



**Office of Housing
and Community Development**

County of Hawaii • 50 Walluku Drive • Hilo, Hawaii 96720 • (808) 961-8379 • Fax (808) 935-4725

Lorraine R. Inouye
Mayor

Brian T. Nishimura
Housing Administrator

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October 15, 1992

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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

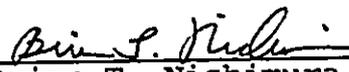
Brian J. J. Choy, Director
Office of Environmental Quality Control
220 S. King Street, 4th Floor
Honolulu, HI 96813

SUBJECT: Negative Declaration for Waimea Elderly Housing Project
TMK: (3)6-7-02: Por. of 17
South Kohala, Hawaii

The Office of the Mayor of the County of Hawaii has reviewed the Environmental Assessment for the Waimea Elderly Housing Project and has determined that the project will not have any significant impacts on the environment. Accordingly, a Negative Declaration of Impact is being filed for this project.

Enclosed are four (4) copies of the final Environmental Assessment, in accordance with your Environmental Impact Rules.

Please contact Clyde Yoshida, of this office, if you have any questions.



Brian T. Nishimura
Administrator

Encls.



EQUAL HOUSING OPPORTUNITY

184

1992-01-08-HI-FA- Waimea Elderly Housing Project

NOV - 8 1992

ENVIRONMENTAL ASSESSMENT
WAIMEA ELDERLY HOUSING PROJECT
WAIMEA, SOUTH KOHALA, HAWAII

Prepared for

Big Island Housing Foundation
Office of Housing and Community Development
County of Hawaii

By

William L. Moore Planning
and
Virginia Goldstein

August, 1992

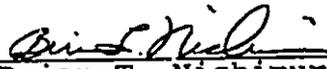
ENVIRONMENTAL ASSESSMENT
Negative Declaration of Impact

GENERAL INFORMATION

Name of Project: Waimea Elderly Housing Project
Forty-Unit Elderly Apartment Complex

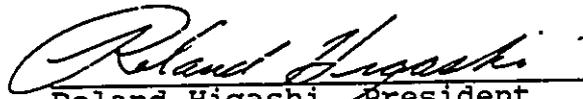
Applicant:

Office of Housing and Community Development
County of Hawaii
50 Wailuku Drive
Hilo, Hawaii 96720



Brian T. Nishimura, Administrator

c/o Big Island Housing Foundation
50 Wailuku Drive
Hilo, Hawaii 96720

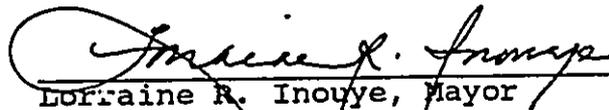


Roland Higashi, President

Approving Agency:

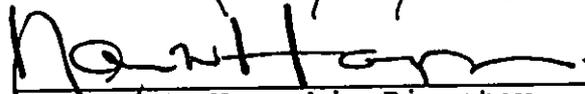
Office of the Mayor
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Authorized Signatures:



Lorraine R. Inouye, Mayor

8-13-92
Date



Norman K. Hayashi, Director
Planning Department

Environmental Assessment Prepared By:

William L. Moore Planning
and
Virginia Goldstein

**NEGATIVE DECLARATION
WAIMEA ELDERLY HOUSING PROJECT
WAIMEA, SOUTH KOHALA, COUNTY OF HAWAII**

Proposing Agency: Office of Housing and Community Development
County of Hawaii
50 Wailuku Drive
Hilo, Hawaii 96720

Agencies Consulted:

County Department of Public Works
Planning Department

State: Department of Land and Natural Resources

General: The Office of Housing and Community Development (OHCD), County of Hawaii and the Big Island Housing Foundation (BIHF), a Hawaii Non-Profit Corporation are seeking to implement an elderly housing project on land in Puukapu, South Kohala, Hawaii as identified by TMK 3rd/ 6-7-02: por. of 17.

The project site is a portion of land owned by the Richard Smart Revocable Personal Trust (Parker Ranch) lands. The Big Island Housing Foundation has executed an Option Agreement with the Trustees of the Smart Trust for the purchase of the approximately 5 acre portion of the parcel.

Technical: The project site is located along Kamamalu Street, approximately 500 feet south of the intersection of the Hawaii Belt Road and Kamamalu Street. The area is currently used as a fenced pasture. The County Civic Center is next to the parcel on its north side and an HELCO sub station is located to the south. The remainder of the parcel to the west is pasture land. There are several residences across Kamamalu Street and to the south of the sub-station. The Lucy Henriques Medical Center is less than 1,500 feet from the project site.

The County of Hawaii, through the OHCD and BIHF is proposing to construct thirty nine one-bedroom units and one two-bedroom unit in a wood framed apartment complex. Funding for the project will be through HUD Section 202 Direct Loan Program and the Community Development Block Grant (CDBG) funds. Upon completion of the complex the units will be rented to qualifying elderly individuals and couples.

The project site is within the State Land Use Urban District and is

zoned Agriculture with a 40-acre minimum lot size (A-40a) by the County of Hawaii. The proposed site is part of the Parker 2020 Project which is a mixed use community development project proposed by Parker Ranch. This area was part of the approximately 300 acres reclassified from Agriculture to Urban by the State Land Use Commission in 1987.

The project area is also a portion of Parker Ranch's subsequently change of zone request which was approved by the County in 1992. This area was designed for multiple-family residential uses (RM-2) as part of the change of zone. However, the change of zone is not effective until several conditions of the ordinance have been complied with. In that these conditions have not yet been satisfied, the area retains its A-40a zoning designation. The proposed forty-unit residential project is not a permitted use within this zoning classification.

The OHCD is proposing to use its housing powers provided under Section 201E, Hawaii Revised Statute to allow the proposed use and structure. These housing powers allow the County Council to exempt certain affordable housing projects from applicable planning, development, and other regulatory requirements if health and safety of the residents are not compromised. Once the requirements of Chapter 201E HRS are complied with, the proposed activities would be considered a permitted use on the subject parcel. The approximately 5 acre project area will then be subdivided from the existing 247.444 acre parcel.

The estimated total cost of the project including the land, site improvements and construction is \$4,345,400. Community Development Block Grant (CDBG) funds will be utilized for a portion of the site work while funds from HUD's 202 Direct Loan Program will be used for the construction of the project itself.

There are no municipal sewage systems in the area. Disposal of waste water will be required to meet with the State Department of Health standards.

All utilities are available to the project site. Both fire and police stations are adjacent in the Waimea Civic Center. The Lucy Henriques Medical Center is located approximately half a mile from the project site.

Social: The project area is part of the existing Waimea Village urban area. According to the 1990 Census, the population of Waimea was 5,972 while the population of the South Kohala District totaled 9,140. Waimea serves as the primary commercial and service area for the North and South Kohala districts. It is also the headquarters of Parker Ranch, one of the largest privately owned ranches in the United States.

There are currently no elderly housing projects in South Kohala. The nearest project is located in the town of Honokaa, over 8 miles to the southeast. The implementation of this project will provide a much needed resource in the Community. By developing this project, not only will elderly residents of the district have increased affordable housing opportunities, it will free up housing stock as elderly move from their existing houses into the project.

Economic: The estimated total project cost is \$4,345,400. In addition, there will be a short term increase in construction employment while the project is being built. The project will also provide rent subsidies to qualified tenants such that they pay no more than 30% of their adjusted income.

Environmental: The project lies within the Waimea Plateau in the saddle between Mauna Kea and the Kohala Mountains at an elevation of approximately 2,550 feet above sea level. The region is cool and moist. Mean annual temperatures range between 60-70 degrees Fahrenheit. Mean annual rainfall in the area averages 59 inches.

Most of the time trade winds prevail in the project area. The winds tend to be stronger in the winter, with velocities more than 12 mph about 50% of the time.

The project area is comparatively flat, however there is a slight slope to the west from Kamamalu Street. Soils of the area have been identified as the Waimea Series, which consists of well-drained very fine sandy loams that formed in volcanic ash. These soils are gently sloping to moderately steep. They are on uplands at an elevation ranging from 2,000 to 6,000 feet. Permeability is moderately rapid, runoff slow and erosion hazard slight (USDA Soil Conservation Service). The Land Study Bureau rates the agricultural productivity of the soils of the area as "B" or "Good."

The project area is well-grazed pasture land. The vegetation can be characterized as open grassland dominated by kikuyu grass (*Pennisetum clandestinum*) and smut grass (*Sporobolus africanus*). These are mixed with other exotic grasses. Trees in the area are limited to a planted stand of ironwood (*Casuarina equisetifolia*) near the electric sub-station and occasional castor bean (*Ricinus communis*) shrubs. There are no known endangered plant species on the project site.

There are no perennial streams within the study area, although there is an intermittent drainage channel immediately to the north of the project area. At the intersection of the drainage channel and Kamamalu Street, a small triangular portion of the parcel at the north east corner of the project site is designated as "AE" on the FIRM map. Design elevations for this portion range between 2,714 and 2,724 feet. The remainder of the project area is

designated "X" or outside the 500 year flood plain. No structures are proposed within any designated flood area.

An archaeological inventory survey was conducted by the firm of Paul H. Rosendahl, Ph.d. on the subject site which included a 100% reconnaissance of the project area and limited subsurface testing. No archaeological sites were located in the project area. However, an auwai associated with the Waimea Agricultural District, an archaeological complex of irrigated agricultural field systems, was located just outside the project boundaries (See Appendix A).

The survey report recommended that due to the closeness of the site to the project area, interim protection be provided and monitoring for possible sub-surface features be conducted during construction.

No major impacts to the environment can be identified. The project area has long been utilized as grazing lands, thus no endangered plant species have been identified. Although a small portion of the parcel has been identified as being within a flood plain, all structures can be located within the larger portion of the site outside the 500 year flood plain boundary.

Some impacts to the agricultural land resource may be anticipated, with the discontinuation of approximately 5 acres of pasture. However, due to the small size of the project area, no significant adverse impacts are anticipated.

No impacts to archaeological resources are anticipated.

Summary of the Affected Environment

The project area is currently used for cattle grazing by Parker Ranch as part of its ranch operations. There are no endangered fauna, critical habitats, historical/archaeological or cultural sites associated with the project area.

Summary of Major Impacts

Short Term: Short term impacts will be limited to impacts related to the construction of the elderly housing facility and the possible improvements to the areas' infrastructure, including the realignment of Kamamalu Street. Minor adverse impacts may include:

1. Depletion of labor and material resources for construction.
2. Some dust and noise during construction.
3. Some congestion along roads during construction.

LONG TERM:

Air Quality: No significant impact to air quality is expected.

Water Quality: No significant impact to water quality is expected.

Noise: No significant noise impact is expected.

Traffic: There may be a slight increase in traffic resulting from the proposed elderly housing project. However, in that the residents of these projects tend not to operate automobiles, no significant traffic impact is expected.

Archaeology: No archaeological sites were located in the project area. However, an auwai associated with the Waimea Agricultural District, an archaeological complex of irrigated agricultural field systems, was located just outside the project boundaries (See Appendix A).

Flora: No significant impact on the flora is expected.

Fauna: No significant impact on the fauna is expected.

Visual: No significant impact on visual resources is expected.

Agricultural resources: Some impacts to the agricultural land resource may be anticipated, with the discontinuation of approximately 5 acres of pasture. However, due to the small size of the project area, the impacts are not anticipated to be significant. Furthermore, the State Land Use Commission, in considering Parker Ranch's State Land Use Boundary Amendment Petition, found in 1987 that the reclassification of this area from "Agriculture" to "Urban" would not have a significant impact on the agricultural activities of the State and County.

Drainage and Flooding: Although a small portion of the parcel has been identified as being within a flood plain, all structures will be located within the larger portion of the site outside the flood plain boundary. Any increase in runoff resulting from this project will be contained on-site. Consequently, no adverse impacts are anticipated.

Alternatives Considered

There are no reasonable alternatives to the proposed project. The County has been seeking an appropriate site within the Waimea Area for an elderly project for the past several years. While other

residential uses are possible for the site, the proposed use would be the most logical given its proximity to Lucy Henriques Medical Center, Police and Fire emergency facilities, and shopping areas. If this project is not developed, the Waimea area will continue to lack a facility providing housing for the elderly. This segment of the population would have to relocate to another district if they require such housing.

Proposed Mitigation Measures

1. An auwai associated with the Waimea Agricultural District, an archaeological complex of irrigated agricultural field systems, was located just outside the project boundaries (See Appendix A). However, because of the proximity of this site to the project area, interim protection of the auwai is recommended to be provided and that monitoring for possible sub-surface features be conducted during construction.

Determination

The Waimea Elderly Housing Project is not expected to cause significant impacts to the environment. Therefore it has been determined that a negative declaration be filed with this environmental assessment.

Findings and Reasons for Supporting Determination

1. The proposed project will not involve an irrevocable commitment to loss or destruction to any natural or cultural resource.
2. The proposed project will not curtail the range of beneficial uses of the environment.
3. The proposed project will not conflict with the State or County's long-term environmental policies.
4. The proposed project will not substantially affect the economic or social welfare of the community or State.
5. The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.
6. The proposed project will not involve a substantial degradation of environmental quality.
7. The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna

or habitat. No endangered species of flora or fauna are known to exist in the project site.

8. The proposed project will not detrimentally affect air or water quality or ambient noise levels.
9. The proposed project is not located in a tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

For the reasons above, the proposed project will not have any significant effect in the context of Chapter 343, Hawaii Revised Statutes, and Section 11-200-12 of the State Administrative Rules.

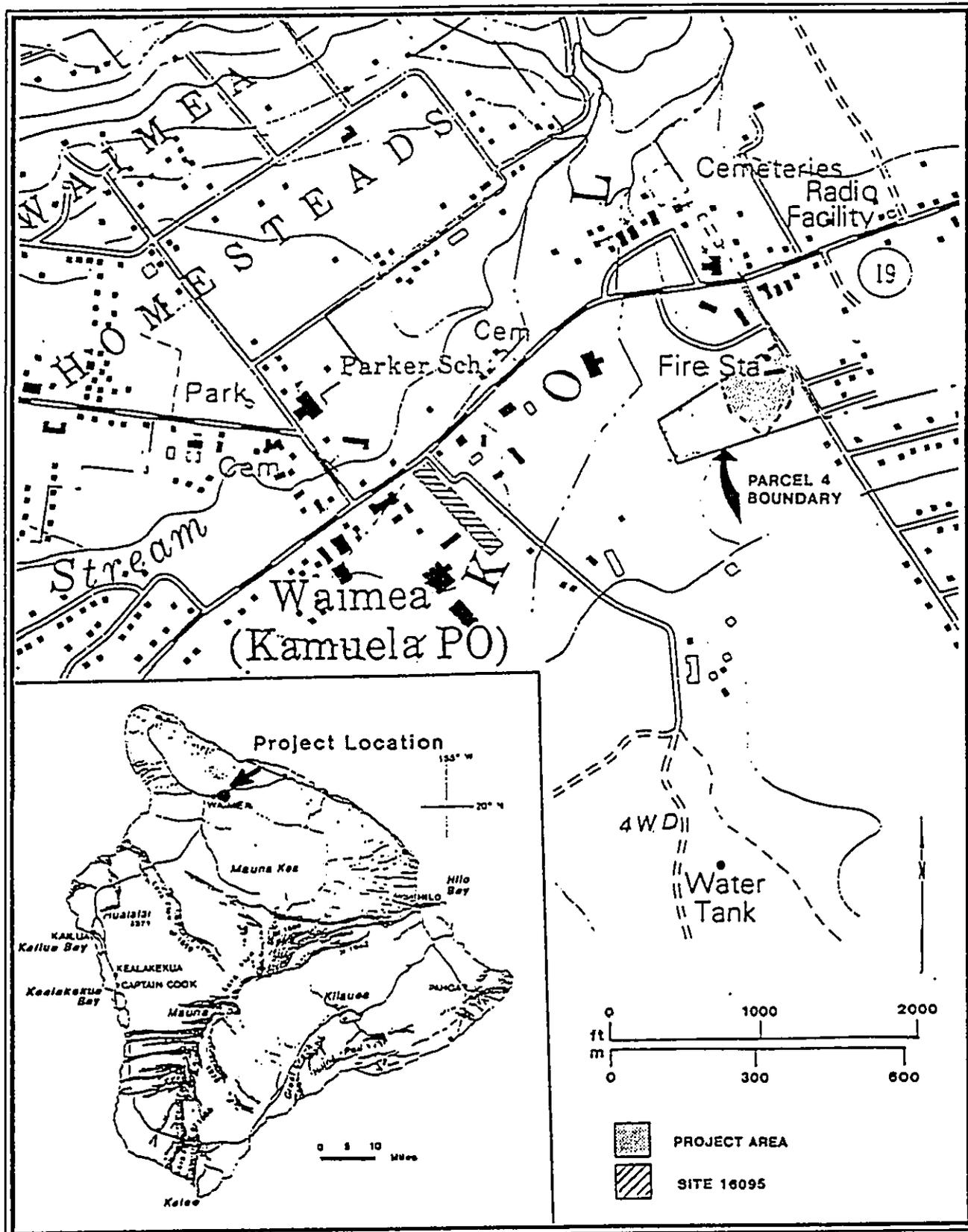
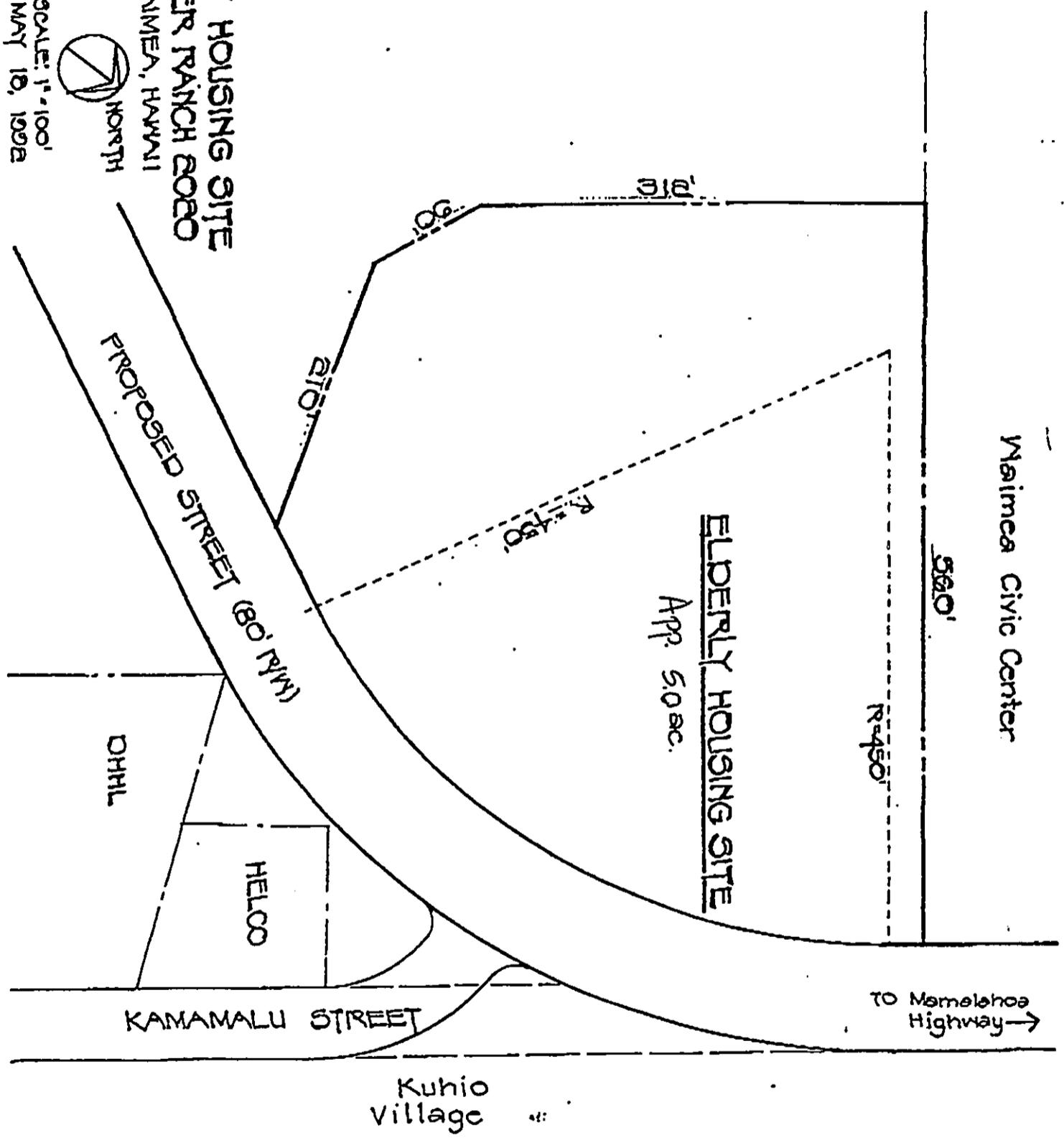


Figure 1. PROJECT AREA AND SITE LOCATION MAP

ELDERLY HOUSING SITE
PARKER RANCH 8080
WAIMEA, HAWAII

SCALE: 1" = 100'
MAY 18, 1992



Maimaea Civic Center

560'

R=450'

ELDERLY HOUSING SITE

App. 5.0 ac.

PROPOSED STREET (60' R/W)

DHL

HELCO

KAMAMALU STREET

TO Memelohoe Highway →

Kuhio Village

Environmental Assessment
Waimea Elderly Housing Project
Puukapu, South Kohala, Hawaii

APPENDIX A

Archeological Inventory Survey
Waimea Elderly Housing Project

**Archaeological Inventory Survey
Waimea Elderly Housing Project**

**Land Of Puukapu
South Kohala District, Island Of Hawaii**

PHRI

Paul H. Rosendahl, Ph.D., Inc.

Archaeological • Historical • Cultural Resource Management Studies & Services

305 Mohouli Street • Hilo, Hawaii 96720 • (808) 969-1763 • FAX (808) 961-6998
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Archaeological Inventory Survey Waimea Elderly Housing Project

Land of Puukapu
South Kohala District, Island of Hawaii
(TMK: 6-7-02: Por. 17)

by

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Supervisory Field Archaeologist

and

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Principal Archaeologist

Prepared for

William L. Moore Planning
411 Haili Street
Hilo, Hawaii 96720

June 1992

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SUMMARY

At the request of William L. Moore Planning, Paul H. Rosendahl, Ph.D., Inc., (PHRI) recently conducted an archaeological inventory survey of the Waimea Elderly Housing project area, located in the Land of Puukapu, South Kohala District, Island of Hawaii (TMK 6-7-02: Por. 17). The overall objective of the survey was to provide a level of information sufficient for the preparation of an Environmental Impact Statement (EIS).

The field work for the project was conducted on July 17-19, 22-24, 1991 by Supervisory Field Archaeologist Linda W. Thompson, B.A., assisted by Field Archaeologists Kathy Brown, B.A., Alice Smith, B.A., and Karen Wigglesworth, B.S. The work was conducted as part of an inventory-level survey of the North Hawaii Community Hospital project area (Thompson and Rosendahl 1992; PHRI Project 89-905). The field survey consisted of a 100% pedestrian reconnaissance of the project area and limited subsurface testing. During the survey of the current project area, no significant cultural remains of any kind were identified.

One site, however, was identified very close to the current project area during the 905 inventory project (Site 16095). This site was assessed during the 905 survey as significant for information context, and further data collection was recommended for it. Because of the site's closeness, interim protection of it is required when development work is conducted in the current project area. Therefore, in order to protect Site 16095, and in case any significant subsurface remains are found in the current project area during development work, monitoring of all future subsurface disturbance in the project area is recommended.

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INTRODUCTION

BACKGROUND

At the request of William L. Moore Planning, Paul H. Rosendahl, Inc., (PHRI) recently conducted an archaeological inventory survey of the Waimea Elderly Housing project area, located in the Land of Puukapu, South Kohala District, Island of Hawaii (TMK 6-7-02:17). The overall objective of the survey was to provide a level of information sufficient for the preparation of an Environmental Impact Statement (EIS).

The field work for the project was conducted on July 17-19, 22-24, 1991 by Supervisory Field Archaeologist Linda W. Thompson, B.A., assisted by Field Archaeologists Kathy Brown, B.A., Alice Smith, B.A. and Karen Wigglesworth, B.S. The work was conducted as part of an inventory-level survey of the North Hawaii Community Hospital project area (Thompson and Rosendahl 1992; PHRI Project 89-905; hereafter referred to as the 905 project). The present project area is within Parcel 4 of the 905 project (Figure 1).

SCOPE OF WORK

The basic purpose of an inventory survey is to identify—to discover and locate on available maps—all sites and features of potential archaeological significance. An inventory survey comprises an initial level of archaeological investigation. It is extensive rather than intensive in scope, and is conducted basically to determine the presence or absence of archaeological remains. This level of survey indicates both the general nature and variety of archaeological remains present, and the general distribution and density of such remains. It permits a general significance assessment of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for any subsequent mitigation work as might be necessary or appropriate. Such work could include further data collection involving detailed recording of sites and features, and limited excavations; and possibly subsequent data recovery research excavations, construction monitoring, interpretive planning and development, and/or preservation of sites and features with significant scientific research, interpretive, and/or cultural values.

The basic objectives of the inventory survey were four-fold: (a) to identify (find and locate) all sites and site complexes present within the project area; (b) to evaluate the potential general significance of all identified archaeological remains; (c) to determine the possible effects of proposed development upon the identified remains; and (d) to define

the general scope of any subsequent further data collection and/or other mitigation work that might be necessary or appropriate.

Based on a review of available background literature, familiarity with both the general project area and the current requirements of State and County review authorities, the following specific tasks were determined to constitute an adequate scope of work for the current survey:

1. Conduct limited archaeological and historical documentary background research involving review and evaluation of readily available archaeological and historical literature, historic documents and records, and cartographic sources relevant to the immediate project area;
2. Conduct a 100% coverage, variable-intensity (30-90 ft intervals) surface survey of each selected parcel to identify, record, and evaluate any previously identified sites and all newly identified sites;
3. Conduct limited subsurface testing of selected sites and features within the parcels to determine the presence or absence of potentially significant buried cultural features or deposits, and to obtain suitable samples for age determination analysis; and
4. Synthesize background and field data and prepare appropriate reports.

The inventory survey was carried out in accordance with the standards and guidelines recommended by the Department of Land and Natural Resources - State Historic Preservation Division (DLNR-SHPD). The significance of all archaeological remains identified was to be assessed in terms of the National Register criteria contained in the Code of Federal Regulations (36 CFR Part 60) and the criteria for evaluation of traditional cultural values prepared by the Advisory Council on Historic Preservation. These criteria are used by the DLNR-SHPD for the evaluation of cultural resources. To further facilitate management decisions regarding the subsequent treatment of resources, the general significance of the archaeological resources identified during the inventory survey was also to be evaluated in terms of potential scientific research, interpretive, and/or cultural values (PHRI CRM [Cultural Resource Management] value modes). *Research value* refers to the potential of archaeological resources for producing information useful in the understanding

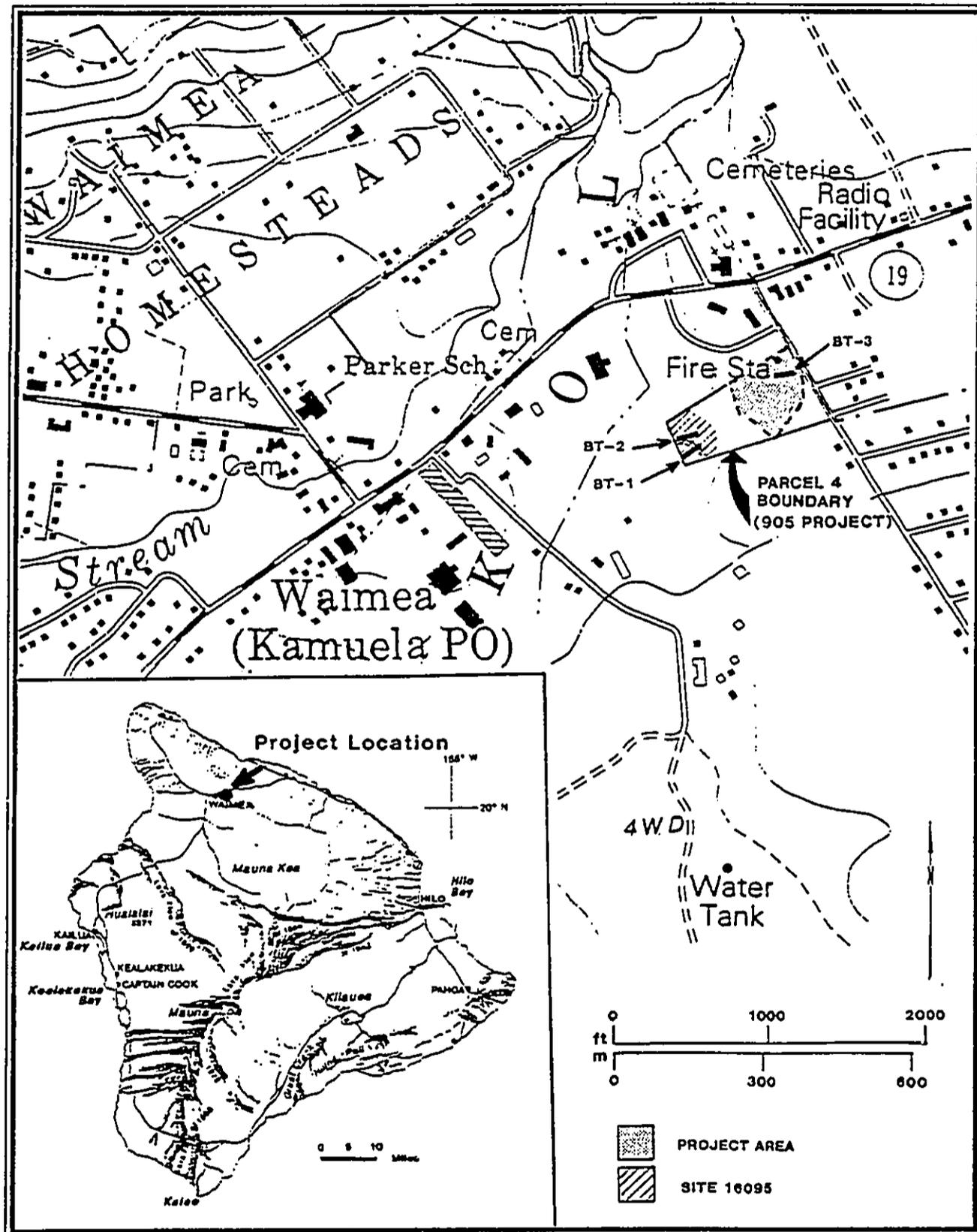


Figure 1. PROJECT AREA AND SITE LOCATION MAP

of culture history, past lifeways, and cultural processes at the local, regional, and interregional levels of organization. *Interpretive value* refers to the potential of archaeological resources for public education and recreation. *Cultural value*, within the framework for significance evaluation used here, refers to the potential of archaeological resources for the preservation and promotion of cultural and ethnic identity and values.

PROJECT AREA DESCRIPTION

The current project area comprises about five acres. It is located along Kamamalu Street, about one-quarter mile south of its intersection with Mamalahoa Highway (Figure 1). The area is bordered on the east by Kamamalu Street, on the north by the Waimea Fire Station, and on the south by an electric substation. There are residences directly across Kamamalu Street and south of the electric substation. The area to the west of the project area is pasture land.

The project area is owned by the Trust of Richard Smart. It is on the leeward side of Hawaii Island, within Waimea Plateau, at c. 870 m above sea level. The region is cool and moist. The mean annual temperatures range between 60-70 degrees Fahrenheit, with mean maximums generally between 70-80 degrees and monthly minimums sometimes plunging below 50 degrees (Clark and Kirch 1983). The mean annual rainfall in the area averages 1,500 mm (59.1 in) (ibid. 1983).

Most of the time trade winds prevail in the project area. These winds are distorted by the Kohala Mountains and Mauna Kea. The winds blow for 80 to 95% of the time from May through September, and for 50 to 80% of the time from October through April (Blumenstock and Price 1967:3). It is during winter months that the major storms occur and the heaviest rains fall. The winds tend to be stronger in the winter, with velocities in excess of 12 mph about 50% of the time (Blumenstock 1961:5). The storms may blow in from any direction but are typically from the south, southwest, or southeast. *Mumuku*, fierce gusts of wind from the northeast, also blow in the project area.

The topography of the region is gently rolling to comparatively flat, with an occasional outcrop ridge or knoll. Physiographically, this area is known as the Waimea Saddle. The saddle is the result of Mauna Kea lavas ponding against the older dome of Kohala (U.H. Geog. 1973:31). Overlying these lavas are soils derived from volcanic ash. Very generally, these can be characterized as predominantly very fine sandy loams to silt loams, with loam and silty clay loam also present. They generally have good topsoil and are well-drained with moderately rapid permeability (Soil Conserva-

tion Service 1973). The soils are powdery and light and are highly susceptible to wind and water erosion.

The project area is well-grazed pasture land. Vegetation in the general vicinity of the project area is somewhat varied and includes Vegetation Zones VI and VII (McEldowney 1983). In general terms, the vegetation can be characterized as open grassland dominated by *Pennisetum clandestinum* (*kikuyu* grass) and *Sporobolus africanus*. These are mixed with other exotic grasses, broad-leafed herbs, occasional exotic shrubs, and rarely, native and exotic ferns. Trees in the area are limited to a few planted stands and windbreaks, primarily of *Eucalyptus* spp., but with some Taxodiaceae (cedars and cypress), *Casuarina equisetifolia* (ironwood), and exotic *Acacia* sp. (McEldowney 1983).

There are no perennial streams within the study area, although three intermittent drainages (Lanimaumau, Waikoloa, and Waiaka Streams) flow off the slopes of the Kohala Mountains a short distance to the north. These streams were vital to the prehistoric agricultural system in the general area.

PREVIOUS ARCHAEOLOGICAL WORK

A number of archaeological investigations have been conducted in the general vicinity of the project area—studies by Barrera and Kelly (1974), Clark (1981), Clark and Kirch (1983), Bonk (1985), Hammatt, Borthwick, and Shideler (1988), Hammatt and Shideler (1989), and Clark et al. (1990). Each of these studies is summarized below.

In 1973, Barrera and Kelly (1974), for B.P. Bishop Museum, conducted an archaeological inventory survey of a proposed new sector of the Hawaii Belt Road, from Mudlane through Waimea to Kawaihae. A corridor of roughly 10,272 acres was inventoried, and 4,561 archaeological features were recorded. The majority of the features were near Kawaihae, on the coast or in the Lalamilo area near Waimea. As a result of the survey, the proposed highway alignment was rerouted to bypass the Lalamilo area, and the core of this area was designated a historic district (Barrera and Kelly 1974).

In the early 1980s Clark (1981) conducted an archaeological survey of the proposed Lalamilo Agricultural Park in South Kohala. The work was done for the Division of Water and Land Development (DOWALD), DLNR. The survey area consisted of 295 acres and was located in the uplands of Lalamilo, immediately west of the Lalamilo farm lots. During the survey 321 sites, including both agricultural and residential features, were identified. The Clark project area is west and south of the current project area.

The Lalamilo Agricultural Park project area is in the midst of an extensive archaeological complex, the Waimea Archaeological District (Clark 1981). The district contains many residential structures scattered throughout what was once an extensive agricultural system. Clark defines the agricultural system as forming a large arc to the north, west, and south of the present town of Waimea, beginning on the south flank of the Kohala Mountains, extending down the slope to the Waimea Plain south of town, then extending east, fading out just south of Waimea and west of Kuhio Village.

The agricultural system was divided into four field complexes, each with its own characteristics. Field Complex 1 is on the Kohala slopes, on the north side of the existing Kawaihae-Waimea Road. Field Complex 2 is south of the Kawaihae-Waimea Road and is bordered by Waikoloa Stream to the south. In Field Complex 2 are agricultural fields demarcated by terrace retaining faces, or low ridges of soil and/or stone. The fields average 25 m in width with the long axis oriented northwest by southeast, perpendicular to the prevailing winds. Numerous 'auwai are associated with the fields. In addition, numerous residential and other non-agricultural features are scattered throughout the area. This area is south and west of the project area.

Field Complex 3, south and west of the current project area, encompasses most of the Lalamilo Agricultural Park project area (Clark 1981). It is south of Field Complex 2, with Waikoloa Stream the northern boundary. The eastern boundary of the complex is roughly defined by Mamalahoa Highway. The original landscape in the eastern portion of Field Complex 3 has been largely destroyed by creation of Lalamilo Farm Lots.

Field Complex 4 is east of Mamalahoa Highway, south of Waimea Village, and southwest of Kuhio Village. It is the smallest of the field complexes and the least complex in development. It consists of a set of agricultural fields delineated by low soil ridges. The ridges are oriented perpendicular to the prevailing winds and average c. 30 m apart. As with the other complexes, a set of 'auwai was found associated with the fields, although in Complex 4 the 'auwai may not be integral components of the agricultural system. Residential structures and numerous stone walls were documented. Field Complex 4 was intensively surveyed and mapped by Clark (1981).

Investigators from the Bishop Museum conducted further archaeological investigations within the Mudlane-Waimea-Kawaihae road corridor under a contract with the State of Hawaii (Clark and Kirch 1983). The objectives of this project were (a) to survey those portions of the road not covered in the 1973 survey, (b) to prepare recommendations

for the mitigation of adverse effects to the sites in the project area, and (c) where warranted, conduct a data recovery program for a sample of the sites. This project resulted in the generation of valuable data pertinent to a variety of topics but focusing primarily on the upland agricultural system. Clark (1981) and Clark and Kirch (1983) provided the majority of the background information for this report. Numerous sites were identified, both agricultural and habitation, and the project provided a broad data base for comparing site distribution data from the coast of Kawaihae to upland Lalamilo.

In 1985 Bonk conducted an inventory survey in portions of Waikoloa, Pu'ukapu, and Ouli, in the District of South Kohala. The survey was conducted for Mauna Lani Resorts. Four areas encompassing approximately 300 acres of land were inventoried. Area I was southeast of the community center, southwest of Kuhio Village, south of Waimea Elementary and Intermediate School, southeast of a reservoir, and east of a racetrack and Area II. The proposed right-of-way for the bypass addition of the Hawaii Belt road marks the southern boundary of both Areas I and II. Area III was west of Mamalahoa Highway and Kamuela airport, and south of the proposed bypass road. Area IV is an elongated, irregularly shaped parcel between Kawaihae-Waimea Road on the south and Kohala-Waimea Road on the north. The parcel is less than 0.5 mile west of the Waiaka intersection.

Bonk investigated nine sites in Areas I and II. Four of the sites were recommended for additional work. No sites or features were identified in Area III and no further work was recommended. Numerous sites and potential sites were identified in Area IV, and additional work was recommended for the majority of the area.

In 1988, Hammatt, Borthwick, and Shideler (1988) conducted archaeological investigations on a 12-acre parcel in upper Lalamilo, just west of Waimea town, for a proposed expansion of the Lalamilo House Lots Subdivision. Seven archaeological sites were recorded, and limited subsurface testing was conducted. Both habitation and agricultural sites were documented. In 1989, Hammatt and Shideler (1989) conducted further investigations at two of the identified sites, and further analyses were performed on some of the earlier collected materials. Their data analysis suggested that informal agricultural activity (represented by agricultural mounds) was occurring by the mid-13th century, and field boundary walls were constructed by the mid-15th century, with permanent habitation occurring from the early 16th century to the late 18th century.

In 1990, the Applied Research Group - Public Archaeology Section of Bishop Museum conducted archaeological

testing and data recovery for the proposed expansion of Waimea Elementary and Intermediate Schools, located in Waimea, Land of Waikoloa (Clark et al. 1990). Site 8808, which was previously identified during the inventory survey of the Mudlane-Waimea-Kaiwihae road corridor (Clark and Kirch 1983) was located within the project area. Three of the 'auwai associated with Site 8808 were relocated. In addition, two surface features, another 'auwai, a subsurface activity area, and a historic house foundation were located. Backhoe testing was conducted at the site and buried agricultural soils were also identified. Further subsurface archaeological investigations were recommended for the identified buried activity area.

The recent inventory-level survey for the proposed North Hawaii Community Hospital (the 905 project) is the only project that has been conducted within the current project area. During the 905 project six different parcels were surveyed (Parcels 1 and 3-7). The overall objective of the survey was to provide a level of information sufficient for the preparation of an Environmental Impact Statement (EIS). During the project an 'auwai complex was identified in Parcels 1, 3, and 4. The complex consisted of a series of ditches ('auwai) linked to a larger irrigation system—the Waimea Agricultural System (Clark and Kirch 1983:242). No features or sites were noted in association with the 'auwai complex. The complex was assessed as important for information content, and further data collection was recommended within Parcels 1, 3, and 4 to further define the integrity and extent of the 'auwai. As no cultural remains were encountered in Parcels 5 or 6, no further work was recommended for the parcels.

Prior to the field work for the current project, the DLNR-SHPD provided the following information regarding the possibility of encountering historic sites within the project area (Thompson and Rosendahl 1992):

...the DLNR-SHPD was particularly concerned about a system of 'auwai or artificial ditches which once crossed the... parcel. Their records suggest that what is called "Kamuela Stream" in the Environmental Impact Statement is one of these ditches. They concluded from a variety of historic sources and some archaeological work that these ditches helped irrigate large portions of the Waimea Plains during the prehistoric and early historic periods. They indicated that an inventory survey of...[Parcel 4] should determine if evidence of the ditches and fields still exist. It was thought that trenching would identify segments of the canals and adjacent fields, and that mitigation work might also be needed[.]

The results of previous archaeological work provided data for assessing the probability of locating features and/or sites within the current project area, as well as indicating what types of features and/or sites to expect. It was expected that features/sites would be part of the Waimea-Lalamilo Agricultural System, a significant district in prehistoric and early historic times. The system included extensive agricultural fields, irrigation canals, scattered clusters of house sites, field shelters, and religious structures and burials. The field system was extensive but was not as elaborate as the pondfields found in the windward valleys; the fields were much more similar to the Kona and Kohala field systems described extensively in Kirch (1985). Briefly, the fields were marked by low retaining ridges constructed of stone and/or soil. The ridges usually ran perpendicular to the prevailing wind, with their orientation roughly SE to NW. Irrigation ditches ('auwai) were present with the fields, as well as planting mounds and field boundary walls (*kuaiwi*). Temporary or short-term habitation features were present, evident as small enclosures and/or shelters. Within the Waimea-Lalamilo field system, four complexes were apparent, each adapted to a particular microenvironment. A brief summary of the complexes has been presented in this report, in the discussion of Clark's work in 1980; the complexes are discussed in much greater detail in the report itself (Clark 1981) and in the Mudlane-Waimea-Kawaihae road corridor report (Clark and Kirch 1983).

Because of the presence of the field system within the project area, it was thought—prior to the current field work—that unless the project area had been heavily disturbed in the recent past there would be a relatively high probability that surface or subsurface historic sites would be found. The historical research also indicated that it was likely historic archaeological sites would be found, and further suggested that earlier sites would be scarce due to modification of the area. As indicated, Parcel 4 was found to contain part of an 'auwai. This feature, however, is located outside of the current project area (see Figure 1). The 'auwai in Parcel 4 will be discussed in detail in the Findings section.

FIELD METHODS AND PROCEDURES

On July 17-19 and 22-24, 1991, Supervisory Field Archaeologist Linda W. Thompson, B.A., assisted by Field Archaeologists Kathy Brown, Alice Smith, and Karen Wigglesworth conducted a 100% pedestrian reconnaissance of Parcel 4. The parcel was surveyed utilizing a series of roughly parallel transects. The spacing between individuals walking the transects never exceeded 20 m and typically was less. It was not necessary to mark the pedestrian transects with flagging tape for reference, because the parcel was small and surface visibility was very good.

When possible archaeological sites were encountered, all crew members were notified and sweeps were halted. The sites were marked with flagging tape, and their locations were plotted on a large-scale aerial map of the survey area or on the appropriate USGS topographic map.

After the surface inventory, one backhoe trench (BT-3) was excavated in the current project area to sample the area for subsurface cultural remains (Figure 1). A profile of one wall of the trench was drawn, and soils in the profile were described in detail.

FINDINGS

During the 905 project field work, no significant cultural remains of any kind were noted in the current project area. However, a portion of a prehistoric 'auwai (Site 16095) associated with the Waimea Agricultural System was identified outside of the current project area, within Parcel 4 (see Figure 1). The 'auwai is oriented southeast to northwest and is near the southwest corner of the parcel. The 'auwai is noted on a tax map (see Figure A-2, Appendix A).

During the 905 project, a backhoe trench (BT-1) was excavated across a portion of the 'auwai, and the stratigraphic profile of the 'auwai indicated multiple phases of activity (Figure 2). A radiocarbon dating sample was obtained from the ditch, from Stratum IV, a presumed cultural layer. Stratum IV was filled with flecks of charcoal and darkly stained soil. The sample yielded an age range of AD 770-1020 (AD 1130 \pm 60 BP [at one sigma; calibrated using Stuiver and Pearson 1986]; C-13/C-12 ratio = -25.5). The 'auwai was determined to be part of a larger irrigation 'auwai system within an area termed Field Complex 4 by Clark (1981). Extensions of the 'auwai as well as associated ditches were encountered in other nearby parcels during the 905 inventory.

Two other backhoe trenches were excavated in Parcel 4 (BT-2 and -3). BT-2 was excavated outside the current project area (Figure 1), and BT-3 was excavated within the current project area. Both trenches yielded no significant cultural remains of any kind. The stratigraphy in BT-3 is described in detail in Figure 3. The stratigraphy for BT-1 is described in detail in the following:

NORTH FACE

Layer	Description
I	0-28 cmbs; generally 20 cm thick; dark brown (10YR 3/3 moist); clay loam; dark yellowish brown (10YR 3/6 dry); strong, fine angular blocky structure; hard, very friable, non-sticky, non-plastic; many fine vesicular roots; many fine interstitial pores; abrupt, smooth boundary;
II	20-45 cmbs; generally 22 cm thick; very dark brown (10YR 2/2 moist); sandy clay; dark yellowish brown (10YR 4/4 dry); moderate fine crumb structure; loose, very friable, slightly sticky, non-plastic; common fine vesicular roots; common fine interstitial pores; gradual, wavy boundary;

- III 12-60 cmbs; generally 20 cm thick; dark yellowish brown (10YR 3/4 moist); sandy clay loam; dark yellowish brown (10YR 4/4 dry); moderate fine crumb structure; loose, very friable, slightly sticky, non-plastic; few fine vesicular roots; few fine interstitial pores; clear, smooth boundary;
- IV 50-84 cmbs; generally 20 cm thick; very dark brown (10YR 2/2 moist); silty clay; dark yellowish brown (10YR 3/4 dry); moderate fine blocky structure; loose, very friable, slightly sticky, non-plastic; rare fine vesicular roots; rare fine interstitial pores; clear, smooth boundary;
- V 60-100 cmbs; generally 25 cm thick; dark yellowish brown (10YR 3/4 moist); silty clay loam; dark yellowish brown (10YR 4/4 dry); moderate medium crumb structure; loose, very friable, slightly sticky, non-plastic; rare very fine tubular roots; rare very fine interstitial pores; gradual, wavy boundary;
- VI 12-100 cmbs; generally 30 cm thick; dark yellowish brown (10YR 3/4 moist); silty clay loam; dark yellowish brown (10YR 4/6 dry); moderate fine crumb structure; loose, very friable, slightly sticky, non-plastic; rare very fine tubular roots; rare very fine interstitial pores; gradual, irregular boundary;
- VII 90-120+ cmbs; generally 20 cm thick; dark yellowish brown (10YR 3/4 moist); silty clay loam; dark yellowish brown (10YR 4/4 dry); weak, fine angular blocky structure; soft, very friable, slightly sticky, non-plastic; rare very fine tubular roots; rare very fine interstitial pores; layer continues below base of unit.

EAST FACE

Layer	Description
I	0-24 cmbs; generally 20 cm thick; very dark brown (10YR 2/2 moist); clay loam; dark yellowish brown (10YR 3/6 dry); strong, fine angular blocky structure; soft, very friable, slightly sticky, plastic; many fine vesicular roots; many fine interstitial pores; abrupt, smooth boundary;
VIII	24-90 cmbs; generally 60 cm thick; dark yellowish brown (10YR 3/4 moist); sandy clay; dark yellowish brown (10YR 4/6 dry); moderate fine crumb structure;

loose, very friable, slightly sticky, non-plastic; common fine vesicular roots; common fine interstitial pores; gradual, wavy boundary;

- IX** 92-120 cmbs; generally 30 cm thick; very dark brown (10YR 2/2 moist); sandy clay loam; dark yellowish brown (10YR 4/4 dry); moderate fine crumb structure; loose, very friable, slightly sticky,

non-plastic; few fine vesicular roots; few fine interstitial pores; clear, wavy boundary;

- X** 120-160+ cmbs; very dark brown (10YR 2/2 moist); silty clay; dark yellowish brown (10YR 3/4 dry); moderate fine blocky structure; loose, very friable, non-sticky, non-plastic; rare fine vesicular roots; rare fine interstitial pores; layer continues below base of unit.

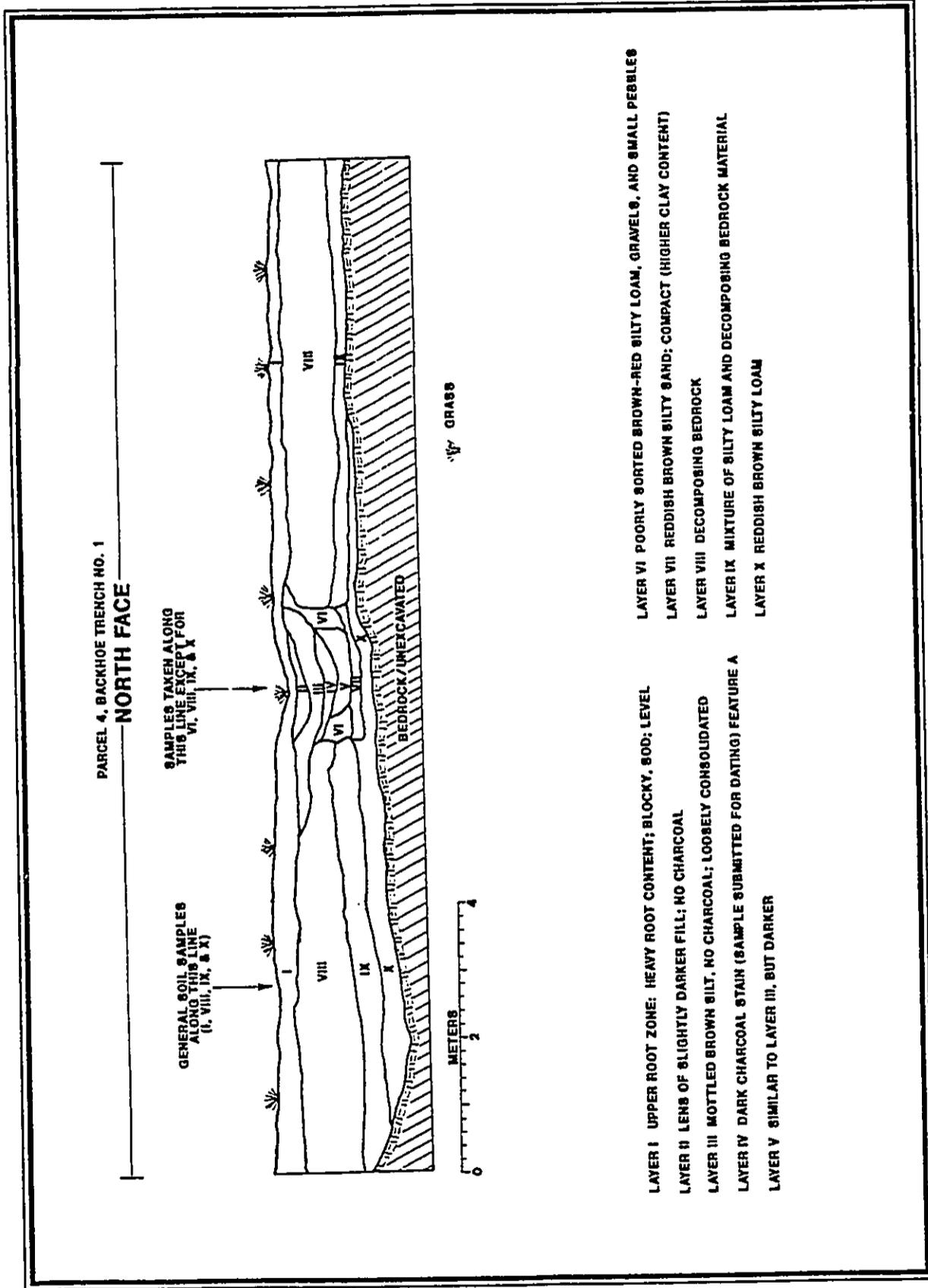


Figure 2. PROFILE OF BACKHOE TRENCH 1, PARCEL 4

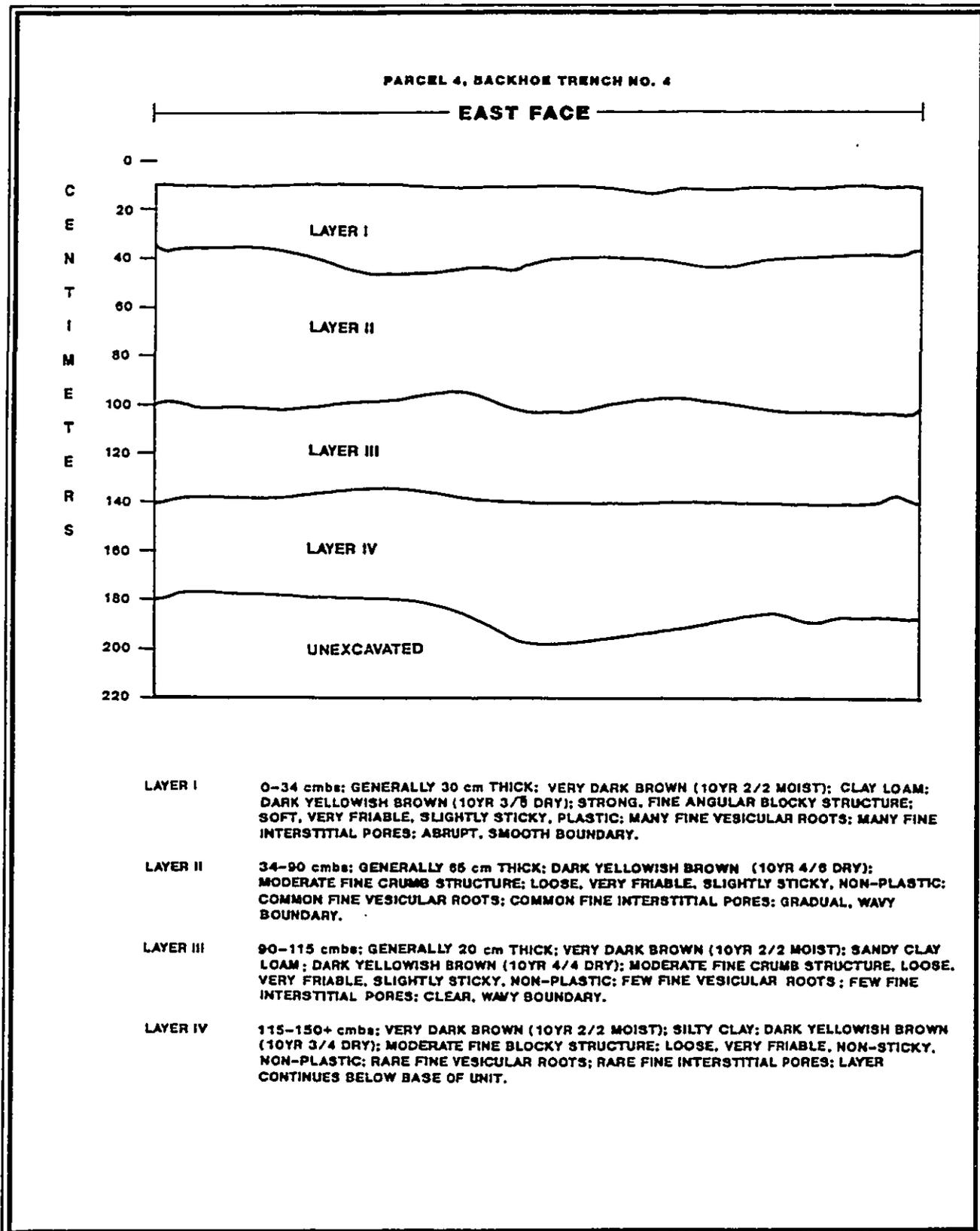


Figure 3. SECTION OF BACKHOE TRENCH 3, PARCEL 4

CONCLUSION

DISCUSSION

The project area is within the Waimea-Lalamilo Field System, an area conducive to intensive agriculture due to well-developed soil and adequate rainfall. The system, a relatively recent discovery (Clark and Kirch 1983), was cultivated prehistorically much like the Kohala Field System at Lapakahi (Rosendahl 1972) and the Kona Field System (Kirch 1985:223-230).

The Waimea-Lalamilo Field Complex was not solely dependent on rainfall for its success. Irrigation supplemented inadequate or unpredictable rainfall. The irrigation system was not architecturally elaborate; it consisted of a network of ditches radiating from permanent streams that drain the Kohala slopes. The ditches were not extensive enough to keep all the fields constantly watered and a system of rotation has been speculated (Kirch 1985).

During the 905 project field work, a portion of an 'auwai (Site 16095) was identified within Parcel 4, but outside the current project area. A radiocarbon sample from the portion yielded an age range of 1130 \pm 60 BP. This indicates the vicinity of the current project area may have been occupied as early as AD 770, with a range up to AD 1020. The range falls within the Developmental Period, as defined by Kirch (1985:302). During this period distinctive patterns of Hawaiian material culture and economic adaptation were firmly established and permanent settlements were developed.

The age range is much earlier than was expected. While extensive agricultural use of the area had been documented, there was little previous indication that it had occurred at such an early date. Date ranges obtained from agricultural sites located during the Mudlane-Kawaihae road corridor investigations (Clark 1983) were consistently younger. Site 9178.1 (Lalamilo Swale) produced a date of 200 \pm 40 years BP (HRC-384). Site 9178.2 (Lalamilo Stream-Side) produced a range of post AD 1800. Sites 8828 and 8827 also both produced ranges within the late prehistoric/early historic range. The early range suggests more intensive development on the leeward, more marginal areas prior to intensive populations along the coast. This is unexpected as the agricultural hubs during the Developmental Period were thought to be typically confined to the well-watered windward valleys. Reeve (1983) suggested that the development of the irrigation

system in the Lalamilo area was the result of a need for increased food production during Kamehameha's reign and the associated population growth in the Kawaihae area (1790-1795). Perhaps the population grew instead due to the already existing food supply.

Future research in the vicinity of the project area should be concerned with obtaining information on the culture history and lifeways of the prehistoric Hawaiian population that occupied the Lands of Waikoloa, Pu'ukapu, and Lalamilo and the general South Kohala District. Both ethnographic and archaeological studies would be useful to obtain this information. Oral interviews of early families in the region may help trace the agricultural practices of the region through time. More radiocarbon samples may help document the temporal development of the Waimea-Lalamilo Field Complex. The early date range (AD 770-1020) obtained from the 'auwai (Site 16095) during the 905 project may be very important to further defining the extent of agricultural development in the Waimea area.

SUMMARY OF GENERAL SIGNIFICANCE ASSESSMENTS AND RECOMMENDED GENERAL TREATMENTS

Sites identified during the current project were to be assessed for significance under (a) the National Register criteria for evaluation, as outlined in the Code of Federal Regulations (36 CFR Part 60), (b) guidelines prepared by the Advisory Council on Historic Preservation (ACHP Draft Report, August 1985), and (c) PHRI Cultural Resource Management value modes. However, no sites or any other significant cultural remains were identified in the current project area.

One site, however, was identified very close to the current project area during the 905 inventory project (Site 16095). This site was assessed during the 905 survey as significant for information context, and further data collection was recommended for it. Because of the site's closeness, interim protection of it is required when development work is conducted in the current project area. Therefore, in order to protect Site 16095, and in case any significant subsurface remains are found in the current project area during development work, monitoring of all future subsurface disturbance in the project area is recommended.

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APPENDIX A

HISTORICAL DOCUMENTARY RESEARCH

by Lehua Kalima, B.A.

The Waimea area of North Kohala is often mentioned in early historical accounts because famous battles were fought in the area and the area was the site of an early missionary station. The area also served as a midway point between Hilo and Kona, and was frequently visited. Waimea is also frequently mentioned in more contemporary accounts, for a number of reasons. One is that Waimea is the home of Parker Ranch, the largest privately owned ranch in the United States. Another is that several world class resorts are in the neighboring Land of Waikoloa.

The name "Waimea" is often loosely used to refer to either of four places: (1) the town of Waimea (sometimes called Kamuela [Samuel], after Samuel Parker); (2) a large land division stretching from the coast to the uplands and encompassing several subdivisions; (3) the upland area only of that division, including the entire plain between Kohala and Mauna Kea mountains; and (4) the upland region of intensive residential and agricultural occupation (Clark and Kirch 1983:46). In this report the latter best explains the area that concerns us, so the name will be used in this context.

The literal meaning of Waimea is "reddish water (as from erosion of red soil)" (Pukui and Elbert 1971). In *'Olelo No'eau* (Puku'i 1983), a book of Hawaiian sayings, Waimea is noted as an area of cool climate and chilling rains:

Hele po'ala i ka aru o Waimea
Going in a circle in the cold of Waimea.

Said of a person who goes in circles and gets nowhere. Waimea, Hawai'i, is a cold place and when foggy, it is easy for one unfamiliar with the place to lose his way (757).

Ka ua Kipu'upu'u o Waimea
The Kipu'upu'u rain of Waimea

An expression often used in songs of Waimea, Hawai'i. When Kamehameha organized an army of spear fighters and runners from Waimea, they called themselves Kipu'upu'u after the cold rain of their homeland (1571).

Ke Kipu'upu'u ho'aru 'ili o Waimea

The Kipu'upu'u rain of Waimea that chills the skin of the people (1748).

PRE-CONTACT HISTORY

Samuel Kamakau, a scholar and teacher in the 1800s, notes that Kawaihae in South Kohala was where Maui chiefs beached their canoes on their way to do battle with Kohala chiefs. Once, the Maui chief, Kamalalawalu, sent spies to Hawaii, and they landed at Kawaihae. The spies ran around the island of Hawaii, along the coast, trying to determine the size of the population. They misjudged it and gave this misinformation to Kamalalawalu. Kamalalawalu invaded the island based on this misinformation. He went to Kawaihae but no one was there because the people had gone up to Waimea. Only the people of lower Kawaihae and Puako remained.

Kamalalawalu's counselors told him that Waimea was not a good battle site for strangers because the plain was long and there was no water. Should they be defeated, they would all be slaughtered (Kamakau 1961:58). Kamalalawalu didn't heed this advice; he instead listened to two old men of Kawaihae who purposefully misled him, saying that Pu'oa'oaka was a good battle field and would be a great help to the chief. They told him that all his canoes should be taken apart because the warriors may want to run back to the canoes and return in secret to Maui (ibid.). Kamalalawalu's men landed at Puako and destroyed their canoes, thinking to get new ones after they had won the battle. They then went up to the grass-covered plains of Waimea:

They looked seaward on the left and beheld the men of Kona advancing toward them. The lava bed of Kaniku and all the land up to Hu'ehu'e was covered with the men of Kona. Those of Ka'u and Puna were coming down from Mauna Kea, and those of Waimea and Kohala were on the level plain of Waimea. The men covered the whole of the grassy plain of Waimea like locusts. Kamalalawalu with his warriors dared to fight. The battle of Pu'oa'oaka was outside of the grassy plain of Waimea, but the men of Hawaii were afraid of being taken captive by Kama, so they led [Kamalalawalu's forces] to the waterless plain lest Maui's warriors find water and hard, waterworn pebbles. The men of Hawaii feared that the Maui warriors would find water to drink and become stronger for the slinging of stones that would fall like raindrops from the sky. The stones would fall about with a force like lightning, breaking the bones into pieces and causing sudden death as if by bullets (ibid:59).

The Maui men picked up the stones of Pu'oa'oaka, but they were light and killed few Hawaii men. The Maui men couldn't find any water to relieve their thirst. They retreated to Kawaihae, but because they had destroyed their canoes, few escaped alive. Kamalalawalu was killed on the grassy plain above Puako (ibid:60).

Another version of this battle, related by Abraham Fornander, tells about how Kamalalawalu's invading army arrayed itself on top of the hill of Hoku'ula where, Kamalalawalu had been falsely told, there were large stones to roll down on the enemy. From this perch they could see the armies of Waimea advancing:

While Kamalalawalu was on the hill of Hoku'ula, in Waimea, he beheld the dust rising above the stones of Kaniku, the stones being gradually reddened by the dirt. On account of the many men the darkness of the stones was covered by the dust. And when Kamalalawalu saw the men of Kaniku advancing, he inquired of Kauhikama: "Where have you traveled on Hawaii that you failed to observe the people?" Kauhikama answered: "From Kawaihae to Kaawaloa, in Kona were the places I visited, but I encountered no person." Kamalalawalu said to Kauhikama: "Did you not see houses standing?" "There were houses indeed, but there were no occupants. There were pigs running about, and there were chickens crowing." Whereupon, Kumaikeau and Kumakaia remarked: "You could not find the occupants at home, for they had gone upland to till the ground because it was morning, and they had gone out fishing. If it were in the afternoon you went there, you would have met the men at home." Kamalalawalu, on hearing this, said to Kauhikama: "We shall perish; we can not be saved. I thought your report was true, but it is not so. By whom have you been taught that the house is a thing that stands without dwellers. Why! The house is erected, the men live therein. Woe betides us that we perish by your report (Fornander 1919(5):448).

Alapa'inuiakaua (Alapa'i) was a famous chief. He was living on Maui when Keawe, the famous ruler of Hawaii, died. He went to make war against Hawaii's remaining chiefs, took them captive, and became ruler of Kohala and Kona. Kekaulike, ruler of Maui, heard about Alapa'i's success and wanted to take over. He began the fight against Alapa'i in Kona, but before long Alapa'i forced Kekaulike to flee. As he retreated, Kekaulike slaughtered the people of Kohala, seized their possessions, and fled by canoe to Maui (Kamakau 1961:77).

Toward the end of his reign, Alapa'i lived first in Waimea and then moved to Kikiako'i in Kawaihae. He was ill when he lived at Waimea and his illness became serious at Kikiako'i. At the *heiau* of Mailekini, in Kawaihae, he appointed his son, Keawe'opala, to be his successor (ibid.).

It has been speculated that during the times of Alapa'inui and Kalani'opu'u, Waimea was cultivated and the cultivation was expanded to supply the chiefs' needs while they sojourned there (Clark and Kirch 1983:26).

During Kamehameha's campaign to extend his rule to all the major islands he stayed at Waimea and at Kawaihae for extended times. One time was in 1791 and 1792 when the building of the *heiau* at Pu'ukohola required the help of many workers; another time was in 1794 and 1795, when he was preparing his Peleleu fleet which was to carry his wars across the sea to Maui and O'ahu (ibid:27).

The local chiefs of Waimea do not figure prominently in Waimea tales. One chief, however, became known during the reign of Kalani'opu'u for his prowess in leaping cliffs, a difficult skill which could save many a warrior's life in battle. The name of this chief was Hina'i, whom Kamakau described as a close relative of Kalani'opu'u (1961:111-112). Nuhi, Hina'i's son, supported Kiwala'o at Kamehameha's first battle at Moku'ohai. When Kamehameha conquered Hawaii and took Waimea as a conquered land, the Waimea chiefs were reconciled to him by the marriage of his sister, Ka'ohelani, to Nuhi (Clark and Kirch 1983:27-28).

EARLY HISTORICAL ACCOUNTS

There are many historical accounts concerning the Waimea area, as it was a stopping point between the west and east sides of the island. Also, there was a good harbor at Kawaihae; many people came through Waimea on their way to meet the trading ships at Kawaihae. Handy and Handy (1972) describe Waimea as an area where dry taro was planted along the slopes toward Honoka'a, and along the plains south and west of Kamuela (Handy and Handy 1972:532).

Clark and Kirch (1983), who studied the Waimea-Kawaihae area extensively, describe the area:

A stark contrast emerges between the two zones of Waimea and Kawaihae. Terms such as "desolate," "destitute," "barren," "scorching," "excessively hot," and "oppressive heat" are commonly used in descriptions of Kawaihae and the area extending for several kilometers inland. Descriptions of Waimea,

on the other hand, abound with terms such as "rolling," "verdant," "driving rains," "chilling winds," and "abundantly cultivated" (Clark and Kirch 1983:39).

Few of the early foreign visitors to Kawaihae went inland. Archibald Menzies of Vancouver's expedition did travel a short distance inland of Kawaihae in 1793 and wrote of his trip:

I traveled a few miles back...through the most barren, scorching country I have ever walked over, composed of scorious dregs and black porous rocks, interspersed with dreary caverns and deep ravines....The herbs and grasses which the soil produced in the rainy seasons were now mostly in the shriveled state, thinly scattered and by no means sufficient to cover the surface from the sun's powerful heat, so that I met with very few plants in flower in this excursion. A little higher up, however, than I had time to penetrate, I saw in the verge of the woods several fine plantations, and my guides took great pains to inform me that the inland country was very fertile and numerous inhabited. Indeed, I could readily believe the truth of these assertions from the number of people I met loaded with the produce of their plantations and bringing it down to the water side to market, for the consumption was now great, not only by the ship, but by the concourse of people which curiosity brought into the vicinity of the bay (Menzies 1920:55-56).

Ellis, writing in 1823, further describes Waimea:

On Monday morning Messrs. Bishop and Goodrich commenced their journey to Waimea. Having procured a man to carry their baggage, they left Kapulena (in the Hamakua district), and, taking an inland direction, passed over a pleasant country, gently undulated with hill and dale. The soil was fertile, the vegetation flourishing, and there was considerable cultivation, though but few inhabitants. About noon they reached the valley of Waimea, lying at the foot of Mauna-Kea, on the north-west side. Here a number of villages appeared on each side of the path, surrounded with plantations, in which plantains, sugar-cane, and taro were seen growing unusually large (Ellis 1969:354).

A few days later Mr. Thurston, a missionary and preacher, traveled inland to Waimea from Kawaihae. He walked to Kalaloa, the residence of Kumuokapiki (Stump of Cabbage),

the chief at that time. Leaving there he walked on to Waiakea, Waikoloa, Pukalani, and Pu'ukapu noting that this was the last village in the district of Waimea (ibid:399).

A few years after the Ellis' visit, Waimea was visited by the Rev. Hiram Bingham who wrote of Waimea's beauty:

Leaving the other travellers, and crossing over to Kawaihae with my family, we ascended at evening to the new inland station. When we had escaped from the oppressive heat on the shore, and reached the height of about 2000 feet, we were met by a slight rain and a chilly wind, which made our muscles shiver, though covered with a cloak, as we came within some twenty-five miles of the snows of the mountain. The rain and clouds passed away as we approached the place of the sojourn of Mr. Ruggles and Dr. Judd. The full-orbed moon looked serenely down from her zenith upon the hoary head of Mauna Kea, and the ample and diversified scenery around (Bingham 1969:374).

Riding out one day to call on Gov. Adams, who had done liberally for the station by the erection of the buildings, I was delighted, on my way to his temporary residence, with the grandeur and beauty of the scenery around me. The clear rippling streams that wind their way along the verdant plain, through alternate plats of shrubbery, grass, kalo, sugar-cane, bananas, flowering bushes, and wild vines, occasionally crossed my path. Beyond the scattered cottages, the wild cattle were grazing unrestrained on their own unenclosed territories bordering on the mountain. The green hills and mountains of Kohala, crowned with trees and shrubbery, and their sides partly cultivated and partly covered with grass of spontaneous growth, rose on the north side of the plain (ibid.).

Site 16095 of the project area is part of an agricultural zone named the Waimea Field System (Figure A-1). In the traditional system, taro was the main crop with sweet potatoes, sugarcane, and bananas also being produced abundantly (Clark and Kirch 1983:47). Table A-1 lists the cultivation that took place in the Waimea area in the early-mid 1800s. Due to fertile soil and abundant rainfall this area was highly productive. In addition, three main streams flowed off the Kohala slope and onto the plain, all of which were described by early visitors to the region. With the streams as the focus, the people's homes and plots were scattered along the lower slopes of the Kohala Mountains and stretched out onto the plain. The settlement was not in the form of a nucleated

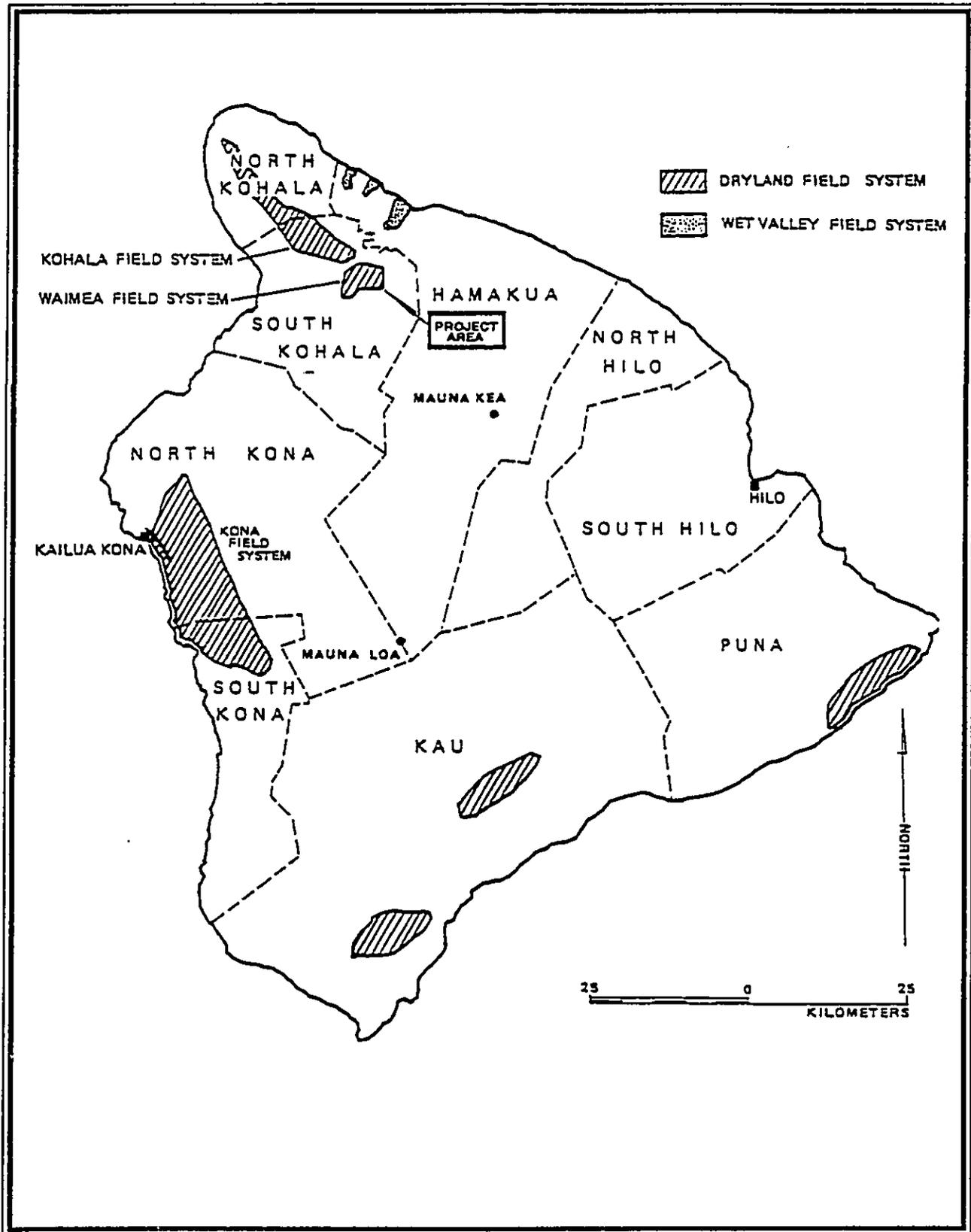


Figure A-1. Dryland Field Systems (Taken from Schilt 1984:2)

Table A-1.

AGRICULTURAL PRODUCTS REPORTED FOR WAIMEA AND WAIMEA VICINITY, 1825 to 1858.		
Date	Product	Source
1823	Taro, plantains, sugarcane	Ellis 1963:354, 399
1825	Pig, taro (poi)	Bishop 1825:609, 646
1829	Taro, sugarcane, banana	Bingham 1969:374
1830	Upland taro, potatoes, cattle (wild) Beef (wild); taro, potatoes, melons, other vegetables, mulberry trees, coffee trees, pomegranates, figs, etc. (all planted by Judd).	Andrews et al. 1830:4, 7 Judd 1903:28, 35
1830 to 1860	Cattle, mentioned by nearly all references	
1831	Beef (wild)	Judd 1903:28
1832	Sweet potato, Irish potatoes, taro, onions, fowl, ducks, turkeys, eggs, hogs, beef and beef by-products Beans, corn, watermelon, <i>puialele</i> and another famine plant <i>waike</i> , prickly pear, sheep (thriving flock)	Baldwin 1832:2013, 2015 Doyle 1945:49, 63
1833	Sweet potatoes (drink)	Doyle 1945:72
1836	Ducks and other waterfowl (present but not in food context), wild plantains, bananas, wild turnip, sweet potatoes, raspberries, strawberries, <i>mama</i> , etc., other roots and herbs (wild plants utilized), upland taro (culti- vated), <i>mamaki</i> , cattle, wild boars, feathers, <i>koa</i> planks	Perambulator 1836
1837	Sugarcane and potatoes	Doyle 1945:101
1840	Beef, taro (poi) Port, beef, taro (poi), arrowroot	Olmsted 1969:253 Jarvis 1844:221
1842	Sheep (merino)	Allan 1847
1842 to 1847	Sheep, goat	
1848	Taro, sugarcane Taro, apples, peaches, vegetables, corn, sheep, goats Plover, ducks, brant (as game)	Kenway 1848
1851	Irish potatoes, onions, cattle, sheep, goats	Lyons 1851
1853	Cattle, sheep	Bates 1854:366
1858	Irish potatoes, taro	Lyons 1858

(Taken from Clark and Kirch 1983, Table 3.2)

village, but was fairly well spread out. The area was divided into a number of named locales (e.g., Keaalii, Lihue, Kalaloo, Waiaka, Waikoloa, Alaohia, Pukalani, Pu'ukapu, and others), some of which had a greater population than others (ibid.).

In the years following the first visits of foreigners to the Waimea region, subsistence agriculture sharply declined although there were a couple of periods of increased activity. "The primary reasons for the decline in agricultural activity were (1) depopulation and the abandonment of fields; (2) the pursuit of other commercial interests, such as sandalwood, sugarcane, pulu (wool that grows on tree-ferns used to stuff mattresses and pillows) trade, and the cattle industry (the latter of these was the most devastating, not only in drawing the people away from the fields, but also in bringing about the destruction of the fields); and (3) pest infestations" (ibid:48).

Commercial Interests in Waimea

In the early 1800's thousands of "piculs" (an oriental unit of weight averaging 130-140 pounds) were cut from the forests around Waimea and shipped out of Kawaihae (ibid.). During his visit to the area in 1823, Ellis reported seeing two to three thousand men carrying loads of sandalwood down to Kawaihae (Ellis 1969:397). By the early 1840s, however, the sandalwood forests had been stripped (Clark and Kirch 1983:48).

Kuykendall (1968:183) cites an 1837 merchants report that notes that Governor Kuakini planted "an immense cotton field at Waimea." Little else is known of this project, which must have failed rather quickly.

In the 1850's, *pulu* became a major economic interest in areas near tree-fern forests. This industry was failing by the 1860s (Clark and Kirch 1983:48). As with the earlier sandalwood trade, the tree-fern forests in many parts of the island were exploited to the point of destruction.

Cattle Industry

The most stable and long-term economic pursuit in the Waimea area has been the cattle industry. When Captain George Vancouver of the British Royal Navy introduced a few head of cattle to the Waimea region in 1793, they were placed under a *kapu* for ten years so that they could multiply and eventually supply a new source of protein for the Hawaiian population. Vancouver described Waimea as a place very rich and productive, containing a large tract of luxuriant, natural pasture, where all the cattle and sheep he had imported could roam freely, produce and multiply (ibid.).

By 1794 Vancouver had left seven cows, three bulls, five ewes, and five rams on Hawaii (ibid.). This feral cattle population grew out of control, however, and by 1858 one observer guessed that there were about 10,000 head on Mauna Kea (ibid.). While this was probably an over-estimate, the herds clearly played a role in (a) the abandonment of agricultural fields which were subject to destruction by marauding cattle, (b) the construction of stone walls to contain, restrict, or exclude cattle, and (c) deforestation of some areas, primarily because the cattle trampled and ate many of the young sprouts (ibid.).

Wherever they were kept to "increase and multiply" they did so, so rapidly that by 1815 John Whitman reported:

The cattle have become so numerous on the Island of Owhyhee that they are found in large droves and apprehensions were entertained that it would be necessary to destroy part of them on the expiration of the term which Van Couver set, when he left the first pair on the Island (Whitman 1979:61).

Kamehameha I hired a few people to shoot cattle. One of his bullock hunters was John P. Parker, an American who had shipped with traders in the Northwest Coast-China fur trade and finally settled in Hawaii about 1815 (Barrera and Kelly 1974:44). Parker later founded Parker Ranch. Barrera and Kelly (1974) report on the early days of the ranch:

After 1819, Parker lived at Waiapuka in North Kohala and moved to the Waimea area about 1835, where he lived first at Puuloa and then at Mana, Hamakua. He married a Hawaiian woman and raised a family there.... At Mana he developed his ranch based on large herds of cattle and a large acreage over which to graze them. His home became a convenient stopping place for visitors travelling between Hilo and Waimea, and his ranch later became the world-famous Parker Ranch, the largest in Hawaii and perhaps the largest in the world for acreage (Barrera and Kelly 1974:44).

In the 1830s a true cattle industry based on meat, hides, and tallow developed (Clark and Kirch 1983:48). By the late 1830s and 1840s this industry slowed dramatically; less than ten years later, however, it was up again. This industry was largely monopolized by the government or chiefs; most of the common people were excluded from it (Barrera and Kelly 1974:45). In 1846 two-thirds of the Waimea area had been converted to pasture for government cattle, sheep and horses (ibid.). As a result, many native residents moved away.

During the early days of the cattle industry merchants established businesses at Waimea. One of the best known was William J. French, an American who owned cattle and a warehouse in Kawaihae, and who employed a saddlemaker, shoemaker, and a carpenter. There was also a large tallow business in Waimea; in 1841 Governor Kuakini had to place a *tabu* on killing cattle solely for their hides and tallow (ibid:45).

James Fay, an Englishman, had a small business in Waimea. While most ranchers concentrated on cattle, Fay had 700 sheep on his 173 acres. Fay also ran a tannery. One of the most popular barks for tanning leather in Hawaii was from the *kukui* tree. This may be one of the reasons that the forests were depleted in the Waimea area. Although not as good as the *kukui*, the bark of the *koa* and *ohia* trees was also used (ibid.).

In 1847 the government was selling salted beef to the traders and whalers that stopped in Hawaii. By 1849 beef was being exported. William Beckley, who was in charge of the Government's land and cattle, became very powerful in Waimea. His name appears on many of the land claims as the *konohiki* who had given the claimants permission to use the land in the first place; his name also appears on many letters and documents of the Interior Department of the Hawaiian Kingdom Government (ibid.). His name also appears as the man who gave a lot to John Thomas in LCA 4026, which is within Site 3 of the project area, as will be shown later in this report.

While the government was taking over the cattle industry, the common people were having a difficult time ranching. Very few Hawaiians had the cash to buy land, and they were required to pay a certain rate per head for the cattle, hogs, sheep or goats that they had grazing on the king's land. On account of this, many of them moved (ibid.).

While cattle drove many people from Waimea, it also attracted others, particularly foreigners. Many Spanish-Americans from Mexico were brought in to the islands to handle the wild cattle. These *paniolas* (*Espanoles*) colorfully enhanced Waimea with their bright ponchos, pantaloons, and spurred boots (ibid.). Waimea even took on a bit of the look of old Mexico when prickly pear cactus and sisal plants were introduced.

Pest Infestation

Another factor in the decline of subsistence agriculture was natural pests. As early as 1832 crop production was severely damaged due to a worm that plagued the fields for more than six months. In 1837 there was famine in the area because of destruction by worms. In 1841 caterpillars were

destroying the crops, and in 1847 it was beetle grubs (Clark and Kirch 1983:49). Precisely what the pests were and what crops they were preying on is unclear. The same pest may have been given different common names, or there may have been different species involved. Clark and Kirch note that "one or more of the many species of cut-worms are likely candidates, but the sweet potato horn-worm and the sweet potato weevil are also possibilities" (ibid.). In any case its not clear as to whether these pests were endemic or introduced (ibid.).

What were called "field mice" also destroyed crops. Since true field mice aren't found in Hawaii, some other rodent was causing the problem (ibid.). Again, however, it's difficult to determine which species was of mouse was being referred to. It seems likely the mice were only a small problem, as only one person cited them (ibid.).

Given the problems facing subsistence farmers, it's not surprising that so many abandoned their fields. Those who remained often faced hardship. In the early years, long stone walls were constructed to keep cattle out of the agricultural areas (ibid:50). With so many people moving and the lack of maintenance on these walls the cattle herds pressed even harder on the farmer. In later years the house lots and small garden plots were enclosed by stone walls to protect the individual lots (ibid.). Many people left their formerly cultivated lots and moved to a distant corner in the woods to avoid the cattle, but the cattle would follow them and destroy whatever plots they had newly planted (ibid.).

Agriculture did undergo a couple of brief periods of revitalization, especially in the late 1840s and early 1850s (ibid.). This was due mainly to the production of potatoes, both sweet and Irish. From the beginning of Euro-American contact in the islands, sweet potatoes were highly valued for replenishing ships stores. By the early 1830s, Irish potatoes were also being grown in Hawaii. The increase in whaling ships after 1840 brought great demands for both sweet and Irish potatoes (Kuykendall 1968:313). In 1849 a short-lived increase in potato production began as a response to the peak of the California Gold Rush. Thousands of barrels of potatoes were shipped to the gold fields over the next two years, but by 1852 the most intense phase of the boom was over (ibid:321). Trade with the whalers, however, continued for a few more years. In 1858 it was reported that "several thousand acres" were cultivated primarily for Irish potatoes, but taro and beans also received a lot of attention. The whaling era ended not long after that (Clark and Kirch 1983:49).

While the number of farmers and the quantity of food production dropped in Waimea, the number of non-farmers

rose dramatically. As a result, there was too little food to support the population. Trade made up the balance. While some goods were brought in from Honolulu and elsewhere through the stores, Waipi'o Valley became the primary supplier of foodstuffs. Taro was the main item bought from that area during that time, and beef and clothing were sent to Waipi'o in exchange for vegetables (ibid.).

In the 1830s Waimea was also chosen as a site for a mission house:

John Li, Bingham, Bishop, and Ruggles missionized among the Waimea residents with the assistance, not only of Gov. Kuakini, but also of Kapiolani, famous for her defiance of Pele, and Kaahumanu. Bingham reported that when Kaahumanu came to Kawaihae in September 1830, he preached there to 3000 people "...assembled in the open air." The following day the entire party "...repaired to Waimea, and sojourning there several weeks, made the missionaries a thorough-going family visitation." Such support from the chiefs made it possible for the missionaries to set up and maintain a permanent mission station in this distant area (Barrera and Kelly 1974:52).

As the population of Waimea dropped and the agricultural and residential lands shrunk, the settlement pattern changed. What was once a largely dispersed settlement area became highly concentrated in the upper elevations, especially in the old locations of Lihue, Waikoloa, and Pu'ukapu (Clark and Kirch 1983:49). The mission station, the store established by William French, and the cattle processing area all drew the population into a new, fairly nucleated settlement. Despite all the changes and hard times the community continued and even prospered.

THE GREAT MAHELE

In 1848, during the reign of Kamehameha III, the traditional Hawaiian land ownership system was replaced with a more Western-style system. This radical restructuring was called The Great Mahele (division). The Great Mahele defined the land interests of the King and the high-ranking chiefs, and the *konohiki*, who were originally those in charge of tracts of land on behalf of the king or a chief (Chinen 1958:vii and Chinen 1961:13). More than 240 of the highest-ranking chiefs and *konohiki* in the kingdom joined Kamehameha III in this division. The first *mahele* was signed on Jan. 27, 1848 by Kamehameha III and Princess Victoria Kamamalu, and by her guardians Mataio Kekuanaoa and

Ione II. The last *mahele* was signed by the King and E. Enoka on March 7, 1848 (Chinen 1958:16).

The Mahele did not convey title to any land. The chiefs and *konohiki* were required to present their claims to The Land Commission to receive awards for lands quit-claimed to them by Kamehameha III. They were also required to pay commutations to the government in order to receive royal patents on their awards. Until an award was issued, title remained with the government. The lands awarded to the chiefs and *konohiki* became known as Konohiki Lands. Because there were few surveyors in Hawaii at the time of the Mahele, the lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This expedited the work of the Land Commission and speeded the transfers (Chinen 1961:13).

During this process all land was placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and Konohiki Lands. These were all "subject to the rights of native tenants," (Laws of Hawaii 1848:22). Native tenants were the common Hawaiian people who lived on the land and worked it for their subsistence. Questions concerning the nature of these rights began to arise as the King, the government, and *konohiki* began selling parcels of land. On December 21, 1849 the Privy Council attempted to clarify the situation by adopting four resolutions intended to protect the rights of native tenants referred to in the 1848 law (Chinen 1958:29). These resolutions authorized the Land Commission to award fee simple title to all native tenants who occupied and improved any portion of Crown, Government, or Konohiki lands. These awards were to be free of commutation except for house lots located in the districts of Honolulu, Lahaina, and Hilo (ibid.).

Before receiving their awards from the Land Commission, the native tenants were required to prove that they cultivated the land for a living. They were not permitted to acquire wastelands or lands which they cultivated "with the seeming intention of enlarging their lots." Once a claim was confirmed, a survey was required before the Land Commission was authorized to issue any award. These lands became known as "Kuleana Lands" (ibid:30). Until its dissolution on March 31, 1855, the Land Commission issued thousands of awards to the native tenants for their *kuleana*; even so, less than 30,000 acres of land were awarded to the native tenants as Kuleana Lands.

There are no LCAs in the current project area. The following are testimony and a lot description for LCA 4026, which is adjacent to the project area (Figure A-2). The testimony is accompanied by a tracing of the lot (Figure A-3):

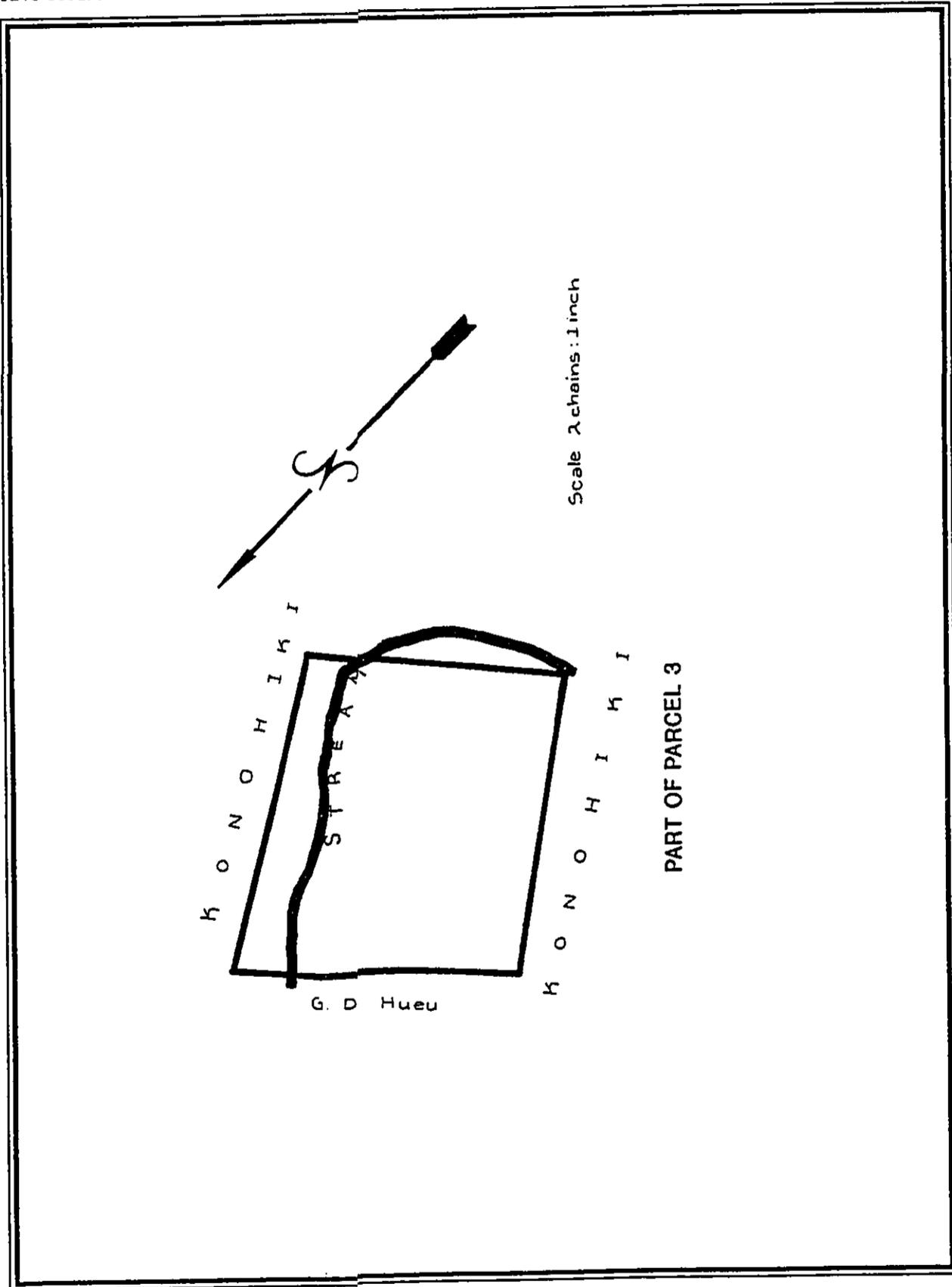


Figure A-3. Tracing of L.C.A. 4026

L.C.A. 4026 located in Site 3
Native Testimony Vol. 4:41

Sept. 16, 1848
No. 4026 - John Thomas

William Bakle sworn and stated: "I have seen John Thomas' house-lot in the ili land at Paulama in Waimea, Hawaii. He is a non-citizen of Hawaii, but he asked me for an interest for his wife and children. I had consented and it was as large as he had filed as a claim. A half of the lot has been enclosed and there are 2 houses in there. I am on the mauka, waho and makai directions while Hueu is on the Kohala side. This is his old place and I had given it to him in 1846 forever, for them, his wife and children. Kamernaikou is the wife, Ailune Thomas, the son. I cannot object to him.

Lot description
L.C.A. 4026 to John Thomas
Paulama, Waimea, Kohala, Hawaii

Houselot in Paulama, Waimea, Kohala, Hawaii commencing at North angle adjoining east corner of G.D. Hueu and running S 52* W 3.90 chains along yard of

G.D. Hueu, Thence S 33 1/2* E 4.57 chains along Konohiki to watercourse, Thence N 52* E. 3.69 chains and N 29 3/4* W 4.60 chains along Konohiki to point of beginning area - 1 acre & 7/10 of an acre

Sur. C.J. Lyons
2/5/1851

In testimony for other LCA in the area it was found that the *Konohiki* at that time was William Beckley (his name was often misspelled, as in the testimony above).

Figures A-4 and A-5, taken from Clark's report (1987), shows the various 'auwai as well as archaeological features in the general vicinity.

Throughout its history, Waimea has been an extremely important and successful agricultural area. This small area once produced enough food to supply armies as well as its own inhabitants. It went through many transitions—from an agricultural center to a cattle raising center to producing various other crops. Many of its earlier agricultural sites have been altered—trampled by cattle or covered under pasture grass. Based on the present historical research, it appears likely there are significant archaeological sites within the project area parcels.

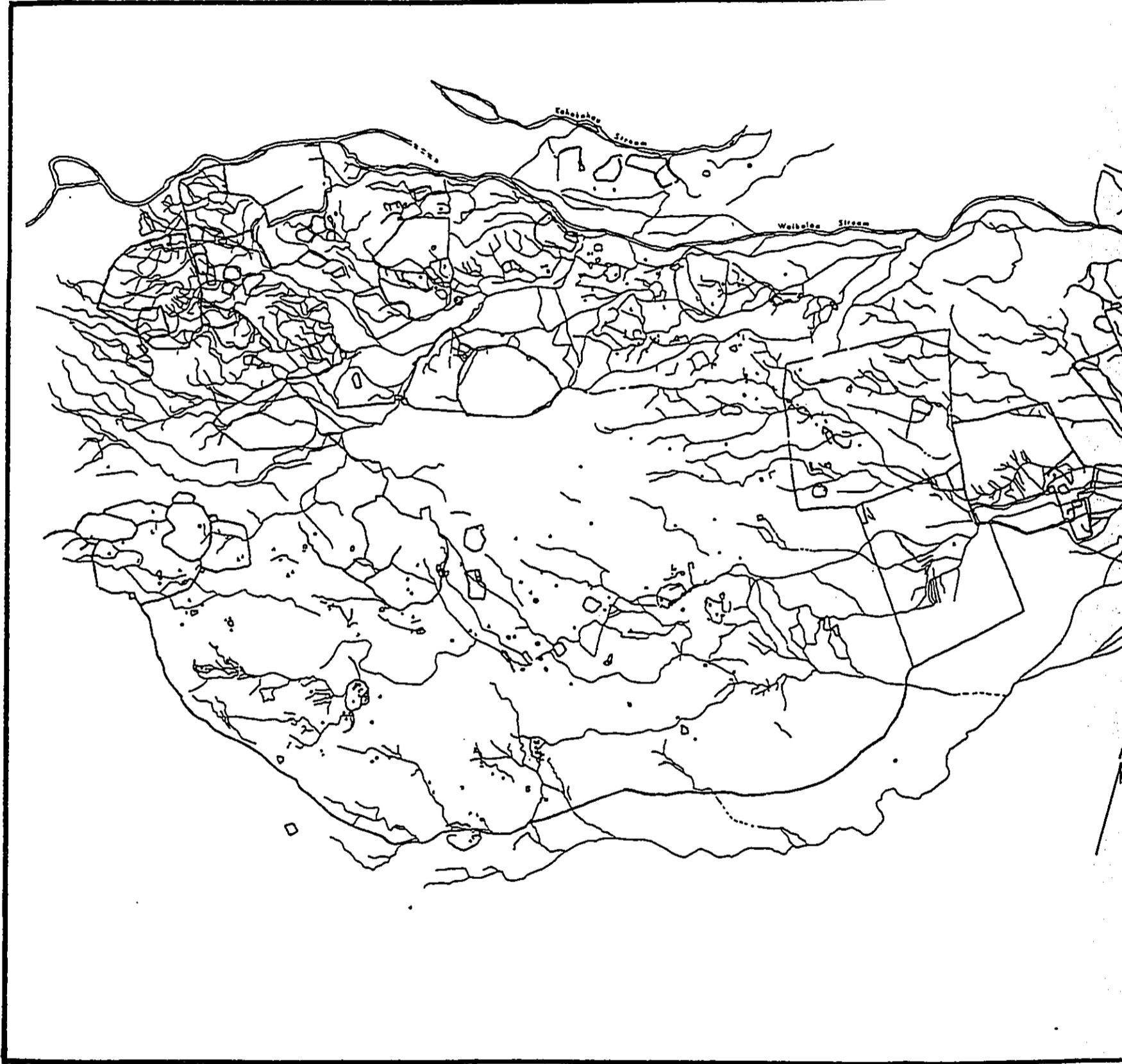
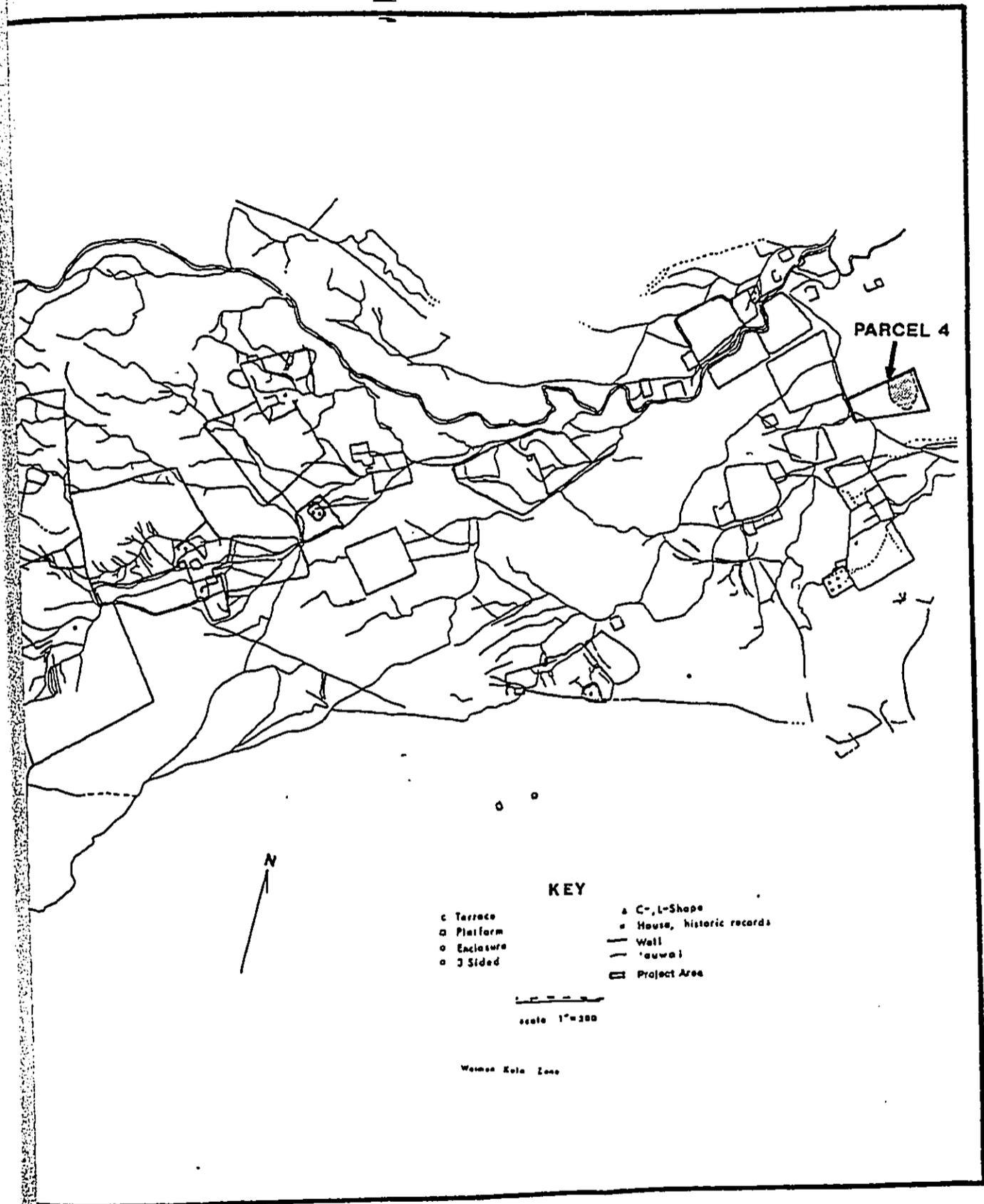


Figure A-4. Copy of Waimea Kula Zone map (From Clark 1987)



ne map (From Clark 1987; Fig.10.1)

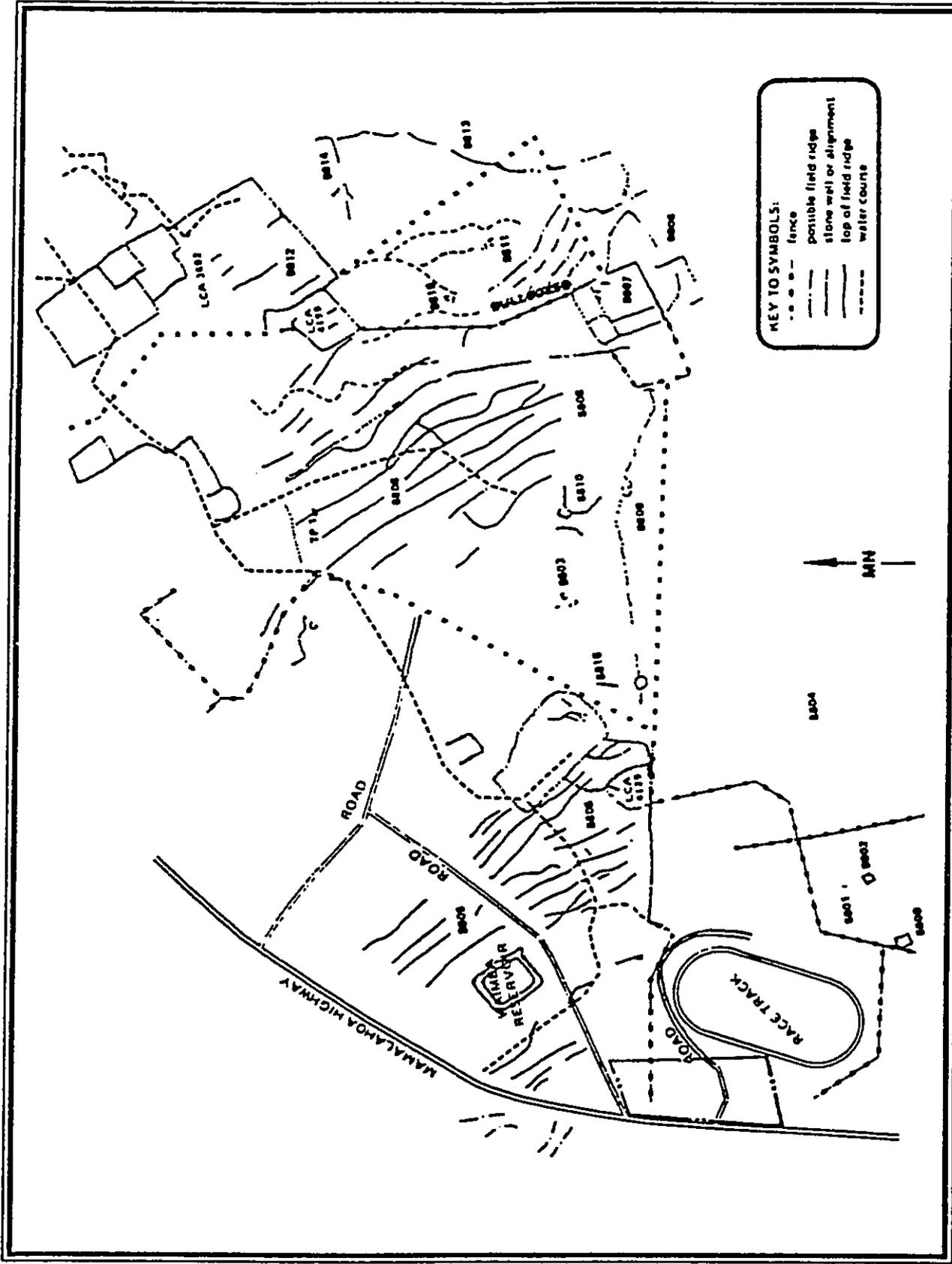


Figure A-5. Map of a Portion of Waimoa (From Clark 1987; Fig. 10.5)

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Environmental Assessment
Waimea Elderly Housing Project
Puukapu, South Kohala, Hawaii

APPENDIX B

U.S Department of Housing and Urban Development
Environmental Review Requirements

**Environmental Assessment
For Actions That Do Not Require an EIS
Under NEPA or Local Legislation**

I. HUD/State Data

A. Name of Project: Waimea Elderly Housing Project.

B. Type of Action: Agency (Implementing)

Office of Housing and Community Development
50 Wailuku Drive
Hilo, Hawaii 96720

C. Approving Agency:

Office of the Major
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

D. Environmental Assessment Prepared by:

William L. Moore Planning
and
Virginia Goldstein

II. Description of Proposed Action

A. Proposed Activity

- Single Activity
 Aggregation of Activities
 Multi-Year Activity

B. Proposed Action

See State Environmental Assessment

C. Basic Data:

Geographic Area:	Puukapu, South Kohala, Hawaii
Tax Map Key:	6-7-02: por. of 17
Land Area:	Approximately 5 acres
Landowner:	Richard Smart Revocable Trust (Fee Owner) Big Island Housing Foundation (Purchase Option)
State Land Use:	Urban
General Plan:	Medium Density Urban Development

Zoning: Agriculture-40 acre (A-40a)
Existing Land Use: Pasture
Surrounding Uses: Residential/Pasture/Community Uses
Census Tract: 217

III. ENVIRONMENTAL ASSESSMENT PREPARED FOR COMPLIANCE WITH HUD REQUIREMENTS AND ENVIRONMENTAL REVIEW REQUIREMENTS OF OTHER LEVELS OF GOVERNMENT AS FOLLOWS:

- A. State of Hawaii, Supplemental Form EA-S-SOH
- B. Guam, Supplemental Form EA-S-Guam
- C. Northern Mariana Islands Supplemental Form EA-S-NMI
- D. Trust Territories of the Pacific Form ES-S-TTPI
- E. America Samoa, Supplemental Form ES-S-ASG

IV. FINDINGS AND CONCLUSIONS RESULTING FROM THE ENVIRONMENTAL REVIEW

- A. Environmental Finding:
- Finding of No Significant Impact on the Environment (FONSI)
 - An Environmental Impact Statement is required.

- B. Agencies/Interested Parties Consulted:

(See Environmental Assessment)

- C. Alternatives Considered: None.

- D. Special Conditions Imposed or Action Taken to Achieve Compliance with HUD or Local Policies and Standards:

An auwai associated with the Waimea Agricultural District, an archaeological complex of irrigated agricultural field systems, was located just outside the project boundaries (See Appendix A). However, because of the proximity of this site to the project area, interim protection of the auwai is recommended to be provided and that monitoring for possible sub-surface features be conducted during construction.

- E. Finding of No Significant Impact on the Environment and Request Release of Funds (Combined Notice):

1. Date FONSI/RPOF published in local newspaper: _____
2. Last day for recipient to receive comments: _____
3. Last day for HUD to receive comments: _____
4. Date FONSI transmitted to Federal, State, or local governmental agencies or interested groups or individuals: _____

5. Date HUD released grant conditions: _____

F. Negative Declaration (Hawaii Only):

1. Date Negative Declaration published in OEQC Bulletin: Not applicable (See EA-S-OH, Page ____).
2. Date on which 60-day waiting period expires: _____
3. Documentation Attached: ___ Yes ___ No.

V. IMPACT CATEGORIES

Rating of Environmental Factors:

- Rating 1 - Potentially Beneficial Impact.
Rating 2 - No Impact Anticipated.
Rating 3 - Minor Adverse Impact Anticipated.
 a. Short Term
 b. Long Term
Rating 4 - Adverse Impact Requires Mitigation.
Rating 5 - Adverse Impact Requires Modification to Project/Activity

A. Land Development:

1. Conformance with Comprehensive Plans and Zoning:
and
2. Compatibility and Urban Impact.

The Waimea Elderly Housing Project involves the construction of approximately forty-units of housing. These units will be rented to qualified elderly individuals and couples. Rents will be subsidized, depending on the income levels of the renters. The project is consistent with the County General Plan which designates the area for Medium Density Urban Development. The site is well served by existing utilities and facilities and is near the Lucy Henriques Medical Center. The project supports both State and County housing goals by providing safe, sanitary and liveable housing for the residents of the County.

Rating: 1 - Potentially Beneficial Impact.
References: Hawaii County General Plan
State Housing Functional Plan.

3. Slope

The existing project area is situated on gently sloping land. Consequently, the existing terrain

will not impact the proposed project.

Rating: 2 - No Impact Anticipated.
References: Project Plans
Topographic Maps

4. Erosion:

Soils in the subject area are in the Waimea Soil series. Waimea soils are well drained with slight erosion hazards. Consequently, there is minimal possibility of erosion.

Rating: 2 - No Impact Anticipated.
References: Soil Conservation Service Soil Survey

5. Soil Suitability:

The Waimea soils are suitable for foundations for low buildings.

Ratings: 2 - No Impact Anticipated.
References: Soil Conservation Service Soil Survey

6. Hazards and Nuisances, Including Site Safety:

The Island of Hawaii is susceptible to three types of natural hazards: tsunami, vulcanism, and seismic activity. The site is not within a tsunami inundation area and is in a region where the risk of volcanic eruption is low. With respect to seismic activity, the entire island is placed in Zone III of which Zone IV is considered greatest risk.

Rating: 2 - No Impact Anticipated
References: U.S.G.S. Hazard Map
Uniform Building Code

7. Energy Consumption:

The project involves the construction of a forty-unit elderly housing project. The area is presently served by electrical transmission lines along Kamamalu Street. Any additional demand can be provided through the existing system.

Rating: 2 - No Impact Anticipated.
References: Parker 20/20
Change of Zone Application

B. Environmental Design and Historic Values:

1. Visual Quality - Coherence, Diversity, Compatible Use, and Scale:

The elderly project will consist of single story wood framed structures that will blend with the existing neighborhood. Consequently, the project is not anticipated to have any adverse impact on the visual quality of the surrounding community.

Rating: 2 - No Impact Anticipated.
References: Project Plans
Waimea Village Urban Design Plan

C. Socioeconomic:

1. Demographic/Character Changes; and
2. Displacement; and
3. Employment and Income Patterns:

The project is currently vacant of any residential use. The project will provide forty elderly housing units serving the Waimea area. There are currently not affordable elderly projects in this area, requiring residents to relocate to another area if they require such housing. This project will allow the existing residents of Waimea and South Kohala to find housing options within this area. Consequently, by developing this project, not only will elderly residents of the district have increased affordable housing opportunities, it may free up additional housing stock as the elderly move from their existing houses into the project.

Rating: 1 - Potentially Beneficial Impact
References: Project Plans
OHCD Housing Assessment

D. Community Facilities and Services:

1. Educational Facilities:
2. Commercial Facilities
3. Health Care
4. Social Services
5. Solid Waste
6. Waste Water
7. Water Supply

8. Public Safety
 - a. Police
 - b. Fire
 - c. Emergency Medical
9. Open Space and Recreation
 - a. Open Space
 - b. Recreation:
 - c. Cultural Facilities
10. Transportation

The project is part of the existing Waimea Village which has an estimated population in excess of 6,000. The project area is adjacent to the Waimea Civic Center, including the police and fire station and is near the Lucy Henriques Medical Center and shopping areas. The project site is currently served by all the necessary utilities and facilities necessary for this project. As part of it proposed Waimea Village expansion (Parker 2020 project), Parker Ranch will be realigning Kamamalu Street and constructing an alternative by-pass to the Hawaii Belt Road. This road improvement will provide additional access alternatives to the project site.

Rating: 2 - No anticipated Impact
Reference: Parker 2020 Project Plans
Waimea Elderly Project Plans

E. Natural Features:

1. Storm Water
2. Water Resources
3. Surface Water:

There are no perennial streams within the study area, although an intermittent drainage channel lies immediately to the north of the project area. At the intersection of the drainage channel and Kamamalu Street, a small triangular portion of the parcel at the north east corner of the project site is designated as "AE" on the FIRM map. Design elevations for this portion range between 2217 and 2724 feet. The remainder of the project area is designated "X" or outside of the 500 year flood plain.

Although a small portion of the parcel has been identified as being within a flood plain, all structures will be located within the larger portion of the site outside the 500 year flood plain boundary. Any increase

in run-off resulting from this projected will be contained on-site. Consequently, no adverse impacts are anticipated.

Rating: 2 - No Impact Anticipated.

Source: Department of Public Works
Project Plans and Survey Maps
County of Hawaii Flood Regulations

F. Other Commentary/Discussion

There are no rare, threatened, or endangered species of plants and animals found on the project site.

ENVIRONMENTAL ASSESSMENT

FOR ACTIONS THAT DO NOT REQUIRE AN EIS UNDER NEPA OR LOCAL LEGISLATION

- I. 1. Name of Project/Activity Waimea Elderly Housing Project I.D. No. _____
2. Type of Action: ___ Applicant; X Agency (Office of Housing & Community Development) (Hawaii only)
County of Hawaii
Name of Applicant or Agency
3. Approving/Implementing Agency: Office of the Mayor, County of Hawaii
4. Head of Agency: (Authorized Signature) *Bill S. Nelson*
(Name, Title, Date)
5. Environmental Assessment Prepared By William L. Moore/Consultant 7/15/92
Agency or Consultant/Name, Title, Date

II. DESCRIPTION OF PROPOSED ACTION(S)

1. Single Activity X; Aggregation of Activities ___; Multi-year Activities ___;
Development of 40 unit elderly housing project utilizing HUD section 202
Direct loan program and community development block grant funds
2. Project Location: Kamamalu Street, Puukapu, South Kohala, Hawaii
3. THK (Hawaii only): (3) 6-7-02: Por. of 17 Location Map Attached: X Yes; ___ No

III. ENVIRONMENTAL ASSESSMENT PREPARED FOR COMPLIANCE WITH HUD REQUIREMENTS AND ENVIRONMENTAL REVIEW REQUIREMENTS OF OTHER LEVELS OF GOVERNMENT AS FOLLOWS:

1. X State of Hawaii, Supplemental Form EA-S-SOH
2. ___ Guam, Supplemental Form EA-S-Guam
3. ___ Northern Mariana Islands, Supplemental Form EA-S-NMI
4. ___ Trust Territories of the Pacific Islands, Supplemental Form EA-S-TTPI
5. ___ American Samoa, Supplemental Form EA-S-ASG

IV. FINDINGS AND CONCLUSIONS RESULTING FROM THE ENVIRONMENTAL REVIEW: (To be prepared after environmental analysis is completed)

1. ENVIRONMENTAL FINDING:
X Finding of No Significant Impact on the Environment (FONSI)
 ___ An Environmental Impact Statement is required
2. Agencies/Interested Parties Consulted (Contact Person, Title, Tel. No., Date)
Department of Public Works (David Murakami, Engineer, 961-8327, 6/92)
Planning Department (Alice Kawaha, Planner, 961-8288, 6/92)
Department of Land and Natural Resources (Ross Cordy, Archaeologist, 587-0012, 6/92)
3. Alternatives Considered:
There are no reasonable alternatives to the project.
4. Special conditions imposed or actions taken to achieve compliance with HUD, other federal authorities or local policies and standards:
Because of the proximity of archaeological sites in the vicinity, monitoring for possible sub-surface features be conducted during construction by an archaeologist is recommended.
5. a. FINDING OF NO SIGNIFICANT IMPACT ON THE ENVIRONMENT AND REQUEST FOR RELEASE OF FUNDS (Combined Notice)
 (1) Date FONSI/RROF published in local newspaper _____
 (2) Last day for recipient to receive comments _____
 (3) Last day for HUD to receive comments _____
 (4) Date FONSI transmitted to Federal, State, or local governmental agencies or interested groups or individuals _____
 (5) Date HUD released grant conditions _____
- b. NEGATIVE DECLARATION (Hawaii only)
 (1) Date Negative Declaration Published in DEQC Bulletin _____
 (2) Date on which 60 day waiting period expires _____
 (3) Documentation attached: ___ Yes, ___ No

Impact Categories

1
Potentially Beneficial Impact
2
No Impact Anticipated
3
Short Term Adverse Impacts Anticipated
4
Long Term Adverse Impacts Anticipated
5
Adverse Impact Requires Mitigation
6
Adverse Impact Requires Mitigation to Protect/Restore

6

SOURCE DOCUMENTATION

- Agency or other contact:
 - List Name, Title, Tel. No., Date
- Reference Material (Reports, Studies, etc.)
 - List Title, Author, Date
 - Note if it is attached
- Field Observation
 - Note significant condition(s) that support conclusion of observation

Community Facilities and Services

Impact Category	1	2	3	4	5	6	Source Documentation
Educational Facilities	X						SEE ATTACHED
Commercial Facilities	X						" "
Health Care	X						" "
Social Services	X						" "
Solid Waste	X						" "
Waste Water	X						" "
Storm Water	X						" "
Water Supply	X						" "
Public Safety Police	X						" "
Fire	X						" "
Emergency Medical	X						" "
Open Space and Recreation							
Open Space	X						" "
Recreation	X						" "
Cultural Facilities	X						" "
Transportation	X						" "
Natural Features							
Water Resources		X					" "
Surface Water		X					" "

HISTORIC PROPERTIES: The National Historic Preservation Act of 1966 (P.L. 89-665; 16 U.S.C. 470); Preservation of Historic and Archeological Data Act of 1974 (P.L. 93-291) (16 U.S.C. 469); Executive Order 11593. Implementing Regulations: Protection and Enhancement of the Cultural Environment, 36 CFR Part 800 or 801 F.R. 1/30/79.

The site for the proposed action is not listed nor eligible for listing on the National Register of Historic Places based on: consultation with the SHPO; information checks with the Federal Register; local authorities and interest groups; field observation

Action is subject to compliance with Section 106 of the National Preservation Act of 1966. Compliance achieved on _____ (date), documentation attached.

FLOODPLAIN MANAGEMENT: Flood Disaster Protection Act of 1973 (P.L. 93-234) and implementing regulations; National Flood Insurance Program (44 CFR Parts 59-79); Executive Order 11988; Water Resources Council Guidelines on Implementing E.O. 11988; Section 404 of the Clean Water Act of 1977.

The project/activity is located outside of the 100 year flood hazard area identified by the FIRM or FIA Flood Hazard Boundary map panel number 155166 0168C and not subject to compliance with E.O. 11988.

The proposed action is located within the 100 year floodplain and compliance with E.O. 11990 is required. Documentation for compliance with the E.O. was completed on _____ (date) and is attached.

Proposed action requires construction or fill in waters of the U.S. or adjacent wetlands, Department of Army permit required (Section 404 of the Clean Water Act). Its issuance is contingent upon a federal consistency determination with the local Coastal Zone Management Program.

Flood insurance required. Policy issued to: _____

WETLANDS PROTECTION: Executive Order 11990; Water Resources Council Guidelines for Implementing E.O. 11988.

The proposed action is not within a wetland area nor will it have an adverse impact on an adjacent wetland area. This determination is made by: Field observation; consultation with the U.S. Corps of Engineers; Other _____.

The proposed action is located within a wetland or will impact on one nearby. Documentation for compliance with the E.O. was completed on _____ (date) and is attached. If action requires fill, a Department of Army Permit is required (Section 404 of the Clean Water Act). Its issuance is contingent upon a consistency determination with the local Coastal Zone Management Program. Copy of permit is attached.

Flood insurance required. Policy issued to: _____

COASTAL ZONE MANAGEMENT: Coastal Zone Management Act of 1972 (P.L. 92-583) (16 U.S.C. 1451, et seq.); Executive Order 11990; 15 CFR Part 930.

Not applicable to _____. (TT only) See HO-CZM87 Attached

The proposed action is consistent with the approved Coastal Management Program for the area. Consistency determination is attached.

The proposed action will have an impact on the coastal area which required a permit from the _____ agency/department. The permit was issued on _____ (date) and a copy is attached.

ENDANGERED SPECIES: The Endangered Species Act of 1973 (16 U.S.C. 1531-1543) Section 7; 50 CFR Part 402.

The proposed action will not affect any endangered species of plants or animals, nor any critical habitat. This determination was made based on: consultation with U.S. Fish and Wildlife Service (FWS); consultation with local authority _____ (Dept./Agency); Field Observation.

Formal Consultation required with the U.S. FWS under Section 7 (16 U.S.C. 1536). Compliance achieved on _____ (date) documentation attached.

FARMLANDS PROTECTION: Farmland Protection Policy Act of 1981 7 U.S.C. 4201, et seq.; 7 CFR Part 658 (Subtitle I of the Agriculture and Food Act of 1981).

The proposed action will not adversely impact prime or unique farmland nor farmlands designated as important by State and Local Government that have been approved by the Secretary of Agriculture. This determination was made by: review of local land use plans; consultation with the District Conservationist, SCS, USDA; Field Observation.

The proposed action impacts on agricultural lands however mitigative measures were identified in the attached analysis in accordance with 7 CFR Part 658. Compliance achieved on _____ (date). Documentation attached.

AIR QUALITY: Clean Air Act (P.L. 90-148) (42 U.S.C. 7401-7642) as amended; applicable EPA implementing regulations; Volume 1 Guide for Rapid Assessment of Air Quality at Housing Sites by R.M. Thullier, May 1978 and HUD Form #1, Rapid Evaluation Procedure for Carbon Monoxide Concentrations.

Project/activity is located within an attainment area in accordance with the State Implementation Plan; is not located near a power plant or sugar mill; and is not adjacent to a traffic thoroughfare that generates CO concentrations in excess of the 8 hour standard of 10 mg/m³ at project site.

Project/activity is located within a non-attainment area and/or is exposed to air pollutants that threatens the federal air quality standard for _____ (pollutant). Analysis and recommendations for clearance is attached.

WATER QUALITY: Federal Water Pollution Control Act (P.L. 92-500) as amended (33 U.S.C. 1251-1376), the Safe Drinking Water Act of 1974 (P.L. 93-523) as amended (42 U.S.C. 300f-300j-10); particularly section 1424(e)(42 U.S.C. 300h-303(e)).

Project/activity does not impact a sole source aquifer designated by EPA in accordance with Section 1424(e) of the Safe Drinking Water Act of 1974, as amended.

Project/activity is located within the Northern Groundwater Aquifer on Guam. Guam EPA has reviewed proposal in accordance with MOU between HUD, U.S. EPA, Guam EPA and GMURA. Their recommendation for clearance is attached. (Activities on Guam only)

NOISE: Noise Control Act 42 U.S.C. 4903; 24 CFR Part 51 Subpart B: Noise Abatement and Control; HUD Noise Assessment Guidelines March 1984.

Project/activity is not subject to current or projected noise levels that exceed 65 LDN as determined by: a site inspection; an evaluation using HUD Noise Assessment Guidelines; or other acoustical data (_____)

Project/activity requires mitigative action to comply with 24 CFR Part 51B Noise Abatement and Control. Report prepared by _____, consultant, outlines mitigative measures for compliance with HUD standards. Copy attached.

THERMAL/EXPLOSIVE HAZARDS: 24 CFR Part 51 Subpart C - Environmental Criteria and Standards; Siting of HUD-Assisted Projects Near Hazardous Operations Handling Petroleum Products or Chemicals of an Explosive or Flammable Nature.

Project/activity is not subject to hazards from explosive or flammable fuels or other hazardous chemicals based on site inspection and information on file.

Project/activity is subject to hazards from explosive or flammable fuels or other hazardous chemicals. Evaluation of these hazards and recommended mitigative measures are: included in attached study; mitigative measures will be incorporated into project design.

CLEARZONES AT AIRPORTS: 24 CFR Part 51 Subpart D - Siting of HUD Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields.

Project/activity is not located in or near a Clear Zone at a civil or military airfield nor in or near an Accident Potential Zone at a military airfield.

Project/activity is located within an existing or future Clear Zone or Accident Potential Zone. Approval of proposed action is consistent with Part 51.302, 51.303 and 51.305(b). Documentation attached.

SOLID WASTE DISPOSAL: Resources Conservation and Recovery Act (42 U.S.C. 6901-6987); 40 CFR Part 250.43-1.

Project/activity does not involve the disposal of hazardous materials nor siting of sanitary landfills or closing of open dumps.

Project/activity is subject to provisions of EPA Guidelines; Documentation of evaluation and coordination with EPA attached.

TOXIC CHEMICALS & RADIOACTIVE WASTES: HUD Notice 79-33, September 10, 1979 Policy Guidance to Address the Problems Posed by Toxic Chemicals and Radioactive Materials

Project/activity is not affected by toxic chemicals or radioactive material based on: site inspection; information check with local Health Dept.; other source

Project/activity's site was suspected of containing toxic chemicals or radioactive materials. HUD and local responsible agency contacted. Evaluation of hazard was made in accordance with Notice 79-33 and found acceptable. Documentation attached, Yes, No.

Grantees are advised not to utilize CDBG funds on activities supporting new development for habitation at locations affected by toxic chemicals and radioactive materials.

Other policies, standards or guidelines used in preparing the environmental analysis

Cumulative Impacts: _____

OTHER ENVIRONMENTAL REVIEW REQUIREMENTS

STATE OF HAWAII

Review each of the rules or standards listed below and check and/or complete the statement that applies. The completion of the form and signature at the bottom will provide evidence that the proposed action is consistent with Hawaii's environmental regulations and standards.

1. Chapter 343 HRS Environmental Impact Statements
2. Act 282, Private Waste Water Treatment Plants, Session Laws of Hawaii, 1985
3. Title 11, Administrative Rules, State of Hawaii, Department of Health
 - a. Chapter 42, Vehicular Noise Control for Oahu
 - b. Chapter 43, Community Noise Control for Oahu
 - c. Chapter 54, Water Quality Standards
 - d. Chapter 55, Water Pollution Control
 - e. Chapter 59, Ambient Air Quality Standards
 - f. Chapter 60, Air Pollution Control

It has been determined that the proposed action requires compliance with one or more of the above regulations which include _____
Appropriate permits for clearance on the above regulations were obtained on _____ (Date).

The proposed action is consistent with the regulations listed above and no permits are required.

Certified By: William L. Moore / Planner
Name/Title

2/15/92
Date

