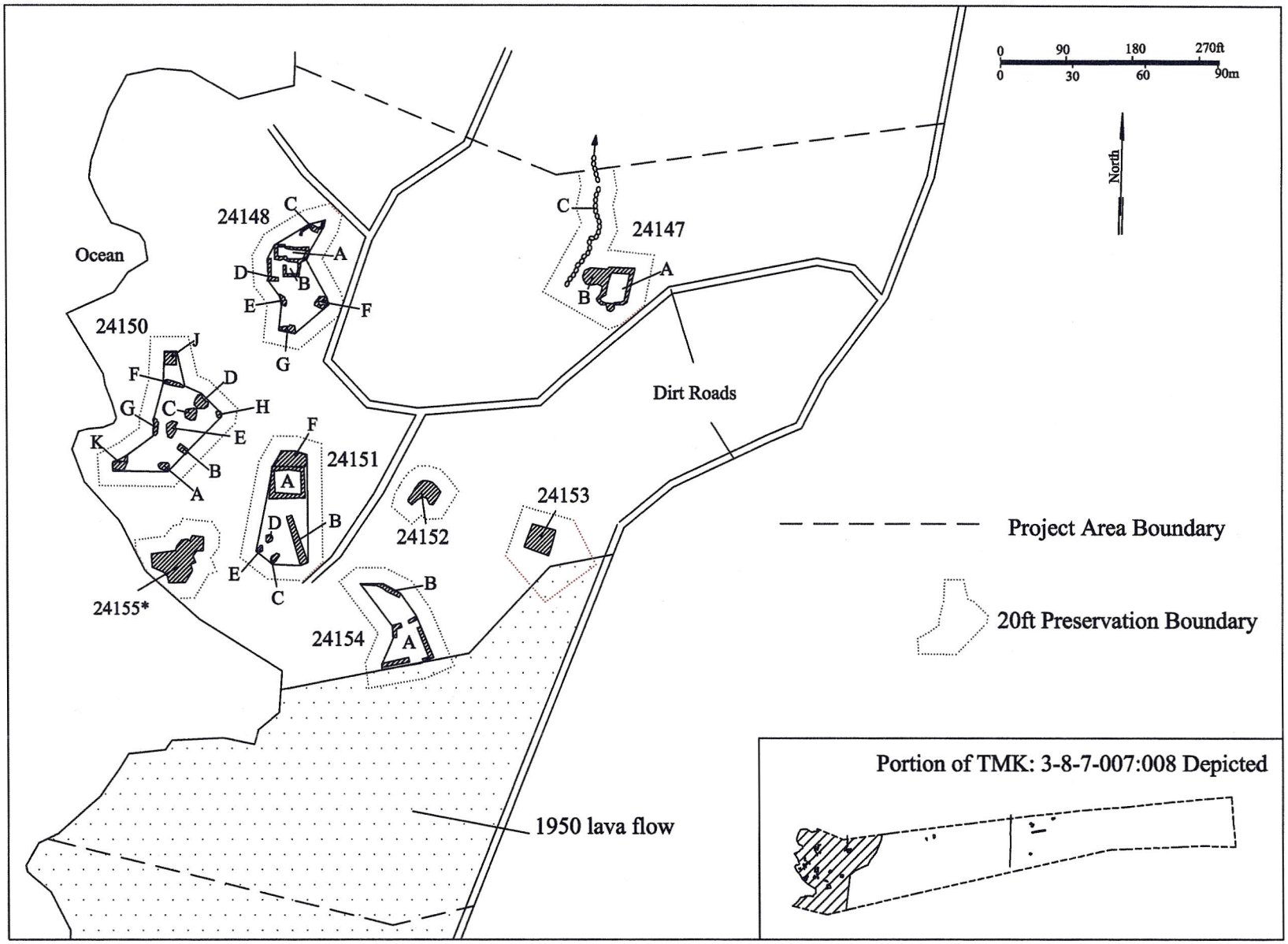


Figure 17. Location of Preservation Sites in Seaward Portion of TMK: 3-8-7-007:008

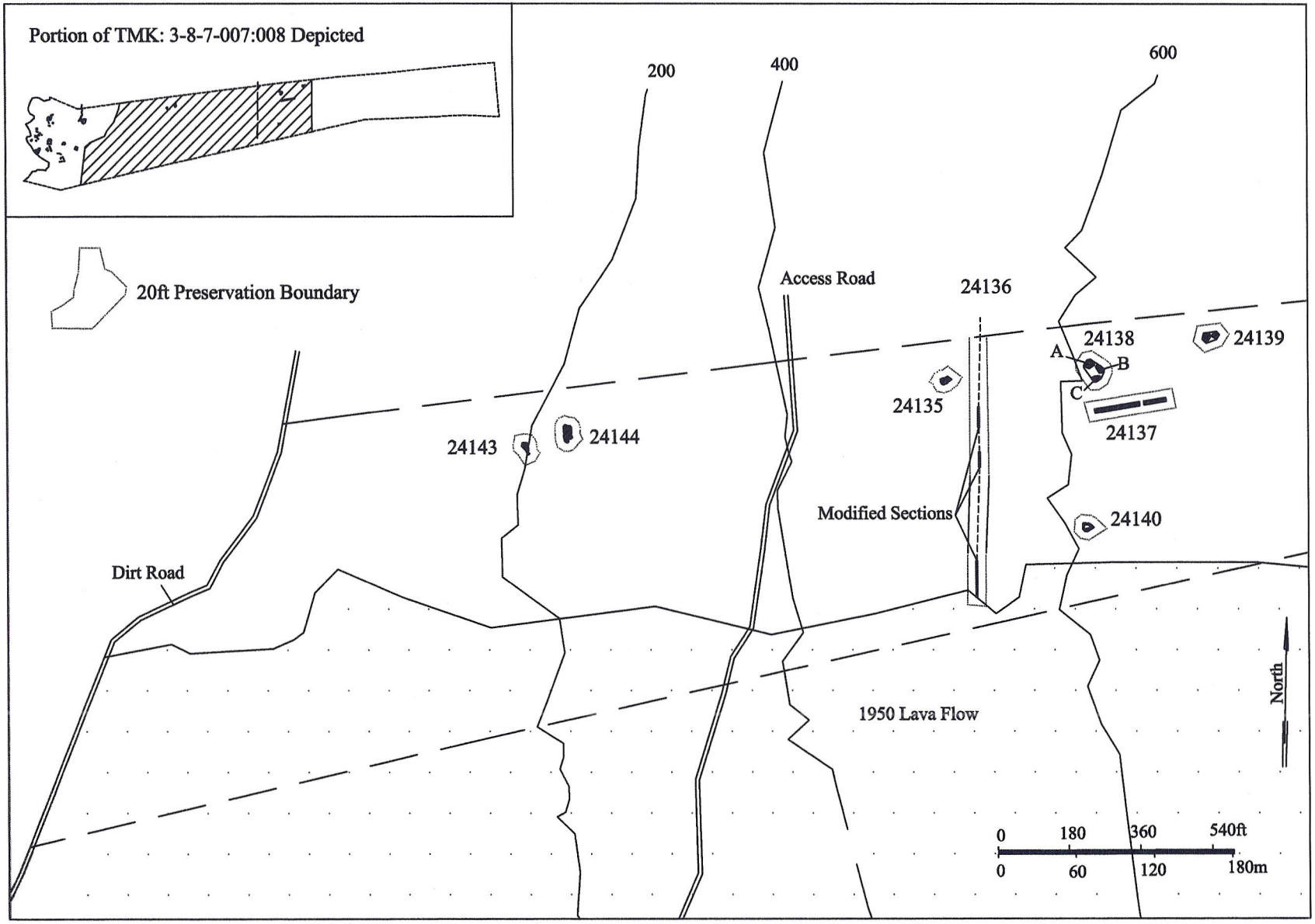


Figure 18. Location of Preservation Sites in Inland Portion of TMK: 3-8-7-007:008

1. The sites will be plotted accurately on grading plans and construction plans prior to the initiation of any grading, grubbing, and/or construction activities;

2. The buffer zones, as described above, shall be identified and marked around site perimeters. The buffer zone boundaries will be delineated with orange plastic fencing. An archaeologist will verify that the fencing is correctly in place prior to any land alteration. The verification will be documented in a letter to DLNR-SHPD; and:

3. Construction supervisors will be explicitly notified as to the nature and location of the sites, the significance of the buffer zones, and the meaning of the buffer zone markings.

LONG-TERM PRESERVATION

Long-term preservation of the 16 sites will also include the preservation buffers as described above. No future construction or land modification activities will occur within the preserve sites and associated buffers that will be left in their natural state. Litter removal, as necessary, will be the responsibility of the landowner. Metes and bounds descriptions of the preservation sites and buffer zones will be recorded in the property deed(s) and the location of the sites will be plotted on subdivision plat maps.

The landowner will responsible for monitoring site condition and integrity and will notify DLNR-SHPD of any significant change in site condition/integrity. DLNR-SHPD staff may inspect the sites with prior landowner permission. Access to the sites for appropriate cultural activities would be permitted during the daylight hours. Specific arrangements for access would be made by direct, mutual agreement between the landowner and individuals seeking such access. All access will include requirements that all vehicle use is restricted to existing roads and that the archaeological sites must not be disturbed.

Consultation

Mr. Clarence A. Medeiros, Jr. provided input on the inventory survey report and was provided a draft of this preservation plan for review. He is descended from the 1856 grantee Pumealani, who received Grant 2025, which includes the project area. According to Mr. Medeiros the project area was owned by the Magoon family since the early 1900s. His granduncle, Mr. Fred Iona, worked for the families' cattle ranching operation that included the project area. Mr. Medeiros reviewed the draft plan and his only suggested revision was that the preservation buffers be increased to 20 ft from the originally proposed 15 ft width. The present plan reflects this suggestion.

References

DLNR (Department of Land and Natural Resources)

2003 Hawaii Administrative Rules, Title 13, Department of Land and Natural Resources, Subtitle 13, State Historic Preservation Division Rules.

Haun, A., and D. Henry

2004 Archaeological Inventory Survey, TMK: (3) 8-7-007:008, Land of Pahoehoe 1st, South Kona District, Island of Hawaii. Haun & Associates report 340-010804 prepared for Mr. Peter Dungate.

375 Rec'd 7/27/05

Pres. Plan Approved

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

July 22, 2005

Dr. Alan Haun
Principal Investigator
Haun & Associates
HCR Box 4730
Keaau, Hawaii 96707

LOG NO: 2005.1577
DOC NO: 0507MM09

Dear Dr. Haun

SUBJECT: 6E-42 Historic Preservation Review, Archaeological Site Preservation Plan, Sites 24135-24140, 24143, 24144, 24147, 24148, 24150-24155 Pahoehoe 1, South Kona, Hawaii Island TMK: (3) 8-7-007:008

Thank you for your cover letter and a final copy of this revised plan for our review, which we received on April 28, 2005. We acknowledge receipt of seven revised pages, which address our comments from our previous review dated April 7, 2005 (Log No. 2005.0653, Doc No. 0305MM55).

In our previous review we requested the addition of maps that depict the preservation buffers in relation to the site complexes, and clarification regarding the planned use of the property. These items have been successfully addressed, and we have no further concerns.

Sixteen sites identified in an approved archaeological inventory survey of the subject property, *Archaeological Inventory Survey, TMK: 8-7-007:008, Land of Pahoehoe 1, South Kona District, Island of Hawai`i (Report 320-010804)* (Haun and Henry, March 2004) will be preserved. The form of protection for these sites is avoidance and protection. Short term preservation measures consist of plotting sites on grading plans and construction plans prior to the initiation of grading, grubbing or construction activities, marking of buffer zones with orange plastic fencing should the site lie within 100-feet of any project area, verification of fencing by an archaeologist, and notification of construction supervisors of the meaning of fencing and buffer zones.

Long term measures include a buffer in which no alteration will take place, left in its natural state without permanent demarcation. Litter removal by the landowner is specified. The long term preservation commitments and buffer specifications are to be recorded in the property deed and the location of the sites plotted on subdivision maps.

The revised plan is now adequate to satisfy the conditions of HAR 13-277 and is accepted. We appreciate your client's willingness to work with us. Should any question arise during implementation of the plan, please do not hesitate to contact MaryAnne Maigret in our Hawaii Island office at 327-3690.

Aloha,

Melanie A.Chinen, Administrator
State Historic Preservation Division

MM:jen

c: Mr. Peter Dungate, 75-5914G Mamalahoa Highway, Holualoa, Hawaii
Christopher Yuen, Hawaii County Planning Director

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 2d
Burial Treatment Plan, Site 24150

[This page intentionally left blank]

Report 374-101904

BURIAL TREATMENT PLAN

SITE 24150, LAND OF PAHOEHOE 1

SOUTH KONA DISTRICT, ISLAND OF HAWAI'I

(TMK: 8-7-007:008)

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

Report 374-101904

BURIAL TREATMENT PLAN

SITE 24150, LAND OF PAHOEHOE 1

SOUTH KONA DISTRICT, ISLAND OF HAWAI'I

(TMK: 8-7-007:008)

By:

Haun & Associates

Prepared for:
Mr. Peter Dungate
75-5914G Mamalahoa Highway
Holualoa, Hawaii 96725

January 2005

Haun & Associates
Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

INTRODUCTION

Project Identification

This Burial Treatment Plan (BTP) has been prepared for Mr. Peter Dungate, in conjunction with the proposed development of TMK: (3) 8-7-007:008 located in the Land of Pahoehoe 1, South Kona District, Island of Hawai'i (*Figure 1*). The project area is a 94-acre parcel that extends from the shoreline to the seaward side of the Mamalahoa Highway at c. 1,100 ft elevation.

Mr. Peter Dungate is the applicant with regard to this proposed BTP. The mailing address of the applicant is as follows: Mr. Peter Dungate, 75-5914G Mamalahoa Highway, Holualoa, Hawaii 96725.

Plan Purpose and Organization

The purpose of the BTP is to facilitate the proper treatment of human burial remains that have been identified at one site within the project area by achieving compliance with the applicable sections of Chapter 6E - Historic Preservation (Haw. Rev. St.; as amended), and the current administrative rules for the treatment of burial sites and human remains that were formally approved and adopted by the State of Hawai'i in September 1996 (DLNR 1996). More specifically, the purpose of the BTP is to provide the Hawaii Island Burial Council (HIBC) with the relevant information called for in Section 13-300-33: "Request for council determination to preserve or relocate Native Hawaiian burial sites". The information contained in this BTP is organized according to the following order of presentation: introduction; project background, identification of the burial sites, search for lineal and cultural descendants, proposed treatment of the burial site, and implementation of proposed BTP.

PROJECT BACKGROUND

Haun & Associates previously conducted an archaeological inventory survey of the project area (Haun and Henry 2004; *Figure 1*). The survey identified 23 sites consisting of 67 features (*Figure 2*). The features consist of 13 enclosures, 11 mounds, ten terraces, seven platforms, five modified outcrops, five walls, five pavements, three modified knolls, two *kua'iwi,* two roads, two concrete boxes, a wooden pump house, and a water tank. Functionally, the features consist of permanent habitation (n=37), agriculture (11), ceremonial (6), water source (5), livestock control (2), transportation (2), burial (2), and temporary habitation (2).

In the inventory survey report (Haun and Henry 2004) all 23 sites were assessed as significant for their information content. Four sites were also assessed as culturally significant because three sites were interpreted to be *heiau* (Sites 24144, 24153 and 24155) and the fourth included burials (Site 24150). An historic road (Site 24136) and the Site 24153 *heiau* were also assessed as excellent site type examples. Six of the 23 sites were recommended for no further work and 16 (including Site 24150) were recommended for preservation. The remaining site (Site 24149) was recommended for data recovery. DLNR-SHPD concurred with the significance assessments and recommended site treatments (Log No. 2004.2306, Doc. No. 0407MM14).

IDENTIFICATION OF THE BURIAL SITE

The following describes the burial and probable feature identified during the inventory survey (Haun and Henry 2004). The features consist of Features A and B at Site 24150 (*Figure 3*). The site also contains nine permanent habitation features (Features C-K) that are to be preserved in accordance with a Site Preservation Plan to be reviewed and approved by DLNR-SHPD. The site encompasses an area 55.0 m long (north-south) and 54.0 m wide and consists of five platforms

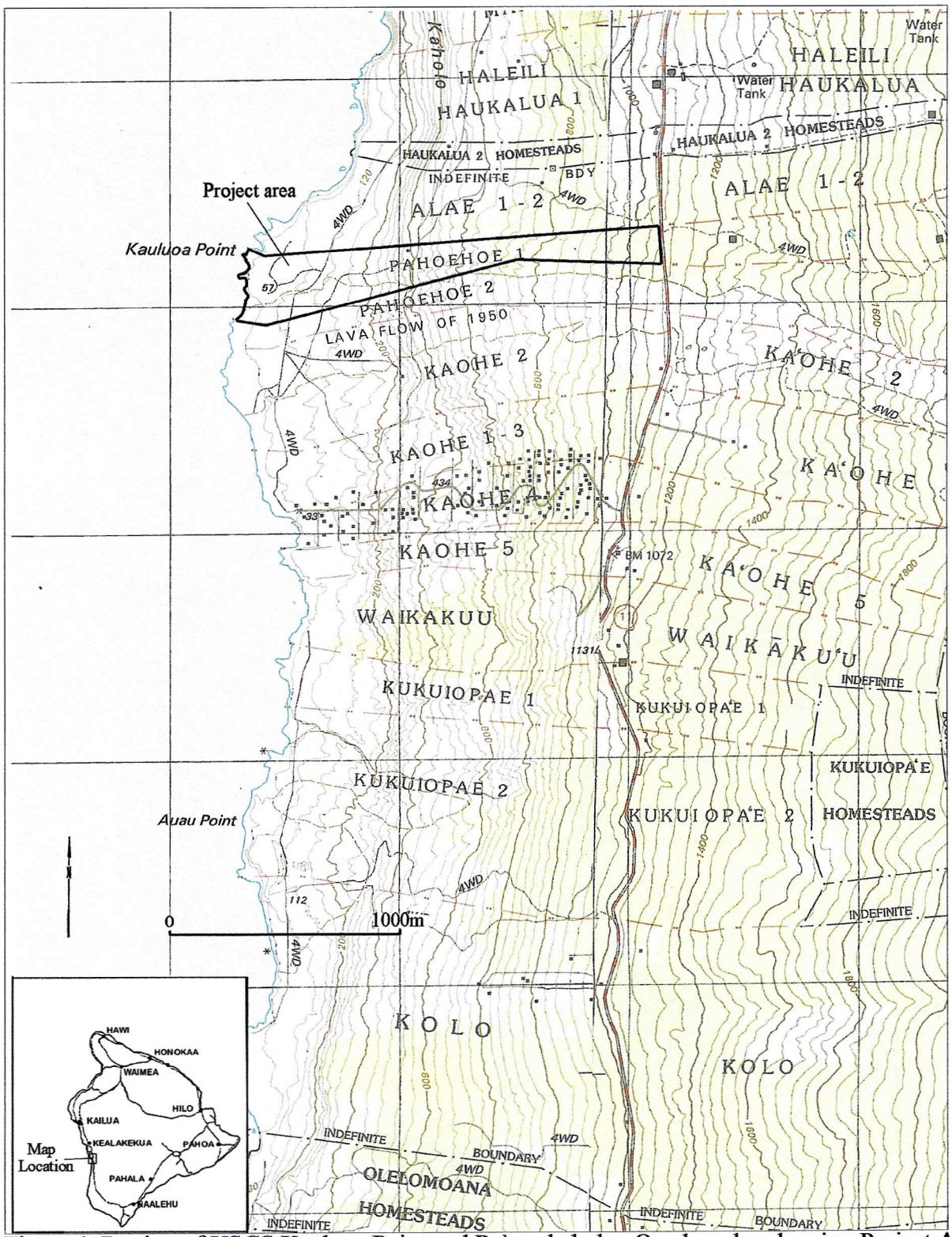


Figure 1. Portion of USGS Kauluoa Point and Pu`upohakuloa Quadrangles showing Project Area

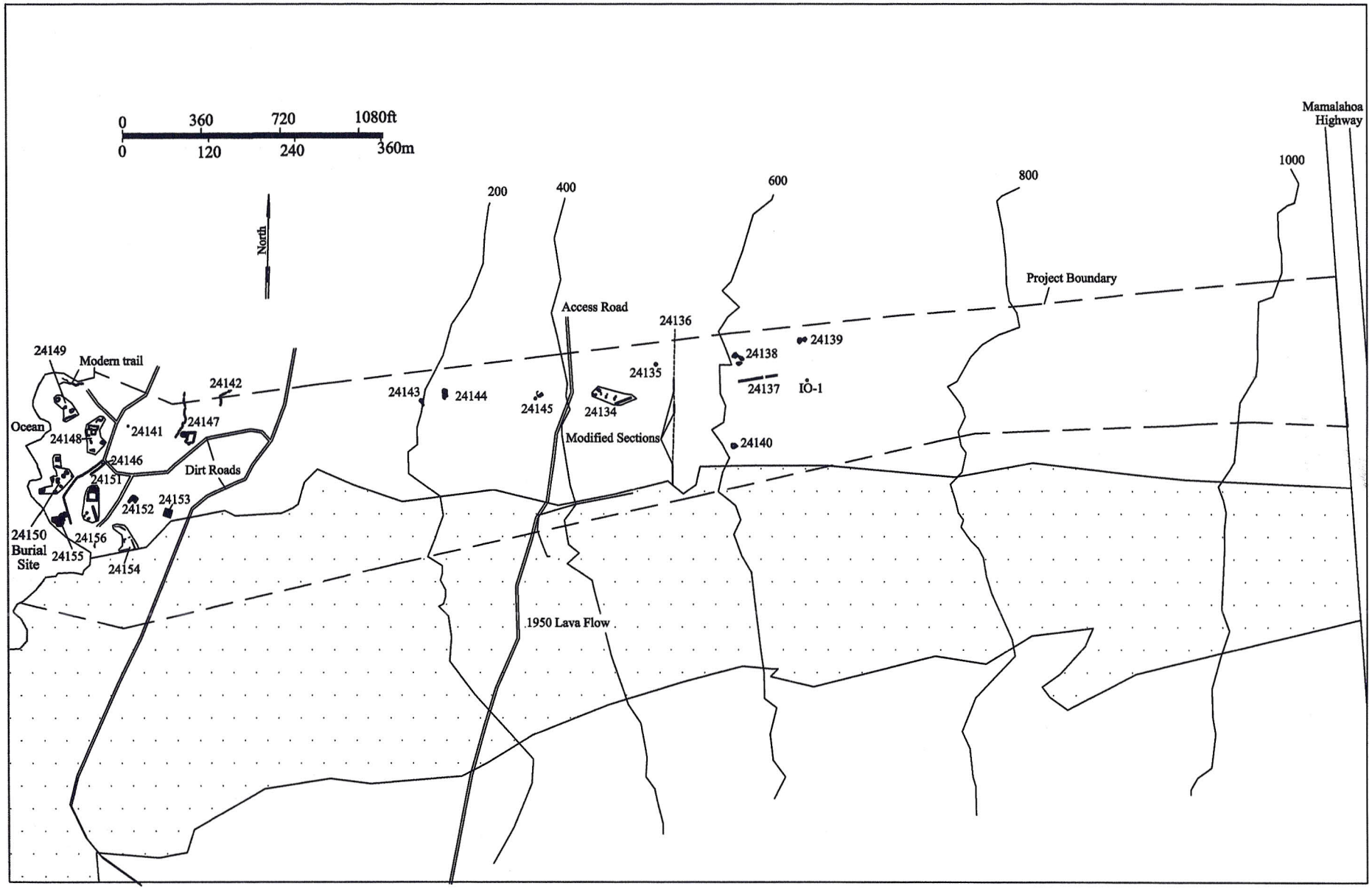


Figure 2. Site Location Map

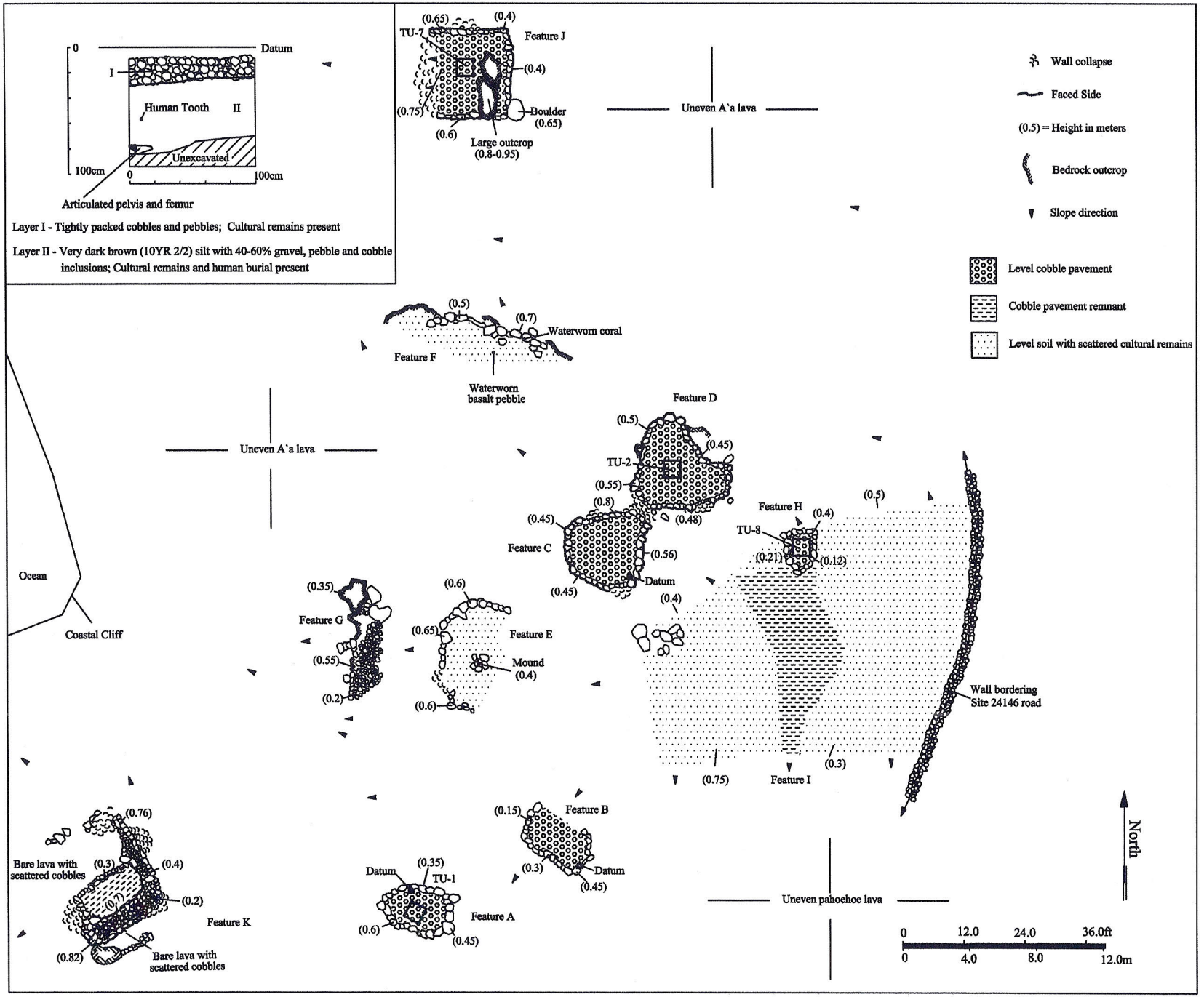


Figure 3. Site 24150 Plan Map and TU-1 North Face Profile

(Features A, C, D, H and J), four terraces (Features B, E, F and G), a modified knoll (Feature I) and an enclosure remnant (Feature K). The site is unaltered and in fair condition.

Feature A is a small, oval-shaped platform located in the southwestern portion of the site, in an area of uneven pahoehoe lava and thin surface soil. The platform is 4.6 m long and 2.8 m wide with the surface comprised of a level cobble pavement. The sides of the platform are bordered by one to two courses of aligned cobbles and small boulders. Waterworn basalt cobbles and pebbles, waterworn coral and branch coral are present on the surface of the feature.

Haun and Henry (2004) excavated a 1.0 by 1.0 m test unit (TU-1) into the surface of the platform, revealing a stone architectural layer (Layer I) over a soil deposit (Layer II; see *Figure 3*). Layer I consisted of 0.18 to 0.22 m of tightly packed cobbles and pebbles. Cultural remains from Layer I consisted of waterworn basalt cobbles and pebbles, waterworn coral and branch coral which were not collected, and six fragments of marine shell. The Layer II deposit consisted of a very dark brown silt with 40-50% gravel, pebble and cobble inclusions. A human tooth was noted in this deposit at 0.47 m below datum. The excavation continued below the tooth to determine if an *in situ* human burial was present. An articulated pelvis and a femur were identified at 0.78 to 0.85 m below datum. The excavation was terminated upon identification of the articulated remains. Additional cultural remains from Layer II consisted of waterworn coral, fish bone, volcanic glass flakes, one basalt flake, a groundstone fragment, sea urchin spines and body fragments, and marine shell.

Feature A was interpreted as a burial platform based on the identification of human remains. The presence of relatively abundant cultural remains recovered from TU-1 indicates that the area served a habitation function, probably prior to the interment and erection of the platform.

Feature B a rectangular terrace situated 5.6 m northeast of Feature A. The terrace is 4.6 m long and 2.5 m wide and is bordered along the northwest, southwest and southeast sides by a low, stacked cobble and small boulder retaining wall that varies in height from 0.15 to 0.45 m. The northeast side of the structure abuts the base of a slight slope that angles down to the southwest. The surface is paved with cobbles and pebbles with no cultural remains noted. Feature B was interpreted as a probable burial feature based on its formal type, small area (11.5 sq m) and close proximity to the Feature A burial platform.

SEARCH FOR LINEAL AND CULTURAL DESCENDANTS

Documentary Research

There are two groups of *ahupua'a* named Pahoehoe in South Kona: a northern group labeled Pahoehoe 1-4 on the current USGS Quadrangle map; and a southern group labeled Pahoehoe 1, where the project area is located, and Pahoehoe 2, bounded by Ka'ohe to the south. One 1800s map shows a Pahoehoe 3 in the southern group. According to Maly (2000) the South Kona lands of Pahoehoe and Ka'ohe are part of a traditional sub-district level land division known as "Ka-pali-lua", which he translates as "the two cliffs" (2000:1). Kepa Maly translated portions of *Ka 'ao Ho'oniua Pu'uwai No Ka-Miki* (The Heart Stirring Story of *Ka-Miki)* a legendary account of two supernatural brothers, *Ka-Miki* and *Maka – 'iole*, who traveled around the island of Hawai'i. The account was published in serial form between 1914 and 1917 in a Hawaiian newspaper, *Ka Hoku o Hawai'i.* According to Maly, the account was recorded by Hawaiian historians John Wise and J.W.I. Kihe. Pertinent excerpts from Maly's translation follow:

> ... The lands of Pahoehoe were named for Pahoehoe-nui-a-Lonohea. Pahoehoe was married to the Chiefess Honokua, and their daughters were Kalahiki and Waiea...Other lands in the region which bear the name Pahoehoe were named for Pahoehoe-wahine-iki-a-lani (who is also known as Pahoehoe-ku'ai-moku

and Ka-huli-a-Pahoehoe), the sister of Pahoehoe-nui-a-Lonohea. The various lands upon which the chief, his family and retainers lived are named for them. Haukalua-nui and Haukalua-iki (father and son) were *konohiki* (overseers of the land). Hale'ili was a priest of the Lono class. Maunaoui was the *kukini* (runner and messenger) of the chief. Ala'e was the *kaulana pa'a* (champion warrior who secured, or maintained peace upon the land) for the Chief Pahoehoe, and he was also the husband of the Chiefess Pahoehoe-wahine-iki-a-lani.

In the uplands between Haukalua to Ka'ohe is a large plantation in which the *kalo* (taro) and *'awa* (Piper methysticum) were planted. The plantation bore the names Ka-huli-a-Pahoehoe and Pahoehoe-ku'ai-moku, so named for the chiefess. This plantation was sacred to the family of Pahoehoe, and the natives of Kapali-lua could point these sites out to you, to this day (Maly 2000:6).

Traditional historical references to Kapalilua are given in Kamakau (1961) and I'i (1959). During a 1784 struggle between Keawe'opala and Ka-lani-'opu'u for control of Hawaii Island:

A canoe arrived from Kekaha and brought word to Ke'e-au-moku that Ka-lani-'opu'u was at Kapalilua [in South Kona] and was coming to make war against Keawe'opala. Ke'e-au-moku therefore made up his mind to join forces with Ka-lani-'opu'u, and at Honomalino in Kapalilua Ke'e-au-moku came to offer his support to Ka-lani-'opu'u. When Keawe'opala heard that Ke'e-au-moku had thus given his support to Ka-lani-'opu'u, he made his forces ready with Ka-moho-'ula as their leader, a famous fighter and skillful in maneuvering a battle. He sent his forces to South Kona by the east side of Hualalai, on the slope of Pae, and thence to Kaupehu. Between Ke'ei and Honaunau lay the battlefield (Kamakau 1961:78).

According to Kamakau, the lands of Kapalilua were given to a displaced Maui chief, Keawe-a-heulu, for his assistance to Ka-lani-'opu'u during battles with Ka-hekili between 1777 and 1779 (1961:310). During this period, "...Ka-lani-'opu'u returned to Hawaii to see Captain Cook, called Lono, all the chiefs returned with him to Hawaii, and Ke'e-au-moku also left Hana to live at Honokua in Kapalilua, and later moved westward with his wife and children to Honomalino and Miloli'i" (1961:385).

In 1782, Kau chiefs bearing the corpse of Ka-lani-'opu'u changed their plans to bury him in Kailua when they reached Kapalilua and learned that Kamehameha had arrived at Ke'ei (I'i 1959:13). I'i traveled to Kau in 1843 to solve a dispute between Catholics and Protestants on behalf of the government. He was assisted by residents of Kapalilua on his trip from Kahuku to Kainaliu (1959:169). In 1853, I'i, traveling with Chiefess Victoria Kamamalu stopped at Papa in Kapalilua where they learned of the outbreak of a small pox epidemic "about 10 ahupua'a away from Papa" (I'i 1959:171).

During the Mahele, Fanny Young was awarded the entire *ahupua'a* of Pahoehoe 2 under Land Commission Award (LCA) 8519B. The Waihona 'Aina Mahele Database (Waihona 'Aina Corp. 2000); which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); lists 33 LCA claims in Pahoehoe, but all appear to have been for the northern Pahoehoe lands based on current tax maps.

Emerson's 1880s map of South Kona shows the seaward portion of Pahoehoe 1 as Grant 2025 to Pumealani. It also shows a Pahoehoe 3 as Grant 1573 to Kuaimoku. Two houses for Kuaimoku are shown; one at the coast and one inland. According to Maly (2000), these are Royal Patent Grants issued between 18555 and 1856. Maly cites a reference from George Bowser's 1880 directory and tourist guide stating that Kuaimoku "provided accommodations for travelers and their horses" (2000:10).

Wright's 1909 map of South Kona shows the main road following the route of today's Mamalahoa Highway. Several houses are present along the road and "Kaohe Village" is situated near the boundary of Ka'ohe 1 and 2. The map shows a road or trail along the coast and one that extends from the coast to the main road through Pahoehoe lands. The map also shows the seaward limit of the upland forest of scattered large *o'hia* at approximately 1,800 feet elevation.

The 1923 USGS Quadrangle map shows the same inland-seaward road or trail shown on Wright's map. It shows a branch trail extending north along the crest of the cliffs (*pali*) to Haleili where it turns east to meet the main inland road. Handy and Handy describe traditional agriculture in South Kona based on historic documentary research and informant interviews in the 1920s to 1940s (1972:524-525).

Historical documentary research and informant interviews by Walsh et al. (1995) for Kukuiopae and Hammatt and Shideler (2003) for Ka'ohe 5 provide details concerning the later history of lands in the vicinity of the project area. Coffee farming expanded in the 1890s. Some of the growers were Chinese. Charcoal was produced in ovens built by the Chinese and Korean immigrants who arrived in the late 1800s. Ranching and coffee cultivation were the primary commercial activities during most of the 1900s. Subsistence farming, fishing, and pig hunting helped sustain local residents. In June of 1950, Mauna Loa erupted and one of the flows covered the southern side of the project area. According to Mr. Clarence Medeiros the project area was owned by the Magoon family since the early 1900s. Mr. Medeiros's granduncle, Mr. Fred Iona, worked for the families' cattle ranching operation that included the project area.

Publication of Legal Notices

Legal notices were published in newspapers of local and statewide distribution. The notices contained (a) project name and location information, (b) identification of several contact persons, and (c) the landowner/applicant's intent to preserve the burial in place. Copies of each Affidavit of Publication are attached to this plan. Notices were published as follows:

1. *West Hawaii Today* – November 19 (Friday), November 21 (Sunday), and November 24 (Wednesday); and

2. *The Honolulu Advertiser* - November 19 (Friday), November 21 (Sunday), and November 24 (Wednesday).

The notices requested that any person having any information concerning the unmarked graves within the project area should contact Mrs. Ruby McDonald, Liaison, OHA (West Hawaii); Mr. Alan Haun, Haun & Associates; and/or Mr. Keola Lindsey, Burials Sites Program, DLNR-SHPD.

Consultations

No individuals claiming lineal descent have responded to the notices. There were no native Hawaiian *kuleana* claims to the project area. The parcel was used for ranching during the 1900s, and probably mid- to late 1800s as well.

PROPOSED TREATMENT OF THE BURIAL SITE

General Proposal: Preservation in Place

Preservation in place is the general treatment proposed for the burials that have been identified within the project area. In place preservation would be achieved through the establishment of defined preservation buffers (described below).

Preservation Site Buffers

Long term in place preservation of the identified burial features would be achieved through the establishment of a permanent preservation buffer zone of 20 ft surrounding the burial features on all sides. With the exception of appropriate cultural activities and periodic maintenance, no land modification, or other activities of any type would be permitted to occur within the preservation buffer. The interior surface area of the buffer will be left in a natural state. The buffer boundaries will be delineated by a low stone wall approximately 3 ft in height and 2 ft in thickness. The wall will be built to resemble traditional Hawaiian structures using local stone. A narrow gated opening through the wall will provide access for recognized descendents and maintenance.

Short-Term Preservation

Short-term preservation will consist of the following general protective measures:

1. The site will be plotted accurately on grading plans and construction plans prior to the initiation of any grading, grubbing, and/or construction activities;

2. A temporary buffer zone of 50 ft shall be identified and marked around the site perimeter. The buffer zone boundaries will be delineated with orange plastic fencing. An archaeologist will verify that the fencing is correctly in place prior to any land alteration. The verification will be documented in a letter to DLNR-SHPD. No activity will be allowed within the temporary buffer zone until the permanent buffer wall is constructed; and

3. Construction supervisors will be explicitly notified as to the nature and location of the sites, the significance of the buffer zone, and the meaning of the buffer zone markings.

Signage

A small sign of durable material would be placed beside the sites. The following signage text is suggested:

HE WAHI KAPU

This is a culturally sensitive native Hawaiian site.
Please do not disturb the site.

Damage to the site is punishable under
Chapter 6E, Hawai'i Revised Statutes.

Ownership, Maintenance, and Security

Responsibility for maintenance and security of the burial site would lie with landowner. Long term/permanent in place preservation would be achieved by a restrictive covenant that would be incorporated into the deed of the property. The covenant would include the appropriate re-

quirements and restrictions relating to physical improvements, maintenance, security, and access by recognized lineal and/or cultural descendants.

Access for Lineal and/or Cultural Descendants

Access to the burial site for appropriate cultural activities would be permitted to any lineal and/or cultural descendant formally recognized by the HIBC or DNLR-SHPD in accordance with the administration procedures contained within Section 13-300-35: "Recognition of lineal and cultural descendants" (DLNR 1996). Specific arrangements for access would be made by direct, mutual agreement between the landowner and recognized lineal and/or cultural descendants.

IMPLEMENTATION OF THE BURIAL TREATMENT PLAN

Preservation measures contained in the BTP would be implemented by the landowner within one year following receipt by the applicant of DLNR written confirmation of mutual agreement to these measures. All requirements and restrictions of the restrictive covenant including a metes and bounds description of the preservation buffer zones would be incorporated into the property deed and recorded with the Bureau of Conveyances.

REFERENCES CITED

DLNR

1996 Department of Land and Natural Resources, Historic Preservation Division, Rules of Practice and Procedure Relating to Burial Sites and Human Remains.

FR

n.d. Foreign Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

FT

n.d. Foreign Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

Hammatt, H., and D. Shideler

2003 Archaeological Inventory Survey of an Approximately 30-acre parcel at Ka'ohe 5th Ahupua'a, South Kona District, Hawaii (TMK: 8-7-08: por. 3, 5 & 6). Cultural Surveys Hawaii, Inc. report prepared for Forest View, Inc.

Handy, E.S.C., and E.G. Handy

1972 Native Planters of Old Hawaii – Their Life, Lore and Environment. *Bulletin 233.* B.P. Bishop Museum.

Haun, A., and D. Henry

2004 Archaeological Inventory Survey, TMK: (3) 8-7-007:008, Land of Pahoehoe 1st, South Kona District, Island of Hawaii. Haun & Associates report 340-010804 prepared for Mr. Peter Dungate.

I'i , J.P.

1959 Fragment of Hawaiian History. *Bishop Museum Special Publication* 70. Bishop Museum Press, Honolulu.

Indices

1929 *Indices of Awards Made by the Board of Land Commissioners to Quiet Land Titles in the Hawaiian Islands.* Territory of Hawaii, Honolulu.

Kamakau, S.

1961 *Ruling Chiefs of Hawaii.* Honolulu: The Kamehameha Schools Press.

Maly, K.

2000 Overview of Historical Documentation for Lands for Lands of South Kona, "Pahoehoe to Kaohe", Island of Hawaii. Kumu Pono Associates. In Rosendahl 2002

NR

n.d. Native Register of Kuleana Claims Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

NT

n.d. Native Testimony Recorded by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Manuscript. Hawaii State Archives.

Waihona 'Aina Corporation

1998 The Mahele Database, waihona.com.

Walsh, P., R. Chiogioji, H. Ballard, J. Robins and H. Hammatt

1995 Archaeological Inventory Survey of a 29.8-acre Parcel at Kukuipae 2, South Kona, Island of Hawaii (TMK: 8-7-10:11). Cultural Surveys Hawaii report prepared for Mr. Stanley Roehrig.

IN THE MATTER OF

PUBLIC NOTICE

AFFIDAVIT OF PUBLICATION

PUBLIC NOTICE

All persons having information concerning unmarked human burials present within a 94 acre property located in the Ahupua'a of Pahoehoe 1, South Kona District, Island of Hawaii (TMK: 3-8-7-007:008) are hereby requested to contact Ms. Ruby McDonald, Liaison, Office of Hawaiian Affairs (West Hawaii), (808) 329-7368, 75-5706 Hanama Pl, Suite 107, Kailua-Kona, HI 96740; Mr. Alan Haun, Haun & Associates, (808) 982-7755, HCR 1 Box 4730, Keaau, HI 96749; and/or Mr. Keola Lindsey, Burials Sites Program, Department of Land and Natural Resources - State Historic Preservation Division (DNLR-SHPD), (808) 327-3692, 74-383 Kealakehe Parkway, Kailua-Kona, HI 96740.

The property owner intends to preserve in place, in accordance with a plan to be approved by the Hawaii Island Burial Council, the burials present within the property. All interested parties should respond within thirty (30) days of this notice and provide information to DLNR-SHPD adequately demonstrating lineal descent from the Native Hawaiian remains, or cultural descent from ancestors buried in the same *ahupua'a* in which the Native Hawaiian remains are buried.

(Hon. Adv.: Nov. 19, 21, 24, 2004) (A-937275)

STATE OF HAWAII
City and County of Honolulu } *ss.*

Valerie Yanagihara *being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of THE HONOLULU ADVERTISER, a division of GANNETT PACIFIC CORPORATION, that said newspaper is a newspaper of general circulation in the State of Hawaii, and that the attached notice is a true notice as was published in the aforereferenced newspaper as follows:*

The Honolulu Advertiser: 3 *time(s), on*

11/19/2004, 11/21/2004, 11/24/2004

and that affiant is not a party to or in any way interested in the above entitled matter.

Subscribed and sworn to before me this 24th day of November A.D. 2004

JEANETTE T. CHING NOTARY PUBLIC STATE OF HAWAII

Notary Public of the First Judicial Circuit
State of Hawaii
My commission expires June 16, 2006

AFFIDAVIT OF PUBLICATION

State of Hawaii)
) SS:
County of Hawaii)

Lorelei Logan, being first duly sworn, deposes and says:

1. That she is the Advertising Administrative Assistant of WEST HAWAII TODAY, a newspaper published in the City of Kailua Kona, State of Hawaii.

2. That "PUBLIC NOTICE All persons having information concerning unmarked human burials present within a 94 acre" of which a clipping from the newspaper is attached hereto, was published in said newspaper on the following date(s) November 19, 21 and 24, 2004 (etc.)

Lorelei Logan

Subscribed and sworn to before me
this 24th day of November, 2004

Lana L. Taira

Notary Public, Third Circuit,
State of Hawaii
Is
Lana L. Taira

LANA L. TA NOTAR PUBL STATE OF

My Commission expires: August 4, 2005

PUBLIC NOTICE

All persons having information concerning unmarked human burials present within a 94 acre property located in the Ahupua'a of Pahoehoe 1, South Kona District, Island of Hawaii (TMK: 3-8-7-007:008) are hereby requested to contact Ms. Ruby McDonald, Liaison, Office of Hawaiian Affairs (West Hawaii), (808) 329-7368, 75-5706 Hanama Pl, Suite 107, Kailua-Kona, HI 96740; Mr. Alan Haun; Haun & Associates, (808) 982-7755, HCR 1 Box 4730, Keaau, HI 96749; and/or Mr. Keola Lindsey, Burials Sites Program, Department of Land and Natural Resources - State Historic Preservation Division (DLNR-SHPD), (808) 327-3692, 74-383 Kealakehe Parkway, Kailua-Kona, HI 96740.

The property owner intends to preserve in place, in accordance with a plan to be approved by the Hawaii Island Burial Council, the burials present within the property. All interested parties should respond within thirty (30) days of this notice and provide information to DLNR-SHPD adequately demonstrating lineal descent from the Native Hawaiian remains, or cultural descent from ancestors buried in the same *ahupua'a* in which the Native Hawaiian remains are buried.

(No. 6092–West Hawaii Today: November 19, 21 and 24, 2004)

BTP Approval

374 Rec'd 2-4-05

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

February 2, 2005

Alan Haun, PhD.
Haun and Associates
HCR 1 Box 4730
Kea'au, Hawaii 96749

LOG NO: 2005.0216
DOC NO: 0501KL03

Dear Dr. Haun:

SUBJECT: Notice of Hawai'i Island Burial Council Determination
Site 24150 features A and B
Pahoehoe 1st Ahupua'a, South Kona District, Hawai'i Island
TMK (3) 8-7-007:008

On January 20, 2005, at a duly noticed meeting of the Hawai'i Island Burial Council (HIBC) with a quorum of council members present, the HIBC concurred with your client's request, and voted to preserve in place the burials within Site 24150 features A and B.

It is our understanding that a recognized cultural descendant to the project area, Mr. Clarence Medeiros Jr. has reviewed the burial treatment plan, concurred with the proposal to preserve in place, and the proposed preservation measures (the only other recognized descendants to the project area are the children and grandchildren of Mr. Medeiros).

The State Historic Preservation Division (SHPD) is currently working with Mr. Medeiros on pending collateral lineal descent claim for individuals believed to be buried near the pa hale located within the boundaries of Site 24150- these additional sites were not identified in the Archaeological Inventory Survey for the subject property. However, the remaining portion of Site 24150 which may contain these additional burials will be preserved, since your client has proposed preservation for 16 non-burial sites on the subject property.

A preservation plan for the 16 non-burial sites is currently under review by our Archaeology Branch. Mr. Medeiros will be consulted as part of our review process.

Should the SHPD obtain specific location information for these additional burials, you and your client will be immediately notified. Our primary concern at that juncture would be to verify that these additional burials are located within the boundaries of a site formally slated for preservation, and not in danger of being impacted by any development related activities.

The Burial Treatment Plan presented to the HIBC can now be used as the Preservation Plan for Site 24150 Features A and B, and the Department of Land and Natural Resources, as represented by the SHPD approves the plan. We look forward to seeing the details of the plan implemented, which will provide perpetual protection for these sites.

Thank you for your attention to this most important matter. Should you have any questions or concerns, please call Keola Lindsey of our Burial Sites Program at 327-3692.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

KL:jen

c: Mr. Clarence Medeiros, Descendant
Members, Hawai'i Island Burial Council

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 3
Coastal Erosion Study

[This page intentionally left blank]

GCI

GEOHAZARDS CONSULTANTS INTERNATIONAL, INC.

Appraisal of hazards - reduction of risk

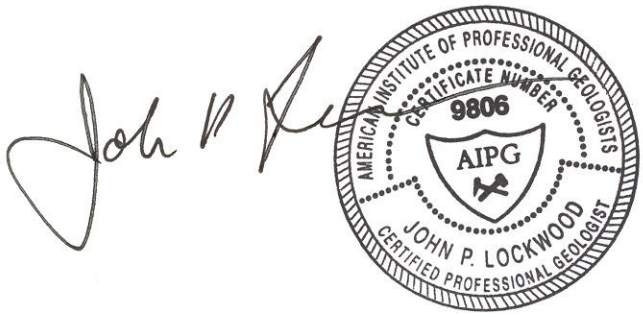
COASTAL EROSION STUDY

Peter Dungate Property

(6 miles south of Honaunau Bay, Hawaii – Pahoehoe-1 Ahupua'a)

TMK: (3) 8-7-07:11 (Lot 4)

John P. Lockwood, Ph.D., CPG No. 9806



March, 2012

Introduction:

The Hawaii DLNR Hawaii Administrative Rules, Chapter 13-5 (Adopted August 12, 2011) states that for Single Family Residential construction in coastal Conservation Districts, Applicants must consider rates of coastal erosion affecting their properties, in order to determine minimum shoreline setbacks for permitting. DLNR established a requirement that Annual Coastal Erosion Rates must be determined, based on formal "Coastal Erosion Studies". This report documents the nature of erosion and shoreline migration at the Dungate property, based on a field inspection and office study of appropriate aerial photography, satellite imagery, and geologic literature.

Field Inspection information:

Date of inspection:	9 February, 2012
Time:	10:05-13:00 HST
Ocean tide state (approximate[1]):	0.0 ft. (low tide)[1]
Sea state:	Strong northwest swells impacting coastline

Physical Setting – Geologic environment:

The Dungate Property (TMK: (3) 8-7-07:11– hereafter "the Property") fronts on the ocean at Kaululoa Point, at the base of Pahoehoe-1 Ahupua'a. This area of rugged South Kona coastline lies between the middle and northern (Honokua) lava flows of June, 1950, and is mostly bounded by a steep coastal sea cliff that offers protection from normal sea waves. The Property is completely underlain by an undated prehistoric 'a'a flow unit K2 by Wolfe and Morris (1996), with an estimated radiocarbon age between 1,500 and 3,000 years b.p. This flow consists of a dense, non-vesicular "blue rock" 'a'a core overlain by a carapace of loose 'a'a rubble. Where exposed in cross-section north of the Property, the 'a'a core is seen to be 5-8' thick. The flow dips gently seaward 3-5 degrees in this area, so that its upper surface is relatively flat, with low relief defined by the sizes of overlying 'a'a boulders and loose rubble..

[1] From DLNR 2012 Tide Calendar and NOAA Website: www.tideasandcurrents.noaa.gov.

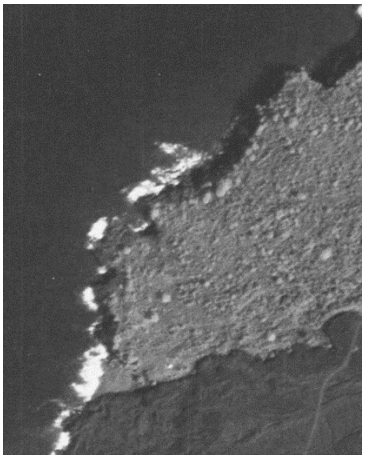
Evidence of Coastal Erosion:

Where it has not been impacted by the erosive power of storm waves, the ‘a’a flow underlying the subject property is overlain by a normal, rubbly layer of ‘a’a breccia that characterizes the land inland from the coast (Figure 1). Where it subject to the erosive power of storm or tsunami waves, however, closer to the coastline, the flow has been eroded vertically by waves that have overtopped the coastal sea cliff (Figures 2,3) and washed away loose material.. The “blue rock” core of this ‘a’a flow is extremely durable, however, and is not subject to appreciable horizontal erosion. Inspection of aerial photographs shows no measurable change in position of the overall coastal sea cliff since the earliest 1954 photos, nor of the coastal vegetation (scattered kiawe trees). Despite the poor resolution of the aerial photos (magnified greatly in Figure 4 a-c), it appears that a large fragment of the seacliff may have broken off between the 1965 and 1976 photos. The exact size of the missing piece is not resolvable, but could have been as large as 300 ft^2 in size (Figure 4 d). The area of the missing fragment was not directly observable owing to high surf at the time of inspection, but an exposed area directly across an embayment from Kaululoa point (Figure 5) shows that the same ‘a’a flow in this area overlies an older pahoehoe flow. Hydraulic ramming of water into the spaces between the two flows erodes the basal loose ‘a’a breccia layer, and may contribute to failure of overlying ‘a’a flow fragments in the area north of Kaululoa Point. In the area directly fronting the property, however, the sea cliff has remained stable and shows no indication of substantial erosion. Several large, angular boulders of angular ‘a’a blocks were noted immediately inland from the coastal sea cliff (Figure 6), showing that mechanical failure of the cliff does occur, but this piecemeal erosional process appears to result in no measurable migration of the coastline, nor would it have any effect on shoreline position, as determined by the “highest reach of normal waves”.

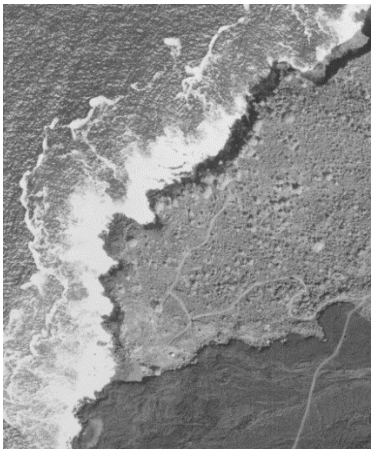
Figure 1. Loose 'a'a rubble at top of bluff, inland from reach of highest waves. Proposed homesite is immediately inland from this area. Where storm waves impact the coastline, this ‘a’a rubble is quickly washed away.

Figure 2. Top of 'a'a flow above shoreline, but within zone reached by storm waves. Almost all loose 'a'a rubble has been washed away.

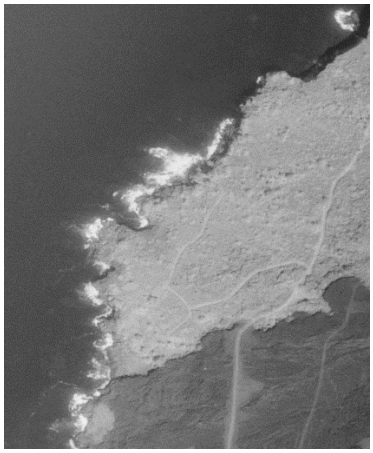
Figure 3. Top of 'a'a flow below certified shoreline. Highest waves have here completely washed away all loose 'a'a rubble, exposing the irregular, highly resistant upper surface of the inner ‘a’a "blue rock" layer.



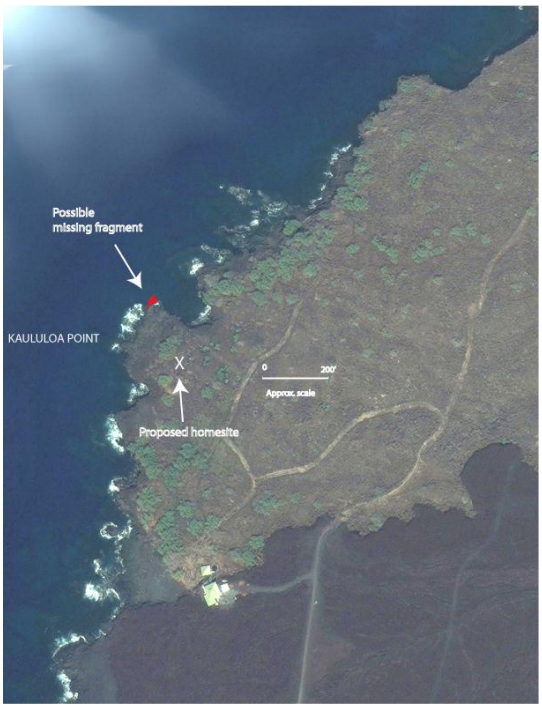
(a) **1954**



(b) **1965**



(c) **1976**



(d) **2010**

Figure 4. Vertical views of the Kaululoa Point area as shown by aerial photographs (a-c) and a Google Earth image (d), showing changes in roadways and tree distribution from 1954 to 2010 [See Table 2 for sources]. The large scales of the aerial photographs (Table 2) makes detailed analyses of coastline fine-scale morphological changes impossible, but it appears that a fragment of Kaululoa point (red area in d) may have broken away sometime between 1965 and 1976.

Figure 5. Coastline immediately north of the Dungate Property. Here the a'a flow is thinner and overlies an older pahoehoe flow. Waves impacting this sea cliff have eroded away a basal layer of 'a'a rubble and cause mechanical erosion of the overlying 'a'a flow. Note that the steep sea cliff (here about 15 feet high) protects the top of the flow and vegetation from removal.

Figure 4. View of the coastal sea cliff fronting the Dungate Property from above. Angular boulders show that some rocks are being broken from the sea cliff by strong waves, but no overall movement of the coastline could be determined from inspection of aerial photographs

Erosion Rate:

A meaningful erosion rate at this property is not feasible, since the overall retreat of the coastal sea cliff by the piecemeal failure of individual blocks, such as the one described above does not contribute to a general modification of the Certified Shoreline fronting the property. There is no indication that the shoreline vegetation line has changed over the 58 year period since the first aerial photographic record began.

General Coastal Zone Hazards at this Property:

Hwang (2005) recommends that all hazards facing coastal areas should be considered when planning for land-use zoning in Hawaii, and not just erosion Fletcher and others (2002, p. 149) rate this area of the South Kona coastline to be high (6 on a 1-7 scale), with specific hazards rated as shown on Table 1:

Hazard Type	Relative Hazard	Scale (1-4)
Tsunami	High	4
Stream Flooding	Medium-high	3
High Waves	Medium-low	2
Storms	High	4
Erosion	Medium-low	2
Sea Level change	High	4
Volcanic / seismic	High	4

Table 1. Coastal zone hazards as summarized by Fletcher and others (2002, p.169)

The Fletcher and others (2002) Atlas portrays generalized hazards assessments for long areas of coastlines. I do not find that the "high" ratings for tsunami and sea level change hazards given in Table 1 for this section of the coastline apply to this particular property. The submarine slope off this coast is steep, the sea cliff is relatively high, and no sign of any tsunami debris from the March, 2010 Japan tsunami nor from previous events was observed inland from the vegetation line (Figure -10). The steepness of the coastal sea cliff also ensures that combined sea level change and land subsidence (as reported by Apple and Macdonald at Honaunau Bay, six miles to the north - 5 mm/yr), will not cause significant shoreline transgression in this area, nor would the higher overall rise in sea level of 3.3 feet by the end of the 21st century proposed by Fletcher and others (2010).

Because the coastal sea cliff offers protection from most storm and tsunami waves, the principal hazard facing the area is the threat of future lava flows that could be derived from the Southwest Rift Zone of Mauna Loa, specifically from an area of the rift zone between 8,500-9,200' elevation, some 22 miles away. The Property lies within Lava Flow Hazard Zone 2 of Wright and others (1992), as does the entire South Kona and Ka'u coastline from Honaunau Bay to South Point. The 1950 Mauna Loa lava flows, which are located both north and south of the

Property, reached the coastline in only a few hours after eruption, which indicates that the area should probably be evacuated at the first indication that renewed Southwest Rift Zone eruptive activity is imminent. The lava flow hazard at this Property is, however, no greater here than anywhere else on the South Kona and Ka'u coastline, as all of this coastline is within Lava Flow Hazard Zone 2.

Table 2. Aerial photographs and imagery inspected

Date	Agency	Flight Line	Frames	Approx. Scale
1954 (October 07)	USN-USGS	017	116, 117	1:44,130
1965 (January 17)	USDA	EKL-12CC	31, 32	1:30,170
1976 (December 13)	USGS	GS-VEEC-6	120, 121	1:43,770
2010 (March 09)	Google Earth	n/a	n/a	Variable

Summary:

Stereographic inspection of aerial photographs taken in 1954, 1965, and 1977 (Table 2) and comparison with recent Google Earth views revealed no changes in the position of rocky shorelines fronting this property nor of the vegetation line during this 58 year period. Scale limitations of the aerial photographs viewed make identification of individual ocean-facing rock outcrops difficult, although failure of a large coastal block may have occurred sometime between 1965 and 1976. Failure of this block would have had no influence on the shoreline as marked by the "upper reaches of the wash of the waves", as the shoreline is defined by HRS 205A-1 and Boak and Turner, 2005. It is probable that other small individual rocks have been broken from the sea cliff zone during this time period, but no measurable overall erosion has taken place.

References Cited:

Apple, R. A. and G. A. Macdonald, 1966, The rise of sea level in contemporary times at Honaunau, Kona, Hawaii: Pacific Science v. 20, pp.125-136.

Boak, E. H. and Turner, I. L., 2005, Shoreline definition and detection – A review: Journal of Coastal Research, v. 21, pp 688-703.

Fletcher, C. H., Boyd, R., Neal, W. J., and Tice, V., 2010, Living on the Shores of Hawaii – Natural Hazards, the Environment, and our Communities: University of Hawaii Press, 371 pp.

Fletcher, C. H., , Grossman, E. E, Richmond, B. M. and Gibbs, A. E., 2002, Atlas of Natural Hazards in the Hawaiian Coastal Zone: U.S. Geological Survey, Geologic Investigations Series Map I-2761, scale 1:50,000.

Hwang, D. J., 2005, Hawaii Coastal Zone Mitigation Handbook: Hawaii Coastal Zone Management Program, DBED, State of Hawaii, 216 pp.

Wolfe, E. W. and Morris, Jean, 1996, Geologic Map of the Island of Hawaii: U.S. Geological Survey, Misc. Investigations Map I-2524-A.

Wright,,T L., Chun, J.Y.F., Esposo, Joan, Heliker, C., Hodge, J., Lockwood, J. P., and Vogt, S. M., 1992, Map showing Lava-flow Hazard Zones, Island of Hawaii: U.S. Geological Survey, Misc. Field Studies Map MF-2193, 1:250,000.

[This page intentionally left blank]

ENVIRONMENTAL ASSESSMENT
DUNGATE SINGLE-FAMILY RESIDENCE IN THE CONSERVATION DISTRICT AT PAHOEHOE

TMK (3rd): 8-7-007:011
Pahoehoe 1st, South Kona, County of Hawai‘i, State of Hawai‘i

APPENDIX 4
Cultural Impact Assessment

[This page intentionally left blank]

RC-0821

A Cultural Impact Assessment for the Development of a Single-Family Residence on TMK: 3-8-7-07:011

Pāhoehoe 1st Ahupua‘a
South Kona District
Island of Hawai‘i

PREPARED BY:

Robert B. Rechtman, Ph.D.
and
Lauryl K. Zenobi, B.A.

PREPARED FOR:

Randy Vitousek
Cades Schutte
75-170 Hualalai Road, Suite B-303
Kailua-Kona, HI 96740

May 2013

RECHTMAN CONSULTING, LLC
507-A E. Lanikaula St. Hilo, Hawaii 96720
phone: (808) 969-6066 fax: (808) 443-0065
e-mail: bob@rechtmanconsulting.com
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

RC-0821

A Cultural Impact Assessment for the Development of a Single-Family Residence on TMK: 3-8-7-07:011

Pāhoehoe 1st Ahupua‘a
South Kona District
Island of Hawai‘i

RECHTMAN CONSULTING

CONTENTS

FIGURES

INTRODUCTION

At the request of Randy Vitousek of Cades Schutte, on behalf of his client, Peter Dungate (landowner), Rechtman Consulting, LLC has prepared this cultural impact assessment to accompany an Environmental Assessment and Conservation District Use Application associated with the proposed construction of a single family dwelling on a 6.6 acre parcel (TMK: 3-8-7-07:011) in Pāhoehoe 1st Ahupua‘a, South Kona District, Island of Hawai‘i (Figures 1, 2 and 3). The landowner intends to obtain a State Conservation District Use Permit as well as County of Hawai‘i SMA and grubbing and grading permit to develop a single-family residence on the parcel. The current study parcel was recently created by the subdivision of a larger parcel (TMK: 3-8-7-07:008), which also resulted in the dedication and conveyance of two roadways and a traditional Hawaiian trail into the public domain. An archaeological inventory survey (Haun and Henry 2004a) was completed prior to the subdivision of Parcel 008. Of the twenty-three sites recorded during that study, four were located within the area of the current study parcel. One of these sites (SIHP Site 24149) was subject to data recovery (Haun et al. 2005) with preservation the approved treatment for the other three sites. Preservation (Haun and Henry 2004b) and burial treatment (Haun and Associates 2005) plans were prepared and have been approved by the State Historic Preservation Division of the Department of Land and Natural Resources. Throughout this development process the landowner has demonstrated his commitment to the protection of the natural and cultural resources of the area and the perpetuation of traditional cultural practices.

The study area is located immediately adjacent to the shoreline, on a 1950 Mauna Loa lava flow overlaying an earlier Mauna Loa lava flow dated at between 1,500 and 3,000 years ago (Wolfe and Morris 1996). The coastline in this area of South Kona consists of a tall coastal cliff that protects the property from wave action (Figure 4). Soil in the area is predominantly *‘a‘ā* lava flows (rLV) and Punalu‘u extremely rocky peat (rPYD) (Sato et.al. 1973). This area receives an average of about 40 inches of rain annually (UH Hilo-Geography 1998:57). Vegetation within the property consists mainly of introduced species (Figure 5), including *koa haole* (*Leucaena leucocephala*), *kiawe* (*Prosopis pallida*), Christmas-berry (*Schinus terebinthifolius*), castor bean (*Ricinis communis*), *opiuma* (*Pithecellobium dulce*), buffel grass (*Cenchrus ciliaris*), leaf of life (*Kalanchoe pinnata*), fountain grass (*Pennisetum setaceum*), and hogweed (*Boerhavia coccinea*). One very common indigenous herb, *‘uhaloa* (*Waltheria indica*), is also present.

The current study was prepared pursuant to Act 50, approved by the Governor on April 26, 2000; and in accordance with the Office of Environmental Quality Control (OEQC) *Guidelines for Assessing Cultural Impact*, adopted by the Environmental Council, State of Hawai‘i, on November 19, 1997. Below is a description of the proposed development activities, a detailed culture-historical background, and a presentation of prior studies; all of which combine to provide a physical and cultural setting and context for the current study. A summary of consultation is provided, followed by a discussion of potential cultural impacts and the appropriate actions and strategies to mitigate any potential impacts.

PROPOSED DEVELOPMENT ACTIVITIES

The proposed one-story residence will consist of a two-bedroom, 1½-bath home of 1,052 square feet, with an additional 1,182 square feet of open or covered *lānai* and covered entry area, for a total area of 2,234 square feet (Figure 6). Land-clearing and construction activities will be limited to roughly a half acre, including the area graded for the driveway (Figure 7). The home will be situated a minimum of 44 feet from the certified shoreline at an elevation of about 33 to 36 feet above sea level. In conjunction with the construction of the house, a water catchment tank, generator, and an Individual Wastewater System will be placed, and an existing gravel driveway will be improved but left unpaved. All features will be a minimum of 40 feet from the shoreline. Two *kiawe* trees will be cut or trimmed and several new native or Polynesian trees will be planted near the house site. No modifications within the shoreline setback area are planned.

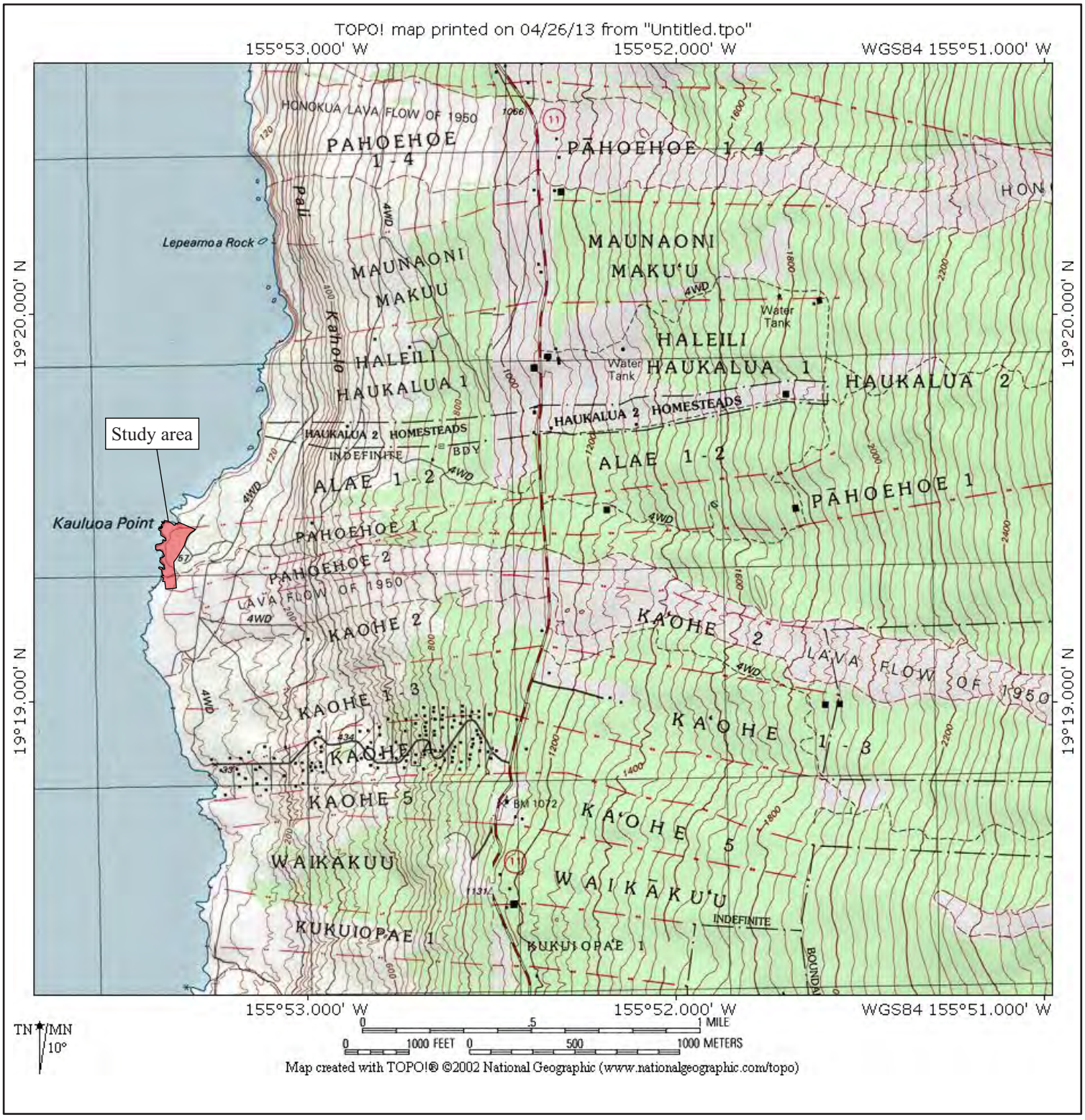


Figure 1. Portion of Kauluoa Point USGS Quadrangle showing location of the subject parcel.

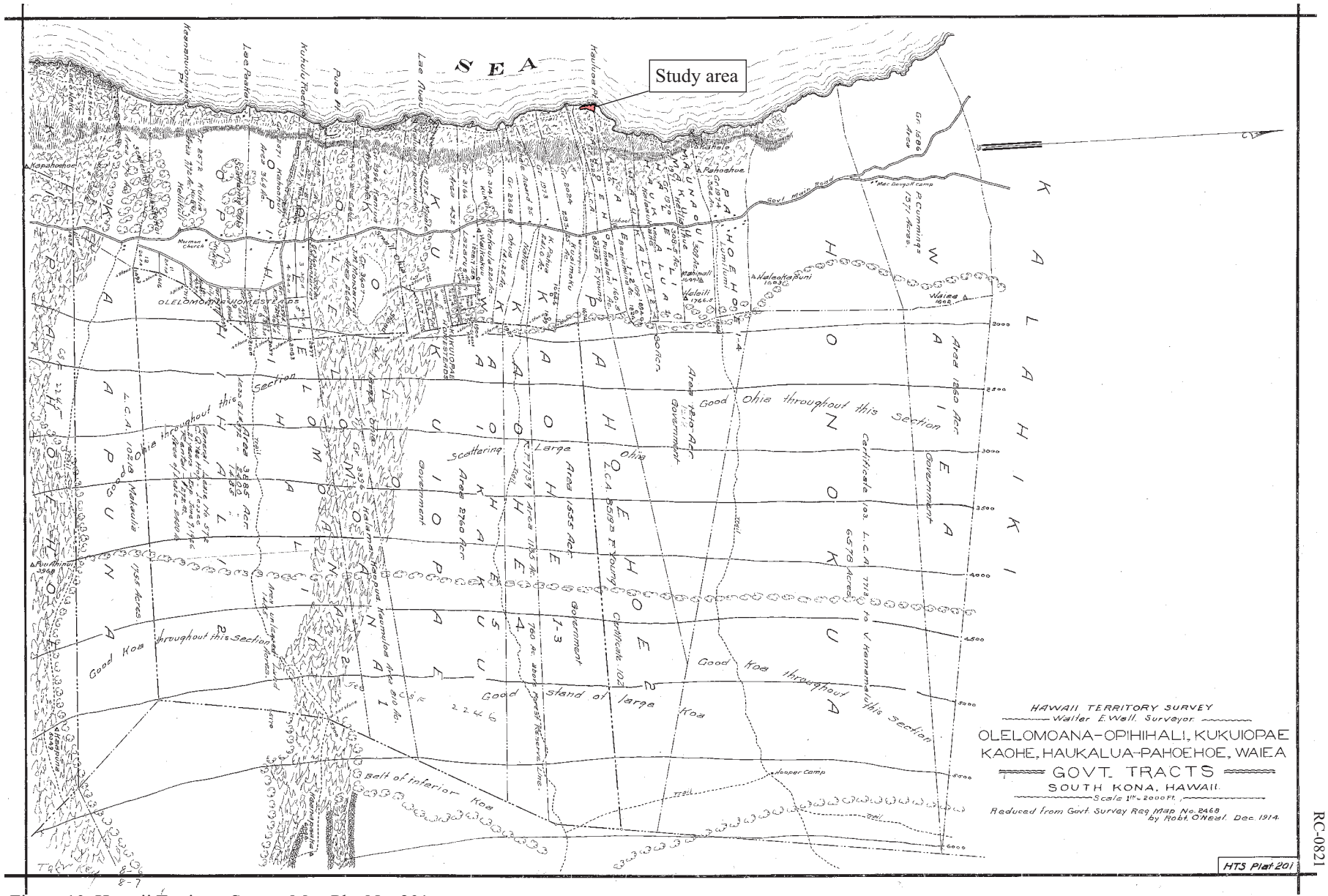


Figure 10. Hawaii Territory Survey Map Plat No. 201.

Figure 11. October 7, 1954 aerial photograph showing subject parcel and 1950 lava flow.

Figure 4. Coastal cliffs along shoreline of the subject parcel.

Figure 5. Typical vegetation within the subject parcel.

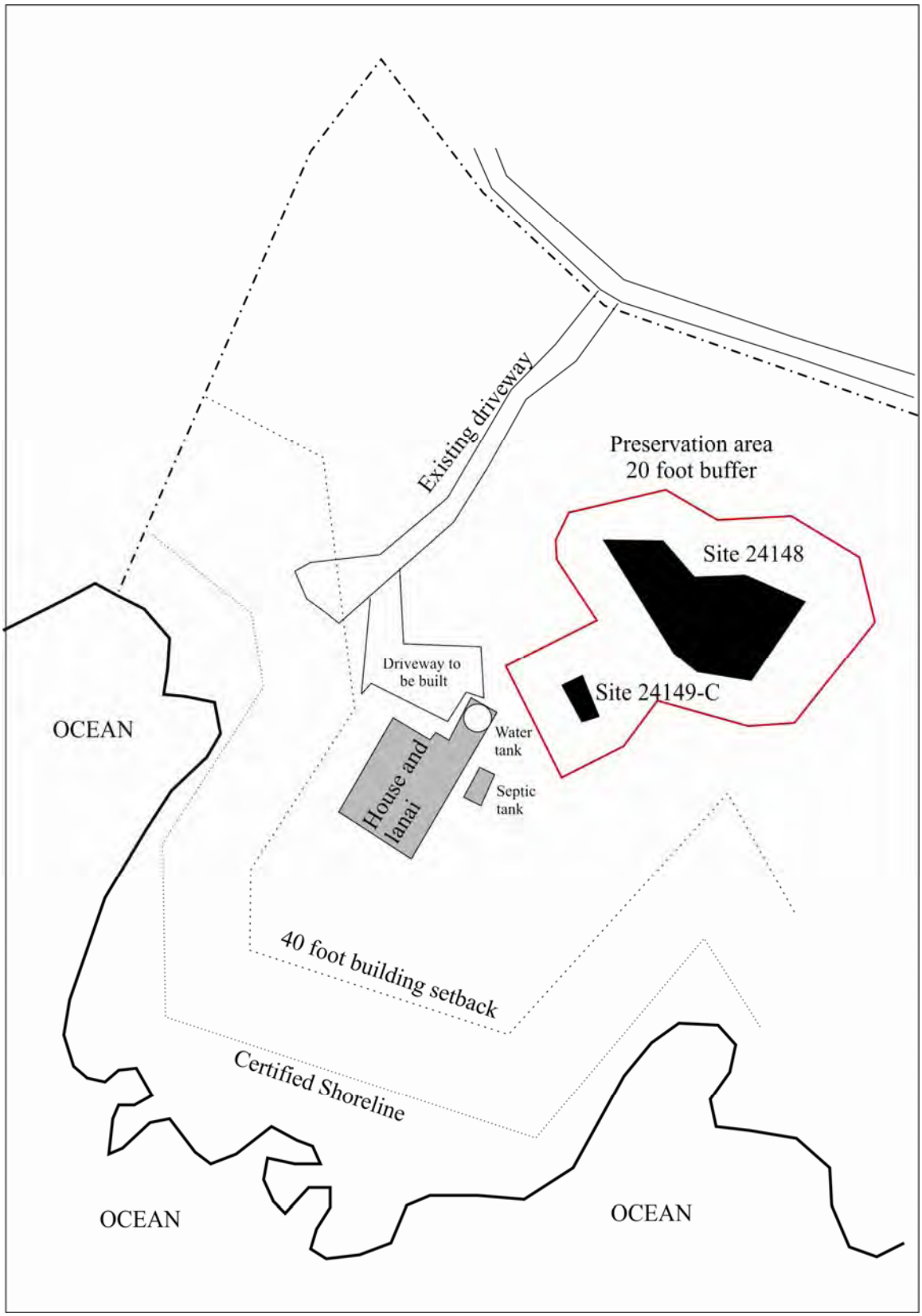


Figure 6. Proposed development plans.

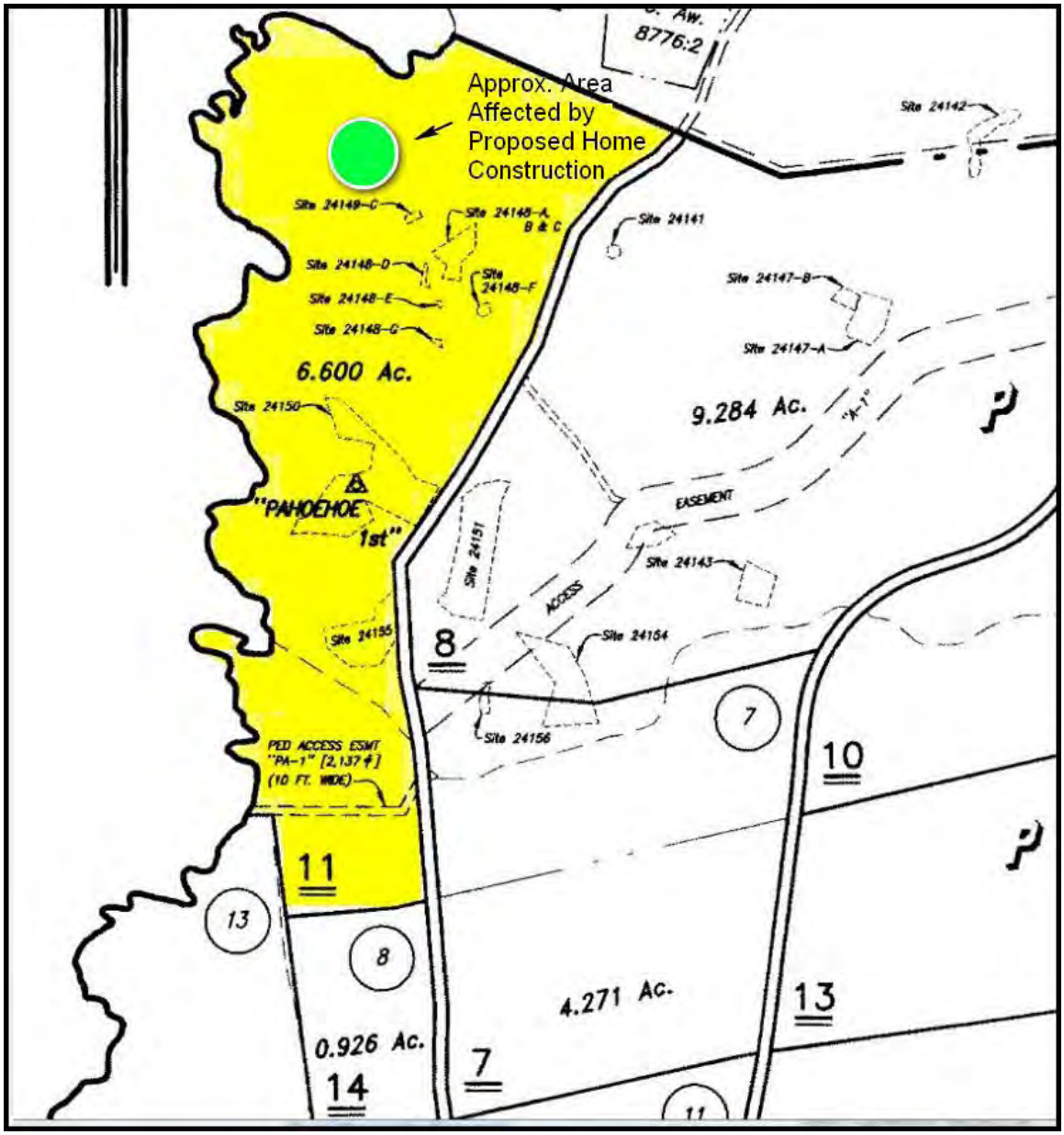


Figure 7. Location of proposed development within the subject parcel.

CULTURE-HISTORICAL BACKGROUND

Archaeologists and historians describe the inhabiting of Hawai‘i in the context of settlement that resulted from voyages taken across the open ocean. For many years, researchers have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai‘i were underway by A.D. 300, with long distance voyages occurring fairly regularly through at least the thirteenth century. It has been generally reported that the sources of the early Hawaiian population—the Hawaiian Kahiki—were the Marquesas and Society Islands (Cordy 2000; Emory in Tatar 1982:16-18).

The question of the timing of the first settlement of Hawai‘i by Polynesians remains unanswered. Several theories have been offered derived from various sources of information (i.e., genealogical, oral-historical, mythological, radiometric), but none of these theories is today universally accepted (c.f., Kirch 2011; Wilmshurst et al. 2011). The three most popular theories place the first settlement at around A.D. 300, A.D. 600, and A.D. 1000, respectively. What is more widely accepted is the answer to the question of where Hawaiian populations came from and the transformations they went through on their way to establish a uniquely Hawaiian culture.

For generations following initial settlement, communities were clustered along the watered, windward (*ko‘olau*) shores of the Hawaiian Islands. Along the *ko‘olau* shores, streams flowed and rainfall was abundant, and agricultural production became established. The *ko‘olau* region also offered sheltered bays from which deep sea fisheries could be easily accessed, and near shore fisheries, enriched by nutrients carried in the fresh water, could be maintained in fishponds and coastal waters. It was around these bays that clusters of houses where families lived could be found (McEldowney 1979:15). In these early times, Hawai‘i’s inhabitants were primarily engaged in subsistence level agriculture and fishing (Handy and Handy 1972:287).

Over a period of several centuries, areas with the richest natural resources became populated and perhaps crowded, and by about A.D. 1200, the population began expanding to the *kona* (leeward side) and more remote regions of the island (Cordy 2000:130). In Kona, communities were initially established along sheltered bays with access to fresh water and rich marine resources. The primary “chiefly” centers were established at several locations—the Kailua (Kaiakeakua) vicinity, Kahalu‘u-Keauhou, Ka‘awaloa-Kealakekua, and Hōnaunau. The communities shared extended familial relations, and there was an occupational focus on the collection of marine resources. By the fourteenth century, inland elevations to around the 3,000-foot level were being turned into a complex and rich system of dry-land agricultural fields (today referred to as the Kona Field System). By the fifteenth century, residency in the uplands was becoming permanent, and there was an increasing separation of the chiefly class from the common people. In the sixteenth century the population stabilized and the *ahupua‘a* land management system was established as a socioeconomic unit (see Ellis 1963; Handy and Handy 1972; Kamakau 1992; and Kelly 1983).

In the 1920s-1930s, Handy and Handy. (1972) conducted extensive research and field interviews with elder native Hawaiians. In lands of North and South Kona, they recorded native traditions describing agricultural practices and rituals associated with rain and water collection. Primary in these rituals and practices was the lore of Lono—a god of agriculture, fertility, and the rituals for inducing rainfall. Handy et al., observed:

> In the time of intensive native cultivation, South Kona was planted in zones determined by rainfall and moisture. Near the dry seacoast potatoes were grown in quantity, and coconuts where sand or soil among the lava near the shore favored their growth. Up to 1,000 feet grew small bananas which rarely fruited, and poor cane; from 1,000 to 3,000 feet, they prospered increasingly. From approximately 1,000 to 2,000 feet, breadfruit flourished.
>
> Taro was planted dry from an altitude of 1,000 to 3,000 feet. An old method of planting taro in Kona, described to us by Lakalo at Ho‘okena, was to plant the cuttings in the lower, warmer zone where they would start to grow quickly and then to transplant them to the higher forest zone where soil was rich and deep and where moisture was ample for

> their second period of growth, in which their corms are said to have developed to an average of 25 pounds each (Handy and Handy 1972:524-525).
>
> The sweet potato and gourd were suitable for cultivation in the drier areas of the islands. The cult of Lono was important in those areas, particularly in Kona on Hawai‘i . . . there were temples dedicated to Lono. The sweet potato was particularly the food of the common people. The festival in honor of Lono, preceding and during the rainy season, was essentially a festival for the whole people, in contrast to the war rite in honor of Ku which was a ritual identified with Ku as god of battle (Handy and Handy 1972:14).

Handy and Handy (1972) noted that the worship of Lono was centered in Kona. Indeed, it was while Lono was dwelling at Keauhou, that he is said to have introduced taro, sweet potatoes, yams, sugarcane, bananas, and ‘awa to Hawaiian farmers (Handy and Handy 1972:14). The rituals of Lono “The father of waters” and the annual Makahiki festival, which honored Lono and which began before the coming of the kona (southerly) storms and lasted through the rainy season (the summer months), were of great importance to the native residents of this region (Handy and Handy. 1972: 523). The significance of rituals and ceremonial observances in cultivation and indeed in all aspects of life was of great importance to the well being of the ancient Hawaiians, and cannot be overemphasized, or overlooked when viewing traditional sites of the cultural landscape.

Over the generations, the ancient Hawaiians developed a sophisticated system of land and resources management. By the time ‘Umi-a-Līloa rose to rule the island of Hawai‘i in ca. 1525, the island (*moku-puni*) was divided into six districts or *moku-o-loko* (cf. Fornander 1973–Vol. II:100-102). On Hawai‘i, the district of Kona is one of six major *moku-o-loko* within the island. The district itself, extends from the shore across the entire volcanic mountain of Hualālai, and continues to the summit of Mauna Loa, where Kona is joined by the districts of Ka‘ū, Hilo, and Hāmākua. One traditional reference to the northern and southern-most coastal boundaries of Kona tells us of the district’s extent:

> *Mai Ke-ahu-a-Lono i ke ‘ā o Kani-kū, a hō‘ea i ka ‘ūlei kolo o Manukā i Kaulanamauna e pili aku i Ka‘ū!*—From Keahualono [the Kona-Kohala boundary] on the rocky flats of Kanikū, to Kaulanamauna next to the crawling (tangled growth of) ‘ūlei bushes at Manukā, where Kona clings to Ka‘ū! (*Ka‘ao Ho‘oniua Pu‘uwai no Ka-Miki in Ka Hōkū o Hawai‘i*, September 13, 1917; Translated by K. Maly)

The traditional district of Kona is divided today into two districts, North Kona and South Kona, and like other large districts on Hawai‘i, was further subdivided into *‘okana* or *kalana* (regions of land smaller than the *moku-o-loko*, yet comprising a number of smaller units of land). Of all the land divisions, perhaps the most significant management unit was the *ahupua‘a* (Rechtman and Maly 2003). *Ahupua‘a* are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name *ahu-pua‘a* or pig altar). In their configuration, the *ahupua‘a* may be compared to wedge-shaped pieces of land that radiate out from the center of the island, extending to the ocean fisheries fronting the land unit. Their boundaries are generally defined by topography and geological features such as *pu‘u* (hills), ridges, gullies, valleys, craters, or areas of a particular vegetation growth (Lyons 1875).

The *ahupua‘a* were also divided into smaller individual parcels of land (such as the *‘ili, kō‘ele, māla*, and *kīhāpai*, etc.), generally oriented in a *mauka-makai* direction, and often marked by stone alignments (*kuaiwi*). In these smaller land parcels the native tenants tended fields and cultivated crops necessary to sustain their families, and the chiefly communities with which they were associated. As long as sufficient tribute was offered and *kapu* (restrictions) were observed, the common people, who lived in a given *ahupua‘a* had access to most of the resources from mountain slopes to the ocean (Rechtman and Maly 2003). These access rights were almost uniformly tied to residency on a particular land, and earned as a result of taking responsibility for stewardship of the natural environment, and supplying the needs of the *ali‘i* (see Kamakau 1992:372-377 and Malo 1951:63-67).

Entire *ahupua‘a*, or portions of the land were generally under the jurisdiction of appointed *konohiki* or lesser chief-landlords, who answered to an *ali‘i-‘ai-ahupua‘a* (chief who controlled the *ahupua‘a* resources). The *ali‘i-‘ai-ahupua‘a* in turn answered to an *ali‘i ‘ai moku* (chief who claimed the abundance of the entire district). Thus, *ahupua‘a* resources supported not only the *maka‘āinana* and *‘ohana* who lived on the land, but also contributed to the support of the royal community of regional and/or island kingdoms

(Rechtman and Maly 2003). This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided fruits and vegetables and some meat in the diet, and the ocean provided a wealth of protein resources.

The *ahupua‘a* of Pāhoehoe 1st in located within a larger region of South Kona traditionally known as *Kapalilua* (the two cliffs), referring to the prominent coastal bluffs of the area from Maunaoui to Ka‘ohe Ahupua‘a. Misleadingly, there are two groups of *ahupua‘a* named Pāhoehoe in South Kona: a northern group labeled Pāhoehoe 1-4; and a southern group labeled Pāhoehoe 1st and Pāhoehoe 2nd. The current study area is located in Pāhoehoe 1st in the southern *ahupua‘a* group, near Kauluoa Point (see Figure 1).

Kealakekua Bay (more precisely the flats of Ka‘awaloa north of the current project area) is perhaps best known as the place where Captain Cook first made landfall on the island and then ultimately met his demise. The arrival of Europeans on Hawai‘i Island began a long series of events that would eventually, but not immediately, alter the Hawaiian way of life. As Major writes, “From the moment Cook and his crew arrived, relations between Native Hawaiians and outsiders were heavily influenced by the sailors’ need for supplies” (Major 2001). Because of Hawai‘i’s isolation in the mid-Pacific it made an excellent way point for Europeans and Americans involved in the East Indian and northwest American trade networks (Sahlins 1992). Kealakekua Bay, with its excellent anchorage and abundant supply of food soon became the most frequented harbor by visitors to the island. Thus began the written history of Hawai‘i.

Historical references to Pāhoehoe 1st Ahupua‘a are few. However, the region of Kapalilua is documented in more detail. In “*Na Hunahuna no ka Moolelo Hawaii*” (Fragments of Hawaiian History), native historian and member of the Kamehameha household, John Papa I‘i wrote about the death of King Kalani‘ōpu‘u in ca. 1782. The king died at Ka‘ū, and his remains were taken to Kapalilua. Kiwala‘ō (Kalani‘ōpu‘u’s heir) and his cousin Kamehameha met at Hōnaunau, and disagreements over the division of lands arose. The events that unfolded led to the battle of Moku‘ōhai, which allowed Kamehameha to gain control over part of the island of Hawai‘i. The events leading up to the battle are described by I‘i:

> When the company from Kau reached Kapalilua in Kona with the corpse of Kalaniopuu, they heard that Kamehameha had arrived at Keei. That was probably the reason why the corpse was not taken to Kailua but to Honaunau, as they had originally agreed . . .
>
> After the Kau chiefs had been at Honaunau a while, Kamehameha and his canoe paddlers arrived in his single canoe, named Noiku. They landed back of Akahipapa, a lava flat extending into the sea. No sooner had his foot touched land than those on shore were ready to hurl spears of *hau* wood at him, a custom observed upon the landing of a high chief. This they did, and those on land watched with admiration as Kamehameha thrust them aside. A person remained near the chief with a container of water for his bath; and after the spear throwers had finished and had seated themselves, Kamehameha bathed and donned a dry *malo*. He went up to see his cousin Kiwalao, and when they met food was made ready. Thus they met graciously. As Kamehameha went there to see Kiwalao, so did his cousin visit him at Keei, spending the night time and again. It was said that Kamehameha served his cousin as steward during these visits. As Kiwalao was in no hurry to return to Honaunau, his uncle, Keawemauhili, came for him. He left at Keawemauhili’s insistence, which caused Kiwalao to remark to Kamehameha that his uncle seemed to be disturbed over their friendly association. “Because of this, trouble may brew between us,” he said. It happened so . . .
>
> …That night, overseers sent a proclamation to all the men of the chiefs to go to the upland of Honaunau for some taro. That same night the great warrior taught Keoua all the things that he was to do on the morrow on the sands of Hauiki in Mokuohai. When day came, all the men had gone to the upland, having started while it was still dark because of the long distance they had to travel to and-fro. This gave Keoua and his companions a chance to do their work. After eating, they went to the beach to bathe or dive (*lele kawa*). They went along the shore diving until they reached Hauiki in Mokuohai. There coconut trees were hewn down, houses burned, and men killed. After this act of war, they turned about and went home. The work was then taken up by others, for the news had reached the chiefs of both sides. They prepared for war and the war canoes were made ready . . .

> Kiwalao was the first to arrive on the battlefield, with the men who were to fight with him. Kamehameha was getting ready, and was preceded to the battlefield by Keeaumoku Papaiahiahi, his uncle. Kalaimamahu, Kamehameha's younger brother, was in charge on Kamehameha's side. They went to the place where they were to encamp, for the purpose of asking the will of the gods. While they were encamped there, a report came that Keeaumoku had been taken captive by his opponents and was to he stabbed. Kiwalao, who was standing close by, said, "Be careful of the *niho palaoa* on Keeaumoku's neck," and at these words Keeaumoku thought, "The chief has no regard for the life of a hulu makua (an older relative)." This news of Keeaumoku's peril caused Kamehameha to hasten to the battlefield. Kaahumanu, later the wife of Kamehameha, and daughter of Keeaumoku, was borne thither on the back of Pahia, a man who was an expert in stone throwing. When they drew near to Kiwalao, Pahia let Kaahumanu down and took some stones into his hand which he flung with such force that Kiwalao fell when they struck his temple. Kiwalao landed on Keeaumoku, who took him by the throat and slashed it with a *lei o mano*, or shark-tooth knife, killing him… [thus] Kamehameha gained the victory in this battle at Mokuohai. (I'i 1959:13)

In the late 1860s, writing under the title "*Ka Moolelo o Kamehameha I*" (The History of Kamehameha I), and later under the title "*Ka Mo'olelo o na Kamehameha*" (The History of the Kamehamehas), Samuel Mānaiakalani Kamakau, provided readers with some background information pertaining to the *ali'i* of the Kapalilua region in the late 1700s. From his writings come the following narratives:

> During the war between Ka-lani-'opu'u and Ka-hekili, the parents of Ka-'ahu-manu went to Hawaii with their whole household and company of attendants and followed in the rear of Ka-lani-'opu'u's army, together with the twin half brothers of Ke'e-au-moku. [These were] Ka-me'e-ia-moku and Ka-manawa, who had the same father (Keawe-poepoe) but different mothers… Keawe-a-heulu also belonged to their company. His estates were the lands of Kapalilua, Ka'awaloa, and Kealakekua; those of Ka-me'e-ia-moku and his brother under Ka-lani-'opu'u were Kekaha and the lands of that section. (Kamakau 1961:310)

In the early 1900s, J.W.H.I Kihe, who was born in North Kona in 1854, published a series of articles in the Hawaiian language newspaper *Ka Hōkū o Hawai'i*. Kihe was highly regarded for his knowledge of Hawaiian traditions and history. The articles he wrote (translated by Kepā Maly over the last 10 years) describe the earlier (Precontact) condition of the land and its inhabitants, and document the traditions behind the naming of significant places on the landscape. Relative to the current study area the following is a paraphrased excerpt from Maly and Maly's translations (2002:12-14).

> The lands of Pāhoehoe were named for the chief Pāhoehoe-nui-a-Lonohea. Pāhoehoe was married to the chiefess Honokua, and their daughters were Kalāhiki and Waiea. These two girls were extremely beautiful and likened to the beautiful *lehua* blossoms which adorned the forests of the region (*Nā lehua o Pīnao*). Other lands in the region which bear the name Pāhoehoe were named for Pāhoehoe-wahine-iki-a-lani (who was also known as Pāhoehoe- ku'ai-moku and Ka-huli-a-Pāhoehoe), the sister of Pahoehoe-nui-a-Lonohea. The various lands upon which the chief, his family and retainers lived are named for them. Haukālua-nui and Haukālua-iki (father and son) were konohiki (overseers of the land). Hale'ili was a priest of the Lono class. Maunaoui was the kūkini (runner and messenger) of the chief. 'Ala'ē was the *kaulana pa'a 'āina* (champion warrior who secured, or maintained peace upon the land) for the chief Pāhoehoe, and he was also the husband of the chiefess Pāhoehoe-wahine-iki-a-lani.

Demographic trends during the Postcontact Period indicate population reduction in some areas, due to war and disease, yet increases in others, with relatively little change in material culture. However, there was a continued trend toward craft and status specialization, intensification of agriculture, *ali'i* controlled aquaculture, upland residential sites, and the enhancement of traditional oral history (Rechtman and Maly 2003). The Kū cult, *luakini heiau*, and the *kapu* system were at their peaks, although western influence was already altering the cultural fabric of the Islands (Kirch 1985; Kent 1983). Foreigners had introduced the concept of trade for profit, and by the time Kamehameha I had conquered O'ahu, Maui and Moloka'i, in

1795, Hawai‘i saw the beginnings of a market system economy (Kent 1983). This marked the end of the Proto-Historic Period and the end of an era of uniquely Hawaiian culture.

Hawai‘i’s culture and economy changed drastically as capitalism and industry established a firm foothold in the islands. The sandalwood (*Santalum ellipticum*) trade, established by Euro-Americans in 1790 and turned into a viable commercial enterprise by 1805 (Oliver 1961), was flourishing by 1810.

Kamehameha died in 1819 at Kamakahonu in Kailua-Kona. With the passing of Kamehameha, his heir Liholiho was given the name of Kamehameha II. Ka‘ahumanu, the favorite wife of Kamehameha, announced his last commands:

> O heavenly one! I speak to you the commands of your grandfather. Here are the chiefs; here are the people of your ancestors; here are your guns; here are your lands. But we two shall share the rule over the land. Liholiho consented and became ruling chief over the government (Kamakau 1992:220):

Following the death of a prominent chief, it was customary to remove all of the regular *kapu* that maintained social order and the separation of men and women and elite and commoner. Thus, a period of *‘ai noa* (free eating) was observed along with the relaxation of other traditional *kapu* following Kamehameha’s death. It was for the new ruler and *kahuna* to re-establish *kapu* and restore social order, but at this point in history traditional customs saw a change:

> The death of Kamehameha was the first step in the ending of the tabus; the second was the modifying of the mourning ceremonies; the third, the ending of the tabu of the chief; the fourth, the ending of carrying the tabu chiefs in the arms and feeding them; the fifth, the ruling chief's decision to introduce free eating (‘*ainoa*) after the death of Kamehameha; the sixth, the cooperation of his aunts, Ka-ahu-manu and Ka-heihei-malie; the seventh, the joint action of the chiefs in eating together at the suggestion of the ruling chief, so that free eating became an established fact and the credit of establishing the custom went to the ruling chief. This custom was not so much of an innovation as might be supposed. In old days the period of mourning at the death of a ruling chief who had been greatly beloved was a time of license. The women were allowed to enter the heiau, to eat bananas, coconuts, and pork, and to climb over the sacred places. You will find record of this in the history of Ka-ula-hea-nui-o-ka-moku, in that of Ku-ali‘i, and in most of the histories of ancient rulers. Free eating followed the death of the ruling chief; after the period of mourning was over the new ruler placed the land under a new tabu following old lines. (Kamakau 1992:222)

Immediately upon the death of Kamehameha I, Liholiho was sent away to Kawaihae to keep him safe from the impurities of Kamakahonu brought about from the death of Kamehameha. After purification ceremonies Liholiho returned to Kamakahonu:

> Then Liholiho on this first night of his arrival ate some of the tabu dog meat free only to the chiefesses; he entered the *lauhala* house free only to them; whatever he desired he reached out for; everything was supplied, even those things generally to be found only in a tabu house. The people saw the men drinking rum with the women *kahu* and smoking tobacco, and thought it was to mark the ending of the tabu of a chief. The chiefs saw with satisfaction the ending of the chief’s tabu and the freeing of the eating tabu. The *kahu* said to the chief, “Make eating free over the whole kingdom from Hawaii to Oahu and let it be extended to Kauai!” and Liholiho consented. Then pork to be eaten free was taken to the country districts and given to commoners, both men and women, and free eating was introduced all over the group. Messengers were sent to Maui, Molokai, Oahu and all the way to Kauai, Ka-umu-ali‘i consented to the free eating and it was accepted on Kauai. (Kamakau 1992:225)

The indefinite period of free-eating and the lack of the reinstatement of other *kapu* by Liholiho spelled the end of the traditional religion before the end of the year that saw the death of Kamehameha I and the defeat of Kekuaokalani. By December of 1819 Kamehameha II had sent edicts throughout the kingdom, from Hawai‘i to Kaua‘i, renouncing the ancient state religion, ordering the destruction of the *heiau* images, and ordering that the *heiau* structures be destroyed or abandoned and left to deteriorate. He did, however,

allow the personal family religion, the *ʻaumakua* worship, to continue (Oliver 1961; Kamakau 1992). With the end of the *kapu* system changes in the social and economic patterns began to affect the lives of the common people. Liholiho moved his court to Oʻahu, lessening the burden of resource procurement for the chiefly class on the residents of Hawaiʻi Island. Some of the work of the commoners shifted from subsistence agriculture to the production of foods and goods that they could trade with early Western visitors. Introduced foods often grown for trade with Westerners included yams, coffee, melons, Irish potatoes, Indian corn, beans, figs, oranges, guavas, and grapes (Wilkes 1845).

In October of 1819, seventeen Protestant missionaries had set sail from Boston to Hawaiʻi. They arrived in Kailua-Kona on March 30, 1820 to a society with a religious void to fill. Many of the *aliʻi*, who were already exposed to western material culture, welcomed the opportunity to become educated in a western style and adopt their dress and religion. Soon they were rewarding their teachers with land and positions in the Hawaiian government. These Christian missionaries were some of the first Europeans to reside permanently on the island, besides sailors who jumped ship.

On May 17, 1832, Missionary Cochran Forbes arrived in Hawaiʻi to take up residence at the Kaʻawaloa (South Kona) Mission. Mark Ives also settled in the South Kona Station with Forbes, and in 1835, they established the Keālia-Kapalilua out-station of South Kona. Forbes' journal entry of October 13th, provides readers with a general overview of the villages between Hōnaunau and "Opihale" (or ʻŌpihihale):

> I ought to say that all these villages are destitute of regular schools, tho I found in all of them a number who can read & in some cases almost the whole village could read. The teachers who had taught them that much, have deserted their posts and gone, many of them, after chiefs. They being the most capable men of their villages, in many cases, have been greedily courted by the chiefs, for headmen or for men to wait about their persons, and a prospect of earthly gain is as attractive to these poor heathens as any… nor indeed can I blame them. But we must now have better teachers to supply their place. I found the people in all of the villages remarkably kind & docil & believe they would generally be glad to have schools if they had competent teachers. The above remarks apply to most every village from Honaunau, 10 miles south of us to Kau . . . (Maly and Maly 2002:32)

April 1, 1842—C. Forbes reported on activities and events during 1841-1842, describing the fields of Kaʻū and South Kona (which had been divided into three sections):

> In this district which is called Kapalilua there are 10 schools containing 400 scholars all which are now in an interesting condition. There are 450 church members in Kapalilua including Kealia. They have lately been set off from this chh. to form a separated church by themselves… Kealia is about 8 miles by water and ten or 12 by land over a bad road from this place….

April 4, 1842—M. Ives added a section to the Report of the Mission Station at Kealakekua; commenting on activities and events in the Kapalilua field, which had a population of almost 2000 individuals:

> The field at Kapalilua extends 20 miles along the sea coast, and extends 4 to 8 miles inland. The villages can only be reached by canoe . . . Kealia, at the northern extremity of the field is the best location for the meeting house and landing . . . There are no roads in Kealia for a horse to go . . . (Ives 1842:2-3; MHM Kealakekua 1839-1857; Mss 2a H31 Kealakekua) (Maly and Maly 2002:32-33)

Trails (*alahele*) and thoroughfares (*alaloa*) were integral to resource access within and between *ahupuaʻa*, and continue to serve as important features of the cultural landscape. These *alahele* and *alaloa* were by the 1840s modified into a system of roads referred to as "*Ala Nui Aupuni*", or Government roads (Maly and Maly 2002:84). The location of the current Māmalahoa Highway follows the path of the Old Government Road. A coastal trail extended from the north edge of Kauluoa Point as far as Kukuiopaʻe Ahupuaʻa, passing through Pāhoehoe 1st Ahupuaʻa near the current study area. Additionally, a *mauka*/*makai* trail meanders through the upper portion of Pāhoehoe 1st Ahupuaʻa intersecting with the

coastal trail in the neighboring *ahupua‘a* of Ka‘ohe. These trails and roads are clearly shown on Hawai‘i Registered Map No. 2468, prepared by G. F. Wright in 1909 (Figure 8).

By the mid-nineteenth century, the ever-growing population of Westerners had forced socioeconomic and demographic changes that promoted the establishment of a Euro-American style of land ownership. This change in land tenure was promoted primarily by the missionaries and Western businessmen in the island kingdom. Generally these individuals were hesitant to enter business deals on leasehold land.

In 1848 the *Māhele ‘Āina* became the vehicle for determining ownership of native lands. The *Māhele* (division) defined the land interests of Kamehameha III (the King), the high-ranking chiefs, and the *konohiki*. During the *Māhele,* all lands in the Kingdom of Hawai‘i were placed in one of three categories: (1) Crown Lands (for the occupant of the throne); (2) Government Lands; and (3) *Konohiki* Lands (Chinen 1958:vii and Chinen 1961:13). The chiefs and *konohiki* were required to present their claims to the Land Commission to receive awards for lands provided to them by Kamehameha III. They were also required to provide commutations to the government in order to receive royal patents on their awards. The lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This process expedited the work of the Land Commission.

All three types of land were subject to the rights of the native tenants therein; those individuals who lived on the land and worked it for their subsistence and the welfare of the chiefs (Sinoto and Kelly 1970). Native tenants could claim, and acquire title to, *kuleana* parcels that they actively lived on or farmed at the time of the *Māhele*. The *Kuleana* Act of December 21, 1849 provided the framework by which native tenants could apply for and receive fee-simple interest in their *kuleana* lands from the Land Commission. The Board of Commissioners over saw the program and administered the lands as Land Commission Awards (LCAw.).

As a result of the *Māhele* the *ahupua‘a* of Pāhoehoe 1st was relinquished to the Government by Kanele, who had retained the *ahupua‘a* of Kahauloa 2nd (LCAw. 32; Royal Patent No. 4513) to the north of the current study area. Eighteen *kuleana* claims were awarded within Pāhoehoe 1st Ahupua‘a, but all appear to have been located in the northern portion of the *ahupua‘a* based on current Tax Map Keys. Pahoehoe 1st was sold as Grant 2025 to Pumealani in 1856, consisting of 160.5 acres. The boundaries of the neighboring *ahupua‘a* of Pāhoehoe 2nd were surveyed by the Boundary Commission (certification No. 102) for Ke‘elikolani in 1874, and boundary markers between Pāhoehoe 2nd and Pāhoehoe 1st *ahupua‘a* as well as the location of the Old Government Road are shown on Hawai‘i Registered Map No. 990, prepared in 1875 by D.H. Hitchcock (Figure 9).

The population of South Kona declined during the early nineteenth century and Hawaiians maintained marginalized communities outside of the central population centers. These communities were located in the “out-of-the-way” places, like Ka‘awaloa Point to the north of the current study area (Alvarez 1990). In the aftermath of the *Māhele*, economic interests in the region swiftly changed from the traditional Hawaiian land tenure system of subsistence farming and regional trading networks to the more European based cash crops including coffee, tobacco, sugar, and pineapple, and emphasized dairy and cattle ranching. Immigrant communities drawn to the economic opportunities commercial farming created settled in plantations camps, many of which are shown in the vicinity of the study area on Hawai‘i Territory Survey Map Plat No. 201 (Figure 10).

The later 19th century brought increasingly rapid change to Hawai‘i. Cattle ranching and commercial coffee production, which began in the mid-1800s, changed traditional agricultural practices and necessitated construction of rock walls to control the movement of livestock. According to Clarence Medeiros (self identified descendant of grant recipient Pumealani, the project area was owned by the Magoon family since the early 1900s. Portions of Magoon Ranch were formerly known as Pāhoehoe Ranch (Rechtman 2001), but it is unclear at which point Pāhoehoe Ranch lands were acquired by Magoon Ranch. Mr. Medeiros’s granduncle, Fred Iona, worked for the family’s cattle ranching operation that included the study area (State of Hawai‘i Department of Land and Natural Resources Office of Conservation and Coastal Lands 2012). During the Magoons’ tenure, one of the most significant events to occur was the 1950 eruption of Mauna Loa. The ensuing flow covered portions of the ranch lands in Ka‘ohe as well as the southern portion of Pāhoehoe 1st *ahupua‘a* (Rechtman 2001), which can be seen on an October 7, 1954 aerial photograph (Figure 11).

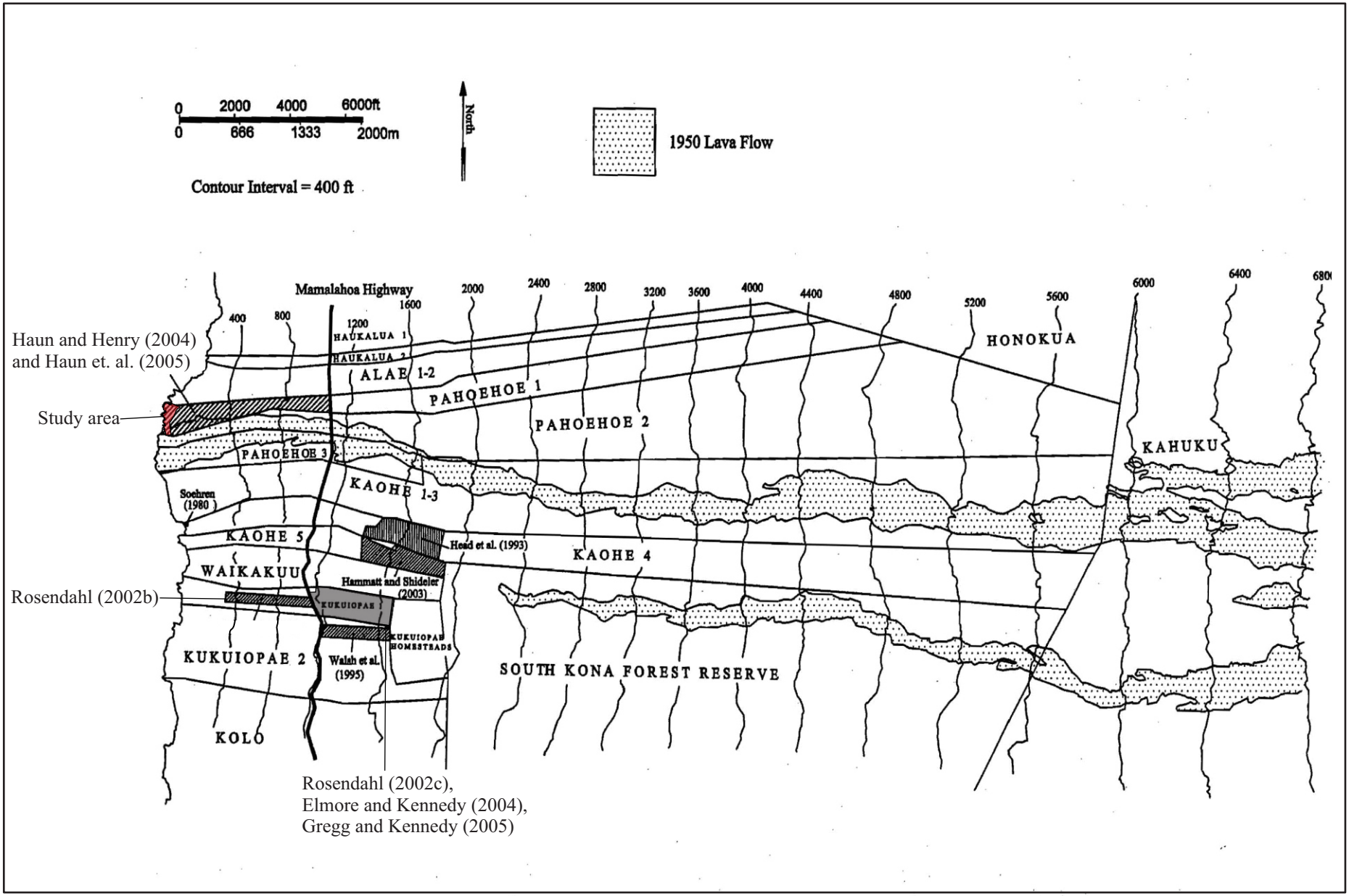


Figure 12. Prior studies conducted in the vicinity of the subject parcel.

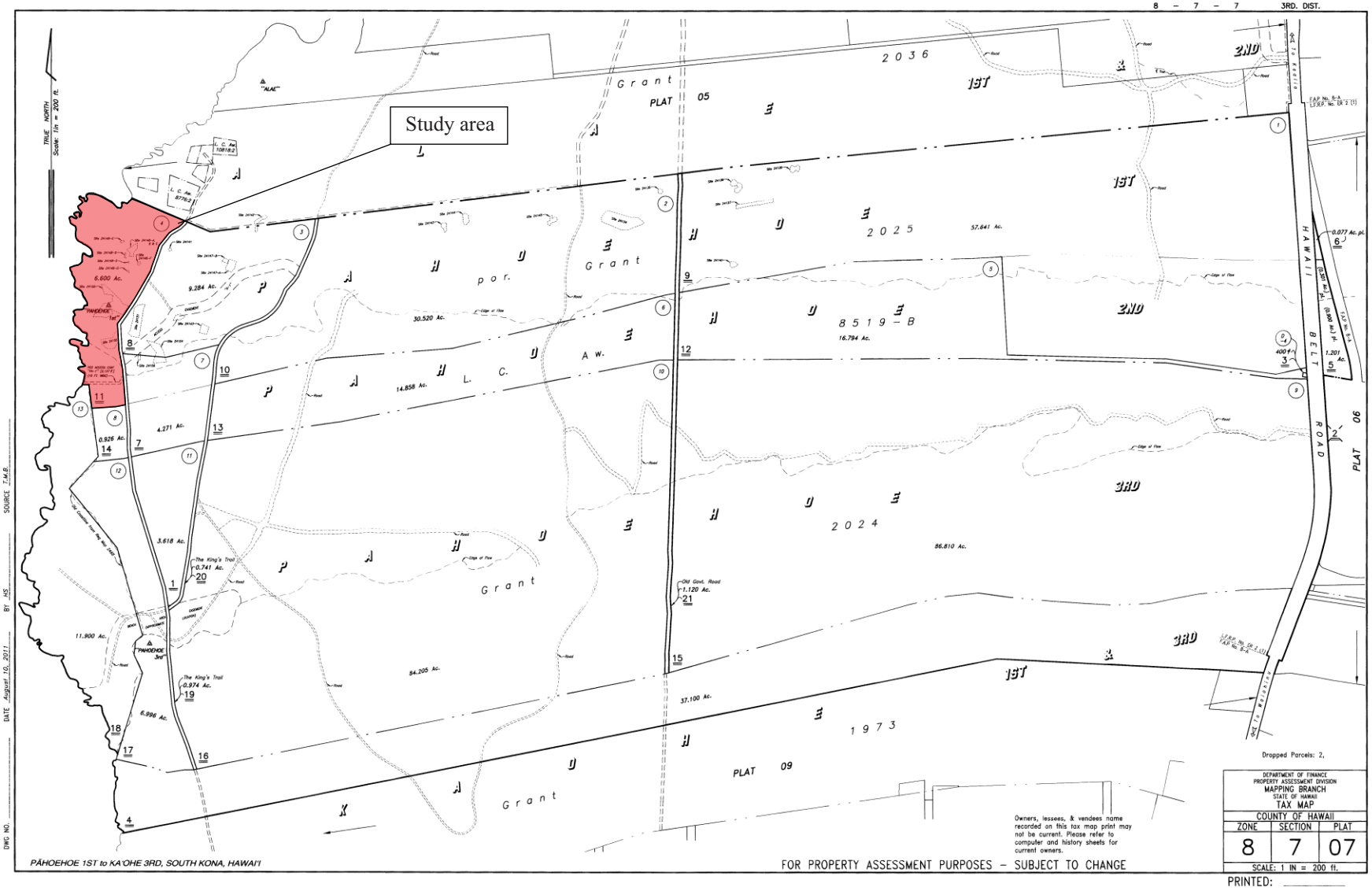


Figure 2. Tax Map Key: 3-8-7-07 showing the subject parcel (Parcel 011, shaded).

Figure 3. Google™ Earth image showing the location of the subject parcel.

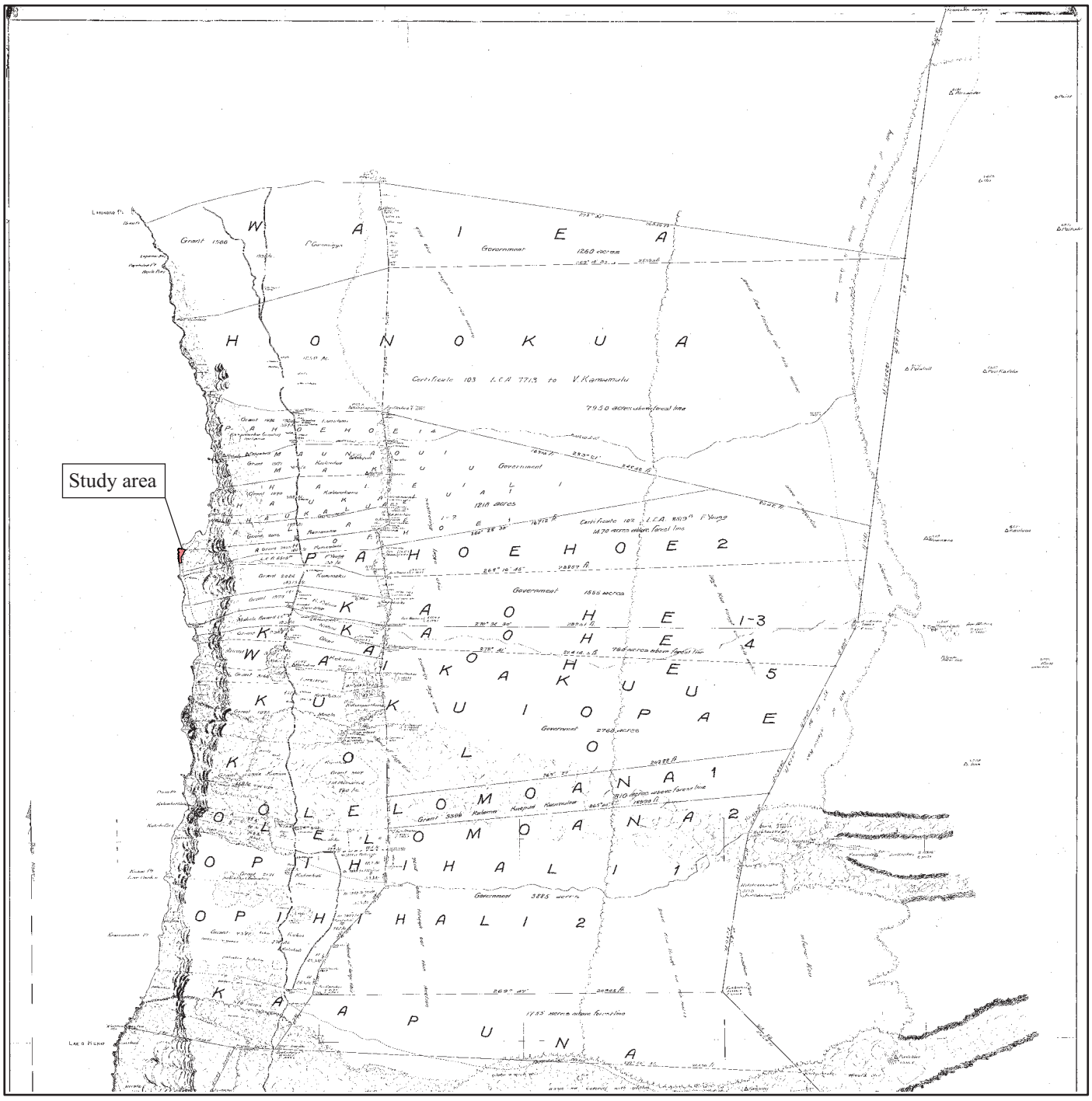


Figure 8. Portion of Hawaii Registered Map No. 2468 showing trails and roads in the vicinity of subject parcel.

PRIOR STUDIES

Fifteen archaeological surveys have been conducted within the vicinity of the current study area. The locations of these previous studies are shown on Figure 12, with the exception of the studies that encompass several *ahupua‘a* (see below). In terms of archaeological studies, the region south of the current study area has been more extensively documented than the region immediately surrounding Pāhoehoe 1st Ahupua‘a.

Between 1929 and 1930 Reinecke surveyed the coastal areas of North and South Kona, including the current study area. From his maps it is unclear which sites were located within Pāhoehoe 1st Ahupua‘a, but of the surrounding *ahupua‘a* he noted:

> The area covered by the shoreward section of the lands of Maunaoui, Makuu, Haleili, Haukalua 1-2, and ‘Ala‘ē 1-2, is surprisingly covered with many more remains than the corresponding coast of Pahoehoe 1-4 and Honokua north of Lepeamoa Rock, while Ka‘ohe 1-5 is simply one mass of ruins.

Reinecke also vaguely describes a stone path leading from Ka‘ohe to Pāhoehoe that is probably the coastal trail shown on historical maps (see Figures 8 and 10). Within the same context he described 51 sites that he interpreted as house sites, similar in concentration to those he observed at Ka‘ohe 1-3, which are presumably located in the Pāhoehoe region (1930:167).

In 1980 Soehren conducted a reconnaissance survey in Ka‘ohe 4th Ahupua’a, to the south of the current study area (see Figure 12). The project area consisted of 10 acres located between 10 and 30 ft in elevation. Two historic burial platforms were identified.

Head et al. (1993) conducted an archaeological inventory survey of a 56 acre parcel located in Ka‘ohe 4th Ahupua‘a, *mauka* of Māmalahoa Highway, between 1,400 and 1,850 feet in elevation (see Figure 12). A total of forty-two features were recorded, with the majority interpreted as having a dry-land agricultural function. The types of sites identified included retaining walls, walls, modified outcrops, mounds and depressions. Habitation enclosures, a platform and C-shape, and a trail segment were also identified.

Walsh et al. (1995) conducted an archaeological inventory survey of a roughly 30 acre parcel located in Kukuiopa‘e 2. The project area extended *mauka* of Māmalahoa Highway to the west extent of Kukuiopa‘e Homesteads, between 1,240 and 1,640 feet in elevation. A total of 15 sites were identified; four interpreted as Precontact agricultural sites, with the remaining eleven sites associated with the Historic Period.

Rosendahl (2000) conducted an archaeological assessment survey of twney-two separate parcels totaling 978 acres of Magoon Estate lands situated immediately *mauka* of Māmalahoa Highway. The parcels were located in several *ahupua‘a* spanning Pāhoehoe 4th to Ka‘ohe 5th. The results of that survey indicated that archaeological features, consisting mostly of dry-land agricultural sites and associated habitation features, were located within undisturbed areas between 1,380 to 1,890 feet in elevation. Then in 2002 Rosendahl (2002a) conducted an archaeological assessment survey of a 1,022 acre portion of the Magoon Estate lands located immediately *makai* of the 2000 project area. This project area consisted of nine parcels situated in 22 separate *ahupua‘a* spanning Pāhoehoe 1-4 to Ka‘ohe 1-4 (see Figure 12). The majority of archaeological features were observed in the coastal zone, in areas previously surveyed by Reinecke (1930). The identified archaeological features consisted of dry-land agricultural and habitation sites associated with Precontact and early Historic Period use of the coastal zone for marine resource procurement and uplands for agricultural and habitation activities.

Additionally, in 2002 (Rosendahl 2002b and 2002c) conducted assessment surveys for a two parcels within Kukuiopa‘e 1st Ahupua‘a. The *makai* (Rosendahl 2002b) parcel consisted of a roughly 25 acre parcel located *makai* of Māmalahoa Highway. A single burial cave associated with the Historic Period was identified during the survey. The *mauka* parcel (Rosendahl 2002c) was located immediately adjacent to the *makai* parcel and *mauka* of Māmalahoa Highway, totaling roughly 50 acres. Numerous dry-land agricultural features and associated habitation sites dating to the Precontact and Historic Periods were identified during the survey, as well as a Historic Period burial lava tube and a Historic Period concrete tomb inscribed with the dates 1880, 1923, and 1924 indicating probable internments dates (Rosendahl

2002c:6). An archaeological inventory survey and data recovery plan for the same parcel were prepared by Elmore and Kennedy (2004) and Gregg and Kennedy (2005), during which a nineteen sites were recorded with nine sites planned for data recovery.

Hammatt and Shideler (2003) conducted an archaeological inventory survey of a 30 acre parcel in Kaʻohe 5th Ahupuaʻa, immediately adjacent to the Head et al. (1993) project area (see Figure 12). The project area was situated between 1,400 and 1,680 feet in elevation. A total of 33 features comprising 9 sites were recorded, including agricultural and habitation features, and a possible burial, associated with the Precontact Period. Historic Period features associated with ranching and agricultural activities were also recorded.

The 94-acre former extent of TMK 8-7-007:008 (which included the current 6.6 acre parcel) was the subject of an archaeological inventory survey conducted in 2004 by Haun and Henry (2004a). This survey resulted in the recording of twenty-three archaeological sites containing sixty-seven features. This archaeological inventory survey (Haun and Henry 2004a) was completed prior to the subdivision of Parcel 008 (the current study parcel). Four sites (SIHP Site 24148, Site 24249, Site 24150, Site 24155) were recorded within the area of the current study parcel. SIHP Site 24149 was subject to data recovery (Haun et al. 2005) during which a burial was inadvertently discovered. SIHP Site 24148, a habitation complex; SIHP Site 24150, a habitation/burial complex; and SIHP Site 24155, a ceremonial complex were all slated for preservation. Preservation (Haun and Henry 2004b) and burial treatment (Haun and Associates 2005) plans were prepared and approved by DLNR-SHPD. Three former road/trail sites identified during the archaeological inventory survey were conveyed by landowner to the county for public use.

Two cultural studies (Maly and Maly 2002; and 2003) have been conducted within the region and are relevant to the current study area. In 2002 Maly and Maly documented the natural and cultural landscape of Kīpāhoehoe and neighboring *ahupuaʻa* within the Kapalilua region. Interviews and historical documents showed that the area *mauka* of Māmalahoa Highway was extensively cultivated with *ʻawa* for commercial export from the 1870s to 1920, and that the Kapalilua region was largely used for cattle and ranching from the late 1800s at least to the present day (Maly and Maly 2002:118).

Through archival research and numerous interviews with elders from the Kapalilua region, Maly and Maly (2003) documented the history and importance of fishing and fishing-related activities in the area. From *Māhele* records is clear that fishery access rights were retained by the common people of the region (Maly and Maly 2003:35). Because Pāhoehoe 1st Ahupuaʻa was relinquished to the Government, we have no Boundary Commission information on the current study area. However, in the testimony given for the neighboring *ahupuaʻa* of Pāhoehoe 2nd, Kuaimoku (LCAw. 8519-B) states "…I have been told that the land has ancient fishing rights extending out to sea." [Vol B:196] (Maly and Maly 2003:38). Presumably Pāhoehoe 1st Ahupuaʻa had similar fishing access rights. The high degree to which marine resources were integral to native tenants' life in the Kapalilua region is clear from the *Kuleana Act* of 1850, which reconfirmed preceding laws guaranteeing access rights (Maly and Maly 2003:32). It is also abundantly clear from the Malys' interviews that fishing continues to be a way of life for residents of the general Kapalilua region.

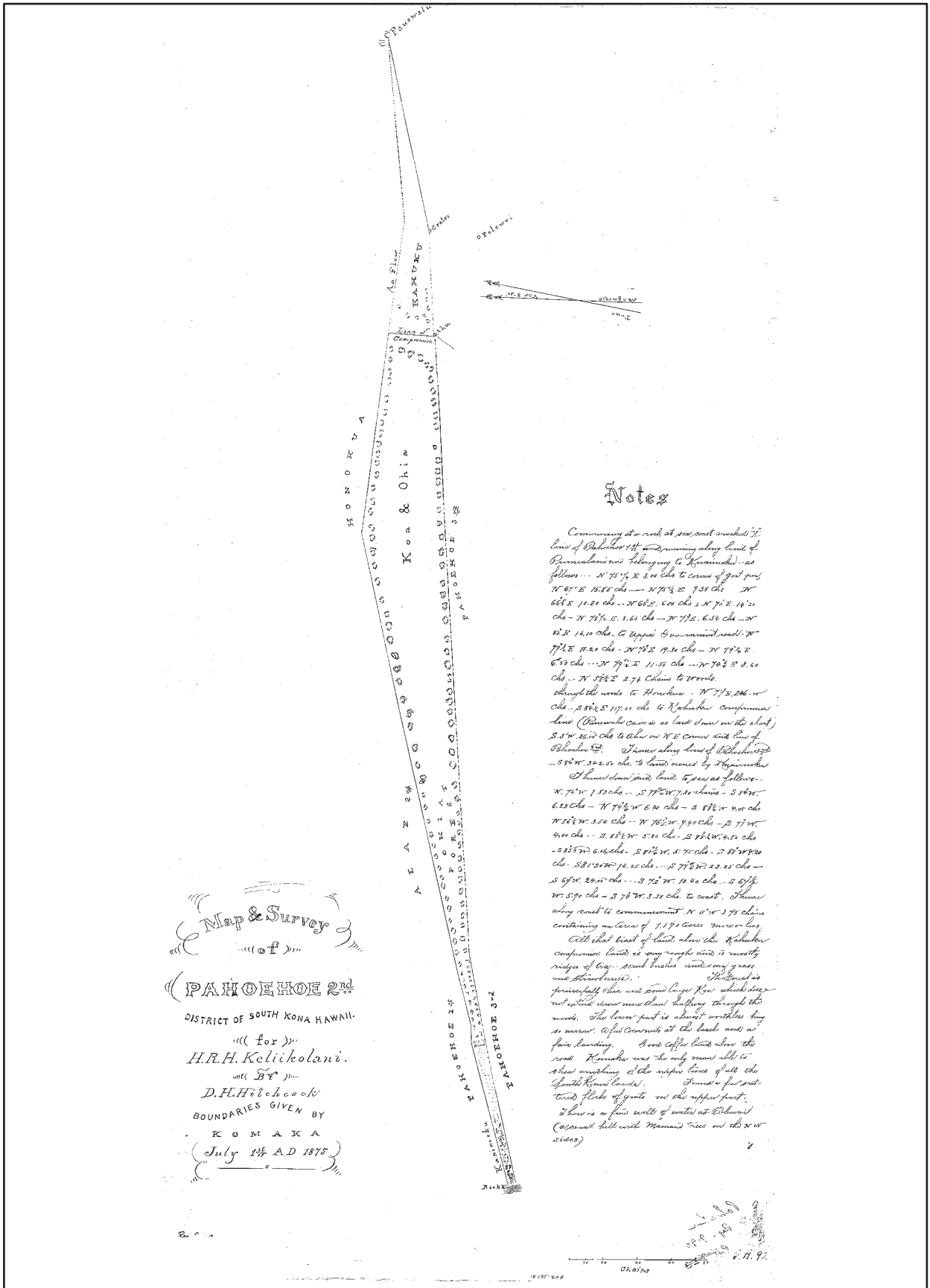


Figure 9. Hawaii Registered Map No. 990 showing boundary between Pāhoehoe 1st and Pāhoehoe 2nd *Ahupua'a*.

CONSULTATION

When assessing potential cultural impacts to resources, practices, and beliefs; input gathered from community members with genealogical ties and/or long-standing residency relationships to the study area is vital. It is precisely to these individuals for whom meaning and value are ascribed to traditional resources and practices. Community members may also retain traditional knowledge and beliefs unavailable elsewhere in the historical or cultural record of a place. As part of the current assessment, prior consultation with Mr. Clarence A. Medeiros Jr. is referenced as well as comments provided by the Office of Hawaiian Affairs in response to a pre-Draft EA consultation request. Additional consultation was conducted with members of the Magoon family (Jerry Magoon and Keoki Magoon) as well as with Mr. Jim Medeiros Sr.

As part of the archaeological inventory survey and preservation planning, Mr. Clarence A. Medeiros (Clarence) was consulted and he provided valuable input. Clarence's Hawaiian family South Kona roots are well established, and according to Clarence, he is a descendant of Pumealani who received the Grant 2025 that included the current study area, which later fell under the ownership of the Magoon family. Clarence's granduncle, Fred Iona, worked for the Magoon cattle ranching operation that included the current project area. Clarence (along with several of his immediate family members) was recognized by DLNR-SHPD as a cultural descendant to the burial sites identified within the study area, and he provided input relative to the establishment of preservation buffer sizes and treatments. According to Haun and Associates (2005) input from Clarence led to the increase to 20 foot from the proposed 15 foot permanent preservation buffers.

The Office of Hawaiian Affairs (OHA) was solicited for consultation in a pre-draft EA notification. In a letter dated December 21, 2011, OHA seemed to indicate that they would like to see archaeological monitoring present during project activities, and also sought assurances that access to the shoreline and near-shore waters for the perpetuation of traditional and customary practices would not be inhibited.

Telephone conversations were conducted with Jerry Magoon and Keoki Magoon, who as children visited the shoreline portion of their extended family's ranch. The Magoon's matriarch is of Hawaiian-Chinese descent. Both had recollections of visiting the "black sand beach" (now Kona Paradise subdivision) and getting there by ranch road and by boat. Keoki had very little knowledge of the area as he was young when he would visit. When asked about significant cultural places of the land, Jerry related a story about a cave in the general vicinity of the current study area that is only accessible from the ocean that was used reputed to be a traditional place of burial for high status individuals. When asked about their observations of the use of the shoreline area for traditional practices, they both explained that during Magoon ownership of the property there was very limited access to the shoreline. Both were pleased that the cultural sites are being preserved and that access to the shoreline area has been enhanced.

Mr. Jim Medeiros Sr. (Jimmy) was contacted by telephone about this proposed development and was provided with a copy of the draft EA, including all maps and appendices. Jimmy is Clarence's brother (same mother: Pansy Hua Medeiros, same father: Clarence A. Medeiros, Sr.). Jimmy is also the founding member of Protect Keopuka 'Ohana, a South Kona activist group dedicated to the protection and preservation of traditional properties and associated practices. He expressed an interest in providing his input and an on-site meeting was held on February 22, 2013 with Jimmy, the landowner, and the primary author of the current report. Jimmy and the landowner (Figure 13) shared their mutual philosophies about the use of the shoreline and the protection and perpetuation of traditional sites and practices. The landowner explained that he had been accessing this shoreline for fishing since his boyhood days, and jumped at the opportunity to purchase this property when it came on the market. The landowner further explained that it was one of his goals to see that this shoreline resource area was protected and perpetuated for the benefit of future generations. Jimmy agreed and offered his support.

The cultural sites that were documented during the earlier archaeological studies were visited and their preservation discussed. Jimmy expressed his pleasure that these important sites are being preserved and that access to the sites and the shoreline for cultural practices and activities will be permitted. He recommended to the landowner that an archaeological monitor be present during development activities to assure protection of the preservation sites and to be able to provide a timely and appropriate response to any new finds that may be discovered. The landowner agreed to have a monitor present. Before he departed, Jimmy again offered his personal support for the project and exchanged phone numbers with the landowner wanting to stay informed as the proposed development progressed.

Figure 13. Mr. Jim Medeiros Sr. and Mr. Peter Dungate (landowner) sharing their past experiences and knowledge about the subject parcel.

POTENTIAL CULTURAL IMPACTS

The Office of Environmental Quality Control (OEQC) guidelines identify several possible types of cultural practices and beliefs that are subject to assessment. These include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The guidelines also identify the types of potential cultural resources, associated with cultural practices and beliefs that are subject to assessment. Essentially these are natural features of the landscape and historic sites, including traditional cultural properties. A working definition of traditional cultural property is:

> "Traditional cultural property" means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both.

The origin of the concept of traditional cultural property is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service. "Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional cultural properties are not intangible, they must have some kind of boundary; and are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of traditional cultural properties should be determined by the community that values them.

It is however with the definition of "Property" wherein there lies an inherent contradiction, and corresponding difficulty in the process of identification and evaluation of potential Hawaiian traditional cultural properties, because it is precisely the concept of boundaries that runs counter to the traditional Hawaiian belief system. The sacredness of a particular landscape feature is often times cosmologically tied to the rest of the landscape as well as to other features on it. To limit a property to a specifically defined area may actually partition it from what makes it significant in the first place. A further analytical framework for addressing the preservation and protection of customary and traditional native practices specific to Hawaiian communities resulted from the *Ka Paʻakai O Kaʻāina* v. Land Use Commission court case. The court decision established a three-part process relative to evaluating such potential impacts: first, to identify whether any valued cultural, historical, or natural resources are present; and identify the extent to which any traditional and customary native Hawaiian rights are exercised; second, to identify the extent to which those resources and rights will be affected or impaired; and third, specify any mitigation actions to be taken to reasonably protect native Hawaiian rights if they are found to exist.

It is recognized that the South Kona shoreline is and has been used for both recreational and subsistence purposes and that such practices could be considered to be of a traditional cultural nature. While based on the archival research and oral consultations no specific traditional cultural activities were identified for the shoreline fronting the current study parcel (although fishing has most surely occurred, and there has been some reference to a significant cave with an off-shore entrance), strict adherence to shoreline setbacks will ensure that the proposed development of the parcel will not affect existing shoreline access or resources, and thus there will be no impact on any potential shoreline-related traditional practices.

However, there are several cultural resources (former residential, ceremonial, and burial sites) that have been documented (Haun and Henry 2004a) to exist within the boundary of the current study parcel. To mitigate potential impacts to these identified sites, data recovery (Haun et al. 2005) was conducted at several features of Site 24149 and that work was approved by DLNR-SHPD. DLNR-SHPD also approved preservation (Haun and Henry 2004b) and burial treatment (Haun and Associates 2005) plans for Sites 24148, Site 24149 Feature C, Site 24150, and Site 24155 that will be implemented prior to the commencement of any proposed development activities on the subject parcel. Temporary protection measures during construction will apply to sites/features located within 100 feet of the development area and include the placement of protective fencing marking the 20 foot permanent preservation buffers. No development activity will be allowed to take place within the permanent preservation buffers, and at the burial features additional long term protection will be assured by the construction of three feet high by two feet wide rock walls that will have a traditional appearance. The landowner is committed to allowing access to all of the cultural sites on the subject parcel for traditional and customary practices (with prior arrangement) to recognized cultural descendants of the area.

Execution of the specified mitigation measures will help to ensure that no cultural practices and beliefs or associated cultural resources will be adversely affected by the proposed development of a single-family residence on TMK:3-8-7-07:011. Also, in response to OHA and at the request of one of the cultural interviewees (Jimmy Medeiros), archaeological monitoring will be an integral part of the development approach. It is therefore concluded that this proposed development of a single-family residence will not have a significant cultural impact.

REFERENCES CITED

Alvarez, P.
1990 Land Use at Ka‘awaloa, Kealakekua Bay State Historical Park, South Kona, Island of Hawaii Island 1848–Present. Prepared for State of Hawaii, Department of Land and Natural Resources, Division of State Parks. Contract Number 24126.

Chinen, J.
1958 *The Great Mahele: Hawaii’s Land Division of 1848*. Honolulu: University of Hawaii Press.

1961 *Original Land Titles in Hawaii*. Honolulu: privately published.

Cordy, R.
2000 Exalted Sits the Chief. The Ancient History of Hawai‘i Island. Mutual Publishing: Honolulu, Hawai‘i.

Ellis, W.
1963 *Journal of William Ellis*. Honolulu: Advertiser Publishing Co., Ltd.

Elmore, M. and J. Kennedy
2004 An Archaeological Inventory Survey Report for TMK:8-7-10:9, Located in Kukuiopa‘e Ahupua‘a, South Kona District, Island of Hawai‘i. ACP, Haleiwa, Hawai‘i.

Fornander, A.
1973 *An Account of the Polynesian Race: Its Origin and Migrations.* Tokyo: Charles E. Tuttle Co., Inc.

Gregg, E., and J. Kennedy
2005 An Archaeological Data Recovery Plan for a Property Located TMK:8-7-10:9, in Kukuiopa‘e Ahupua‘a, South Kona District, Island of Hawai‘i. ACP, Haleiwa, Hawai‘i.

Hammatt H. and D. Shideler
2003 Archaeological Assessment of an Approximately 30-Acre Parcel at Ka‘ohe 5th Ahupua‘a, South Kona District, Hawai‘i (TMK: 3-8-7-008:003, 005 and 006). Cultural Surveys Hawai‘i.

Handy, E.S.C., and E.G. Handy
1972 *Native Planters in Old Hawaii: Their Life, Lore and Environment.* B.P. Bishop Museum Bulletin 223. Bishop Museum Press, Honolulu. (with M.K. Pukui)

Haun, A. and Associates
2005 Burial Treatment Plan for Site 24150 features A and B, Land of Pāhoehoe 1, South Kona District, Island of Hawaii (TMK: [3] 8-7-007:008). Haun & Associates, prepared for Mr. Peter Dungate.

Haun, A., and D. Henry
2004a Archaeological Inventory Survey (TMK: [3] 8-7-007:008), Land of Pāhoehoe 1, South Kona District, Island of Hawaii. Haun & Associates Report 320-010804 prepared for Mr. Peter Dungate.

2004b Archaeological Site Preservation Plan for Sites 21435-24140, 24143, 24144, 24147, 24147, 24148, and 24150-24155 Land of Pāhoehoe 1, South Kona District, Island of Hawaii (TMK: [3] 8-7-007:008). Haun & Associates, prepared for Mr. Peter Dungate.

Haun, A., J. Henry and D. Berrigan
2005 Archaeological Data Recovery, Site 24149, Land of Pāhoehoe 1, South Kona District, Island of Hawaii (TMK: [3] 8-7-007:008). Haun & Associates, prepared for Mr. Peter Dungate.

Head, J., P. Rosendahl, and S. Goodfellow
1993 Archaeological Inventory Survey, Ka‘ohe Subdivision, Lands of Ka‘ohe 3rd, 4th, and 5th, South Kona District, Island of Hawai‘i (TMK:3-8-7-08:Por.8). PHRI Interim Report 1375-060393. Prepared for Allen Construction Company.

I‘i, J.P.
1959 *Fragment of Hawaiian History*. Bishop Museum Special Publication 70. Bishop Museum Press, Honolulu.Jurvik, S. and J. Jurvik (editors).

Kamakau, S.
1992 [1961] *Ruling Chiefs of Hawaii*. The Kamehameha Schools Press, Honolulu (Revised Edition).

Kelly, M.
1983 *Na Mala O Kona*: Gardens of Kona. A History of Land Use in Kona, Hawai‘i. *Departmental Report Series* 83-2. Department of Anthropology, B.P. Bishop Museum, Honolulu. Prepared for the Department of Transportation, State of Hawaii.

Kent, N.
1983 *Hawaii: Islands Under the Influence*. University of Hawai‘i Press, Honolulu.

Kirch, P.
1985 *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory*. Honolulu: University of Hawaii Press.

2011 When did the Polynesians Settle Hawai‘i? A Review of 150 Years of Scholarly Inquiry and a Tentative Answer. *Hawaiian Archaeology* Vol. 12:3-26.

Lyons, C.
1875 Land Matters in Hawaii. *Islander*, Honolulu.

Maly, K., and O. Maly
2002 *Kīpāhoehoe Ma Kapalilua–Kona Hema, Hawai‘i*: A Cultural Study Of Kīpāhoehoe And Neighboring Lands In Kapalilua, South Kona, Island Of Hawai‘i. Kumu Pono Associates Report HiKohana 76b (063003). Prepared for Department of Land and Natural Resources–Natural Area Reserves.

2003 *He Wahi Mo‘olele No Nā Lawai‘a Ma Kapalilua, Kona Hema,Hawai‘i*: A Collection of Historical Accounts and Oral History Interviews with Elder Kama‘āina Fisher-People from the Kapalilua Region of South Kona, Island of Hawai‘i. Kumu Pono Associates Report HiPae74 Miloli‘i (100103). Prepared for The Nature Conservancy, Honolulu, Hawai‘i.

Major, M.
2001 *An Agricultural History of Kealakekua. In Gardens of Lono: Archaeological Investigations at Amy B. H. Greenwell Ethnobotanical Garden, Kealakekua, Hawai'i*. Edited by M. Allen, Bishop Museum Press, Honolulu.

Malo, D.
1951 *Hawaiian Antiquities*. B.P. Bishop Museum Special Publication 2. B.P. Bishop Museum Press, Honolulu (second edition Translated by N. Emerson).

McEldowney, H.
1979 Archaeological and Historical Literature Search and Research Design: Lava Flow Control Study. Hilo, Hawai'i. Department of Anthropology, B.P. Bishop Museum, MS: 050879, Honolulu. Prepared for U.S. Army Engineer Division, Pacific Ocean, Honolulu, Hawai'i.

Oliver, D.
1961 *The Pacific Islands*. University of Hawaii Press, Honolulu.

Sahlins, M.
1992 *Historical Ethnography*, Vol. 1 of *Anahulu, The Anthropology of History in the Kingdom of Hawai' i*, edited by P.V. Kirch and M. Sahlins. University of Chicago Press, Chicago.

Sato, H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr.
1973 *Soil Survey of the Island of Hawaii, State of Hawaii.* U.S. Department of Agriculture, Soil Conservation Service and University of Hawaii Agricultural Experiment Station. Washington, D.C.: Government Printing Office.

Sinoto, Y., and M. Kelly
1975 Archaeological and Historical Survey of Pakini-Nui and Pakini-Iki Coastal Sites, Waiahukini, Kailikii, and Hawea, Ka'u, Hawaii. *Departmental Report Series* 75-1. Department of Anthropology, B.P. Bishop Museum, Honolulu. (final report 1970)

State of Hawai'i Department of Land and Natural Resources Office of Conservation and Coastal Lands
2012 Draft Environmental Assessment Dungate Single-Family Residence in the Conservation District at Pāhoehoe. TMK (3rd): 8-7-007: 011 Pahoehoe 1st, South Kona, County of Hawai'i, State of Hawai'i. Prepared for Peter Dungate, Holualoa.

Rechtman, R.
2001 Archaeological and Cultural Due Diligence Study for a Portion of the Magoon Ranch (TMK:3-8-7-03:1; -05:2; -05:4; -07:1; -09:5; -09:11; -17:41), Maunaoui, Maku'u, 'Ala'ē, Hale'ili, Haukālua, Pāhoehoe, and Ka'ohe Ahupua'a, South Kona District, Island of Hawai'i. Rechtman Consulting Report RC-0087. Prepared for Lee Sichter, Belt Collins Hawai'i.

Rechtman, R., and K. Maly
2003 Cultural Impact Assessment for the Proposed Development of TMK:3-7-3-9:22, 'O'oma 2nd Ahupua'a, North Kona District, Island of Hawai'i, Volume I and II. Rechtman Consulting Report RC-0154. Prepared for Helber Hastert & Fee, Honolulu, Hawai'i.

Reinecke, J.
1930 Survey of Sites on West Hawaii. Unpublished manuscript, Department of Anthropology, B.P. Bishop Museum, Honolulu.

Rosendahl, P.
2000 Archaeological Assessment Survey, Magoon Estate South Kona Properties: Lands of Pāhoehoe 4th, Maunaoni 1st-6th, Maku‘u 1st-3rd. South Kona District, Island of Hawai‘i (TMK:3-8-7-01, 02, 03, 07, 07, 08:various parcels). PHRI Letter Report 2093-052800. Prepared for First American Long and Melone Title Company, Ltd., Honolulu, Hawai‘i.

2002a Archaeological Assessment Survey for Due Diligence, Magoon Estate South Kona Makai Properties, Lands of Pāhoehoe 1-4, Maunaoni-Maku‘u, Heleili-Haukalua 1, ‘Ala‘ē 1st-2nd, Pāhoehoe 1st-3rd, and Ka‘ohe 1-4. South Kona District, Island of Hawai‘i (TMK:3-8-7-03, 05, 07, 09:various parcels). PHRI Letter Report 2225-031402. Prepared for Tolmie Properties, Ltd. Hilo, Hawai‘i.

2002b Archaeological Assessment Survey, Kukuiopa‘e 1st Makai Parcel: Land of Kukuiopa‘e 1st, South Kona District, Island of Hawai‘i (TMK:3-8-7-11:5).PHRI Report 2285-1031102. Prepared for Mr. John Griffey.

2002c Archaeological Assessment Survey, Kukuiopa‘e 1st Mauka Parcel: Land of Kukuiopa‘e 1st, South Kona District, Island of Hawai‘i (TMK:3-8-7-10:9).PHRI Report 2268-112002. Prepared for Albert Management, Inc. Na‘alehu, Hawai‘i.

Soehren, L.
1980 Letter Report: Archaeological Reconnaissance on Parcels Identified by Tax Map Keys 8-7-19:38, 39, and 40. Situated at Ka‘ohe, South Kona, Hawai‘i. Prepared for Mr. Thomas E. Counter, Land Use Services, Kailua-Kona, Hawai‘i.

Tatar, E.
1982 Nineteenth Century Hawaiian Chant. *Pacific Anthropological Records* 33. Department of Anthropology, B.P. Bishop Museum, Honolulu.

University of Hawai‘i at Hilo, Dept. of Geography.
1998 *Atlas of Hawai‘i*. 3rd ed. University of Hawai‘i Press, Honolulu.

Walsh, P., R. Chiogioji, H. Ballard, J. Robins, and H. Hammatt
1994 Archaeological Inventory Survey of a 29.8 Acre Parcel at Kukuiopa‘e 2, South Kona, Island of Hawai‘i (TMK:8-7-10:11). Cultural Surveys Hawaii, Inc. Prepared for Mr. Stanley H. Roehrig.

Wilmshurst, J., Hunt, T., Lipo, C., and A. Anderson
2011 High-precision radiocarbon dating shows recent and rapid initial human colonization of East Polynesia. *Proceedings of the National Academy of Science* 108:1815–1820.

Wilkes, C.
1845 *Narrative of the United States Exploring Expedition During the Years 1838-1842, Under the Command of C. Wilkes, U.S.N.*, Volume 4. Philadelphia: Loa and Blanchard.

Wolfe E., and J. Morris.
1996 *Geologic Map of the Island of Hawai‘i.* Geologic Investigations Series Map 1-2524-A. U.S. Department of the Interior, U.S. Geological Survey.