State of Hawai‘i
DEPARTMENT OF LAND AND NATURAL RESOURCES
Honolulu, Hawai‘i 96813
March 27, 2026

Board of Land and Natural Resources
State of Hawai‘i
Honolulu, Hawai‘i

O‘AHU

Request that the Board of Land and Natural Resources (BLNR):

(1) Recognize the Department of Land and Natural Resources' (DLNR) management authority under HRS § 171-11 and Executive Order No. 4226 (set-aside to DLNR's Division of Aquatic Resources (DAR) for conservation and management purposes) for State lands at Wai‘anae-Kai, Wai‘anae, O‘ahu, Hawai‘i, TMK (1) 8-5-002:011; and

(2) Delegate to the Chairperson authority to implement temporary, phased access restrictions limited to the minimum extent and duration necessary to:
   a. Protect anchialine ponds and endemic aquatic species (e.g. ōpae ‘ula, anchialine snapping shrimp);
   b. Mitigate documented fire hazards and other safety risks associated with combustible debris and fuel loads;
   c. Conduct debris removal, cleanup, restoration, and resource monitoring, and install protective measures (e.g., fencing) around sensitive features; and
   d. Safeguard cultural sites and burials.
   (*The delegated authority is operational and time-limited, tied to the specific conditions listed above, and shall be exercised only to the minimum extent and duration necessary to accomplish the related management activity*)*;* and

(3) Determine that the requested actions will have little or no significant effect on the environment and are exempt from environmental review under Hawaii Revised Statutes (HRS) Chapter 343 and Hawaii Administrative Rules (HAR) Chapter 11-200.1, consistent with DLNR's exemption list (Operations/maintenance; debris removal; resources monitoring; hazardous condition mitigation; fencing of sensitive areas).

Pursuant to HRS § 92-5 (a) (4), BLNR may go into Executive Session to consult with its attorney on questions and issues pertaining to the Board's powers, duties, privileges, immunities and liabilities.

APPLICANT:
Division of Aquatic Resources (DAR)

LEGAL REFERENCES:
HRS § 171-11 (Set-asides) – DLNR/DAR duty to manage land consistent with the purpose of the set-aside

Executive Order No. 4226 – Set aside to DLNR/DAR for "conservation and management purposes."

LOCATION
Parcel of land situated at Waiʻanae-Kai, Waiʻanae, Oʻahu, Hawaiʻi, and identified as the "Waiʻanae Sinkhole Complex," TMK (1) 8-5-002:011, adjacent to the Waiʻanae Small Boat Harbor. See map, **Exhibit A**.

ZONING
State: Urban

County: P-2 General Preservation District

TRUST LAND STATUS
Section 5 (e) lands of the Hawaii Admission Act

DHHL 30% entitlement land pursuant to the Hawaii State Constitution: No.

CHARACTER OF USE
Set aside to DLNR/DAR under Executive Order No. 4226, for "conservation and management purposes."

DCCA Verification
N/A

BACKGROUND

A. Land Ownership and Set-Aside History

The 19.5-acre Waianae Sinkhole Complex (Complex) is located makai of Farrington Highway, between the Waiʻanae Small Boat Harbor and Waiʻanae High School. The State of Hawaiʻi is the owner of the land. In 1983, the parcel was set-aside to the City and County Department of Parks and Recreation via Executive Order No. 3177 for park development. In 2003, DAR Aquatic Biologists were informed of the presence of a sinkhole on the property. Upon investigation, DAR documented a water-filled anchialine pool,

approximately 5-6 feet in diameter, that contained thousands of *Halocaridina rubra* (ʻopae ʻula) and large numbers of *Metabetaeus lohena* (anchialine snapping shrimp).

Because management of the State's natural aquatic resources is the responsibility of DAR, a request was made to re-set aside the property to DLNR. In 2008, BLNR approved the re-set-aside. Executive Order No. 4226, attached as **Exhibit B**, confirms that this property was transferred to the DAR for conservation and management purposes.

The Complex is one of the few properties under DAR's direct management. This site contains several sensitive anchialine pools and documented cultural resources that require careful stewardship. Controlled access at certain times is necessary to allow DAR to conduct monitoring, restoration, hazard mitigation, and other management activities consistent with the purpose of the set-aside.

B. Cultural Resources

The subject site was assigned State Site No. 50-80-07-3967 in 1988 after staff had observed cultural sites on the property. Burials have also been documented on the property. The 2004 Archaeological Inventory prepared for the City and County of Honolulu is attached as **Exhibit C**.

C. Puʻuhonua o Waiʻanae – Collaborative Transition

Beginning in 2008, families began residing on the Complex, and the Puʻuhonua o Waiʻanae (POW) community developed as a self-governed village of houseless residents.

In 2020, Dynamic Community Solutions (DCS), a nonprofit organization affiliated with POW purchased a 20-acre parcel of land at 85-908 Waiʻanae Valley Road ("Mauka Village") to facilitate relocation of residents from the Complex. **Exhibit D** reflects the schedule provided at that time, which initially targeted Summer 2022.

Construction delays have extended that timeline. As of February 2026, approximately 62 people have relocated to the Mauka Village while approximately 106 people remain at the Complex. DLNR and community partners continue coordinating the relocation of the remaining residents.

DAR has maintained ongoing communications with POW/DCS to support an orderly transition, including letters and site meetings between March and November 2025, monthly status reports, and agreed sequencing for cleanup by sections of the site (see **Exhibits E-G**). A DLNR inspection conducted on November 28, 2025 confirmed nine structures had been removed in "Section 4" in accordance with agreed cleanup schedule. These communications reflect DAR's efforts to coordinate relocation and cleanup activities while continuing to manage and protect the natural and cultural resources at the site.

D. Documented Fire Hazards and Safety

Following two fires in April 2021, a fire inspection was conducted at the Complex on May 13, 2021. This inspection identified 14 violations. Subsequent inspections noted heavy fuel loads, including combustible materials (mattresses, carpets) requiring removal. These conditions present significant fire risk and complicate restoration and resource protection.

SITE-SPECIFIC NEED FOR TEMPORARY ACCESS RESTRICTIONS

Anchialine Pools and Endemic Species

Anchialine pools are ecologically unique because they are landlocked, brackish water pools fed by both groundwater and the ocean through subterranean lava cracks, creating highly variable salinity conditions that support specialized, endemic invertebrates (e.g. ʻōpae ʻula) and sensitive algal and microbial communities. Given their rarity on the dry leeward coast, these pools function as rare wetland oases that filter runoff, provide habitat for native shoreline vegetation and insects, and contribute to coastal water quality and ecosystem health. They are also important as culturally significant freshwater-access points historically used in traditional practices, and as sensitive indicator ecosystems whose degradation or loss would signal broader impacts to the Waiʻanae coastal aquifer and nearshore reef environments.

Routine human presence, debris accumulation, and other human disturbances can rapidly degrade water quality, substrate integrity, and species habitat. Controlled access is necessary at intervals to conduct monitoring, debris removal, restoration, and installation of protective measures (e.g., fencing) to prevent irreversible harm to these fragile ecosystems. These ecosystems are highly sensitive to disturbance and require controlled access during restoration and monitoring activities.

Cultural sites and Burials

Documented cultural resources and burials necessitate careful access management to avoid inadvertent disturbance during cleanup and restoration activities. Temporary restrictions allow coordination with cultural specialists and ensure work is sequenced and monitored in a culturally appropriate manner.

Fire Risk Mitigation and Safety

The presence of combustible debris and previously identified violations requires phased closures of work areas to safely remove fuel loads, reduce ignition risk, and protect workers and the public during cleanup and restoration operations.

Why Restrictions are Necessary Now:

These activities require defined work areas and controlled access during debris removal, restoration, and monitoring activities to ensure the safety of workers and the public and to prevent disturbance of sensitive ecological and cultural resources. Temporary, site-

specific access restrictions enable sequenced cleanup and restoration, protect sensitive resources during work windows, and reduce hazard exposure consistent with DAR's responsibility to manage the property for conservation and management purposes under Executive Order 4226.

ACCESS MANAGEMENT DURING TEMPORARY RESTRICTIONS (Standards for Delegated Authority)

If authorized, the Chair may implement temporary or phased access restrictions, limited to the minimum extent and duration necessary under the following circumstances:

1. Resource Protection Windows: To conduct anchialine pool monitoring, restoration, or installation of protective measures around sensitive features.
2. Safety/Hazard Mitigation: To perform debris removal, reduce fuel loads, and address documented fire hazards or other safety risks identified by inspections.
3. Cultural Resource Safeguards: To protect burials and cultural sites during supervised work or monitoring.
4. Work Zone Control: To maintain safe work areas for staff, contractors, and community partners during cleanup and restoration activities.

Additional parameters and safeguards include:

- Scope: Restrictions apply only to defined sections necessary for the activity.
- Duration: Limited to the minimum time needed to complete the activity.
- Allowances: Limited daytime access may be permitted for service delivery, supervised community work, or cultural practice consistent with resource protection.
- Re-opening: Sections will be re-opened promptly upon completion of the activity.

This delegation is not a broad policy to close public lands. Rather, it provides a targeted, site-specific management tool necessary to protect sensitive environmental and cultural resources and to ensure safe debris removal, restoration, and resource protection activities consistent with DAR's set-aside responsibilities.

ONGOING COMMUNITY COORDINATION AND ORDERLY TRANSITION

DAR, the DLNR Chair's Office, DOCARE, and the POW/DCS leadership continue to coordinate relocation timelines, cleanup sequencing by section, and service access to support residents' transition to the Mauka Village. The record includes correspondence, meetings, monthly reports, and inspection notes documenting communications with the community provided for residents to adjust and participate in cleanup work (**Exhibits E–G**). These efforts demonstrate ongoing coordination between DLNR and community partners while resource protection and restoration activities at the site proceed.

CHAPTER 343 – ENVIRONMENTAL ASSESSMENT

In accordance with HAR Sections 11-200.1.8 and the Exemption List for the Department of Land and Natural Resources approved by the Environmental Council and dated November 10, 2020,[1] the subject request is exempt from the preparation of Environmental Assessment pursuant to General Exemption Type 1, Part 1 titled "Operations, repairs or maintenance of existing structures, facilities, equipment or topographical features, involving minor expansion or minor change of use beyond that previously existing," and specifically Item 31, "Removal and disposal of rubbish and debris from lands and waters," and Item 35, "Law enforcement, regulation compliance, resources and environmental monitoring, debris or property removal, other administrative measures." The subject request could also be exempt under General Exemption Type 1, Part 2, Number 1: "Mitigation of any hazardous conditions that present imminent danger as determined by the Department Director and that are necessary to protect the public health, safety, welfare, or public trust resources." The subject request with regards to fencing is exempt under General Exemption Type 3, Part 1 under Item 16, "Construction of walls, fencing, or screens around buildings, structures, facilities, or equipment." See exemption notification at **pp 9-10.** These activities represent routine management actions necessary to maintain and protect the site's ecological and cultural resources consistent with the property's set-aside to DLNR/DAR for conservation and management purposes.

The proposed activities consist of site management and restoration measures intended to improve environmental conditions and protect sensitive resources. Potential environmental effects associated with the activities may include minor and temporary disturbance during debris removal, restoration work, or installation of protective fencing. However, these activities are limited in scope and duration and are intended to reduce existing environmental risks at the site.

The Complex contains anchialine pools that support native aquatic species, including ʻōpae ʻula and anchialine snapping shrimp, as well as documented cultural sites and burials. The proposed actions are specifically designed to protect these resources by removing combustible debris, reducing fire hazards, limiting disturbance during restoration activities, and installing protective measures around sensitive areas. Similar management activities, including debris removal and resource monitoring, are routinely conducted by DLNR as part of land management responsibilities. The proposed activities do not involve significant ground disturbance, new development, or expansion of land use beyond that previously occurring at the site.

[1] Exemption list for DLNR, approved on November 10, 2020. See Office of Environmental Quality Control (OEQC) website: https://files.hawaii.gov/dbedt/erp/EC_Meetings/2020-10-06-Revised-S-14-Exemption-List-for-the-Department-of-Land-and-Natural-Resources.pdf

Cumulative impacts are not anticipated because the activities consist of temporary operational measures associated with cleanup, restoration, and resource protection rather than new construction or development. The actions are expected to improve environmental conditions by reducing hazards and protecting fragile ecosystems and cultural resources.

DLNR divisions with expertise relevant to the proposed activities have been consulted in the development of this request. DAR has evaluated the proposed activities to ensure protection of anchialine pool ecosystems and associated native species. DOCARE has been consulted regarding safety considerations and enforcement needs associated with site management and debris removal activities. Coordination with other agencies and cultural resource specialists may occur as restoration and cleanup activities proceed to ensure that work is conducted in a manner consistent with applicable environmental and cultural resource protections.

Based on the analysis above, the proposed activities are limited operational measures necessary for resource protection, site management, and hazard mitigation. The activities will have minimal or no significant environmental effect and fall within the categories identified in DLNR's approved exemption list. Accordingly, staff recommends that the BLNR determine the proposed action is exempt from the preparation of an Environmental Assessment pursuant to HAR §11-200.1-8 and DLNR's exemption list.

RECOMMENDATION

1. That BLNR delegate authority to the Chairperson, pursuant to HRS § 171-11 and EO 4226, to implement temporary, phased access restrictions, limited to the minimum extent and duration necessary, within defined areas of State land at Waiʻanae-Kai, Waiʻanae, Oʻahu, Hawaiʻi identified as TMK (1) 8-5-002:011(Waiʻanae Sinkhole Complex) only as necessary to:

- Protect anchialine pools and endemic aquatic species;
- Mitigate documented fire hazards and other safety risks;
- Conduct debris removal, cleanup, restoration, monitoring, and install protective measures (e.g., fencing); and
- Safeguard cultural resources and burials

The Chairperson's exercise of this delegated authority shall be consistent with the information and analysis contained in this submittal and supporting exhibits.

2. Determine that the proposed action is exempt from the preparation of an environmental assessment under HRS Chapter 343 and HAR Chapter 11-200.1, as outlined in **Exhibit H**.

Respectfully Submitted,

Brian Neilson, Administrator
Division of Aquatic Resources

APPROVAL FOR SUBMITTAL:

Ryan K.P. Kanakaʻole
Acting Chairperson

EXEMPTION NOTIFICATION

Regarding the preparation of an environmental assessment pursuant to Chapter 343, HRS and Chapter 11-200.1-15, HAR.

Project Title:	Access Restrictions for TMK (1) 8-5-002:011.
Reference No.:	Not applicable.
Project Location:	Waianae, O'ahu, TMK (1) 8-5-002:011.
Project Description	Access restrictions for TMK (1) 8-5-002:011 for land management purposes
Chapter 343 Trigger(s)	Use of State Land
Exemption Class No.:	In accordance with Hawaii Administrative Rules (HAR)Section 11-200.1.8 , the subject request is exempt from the preparation of an environmental assessment pursuant to General Exemption Type No. 1, "Operations, repairs or maintenance of existing structures, facilities, equipment, or topographical features, involving negligible or no expansion or change beyond that previously existing," specifically, Item 31 "Removal and disposal of rubbish and debris from lands and waters," and Item 35 "Law enforcement, regulation compliance, resources and environmental monitoring, debris or property removal, other administrative measures," and General Exemption Type 3, Part 1 under Item 16, "Construction of walls, fencing, or screens around buildings, structures, facilities, or equipment."
Will the cumulative impact of planned successive actions in the same place be significant?	No, the access restrictions are temporary and intended to decrease the environmental impact on the anchialine pools at TMK [1] 8-5-002:011
Will the Action have a Significant Impact on a particularly Sensitive Environment?	No, the closure is intended to decrease existing impacts on the anchialine pools, which qualify as a "particularly sensitive environment."
Consulted Parties:	Pu'uhonua o Waiʻane, Dynamic Community Solutions, DAR Watershed Restoration Team

Analysis:	Requested access restrictions will have a beneficial effect as it will provide DLNR with better management authority over the property and its sensitive ecosystems.
Recommendation:	It is recommended that the Board find that this request will have minimal or no significant effect on the environment and is presumed to be exempt from the preparation of an environmental assessment.

EXHIBIT A –
PARCEL TAX MAP

Parcel Information and Map

Parcel Information Table

Parcel ID	85002011	
Parcel Address	85-471 Farrington Highway	
Acreage	19.5	
Class	Preservation	
Assessed Land Value	585,000	

EXHIBIT B –

EXECUTIVE ORDER O4226

JUNE 24, 2008

LAND COURT SYSTEM) REGULAR SYSTEM

Return by Mail ( ) Pickup ( ) To:

Total Number of Pages:

Tax Map Key No. (1)8-5-002:011

FROM: STATE OF HAWAII
BOARD OF LAND AND NATURAL RESOURCES

TO: STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

EXECUTIVE ORDER NO. 4226

SETTING ASIDE LAND FOR PUBLIC PURPOSES

BY THIS EXECUTIVE ORDER, I, the undersigned, Governor of the State of Hawaii, by virtue of the authority in me vested by Section 171-11, Hawaii Revised Statutes, and every other authority me hereunto enabling, do hereby order that the public land hereinafter described be, and the same is, hereby set aside for the following public purposes:

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

PRELIM. APPR'D.
Department of the
Attorney General

Exhibit D

MR
7.8.08

FOR CONSERVATION AND MANAGEMENT PURPOSES, to be under the control and management of the State of Hawaii, Department of Land and Natural Resources, Division of Aquatic Resources, being that parcel of land situate at Waianae-Kai, Waianae, Oahu, Hawaii, and identified as "Waianae Sinkhole Complex," containing an area of 19.5 acres, more or less, reserving to the State of Hawaii, its successor and assigns, Easement for Seepage Pond and Drain, and Portion of Slope Easement S-8 of Farrington Highway Widening, Lualualei Homestead Road to Jade Street, Project No. 93-B-01-75, more particularly described in Exhibit "A" and delineated on Exhibit "B," both of which are attached hereto and made parts hereof, said exhibits being respectively, a survey description and survey map prepared by the Survey Division, Department of Accounting and General Services, State of Hawaii, both being designated C.S.F. No. 24,607 and dated April 29, 2008.

SUBJECT, HOWEVER, to the condition that upon cancellation of this executive order or in the event of non-use or abandonment of the premises or any portion thereof for a continuous period of one (1) year, or for any reason whatsoever, the State of Hawaii, Department of Land and Natural Resources, Division of Aquatic Resources shall, within a reasonable time, restore the premises to a condition satisfactory and acceptable to the Department of Land and Natural Resources, State of Hawaii.

SUBJECT, FURTHER, to disapproval by the Legislature by two-thirds vote of either the Senate or the House of Representatives or by majority vote of both, in any regular or special session next following the date of this Executive Order.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Hawaii to be affixed. Done at the Capitol at Honolulu this 24th day of June, 2008.

Governor of the State of Hawaii

APPROVED AS TO FORM:

Deputy Attorney General

Dated: 6/4/08

PRELIM. APPR'D.
Department of the
Attorney General

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

Exhibit D

STATE OF HAWAII

Office of the Lieutenant Governor

THIS IS TO CERTIFY That the within is a true copy of Executive Order No. _____ setting aside land for public purposes, the original of which is on file in this office.

IN TESTIMONY WHEREOF, the Lieutenant Governor of the State of Hawaii, has hereunto subscribed his name and caused the Great Seal of the State to be affixed.

JUN 26 2008

DONE in Honolulu, this _____ day of

_____, A.D. 2008

PRELIM. APPR'D.
Department of the
Attorney General

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

Exhibit D

STATE OF HAWAII
SURVEY DIVISION
DEPT. OF ACCOUNTING AND GENERAL SERVICES
HONOLULU

C.S.F. No. 24,607

April 29, 2008

WAIANAE SINKHOLE COMPLEX

Waianae-Kai, Waianae, Oahu, Hawaii

Being a portion of the Government (Crown) Land of Waianae.

Comprising the following:

A. Portion of Tract 1, Parcel 2 and portion of Tract 7 of Waianae-Kai Military Reservation, Presidential Executive Order 8109 dated May 3, 1939 conveyed to the State of Hawaii by the United States of America by deed dated April 11, 1964 and recorded in Liber 4738, Page 178 (Land Office Deed S-20993).

B. Portion of the Railroad Right-of-Way in Waianae as described in Item 6 of Schedule A with Grant Deed of the Territory of Hawaii to Oahu Railway and Land Company dated April 29, 1903 and recorded in Liber 249, Pages 160-167 (Land Office Deed 939) and returned to the State of Hawaii by Oahu Railway and Land Company by deed dated September 11, 1961 and recorded in Liber 4135, Pages 239-240 (Land Office Deed S-18222).

PRELIM. APPR'D.
Department of the
Attorney General

EXHIBIT "A"
Exhibit D

C.S.F. No. 24,607

April 29, 2008

Beginning at the northeast corner of this parcel of land, the east corner of Waianae High School Site, Governor's Executive Order 2702 and on the southwest side of Farrington Highway, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PAHEEHEE NEW" being 3041.86 feet North and 9098.08 feet West, thence running by azimuths measured clockwise from True South:-

1.	307°	21'		459.16	feet along the southwest side of Farrington Highway;
2.	38°	27'	30"	874.99	feet along Part 1 of Waianae Boat Harbor, Governor's Executive Order 3178;
3.	105°	20'		400.00	feet along Part 1 of Waianae Boat Harbor, Governor's Executive Order 3178 to highwater mark at seashore;

Thence along highwater mark at seashore for the next seven (7) courses, the direct azimuths and distances between points along said highwater mark at seashore being:

4.	204°	40'		46.86	feet;
5.	112°	14'		129.24	feet;
6.	90°	30'		189.37	feet;
7.	108°	33'		238.79	feet;
8.	152°	46'		132.78	feet;
9.	189°	52'		224.21	feet;
10.	144°	19'		186.10	feet;

PRELIM. APPR'D.
Department of the
Attorney General

Exhibit D

11.	270°	00'	1060.00 feet along Waianae High School Site, Governor's Executive Order 2702;
12.	217°	21'	250.00 feet along Waianae High School Site, Governor's Executive Order 2702 to the point of beginning and containing an AREA OF 19.5 ACRES, MORE OR LESS.

RESERVING to the State of Hawaii, its successors and assigns, the following easements as shown on plan attached hereto and made a part hereof:

1. Easement for Seepage Pond and Drain.

2. Portion of Slope Easement S-8 of Farrington Highway Widening, Lualualei Homestead Road to Jade Street, Project No. 93B-01-75.

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

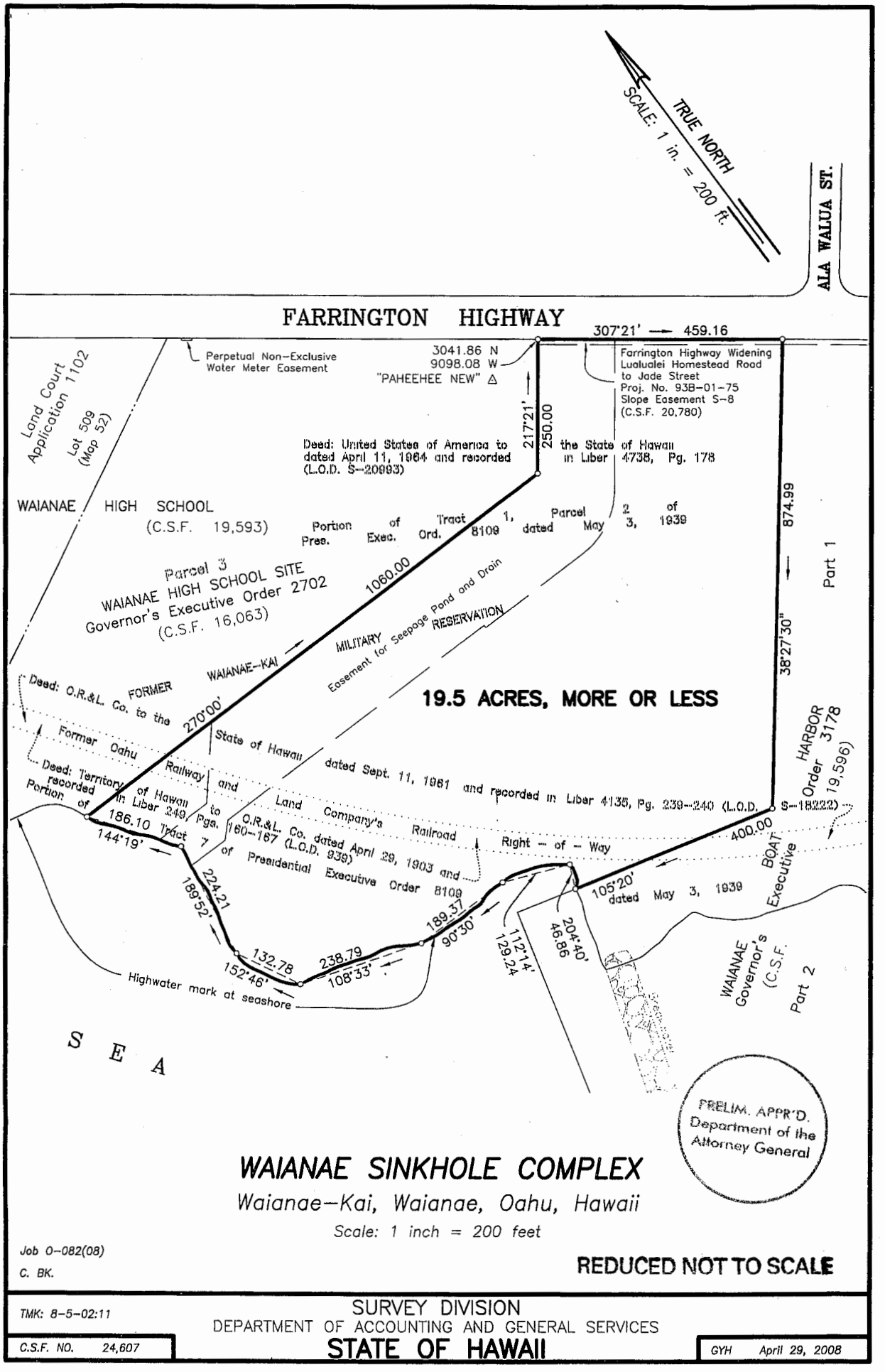
By: Glenn J. Kodani
Glenn J. Kodani
Land Surveyor

ml

Compiled from CSF 19594 and other Govt. Survey Records.

PRELIM. APPR'D.
Department of the Attorney General

Exhibit D



WAIANAE SINKHOLE COMPLEX

Waianae-Kai, Waianae, Oahu, Hawaii

Scale: 1 inch = 200 feet

Job 0-082(08)

C. BK.

REDUCED NOT TO SCALE

TMK: 8-5-02:11

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

C.S.F. NO. 24,607

GYH April 29, 2008

EXHIBIT "B" Exhibit D

Final Report
Archaeological Inventory Survey
For the Proposed Wai`anae Regional Park,
Wai`anae Kai Ahupua`a, Oahu, Hawaii (TMK: 8-5-02:11)

By
Stephan D. Clark, B.S.
Dennis Gosser, M.A.
and
Richard Nees, B.A.

Prepared for:
City and County of Honolulu
Department of Design and Construction
Facilities Design and Engineering, Planning Branch

Prepared by
Pacific Consulting Services Incorporated
720 Iwilei Road, Suite 424
Honolulu, Hawai'i 96817

July 2004

ABSTRACT

Between 19 August and 28 August, 2002 and 30 April and 1 May 1, 2003 an Inventory Survey with subsurface test excavations was conducted on the proposed Wai`anae Regional Park parcel (TMK:8-5-02:11). Much of the project area surface has been badly disturbed by historic grading for the railroad as well as recent grading and dumping. Three of five previously recorded sites were re-evaluated and subsumed under the State number 50-80-07-3967, which was assigned to the project area in 1992 after Hurricane Iniki exposed a human interment in the southwest corner of the parcel. Two previously recorded sites have been destroyed, while four previously unrecorded features were located.

A systematic shovel testing program identified two subsurface cultural deposits and areas of intact dune deposits along the coast. Testing on the coastal flats, in inland features, and in selected sinkholes provided evidence that the area was likely used periodically for fishing and possibly small-scale agricultural endeavors.

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INTRODUCTION

At the request of the City and County of Honolulu, Department of Design and Construction (CCH, DDC), AMEC Earth and Environmental (AMEC), and it's subcontractor Pacific Consulting Services Inc. (PCSI), conducted an archaeological inventory survey and developed a burial treatment plan (BTP) for the proposed Wai`anae Regional Park parcel (TMK:8-5-02:11) in Wai`anae Kai Ahupua`a, Wai`anae District. The project included a program of systematic field survey, shovel testing, and test excavations. The inventory survey was conducted over two weeks between 19 August and 28 August, 2002. Two additional days were spent in the field on 30 April and 1 May 1, 2003.

The field crew for the project consisted of Richard Nees, Constance O'Hare, Laura Gilda, and Steve Clark. Dennis Gosser (M.A.) served as Principal Investigator. The inventory survey was conducted in accordance with requirements outlined by the State Historic Preservation Division (SHPD), Department of Land and Natural Resources (DLNR), and the Hawaii Revised Statutes (Chapter 13). Mary Riford and Constance O'Hare conducted the laboratory analysis.

PROJECT AREA

The 19.5-acre project area is located in Wai`anae on the leeward coast of O`ahu, northwest of Pōka`ī Bay. The project area borders Wai`anae High School on the north, Wai`anae Boat Harbor on the south, Farrington Highway on the east, and the Pacific Ocean on the west (Figures 1, 2, and 3).

Geology and Topography

The leeward coastal plain of O`ahu is an ancient fringing coral reef that formed during higher stands of the sea, primarily during the plus-25 foot Waimanalo Stand, and emerged during later eustatic subsidence, from approximately 26,000 to 36,000 years ago (MacDonald and Abbott 1970) to as recent as 4,000 to 5,000 years ago (Pollack 1928). The emerged reef, known as karst topography, has an irregular surface that has eroded and fissured over time to form large pockets, depressions, and hollows, some of which have collapsed to form sinkholes. Portions of the Wai`anae project area are underlain by this fossil fringing reef.

The coralline bedrock along the shoreline of the project area tilts down slightly from the southeast to the northwest; exposed sinkholes, depressions, and coralline rubble are more common in the southeast, while the bedrock is buried under dune sand and terrigenous sediments in the northwest. Elevations in the project area range from sea level on the coast to approximately 3-4 m above sea level at Farrington Highway. A modern drainage channel within the project area abuts the boundary on the north, and most of the project area inland of the beach has been disturbed by bulldozing, grading, and construction fill. Several dirt roads cross the project area.

Figure 1. Location of Project Area on U.S.G.S. Waianae Quadrangle Map (1983)

Figure 2. View of Project Area Looking North to Wai`anae High School and Kamaile`una Ridge.

Figure 3. View of Project Area Looking Southeast towards Wai`anae Boat Jetty.

Soils

Foote et al. (1972:29 and Plate 36) categorizes the project area as Coral Outcrop consisting of coral or cemented calcareous sand. Part of the Lualualei-Fill land-Ewa association, the soil is classified as:

> deep, nearly level to moderately sloping, well-drained soils that have a fine or moderately fine textured subsoil or underlying material, and areas of fill land; on coastal plains (Foote et al. 1972:6).

The project area contains moderately shallow Ewa Series silty clay loam and imported fill on 0 to 3 percent slopes. Additionally, there are significant calcareous beach sand deposits along the coast above the surf zone. The sand deposit fringes the beach frontage above the surf zone and expands inland in the northwest corner. The sands continue northwest along the coast at least to the Makaha Surfside Apartments (north of Wai`anae High School) and may extend *mauka* to Farrington Highway (Cordy 2002). It is likely that these sands were once dune fields before historic construction in the area. Portions of the current project area include filled land, presumably associated with railroad and military construction (see Background and Results sections below).

Climate

The Wai`anae coast is a hot and dry plain supporting a semi-arid landscape in the rain shadow of the Wai`anae Range. Between October and April, the Kona trade winds come from the southwest, sometimes bringing strong storms and generating the majority of the annual rainfall, which ranges between 0.5 to 5.0 inches per year. Temperatures on the coast range from highs of 80 to 90 degrees Fahrenheit in August to lows between 60 and 70 degrees Fahrenheit in January (Armstrong 1983:62-65).

Flora

Bulldozing, grading, and periodic fires have badly disturbed the project area. Because of this, *kiawe* (*Prosopis pallida*) and various low grasses dominate the landscape. Other identified plants on the interior flats, mostly growing on imported fill, include klu (*Acacia farnesiana*) and *koa haole* (*Leucaena leucocephala*). Coastal vegetation such as *naupaka kahakai* (*Scaevola sericea*) and sea heliotrope (*Messerschmidia sp.*) grows sporadically along the low coastal bluffs (Wagner et al. 1990). Additionally, students from the Honolulu Community Action Program at Wai`anae High School have cultivated native species in the northwest portion of the project area.

Fauna

Few terrestrial animals were observed in the project area; several mongoose (*Herpestes auropunctatus*), were noted (Tomich 1986). Non-native bird species including zebra doves (*Geopelia striata*), common myna birds (*Acridotheres tristis*), and red-crested cardinals (*Paroaria coronata*) are ubiquitous along the coast (Munro 1982).

Two native shrimp species—the native, red, brackish water shrimp *`opae ula* (*Halocaridina rubra*) and *Metabetaeus lohena*—were observed in two of the sinkholes in the seaward portions of the project area. These wet sinkholes contain brackish water, the level of which fluctuates with the ocean tides. The salinity of the water in one of the wet sinks was 20 parts per thousand (based on salinity tests conducted on October 15, 2003 by Mr. Mike N. Yamamoto, Division of Aquatic Resources, Department of Land and Natural Resources).

Marine Environment

The offshore marine environment in the project area was an important resource for pre-Contact and post-Contact inhabitants of the region. Three ecotones—the supralittoral, the eulittoral, and the sublittoral zones—support unique marine resources along the leeward coast (Kay 1979:6-12). Archaeological sites in coastal areas typically include the shell remains of species common to the supralittoral and eulittoral such as *pipipi* (*Nerita picea*), *leho* (Cypraeidae), *opihi* (*Cellana exarata*), as well as urchin (*Echinometra* spp. and *Heterocentrotus* spp.) and fish remains (predominately Scaridae, Labridae, Acanthuridae, Monocanthidae, and Tetradontidaeremaine).

Hydrology

There are no known freshwater sources within the project area. Kaupuni Stream drains into Pōka`ī Bay approximately 500 m south of the project area. To the northeast, at the base of Kamaile`una Ridge, Keko`o spring fed a large swamp cultivated in *kalo* into historic times (Cordy 2002:1).

BACKGROUND RESEARCH

This section provides various components of research on background information, including historic background information (including the early post-Contact and sugar eras, Land Commission Awards (LCA), previous archaeological studies, and information from public consultation.

HISTORICAL BACKGROUND

The legendary, late pre-Contact, and post-Contact history of Wai`anae has been discussed in detail by several authors (Cordy 2002; Flood et al. 1994; Krauss et al. 1973; Schilz et al. 1994). To summarize, northern Wai`anae District was densely populated during the late pre-Contact and early post-Contact periods. However, following the introduction of infectious diseases and early post-Contact economic changes, the population was decimated from an estimated 4,000 to 6,000 at contact to approximately 500 people living in coastal Wai`anae by 1870 (Flood et al. 1994; Krauss et al. 1973:29).

Flood et al. (1994) and Cordy (2001) provide specific background concerning the coastal portions of Wai`anae Ahupua`a, including the project area. This information is summarized below.

Pōka`ī Bay was named after a chief from "Kahiki" who is said to have planted the coconut grove along the banks of Kaupuni (Wai'anae) Stream (Thrum in Sterling and Summers, 1978). Captain George Vancouver first described the area in March 1793. Vancouver was on his second exploration voyage to Hawaii for the British government at the time. He writes:

> Not far from the S.W. point [Kaneilio Point] is a small grove of shabby cocoanut trees, and along those shores are a few straggling fishermen's huts. Nearly in the middle of this side of the island is the only village we had seen westward from Opooroah [Pu'uloa at the entrance to Pearl Harbor]. In its neighborhood the bases of the mountains retire further from the sea-shore, and a narrow valley, presenting a fertile cultivated aspect, seemed to separate, and wind some distance through the hills. The shore here forms a small sandy bay. On its southern side, between the two high rocky precipices, in a grove of cocoanut and other trees, is situated the village. [Vancouver 1984:217].

Wai'anae, Early Post-Contact, 1820-1840

Following the conquest of O'ahu Island by King Kamehameha I, High Chief Boki (Kamauleule), a younger brother of Kalanimoku (governor of Maui), and a nephew of Kamehameha I's favorite wife, Ka'ahumanu, was appointed governor of O'ahu. Later, when the lands on O'ahu were redistributed among the chiefs, Boki was granted two *ahupua'a*, Wai'anae and Halawa. He appointed a minor chief, Aua, as the chief of Wai'anae, and Kaapuiki as the overseer (*konohiki)*. (Foreign Testimony 1850-1855; 9:301).

Several events during the Early Post-Contact period had impacts on the area around Pōka'ī Bay. Among them were the sandalwood trade between 1818 and 1828; the persecution of the Catholic Missionaries and native Catholics between 1827 and 1839; and the adoption of the "5th commandment" prohibiting distillation and sales of liquors after 1829. However, there is no direct evidence that these events involved the project area. Pierce (1965), Corney (1896), and Reynolds (1989) provide detailed discussions of the sandalwood trade, while Yzendoorn (1927) and Kuykendall (1938) discuss the Catholic Mission and alcohol production, respectively.

Wai'anae, 1845-1917

Later impacts to Pōka'ī Bay included the native acquisition of fee simple lands in 1847/1843, the establishment of sugar cane fields and the Wai`anae Sugar Company mill at Wai'anae in 1880, and military occupation of the area during World War II.

Land Claim Awards 1845-1862

Under the 2nd Organic Act, natives were given tenure over pieces of land. In 1845, a Board of Land Commissioners, appointed by the Hawaiian Government, began taking applications and testimonies from native tenants for Land Claim Awards (LCA) for the lands. Lands were divided between the government, the royalty, and the native tenants by a law known as the Mahele. In the division of lands, the *ali'i* and the government received

approximately 1,500,000 unimproved acres each; the king approximately 1,000,000 unimproved acres; and the tenants slightly less than 30,000 improved acres (Kuykendall 1938:269-299). There were no Land Commission Awards present in the subject parcel (Figure 4).

Wai`anae Sugar Plantation, 1880

Honolulu Judge, Hermann A. Wideman established the Wai`anae Sugar Company in 1879, and it was chartered on October 2, 1880 (Department of the Interior 1880; 13:283). Initially, Judge Wideman secured water by drilling, and secured lands for the proposed sugar cane plantation through estate auctions, private land purchases in 1878 and 1879, and from the Bishop Estate in 1879.

Auction purchases included the estate of Debora Haakulou (R.P. 4874.1) sold in 1878, and ten acres (R.P. 4874.1) sold in 1879 by the guardian of Kalehua (Bureau of Land Conveyances 1878:54.364-65; 1879:60.98-99). LCA 877 *apana* 2 (exclusive of *apana* 1, site of the Roman Catholic mission) was deeded to Wideman from Kalehua (deeded from Keana in 1872) on December 17, 1879 (Bureau of Land Conveyances 1879:61.441-442). *Apana* 2, Kahua, Halekula of Pahoa, Waiʻanae-Kai was obtained from C.R. Bishop, President of the Board of Education, for $1.00 on September 1, 1879 (Bureau of Land Conveyances 1979:63.57-58).

The Bishop Estate lands included Lupoko Fishpond (LCA 7713). On January 1, 1881, Wideman deeded the "houses, buildings, improvements, mills, steam engine, railroad fixtures, and machinery" to the Waiʻanae company (Bureau of Land Conveyances 1853-1922; 69.131-133).

Wai`anae Plantation manager, Julius L. Richarson built the first plantation manager's house on the site of Kahoalii Heiau (McAllister's site 156). In 1910, a Wai`anae Sugar Company plantation manager, Mr. Meyer, built a house on the site of 'Haua' Heiau (Krauss et al. 1973: 38-39, 93). Some of the stones of the *heiau* had been removed in 1870 for fence building. The remaining stones were used by Richardson to enclose the premises of the plantation manager's house (McAllister 1933:114).

There was a small Chinese community with private sugar cane fields in Waiʻanae before the introduction of the Wai`anae Plantation. In addition to that community, technicians and about 60 Chinese laborers were brought in for the Wai`anae Sugar Plantation (Krauss et al. 1973:38, 41). The 1880/1881 Hawaiian Directory lists Wai`anae Sugar Plantation as employing about 150 men and having 250 acres of 6,132 acres under cultivation (Browser 1880:409).

During the 1880s, the Wai`anae Sugar Plantation built a sugar mill, expanded cultivated cane fields, installed flumes, constructed housing and warehouses, and built an internal railroad. The Oahu Railroad was extended from Honolulu to Waiʻanae in 1895, and a saloon established by Maritaro Yamasaki was built on the corner of Government and Plantation Roads, across from the railroad depot, in 1896 (Krauss et al. 1973:62). Hawai'i directories list the "Wai`anae Saloon" in business from 1904/05 through 1917 (Husted 1904/1904-1910; Polk-Husted 1911-1917). A railroad track used to pass through the project area (see Figure 4).

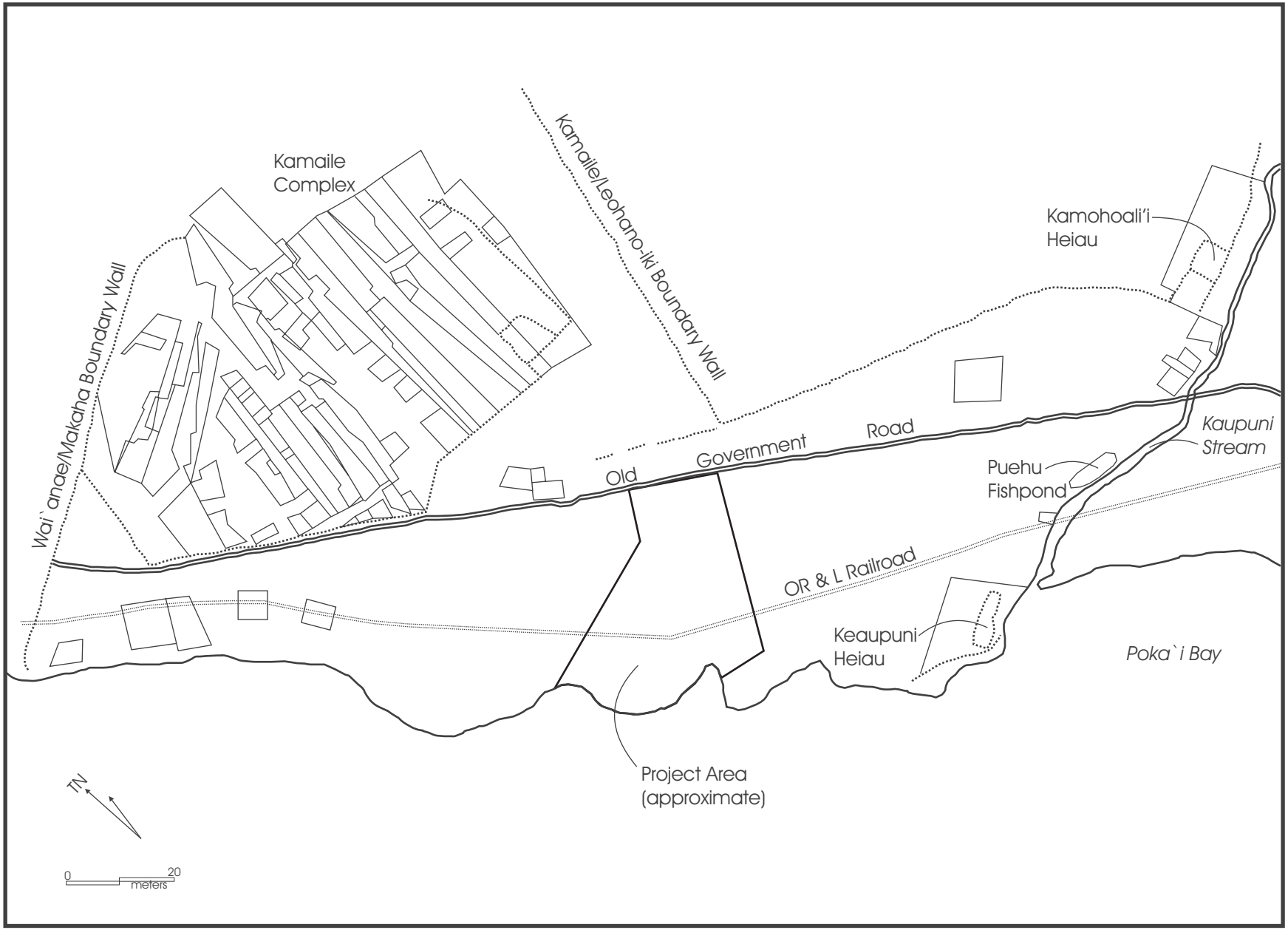

Figure 4. Historical Map Showing the Kamaile Complex (showing LCA boundaries) and other Historic Properties as Depicted on Monsarrat's 1878 and 1902 Maps, and Jackson's 1884 Map (after Flood et al. 1994, Figure 6).

Modern Development of Wai'anae

Albert Dung, a resident of Wai'anae shortly after the turn of the century recalled that:

> We all attended the Wai'anae School that was located next to the Catholic church on the Old Government Road…The business area of Wai`anae – and actually this was the town – was located on the Old Government Road. Business like the Wai`anae Plantation Office were there. At one end of the plantation building was the post office. There were also the Lau Tang Store, the A.K. Chong Store and the Tamura Store…the railroad depot was a Pola'i Bay [Wai'anae Coast Culture and Arts Society 1986:16-17].

> "…In Wai`anae, we did our shopping at Hong Tong's, Yamashita's, Yamasaki's, A.K. Chong's and the Tamura stores. We bought our poi from the Alena poi factory, a Chinese-owned factory here in Wai`anae (Helen Hoopuiainaokakina Kulolia Meyers in Wai`anae Coast Culture and Arts Society 1986:122).

Twenty-three taro planters are listed in the Wai'anae District in 1900 (Polk-Husted 1900:774); none are listed between 1917 and 1923, and Coy Ling is listed in 1924 (Polk-Husted 1924:744). No fishermen are listed for the Wai'anae District in 1900. Under ancient Hawaiian fishing rights, rights were owned by the king and extended from the high water mark seaward for a marine league (Department of the Interior, Privy Council, 1850). Under the 1839 "Bill of Rights," "…only owners of rights and their tenants are entitled to fishing in the goruns, and the owner (*konohiki*) is entitled to all tabued fish" (Honolulu Advertiser 1923:12). Unless judicated Hawaiian fishing rights ceased on June 14, 1903 (Bowers 1905:759). In 1923, the territorial government is listed as owner of the unjudicated coastal fishing rights off of Wai'anae *ahupua'a* (Honolulu Advertiser 1923:12). The first Wai'anae commercial fisherman, T. Ono, is listed in 1921 and 1922 (Polk-Husted 1921:1407; 1922:1459). Other Wai'anae commercial fishermen were: Asada Rina listed from 1922-1926; Asada Yoshitada 1927-1940; S. Yamasaki 1925-1927 (Polk-Husted 1922:1459; 1923:1499; 1924:740; 1925:763; 1926:785; 1927:767; 1929/30:819; 1931:836; 1935/40:879), and Maso Asada in 1947 (Polk-Husted 1947:1182).

Pōka'ī Bay beachfront (TMK 8-5-13: Plat 1) was declared a military reserve by Executive Order 8109 on November 13, 1930.

> …after December 7, 1941, we couldn't go to the beach like before. The military had strung out barbed wire coils and angle irons all along the beach [Charles Hanohano in Wai'anae Coast Culture and Arts Society 1986:34].

The onset of World War II established the coast of Wai'anae and Pōka'ī Bay as a United States military practice range. The Japanese Language School in Pōka'ī Bay was converted by the military for the U.S.O. Recreation Center. Wai`anae Sugar Company, dependant upon Oahu Railroad services, did not recover after the impacts of World War II. Both the plantation and the railroad were discontinued in 1947. Wai`anae Sugar Company

lands were purchased by Chin Ho, a residential land developer in 1947 (Krauss et al. 1973:84, 102, 136-137, 140, 148).

PREVIOUS ARCHAEOLOGY

Archaeological research in Wai`anae District is nearly a century old (Thrum 1907). Early archaeology in Wai`anae mostly focused on large sites of social importance, such as *heiau* (McAllister 1933). Since the 1960s, archaeological studies have expanded to include the systematic identification of all cultural resources within project areas. The Bishop Museum's Makaha Valley project (Green 1980) introduced settlement pattern archaeology on the Wai`anae coast and still provides archaeologists with data pertinent to regional archaeological research.

At least six *heiau* or ceremonial sites have been recorded within Wai`anae Ahupua`a near the project area (McAllister 1933). Keaupuni Heiau (Site 155; reported as destroyed) was located south of the project area on the north bank of Keaupuni Stream where it enters Pōka`ī Bay. Upstream (approximately 1000 m) from Keaupuni Heiau, Kahoali`i Heiau was also located on the north bank in Leohano-iki *`ili* (Site 156, reported as destroyed).

Further south, Kū`īlioloa Heiau on Kāne`īlio Point (Site 153) is partially restored. During restoration, a carbon sample was collected and dated to 1110±50 years old (uncorrected), or approximately AD 850 (Riford 1984). However, volcanic glass hydration rind dating yielded a date in the sixteenth century (Tao 1979). Pu`upahe`ehe`e Heiau (Site 152) was located east of Kū`īlioloa on Pu`upahe`ehe`e ridge. McAllister (1933:112), referencing Thrum (1907), notes that Pu`upahe`ehe`e may have been a *luakini* class *heiau*.

North of the project area, Kamaile Heiau (Site 161) is located on Kamaile ridge (Hommon 1978) above the pre-Contact/early post-Contact village of the same name (Cordy 2001, 2002). McAllister (1933:114) discusses another destroyed *heiau* (Kāneikapualena Heiau, Site 160) southeast of Kamaile Heiau, *mauka* of the current project area. Little is known about this *heiau* except that the chief Kawelo stopped there to offer a sacrifice.

Flood et al. (1994) details previous archaeological projects in Wai`anae Kai up to 1992; other recent work in Wai`anae includes large projects inland at Wai`anae Ranch (Cordy et al. 2001), Lualualei (Dixon et al. 2002; Haun et al. 1991), and Nānākuli Valley (Cordy 1993; Pak and Cordy 1990). Smaller projects pertinent to the current study include Flood et al.'s (1994) inventory survey approximately 700 m east of the project area (across Farrington Highway), multiple projects at the Wai`anae Army Recreation Center on the coast, south of Kaupuni Stream (Hammatt et al. 1985; Riford 1984, Schilz et al. 1994; Streck 1986), and multiple projects or inspections at the Makaha Surfside Apartments, on the coast northwest of Wai`anae High School (Cordy 2002; Kawachi 1992) (Figure 5).

The study by Flood et al. (1994) was conducted in a nearby area (TMK: 8-5-28: Por. 42) containing karst topography similar to the Wai`anae Regional Park parcel. Their study documented surface archaeological features including modified and unmodified sinkholes. While no dates were obtained from traditional features, the survey and testing indicated that Hawaiian use of the karst environment included habitation and cultivation. Evidence of cultivation included relatively rock-free soil layers in sinkholes that contain charcoal flecking and small quantities of marine shell. Paleontological remains of birds were present in layers pre-dating Hawaiian occupation. Post-Contact use associated with ranching and military activities was also documented.

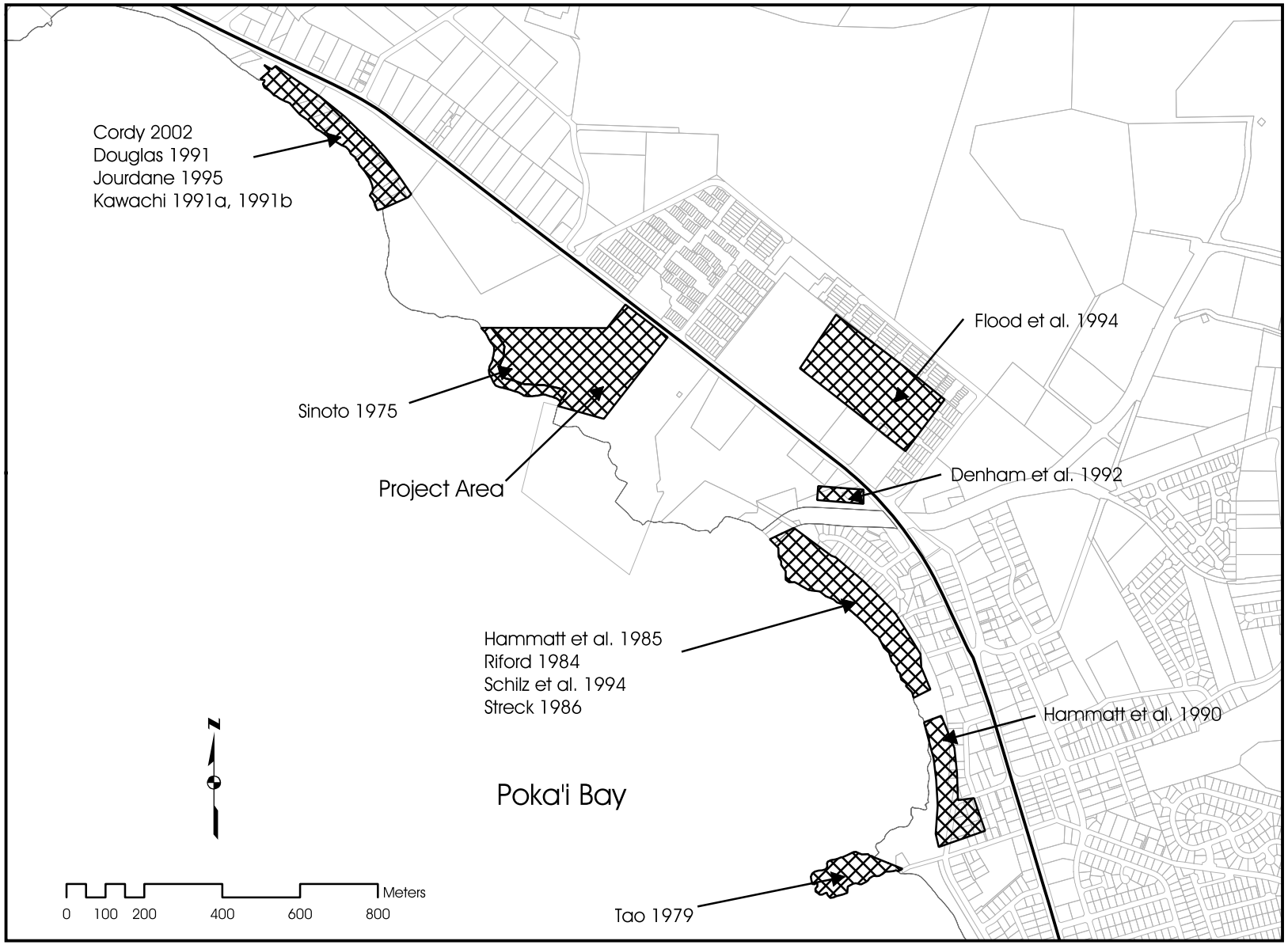

Figure 5. Previous Coastal Archaeological Projects Located Near the Project Area.

Davis' (1995) landmark archaeological and paleontological study in the karst topography of Barber's Point should be mentioned briefly here because of the similar environment to the Wai`anae Regional Park parcel. Based on radiocarbon dates, Davis suggests that pre-Contact Hawaiians began to explore the karst topography in the Barber's Point region between A.D. 600-1000 (Davis 1995:454). By A.D. 1400-1600, Hawaiians were utilizing the sinkholes in this harsh environment for habitation as well as cultivation activities (Ibid).

Sinoto (1975) conducted a reconnaissance survey of the current project area, and recorded five archaeological sites, including two enclosures, two L-shaped walls and a linear wall (Table 1). In Table 1, the first column lists the site number. The second and third columns provide site type and function. The fourth column provides information based on the current survey.

Table 1. Archaeological Sites Recorded by Sinoto in Wai`anae Regional Park Parcel.

Site Number	Site Type	Function	Current Observations
4822	Enclosure	Animal pen	Observed during this project
4823	L-shape	Unknown	Not observed during this project; probably destroyed by recent bulldozing activities
4824	Wall	Unknown	Not observed during this project; probably destroyed by recent bulldozing activities
4825	Enclosure	Unknown	Partially destroyed by bulldozer, observed during this project
4826	L-shape	Unknown	Observed during this project

In the early 1990s, State Historic Preservation archaeologists made several visits to the Wai`anae Regional Park parcel to investigate a human burial eroding out of beach sand in the southwest corner of the project area (Kawachi 1992). The remains were identified as a primary burial in the flexed position, two-thirds complete; the interred was likely an adult female based upon the gracile appearance, fused epiphyses, and a premolar. The in situ remains were left in place and covered with sand and stones.

Kawachi's 1992 letter report states that Wai`anae Regional Park was given a State site number (50-80-07-3967) in 1988 after sites were observed by the SHPD staff, who were invited out to the park by Mr. Sol Naone. The letter does not mention the five site numbers already reported by Sinoto (1975).

Kawachi (1992:2) reported that Mr. Naone had adopted the Wai`anae Regional Park parcel through the City and County's Park and Recreation Department, and that students had built enclosing walls around some of the sinkholes, had cleared most of the park's underbrush, planted gardens, and built a road.

Wai`anae resident Mr. Glen Kila informed Ms. Kawachi in a September 18, 1992 phone conversation that the park area was a known burial ground of the Kamaile complex (Kawachi 1992:2). Mr. Kila's father told him of the burials although he (Mr. Kila) had not

seen them himself. Mr. Kila also told Ms. Kawachi that he knows the families that have members buried in the sinkholes.

LAND USE SUMMARY AND FIELD EXPECTATIONS

The pre-Contact settlement pattern in Wai`anae is characterized by a relatively sparse initial permanent occupation of the coast between AD 1200 and 1400 (possibly as early as AD 850; Hammatt et al. 1985; also see Riford 1984), and population growth and expansion into inland areas between AD 1400 and 1650. Permanent habitations, temporary habitations, and evidence of dryland agriculture are common in the valley interiors, as are ceremonial and burial sites (Cordy et al. 2002; Dixon et al. 2002).

On the coast, human burials have been recovered from dune areas in multiple areas in Wai`anae Ahupua`a. In addition, there is evidence of occupation (e.g., exposed shell midden and artifacts) not associated with surface features (Cordy 2002; Riford 1984). Directly behind the coast, a complex mix of dense occupation (Kamaile village to the north, Wai`anae village to the south of the project area), *kalo* fields (*lo`i*), and fishponds existed during late pre-Contact times. Expedient use of more barren landscapes such as karst topographies (exposed coralline bedrock), possibly for temporary shelter or horticulture, is also indicated in the area directly behind the beach (Denham et al. 1992; Flood et al. 1994).

Based on previous archaeology in the project area as well as the region, it is expected that additional human burials, as well as subsurface cultural deposits, may be present in the dune area fronting the shoreline. It is also anticipated that minimal surface features will be encountered (Sinoto 1975). In addition, it is expected that modified and unmodified sinkholes on the property may contain evidence of pre-Contact habitation and/or cultivation.

PUBLIC CONSULTATION

Because the parcel is slated for future use as a City and County regional park, and has the potential to contain Native Hawaiian burials, public consultation was warranted for the inventory survey of the parcel. AMEC staff members Mr. Steve Clark (Manager, Cultural Resources Unit) and Mr. Andrew Tomlinson (GIS Specialist) gave a brief presentation regarding the archaeological inventory survey of the proposed Wai`anae Regional Park parcel to a meeting of the Department of Parks and Recreation Committee of the Wai`anae Neighborhood Board.

Based on recommendations from the City and County, Department of Parks and Recreation, and from the State Historic Preservation Division (SHPD), the following residents of the Wai`anae area were contacted: Ms. Neddie G. Waiamau-Nunuha, Mr. Sol Naone, Mr. William Aila, Mr. Alika Silva, and Mr. Glen Kila. Relevant information regarding the consultations is summarized below.

Ms. Neddie G. Waiamau- Nunuha, a teacher at the Honolulu Community Action Program located adjacent to the park and south of the Wai`anae Boat Harbor, indicated to us that she remembered playing in this area, but didn't provide information about the land use history of the parcel. She has developed her own plan regarding park use, and several of her students participated in the inventory survey for a day.

Mr. Sol Naone, a Wai`anae resident for over 40 years, agreed to meet with us on September 6, 2002, to share his knowledge of the project area. He also discussed several places of cultural interest along the Wai`anae coast, including Pōkaī, Mākua, and Kamaile. Confirming Kawachi's (1992) information, Mr. Naone informed us that during the late 1980s to the early 1990s, he ran the Adopt-a Park program and began cleaning the Wai`anae Regional Park parcel, to beautify and make it safer for community use. During this period, and with the use of a small bulldozer, he improved access by building at least one dirt road. He also cleared vegetation, built walls around a number of sinkholes and *kiawe* trees in the vicinity of the wet sink (with *`opae ula*) and lined the new road with low coral walls. Many of the existing walls in the seaward portion of the park were built under his guidance.

In late August 2002, PCSI archaeologists were informed by Dr. Ross Cordy of SHPD that Mr. Glen Kila and Mr. Alika Silva knew about burials in sinkholes in the project area, and were asked to meet with them before testing the sinks. On September 14th, Mr. Steve Clark met with Mr. Silva, his mother, two other family members, Mr. Glen Kila, and Ms. Kahaulani Nunuha, and was informed that they represented four interrelated families from the Wai`anae community. Mr. Clark asked if he could record the meeting. He was asked not to record the meeting and honored this request.

During this meeting, Mr. Kila and Mr. Silva were asked if they had any information regarding burials in sinkholes in the park parcel and they indicated that they knew where burials were located. Mr. Kila also recounted a story he had heard of members of a Philippine religious sect removing the patellae (knee cap bones) from various burials in the park in the 1940s (their removal related to the religious practices of this particular sect). Reportedly, the patellae were returned by the sect and re-interred by the Silva and Kila *`ohana*. Both Mr. Silva and Mr. Kila indicated that the project area served as the burial grounds for nearby Kamaile Village.

After a short walk within the park, including walking among many of the sinkholes, Mr. Kila remarked that this area, where he used to come to play, fish, and get together with his family, had changed drastically in twenty years. Consultation with the Silva and Kila *`ohana* continued from September 2002 to August 2003 and did not provide direct evidence regarding the location of human burials in sinkholes in the parcel (Letter to SHPD, February 2003a; Letter to SHPD, April 2003).

METHODS AND PROCEDURES

There were three components of the current fieldwork: pedestrian survey, shovel testing, and test excavations. The methodologies employed for each are discussed below, and have been detailed in a Work Plan for the inventory survey (Gosser 2002a and 2002b; Letter to SHPD February 2003b).

PEDESTRIAN SURVEY

Two crewmembers, spaced 10 m apart, conducted a 100% pedestrian survey of the project area. In general, transect lines were walked in a *mauka-makai* orientation. Visibility was good throughout the project area. In some areas near dirt roads, large trash mounds

were present; these areas were avoided because of potential health hazards. Although evidence of large scale bulldozing was visible throughout the parcel, there are intact portions of the original karst landscape.

When discovered, archaeological sites were marked with blue and pink flagging tape and located on a field map using permanent and topographic landmarks; Global Positioning System (GPS) readings were taken if satellite coverage was available. Once located, site data were recorded on standard forms. Information included site size, site type, shape and methods of construction of features, and the presence or absence of surface material. Scale plan view maps were drawn and included feature locations and architectural information if necessary. Sinkholes recorded were either located by GPS or tied into sinkholes with GPS points.

SHOVEL TEST PROBES

Based on indirect evidence suggesting that subsurface archaeological deposits were likely to be present in the dune areas within the parcel, a systematic shovel-testing program was developed to map the subsurface extent of the dune sand deposits along the shoreline, and to document the stratigraphy, including subsurface archaeological deposits.

To conduct the shovel testing, a cardinal grid was established over the western portion of the project area. Shovel test probes (STP) were then excavated along the north-south centerlines at 10-30 m intervals, depending on the results of each test. From the centerline, tests were conducted in a similar fashion along east-west lines. This methodology continued until a reasonable horizontal and vertical subsurface map was constructed.

At each STP location, probes ranging from 0.5 by 0.5 meters (m) to 1.0 by 1.0 m were excavated; the objective was to continue each probe to the coralline bedrock. The STPs were excavated with picks and shovels, and, at times, a sand auger. Material removed from STPs was passed through 1/8"-mesh screen and qualitatively noted, but not quantified. Only selected, diagnostic items were collected from the STPs excavation. For STPs in dune sand areas, where the unconsolidated nature of the sand layers caused sediment slumping after reaching depths ranging from 50-60 centimeters below surface (cmbs), a sand auger was used to excavate down to the surface of underlying coralline bedrock. Soil profile information (color, texture, content, top and base measurements for each layer, and boundary information where visible) was collected for each STP; the extent of sediment slumping and small size of the auger precluded profile drawing in the STPs. Profiles were reconstructed with depth measurements.

Detailed descriptions of soil/sediment layers were prepared for the initial STPs until a working stratigraphic sequence could be developed. Once the working stratigraphic sequence was established, soil descriptions were completed only if a new soil/sediment layer (or lens) was identified. Roman numerals (I-IV), with and without alphabetic sub-designations (e.g., Ia, Ib, II) are generally used to designate sediment/soil layers. These indicate the relative position of the layers within the stratigraphic sequence (Layer I deposits being the uppermost layer).

TEST UNITS

In addition to shovel testing, controlled test units (TU) were excavated within archaeological sites, in selected areas where cultural materials were recorded during the shovel testing, and in selected sinkholes. Excavation unit sizes varied between 0.5 by 0.5 m and 1.0 by 1.0 m. Units were excavated by natural stratigraphic layers and arbitrary 10 centimeter (cm) levels if layers were thicker than 10 cm. Excavations were terminated at bedrock or when non-cultural strata were reached.

Materials from each unit were passed through 1/4- and 1/8-inch screens. Cultural material (including midden) was bagged by provenience and material and returned to the laboratory for analysis. An inventory of field bags for test units and STPs was maintained in the field.

For each test unit, a set of excavation records were completed and included descriptions of the materials found in each layer as well as layer descriptions and a stratigraphic profile drawing of at least one excavation wall. Photographs were taken when appropriate.

LABORATORY METHODS

Analyses of midden and artifact materials were conducted at the AMEC Archaeology Laboratory in Honolulu. Marine invertebrate remains were cleaned, sorted, and weighed. Using Kay (1979) and reference collections to aid in identification, these materials were identified to genus and species levels where possible.

All artifacts, except fragile shell and bone items, were cleaned prior to analysis and cataloging. All collected items were recorded and entered into a database. Historical artifacts were counted and sorted into material categories (metal, glass, plastic, rubber, ceramic, and bone) and briefly analyzed.

Wood charcoal samples were collected for radiocarbon dating, but none of the samples had a secure enough context to date.

All field notes, photographs, maps, and drawings are filed under project 3-2509-0000 and stored in the offices of PCSI, Honolulu. The material collection is temporarily curated at the PCSI Archaeology Laboratory in Honolulu.

RESULTS

This section presents the results of the field survey, and excavations of shovel probes and controlled test units at Wai`anae Regional Park. It also presents laboratory analysis of recovered cultural materials (artifacts and faunal remains) from the excavations. The survey findings are discussed first, and include individual site descriptions. The results of laboratory analyses and artifact identifications from each test unit are presented in "Faunal Analysis" and "Artifacts" sections. Interpretation of these results, as they pertain to the project's research questions, is presented in section titled "Discussion."

Because Wai`anae Regional Park has been assigned an archaeological site number (Site 50-80-07-3967) within the State numbering system (Kawachi 1992), a decision was

recently made to use this site number, and assign feature numbers to any surface and subsurface cultural resources found (or relocated) during the survey. Thus 50-80-07-3967 (Site 3967) will be the site designation for all archaeological features inventoried for Wai`anae Regional Park, including the human burial recorded by Kawachi (1992) and the three surviving surface archaeological sites recorded by Sinoto (1975).

SURVEY RESULTS

At initial stages of the pedestrian survey of the Wai`anae Regional Park parcel, it was observed that much of the ground surface had been leveled, probably with the use of heavy machinery (e.g. a bulldozer). This is based on the presence of scattered pushed piles of dirt and vegetation debris, numerous dirt roads, and on the presence of several large machinery scars on limestone outcrops. Areas along the shoreline are flattened and contain chunks of concrete and asphalt. The wide variety of discarded trash (piles of wood, abandoned cars, rubber tires, welding tanks, and other miscellaneous discarded glass, metal, plastic, and wooden items) attest to the recent use of this parcel for dumping trash.

Numerous walls were present in the bulldozed areas, especially on the south side of the parcel near the coast. Many of these walls were low (one to two courses of angular limestone cobbles and boulders) and built around *kiawe* trees, along the edges of the dirt roads in this vicinity, and around sinkholes. It has been determined that these were constructed during Mr. Sol Naone's tenure with the Adopt-a-Park program in the 1980s and early 1990s (see Public Consultation section).

The only area of remaining relatively intact landscape in the parcel is a centrally located karst environment that contains numerous sinkholes of various sizes and a relatively dense *kiawe* (*Algaroba*) forest.

FEATURE DESCRIPTIONS

Eight archaeological features (Features 1-8) were recorded for Site 50-80-07-3967 on the Wai`anae Regional Park parcel. Figure 6 shows the location of these features. Table 2 presents a list of these features, and includes two features that were not relocated. In Table 2, the first column shows the current site/feature number. The second column provides Sinoto's (1975) previous site numbers. The third and fourth columns provide feature type and function, respectively. The fifth column provides location and other information.

As shown in Table 2, three of the five structures recorded by Sinoto (1975 -Sites 4822, 4825, and 4826) are still present; two of the structures documented by Sinoto (Sites 4823 and 4824) appear to have been destroyed by bulldozing. Sites 4825 and 4826 (now Features 3 and 4, respectively) appear to be unchanged based on Sinoto's (1975) descriptions. One additional feature was recorded at Sinoto's Site 4822 (now Feature 2). Three sinkholes were given feature designations (Features 6, 7, and 8) after fieldwork was completed. Detailed site descriptions for the eight features of Site 3967 are presented below. For the previously recorded sites found by Sinoto (1975), his observations as well as current data are provided.

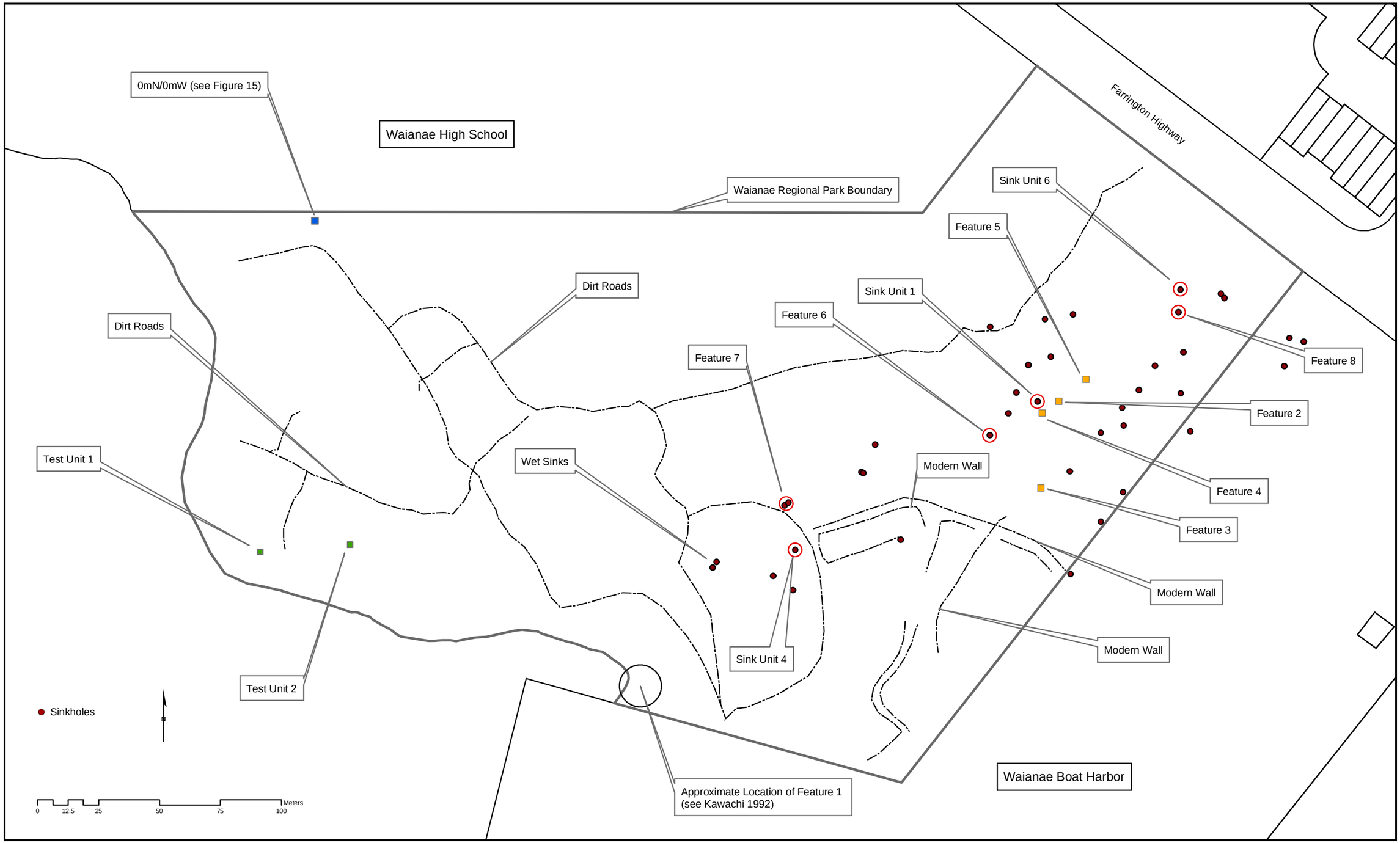

Figure 6. Project Area Showing Sink Holes, Features, and Excavation Locations.

Table 2. Archaeological Features at Site 50-80-07-3967, Wai`anae Regional Park.

Current Site/Feature Number	Previous Site Numbers	Feature Type	Function	Comments
3967-1	3967	Pit	Burial	Exposed during Hurricane Iniki (Kawachi 1992); not precisely relocated but general area is known from SHPD map
3967-2	4822*	Enclosure	Temporary habitation	Relocated during this project; tested (TU-3)
3967-3	4825*	Enclosure remnant	Temporary habitation	Relocated but partially destroyed by bulldozer
3967-4	4826*	L-shape	Temporary habitation	Relocated during this project
3967-5	None	Modified Sinkhole	Garden area	Walled sinkhole initially recorded during current survey
3967-6	None	Sinkhole	Garden area	Initially recorded during current survey; tested (SU-2)
3967-7	None	Sinkhole	Garden area	Initially recorded during current survey; tested (SU-3)
3967-8	None	Sinkhole	Garden area	Initially recorded during current survey; tested (SU-5)
	4823*	L-shape	Unknown	Not relocated; probably destroyed by recent bulldozing activities
	4824*	Wall	Unknown	Not relocated; probably destroyed by recent bulldozing activities

* Previously recorded by Sinoto (1975).

STATE SITE 50-80-07-3967, FEATURE 1

Previous Site Number: 3967	**Dimensions:** Not available
Morphological Type: Pit Feature	**GPS:** None
Function: Human burial	**Condition:** Fair
Temporal Affiliation: Pre-Contact	**Vegetation:** None

Feature 1 is a human burial that was exposed during Hurricane Iniki in 1992. According to an SHPD memorandum (Kawachi 1992), the area where the burial was found exhibited uplifted coral bedrock and a thick (approximately 80.0 cm) sand layer. The burial was positioned at the southwestern edge (seaside) of the park parcel. The buried skeletal remains were in a flexed position, and measured approximately 55 cm long. They were found approximately 60 cmbs. Kawachi indicated that the feature was a primary burial, and was mostly intact. Dark-stained sand was visible underlying the skeletal remains.

These in situ remains were covered again and left in place; no markers were left. The SHPD map showing the location of this burial places it approximately 25 m inland from the sea wall at the adjacent Wai`anae Small Boat Harbor (Figure 7).

STATE SITE 50-80-07-3967, FEATURE 2

Previous Site Numbers: 50-80-07-4822; Temporary Site T-02	**Dimensions:** Approx. 13.3 m by 9.8 m
Morphological Type: Enclosure	**GPS:** 20 m west of Feature 1
Function: Temporary habitation	**Condition:** Fair
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*, *`ilima*, banyan, palm tree, and short grasses

Feature 2 was previously recorded by Sinoto in 1975 as an enclosure situated in a *kiawe* forest "about 300 to 400 ft seaward of Farrington Highway, at the NW portion of the survey area" (Sinoto 1975:2). During the current survey, it was noted that the enclosure is roughly rectangular to oblong in shape (Figure 8). The area within the enclosure appears to be a shallow topographical depression or sinkhole. The enclosure wall, built around the edge of this lower-elevated area, is constructed of coralline cobbles and boulders with evidence of stacking (two to three courses) along the north side.

The enclosure interior is about 1.0 m lower than the surrounding landscape. The wall, built around the edge of the depression, is constructed of limestone cobbles and boulders with evidence of stacking (two to three courses) along the north side.

STATE SITE 50-80-07-3967, FEATURE 3

Previous Site Numbers: 50-80-07-4825; Temporary Site T-03	**Dimensions:** 8.0 m by 3.5 m
Morphological Type: Enclosure	**GPS:** South of feature
Function: Temporary habitation	**Condition:** Poor
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*, *`ilima*, banyan, and short grasses

Feature 3 is an enclosure remnant previously recorded by Sinoto (1975:2) as "a partially destroyed enclosure located near site B, at the fringe of the bulldozed clearing. It appears to have been a rectangular enclosure or a Box C-shaped structure, but half has been bulldozed so that its original form is beyond definition."

What remains of this site is an L-shaped wall, 8.0 m long by 3.5 m wide, constructed of multiple-stacked coralline cobbles and boulders (Figure 9). The walls are in fair condition

Figure 7. Southwest Corner of Project Area Showing General Location of Feature 1 Burial (View to South).

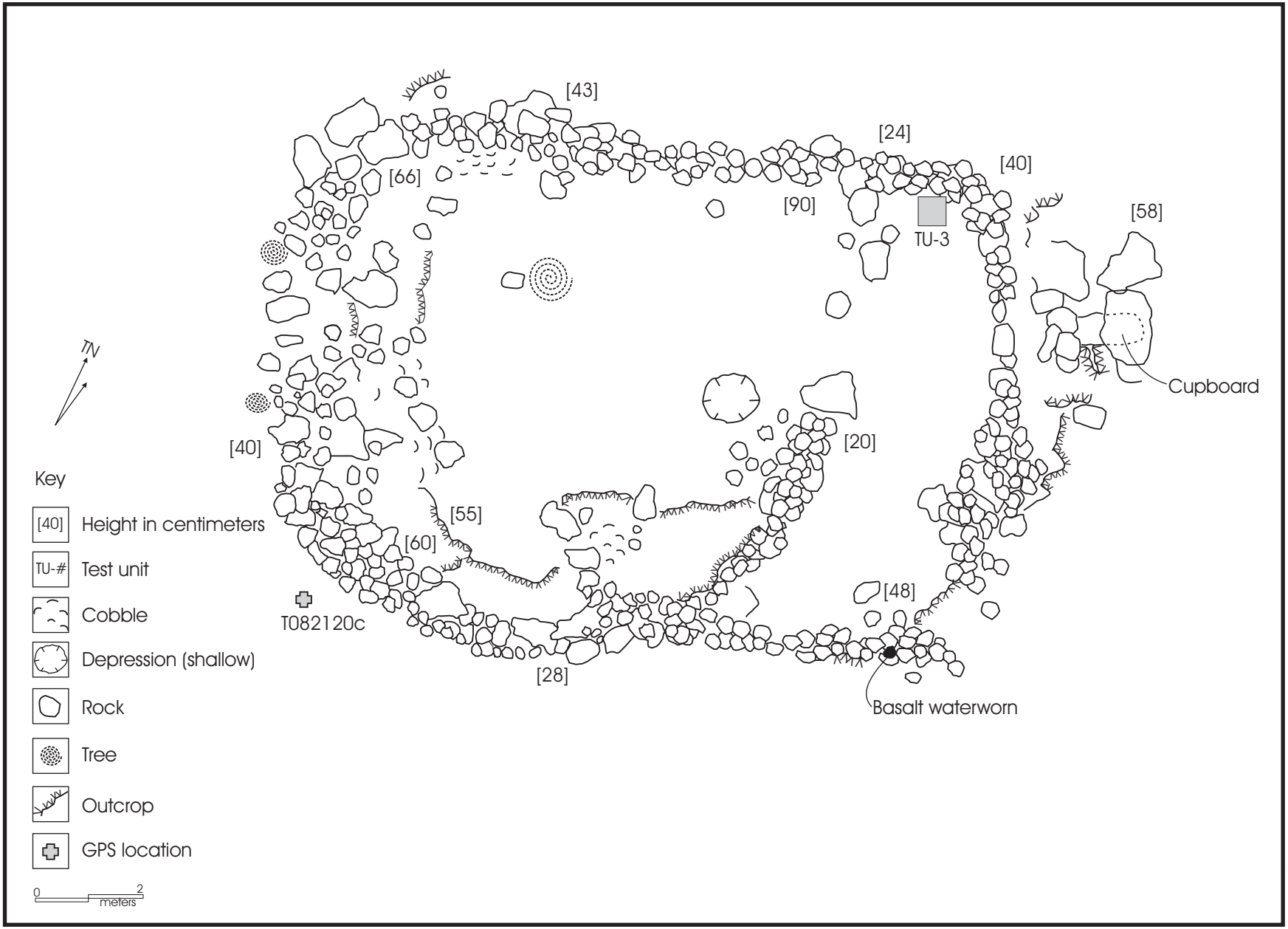

Figure 8. Feature 2 Plan View Showing Location of TU-3.

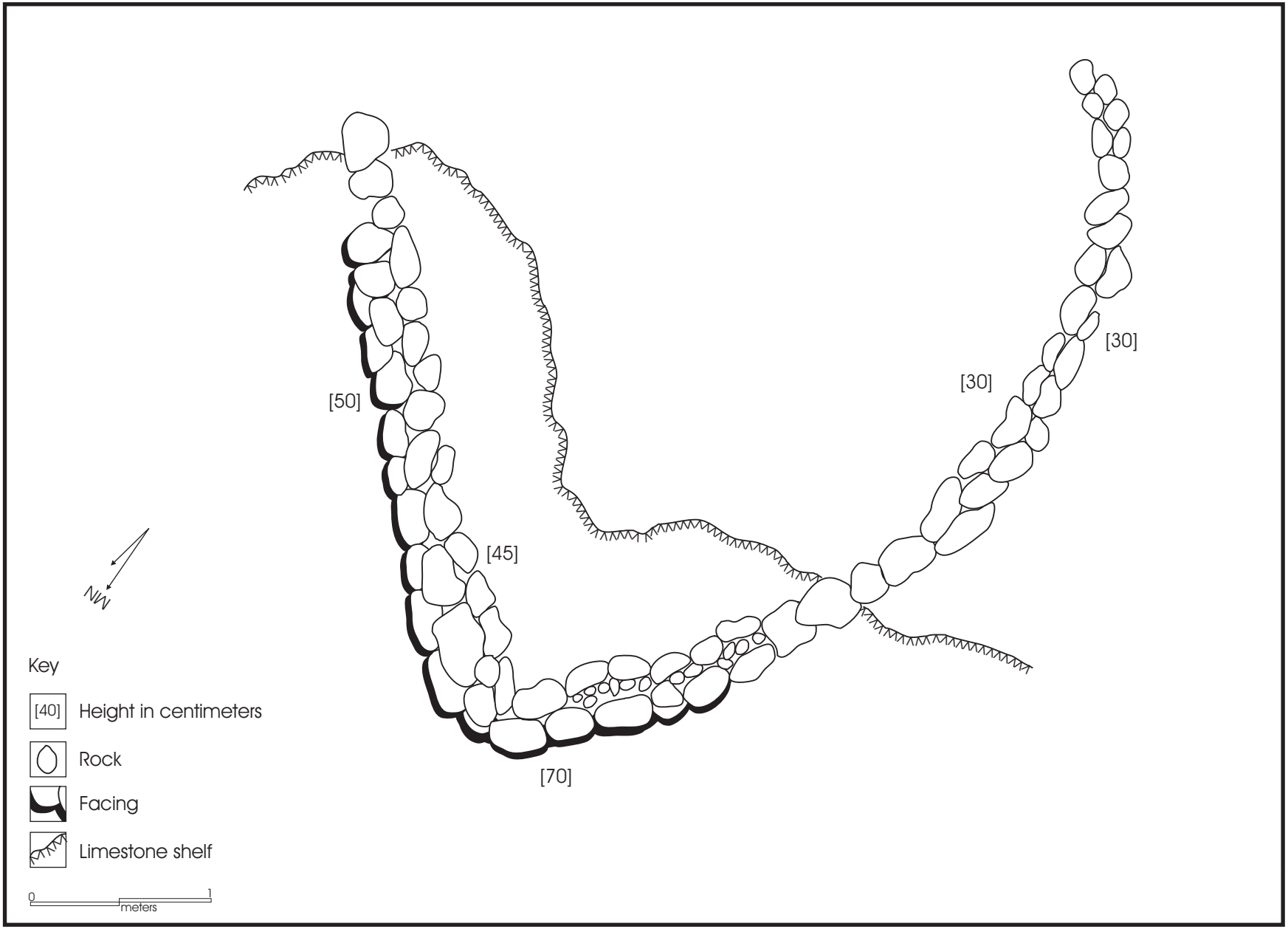

Figure 9. Feature 3 Plan View.

(tumbled is several locations), and measure approximately 0.7 m in width and from 0.5 to 0.8 m in height. Bulldozer push and garbage piles are present south of the site.

STATE SITE 50-80-07-3967, FEATURE 4

Previous Site Number: 50-80-07-4826; Temporary Site T-01	**Dimensions:** 3.0 m by 2.5 m
Morphological Type: L-shaped wall	**GPS:** 1.0 m west of feature
Function: Temporary habitation	**Condition:** Fair
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*, *`ilima*, banyan, and short grasses

Feature 4, an L-shaped wall, was previously recorded by Sinoto in 1975 as a temporary shelter situated in a *kiawe* forest approximately 300 m northeast of the shoreline (Figure 10). It is constructed of stacked limestone boulders and cobbles and opens to the southwest; the long axis of the wall is aligned approximately 260 degrees (magnetic north). The wall ranges between 0.5 and 0.8 m high and 0.7 m thick.

Historic debris is scattered in and around the site and includes plywood with "WEST SIDE" painted on it, wood posts, plastic water bottles, pieces of canvas, remnants of a metal chair, and a rock with "USO" painted on it.

Two unmodified sinkholes are located less than 3.0 m to the west and south. The west sinkhole contains cut *kiawe* branches that restrict access into the sink while the other sinkhole is rock-filled with recent trash thrown on top.

STATE SITE 50-80-07-3967, FEATURE 5

Previous Site Numbers: None	**Dimensions:** 4.6 m by 1.6 m
Morphological Type: Modified sinkhole	**GPS:** 1.0 m west of sinkhole
Function: Possible garden area	**Condition:** Fair
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*, *`ilima*, banyan, palm tree, and short grasses

Feature 5 is a sinkhole with a wall constructed around the top edge that forms an enclosure (Figure 11). The wall, measuring 1.0 m in interior height, consists of piled limestone rock on the west, north and east sides. On the south, the wall incorporates portions of the limestone outcrop. Historic trash, including Pepsi and Coke cans, plastic, paper, and a rubber tire, litters the interior of the sinkhole.

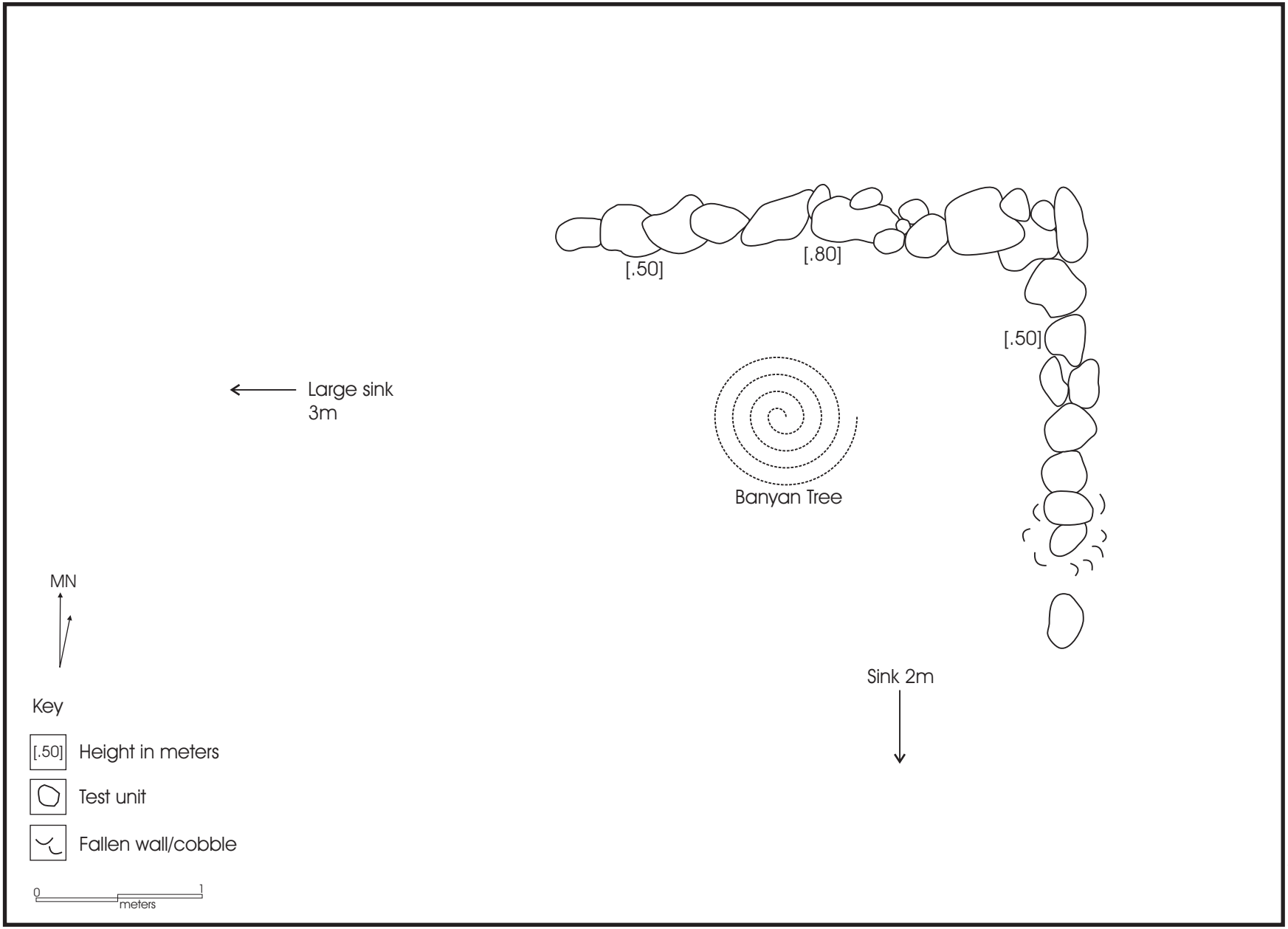

Figure 10. Feature 4 Plan View.

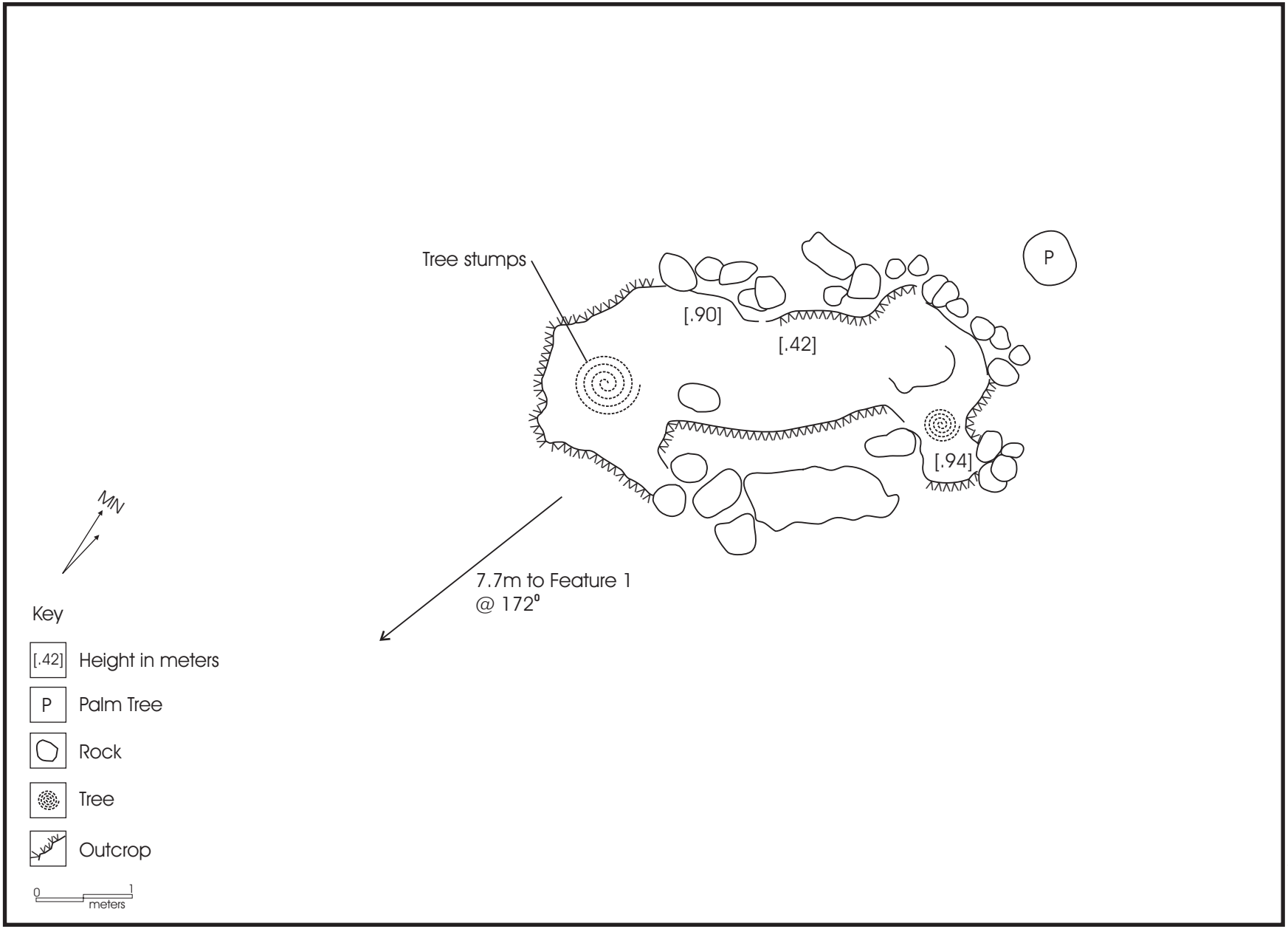

Figure 11. Feature 5 Plan View.

STATE SITE 50-80-07-3967, FEATURE 6

Previous Site Number: None	**Dimensions:** 4.2 m by 3.0 m
Morphological Type: Sinkhole	**GPS:** None (tied into Feature 4)
Function: Garden area	**Condition:** Fair
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*

Feature 6 is an oval-shaped, unmodified sinkhole located approximately 30.0 m south of Feature 4 (Figure 12). This sinkhole is relatively shallow (0.25 to 0.42 m), and is oriented approximately north-south. The interior floor contains some areas of visible soil deposits in the central and south portions, and angular limestone cobbles and boulders on the north. Several pieces of milled lumber are in the sink. This sink was tested (SU-2) during the survey.

STATE SITE 50-80-07-3967, FEATURE 7

Previous Site Number: None	**Dimensions:** 3.4 m by 2.6 m
Morphological Type: Modified sinkhole	**GPS:** On feature
Function: Garden area	**Condition:** Fair
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*, *`ilima*, banyan, and short grasses

Feature 7 is an irregular-shaped modified sinkhole located approximately 150 m from the coast (Figure 13). The sink has three, medium to large, coralline boulders situated along the interior north side, and a possible step constructed between two of the limestone boulders. The long axis of this sinkhole is oriented approximately east/west, and the depth ranges from 0.70 to 1.0 m. The possible step consists of two adjacent limestone cobble slabs. The space between these slabs is filled with small cobbles. A level soil floor is present on the south and east sides of the sink. These interior soil deposits were tested during the survey (SU-3).

STATE SITE 50-80-07-3967, FEATURE 8

Previous Site Number: None	**Dimensions:** 2.0 m by 1.0 m (maximum)
Morphological Type: Sinkhole	**GPS:** None
Function: Garden area	**Condition:** Good
Temporal Affiliation: Unknown	**Vegetation:** *Kiawe* forest with some *koa haole*, *`ilima*, banyan, and short grasses

Feature 8 is an unmodified sinkhole located approximately 75 m from Farrington Hwy. The sinkhole is oblong in shape, ranges from 0.60 to 0.84 m in depth, and the long

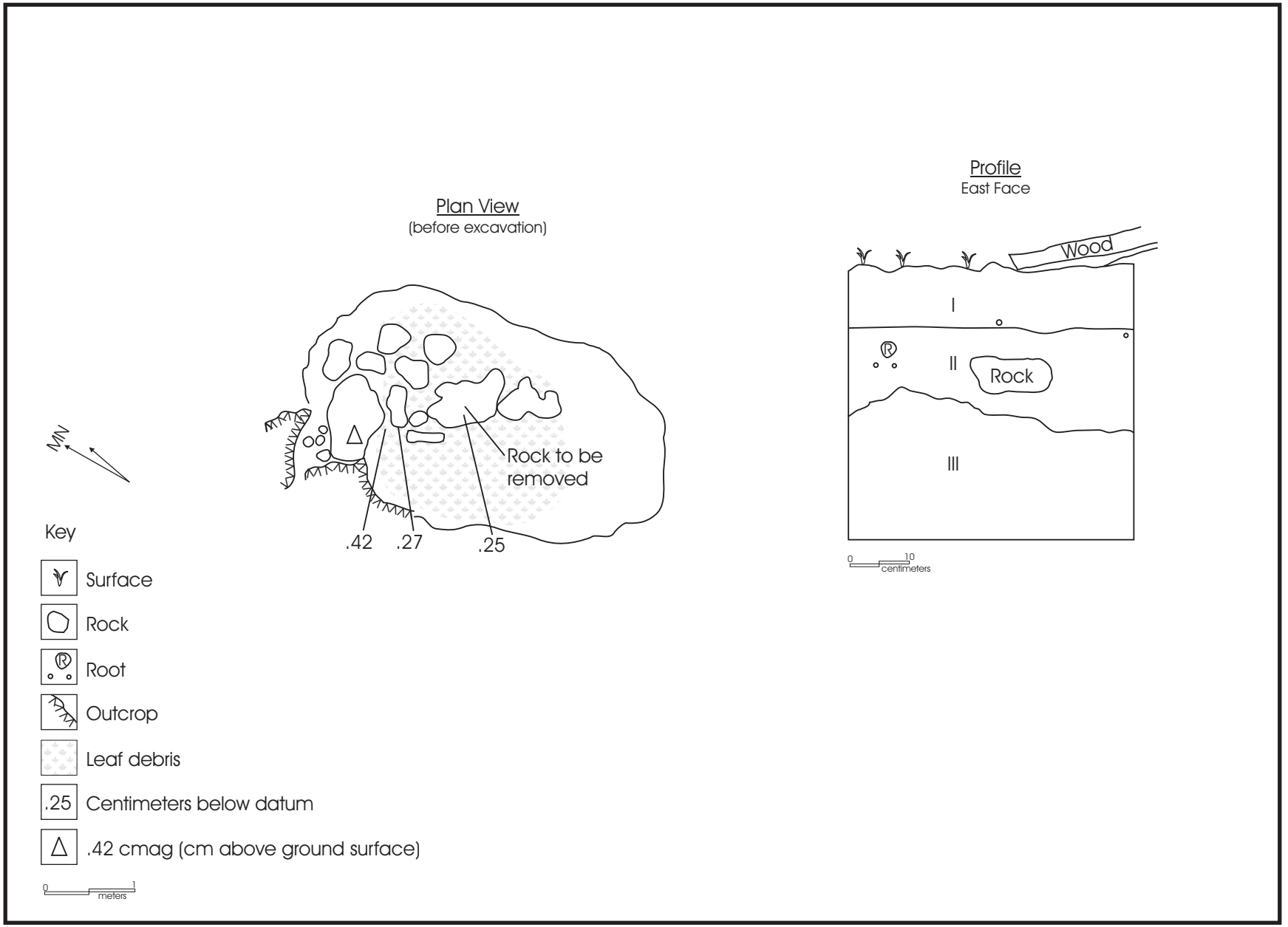

Figure 12. Plan View of Feature 6; Profile of SU-2, (Note scale difference).

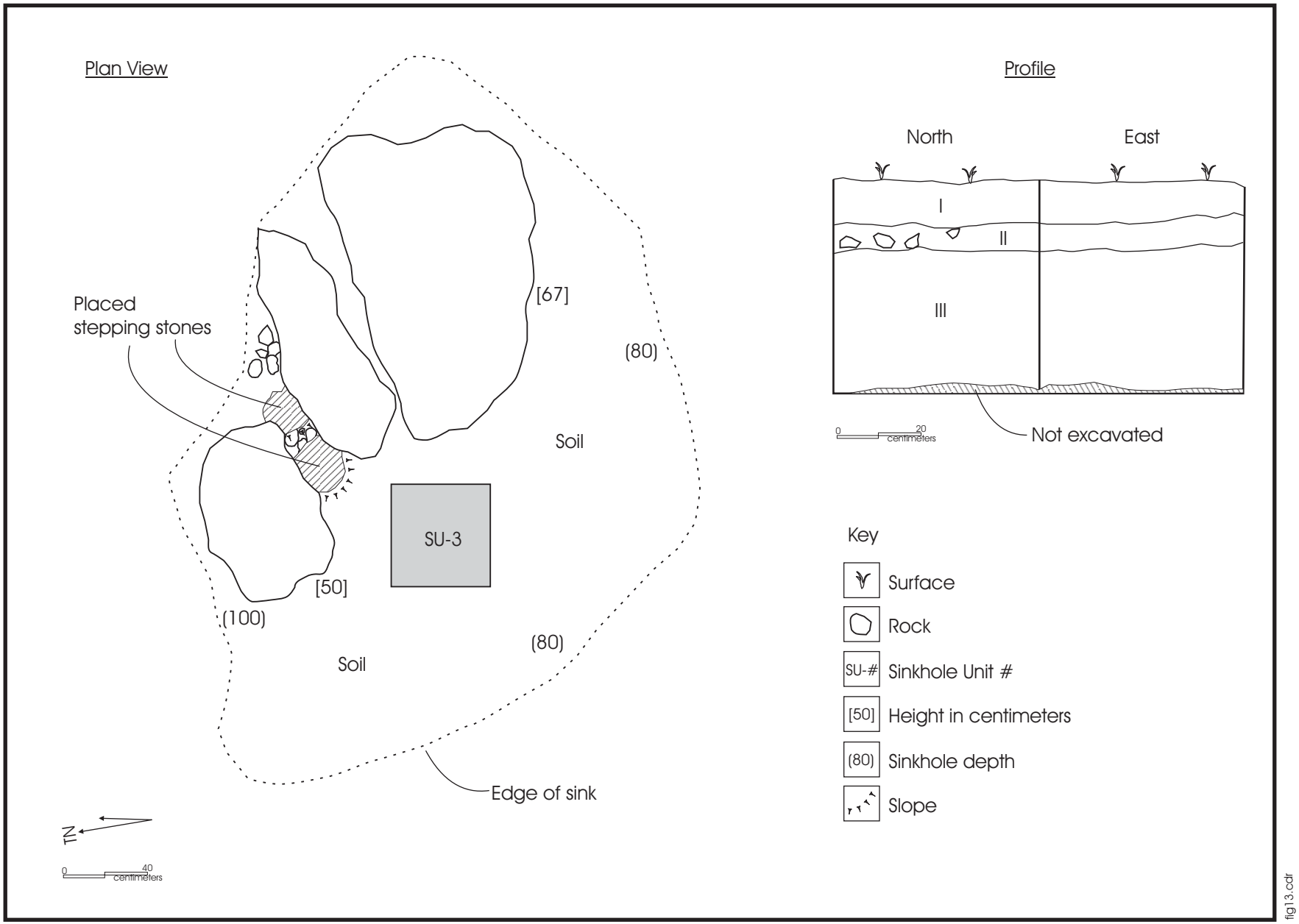

Figure 13. Plan View of Feature 7; Profile of SU-3 (Note scale difference).

axis of the sinkhole is oriented roughly east west (Figure 14). Two large couch cushions and a weathered golf ball were present on the floor of the sink. Surface limestone cobbles and boulders are situated along the sink's edge.

SHOVEL TEST PROBE RESULTS

This section presents the results of subsurface shovel test probes (STP) conducted in Wai`anae Regional Park. The methods used in conducting excavations of the STPs have been discussed in the section titled "Methods and Procedures/Shovel Test Probes."

Fifty-three STPs were excavated along the north-south and east-west center lines of the cardinal grid established over the western portion of the project area. Figure 15 shows the location of the STPs, and the distribution of Layers II and III in seaward portions of the project area. Appendix B provides tabulated stratigraphic information for each STP.

In addition to determining the presence or absence of subsurface traditional Hawaiian cultural materials and features, excavation of the STPs facilitated the analysis and correlation of the stratigraphy (surface and subsurface sediment and soil layers) over the western portion of the project area. Examination of the stratigraphic sequence in the STP locales aided the development of a working model of the local stratigraphic sequence across seaward areas of the project area (*excluding* sinkholes) where surface sand deposits are clearly visible. Because of the lack of previous archaeological testing in the project area, developing such a model was important to understand the context of subsurface archaeological features and materials encountered.

The stratigraphic sequence identified for the seaward portions of the project area consists of four stratigraphic layers consisting primarily of coral sand: Layers I, II, III, and IV. In addition, two layers of terrigenous sediments of basaltic origin were identified: Layer I Facies and Layer II Facies. The term "facies" indicates that these layers are in the same stratigraphic position as other Layer I and II deposits.

Figure 16 illustrates the working stratigraphic sequence based on individual sequences recorded in the STPs, and shows the stratigraphic correlations. Layer I has been subdivided into Layers Ia, Ib, and Ic. These divisions are based primarily on color and texture; all three layers appear to be disturbed and/or re-deposited fill. Layer II is a dark grayish brown, buried surface layer that contains traditional Hawaiian cultural materials. Layers III and IV are light colored (very pale brown, white, light yellowish brown) coral sand layers. Layer I Facies and Layer II Facies are silt loam and clay loam deposits, respectively.

The bedrock in the project area is a karst topography mentioned previously. It has an undulating topography that ranges in depth from 10 to almost 160 cmbs. The term "coralline" is used to refer to the bedrock substrate and to associated rock inclusions derived from this material.

The stratigraphy encountered in a majority of the STPs excavated reflects disturbance in upper portions of subsurface deposits in the portion of the project area that was tested. This disturbance could be the result of activities such as railroad construction, or bulldozing associated with other land use activities.

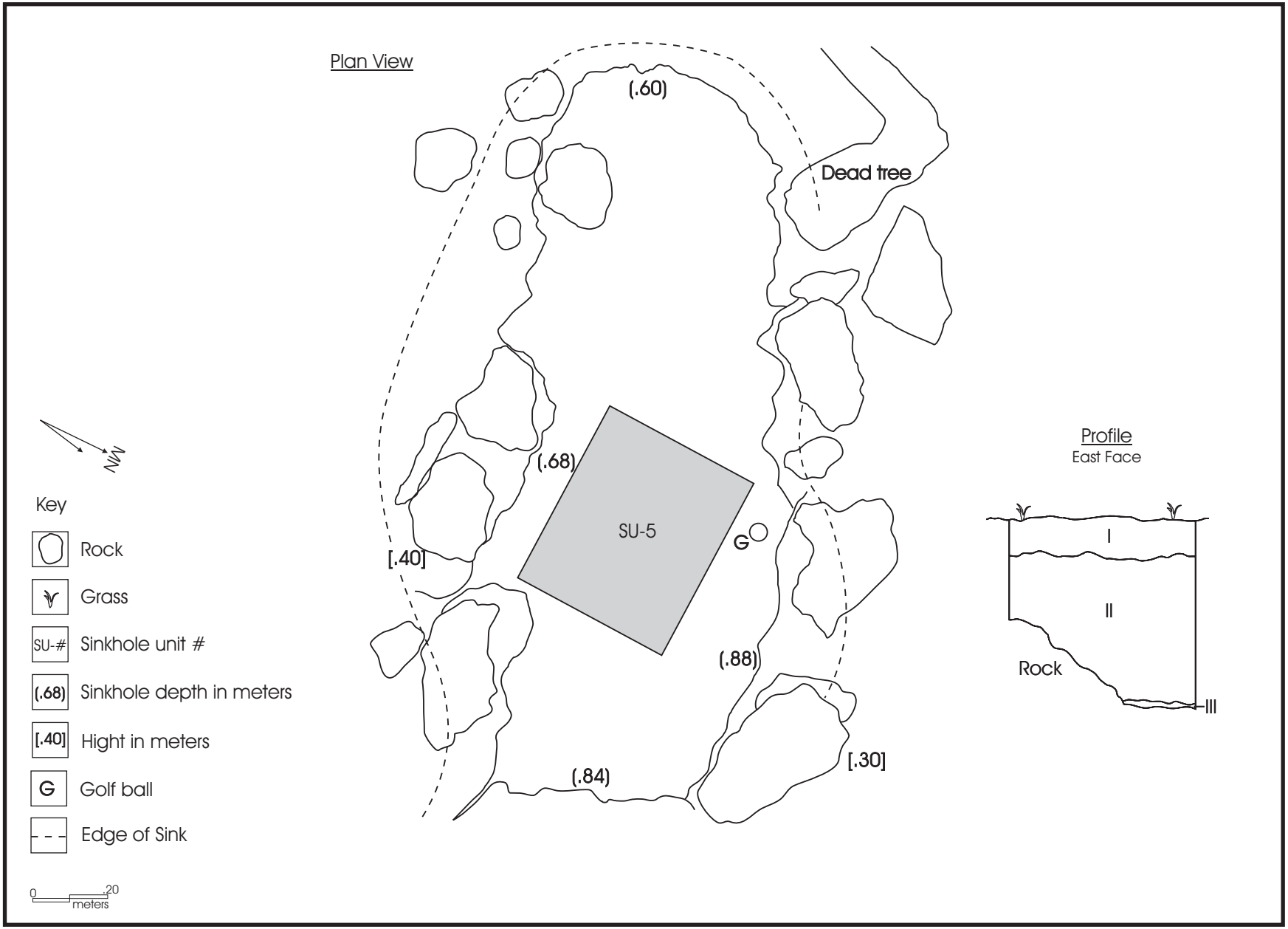

Figure 14. Plan View of Feature 8; Profile of SU-5 (Note scale difference).

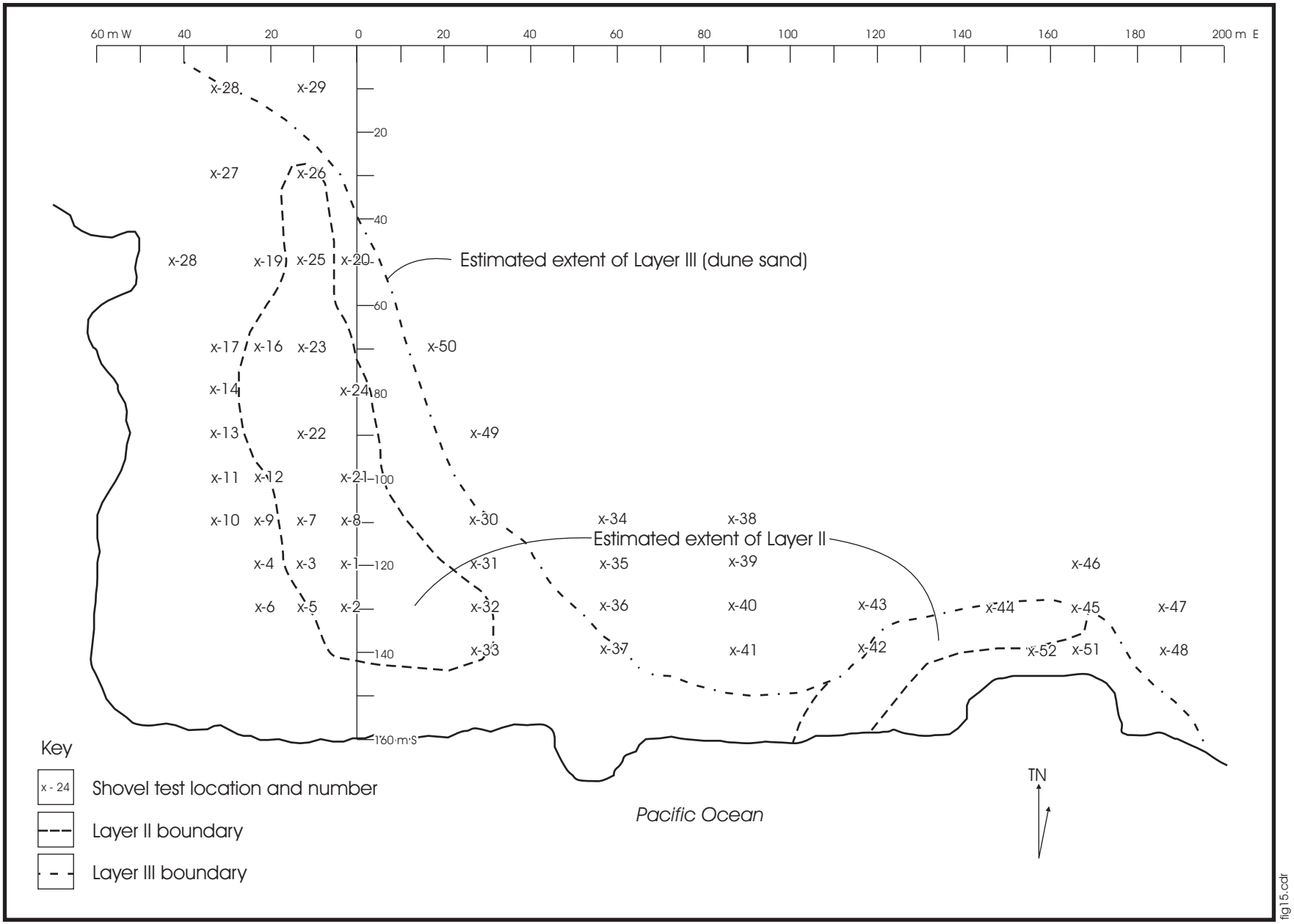

Figure 15. Shovel Test Grid Showing Estimated Extent of Layers II and III.

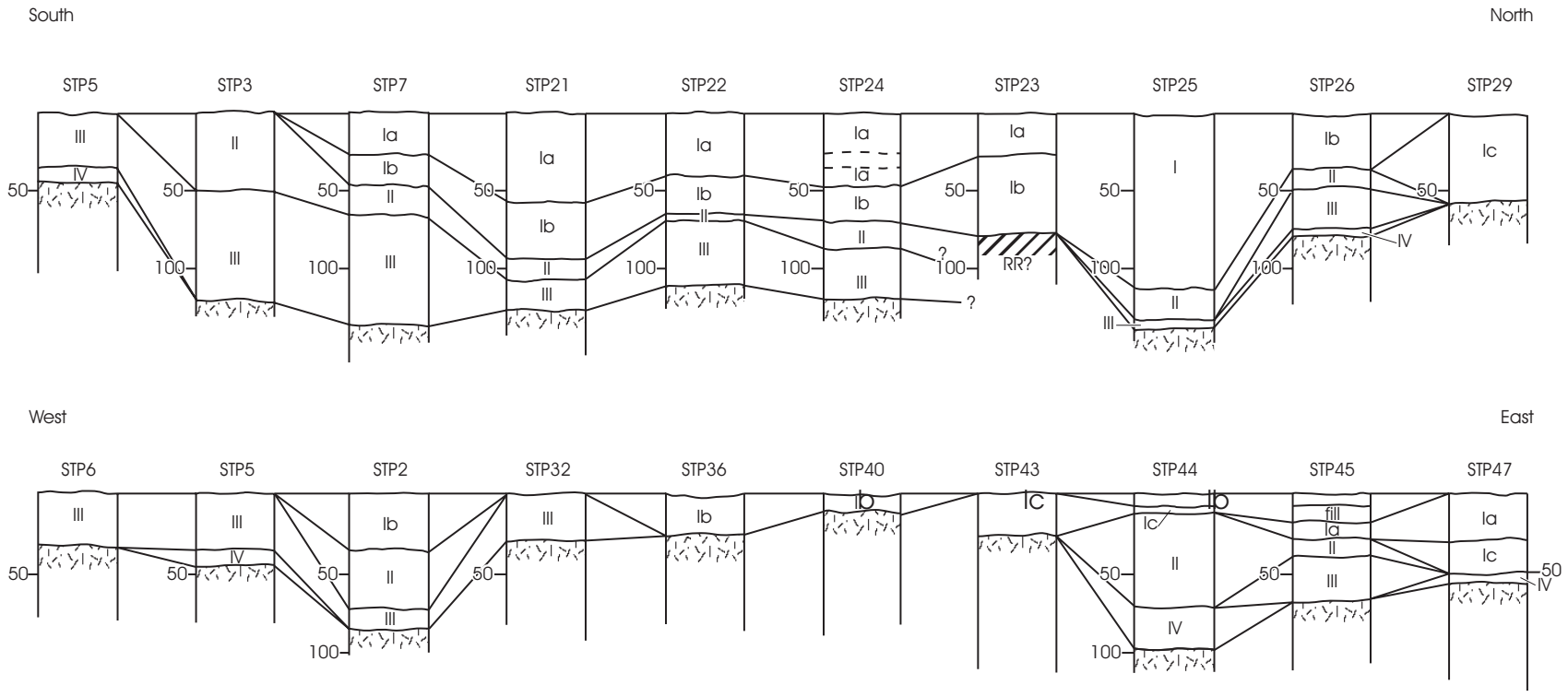

Figure 16. Correlation of Stratigraphic Layers in Shovel Test Probes at Site 3967, Waianae Regional Park.

fig16.cdr

The subsurface disturbance may explain the problematic excavation results in STPs 8, 23, and 48. Because of the presence of rebar, large plastic pipe, and large limestone cobbles and boulders in STP 8, and extremely compacted cobbles and gravel in STP 23, excavations could not reach the base of Layer I fills in these two locales. It is assumed, however, that Layer II is (or was) present in these two locales, based on the presence of Layer II in the surrounding probe locales (see Figure 16; STPs 1, 7, 16, 21, and 25). In STP 48, large limestone boulders and concrete chunks in an extremely compact reddish brown clay loam matrix precluded excavations beyond 40.0 cmbs in this locale.

The following observations regarding the stratigraphic sequence were made during and after the STP excavations:

1. A series of three mixed/disturbed surface and subsurface sand deposits, designated Layers Ia, Ib, and Ic, extends inland from the beach zone to areas beyond the inland extent of underlying Layers II and III. Layers Ia, Ib, and Ic contain traditional Hawaiian and recent faunal materials and artifacts.

2. Layers Ia, Ib, and Ic are all discontinuously present, and occur as both surface and subsurface layers.

3. Layer II, the layer containing traditional Hawaiian cultural materials, was encountered in two distinct areas in the western portion of the project area.

4. Layer II was primarily a subsurface deposit, but was also encountered on the surface in STP 33.

5. Layer III was found directly overlying limestone bedrock, as well as on the surface.

6. Where Layer IV was present, it was found directly overlying limestone bedrock.

7. The horizontal extent of pale brown to white coral sands of Layers III and IV is limited to seaward portions of the parcel.

8. Beyond the inland extent of the intact coralline sands (Layers II and III), Layer I mixed sand deposits as well as and brown and dark reddish brown terrigenous silts and silt loams are present.

9. Several additional sediment deposits (both marine and terrigenous sediments) were identified in two of the STPs (STP 45 and 46).

10. The presence of terrigenous silt and silt loam deposits (Layer I Facies; Layer II Facies) were observed in the same stratigraphic position as coral sand Layers I and II.

Coral Sand Layers

Layers I (Ia, Ib, Ic), II, III, and IV consist primarily of coral sands identified in the back beach area and just inland from the beach on the coastal flats. The sands in these regimes ranged from very fine to coarse grain sizes. These layers are described below.

Layers Ia, Ib, and Ic

These mixed sand deposits are present along the shoreline as well as inland beyond the inland extent of Layers II and III (see Figure 16). Minor textural variations (sand and loamy sand) were observed in these sands. The base of the Layer Ia, Ib, and Ic deposits ranges from 10.0 to 75.0 cmbs.

Layer Ia

Layer Ia is a dark brown to dark grayish brown (10YR 3/2.5, moist) pebbly, gravelly loamy sand with approximately 15%, by volume, subangular coralline pebbles and gravel. The coral sand component in this layer ranges from very fine to medium sands. The Layer Ia matrix ranges from 28.0 to 70.0 cm in thickness (average thickness is 37.0 cm), and is loose, nonsticky and nonplastic. It has many, fine interstitial roots. Layer Ia has a very abrupt, smooth to wavy boundary overlying Layer Ib.

Layer Ia was recorded in 17 STPs, and was the surface layer in 16 locales (STPs 1, 7, 8, 15, 16, 21, 22, 23, 24, 30, 31, 42, 43, 47, 49, and 50; see Appendix A). In STP 45, it was found directly underlying Layer Ib.

Layer Ia was found directly overlying Layer Ib in STPs 1, 7, 16, 21, 22, 24, and 45; directly overlying Layer Ic in STPs 23, 30, 42, 43, and 47; directly overlying Layer II in STP 15; directly overlying Layer III (in STP 31); and directly overlying Layer II Facies in STPs 49 and 50. It was also found directly overlying large coralline boulders in STP 8.

Artifacts in Layer Ia include metal objects (wire nails with round heads, rusted fragments, aluminum cans and pull tabs, and coins), bottle glass (green, clear, aqua, amber), one glass bead, a bottle pontil, playing marbles, unidentifiable plastic fragments, ceramics (fragments of white, yellow, and blue transfer print ware); a marble stopper, and a bone die. Also observed were pieces of concrete, asphalt, large plastic pipe, railroad ties, and rebar.

Faunal remains in Layer Ia include bone (mammal and fish), shell remains of marine mollusks (gastropods and bivalves), sea urchin, and crab. Floral remains include wood charcoal and *kukui*.

Layer Ib

Layer Ib is a light gray to gray (10YR 6/1, moist) very pebbly, cobbly sand, with approximately 35%, by volume, coralline pebbles, cobbles, and boulders. This rocky sand matrix ranges in thickness from 5.0 to 54.0 cm (average thickness is 23.0 cm), and is loose, nonsticky, and nonplastic. It has many, fine interstitial and tubular roots. Layer Ib has a clear, wavy boundary.

Layer Ib was documented in 18 of the STPs, and was the surface layer in nine locales (STPs 2, 20, 26, 28, 34, 35, 36, 39, and 40; see Appendix A). It was found directly overlying Layer Ic in STPs 1, 20, 24, 28, 44, and 46; directly overlying Layer II in STPs 2, 7, 16, 21, 22, 26, and 45; and directly overlying Layer I Facies in STP 34. It was also found directly overlying coralline bedrock in STPs 35, 36, 39, and 40.

Artifacts in Layer Ib include metal objects (rusted fragments, a grommet, aluminum cans, and pull-tabs), bottle glass fragments (green, clear, aqua, and amber), unidentifiable plastic fragments, and ceramics. Also observed were pieces of brick, wooden railroad ties, concrete and asphalt.

Faunal remains in Layer Ib include bone (mammal and fish), shell remains of marine mollusks (gastropods and bivalves), sea urchin, and crab. Floral remains include wood charcoal and *kukui*.

Layer Ic

Layer Ic is a dark gray (10YR 4/1, moist) fine to coarse, pebbly sand with approximately 15%, by volume, coralline and basalt pebbles and cobbles. This pebbly sand deposit ranges from 5.0 to 55.0 cm in thickness (average thickness is 22.0 cm), and is loose, nonsticky, and nonplastic. It has common, fine interstitial roots. Layer Ic has an abrupt, smooth to wavy boundary.

Layer Ic was recorded 15 STPs, and was the surface layer in four locales (STPs 29, 41, 51, and 53; see Appendix A). Layer Ic was found directly overlying Layer II in STPs 1, 24, and 44; directly overlying Layer III in STPs 20, 28, and 30; directly overlying Layer IV in STPs 41, 43, 47 and 53; directly overlying Layer I Facies in STP 51; and directly overlying Layer II Facies in STP 46. Layer Ic was also found directly overlying coralline bedrock in STPs 23, 29, and 42.

Artifacts in Layer Ic include metal objects (rusted fragments, aluminum cans, and pull-tabs), bottle glass fragments (green, clear, aqua, and amber), unidentifiable plastic fragments, and ceramics. Also observed were pieces of brick, concrete, asphalt, and rebar.

Faunal remains in Layer Ic include bone (mammal and fish), shell remains of marine mollusks (gastropods and bivalves), and sea urchin. Floral remains include wood charcoal and *kukui*.

Layer II

Layer II is a dark grayish brown (10YR 4/2, moist) pebbly, cobbly, ashy sand with a high organic content, and approximately 15%, by volume, coralline and basalt pebbles and cobbles. Where charcoal staining is present near, and/or at, the base of Layer II, Layer II is dark gray (10YR 3/1, moist) to black (10YR 2/1, moist). Ash content in the Layer II matrix ranges from 5-10%; sands range from very fine to medium grain sizes. Layer II sands are very friable, very slightly sticky, and nonplastic. It has common to many, fine to medium, interstitial and tubular roots. The lower boundary of Layer II is abrupt to very abrupt and smooth to irregular.

Layer II was found in 14 STPs, and was the surface layer in two locales (STPs 3 and 33; see Appendix A). Layer II was found directly overlying Layer III in STPs 1, 2, 3, 7, 15, 16, 21, 22, 24, 25, 26, 33, and 45, and directly overlying Layer IV in STP 44. In STP 25, Layer II was found directly overlying Layer III sands, and directly underlying a sand deposit quite similar to Layer III sands. This locale may be one of the few almost completely intact areas along the coastal flats, and is discussed further in the section titled "Discussion."

The horizontal extent of Layer II was mapped by its presence in the STPs (and TU-1) mentioned above. Figure 15 shows the two distinct areas in which Layer II was present. The first, and largest, area is situated just inland of the point of land at the northwest corner of the parcel. Designated as Area 1, it is elongated and irregular in shape, approximately 120 m long, and from 10.0 to 45.0 m wide. Layer II in Area 1 ranges form 6.0 to 66.0 cm in thickness (average thickness is 22.0 cm).

The second area, designated as Area 2, is situated approximately 75.0 m south of Area 1 (see Figure 15). It begins at the shoreline and extends inland and to the south. Area 2 is approximately 70.0 m long and from 6.0 to 14.0 m wide. Layer II in Area 2 ranges from 10 to 60 cm in thickness (average thickness is 32.0 cm).

Artifacts in Layer II included traditional Hawaiian items, including basalt flakes, volcanic glass flakes, and historic items, including metal, bottle glass, and ceramics. Faunal remains in Layer II include bone (mammal, bird, and fish), shell remains of marine mollusks (gastropods and bivalves), sea urchin, and crab. Floral remains include wood charcoal and *kukui*.

Layer III

Layer III is a very pale brown (10YR 8/2, moist) to white (10YR 8/1, moist) very fine to coarse coral sand with less than 5%, by volume, coralline cobbles and coral. This sand layer ranges in thickness from 5.0 to 120.0 cm in thickness (average thickness is 52.0 cm), and is loose, nonsticky, and nonplastic. It has very few, medium tubular roots. Layer III has a clear, smooth boundary overlying Layer IV.

Layer III was found in 33 STPs, and was the surface layer in 16 locales (STPs 4, 5, 6, 9, 10, 11, 12, 13, 14, 17, 18, 19, 27, 32, and 52). Layer III was found directly overlying Layer IV in STPs 5, 20, 26, 32, and 33, and directly overlying coralline bedrock in STPs 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 24, 26, 27, 28, 30, 31, 45, and 52.

The horizontal extent of Layer III sand deposits was mapped by its presence in the above-mentioned STPs. Figure 15 illustrates the horizontal, as well as the approximate inland extent, extent of Layer III in the seaward portion of the parcel where testing occurred. Layer III sands extend approximately 3.0 to 15.0 m further inland than Layer II deposits in Area 1. In Area 2, the inland boundary of Layer III corresponds to the inland boundary of Layer II.

Artifacts from Layer III consist of staples, copper pennies (1985 and 1993), and aluminum (post 1970s) pull-tabs where the layer is present on the surface. Faunal remains in Layer III include bone (bird), shell remains of marine mollusks (gastropods and bivalves), sea urchin, and crab. All of these remains are very weathered.

Layer IV

Layer IV is a light yellowish brown (10YR 6/4, moist), fine to very fine, silty sand with less than 5%, by volume, coralline pebbles and cobbles. This layer ranges from 2.0 to 15.0 cm in thickness (average thickness 5.0 cm), and is friable, nonsticky, and nonplastic. It has few, medium tubular roots. No cultural or faunal materials were encountered in Layer IV.

Layer IV was found in 11 STPs (STPs 5, 20, 25, 26, 32, 33, 41, 43, 44, 47, and 53). In these locales, Layer IV was found directly overlying coralline bedrock.

Terrigenous Soils

Seven STP excavations (STPs 34, 38, 45, 46, 48, 49, 50, and 51) encountered soil/sediment layers derived from basaltic sources, often called terrigenous soils. Two layers were identified; these were designated Layer I Facies and Layer II Facies. A "facies" is a layer that occupies the same stratigraphic position as another layer. These layers are described below.

Layer I Facies

This layer is a brown to yellowish brown (10YR 5/4, moist) silt loam with less than 10%, by volume, coralline cobbles and pebbles. This silt loam deposit ranges from 25.0 to 66.0 cm in thickness (average thickness 37.0 cm), and is friable, slightly sticky, and nonplastic. It has few, fine to medium interstitial and tubular roots.

Layer I Facies was found in STPs 34, 38, and 51. In the STP 34 locale, Layer I Facies directly underlies Layer Ib, and directly overlies coralline bedrock. In the STP 38 locale, Layer I Facies was the only soil layer present; it directly overlies coralline bedrock. In STP 51, Layer I Facies directly underlies Layer Ic and directly overlies coralline bedrock.

No cultural materials were found in STPs 38 and 51. In STP 38, metal and glass fragments, as well as a trace (less than 0.1 grams) of marine shell, were recorded.

Layer II Facies

This layer is a dark reddish brown (5YR 3/4, moist) clay loam with a textural variation identified as a sandy clay loam. These deposits have less than 5%, by volume, coralline cobbles and pebbles. They range from 4.0 to 40.0 cm in thickness (average thickness 24.0 cm), and are firm, sticky, and plastic. It has few, fine to medium, tubular roots.

Layer II Facies was found in five locales (STPs 45, 46, 48, 49, and 50), and was the surface layer in STPs 45, 46, and 48. In STPs 49 and 50, Layer II Facies directly underlies Layer Ia and directly overlies coralline bedrock.

No cultural materials were found in STPs 45 and 50. In STPs 46 and 48, glass and ceramic fragments, and a trace of marine shell, were observed.

TEST EXCAVATIONS

Nine test units were excavated within the project area, including three (TU-1 through 3) in various locales and suspected features, and six (SU-1 through 6) in sinkholes. Test locations were selected based on the potential of a given local to contain subsurface cultural deposits and sufficient size for a potential burial location.

Test Unit 1 (TU-1)

The purpose of this excavation was to sample what appeared to be an intact cultural layer exposed in the beach cut approximately 2.0 m south and west of STP-2 (see Figure 6). To achieve this, TU-1, 1.0 by 1.0 m, was excavated into the *makai* edge of the beach cut.

Recent and historical items were recovered from Layer Ib and Ic (Layer Ia was absent); traditional Hawaiian cultural materials were recovered from Layers Ib, Ic, and II.

After excavations in TU-1 were terminated in Layer III at approximately 80.0 to 84.0 cmbs, a sand auger was used to examine the stratigraphy from this depth to the underlying coralline bedrock. Coring with the auger revealed that Layer III continued to bedrock at 160.0 cmbs. Figure 17 shows the four stratigraphic layers (Layers Ib, Ic, II, and III) exposed along the beach cut.

The stratigraphic sequence in TU-1 reflects the sequence of layers documented and correlated for STP excavations in this vicinity. Layer Ib is a light gray to gray (10YR 6/1, moist) very pebbly, cobbly sand, with approximately 35%, by volume, coralline pebbles and cobbles (and an occasional boulder). This rocky sand matrix ranges in thickness from 10.0 to 30.0 cm, and is loose, nonsticky, and nonplastic. Layer Ib was found directly overlying Layer Ic, and has a clear, wavy boundary.

Artifacts from Layer Ib include recent items fashioned from metal, glass, and plastic, and a traditional pearl shell fishhook fragment.

Faunal remains from Layer Ib included bone (fish, pig, mongoose, and medium mammal), marine shell (gastropods and bivalves), sea urchin, and crustacea (crab claws). Approximately 30% of the marine shell is quite weathered. Sparse wood charcoal was also present.

Layer Ic is a gray (10YR 5/1, moist) fine to coarse, pebbly sand with approximately 15%, by volume, coralline and basalt pebbles and cobbles. Layer Ic sands ranges from 10.0 to 24.0 cm in thickness, and are loose, nonsticky, and nonplastic. Layer Ic was found directly overlying Layer II, and has an abrupt, smooth to wavy boundary.

Artifacts from Layer Ic include recent items fashioned from metal, glass, and plastic. Faunal remains from Layer Ic included bone (fish, mongoose, and medium mammal), marine shell (gastropods and bivalves), and sea urchin remains. Sparse wood charcoal was also present.

Layer II is a dark grayish brown (10YR 4/2, moist) pebbly, cobbly, ashy sand with a high organic content, and approximately 15%, by volume, coralline and basalt pebbles and cobbles. Ash content in this matrix ranges from 5-10%; sand grains are very fine to medium. Layer II ashy sands ranges from 8.0 to 30.0 cm in thickness, and are very friable, very slightly sticky, and nonplastic. Layer II was found directly overlying Layer IIa, and Layer III, and has an abrupt, wavy to irregular boundary. Charcoal staining is intermittently present near, and at the base of Layer II in several areas (Figure 17).

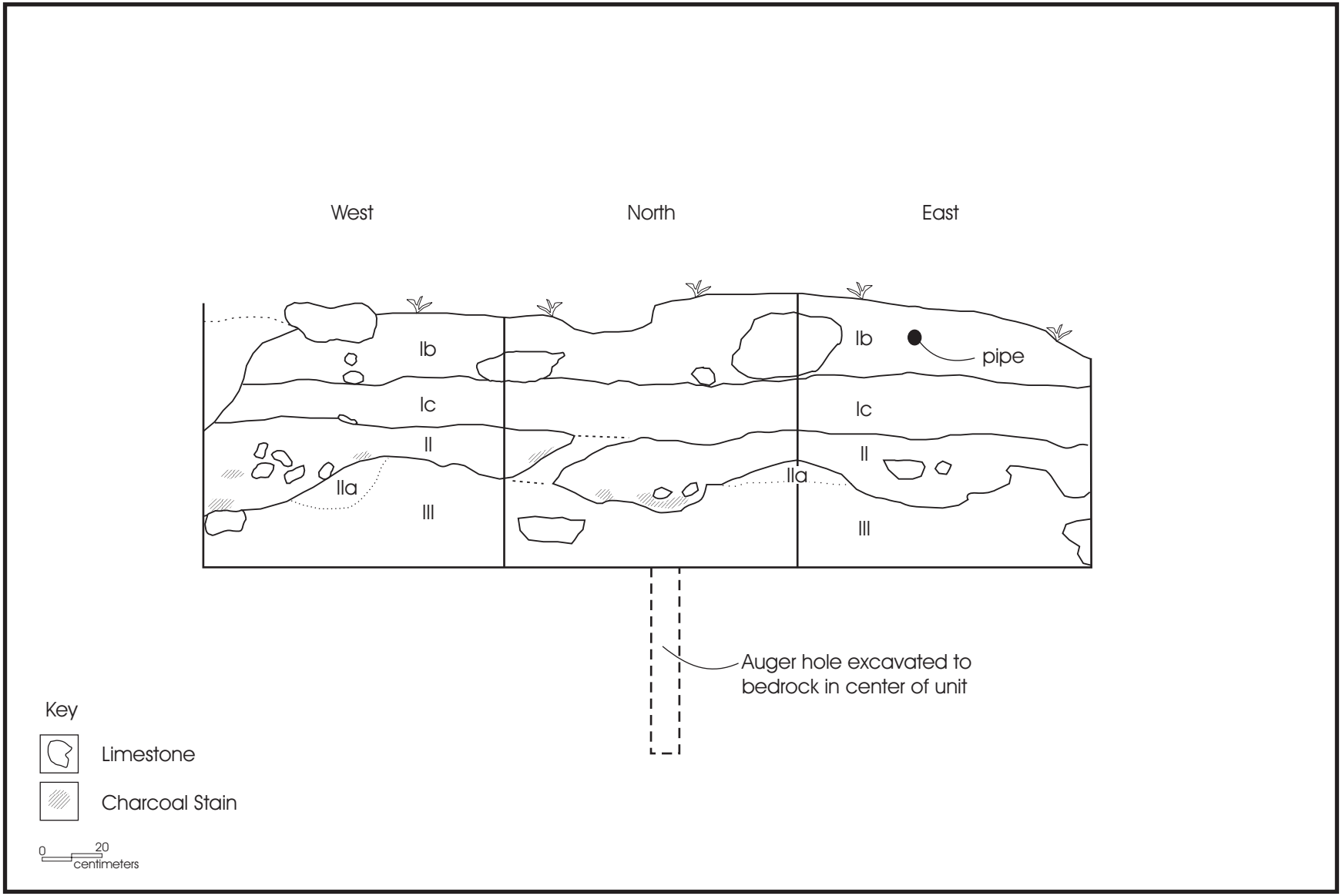

Figure 17. Stratigraphic Profile, TU-1, West, North, and East Walls.

Directly underlying Layer II in TU-1 are two areas, designated Layer IIa in Figure 17, that are light gray (10YR 7/1, moist), very fine to medium, sands. These areas extend into the underlying Layer III sands, but do not appear to be subsurface features. It was difficult to ascertain whether these areas were zones of charcoal leaching or a separate, intact cultural component of Layer II.

There is also a 10.0 to 12.0 cm gap in Layer II that was visible on the north wall of TU-1 (see Figure 17). This gap slants downward from (east to west).

No artifacts were observed in Layer II deposits in TU-1. Faunal remains recovered from Layer II included bone (medium mammal), marine shell (gastropods and bivalves), sea urchin, and crustacean remains. Wood charcoal was also present.

Layer III is a very pale brown (10YR 8/47/2, moist) very fine to medium sand with approximately 5%, by volume, coralline cobbles and coral. This sand layer ranges in thickness from 74.0 to 94.0 cm in thickness, and is loose, nonsticky, and nonplastic. Layer III directly overlies coralline bedrock.

Artifacts from Layer III include recent items fashioned from metal, and basalt flakes. Faunal remains recovered from Layer III consist entirely of invertebrate remains, including marine mollusks, sea urchin, and crustacean fragments (crab claws). All of these are very weathered.

Test Unit 2

The low rock mound in which Test Unit 2 (TU-2) was excavated is approximately 2.0 by 1.8 m, and ranges from 0.10 to 0.25 m in height. It is constructed primarily with subangular and angular, medium to large, coralline cobbles with an occasional boulder (Figure 18). The mound is roughly oval-shaped, with a small lobe of sand and scattered surface cobbles 0.8 m wide that extends about 0.4 m to the North. Coralline boulders define the east end of the mound. A piece of branch coral (*Porites* spp.) is present on the east side of the mound's surface. The mound was tested to determine the presence or absence of human burials. To achieve this, TU-2, 0.7 by 0.4 m, was placed in the central west portion of the mound (Figure 18).

Large mammal bone was found in the cobble fill of the mound. Recent metal and glass fragments were observed (but not recovered) from all three stratigraphic layers encountered under the cobble fill in TU-2. Excavations were halted at 70.0 cmbs where coralline bedrock was encountered.

Figure 18 illustrates the East profile of TU-2, showing the rock fill of the mound and the three underlying stratigraphic layers (Fill A, Layer Ic, and Layer III). The interior cobble fill of the mound consisted of small to large coralline cobbles, with an occasional boulder. The cobble fill ranged from 20.0 to 28.0 cm thick, and was found directly overlying Fill A. Two pieces of large mammal bone (size range of cow and horse) were observed in the fill.

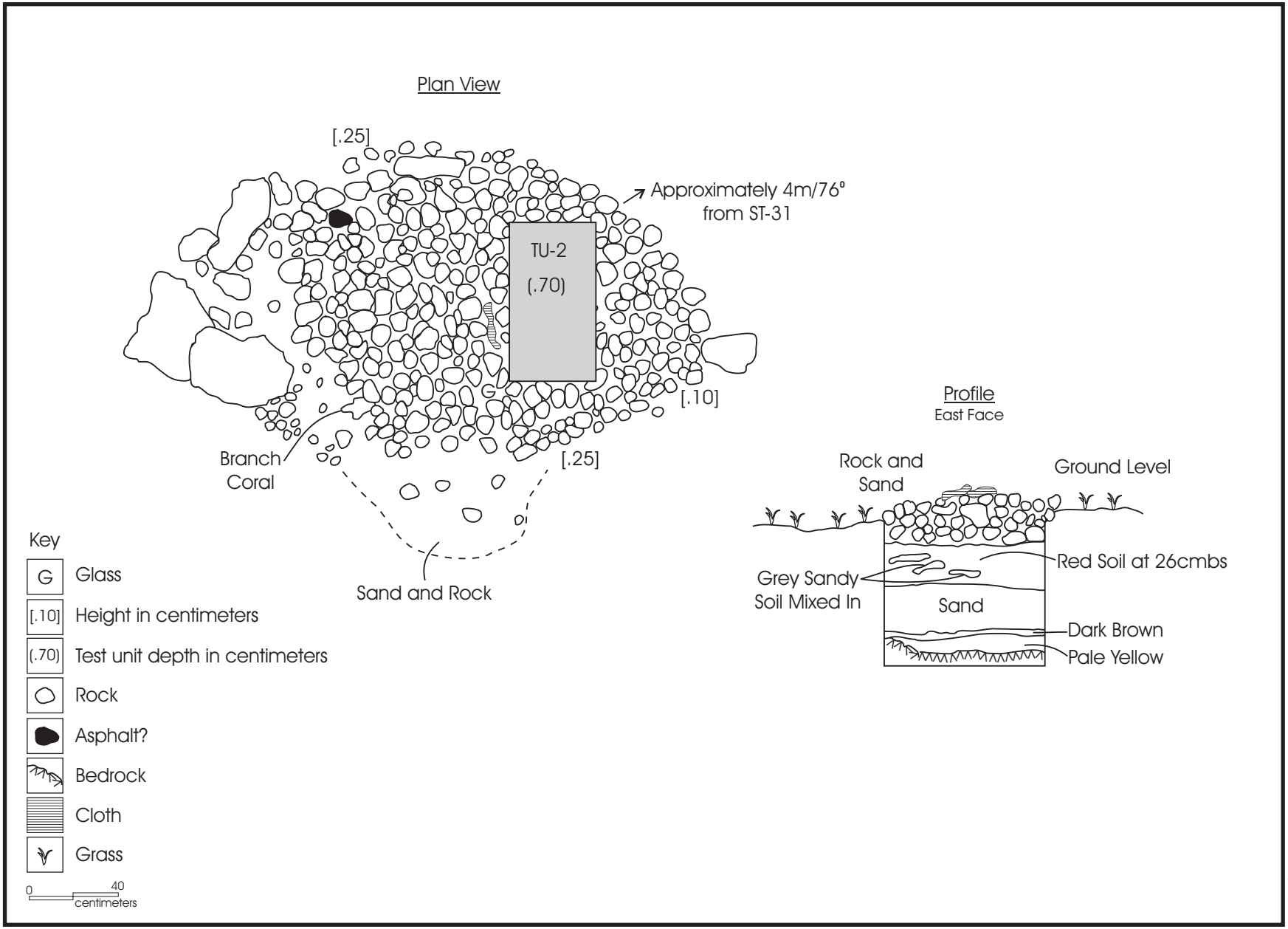

Figure 18. Plan View of Rock Mound Feature, Profile of TU-2.

Fill A is a mixed deposit of reddish brown (5YR 4/3, moist) silt loam and gray (10YR 6/1, moist) sand. It contains less than 10%, by volume, subangular coralline pebbles and cobbles. The silt loam matrix averages 16.0 cm in thickness and is loose, nonsticky, and nonplastic. It was found directly overlying Layer Ic, and has an abrupt, smooth boundary. Artifacts from Fill A included recent glass and metal fragments.

Layer Ic is a gray (10YR 5/1, moist) pebble, cobbly sand with approximately 15%, by volume, subangular coralline pebbles and cobbles. This sand deposit averages 20.0 cm thick, and is loose, nonsticky, and nonplastic. It was found directly overlying Layer III, and has an abrupt, smooth boundary. Artifacts from Layer Ic included recent glass and metal fragments.

Layer III is a yellowish brown (10YR 5/4, moist) very fine to medium sand. It ranges from 3.0 to 8.0 cm think and is loose, nonsticky, and nonplastic. It was found directly overlying coralline bedrock. Artifacts from Layer III included recent glass and metal fragments.

Test Unit 3 in Feature 2

Site 3967, Feature 2 was tested to determine the presence/absence of cultural materials and the relationship of the wall architecture to the underlying stratigraphy. To this purpose, Test Unit 3 (TU-3), 0.5 by 0.5 m, was placed in the interior northwest corner abutting the enclosure wall (see Figure 8).

Sparse bird bone was found in Layer II, the basal C-horizon soil. Boulders that form the foundation of the enclosure wall were found within and at the base of Layer I. Excavations terminated in TU-3 at approximately 30.0 cmbs where coralline bedrock was encountered.

Figure 19 illustrates the North profile of TU-3, showing the two stratigraphic layers (Layers I and II), and the relationship of the foundation of the enclosure wall to the underlying stratigraphy. The foundation boulders of the wall are resting in Layer I deposits.

Layer I is a very dark grayish brown (10YR 3/2, moist) pebbly, cobbly silt loam with approximately 15%, by volume, subangular coralline cobbles and pebbles. This rocky silt loam matrix ranges from 10.0 to 12.0 cm in thickness and is loose, very slightly sticky and nonplastic. It was found directly overlying Layer II, and has a very abrupt, wavy boundary. Faunal remains from Layer I included small fragments of possible bird bone. These fragments were non-diagnostic.

Layer II is a light brownish gray (10YR 6/2, moist) very cobbly, pebbly silt with approximately 35%, by volume, subangular coralline cobbles and pebbles. This deposit ranges from 8.0 to 11.0 cm in thickness, and is loose, nonsticky, and nonplastic. Layer II was found directly overlying coralline bedrock. No cultural remains were present in Layer II.

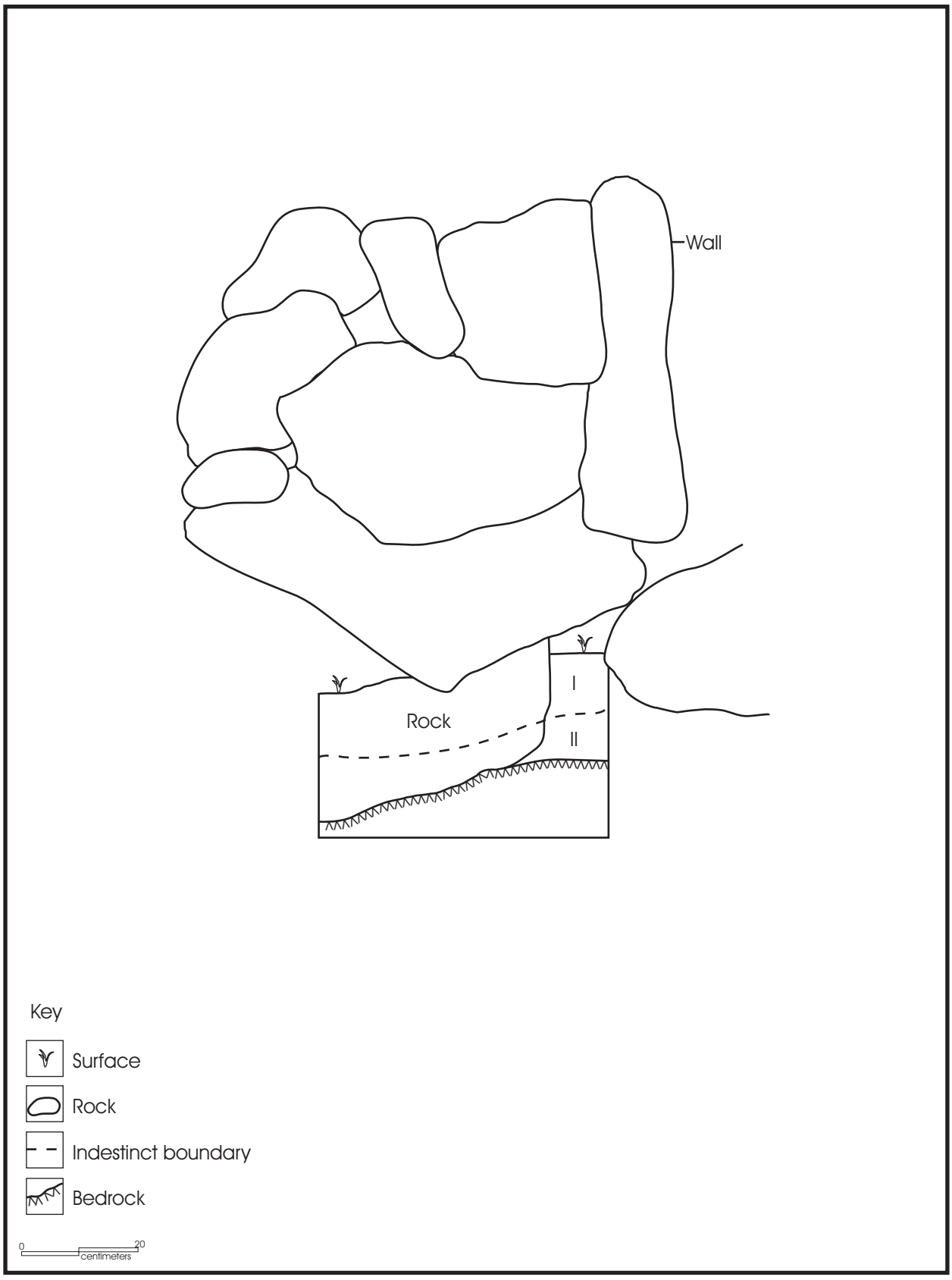

Figure 19. Profile of Feature 1, TU-3.

Sinkhole Excavation Unit 1 (SU-1)

The sinkhole in which SU-1 was excavated is situated about 2.0 m southeast of Feature 4, (L-shaped wall) (see Figure 6). This sinkhole is 3.8 by 2.0 m (maximum dimensions), averages about 0.25 m in depth, and is oriented roughly north/south. The central portions of the sink have been filled with well-sorted coralline cobbles (Figure 20).

The purpose of testing this sink was to determine the presence or absence of cultural materials, and human burials. To this purpose, SU-1, approximately 1.5 by 0.5 m was placed across the narrow, central portion of the sink, across the cobble fill (see Figure 20).

Excavation of SU-1 revealed that the fill consists of well-sorted, small to medium, angular limestone cobbles, with some basalt cobbles. At approximately 10.0 to 20.0 cmbs, it was evident that the coralline bedrock was sloping down to the center from both sides of the sink. As the fill was removed, the bedrock in central portions of the sink continued down to approximately 40.0 cmbs. At the base of the fill, an opening to a deeper portion of the sinkhole, about 10.0 to 15.0 cm wide, was exposed. No traditional cultural material was observed in the cobble fill, and little to no soil is present on the coralline bedrock.

Visible through the small opening exposed at the base of the cobble fill is a small chamber, approximately 2.0 by 2.0 m and 1.6 m in depth (below the opening); Figure 20 illustrates the cross-section of SU-1 and the underlying chamber. Because of the presence of the chamber, it was decided to remove the remaining rock from the sink to determine if a larger access to the chamber was present. It was determined that no other access into the chamber was present. Although the lighting was poor, it appeared that the interior floor of the chamber consisted of bedrock. No evidence of cultural use was observed.

Sinkhole Excavation Unit 2 (SU-2) in Feature 6

Feature 6, an unmodified sinkhole, was tested to determine the presence or absence of cultural materials and features. To this purpose, one of the centrally located limestone boulders was removed and SU-2, 0.5- by 0.5-m, was placed in the center of the sinkhole (see Figure 12).

Traditional Hawaiian cultural materials were found in Layer II, and crustacean remains in Layer III. Layer III was identified as the C-horizon soil; excavation of SU-2 was terminated at approximately 50.0 cmbs in Layer III.

Figure 12 illustrates the East profile of SU-2 with the three stratigraphic layers (Layers I, II, and III) identified in this sinkhole. Layer I is a very dark gray (10YR 3/1, moist) sandy silt with a high organic content, and approximately 10%, by volume, subangular to angular coralline pebbles and cobbles. The silt loam matrix ranges from 8.0 to 10.0 cm in thickness, and was loose, nonsticky and nonplastic. No cultural materials were found in this layer. Layer I was found directly overlying Layer II and has an abrupt, smooth boundary.

Layer II is a grayish brown (10YR 5/2, moist) silt loam with approximately 10%, by volume, subangular coralline gravel and pebbles. The silt loam matrix averages 10.0 to 18.0

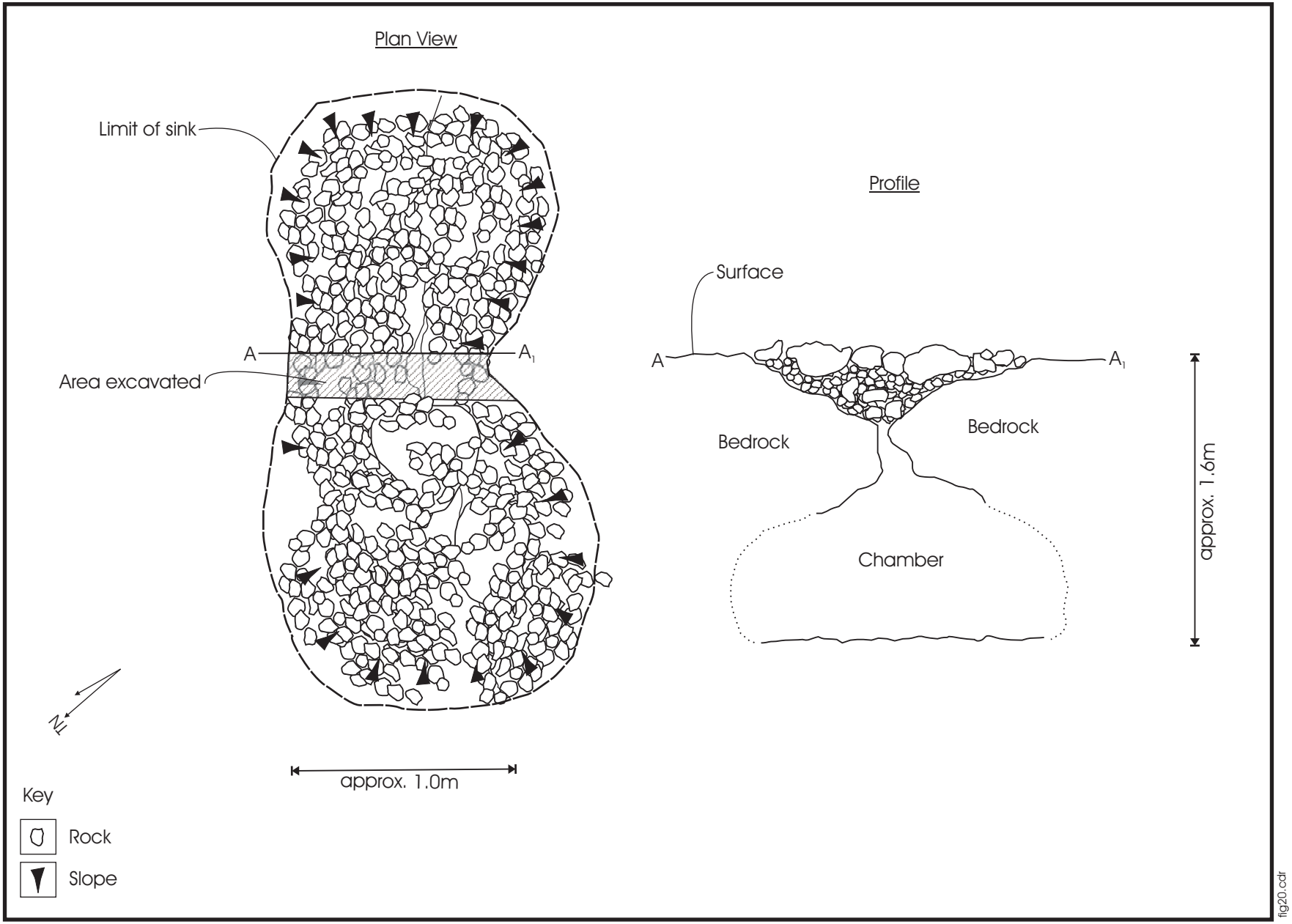

Figure 20. Plan View and Profile of SU-1.

cm thick, and is very friable, very slightly sticky and very slightly plastic. Layer II was found directly overlying Layer III and has an abrupt, smooth boundary.

Faunal remains from Layer II include sparse marine shell (gastropods and bivalves), sea urchin, and crustacean remains. The crustacean remains (crab claw fragments) are much more weathered than the other invertebrate remains. Sparse charcoal flecking was observed throughout Layer II. No artifacts were found.

Layer III is a light yellowish brown (10YR 6/4, moist) cobbly, pebbly, silt with approximately 25%, by volume, subangular coralline cobbles and pebbles. The silt matrix ranges from 18.0 to 28.0+ cm thick, and is very loose, nonsticky, and nonplastic. Excavations halted about 35 cm into this layer; the lower boundary undetermined.

The faunal material from Layer III cobbly, pebbly silts consisted solely of crab claw fragments. Because these crustacean remains are quite weathered, and found in the C-horizon soil, it is not likely that these remains reflect cultural deposition. No artifacts were found.

Sinkhole Excavation Unit 3 (SU-3) in Feature 7

Feature 7, a modified sinkhole, was tested to determine the presence or absence of cultural materials and features. To this purpose, SU-3, a 0.5- by 0.5-m test unit placed in the west central portions of the sinkhole and excavated into the level soil deposits in this portion of the sinkhole (Figure 21).

Four stratigraphic layers (Layers I, II, III, and IV) were identified in SU-3. Layers I-III contained traditional Hawaiian cultural materials; Layer IV was identified as the non-cultural C-horizon. Excavations halted at the surface of Layer IV. Several probes were excavated into Layer IV to confirm that it was the non-cultural C-horizon.

Figure 21 illustrates the North and East profiles of SU-3 with the four stratigraphic layers identified in this sinkhole. Layer I is a very dark gray (10YR 3/1, moist) silt loam with a high organic content, and approximately 10%, by volume, subangular to angular coralline cobbles and pebbles. The silt loam matrix ranges from 9.0 to 10.0 cm thick, and is very friable, very slightly sticky, and very slightly plastic. Layer I was found directly overlying Layer II and has an abrupt, smooth to wavy boundary.

Faunal remains from Layer I include pig and medium mammal bone, sparse marine shell (gastropods), sea urchin, and crustacean remains. The crustacean remains (crab claw fragments) are much more weathered than the other invertebrate remains. Sparse charcoal flecking was observed throughout Layer I. No artifacts were found.

Layer II is a very dark grayish brown (10YR 3/2, moist) silt loam with approximately 10%, by volume, subangular to angular coralline cobbles and pebbles. The silt loam matrix ranges from 6.0 to 7.0 cm in thickness, and is very friable, very slightly sticky, and very slightly plastic. Layer II was found directly overlying Layer III, and has an abrupt, smooth boundary.

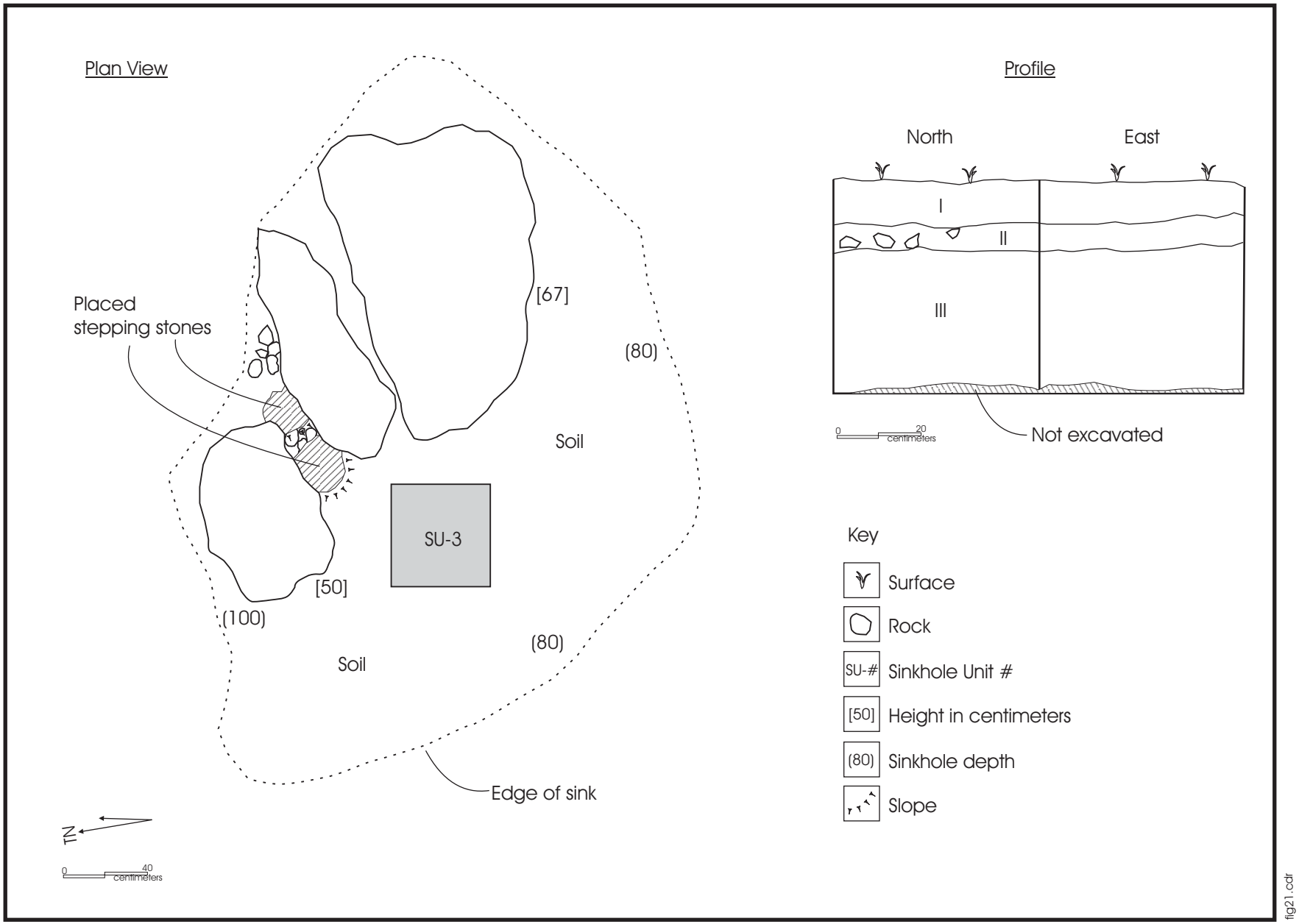

Figure 21. Plan View of Feature 7; Profile of SU-3 (Note scale difference).

Faunal remains from Layer II include medium mammal bone, marine shell (gastropods), and sea urchin. Charcoal flecking was observed throughout Layer II. One piece of volcanic glass, identified as a core, was recovered from Layer II.

Layer III is a grayish brown (10YR 5/2, moist) silt loam with approximately 8-10%, by volume, subangular to angular coralline cobbles and pebbles. This silt loam deposit ranges from 33.0 to 36.0 cm in thickness, and is very friable, nonsticky, and nonplastic. Layer III was found directly overlying Layer IV, and has a very abrupt, smooth boundary.

Faunal remains from Layer III include pig and bird bone, marine shell, sea urchin, and crustacean remains. Charcoal flecking was observed throughout Layer III.

Layer IV is a light yellowish brown (10YR 6/4, moist) cobbly, pebbly silt with approximately 20%, by volume, subangular to angular coralline cobbles and pebbles. It is at least 5.0 cm thick, and is loose, nonsticky, and nonplastic. The lower boundary is undetermined.

Sinkhole Excavation Unit 4 (SU-4)

The sinkhole in which SU-4 was excavated is located in the southwest portion of the parcel where many recent walls were built around sinkholes and along recent dirt roads (see Figure 6). The sinkhole is 3.0 by 2.0 m, and is enclosed by a coralline wall built with stacked cobbles and boulders, as well as a series of slabs placed on end along the north side, the northwest and northeast corners, and along the east end of the South side (Figure 22). The sink's interior consists of a coralline cobble and boulder fill. An aluminum Mountain Dew can was found on the surface fill.

This sink was tested to determine the presence or absence of cultural materials and human burials. It was also important to determine if the rock fill was a recent effort, or if it was built during the pre-Contact era. To achieve this, SU-4, approximately 1.0 by 1.0 m, was excavated into the south central portion of the sinkhole.

SU-4 was excavated through the coralline cobble and boulder fill to a depth of 80 cmbs below surface (see Figure 22). No traditional cultural material was observed in the rock-fill or at the base of excavation. Modern trash, consisting of bottles, aluminum cans, plastic fragments, and carpet fibers, was observed on the floor of the sinkhole. The sink floor consists of a thin (5.0-7.0 cm), noncultural, light yellowish brown (10YR 6/4, moist) silt deposit. Based on probes, the silt deposit is directly overlying limestone bedrock.

Sinkhole Excavation Unit 5 (SU-5) in Feature 8

Feature 8, an unmodified sinkhole, was tested to determine the presence or absence of cultural materials and features. To this purpose, a 0.5- by 0.5-m unit, SU-5, was excavated in the center of the sinkhole (see Figure 14).

Layer II contains traditional Hawaiian cultural materials. SU-5 was excavated to bedrock and into the upper portions of the basal C-horizon soil (Layer III), and was terminated approximately 50.0 cmbs.

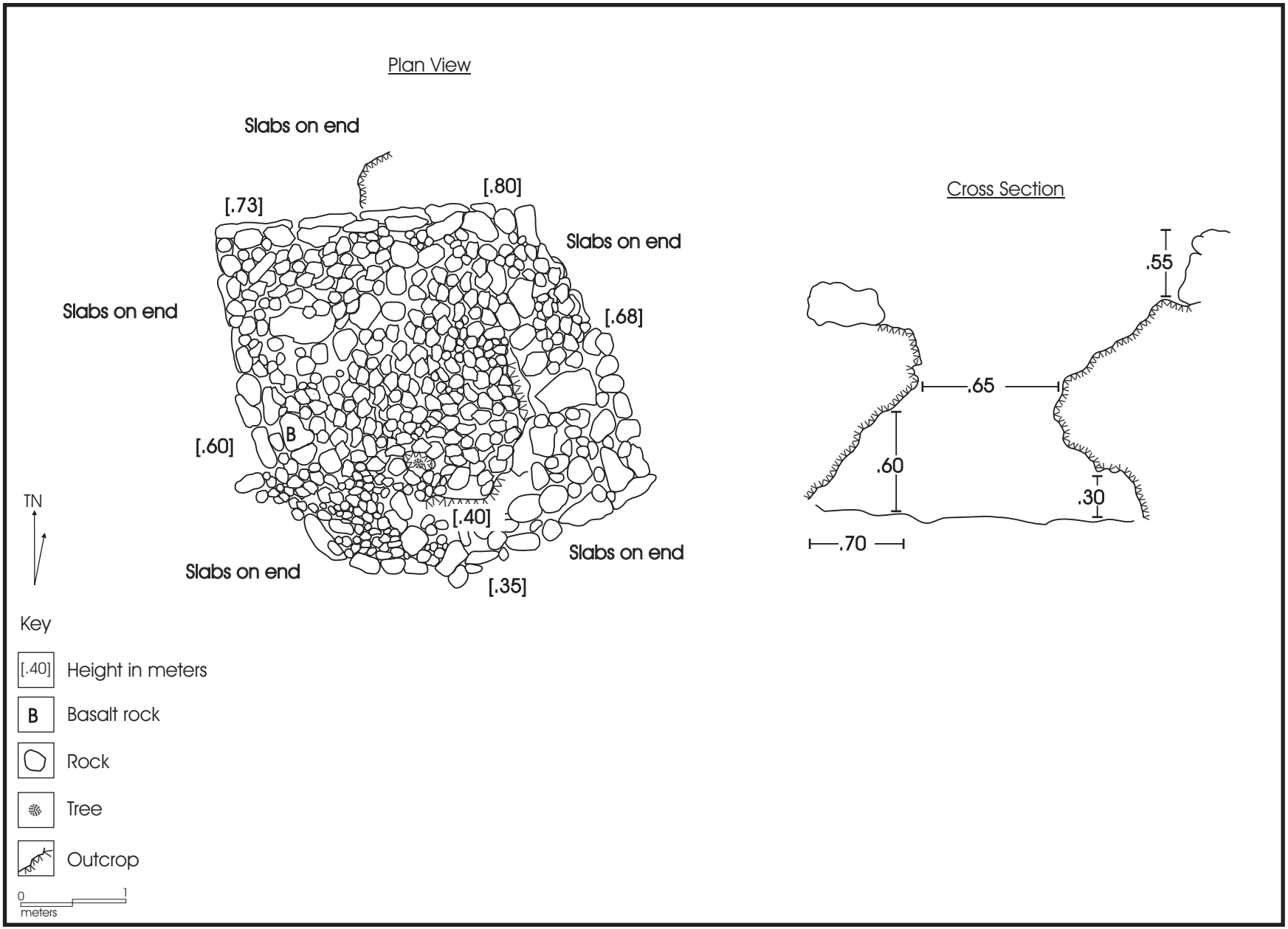

Figure 22. Plan View and Cross Section of SU-4 (Note scale difference).

Figure 23 illustrates the East profile of SU-5, and shows the three stratigraphic layers identified in this unit. Layer I is a very dark brown (10YR 2/2, moist) pebbly, cobbly sandy silt with a high organic content, and approximately 15%, by volume, subangular to angular coralline cobbles and pebbles. This rocky silt matrix ranges from 9.0 to 10.0 cm thick, and was loose, nonsticky, and nonplastic. Layer I was found directly overlying Layer II, and has an abrupt, smooth boundary. No cultural materials were found in Layer I.

Layer II is a brown to dark brown (7.5YR 4/4 to 7.5YR 3/4, moist) silt loam with approximately 10%, by volume, subangular to angular coralline cobbles and pebbles. This silt loam matrix ranges from 18.0 to 30.0 cm in thickness, and is very friable, very slightly sticky, and very slightly plastic. Layer II was found directly overlying limestone bedrock as well as Layer III silts. Layer II has an abrupt, smooth boundary overlying Layer III.

Faunal remains from Layer II include bird bone, marine shell (gastropods), and crustacean remains. Charcoal flecking was observed throughout Layer II. No artifacts were found.

Layer III is a brown (7.5YR 5/4, moist) pebbly silt with approximately 20%, by volume, subangular to angular coralline pebbles. This noncultural silt deposit is friable, nonsticky, and nonplastic. It was found directly overlying limestone bedrock, and is 3.0+ cm thick.

Sinkhole Excavation Unit 6 (SU-6)

The unmodified sinkhole in which SU-6 was excavated is located 4.0 m east of Feature 8 (see Figure 6). This sinkhole is irregular-shaped, measures 1.8 by 1.5 m, and ranges in depth from 0.3 to 0.7 m (Figure 23). The sink's interior consists of a roughly level soil floor with scattered limestone cobbles and boulders.

This sink was tested to determine the presence or absence of cultural materials and features. A 0.5 by 0.5 m test unit, SU-6, was excavated adjacent to the east wall of the sink.

No traditional Hawaiian cultural materials were observed in the three stratigraphic layers (Layers I, II, and III) encountered in SU-6. Excavations were terminated in the basal C-horizon soil of Layer III, at approximately 45.0 cmbs.

Figure 23 illustrates the South and East profiles of SU-6, and shows the stratigraphic sequence identified in this unit. Layer I is a very dark brown (10YR 2/2, moist) cobbly, pebbly silt loam with a high organic content, and approximately 10%, by volume, subangular to angular coralline cobbles and pebbles. This silt loam deposit ranges from 7.0 to 10.0 cm thick, and is loose, nonsticky, and nonplastic. Layer I was found directly overlying Layer II, and has an abrupt, wavy boundary.

Layer II is a brown (7.5YR 4/4, moist) very cobbly, very pebbly silt with approximately 25%, by volume, subangular to angular coralline cobbles and pebbles. This rocky silt deposit ranges from 9.0 to 21.0 cm in thickness, and is loose, nonsticky, and nonplastic. Layer II was found directly overlying Layer III, and has an abrupt, smooth boundary.

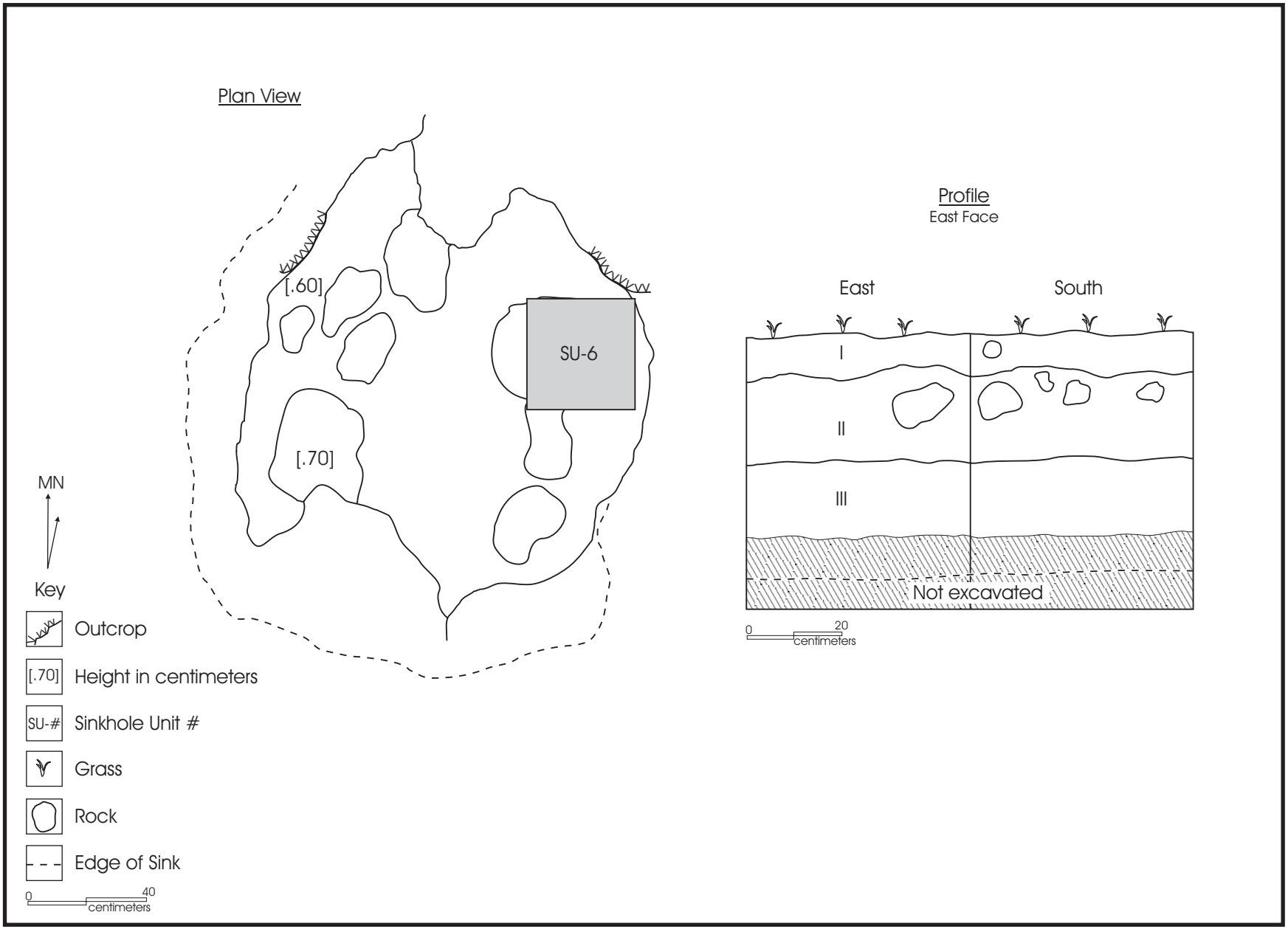

Figure 23. Plan View of Sinkhole Feature, Profile of SU-6 Unit 5 (Note scale difference).

Layer III is a brown (7.5YR 5/4, moist) very gravelly, pebbly silt with approximately 50%, by volume, subangular to angular coralline cobbles and pebbles. This deposit is 18.0+ cm in thickness, and is friable, nonsticky, and nonplastic. The lower boundary was undetermined.

ARTIFACTS

Small quantities of artifacts were recovered from STP and test unit excavations in the project area. A majority of the large numbers of historic/recent artifacts encountered in STP excavations were qualitatively noted, but not counted or collected. All traditional forms of artifacts were collected from STP excavations. Traditional and historic/recent artifacts recovered from test unit excavations were qualitatively and quantitatively documented.

The distribution of traditional artifacts recovered from STP and test unit excavations is presented in Table 3. The historic/recent artifact types noted in STP excavations are presented in Table 4. Historic/recent artifacts recovered from TU-1 are presented in Table 5. Traditional and historic/recent artifacts are presented below by raw material categories.

Table 3. Distribution of Traditional Artifacts from Excavations in the Project Area.

Excavation Unit	STP 2	STP 3	STP 6	STP 41	TU-1	TU-1	SU-3	TOTAL
Stratigraphic Layer	II	II	III	Ic	Ic	III/1	II/1	
BASALT								
Debitage Flake						1		**1**
Debitage Flake Fragment	1		1	1				**3**
VOLCANIC GLASS								
Core							1	**1**
MARINE SHELL								
Fishook, whole and frag		1			1			**2**
TOTAL	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**7**

Traditional Hawaiian Artifacts

Of the seven traditional artifacts recovered, five are lithic items and two are of marine shell. Lithic artifacts recovered include two basalt debitage flakes and a volcanic glass core. The shell artifacts include fishhook fragments. These are described below.

Basalt

One basalt debitage flake and three flake fragments were recovered from STP and test unit excavations. Crabtree (1972:58) defines debitage as residual lithic material resulting from tool manufacture. The study of debitage flakes is useful in determining tool-manufacturing techniques and for demonstrating technological traits. Debitage flakes usually represent the various stages of progress of the raw material from the original form to the finished tool (ibid.).

The debitage flake recovered from TU-1, Layer III/1, measures 4.0 by 4.3 by 0.6 cm and weights 10.6 g. It is of medium- to coarse-grained, dark gray basalt with unidentified, very fine, crystalline inclusions. It exhibits a platform (0.7 by 03 cm), a force bulb, and a hinged termination.

The debitage flake fragment recovered from STP 2, Layer II, measures 2.3 by 1.5 by 0.2 cm, and weighs 1.5 g. It is of fine-grained, dark gray basalt. This fragment is the distal end of a very thin flake. Flake scars are present on the dorsal surface.

The debitage flake fragment recovered from STP 41, Layer Ic, measures 2.0 by 1.3 by 0.2 cm, and weighs 1.3 g. It is of medium- to fine-grained, brownish gray basalt. It exhibits portions of a platform, the force bulb, and a dorsal ridge.

The debitage flake fragment recovered from STP 6, Layer III, measures 1.7 by 1.0 by 0.5 cm, and weighs 1.4 g. It is of fine-grained, dark gray basalt. The unbroken end is shaped to a rough point, and there is micro-scarring on both sides of the point. A dorsal ridge is present that extends up from the point. This fragment is likely the point of a basalt awl.

Volcanic Glass

One volcanic glass core was collected a test unit (SU-3, Layer II/1) excavated in a modified sinkhole (Feature 7). Crabtree (1972:54) defines "core" as a "mass of material often pre-formed by the worker to the desired shape to allow the removal of a definite type of flake or blade". The volcanic glass core from Feature 7 measures 1.7 by 1.1 by 0.7 cm, and weighs 1.8 g. It contains multiple platforms and multidirectional negative flake scars.

Marine Shell

Two shell fishhooks were recovered from STP and test unit excavations. These pearl shell tools were likely manufactured from either *Isognomen* or *Pinctada* shells. The fishhook fragment recovered from TU-1, Layer Ic, measures 1.8 by 0.25 by 0.1 cm. This fragment appears to be a fragment of the point of a fishhook.

The shell fishhook fragment recovered from STP 3, Layer II, is almost a whole specimen, and is unfinished (incomplete). It measures 2.2 cm in length. The inner curve is formed, but only partly shaped, and the shank is not completely filed and shaped. Because the main axis of the shank and the point are parallel, this fishhook can be termed a jabbing hook (Type IA-Emory, Bonk, and Sinoto 1968:10). The fishhook is broken on both ends.

Historic and Recent Artifacts

The historical artifacts recovered from the excavations date from the late nineteenth century to the mid-1990s. Historical artifacts are summarized in Table 4 (Appendix A) and Table 5. General categories of these artifacts include ceramics, bottle glass, architectural items, personal items, manufactured objects, unidentified metal, and ammunition. A majority of the historic and recent artifacts from STP excavations were noted but not collected.

Ceramics

Ceramic items were documented for 11 STP locales (STPs 1, 2, 6, 7, 12, 21, 23, 24, 26, 28, and 41). Ceramics were not encountered in test units. Monochrome (white, brown, blue,

yellow) and patterned pieces were observed. Patterned ceramics included transfer prints (blue on white), red on cream, and orange, white, and red on black. Items identified include fragments of plates, cups, and bowls.

A ceramic pontil marble was recovered from STP 1. This item is light reddish brown in color and measures approximately 1.5 cm in diameter.

Bottle Glass

Bottle glass fragments, including diagnostic base fragments, were recovered in all but eight (STPs 7, 13, 14, 33, 43-46) STP locales. Amber/brown, aqua, clear, green, and white (milk glass) colored glass fragments were noted. Most of the amber/brown glass was stippled and was likely recent beer bottle glass. Many amber fragments in STPs 1, 2, 26, and 30, and in TU-1 (Layer Ib) had the embossed monogram for Anheiser-Busch Company, and several of the stippled amber fragments contained a portion of the embossed message "NO DEPOSIT NO RETURN".

Table 5. Summary of Historic and Recent Artifacts from Test Unit 1 (TU-1)

Provenience	South Wall	Ib	Ic	III	Total
ARTIFACT					
BOTTLE GLASS, Sherds					
Amber/Brown		32	31		**63**
Aqua		2			**2**
Clear		43	27		**67**
ARCHITECTURAL ITEMS					
Cut Nails, Whole/fragments			2		**2**
Wire fragment			1		**1**
MANUFACTURED ITEMS					
Aluminum pull top			1		**1**
UNIDENTIFIED METAL					
Unidentified fragments	1		15		**16**
AMMUNITION					
Unidentified brass rifle casing	1		2	1	**4**
.22 caliber brass casing			1		**1**
TOTAL		**77**	**80**	**1**	**157**

In STP 1, a body fragment of a Double Cola bottle was encountered (1950-1970's style-ACL). A clear body fragment with letters "ATE" (probably WATER) was also found in STP 1. This fragment may represent a bottle from Consolidated Soda Water Works of Honolulu.

Several body fragments from STP 8 and STP 26 contained the Owens-Illinois mark (no date on a green fragment; 1945 date on a clear fragment). Another fragment contained an embossed "OK BEVERAGE CO" (STP 22).

In TU-1, 77 bottle glass fragments (amber, aqua and clear) were recovered from Layer Ib. A total of 58 fragments (amber and clear) were recovered from Layer Ic in this unit.

Architectural Items

Artifacts in this general category included window glass fragments, nails (round and square heads), brick fragments, and slate fragments. Five locales (STPs 1, 3, 7, 15, 21, and 31) contained artifacts associated with building materials. A majority of the nails observed were wire nails with round heads; most were not rusted. One rusted square headed nail was observed in STP 1. In addition to these items, asphalt, concrete chunks, rebar, and pieces of railroad ties were noted (not listed in Tables 4 and 5). Architectural items recovered from TU-1 included two wire nails (round heads). These were recovered from Layer Ic.

Personal Items

Artifacts in this category included a bone die, a red glass bead, coins, a rubber slipper, plastic toothbrush, and a piece of leather. Eight locales (STPs 1, 3, 7, 8, 12, 16, 21, and 22) contained personal items.

The coins observed, were all copper pennies. Dates on the pennies ranged from 1974 to 1993 (STPs 1, 3, and 12). The date on one penny was not legible.

The single die from STP 8 is a hand-made bone cube, approximately 1.2 cm on a side, and weights approximately 3.5 g. The bone material is dense, and unidentified. The numbers on the die are represented by partly drilled holes that, except for the "one", measure a consistent 2.0 millimeters (mm) in diameter. The single hole marking the "one" measures approximately 6.0 mm in diameter. The red glass bead (STP 7) is roughly spherical in shape, and measures about 6.0 mm in diameter.

Manufactured Items

Artifacts in this category include wire fragments, aluminum pull-tabs, metal grommets, and staples. Eleven locales (STPs 1, 2, 3, 5, 7, 8, 12, 14, 17, 25, and 30) contained manufactured items. Materials in this category recovered from TU-1 include an aluminum pull-tag from Layer Ic.

Unidentified Metal

Metal items that could not be identified are in this category. These included pieces of rusted iron, pieces of lead, and unidentified metal pieces. Unidentified metal was encountered in nineteen locales (STPs 3, 4, 6, 7, 8, 9, 16, 22, 23, 32, 34, 35, 36, 37, 38, 41, 47, 52, and 53). In TU-1, a total of 15 pieces of unidentified metal were recovered from Layer Ic. All of these are rusted.

Ammunition

Items in this category include brass cartridge casings. Casings were found in two locales (STPs 3 and 7). Casings in these locales are unidentified, but may be M-16 rifle

ammunition casings. In TU-1, M-16 casings were found in Layer Ic and Layer III. A .22 caliber casing was also recovered from Layer Ic.

Faunal Remains

Moderately large quantities of faunal materials were recovered from STP and test unit excavations in the project area. Faunal materials encountered in STP excavations were qualitatively noted, but not counted or collected. All faunal materials were collected from test unit excavations were qualitatively and quantitatively documented. General categories of faunal remains include marine mollusks (gastropods and bivalves), echinoderms (sea urchin), Arthropods (crustaceans), mammals, fish, and birds.

A list of faunal materials observed in STP excavations is presented in Table 6 (Appendix A). Faunal materials from test units are presented in Tables 7 and 8. Faunal materials are presented below by raw material categories.

Mammals

Vertebrate materials identified in the faunal assemblage include bone remains from mammals (pig, mongoose), birds and fish. In STP excavations (see Table 6), medium mammal remains (size range of dog and pig) were identified in two locales (STPs 7 and 23). A pig tooth (*Sus scrofa*) was identified in STP 1. Small mammal remains (size range of rat and mouse) were identified in STP 1 and 31. In STP 1, some of these remains were identified as mongoose (*Herpestes* spp.)

In TU-1, excavated at the shoreline, medium mammal remains were recovered in TU-1, Layers Ib, Ic, and II (see Table 7), with Layer Ib containing most of these remains (27.7 g). Only sparse quantities (0.2 g) were recovered from Layer II.

In SU-3, excavated in a modified sinkhole (Feature 7), medium mammal and pig bone was encountered in small quantities (less than 1.0 g each) in Layers I, II, and III.

Birds

The recovery of bird bone materials was restricted to test units in sinkholes. These remains were not observed in STP excavations. Unidentifiable bird bone fragments were recovered from SU-3, Layer III, in Feature 7 modified sinkhole (0.3 g). A total of 1.4 g of unidentified bird bone fragments were recovered from Layer II in SU-5 in Feature 8 unmodified sinkhole. Because they are nondiagnostic, it is uncertain if these bird remains are associated with extinct bird species.

Fish

In STP excavations (see Table 6), fish bone was identified in eight locales (STPs 2, 6, 7, 12, 26, 31, 32, and 35). Most of the fish bone is undiagnostic spines, vertebrae, mandibular fragments, and scales. Based on the mandible fragments, it is possible that the families Scaridae (parrotfish) and Labridae (wrasses) are represented.

In TU-1, excavated at the shoreline, fish bone recovered included undiagnostic spines. Layers Ib (0.3 g) and Ic (0.2 g) contained small quantities (see Table 7). Fish bone

materials were not recovered from test units in sinkholes.

Table 7. Summary of Faunal and Floral Remains in TU-1.

Stratigraphic Layer		Wall Clean-up	Ib	Ic	II-1	II-2	III-1	III	TOTAL
Family	**Genus/Species**		**g**	**g**	**g**	**g**	**g**	**g**	**g**
Cerithiidae			0.3	0.9	1.0	1.7	0.5		**4.4**
Conidae	*Conus* spp.		21.0	29.9	2.0	21.1		6.3	**80.3**
	Conus abbreviatus		2.5						**2.5**
	Conus catus		2.2	2.0	1.8			2.2	**8.2**
	Conus ebraeus		1.7						**1.7**
Cymatiidae	*Cymatium* spp.		1.9	0.4				0.6	**2.9**
Cypraeaidae	*Cypraea* spp.		33.0	6.7		7.3	1.5	6.0	**58.0**
	C. caputserpentris	9.4			7.9	3.5		8.9	**29.7**
Hipponicidae	*Hipponix* spp.		2.9	1.1	0.3	1.7	1.0	0.5	**7.5**
Littorinidae	*Littorina pintado*		0.3	0.2			0.4		**0.9**
Mitridae	*Mitra* spp.			0.6					**0.6**
Neritadae	*Nerita picea*		3.8	0.9	0.3	1.4	0.2		**6.6**
Patellidae	*Cellana* spp.	0.1	6.4	3.1		0.6	0.6		**10.8**
	Cellana melanostoma							64.8	**64.8**
Siphonaridae	*Siphonaria normalis*		0.6	0.4	0.7	0.3		1.2	**3.2**
Strombidae	*Strombus* spp.	0.3	5.4	1.0	2.6	4.0		3.8	**17.1**
Thaididae			0.6	2.2	0.6	2.8	0.3	0.4	**6.9**
	Drupa ricina		6.2						**6.2**
	Morula granulata		0.3			1.1			**1.4**
Trochidae	*Trochus intextus*			0.3		0.5		3.5	**4.3**
Turbinidae	*Turbo sandwicensis*		5.4	1.7	2.0	5.9		1.2	**16.2**
Unidentified	Gastropods	3.9	13.4	24.1	7.7	19.8	0.7	7.8	**77.4**
GASTROPODS	**TOTAL**	**13.7**	**107.9**	**75.5**	**26.9**	**71.7**	**5.2**	**107.2**	**411.6**
Arcidae	*Barbatia* spp.					1.3		0.7	**2.0**
Chamidae	*Chama* spp.		32.9	25.1	14.8	20.5		27.9	**121.2**
Isognomonidae	*Isognomon* spp.		0.4	1.5		0.5			**2.4**
Lucinidae	*Codakia punctata*	10.3						0.4	**10.7**
	Ctena bella		1.1	0.3		2.1	0.1	0.6	**4.2**
Mytilidae			0.3			0.3			**0.6**
Pteriidae						0.1			**0.1**
Tellinidae	*Tellina* spp.					1.3	0.1		**1.4**
	Tellina palatam		1.7	1.7	0.2	4.8			**8.4**
	Tellina scobinata		1.1	0.3	2.1	0.3	0.4	0.2	**4.4**
Veneridae	*Periglypta reticulata*		11.7	4.8	3.6	6.3	0.2	12.9	**39.5**
Unidentified	Bivalves		3.9	1.7	1.0	1.8			**8.4**
BIVALVES	**TOTAL**	**10.3**	**53.1**	**35.4**	**21.7**	**39.3**	**0.8**	**42.7**	**203.3**
OTHER									
Sea Urchin	test, spine, mouth pt.	1.1	6.3	3.3	5.6	7.8	1.2	0.2	**25.5**
Crab	claw fragment		0.9		1.2			0.9	**3.0**

Table 7. Summary of Faunal and Floral Remains in TU-1 (continued).

Stratigraphic Layer		Wall Clean-up	Ib	Ic	II-1	II-2	III-1	III	TOTAL
Family	**Genus/Species**		**g**	**g**	**g**	**g**	**g**	**g**	**g**
OTHER	**TOTAL**	**1.1**	**7.2**	**3.3**	**6.8**	**7.8**	**1.2**	**1.1**	**28.5**
VERTEBRATE									
Fish	bone		0.3	0.2					**0.5**
Med. mammal	bone		18.5	2.3	0.2				**21.0**
Mongoose	bone		3.6	3.0					**6.6**
Pig	bone/teeth		5.3						**5.3**
VERTEBRATE	**TOTAL**	**0.0**	**27.7**	**5.5**	**0.2**	**0.0**	**0.0**	**0.0**	**33.4**
FAUNA	**TOTAL**	**25.1**	**195.9**	**119.7**	**55.6**	**118.8**	**7.2**	**151.0**	**676.8**
FLORA									
Wood charcoal					6.4	4.6			**11.0**
Kukui					0.5	0.8			**1.3**
FLORA	**TOTAL**				**6.9**	**5.4**			**12.3**

Marine Shell

In the Hawaiian food economy, there was a great dependence upon marine resources, including marine and fresh/brackish water mollusks to supplement *poi*, the starchy mainstay of the Hawaiian diet (Titcomb 1979). It is not surprising, therefore, that mollusks, including both gastropods (univalves) and bivalves are present in moderately large quantities.

In STP excavation, 17 families (including 18 genera) of gastropods and eight families of bivalves (including seven genera) were identified in the field. The gastropod families (and genera) include Architectonicidae (*Heliachus*), Bullidae (*Bulla*), Cerithiidae, Conidae (*Conus*), Cymatiidae (*Cymatium*), Cypraeaidae (*Cypraea*), Hipponicidae (*Hipponix*), Littorinidae (*Littorina*), Mitridae (*Mitra*), Neritadae (*Nerita*), Patellidae (*Cellana*), Siphonaridae (*Siphonaria*), Strombidae (*Strombus*), Thaididae (*Drupa, Morula, Nassa, Vexilla*), Trochidae (*Trochus*), Turbinidae (*Turbo*), and Vermetidae. The bivalve families include Arcidae (*Barbatia*), Chamidae (*Chama*), Isognomonidae (*Isognomon*), Lucinidae (*Codakia, Ctena*), Mytilidae, Pteriidae, Tellinidae (*Tellina*), and Veneridae (*Periglypta*).

In TU-1 excavations, the above-mentioned families and genera were identified, with the exception of the gastropod families (and genera) Architectonicidae (*Heliachus*), Bullidae (*Bulla*), Thaididae (*Nassa, Vexilla*), and Vermetidae. A total of 577.8 g of marine mollusk remains were recovered, including 374.5 g of gastropods (64.8%) and 203.3 g of bivalves (35.2%). In the TU-1 faunal assemblage (all proveniences), the dominant gastropod genera, by weight, are *Conus*, *Cypraea*, *Strombus*, and *Cellana*. *Chama* and *Tellina* are the dominant bivalve genera, by weight.

In Layers Ib and Ic in TU-1 marine mollusks were recovered in moderately large quantities. Both of these layers contain mixed deposits. Moderately large quantities of marine shell were also recovered from Layer II, the identified cultural layer. In Layer II, the

dominant gastropods are *Conus* (24.9 g) and *Cypraea* (18.7 g). The dominant bivalves in Layer II are *Chama* (35.3 g) and *Tellina* (8.7 g). Much of the marine shell remains in Layer Ib, Ic, and II, and all of the shell in Layer III in TU-1 is quite weathered.

In sinkhole excavations SU-2, SU-3, and SU-5, a total of 48.5 g of marine mollusk remains were recovered, including 44.3 g of gastropods (91.3%) and 4.2 g of bivalves (8.7%). Six families (including five genera) of gastropods and three families of bivalves (including three genera) were identified. The gastropod families (and genera) include Conidae (*Conus*), Cymatiidae (*Charonia*), Cypraeaidae (*Cypraea*), Neritadae (*Nerita*), Thaididae (*Morula*), and Turbinidae (*Turbo*). The bivalve families include Mytilidae (*Brachidontes*), Pteriidae (*Pinctada*), and Tellinidae (*Tellina*). The dominant gastropod, by weight, in the sinkhole excavations is *Cypraea* (19.3 g). The dominant bivalve in Layer II is *Tellina* (2.5 g). The marine mollusk remains in sinkhole excavations do not exhibit much weathering.

Sea Urchin

In STP excavations, small quantities of sea urchin remains (body/mouth fragments and spines) were noted in four locales (STPs 12, 21, 30, and 36). Three genera of sea urchins were tentatively identified in the field, based on spine morphology and size. These include *Echinometra matheii*, *Echinothrix diadema*, and *Heterocentrotus mammilatus*.

In TU-1 excavations, sea urchin remains were recovered in moderately small quantities (total 25.5 g). In Layer II, the cultural layer, sea urchin remains were the most plentiful (13.4 g). In this layer, tentative identifications include *Echinometra matheii* and *Echinothrix diadema*. Sea urchin remains were quite weathered in Layer III deposits in TU-1.

In sinkhole excavations, sea urchin was recovered in small quantities (0.2 g) in SU-2, Layer II. In SU-3, small quantities (1.8 g) were recovered in Layers I-III. In these excavations, sea urchin remains do not exhibit much weathering.

Crustaceans

In STP excavations, crustacean (Arthopods), or crab remains were noted in three locales (STPs 1, 3, and 33. Mostly crab claws, these remains are quite weathered. In TU-1 excavations, small quantities (total is 3.0 g) of crab remains (claw fragments) were recovered in Layers Ib, II, and III. A total of 10.7 g of crab remains were recovered from sinkhole excavations (SU-2, SU-3, and SU-5). In these proveniences, crab claw fragments are quite weathered. Because crustacean remains are quite weathered, and found in the C-horizon soils in SU-2 in Feature 6 (sinkhole), it is not likely that they reflect cultural deposition in C-horizon soils.

DISCUSSION

The archaeological inventory survey of the proposed Wai`anae Regional Park parcel, designated as Site 50-80-07-3967, confirmed the presence of previously documented surface archaeological features, recorded new surface features, and identified previously

unrecorded subsurface cultural deposits. The seaward portions of the coastal flats, where coral sand deposits occur, have been extensively impacted by previous land use activities, presumably associated with railroad construction and other activities.

This section covers general topics including archaeological features, stratigraphy, artifacts, and midden materials. Interpretations of the stratigraphic development, the nature of Hawaiian occupation, and activities believed to have occurred at the site are presented in the discussion.

ARCHAEOLOGICAL FEATURES

The eight features documented during this survey include previously recorded features (Features 1-4), and features recorded during the current survey (Features 5-8); the low rock mound in which TU-2 was excavated, and the two sinkholes in which SU-1 and SU-6 were excavated were not assigned feature numbers. The rock mound was not assigned a feature number based on the presence of very recent (less than 50 years old) metal and glass fragments encountered in all excavated layers. The two sinkholes were not assigned feature numbers because excavations within them yielded no evidence of cultural activities.

Feature 1, the Native Hawaiian burial exposed in 1992 by Hurricane Iniki (Kawachi 1992), demonstrates that Hawaiians used seaward areas in the parcel for burial purposes. Kawachi notes that the burial originated in sand deposits. It is likely that, before post-Contact modifications to the parcel, the shoreline contained intact sand dunes suitable for human burial.

Features 2, 3, and 4, previously documented by Sinoto (1975), are interpreted as temporary habitation features. Sinoto interpreted Feature 2 as an animal pen. While no significant cultural materials were recovered from TU-3 in Feature 2, this feature was more likely associated with habitation activities based on the size and complexity of the structural remains. It is also unlikely that animals were kept in this type of environment (e.g., karst with deep sinkholes).

Features 3 and 4 are common structural types associated with habitation in pre-Contact Hawai`i. Feature 3 is likely a rectangular or Box-C (or U-shaped) enclosure, but has been impacted by bulldozing; Feature 4 is an L-shaped enclosure. These enclosure types have been associated with temporary, or intermittent, habitation in Makaha Valley (Green 1969, 1970, 1980). Kirch (1985:248) indicates that large numbers of these structural types are found on all major islands, and are particularly common in leeward areas where dryland agricultural systems occur. Similar enclosures have been documented in the karst environment at Barber's Point (Davis 1995).

Features 5 through 8 are sinkholes that may have functioned as garden areas. Test excavations in Features 6 through 8 recovered small quantities of marine shell remains and charcoal flecking in one or more well developed, relatively rock-free, soil layers (Layer II in Feature 6; Layers II and III in Feature 7; Layer II in Feature 8). Similar archaeological features with similar deposits were interpreted as garden features by Flood et al. (1994:152-154). Davis (1995: 462, 468-470) also corroborates the use of karst sinkholes as garden features. Davis refers to a small-scale garden system consisting of shallow sinkholes or

depressions filled with fine-grained sediments at Barber's Point. He states that while "...they lack enclosing walls typical of garden features recorded elsewhere at Barber's Point, the noticeable absence of loose surface rocks and the presence of a well-developed soil layer are sufficient evidence to provisionally define these features." (Davis 1995:462).

STRATIGRAPHY

Extensive disturbance and mixing in upper stratigraphic layers, identified primarily as coral sand fill, were recorded in the seaward portions of the project area. This disturbance is documented in Layers Ia, Ib, Ic, and possibly upper portions of Layer II. These proveniences contain a mixture of traditional Hawaiian, historical, and recent artifacts, as well as traditional, historical, and recent faunal materials.

Because of the disturbance in upper portions of the stratigraphic sequence, reconstructing the more recent events associated with the natural and cultural depositional history of this locale is difficult. Several observations and assumptions regarding earlier events, however, are presented here.

Bedrock underlying the soils and sediments in seaward portions of the project area is the upraised coralline reef. Layers Ia, Ib, Ic, III, IV, Layer I Facies and Layer II Facies were recorded, discontinuously, overlying bedrock. Historic and modern artifacts in Layers Ia, Ib, Ic, Layer I Facies, and Layer II Facies, indicate that these deposits post-date pre-contact occupation and have been disturbed by extensive landscape alterations to the project area.

The formation of Layer IV (silty sand deposits) is likely the result of both in situ physical and chemical weathering of the coralline bedrock and aeolian (i.e., wind borne) deposition of coral sands. The coralline silt component of layer IV is the C Horizon associated with weathering of the coralline bedrock.

Based on the presence of very fine to fine grain sizes, the sands in Layer IV likely were deposited onto the bedrock by offshore winds and mixed with in situ silts. The light yellowish brown color of this soil is likely an indication of age. The range of coral sand grain sizes (very fine to coarse), and the presence of whole and fragmentary marine shell (mollusk, sea urchin and crustacean remains) in the Layer III is likely the result of marine (e.g., storm surge) and aeolian forces. Aeolian forces (normal trade winds and storm winds) are likely the key factors affecting the inland extent of Layer III (see Figure 15).

The stratigraphic relationship of Layer II in STP 25, directly overlying Layer III coral sands and directly underlying Layer I coral sands, suggests that there was at least one relatively long period where inland dune sand was sufficiently stabilized for human occupation. This stasis in dune development may have been a function of either lower sea levels or the uplift of the coralline bedrock.

Layer II is interpreted as a buried A horizon (a former surface layer supporting soil development) that developed in Layer III sands as indicated by high organic content and the presence of traditional Hawaiian cultural materials. The formation of Layer II deposits is the result of natural soil formation processes and human occupation.

As shown in Figure 15, the known extent of Layer II in the project area is restricted to two areas (Areas 1 and 2). Based on the presence of traditional Hawaiian artifacts (incomplete shell fishhooks and basalt flakes), faunal materials (marine shell, sea urchin, mammal bone), and floral remains (wood charcoal and *kukui*) from STPs and TU-1, Area 1 may represent a shoreline camp, or small settlement; Area 2 may represent a smaller activity area. Upper proveniences of Layer II are likely disturbed throughout Areas 1 and 2 based on the presence of traditional Hawaiian cultural materials in proveniences above Layer II. No carbon suitable for radiocarbon dating was recovered from these areas. Based on other projects in Wai`anae, the traditional Hawaiian occupation of the project area probably occurred well after 1400 A.D.

Layer I Facies and II Facies, while in the same stratigraphic positions as Layer I and Layer II coral sands, are silt loam and clay loam soils derived from basalt. It is assumed that the deposition of these sediments in both facies is the result of soil erosion from inland areas, as well as from importing soils during construction of the adjacent Wai`anae Harbor. Layer II Facies is not likely to be contemporaneous with Layer II.

Sinkhole Stratigraphy

The stratigraphic sequences encountered in the sinkholes (SU-1 through SU-6) are similar to sequences found in sinkholes in karst areas near the project area (Flood et al. 1994) and at Barber's Point (Davis 1995). In sinkholes that have evidence of cultural use, the sequence consists of a noncultural surface (A horizon) with moderate to high percentages of coralline cobbles and pebbles. Underlying the surface layer are one or more well developed terrigenous soil layers (silt loams and clay loams) that are relatively rock-free and contain small quantities of marine shell and charcoal flecking. The basal layer is frequently a C Horizon consisting of coralline silt with moderately high percentage of coralline pebbles and cobbles.

The cultural layers identified in sinkhole excavations include Layer II in Feature 6, Layers II and III in Feature 7, and Layer II in Feature 8. It is likely that these layers are relatively rock-free due to the effort by Hawaiians to remove cobbles and larger pebbles to make the soil more suitable for planting. The presence of charcoal flecking, marine shell, and bone likely represents mulching activities during planting. Due to the lack of suitable radiocarbon-dating material from the site, the age of the sinkhole occupation and their relationship to Layer II on the coastal flat can not be determined.

ARTIFACTS

The seven traditional Hawaiian artifacts recovered from STPs and test excavations on the coastal flat and in sinkholes at Wai`anae Regional Park represent a relatively small range of tools. Based on the traditional types present, it is likely that they were manufactured during the pre-Contact period. The presence of both traditional and historic artifact forms in several layers (Layers Ic, II, and III) in the project area is likely the result of surface disturbance in the 19th and 20th centuries.

The presence of basalt flakes and flake fragments in the project area suggests that the Hawaiian occupying the site were involved in basalt core reduction either for adze manufacture, or flake production for other tool types (e.g., scraping and cutting tools). The

presence of a basalt awl fragment suggests that this tool type was being used at the site, probably related to woodworking activities.

The volcanic glass core collected from an unmodified sinkhole (Feature 7, SU-3, Layer II/1), suggests that Hawaiians living at the site were manufacturing volcanic glass flakes. This core has several negative flake scars suggesting that flakes were removed from the core. In an early study of these artifacts, Barrera and Kirch (1973) noted that volcanic glass flakes retains a sharp, very fine edge that is suitable for use as cutting and scraping implements. Possible functions for volcanic glass flakes include cutting and scraping plant materials and delicate woodworking.

The two incomplete shell fishhooks recovered at the site (TU-1, Layer Ic; STP 3, Layer II) indicate that Hawaiians were manufacturing fishhooks at this site.

Faunal Materials

The faunal materials identified in STP and test unit excavations appear to be fairly typical of Hawaiian coastal sites (Kirch 1985). The 17 families (including 18 genera) of gastropods and eight families of bivalves (including seven genera) identified in the faunal remains indicate a fairly large variety of resources being exploited by Hawaiians.

The predominance in Layer II, TU-1, of *Conus, Cypraea, Chama, and Tellina*, and of *Cypraea* and *Tellina* in cultural layers in sinkhole excavations, indicate that a range of marine environments were being frequently exploited by Hawaiians. These marine environments, including the surge zone, shallow reef waters, deeper waters just off of the reef, and sandy flats, can be found adjacent to or near the project area.

Much of the marine shell remains in Layer Ib, Ic, and II, and all of the shell in Layer III in TU-1 is quite weathered. The fact that a portion of the recovered marine shell remains are quite weathered, suggests that portions of the recovered invertebrate assemblage are a result of natural beach deposition. The percentage of natural versus cultural deposition was not in the scope of the inventory.

The sparse presence of mammal bone in cultural layers indicates that Hawaiians occupying this area had access to and/or exploited terrestrial resources as well as marine resources. This access likely occurred either through trade with people outside the ahupua`a, with members of the family within the ahupua`a, or through direct exploitation by Hawaiians at the site.

The presence of pig remains in Hawaiian archaeological sites has been interpreted in the past (Kirch and Kelly 1975:69) as indirect evidence of a developing agricultural economy. Pigs (as well as dogs) were raised primarily on a vegetable diet. This interpretation may be valid even for this leeward environment.

The sinkholes tested did not contain large quantities of diagnostic bird bone remains. The small quantities of nondiagnostic bird bone remains recovered in sinkholes were insufficient to address questions related to the presence of bone remains of extinct bird species in the sinkholes. Questions related to the impact of human occupation on birds also remain unanswered for this parcel.

Pre-Contact Settlement Pattern and Land Use

It is suggested here that, based on the topography of the Wai`anae Regional Park parcel (Site 3967), and soils and sediments it contains, and on more suitable areas inland, the landscape in the park parcel was probably not conducive to permanent settlement by pre-Contact Hawaiians. The closest permanent settlement to Site 3967 is the inland settlement of what is now known as Kamaile Village. While the sandy seaward portions of the park have been significantly impacted in the past, it is likely that permanent structures associated with Kamaile Village such as *kauhale* (multiple-component house sites) and *heiau* (ritual structures) were not built on this parcel.

The surface structures identified during the archaeological inventory of the parcel, including an enclosure, an enclosure remnant, and an L-shaped wall (Features 2, 3, and 4, respectively), suggest temporary or possibly recurrent habitation activities. In addition, excavations in modified and unmodified sinkholes (Features 5-8) suggest that dry land agricultural methods were being practiced in the some of the larger sinkholes in the project area.

The sand dune area in seaward portions of the parcel was a likely place for small camps that were used on a temporary or recurrent basis. Archaeological evidence suggests fishing and marine resource procurement may have been primary activities associated with the camps. The cultural deposition of relatively large quantities of marine invertebrate remains could suggest that these food items were being consumed here.

Based on the presence of the Feature 1 burial, Hawaiians also used the sand dune areas in seaward portions of the parcel for human burial, at least once. While several members of the Wai`anae community that were interviewed for this project believe that burials in the sand dune areas are associated with pre-Contact Hawaiians living in Kamaile Village, no firm archaeological connections between the two sites have been established to date.

While archaeological testing in sinkholes did not confirm the use of sinkholes by Hawaiians for human burial, there is a possibility that sinkholes were used for this purpose. On the other hand, it is also quite possible that Hawaiians did not use the sinkholes for burial of their dead. The relatively soft sand deposits located seaward of the sinkholes on the parcel, where one burial has been found, may have been a preferred burial location during the pre-Contact Period.

Although radiocarbon dates are not yet available for Site 3967 at Wai`anae Regional Park, radiocarbon dating of archaeological sites in the karst environment at Barber's Point suggest that Hawaiians were utilizing sinkholes for habitation and cultivation by A.D. 1400-1600 (Davis 1955: 454). If it is assumed that Site 3967 is contemporaneous with these sites, then some understanding can be gained regarding where Site 3967 fits into the evolution of Hawaiian cultural history. Kirch's (1985) sequence of Hawaiian cultural history will be used. According to Kirch's sequence, the evolution of Hawaiian culture can be divided into the following phases:

1. Colonization Period (A.D. 300-600)
2. Developmental Period (A.D. 600-1100)

3. Expansion Period (A.D. 1100-1650)
4. Protohistoric Period (A.D. 1650-1795)
5. Historic Period (post-A.D. 1795)

Based on the above assumption, it is suggested that Site 3967 may have been initially occupied during the Protohistoric Period (A.D. 1650-1795), possibly earlier, and occupation continued into the Historic Period (post-A.D. 1795).

According to Kirch, by the beginning of the Expansion Period, the Hawaiian people had firmly established cultural patterns of adaptation. He states that in the ensuing five and a half centuries, "the Hawaiian population would burgeon to several hundred thousand persons and would expand into even the most arid and marginal regions of the archipelago. Economic production was intensified with the development of large irrigation works and dry land field systems, and methods of aquaculture production were invented." (Kirch 1985:303). The karst sinkhole environments present along the Wai`anae coast, and at Barber's Point, are certainly among the most arid and harsh environments on O`ahu.

SIGNIFICANCE ASSESSMENTS

This inventory survey has designated the Wai`anae Regional Park parcel as Site 50-80-07-3967, a habitation site with both surface and subsurface components. The surface components consist of eight archaeological features, including a Hawaiian burial, an enclosure, an enclosure remnant, an L-shaped wall, a modified sinkhole, and three unmodified sinkholes. In addition, a subsurface testing program identified two discrete subsurface areas (Areas 1 and 2) located just inland from the shoreline that contain intact remnants of Layer II, a buried surface layer containing traditional Hawaiian cultural materials (artifacts and faunal remains).

Table 9. Archaeological Features at SIHP Site 50-80-07-3967.

Feature Number	Feature Type	Function	Mitigation Recommendation
1	Pit	Burial	Relocate and preserve in place
2	Enclosure	Temporary habitation	Data recovery; (tested TU-3)
3	Enclosure remnant	Temporary habitation	No further work necessary; relocated but partially destroyed by bulldozer
4	L-shape	Temporary habitation	No further work necessary; relocated during this project
5	Modified sinkhole	Garden area	No further work necessary; walled sinkhole initially recorded during current survey
6	Sinkhole	Garden area	No further work necessary; initially recorded during current survey; tested (SU-2)

Table 9. Archaeological Features at SIHP Site 50-80-07-3967 (continued).

Feature Number	Feature Type	Function	Mitigation Recommendation
7	Sinkhole	Garden area	No further work necessary; initially recorded during current survey; tested (SU-3)
8	Sinkhole	Garden area	No further work necessary; initially recorded during current survey; tested (SU-5)
Area 1	Subsurface deposit	Habitation area	Data Recovery
Area 2	Subsurface deposit	Habitation area	Data Recovery

The physical integrity of the site is poor, primarily because the seaward portion of the parcel has been impacted by previous land alteration activities during the late 19th century through the 20th century. One enclosure (Feature 3) recorded by Sinoto (1975) has been partially destroyed. Two intact surface features (an L-Shape and a wall) documented by Sinoto were destroyed sometime between Sinoto's 1975 survey and the current inventory survey. In the recent past, portions of the parcel have been used as a dumpsite that includes large piles of construction materials and abandoned cars; squatters living on the land and in the sinkholes have also affected the project area. In some cases, the effects of these activities can be reversed, but the overall affect has been to significantly decrease the integrity of the physical setting. In addition, the upper layers of the sand dune (Layer III) and Layer II include mixed pre-contact and post-contact material, suggesting that disturbance has occurred, likely because of grading and filling.

Along with the archaeological features, two of the sinkholes near the coast contain brackish water and include native red shrimp (*`opae ula*). Although the shrimp was a resource likely exploited by Hawaiians, there is no direct evidence of exploitation (i.e., surface modifications, petroglyphs, artifacts) to merit there inclusion as archaeological features. The sinkholes may have ecological significance not associated with cultural resources.

The State Historic Preservation Division has drafted rules and regulations (Title 13, Subtitle 13, Chapter 275, October 31, 2002) to govern the procedures and standards for historic preservation. Chapter 275, Rules Governing Procedures for Historic preservation Review, defines the criteria to be used in assessing significance. Section 13-275-6 (b) states that, "to be significant, a historic property shall 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 be likely to yield, information important for research on prehistory or history;

5. Criterion "e". Have an important historical cultural value to an ethnic group of the state.

In assessing the significance of the cultural remains at Site 3967 according to the above criteria, it appears that Site 3967 is significant under criteria d and e. Under criterion d, Site 3967 is considered significant because it has yielded information important for research on the prehistory and history of Wai`anae, and may yield further information in the future. Specifically, the subsurface deposits (Area 1 and 2) will likely yield additional information concerning traditional coastal settlement and exploitation.

Under Criterion e, Site 3967 is considered significant because the Feature 1 burial component of the site likely has a special cultural value to the Hawaiian community. In addition, based on consultation, there may be human interments in some of the sinkholes, although there is no direct evidence to substantiate the claim.

RECOMMENDATIONS

Recommendations for further historic preservation work at Site 3967 at Wai`anae Regional Park are presented here, and are based on the nature of the cultural resources identified during the inventory survey, on conversations with archaeologists at SHPD, and on the City and County of Honolulu, Department of Design and Construction's intention of considering plans for developing the parcel as a regional park.

Based on other archaeological work on the Wai`anae coast, as well as the SHPD confirmation of one known human interment in the project area, it is likely that additional human remains will be encountered in the seaward portions of the parcel. It is recommended that those areas containing intact dune deposits be avoided, and that a Historic Preservation Plan (HPP) be drafted providing short and long-term measures for the management and protection of any subsurface cultural resources.

Furthermore, if development plans include subsurface alterations in or near Areas 1 and 2, where Layer II is present, then a data recovery plan should be drafted to collect data necessary to characterize these deposits. In particular, research should focus on placing the site in its chronological context.

If development is planned in the eastern portion of the project area, additional testing in the sinkholes should be implemented with the intention of confirming the presence or absence of human skeletal remains. Monitoring is recommended for any area within the parcel where grading, trenching, or other subsurface alterations may occur.

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APPENDIX A

Selected Report Tables

Table 4. Summary of Historic/Recent Artifacts Recovered from Shovel Test Probes (STP).

STP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	28	29	30	31	32	34	35	36	37	38	39	41	42	47	50	51	52	53
CERAMIC, Sherds																																												
Earthenware	x																																					x						
Porcelein		x					x					x									x		x	x		x	x										x						
Stoneware						x																								x														
Pontil marble	x																																											
BOTTLE GLASS, Sherds																																												
Amber/Brown	x	x	x	x	x	x		x	x	x	x				x	x		x		x			x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
Aqua						x		x																			x														x			
Clear	x	x	x	x	x			x	x	x	x	x			x	x	x		x	x	x	x	x	x	x	x		x		x	x	x	x	x		x	x	x	x	x		x	x
Green					x	x															x																							
Other Glass			x																																									
White (milk)	x																	x																								x			
ARCHITECTURAL ITEMS																																												
Window Glass, Sherds			x												x																													
Cut Nails, Whole/frags	x		x				x								x						x									x														
Square nail	x																																											
Brick frag																				x				x																				
Slate frag																						x																						
PERSONAL ITEMS																																												
Bone die, whole								x																																				
Glass bead, red							x																																					
Copper pennies	x		x					x				x																																
Rubber slipper																x																												
Plastic toothbrush																					x																						
Leather frag																						x																						
MANUFACTURED ITEMS																																												
Wire			x				x																																					
Aluminum pull-tab	x	x		x				x					x																x															
Grommet																										x																		
Staples														x			x																											
UNIDENTIFIED METAL																																												
Iron, frags			x			x		x	x							x						x	x								x	x											
Lead, frags							x																													x					x		x	x
Unidentified frags			x	x		x			x							x							x							x	x	x					x						
AMMUNITION																																		x	x					x			x	x
Unidentified brass rifle cartridge			x				x																																					

STP		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	47	48	49	50	51	52	53
GASTROPODS	**Species**																																																	
Architectonicidae	*Heliachus variegatus*	x																																															
Bullidae	*Bulla vernicosa*																					x																											
Cerithiidae		x																																													x		
Conidae	*Conus* spp.	x		x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x			x	x			x	x					x	x						
	Conus abbreviatus																																																	
	Conus catus	x		x									x														x																x						
	Conus ebraeus																																																
	Conus pulicarius	x																																															
Cymatiidae	*Cymatium* spp.	x											x																																					
Cypraeaidae	*Cypraea* spp.	x		x	x	x						x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x		x	x		x	x	x				x	x	x				x	
	C. caputserpentris												x			x						x																										x		
	Cypraea granulata		x																																														
	Cypraea isabella															x																																		
Hipponicidae	*Hipponix* spp.	x		x	x							x		x	x	x		x	x	x					x	x		x		x			x	x															
Littorinidae	*Littorina pintado*												x																																					
Mitridae	*Mitra* spp.																																															x	
	Mitra lautum	x																																															
	Mitra litterata												x																																					
Neritadae	*Nerita picea*		x	x		x																x					x									x	x			x		x	x	x		x	x	
Patellidae	*Cellana* spp.	x		x	x				x			x		x	x				x			x			x	x		x	x	x			x				x				x		x		x		x	
	Cellana melanostoma												x																																					
Siphonaridae	*Siphonaria normalis*	x		x									x				x	x		x								x								x												
Strombidae	*Strombus* spp.	x											x																		x																x		
Thaididae							x			x	x																																						
	Drupa ricina			x									x				x													x			x			x												
	Morula granulata	x																																													x		
	Nassa serta																																																
	Vexilla vexillum		x										x																																				
Trochidae	*Trochus intextus*			x																																												
Turbinidae	*Turbo sandwicensis*	x						x					x			x						x								x																		
Vermetidae																x																																	
BIVALVES	**Species**																																																
Arcidae	*Barbatia* spp.																					x																											
Chamidae	*Chama* spp.	x	x										x				x										x		x																				
Isognomonidae	*Isognomon* spp.	x			x		x			x	x		x			x		x		x		x					x																				
Lucinidae	*Codakia punctata*																																																
	Ctena bella			x																		x												x														
Mytilidae																																																	
Pteriidae																																																	
Tellinidae	*Tellina* spp.																																															
	Tellina palatam	x	x	x																														x														
	Tellina scobinata																																															
Veneridae		x																																x														
	Periglypta reticulata	x		x									x			x	x																x		x													
UI Shell fragments		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
INVERTEBRATE																																																	
Sea Urchin	test, spine, mouth part												x									x									x						x												
Crab	claw fragment	x		x																														x														
VERTEBRATE																																																
Fish	bone		x				x		x				x														x				x	x			x												
Medium Mammal	bone							x																x																								
Small Mammal	bone																														x																	
Mongoose		x																																														
Pig		x																																														
FLORAL																																																
kukui	shell															x	x			x		x					x							x										x		x		
pandanus	key																																														x		

...terials from Sinkhole Test Units.

Feature Number	Feature 6			Feature 7						Feature 8					
Sinkhole Excavation Unit	SU-2			SU-3						SU-5					SU-2,3,5
Stratigraphic Layer	II/1	III/1	SU-2 Total	I/1	II/1	III/1	III/2	III/3	SU-3 Total	II/1	II/2	II/3	II/4	SU-5 Total	Grand Total
FAMILY Weight	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)
GASTROPODS															
Conidae (*Conus* spp.)			**0.0**						**0.0**		0.5	0.5		**1.0**	**1.0**
Cymatiidae (*Charonia Tritonis*)			**0.0**			6.4			**6.4**					**0.0**	**6.4**
Cypraeaidae (*Cypraea* spp.)			**0.0**						**0.0**	3.0	5.1		1.9	**10.0**	**10.0**
Cypraea caputserpentis			**0.0**	3.8		5.5			**9.3**					**0.0**	**9.3**
Neritadae *Nerita picea*	0.5		**0.5**		0.8	2.9		2.0	**5.7**					**0.0**	**6.2**
Thaididae (*Morula* spp.)			**0.0**					0.3	**0.3**					**0.0**	**0.3**
Turbinidae (*Turbo* spp.)			**0.0**						**0.0**		1.5		0.4	**1.9**	**1.9**
Turbinidae (*Turbo*) opercula			**0.0**			2.5			**2.5**	2.2	1.1			**3.3**	**5.8**
Unidentified Gastropods	0.0	0.0	**0.0**	0.2	0.2	2.9		0.1	**3.4**					**0.0**	**3.4**
TOTAL GASTROPODS	**0.5**	**0.0**	**0.5**	**4.0**	**1.0**	**20.2**	**0.0**	**2.4**	**27.6**	**5.2**	**8.2**	**0.5**	**2.3**	**16.2**	**44.3**
BIVALVES															
Mytilidae (*Brachidontes crebristriatus*)			**0.0**				0.8		**0.8**					**0.0**	**0.8**
Pteriidae (*Pinctada Radiata*)			**0.0**			0.9			**0.9**					**0.0**	**0.9**
Tellinidae (*Tellina palatum*)	1.3		**1.3**			1.2			**1.2**					**0.0**	**2.5**
Unidentified Molluscs			**0.0**			0.5	0.5		**1.0**	1.5	2.5	0.1	0.2	**4.3**	**5.3**
TOTAL BIVALVES	**1.3**	**0.0**	**1.3**	**0.0**	**0.0**	**2.6**	**1.3**	**0.0**	**3.9**	**1.5**	**2.5**	**0.1**	**0.2**	**4.3**	**9.5**
OTHER															
Sea Urchin	0.2		**0.2**	0.4	0.1	0.7		0.6	**1.8**					**0.0**	**2.0**
Crab	0.8	3.6	**4.4**	0.3		0.4	1.3	0.6	**2.6**	2.0	1.1	0.6		**3.7**	**10.7**
TOTAL OTHER VERTEBRATES	**2.3**	**3.6**	**5.9**	**0.7**	**0.1**	**4.2**	**3.1**	**1.2**	**9.3**	**5.0**	**6.1**	**0.8**	**0.4**	**12.3**	**27.5**
TOTAL INVERTEBRATES	**4.1**	**3.6**	**7.7**	**4.7**	**1.1**	**27.0**	**4.4**	**3.6**	**40.8**	**11.7**	**16.8**	**1.4**	**2.9**	**32.8**	**81.3**
VERTEBRATE FAUNA															
Pig (*Sus scrofa*)			**0.0**	0.4				0.3	**0.7**					**0.0**	**0.7**
Medium mammal			**0.0**	0.5	0.1				**0.6**					**0.0**	**0.6**
Bird			**0.0**			0.2	0.1		**0.3**	1.2	0.2			**1.4**	**1.7**
TOTAL VERTEBRATE FAUNA	**0.0**	**0.0**	**0.0**	**0.9**	**0.1**	**0.2**	**0.1**	**0.3**	**1.6**	**1.2**	**0.2**	**0.0**	**0.0**	**1.4**	**3.0**
TOTAL FAUNA	**4.1**	**3.6**	**7.7**	**5.6**	**1.2**	**27.2**	**4.5**	**3.9**	**42.4**	**12.9**	**17.0**	**1.4**	**2.9**	**34.2**	**84.3**

APPENDIX B

Shovel Test Probe Data

Appendix B. Summary of Stratigraphic Layers in Shovel Test Probes

STP	Grid Location			Coral Sand Layers						Terrigenous Soil Layers		Max. Depth
				Ia	Ib	Ic	II	III	IV	I Facies	II Facies	
#	S	W	E	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs
1	120	0	0	0-28	28-45	45-63	63-100	100-105				105
2	130	0	0		0-54		54-72	72-86				86
3	120	10					0-50	50-120				120
4	120	20						0-76				76
5	130	10						0-35	35-45			45
6	120	30						0-33				33
7	110	10		0-28	28-45		45-65	65-135				135
8	110	0	0	0-52								52
9	110	20						0-58				58
10	110	30						0-54				54
11	100	30						0-50				50
12	100	20						0-70				70
13	90	30						0-50				50
14	80	30						0-50				50
15	90	20		0-70			70-80	80-140				140
16	70	20		0-40	40-70		70-73	73-158				158
17	70	30						0-70				70
18	50	40						0-50				50
19	50	20						0-120				120
20	50	0	0		0-20	20-50		50-88	88-90			90
21	100	0	0	0-59	59-93		93-106	106-124				124
22	90	10		0-40	40-63		63-69	69-110				110
23	70	10		0-28		28-75						75
24	80		20	0-26	46-69	26-46	69-85	85-109				109
25	50	10					110-130	0-110	130-135			135
26	30	10			0-33		33-46	46-71	71-73			73
27	30	30						0-110				110
28	10	30			0-22	22-44		44-144				144
29	10	10				0-55						55
30	110		30	0-37		37-44		44-58				58
31	120		30	0-37				37-60				60
32	130		30					0-30	30-35			35
33	138		30				0-28	28-44	44-46			46
34	110		60		0-30					30-35		55
35	120		60		0-25							25
36	130		60		0-24							24
37	140		60					0-32				32
38	110		90							0-25		25
39	120		90		0-20							20
40	130		90		0-10							10
41	140		90			0-36			36-40			40
42	140		120	0-39		39-44						44
43	130		120	0-25		25-50			50-55			55
44	130		150		0-5	5-10	10-70		70-85			85

Appendix B. Summary of Stratigraphic Layers in Shovel Test Probes

STP	Grid Location			Coral Sand Layers						Terrigenous Soil Layers		Max.
				Ia	Ib	Ic	II	III	IV	I Facies	II Facies	
#	S	W	E	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs
45	130		170	16-27	4-16		27-38	38-65			0-4	65
46	120		170		25-40	40-54					0-25	54
47	130		190	0-28		28-48			48-52			52
48	140		190								0-40	40
49	90		30	0-34							34-52	52
50	70		20	0-28							28-60	60
51	140		170			0-27				27-93		93
52	140		160					0-100				100
53	140		100			0-20			20-25			25

APPENDIX B

Shovel Test Probe Data

Appendix B. Summary of Stratigraphic Layers in Shovel Test Probes

STP	Grid Location			Coral Sand Layers						Terrigenous Soil Layers		Max. Depth
				Ia	Ib	Ic	II	III	IV	I Facies	II Facies	
#	S	W	E	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs
1	120	0	0	0-28	28-45	45-63	63-100	100-105				105
2	130	0	0		0-54		54-72	72-86				86
3	120	10					0-50	50-120				120
4	120	20						0-76				76
5	130	10						0-35	35-45			45
6	120	30						0-33				33
7	110	10		0-28	28-45		45-65	65-135				135
8	110	0	0	0-52								52
9	110	20						0-58				58
10	110	30						0-54				54
11	100	30						0-50				50
12	100	20						0-70				70
13	90	30						0-50				50
14	80	30						0-50				50
15	90	20		0-70			70-80	80-140				140
16	70	20		0-40	40-70		70-73	73-158				158
17	70	30						0-70				70
18	50	40						0-50				50
19	50	20						0-120				120
20	50	0	0		0-20	20-50		50-88	88-90			90
21	100	0	0	0-59	59-93		93-106	106-124				124
22	90	10		0-40	40-63		63-69	69-110				110
23	70	10		0-28		28-75						75
24	80		20	0-26	46-69	26-46	69-85	85-109				109
25	50	10					110-130	0-110	130-135			135
26	30	10			0-33		33-46	46-71	71-73			73
27	30	30						0-110				110
28	10	30			0-22	22-44		44-144				144
29	10	10				0-55						55
30	110		30	0-37		37-44		44-58				58
31	120		30	0-37				37-60				60
32	130		30					0-30	30-35			35
33	138		30				0-28	28-44	44-46			46
34	110		60		0-30					30-35		55
35	120		60		0-25							25
36	130		60		0-24							24
37	140		60					0-32				32
38	110		90							0-25		25
39	120		90		0-20							20
40	130		90		0-10							10
41	140		90			0-36			36-40			40
42	140		120	0-39		39-44						44
43	130		120	0-25		25-50			50-55			55
44	130		150		0-5	5-10	10-70		70-85			85

Appendix B. Summary of Stratigraphic Layers in Shovel Test Probes

STP	Grid Location			Coral Sand Layers						Terrigenous Soil Layers		Max.
				Ia	Ib	Ic	II	III	IV	I Facies	II Facies	
#	S	W	E	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs	cmbs
45	130		170	16-27	4-16		27-38	38-65			0-4	65
46	120		170		25-40	40-54					0-25	54
47	130		190	0-28		28-48			48-52			52
48	140		190								0-40	40
49	90		30	0-34							34-52	52
50	70		20	0-28							28-60	60
51	140		170			0-27				27-93		93
52	140		160					0-100				100
53	140		100			0-20			20-25			25

EXHIBIT D –

DCS-POW LETTER TO STATE OF HAWAIʻI

Dynamic
Community
Solutions

May 25, 2021

From: Dynamic Community Solutions
PO Box 1470
Waianae, HI 96792
Honolulu, Hawaii 96813
sent via email

To: Mr. Scott Morishige
Governor's Coordinator on Homelessness
Executive Chambers, State Capitol
Honolulu, HI 96813

Aloha Scott,

A little more than a year ago, Dynamic Community Solutions purchased a parcel of land in Waiʻanae Valley. We wanted to provide you, Governor Ige, and others in the Ige Administration, with an update on our plans and progress for this property. We're not sharing these details publicly yet, but feel free to share the information with Governor Ige and other State decision-makers.

Project Overview

Puʻuhonua o Waiʻanae Farm Village (POW Farm Village) is a proposed farming and group living facility development located at 85-908 Waianae Valley Road (TMK (1) 8-5-004: 028), a 20 acre parcel zoned AG-2. The project will serve as a permanent home for 250 residents of Puʻuhonua o Waiʻanae (POW), who are currently houseless (aka homeless) at the Waianae Boat Harbor (facebook.com/puuhonuaowaianae).

The project is led by Dynamic Community Solutions (DCS, www.alohaliveshere.org), a nonprofit organization created by and for the people of POW. Land acquisition, planning, design, and construction are funded entirely by funds and in-kind donations raised by DCS and the people and friends of POW. Ongoing operations will be self-funded and sustained with modest rents.

Exhibit E

Governor's Emergency Proclamation

POW Farm Village will be developed pursuant to Governor Ige's December 14, 2018 Emergency Proclamation on Homelessness (http://bit.ly/Govs-Emergency-Proc), as extended. The Proclamation provides relief from various laws, ordinances, and approval processes to expedite housing projects that address homelessness. Under the Proclamation, permits are not required to begin construction, and certain land use limitations are lifted. Kahauiki Village and Hale Mauliola are other examples of projects developed under the Proclamation.

Governor Ige acknowledged POW as a project under the Proclamation in a letter dated January 31, 2020. The City & County of Honolulu, Department of Planning & Permitting (DPP) subsequently acknowledged that the exemptions POW seeks under the Proclamation are acceptable, in a letter on January 25, 2021 (File No. 2020/ELOG-2258, http://bit.ly/DPP-letter-to-POW).

Voluntary Compliance & Best Practices

Although POW Farm Village is exempt from most requirements because of the Emergency Proclamation, DCS is voluntarily complying with best practices in planning, construction, and environmental conservation. For example:

- Though not required to do so, we prepared the equivalent of a full Conditional Use Permit (CUP) application and submitted it to DPP for informational purposes (http://bit.ly/POW-CUP-major).
- We performed a Phase I Environmental Site Assessment, Botanical (Flora & Fauna) Survey, Archeological & Cultural Review, a site inspection by the PUEO Project, and other assessments to identify any risks posed by development. None were found.
- For environmental best practices, we became a cooperator with the West Oahu Soil & Water Conservation District and are developing a Conservation Plan with the USDA Natural Resource Conservation Service.
- Our site plan dedicates over 50% of the property for farming, and the remaining area for a Group Living Facility. Both are permitted uses of land zoned AG-2, General Agricultural District.
- We are taking agricultural land that has been used for decades as a construction storage site, and will use it to produce ulu, uala, kalo, banana, and other crops to feed the community.
- We intend to use the land for farming and affordable group living in perpetuity, and are exploring the use of deed restrictions or other measures to ensure this.
- The entire development will comply with all life safety requirements including fire, flood, and emergency access.
- New buildings will be designed to conform to applicable building codes and will be constructed in accordance with plans stamped by licensed architects and engineers.
- Existing structures from the previous owner (e.g., containers/trailers, also exempt under the Emergency Proclamation) will be repurposed, first for temporary use during construction, and later for permanent communal buildings.
- Partners providing technical assistance include G70, HomeAid Hawaii, Hale Builders, Atelier 5 Design, KAI Hawaii Structural Engineers, Schmit Architecture, Control Point, Insynergy, Geolabs, and others.
- We engaged community residents by canvassing door-to-door, attending Neighborhood Board meetings, hosting a discussion forum, and answering FAQs on our website and social media.

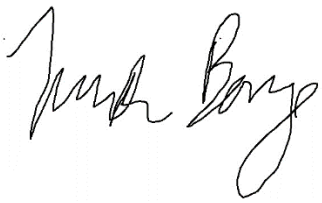
Estimated Project Timeline & Milestones

The site plan with phasing can be viewed here: http://bit.ly/pow-siteplan-phasing. Major development milestones include:

- By Jun 2021:
  - blessing, to include POW leaders, donors, supporters, and potentially media
  - post project updates to website and social media
  - construct 2 prototype homes ("hale")
  - complete fire break around property perimeter
  - roads and utilities to the extent permitted by fundraising
  - temporary bathroom and cooking facilities
  - construct agricultural nursery and plant test plots/crops
  - 10 residents on site to test living conditions; fine tune hale design based on feedback
  - repurpose existing trailers as communal buildings
- By Nov 2021
  - construct sewer line and farm access road complete
  - complete all utilities including water, electric, and farm irrigation
  - construct 1 cluster ("kauhale") including 16 hale units and 1 shared kitchen/bath building
  - 30 residents move in to first kauhale
  - construct agricultural baseyard
  - plant out first tier of ulu orchard and other fruit trees
  - begin community work days to engage neighbors and supporters (COVID-19 permitting)
- By Summer 2022
  - complete build out of entire site plan
  - complete planting of all farm and garden areas
  - 250 residents move in to POW Farm Village

Again, if you, the Governor, or others in the Administration have any questions, feel free to contact us directly via the emails below.

Mahalo,



James Pakele
President
Dynamic Community Solutions
jamespakele@dcshawaii.org

James Koshiba
Vice President
Dynamic Community Solutions
james.koshiba@gmail.com

Twinkle Borge
Director
Dynamic Community Solutions
twinkleborge@gmail.com

EXHIBIT E –

LETTERS (COMBINED)

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
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

March 28, 2025

Sent via Email and Hand-Delivery

Dynamic Community Solutions and
POW Overseers Council and Leadership Team
P.O. Box 1470
Waianae, Hawaii 96792

Aloha Dynamic Community Solutions Leadership and POW Leadership Team:

RE: Relocation to POW Mauka Farm Village

I received the attached March 14, 2025, memo from Keith Hayashi, Superintendent of the Department of Education (DOE), requesting use of the parcel of land located at 85-471 Farrington Highway (TMK: (1) 8-5-002-11) be set aside to DOE for use by Waianae High School. This is the parcel that POW is currently occupying next to the Waianae Small Boat Harbor (WSBH). DOE indicated that they wanted to use the land by June 1, 2025, to coincide with their summer break.

The original timeline that POW provided to Scott Morishige, former Governor Ige's Coordinator on Homelessness for moving the POW residents from WSBH to POW's mauka property located at 85-908 Waianae Valley Road (TMK: (1) 85-004:028) on a 20-acre parcel zoned AG-2 was summer of 2022. Attached is the letter to Scott, dated May 25, 2021. DLNR understands that construction schedules often are over-ambitious. However, we were told at a meeting on January 16, 2025, that the first set of kupuna from the makai site would be moved mauka within three (3) weeks of the meeting. We checked with leadership at the makai site on February 18 and were told that no one had moved. Also, at the January 16 meeting POW stated that the target for moving everyone to the mauka site is December 2025.

We realize that it will be very difficult for POW to fully vacate the makai property to accommodate the DOE's recent request to have access to the site by June 1, 2025. But we need a showing of good faith by POW to transition your residents from makai to the mauka property before the end of the year.

Since August 2024, our DOCARE officers have had presence at the WSBH. Over that period of time, DOCARE has confirmed some of the community complaints related to the POW makai site. In February, our staff and contractors cleaned five camps outside of the makai camp and one inside the

camp. They broke up two domestic violence incidences and one fight. Only one of these involved people who live in the POW makai site, the other two involved people were visiting, or running through the site. Based upon these incidences and DOE's request to use the site, DLNR would like to take control of the site so that we can prepare it for DOE's use by their students.

In addition, we believe expediting POW's move to your mauka parcel, even if all the houses and communal facilities have not been completed, can provide POW the ability to better manage your property and provide a safe environment for your residents. By April 15, 2025, please provide me a transition plan to relocate all your residents from the makai site to the mauka site. I will explain to DOE that we may not be able to accommodate their request to use the site by June 1, 2025.

I look forward to timely receiving your transition plan by April 15, 2025, to relocate all your residents from the makai site to mauka site by December 31, 2025.

Mahalo,

DAWN N.S. CHANG
Chairperson

c: Mr. Keith Hayashi, DOE Superintendent
Mr. Jun Yang, Governor's Homeless Coordinator
The Honorable Samantha DeCorte, Senator
The Honorable Christopher Muraoka, Representative
The Honorable Andria Tupola, Councilmember
POW Leadership Council (*to be hand-delivered*)

Attachments:

1. DCS POW Letter to State of Hawaii (Scott Morishige), May 25, 2021
2. DOE Memo dated March 14, 2025; Request to Acquire Lease

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
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

April 30, 2025

Dynamic Community Solutions and
POW Overseers Council and Leadership Team
P.O. Box 1470
Waianae, Hawaii 96792 (sent via e-mail)

Aloha James,

Re: Transition of Pu'uhonua O Wai'anae Residents from Wai'anae Small Boat Harbor

Mahalo for hosting me and my staff on a site visit to Pu'uhonua O Wai'anae's (POW) Mauka Farm Village. We were very impressed with the progress of the housing, infrastructure, and vast lands that you have available to house the POW residents. Twinkle would be very proud of Dynamic Community Solutions' efforts.

We also appreciate the continued efforts and collaboration with the Department of Land and Natural Resources (DLNR) in addressing the ongoing occupation at the Wai'anae Small Boat Harbor (WSBH). We recognize and appreciate the important work that Dynamic Community Solutions and the POW leadership have undertaken to provide a supportive and stable environment for the residents.

As part of our shared commitment to ensuring the stewardship and appropriate use of public lands, this is to confirm that DLNR is requiring that Dynamic Community Solutions transition all individuals currently residing at the Wai'anae Small Boat Harbor to your mauka property. We respectfully request that this transition be completed prior to **Thanksgiving Day, Thursday, November 27, 2025**.

We understand the magnitude of this move and are committed to working with you to support a smooth and respectful relocation process. Please inform us of your transition plan, including key milestones, anticipated support needs, and any challenges you foresee. We'd like to receive monthly updates on the transition of residents from WSBH to the mauka property.

We look forward to continuing our collaboration to ensure that all residents are safely and respectfully relocated and that the harbor can be timely restored for the Department of Education's proposed uses. Please don't hesitate to reach out if you have questions.

Mahalo for your leadership, cooperation, and commitment to the well-being of your community.

Mahalo,

DAWN N.S. CHANG
Chairperson

c: Mr. Keith Hayashi, DOE Superintendent
Mr. Jun Yang, Governor's Homeless Coordinator
The Honorable Samantha DeCorte, Senator
The Honorable Christopher Muraoka, Representative
The Honorable Andria Tupola, Councilmember

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

June 18, 2025

Sent via Email and Hand-Delivery

Dynamic Community Solutions and
POW Overseers Council and Leadership Team
P.O. Box 1470
Waianae, Hawaii 96792 (sent via e-mail)

Aloha Mai Kākou:

RE: Request for Monthly Reports on Transition of Pu'uhonua o Wai'anae (POW) Residents at Wai'anae Small Boat Harbor to the Mauka Village Site

This is a follow-up from my site visit in April 2025 and my April 30, 2025, letter requesting that the transition of POW residents from Wai'anae Small Boat Harbor (WSBH) to the Mauka Site be completed prior to Thursday, November 27, 2025.

During the Mauka Site Transition, we are requesting at least one monthly report be submitted to Pua Aiu, DLNR Homeless Coordinator, no later than the last day of each month and that the reports include the following information at minimum:

1. Total number of residents at WSBH as of the date of the report;
2. The number of people moved from WSBH to the Mauka Site since the last report; and
3. Confirmation that the house sites at WSBH for people who have been moved to the Mauka Site have been cleared, and the condition has been restored.

Attached is a map of the POW Area at WSBH. Please work with Pua to update this map, or please provide an up-to-date map to Pua, if already available. DLNR will use this map to confirm how many people have moved each month, and how many house sites have been cleared from WSBH.

DLNR will be conducting the first site visit for the Mauka Site Transition between June 25 and June 27, 2025 - Pua will work with Kalala to set an exact date and time. Once this first site visit is confirmed, please provide Pua with the total count of POW residents still at WSBH.

I greatly appreciate your cooperation in making this a smooth transition. We look forward to seeing all residents safely settled at the Mauka Site so that you can all celebrate Thanksgiving together. Mahalo for your leadership, cooperation, and commitment to the well-being of your community. Please direct any further correspondence on this matter to Pua.

Mālama pono,

DAWN N.S. CHANG
Chairperson

c: Mr. Keith Hayashi, DOE Superintendent
Mr. Jun Yang, Governor's Homeless Coordinator
The Honorable Samantha DeCorte, Senator, District 22
The Honorable Christopher Muraoka, Representative, District 45
The Honorable Andria Tupola, Councilmember, District 1

Attachment: POW Area at WSBH

EXHIBIT F –

MONTHLY POW REPORTS

	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb	Total moved after June
Total Number of People at the Makai Site	168	168	168	168	168	161	161	109	106	106
Number of People moved from Makai site since the last report	37	0	0	0	0	7	0	52	3	62
Number of makai sites demo'd since the last report	0	0	0	0	4	9	14	5	5	37

POW Monthly Report -July

Aloha Dawn,

Below is our July report. Feel free to contact us if you have any questions.
Kala

POW Census.

We are still at 37 people mauka and 168 makai. We are not accepting new makai residents at this time, per our previous discussions. Currently there are 44 children of POW, 3 up mauka and the remainder at makai. Grades/schools of the mauka children (for DOE's info) are Waianae HS 9th and 12th Gr, Waianae Middle 7th Gr.

Construction

In July completed 10 units and framing and/or foundations for an additional 8 units. A photo from late July is in this folder. Volunteers from the military's Innovative Readiness Training Program (IRT) again helped. We continue to work with HECO to try to expedite electric connection.

IRT Distinguished Visitors' Day

The IRT program has been a big help to summer construction, and POW was a prominent part of their annual Distinguished Visitors Day. The event was attended by military and Dept of Defense dignitaries, and government officials including former Gov David Ige.

Monthly Cleanups

As people move up mauka, we continue to clean up those areas that have been vacated in the makai village. Participating in cleanups are part of residents' "kokua hours" for the village. Pictures of July cleanups are in the folder.

Monthly Safety Inspections

Monthly Safey inspection continue, to ensure safety and reduce risk of fire. We have replaced a portion of the fire extinguishers needed (see last report) and put them in the most high-risk areas of the village. Our Safety Committee supplemented the extinguishers with sand buckets, and we are working to secure the remaining extinguishers needed.

De-escalation Training

We asked the Hawaii Health & Harm Reduction Center (H3RC) to train POW leaders on how to de-escalate situations. Our leaders deal with things ranging from conflicts between residents to outsiders coming in to POW with angry intent. The training covered how to prevent escalation, defuse tense situations, and when/how to involve law enforcement.

Tsunami Evacuation

During the July 29 tsunami warning, people and pets were evacuated from the makai village to the mauka land. The evacuation was an overall success, but it also identified needs such as rapid transportation and a storehouse of supplies up mauka. The Safety Committee is now working on a new and improved evacuation plan for the future.

Harbor Parking Lot

We have noticed an increase in dangerous behavior in the Harbor parking lot (by people not from the Village) – fights, cars doing donuts, etc. August is also the anniversary of the shooting in the parking lot, and family of the victim will be in the parking lot. With incidents of gun violence being reported along the Waianae Coast, we are concerned for our safety. If there is any way to increase the presence of DOCARE in the Harbor parking lot that would be greatly appreciated.

If you have any questions, please feel free to email us.

Mahalo,

POW Overseers

POW Current Status- August 2025

- POW, DLNR and DOE are working together to coordinate the ongoing transition of Puuhonua O Waianae from the Boat Harbor location to POW Farm Village in Waianae Valley

- Everyone is working collaboratively toward the goal of moving all POW residents home to the Farm Village in time for the Holidays, and to make way for plans by DLNR, DOE, and Waianae High School to use the Boat Harbor property for other purposes.

- Roughly 40 people have already moved from the Boat Harbor to POW Farm Village. Additional phases of home construction are nearly complete, which will house up to 45 additional residents. POW's nonprofit, Dynamic Community Solutions, is working on construction with urgency. However, we also know that construction can be subject to delays that are outside of our control.

- Since the passing of Twinkle Borge, POW has been led by a six-member Council of Overseers, selected by Twinkle to lead the village in her absence. These leaders continue to ensure that residents follow POW's rules, engage in community service, and participate in village activities, consistent with Twinkle's belief that "kuleana wakes up mana."

- Among these activities are regular cleanups. As residents move from the Boat Harbor to the Farm Village, teams of residents clean up the vacated spaces. Cleanups have happened monthly since people began to move and will continue until the move is complete. POW is committed to returning the land to the condition they found it.

POW Monthly Report - August

Construction Update- August

Resident Count

Resident counts remain the same as last month's report, due to the construction issues noted above. There are 37 people mauka and 168 makai. There are 44 children, 3 of whom are living up mauka. Grades/schools of the mauka children (for DOE's info) are Waianae HS 9th and 12th Gr, Waianae Middle 7th Gr.

DOE Leadership Meeting.

In August, we had a constructive meeting with DOE Supt Hayashi, Complex Area Supt Disa Hauge, Chief of Staff Camille Masutomi, and the DOE's Homeless Liaison for West Oahu. We got clarity on the DOE's intentions and timeframe related to the Harbor land currently occupied by POW residents. We also opened a direct line of ongoing communication between DOE leaders and POW leaders. DOE will be included on our monthly reports going forward, and information about the children of POW will be added at their request.

Cleanups

We continue to clean the makai lands in preparation for the move to mauka. We held multiple cleanups in August, with many village residents participating. One of those cleanups focused on removing furniture, metals, and large bulky items from Sec 3 (near the E Ala A-Frame, facing the ocean). This year, our cleanups have removed more than 40 bins of trash (measuring 40 cubic yards each). In Sep, cleanup activity will slow as we focus on our event "Pink Tie & Slippahs," raising funds needed for completion of construction.

Safety Committee. Last month we reported we had replaced a dozen fire extinguishers needed in the highest-risk areas and had requested additional donations to secure the rest. In August, we received 40 more fire extinguishers. Along with sand buckets we've placed throughout the village, POW is much safer from fire risks than we were at the end of July. Monthly inspections of each camp to ensure village safety continue, as always.

Media

As we mentioned in past communication, we have received inquiries from the media about the timeline for our move and the factors driving the timetable. Hawaii News Now wanted to come to the Harbor to do interviews. We did not comment on specifics and asked the media to circle back to us at a later date. If/when we engage with the media, we will let you know, and plan to use the talking points we shared with DLNR back in July.

Anniversary of Twinkle's Passing. We held a village gathering to remember Mama and mark 1 year since she passed in August. The event was focused on POW keiki, which was always Mama's focus, too. It was time to share happy memories of Twinkle, to enjoy each other's company, and to bond as a village during what has been a stressful and challenging time.

If you have any questions, please feel free to email us.

Mahalo,

POW Overseers

POW Monthly Report-October, Makai

Aloha Dawn and Pua

Here is an update about our village, prepared by the POW Overseers Council. Also attached are construction updates from DCS, and its Project Manager Ron Nishihara. As discussed during your visit in late Oct, we will be sending two updates monthly, shortly after the 1st and 15th of every month. We will be copying DOE as well

Overseers' Updates on the Village

Mahalo for visiting us in the last part of October. We appreciate the open communication. The people of POW will do our best to address DLNR's concerns and move forward together. Mahalo also for contacting HECO on our behalf and helping to accelerate their work on the mauka property so that we can bring more people home. DCS will update you on construction as HECO work proceeds.

We have prioritized moving people out of the areas you identified and have worked to clear the campsites of people who have moved. Here are some pictures, all located in the areas you identified as priority areas for clearing during your visit. We have moved a few people out and up to the mauka land or to other areas of the makai village.

Pua asked in a separate email how many people will move/camps cleared by Dec 1 when DLNR is scheduling equipment to clear areas. We estimate 40 people will move, if fencing and grading are complete, and HECO work is complete

As we explained during your visit, it will not be possible to move a majority of residents mauka by Thanksgiving. But we are proceeding as fast as construction will allow us to.

Other News

We had a Halloween event for our keiki with candy, games, and prizes. As you can see from the pics, both children and families had a great time. We are grateful to have had one last Halloween in the village, as this was always a special occasion for Twinkle.

In Sep, we closed our POW food pantry to consolidate donations in preparation for the move mauka. But due to there being no (or reduced/delayed) SNAP benefits in Nov, we put out a call for food donations on social media and have temporarily re-opened the pantry at selective times, in order to feed hungry people in our village

Sweeps up and down the Waianae Coast by the City have intensified and there is more movement and displacement of people. When people come to POW seeking refuge we continue to tell them that we cannot accommodate new people at this time.

Construction updates from DCS are attached.

Mahalo
Kala on behalf of the Overseers

TRINITY
MANAGEMENT GROUP LLC

Date: November 4, 2025

To: File

From: Ron Nishihara

SUBJECT: PU‘UHONUA O WAI‘ANAE

In general, HECO is putting on a “full-court press” to get this done to move the people to Mauka. If all goes well, we will have power in Phase 2 by this weekend.

- 10/27/25 – Brett Tano (HECO engineer) staked the pole and guy wire locations in the field and notified us that HECO’s surveyors and contractor would be onsite on 10/31/25 to install the poles.
- 10/29/25 – HECO informed us that bollards will be needed in front of the meters. Ron notified S&G Construction and asked them to procure material for the bollards on a time and materials basis.
- 10/30/25 – Ron sent marked-up photos taken during the installation of the underground utilities to show that the proposed pole locations were not in conflict with the underground utilities.
- Ron prepared a layout drawing for the bollards and sent it to S&G Construction.
- 10/31/25 – HECO installers went to the site but declined to install the poles unless the locations of underground utilities were marked in the field. Their concern was warranted, in that one of the pole locations was within 10’ of a water main to the Hale Aina. Ron went out to the site, laid out the locations, and sent photos to HECO.
- 11/4/25 – HECO’s contractor was onsite and excavated two holes for the pole and guy wire next the Hale Aina in Phase 2.
- 11/5/25 (scheduled)
    - HECO will be onsite to install the poles and guy wires.
    - S&G Construction will be onsite to dig the holes for the three boards in front of the meters.
    - HECO inspector will visit the site to inspect the bollard holes.
- 11/6/25 (scheduled)
    - S&G Construction will pour the concrete for the bollards. HECO inspector will be onsite to inspect the pour.
        - HECO meter installers will be onsite to install the meters.

Photo 1 (taken on 11/4/25)

Overview of phases 1, 2, 3 and 4. Since the last update, two more Plugin House units were erected and one unit was relocated onto the framing.

Much progress was also made on the other PluginHouse units.

Two used trailers were purchased an placed onsite. These will be retrofitted to be a Hale Aina unit for phase 3.

Photo 2 (taken on 11/4/25)

Photo of the two used trailers that were purchased to be renovated for use as part of the Hale Aina in Phase 3.

Photo 3 (taken on 11/4/25)

HECO's contractor is onsite digging the holes for the poles and guy wires.

POW Monthly Report - November

Aloha Dawn,

Sorry for the lack of reports in the 2nd half of November. We thought since you came to meet with us and were also getting reports from Pua that you were pretty much up to date with what is happening at POW makai. We will let Pakele, Michael, or Ron share an update on mauka construction.

Makai Village

I think you are already aware we finished clearing camps from area "4" (in the attached map) by Thanksgiving as we committed to at our Nov 18 meeting. Pua came to inspect and confirm on Fri Nov 28. Here are some pictures from the cleanup and move. Per discussion with Pua, we are next going to clear camps in the center of POW makai (between areas 2 and 3 on the map). Pua is aware of the areas and we will provide you with an update on our progress in two weeks.

Move Out Deadline

I know we talked at the Neighborhood Board meeting about the Overseer's concerns about the April date in the Agreement you drafted. Six months from our Nov 18 meeting would be May 18, and Overseers would like to request until end of May to complete moving and cleaning if possible. I know you said we could revisit this issue later but just wanted to share again so everyone is on the same page.

Mahalo for the continued communication and collaboration.

12/12 Supplement

Aloha Pua,

Status

4 singles and a family of 3 people moved up there in November. We will have more moving up there this month December. So, the next report will give you an accurate count of people moving and the area we are cleaning out. That way all of us are on the same page. I

will have pictures posted of our clean ups to show the progress of the village. Thank you all for being patience with us much appreciated!

Invitation

Also, one more thing is I am extending an invitation to you all that on December 20, 2025, we are having our Christmas Event at the Harbor. You all are more than welcome to join us. Time it starts is 12pm.

POW Monthly Report- November, Mauka

Aloha Pua,

Grading and Fencing

The grading for phase 2 I believe has been completed today. I got the following video, but I think they trying to give me vertigo. The bare coral areas are where the sidewalks are going to go. They should start forming up the sidewalks I believe this week/weekend and pouring shortly afterwards, then we have the fencing. We can start with the fencing for those with the most animals and work our way backwards to those with little to no animals. And then phase 2 will be fully complete, estimate that to take a couple weeks and hoping that phase will be fully moved in by end of year without having have done any temp fencing or temp living arrangements, thank you!

Continest Units

We are also bringing in a fork-lift to help offload and place the 24 Continest units on Thursday. We had some help getting some off, but its taking kind of long so we're just renting a large forklift to do it. Those units, depending on how quickly we can get the attachments for the generator we purchased could be ready in the next few weeks as well. I'm picking up some astroturf to try and lay out over the coral for some instant yards. A friend has like 20 rolls from a football field demo but I'm not sure how much that covers. We'll see. We could move a portable toilet or two into the area for now and they'll have restrooms. And I think we'll do the groundwork to eventually take the restroom trailer down to that area.

By the next two week report we should have clearer numbers on how many we popped up in that area. We have 24 on trailers though. We just need to see how many we can fit in the area.

Electricity

We're working on the contract to have an electrician reroute the temp electricity to phases 3 and 4. When that work is done, we'll be able to start lighting up the Continest units in phase 4 and the units in phase 3.

I tried to send a video but apparently your firewall doesn't like it. So, I'll try to send it to your phone.

Aloha,
James Pakele

POW Monthly Report-December, Makai

Aloha Director Kanakaole,

This update is a little longer than usual to give you some background. POW's overall goal is to clear and clean campsites and move people out from the Boat Harbor to our privately-owned property in Waianae Valley by May of this year. We are doing this as construction progresses and as units become ready for occupancy. If units are not ready for occupancy, as an interim step, we sometimes move some people away from areas that DLNR has prioritized for clearing to other areas of the Harbor. The plan is to move everyone who is part of POW, up mauka by May of this year. POW has been sending updates twice a month to the DLNR Director and staff, copying the DOE Superintendent and staff. This process was agreed to at a meeting with Dawn, DLNR staff, and DOE staff held in November 2025. These twice monthly updates include two reports:(1) progress report on clearing and cleaning at the Harbor. This work is the responsibility of POW residents and the Overseers Council (6 residents, including myself). This report will come from me on behalf of the Overseers. (2) progress report on mauka construction. This is the responsibility of the nonprofit Dynamic Community Solutions. James Pakele is President of DCS and Ron Nishihara is their Construction Project Manager. Construction updates come from Pakele or Ron.

POW Harbor Update for Jan 1, 2026

Our work to clear and clean areas of the Harbor was slowed by heavy rains in the 2nd half of December. We still managed to clear 5 more camp sites for a total of 14 during the entire month of December. Pua came to inspect our progress on Dec 30. Some pictures of our cleanups can be found here. On Dec 28, someone who is not a resident of POW fired a gun in the Boat Harbor parking lot. Our residents witnessed the event and cooperated with HPD to make sure this person was caught. Thankfully, nobody was injured.

Christmas Event

On Dec 20, we held our annual Christmas event which focuses on keiki living at POW. We made enough food to feed all 250 residents of POW (mauka and makai) and made sure that every child got a present. You can see pictures from the event here.

Other

Our understanding is that Ron Nishihara is preparing an update on construction that occurred during the 2nd half of December. If you have any questions about progress, activities, or incidents at the Boat Harbor you can contact the Overseers Council through me.

Mahalo, Kala Paishon on behalf of the POW Overseers Council

POW Monthly Report – January, Makai

Aloha Director Kanakaole,

POW Harbor Update for Jan 15, 2026:

Our work to clear and clean areas of the Harbor was again slowed by heavy rains in the 1st half January. We still managed to clear 5 camp sites during this period. Here are some pics of early Jan cleanups and some video of areas that we have cleared to date. All of the areas used to be occupied by people and camps. We continue to work closely with Pua to coordinate which areas to prioritize.

Non-residents moving in

We also alerted Pua to the fact that in some areas that we've cleared up, a few people (not POW residents) have moved in. We instructed them to leave, but they remained. We will keep Pua updated if/as this happens so that DLNR can respond but wanted to let you know as well.

Fires

In mid-January, there were two fires in areas outside the village that we cleaned and cleared. Again, these fires were started by people who are not POW residents. Our residents rallied to extinguish the fires even before HFD arrived on site. Inside POW mauka and makai, we conduct monthly fire safety inspections. We will continue to do so and be vigilant about areas we have already cleared.

Move out numbers

In total, 59 people have moved from the Boat Harbor up to the mauka property.

Mauka Report

Our understanding from Dynamic Community Solutions (the nonprofit managing funding and construction on our behalf) is that construction was also slowed by rains in early Jan. DCS Project Manager Ron Nishihara is preparing an update on construction for DLNR.

If you have any questions about progress, activities, or incidents at the Boat Harbor you can contact the Overseers Council through me.

Mahalo,

Kala Paishon on behalf of the POW Overseers Council

(808) 452-3325

POW Monthly Report – February, Makai

Aloha Director Kanakaole,

POW Harbor Update for Feb 1, 2026:

Summary

On Jan 29, Pua and Anthony came to inspect our work at the Boat Harbor and assess our progress. We continue to coordinate with Pua about which areas to clear and clean next. During the 2nd half of January, the weather cleared a bit and we were able to clean and clear additional campsites. Three more residents moved up to the mauka property from the Boat Harbor, so now the total living up mauka is 62. Some cleanup pics can be found here.

Our understanding is that Dynamic Community Solutions (the nonprofit managing funding and construction on our behalf) will send you a construction update. That will come from either Project Manager Ron Nishihara or DCS President James Pakele.

Non-Village Residents Moving on to Property

As we noted in our last update, new people (NOT village residents) are moving into areas that we have cleared and cleaned. We made Pua aware of the situation. We continue to tell these non-village residents that they cannot occupy these areas. But DLNR may need to fence off areas that we have cleared and/or monitor with enforcement officers to prevent people from moving in.

Fires/Fire Safety

In the 2nd half of January there was another fire set, an outsider (NOT a village resident) who moved into an area that we cleared. Once again, our residents rallied to put out the fire, using sand and fire extinguishers that the village had purchased or gotten donated. We now need to replenish our fire extinguisher supply.

Within the village, among our residents, we continue to have monthly fire safety inspections. Our resident Safety Committee conducted these inspections on January 25.

If you have any questions about progress, activities, or incidents at the Boat Harbor you can contact the Overseers Council through me.

Mahalo,

Kala Paishon on behalf of the POW Overseers Council

Additional: Storm Effects

PS – We will share more about this in our Feb 15 update, but the heavy rains of the past two months, plus the storm on Feb 8-9 soaked the ground and several large kiawe trees in the village fell as a result. Pics here. We are doing our best to clear these fallen trees, especially if they obstruct access or are a danger to people. We have volunteers with experience in tree cutting who are willing to help us.

EXHIBIT G –

MAP WITH SECTIONS TO CLEAN

MAP OF TMK 8-5-002:011 SECTIONS TO BE CLEANED